



PCS v2.3

User Guide

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Getting Started

American Innovations PCS software allows you to manage your corrosion program across your entire network with a single, integrated system that captures, analyzes, and reports on critical pipeline and facility data.

Before using PCS 2.3, refer to the topics in this section. If you need additional assistance, contact the AI Support team.

The information in this section is intended for all PCS users and the PCS system administrator.



This chapter includes the following topics:

- [Start PCS on page 1](#)
- [Activate Bridge Import for Operation on page 2](#)
- [Activate Telluric Compensation on page 4](#)
- [System Overview on page 4](#)
- [Modules and Related Options on page 5](#)
- [System Recommendations on page 7](#)
- [View Information About PCS on page 9](#)
- [Technical Support on page 10](#)

Start PCS

The Windows user name and password of the person currently logged into the computer is used to start the software and log into the database. If PCS is set up with the security option *Requires Windows Password*, a password is required to log into the database. See [Set Options on page 21](#) for more information.

Complete the following steps to start PCS:

1. Double-click the PCS desktop shortcut  or click the Windows **Start** button and select PCS to start the software.
2. If the *Login* window opens, type your Windows password in the **Password** field and then click the  icon to start the software.

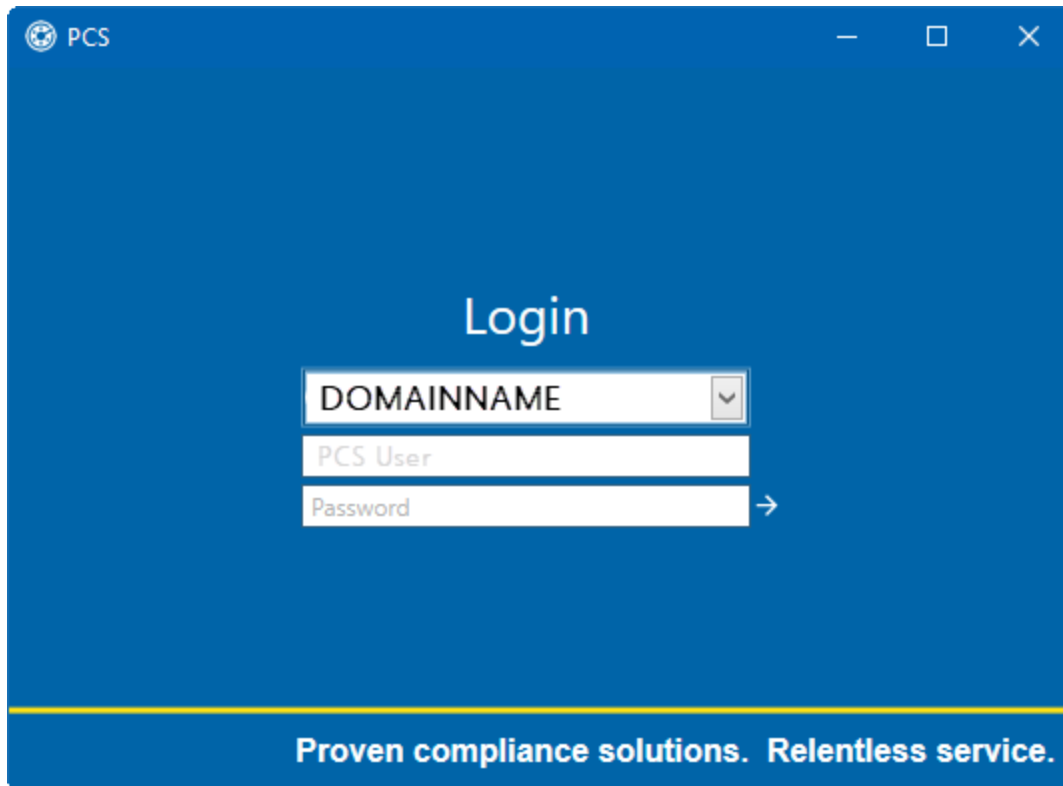


Figure 1-1. Login

Activate Bridge Import for Operation

If your company purchased the optional Bridge add-on for importing raw data from a third-party application, running a Basic Bridge import for the first time requires you to activate Bridge using the license file provided by American Innovations (AI). A Bridge license is required only for those operations that use the Basic Bridge function to import data.

Operations using the Bullhorn Bridge function to import data do not require a Bridge license. Likewise, using Bridge to export data from PCS also does not require a Bridge license.

The Bridge license becomes part of the PCS database during the activation process, which allows a single license to apply to all PCS users in your company.

If you are unable to locate your Bridge license file, contact Technical Support for assistance at support@aiworldwide.com.

Complete the following steps to activate Bridge import for operation:

1. Start PCS if the software is not running.
2. Click **Tools > Job Service Viewer** in the header bar to open the *Job Service Console* window.

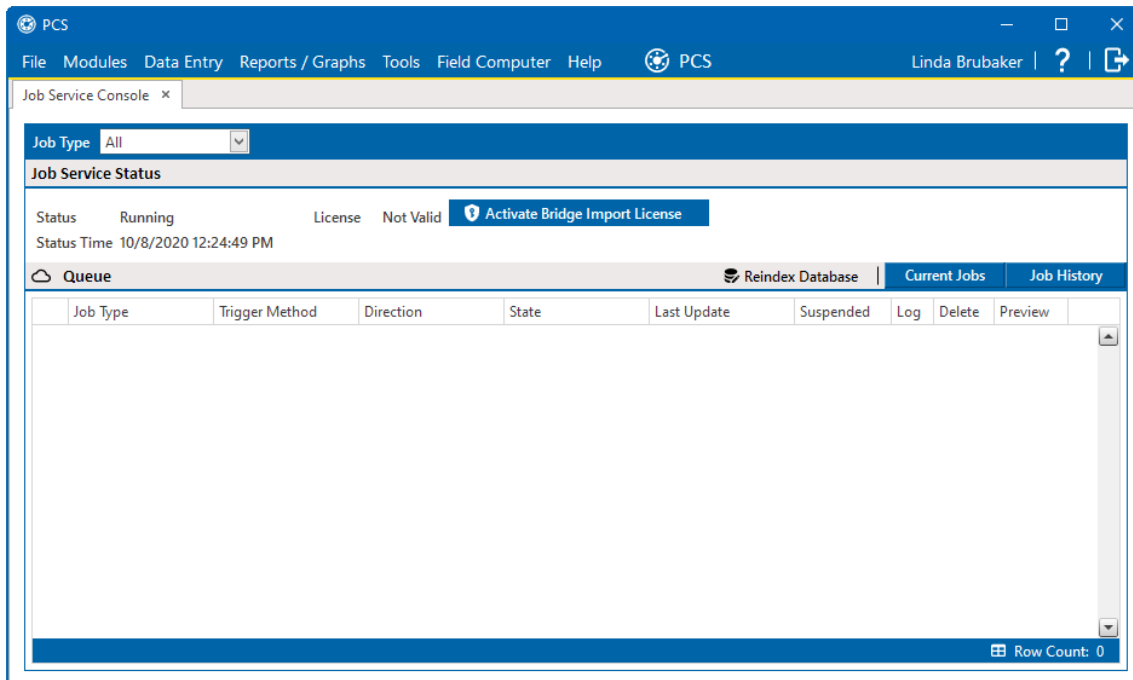


Figure 1-2. Job Service Console

3. Click **Activate Bridge Import License**. When the *Activation Key* window opens, navigate to the license file and select it.
4. Click **Open** to open the license file and return to the *Job Service Console* window.
5. Verify that **Running** displays in the **Status** field and **Valid** displays in the **License** field. If these messages are not currently displayed, please contact Technical Support for assistance at support@aiworldwide.com.

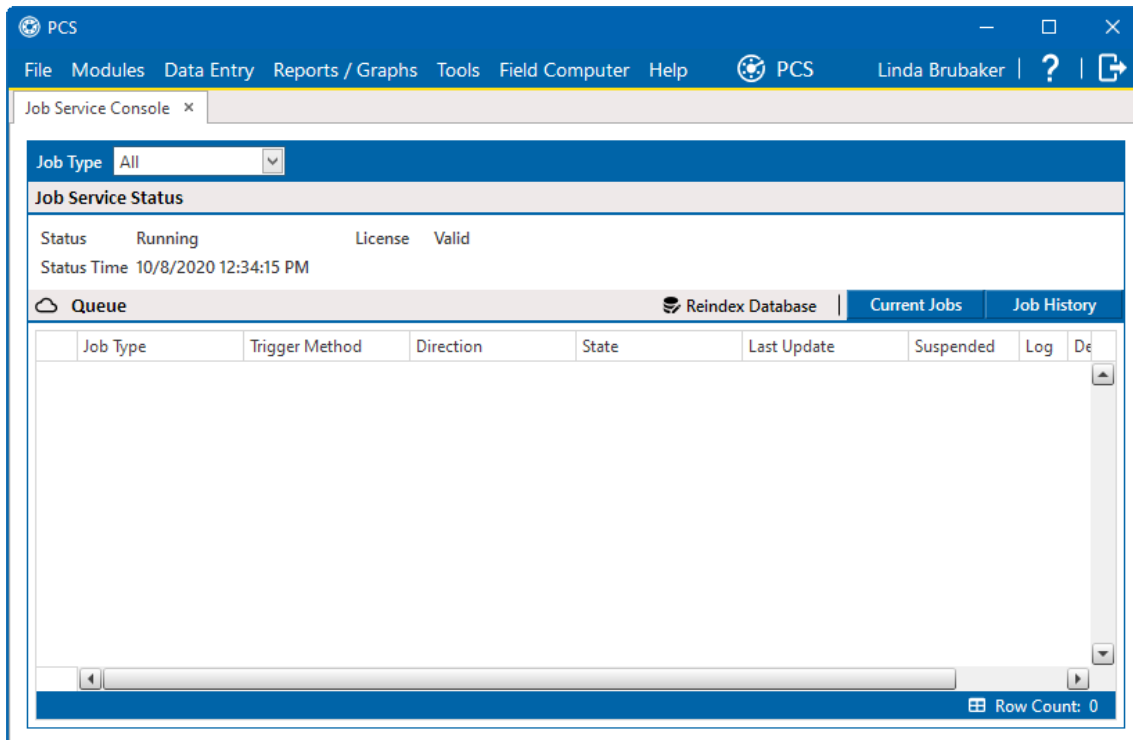


Figure 1-3. Valid Bridge License

Activate Telluric Compensation

If your company purchased the optional Telluric Compensation feature, it becomes operational after activating your PCS license during the software installation process.

Customers with an existing PCS license who want to use Telluric Compensation will need a new PCS license and software upgrade. For more information about upgrading your PCS license, contact [Technical Support on page 10](#).

System Overview

PCS is a database application used worldwide by distribution and transmission companies to manage pipeline compliance and integrity data. The application uses a SQL server database to store and manage data for one or more modules. All modules share a common interface that allows users to easily work with data regardless of which module they use. Modules are based on common industry practices and various Department of Transportation (DOT) regulations. These include DOT 192 titled *Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Standards Safety* and DOT 195 titled *Transportation of Hazardous Liquids by Pipeline*.

The PCS database is fully ODBC compliant allowing for integration with other databases, such as GIS (geographic information system) and ERP (enterprise resource planning) databases.

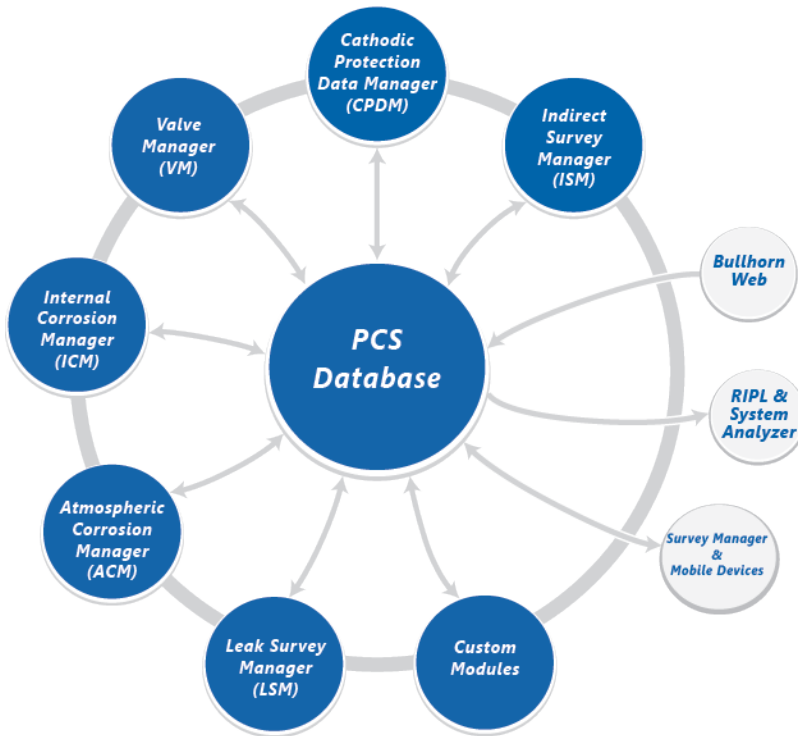


Figure 1-4. PCS System Overview

Modules and Related Options

PCS modules are purchased either separately or as a package. Modules and related options, such as Bridge Import and Telluric Compensation, become operational after entering the software activation key provided by American Innovations (AI).

Table 1-1. Modules and Related Options

Modules/Related Options	Description
Cathodic Protection Data Manager (CPDM)	CPDM manages cathodic protection (CP) data for facility types such as test points, rectifiers, foreign bonds, galvanic anodes, and tanks. Distribution and transmission companies use this module to manage and track corrosion data as well as other types of corrosion-related data.
Indirect Survey Manager (ISM)	ISM manages and analyzes survey data for above ground continuous surveys (also referred to as indirect surveys). You can enter survey readings manually or use the Allegro field computer or mobile device or PCS Bridge to transfer survey readings in ISM. The types of continuous surveys supported in ISM include: Close Interval Survey (CIS), AC Close Interval Survey (AC CIS), DC Voltage Gradient (DCVG), AC Voltage Gradient (ACVG), AC Current Attenuation (ACCA), Soil Resistivity, and ILI.
Atmospheric Corrosion Manager (ACM)	ACM manages atmospheric corrosion data as required by US DOT 192 and 195 regulations.
Valve Manager (VM)	VM manages valve inspection and repair data. The module provides compliance scheduling, data management, and reporting of valve information.
Internal Corrosion Manager (ICM)	ICM tracks internal corrosion data in compliance with US DOT 192 and 195 regulations. ICM supports facility types such as inhibitor injectors, coupons, samples, and probes.
Leak Survey Manager (LSM)	LSM manages and provides compliance scheduling for leak surveys, classifies leaks and repair data, and supports follow-up activities.
Custom Module Management (CMM)	CMM is an optional module available for purchase that becomes operational after activating your PCS license. PCS supports up to ten (10) user defined modules with each module supporting up to ten (10) user defined facility types. Features and functionality available in the various modules distributed with PCS are also available in CMM. These include routes, schedules, reports/graphs, user defined fields (UDFs), themes, and so on.

Table 1-1. Modules and Related Options cont'd

Modules/Related Options	Description
Bridge Import	An optional feature available for purchase that requires a Bridge activation key for use. This feature allows you to transfer data between PCS and an external system, such as Bullhorn Web or a GIS or work management system.
Telluric Compensation	An optional feature available for purchase that becomes operational after applying your PCS license. This feature provides support for telluric current compensation of survey readings and management of stationary survey data used in telluric compensation. PCS enhancements for telluric compensation include CPDM, ISM, Stationary Survey Maintenance, Field Computer, and Reports/Graphs.

System Recommendations

The system specifications that the server, job service, and client machines require will vary depending on the size of your database, the amount of data that is to be accessed on the machines, and the number of simultaneous client-server connections. The following are the minimum specifications we recommend for the server and client machines with a basic setup. Your company's configurations may require additional RAM, more powerful processors, or more disk space.

Server System Recommendations

Table 1-2. Dedicated Central Database Server Recommendations

Properties	Recommended
Processor	Intel Xeon
Processor Speed	2 Quad Core CPUs at 2.4 GHz or better
RAM	32 GB
Operating System	Windows Server 2016
Relational Database Software	SQL Server 2017

Notes:

- **RAM** – for optimal performance, additional RAM may be required for larger databases or if a large number of clients will connect to the PCS database at the same time.
- **Disk Space** – consult with your company's IT personnel or DBA to determine where database backups will be created.

Job Service System Recommendations

Table 1-3. Job Service Dedicated Machine Recommendations

Properties	Recommended
Processor	Intel Core i7
Processor Speed	2.3 GHz or better
RAM	8-32 GB *depends on the largest anticipated job size. See Table 1-4 .
Operating System	Windows Server 2016
Available Disk Space	720 MB
Microsoft .NET Framework	Version 4.6.2

Table 1-4. Job Service Memory Recommendations

Maximum Anticipated Job Size	Sample Job	Recommended RAM Size
Small – up to 8 million pieces of data	50 thousand rows, 125 columns	8 GB
Medium – up to 16 million pieces of data	100 thousand rows, 125 columns	16 GB
Large – up to 32 million pieces of data	250 thousand rows, 125 columns	32 GB

Notes:

- **Microsoft .NET Framework** – If the target computer does not have Microsoft .NET Framework v4.6.2 installed, the PCS installation automatically installs it for you. This feature requires an active Internet connection to complete the installation of .NET Framework.
- **RAM** – If a job has more data than the Job Service can handle efficiently, processing time increases dramatically.

Client System Recommendations

Table 1-5. Local Client Computer Requirements

Properties	Recommended
Processor	Intel Core i7
Processor Speed	2.4 GHz or better
RAM	8 GB
Operating System	Windows 10, 64-bit

Properties	Recommended
Available Disk Space	720 MB
Display Resolution	1920x1080
Microsoft .NET Framework	Version 4.6.2

Notes:

- **Microsoft .NET Framework** – If the target computer does not have Microsoft .NET Framework v4.6.2 installed, the PCS installation automatically installs it for you. This feature requires an active Internet connection to complete the installation of .NET Framework.
- **RAM** – 8 GB of RAM is sufficient for average use. However, if a client is accessing a large amount of data in PCS, additional RAM may be necessary to achieve optimal performance.

View Information About PCS

The PCS *About* window contains details about the specific installation of PCS on your computer, such as database connection, software application version, and build information (date and time). This information is useful when contacting AI Support.

Complete the following steps to view or share this information:

1. Click **Help > About PCS** to open the *About* window.

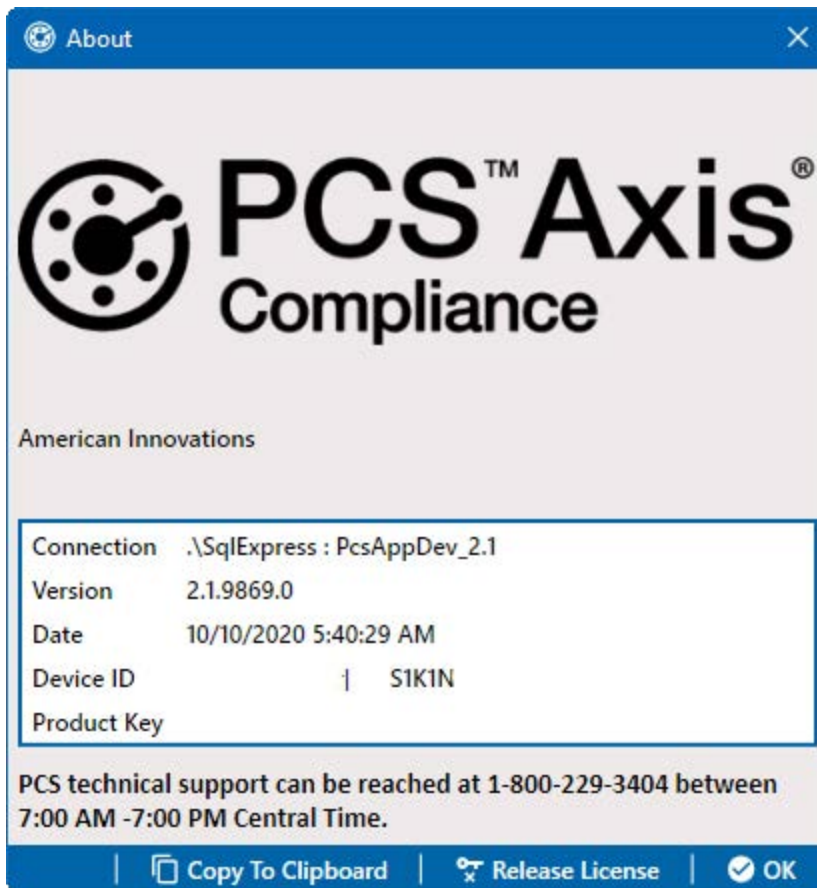


Figure 1-5. About PCS

2. Click **Copy To Clipboard** to copy the PCS connection and build information to the Windows clipboard. Paste the copied content into an email or another type of document, such as Microsoft Word, to store or share the information.

Technical Support

AI Support is available to provide assistance with PCS, accept feedback about PCS, or discuss your organization's training needs. Use the following information to contact AI Support:

Telephone:

1-800-229-3404

Email:

support@aiworldwide.com

Address:

American Innovations, Ltd.
Attn: AI Support
12211 Technology Blvd.
Austin, TX 78727

PCS Set Up

PCS modules share a common interface and many similar functions. This section includes topics and instructions on how to set up features that are common to all PCS modules.

If you are unable to access a PCS menu or perform a particular function, check with your system administrator to verify your PCS user account is set up with an appropriate user role.

This chapter includes the following topics:

- [Prepare to Set Up PCS on page 12](#)
- [A Typical PCS Workflow on page 14](#)
- [The System Hierarchy on page 15](#)
- [Set the System Hierarchy on page 16](#)
- [Set Up PCS on page 20](#)
- [Custom Security Roles on page 48](#)
- [Pipeline Series on page 143](#)
- [Manage Custom Modules and Facilities on page 151](#)

Prepare to Set Up PCS

After installing PCS, consider the following questions before you begin setting up PCS for operation. Answers to these questions determine how you set up PCS to fit your company's business needs.

How is your company's pipeline system organized?

- Pipeline companies organize their distribution or transmission pipeline system using certain terms to describe how the system is organized. For example, terms such as Right-of-way (ROW), Pipeline Segment, Section, Section Map, District, County, Region, or State may be used.

Setting up PCS for operation requires that you define a pipeline system hierarchy. PCS supports up to five (5) hierarchy levels and can be organized and named in the same manner as your company's pipeline system.

How does your company identify inspection points on a pipeline?

- A location name and location format must be set up for inspection points on a pipeline before users begin entering survey data in PCS. Once this information has been established, it is recommended that you do not change it in order to maintain data integrity.

When you first install PCS, default settings for location name and location format are *Milepost* and *Station Number* respectively. However you can change both of these to match your company's method for identifying inspection points on a pipeline.

What is your company's policy for scheduling surveys?

- Default settings in PCS for survey schedules and grace periods are based on current regulations. You can however edit these default settings to match your company's survey policies instead.

For example, the grace period for surveying long lines is three months. However your company's policy may be less than three months. When setting up PCS survey schedules, enter your company's grace period to ensure surveys are scheduled correctly.

Does your company want to use PCS security features?

- The **User Management** feature in PCS controls system security using a role based method. Each PCS user is assigned a user role. Users with *SysAdmin* security permissions have full control of the hierarchy and all system features. Users with *User* or *Read Only* security permissions have limited control.

For a list of user role permissions assigned to the *User* and *Read Only* user roles, refer to [System Security](#).

Will your company need unique data recorded in PCS?

- Although PCS provides many fields for entering data, you can create what is called a *User-Defined Field* (UDF) when a PCS field does not exist. Your company's data collection forms are a good place to gather data for a UDF you may want to create.

For example, if test points are identified by map numbers, create a UDF to be used for data entry of test point map numbers.

Will PCS themes need to be customized to fit your company's business needs?

- PCS uses themes for many operations, such as themes for data entry grids, sorting methods, filtering data, and field computer prompts. The PCS software installation includes several installed themes ready for use.

You can modify PCS installed themes and also add new themes to include only those features that fit your business needs. For example, you might want to include specific data fields for entering and viewing a particular type of survey data.

Do you want to set up picklists that allow users to choose from a list of acceptable choices when entering survey data?

- When a data entry field is limited to certain data, consider creating a picklist that includes only those items for selection, such as repair codes, priority levels, or status conditions.

For example, you may want to create a picklist with items for selection that identify insulator status as good, missing, and shorted. Picklists are helpful in reducing data entry errors by allowing users to select an item from a list of approved choices instead of entering data manually.

A Typical PCS Workflow

A typical workflow for working in PCS is shown in the figure below. Some operations are required and only occur once when setting up PCS, such as setting up system *Options* and *Edit ROW Detail* identified in the following figure. Others may occur more often as needed by PCS users with appropriate security permissions, such as adding or moving pipeline segments in the hierarchy; adding survey folders; customizing themes and reports; or creating routes and schedules for facility survey inspections.

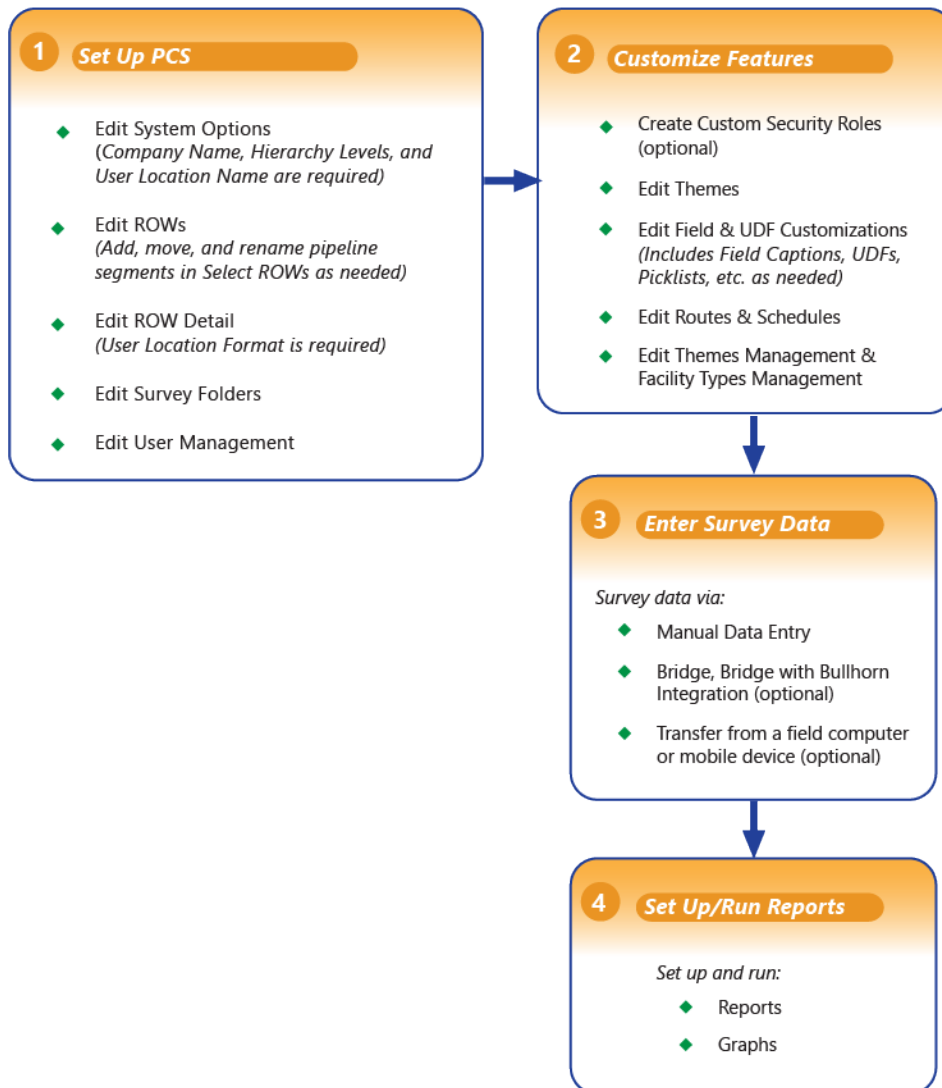


Figure 2-1. Typical PCS Workflow

The System Hierarchy

Before you begin entering data in PCS, you first need to establish the system hierarchy and enter your company's name. The hierarchy determines how PCS organizes data. The company name displays at the top of all reports and graphs.

You can create a hierarchy that reflects how your company categorizes its pipeline system. For example, you may want to create a hierarchy based on one or more of the following criteria: division, district, county, region, system, right-of-way (ROW), or section map.

PCS supports a hierarchy structure with up to 5 levels. The top hierarchy level includes either your company's name or other type of descriptor. The following figure shows a hierarchy structure with 3 hierarchy levels. The names of hierarchy folders as well as ROW Code and ROW name support up to 100 characters.

IMPORTANT: It is recommended that you do not change the hierarchy structure after entering data in the database.

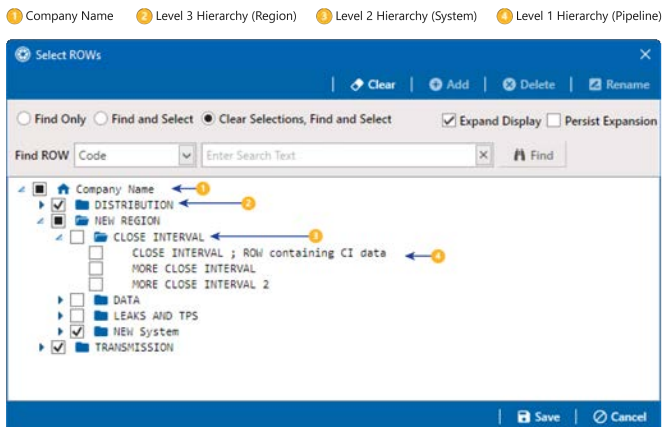


Figure 2-2. Example of Hierarchy Structure

Set the System Hierarchy

This procedure explains how to set up PCS with the following required system settings: your company's name, the number of levels in the system hierarchy, and a name for inspection points on a pipeline. A **Public** caption in this *Options* window indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

The required **User Location Format** setting in *Edit ROW Details* window will not be completed during the initial system set up. After adding pipeline records in the system hierarchy, the User Location Format can be configured for each pipeline record to identify how inspection points are located on a pipeline. For more information, see [Understanding Default Location Formats on page 191](#).

Complete the following steps to create the system hierarchy:

1. Click **Tools > Options** in the header bar to open the *Options* window.

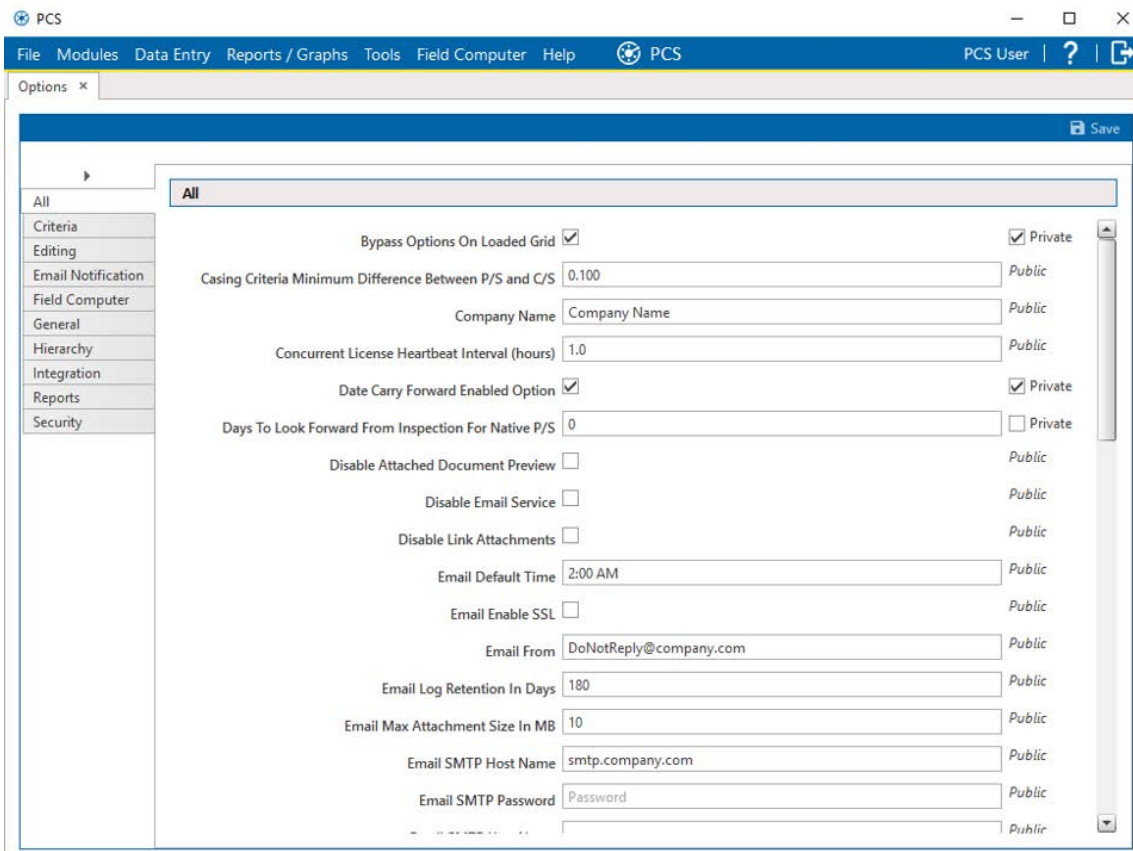


Figure 2-3. Options Window

2. Click the **General** tab on the left side of the window to open the *General* pane.

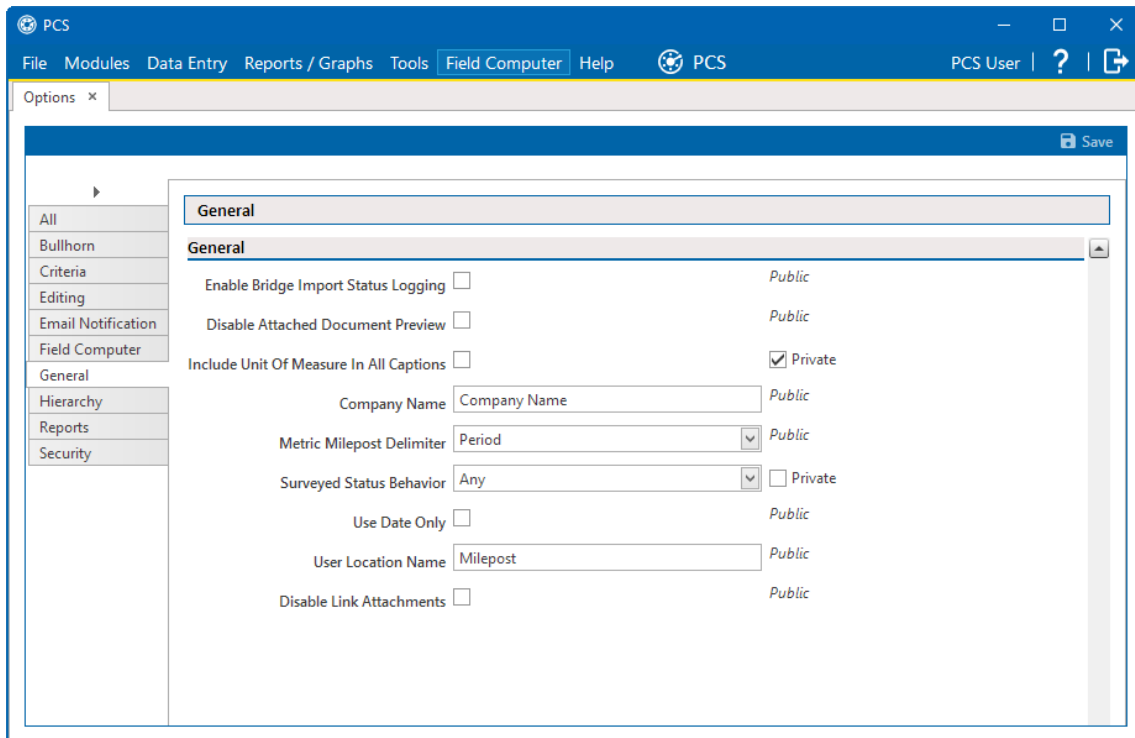


Figure 2-4. Options - General Pane

3. In the **Company Name** field, type the name of your company.
4. In the **User Location Name** field, enter an description of how your company refers to inspection points on a pipeline. For example, type **Milepost**, **Station Number**, **Reference Reading**, or other type of descriptor.
5. Click the **Hierarchy** tab to open *Hierarchy* pane.

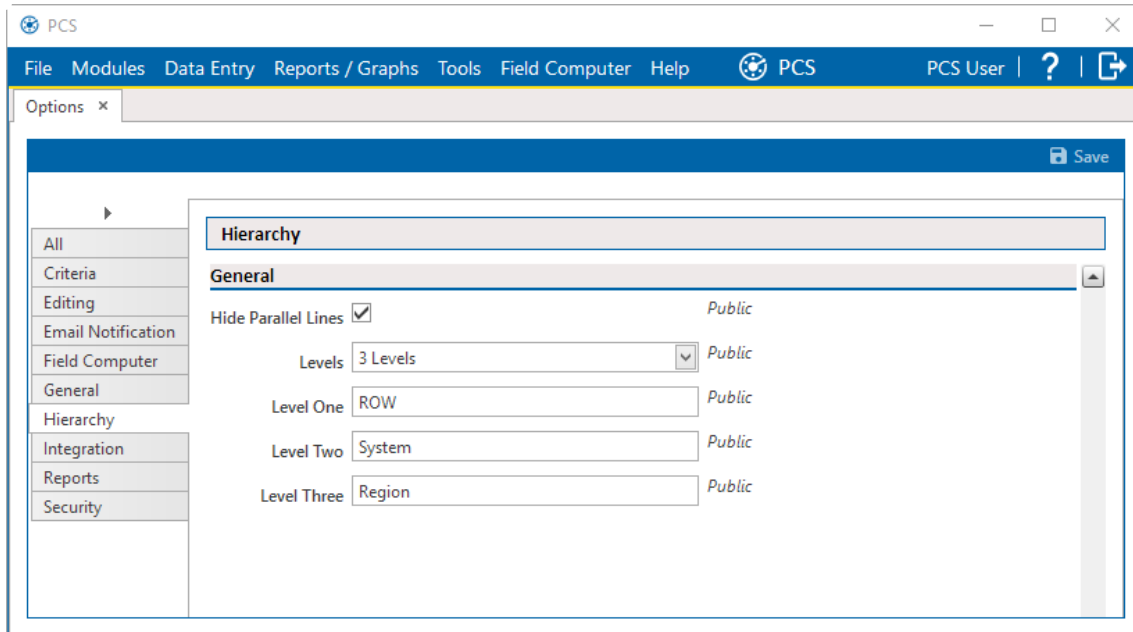



Figure 2-5. Hierarchy Levels

6. Select **Hide Parallel Lines** check box if you want to hide features in PCS that allow you to create and display parallel lines in the hierarchy.

When Hide Parallel Lines is enabled, parallel lines are hidden in *Select ROWs* and in the *Add New Node* windows. Distribution companies with no parallel lines typically use this setting. PCS identifies parallel lines using the Pipe, Pipeline Code, and Pipeline Name fields. For a description of these fields refer to [System Field Descriptions](#).

7. In the **Levels** field, identify how many levels to include in the hierarchy. Click the down arrow and select the number of hierarchy levels in the selection list. The pane updates to include level fields for the number of levels you selected. The example above shows the additional Level One, Level Two, and Level Three fields below the Levels field because **3 Levels** was selected for that field.
8. For each of the level fields below the **Levels** field, identify how pipelines are referred to in the system. For example, type `ROW` or `Segment` in the **Level One** field.
9. **(SysAdmin only)** For property settings accompanied by a **Private** check box, check or uncheck the check box based on your company's requirements. When the Private check box is checked, the currently logged in user can change the associated property setting. For more information, see [Public and Private Property Settings on page 20](#).
10. Click  **Save**.

Continue with [Set Up PCS](#) to complete the set up process.

Set Up PCS

PCS provides several property settings that allow you to customize the software according to your company's business needs. Other settings affect the functionality of certain PCS features. Information in this section explains how to set each of these property settings.

This chapter includes the following topics:

- [Public and Private Property Settings](#)
- [Set Options on page 21](#)
- [Custom Security Roles on page 48](#)
- [Set Properties in Field and UDF Customizations on page 56](#)
- [Using an Application Scheme, page 1](#)
- [Choosing a Printer for PCS on page 143](#)

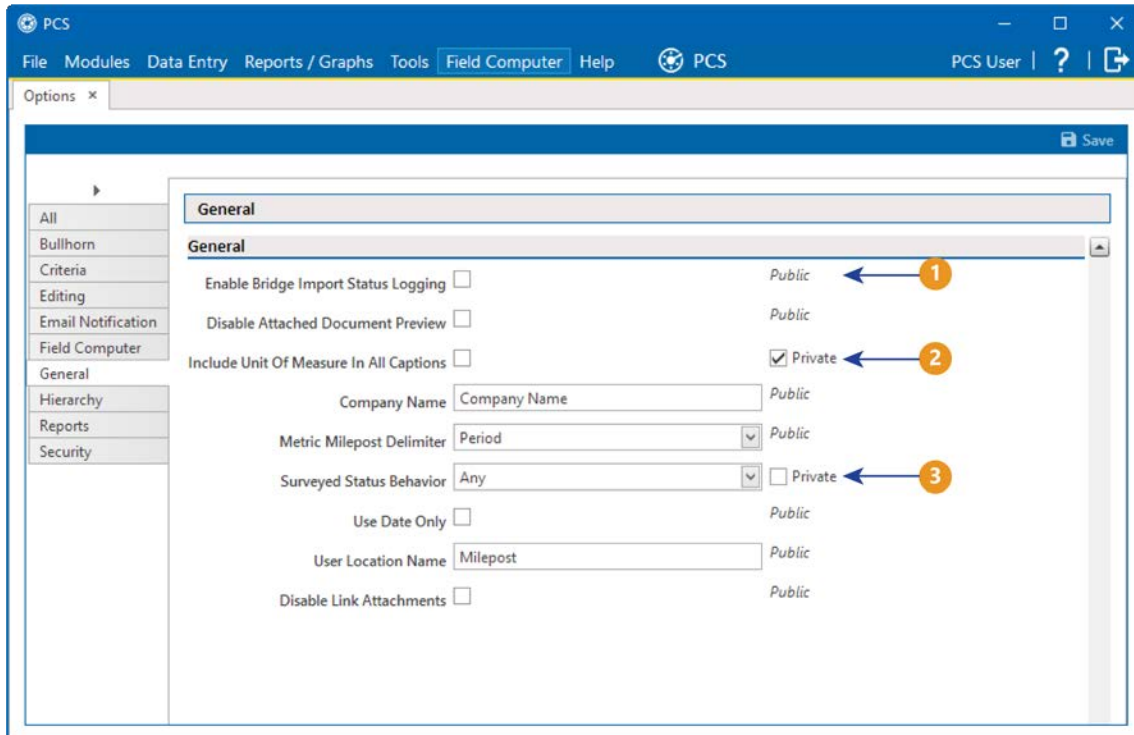
Public and Private Property Settings

Some property settings in Options, once configured, apply to all users, while others can be changed by an individual user for their login.

Property settings that include a **Public** caption can only be changed by a SysAdmin. The setting made by the SysAdmin applies globally to all users.

For property settings that include a **Private** check box, the SysAdmin can determine whether or not a general user can modify the property setting.

When the Private check box is checked, the currently logged in user can change the associated property setting. Changes are "private" and only apply to the logged in user who makes a change to the setting. If a Private check box is unchecked, the associated property setting made by the SysAdmin applies globally to all users and only the SysAdmin can change this value.



1 Public Caption

The associated property setting applies globally to all users and can only be changed by the SysAdmin.

2 Private Check Box Checked

Individual users can edit the associated property setting. Changes only apply to the logged in user who made the settings change.

3 Private Check Box Unchecked

The associated property setting applies globally to all users and can only be changed by the SysAdmin.

Figure 2-6. Options Public and Private Property Settings

Only a SysAdmin can see Private check boxes. For all other users, a **Private** caption displays next to the "private" and editable property settings. A **Public** caption displays for globally-applied settings.

Set Options

PCS uses property settings in the *Options* window to perform many functions across all modules, such as arranging data, performing calculations, generating reports, and allowing user-access to certain features. Required settings include **Hierarchy Levels**, **Company Name**, **User Location Name**, and **Criteria**. If optional add-ons have been purchased, such as Bridge or Bridge with Bullhorn integration, setting properties for these features are also required.

To access PCS settings in the *Options* window, click **Tools > Options** in the header bar. The *Options* window includes all PCS settings.

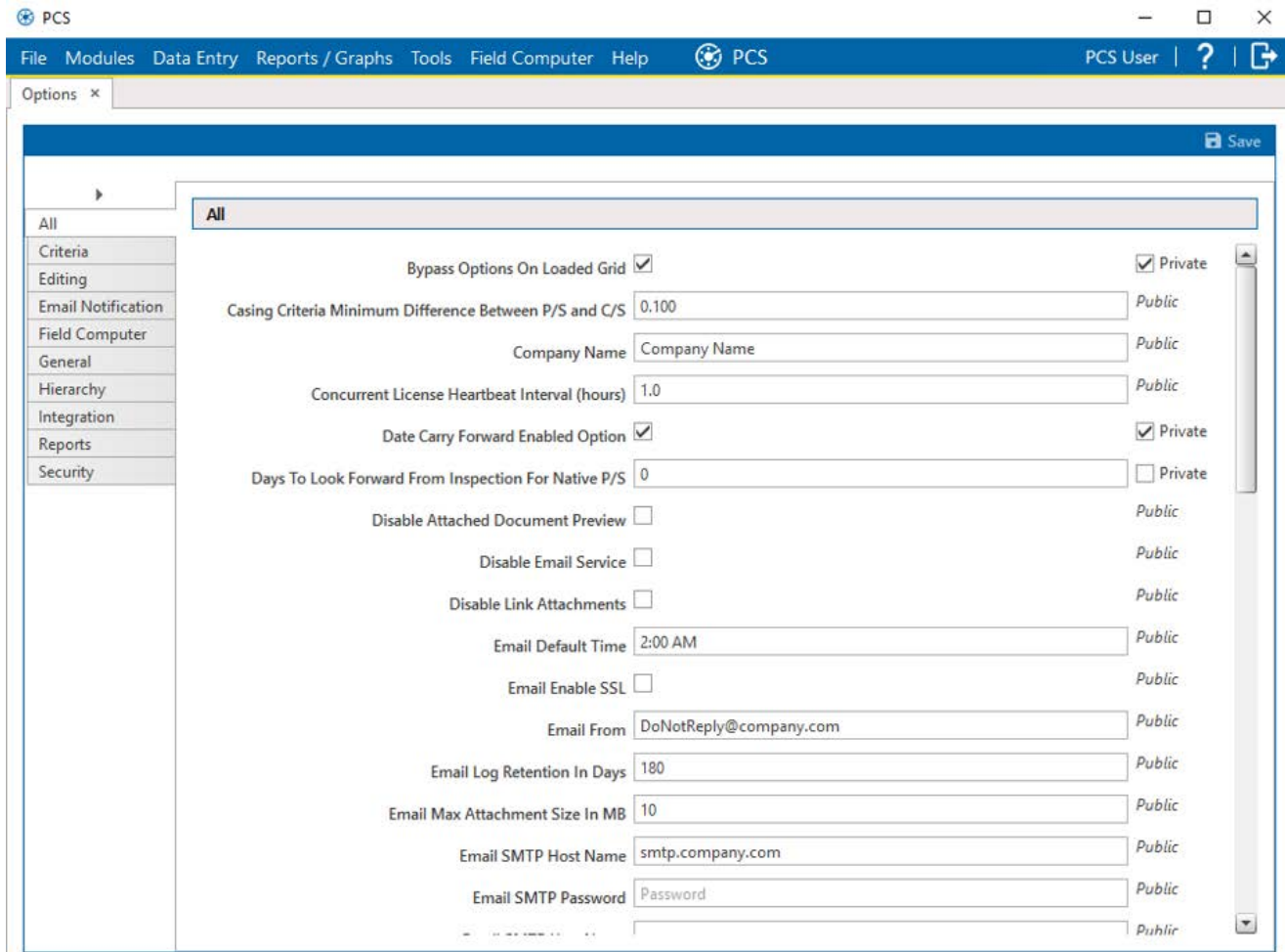


Figure 2-7. PCS Options

This chapter includes the following topics:

- [Set Criteria Options on page 23](#)
- [Set Editing Options on page 26](#)
- [Set Email Notification Options on page 30](#)
- [Set Field Computer Options on page 33](#)
- [Set General Options on page 35](#)
- [Set Hierarchy Options on page 38](#)
- [Set Integration Options on page 42](#)
- [Set Reports Options on page 44](#)
- [Set Security Options on page 45](#)

NOTE: A **Public** caption indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

(SysAdmin only) For options accompanied by a **Private** check box, check or uncheck the check box based on your company's requirements. When the **Private** check box is checked, the currently logged in user can change the associated property setting. For more information, see [Public and Private Property Settings on page 20](#).

Set Criteria Options

The *Criteria* pane of the *Options* window sets the following property settings:

- (if available) Telluric threshold
- days between an inspection reading and pipe-to-soil reading
- casing criteria

A **Public** caption in this pane indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

Complete the following steps to set the options shown in the *Criteria* window:

1. Click **Tools > Options** in the header bar to open the *Options* window.

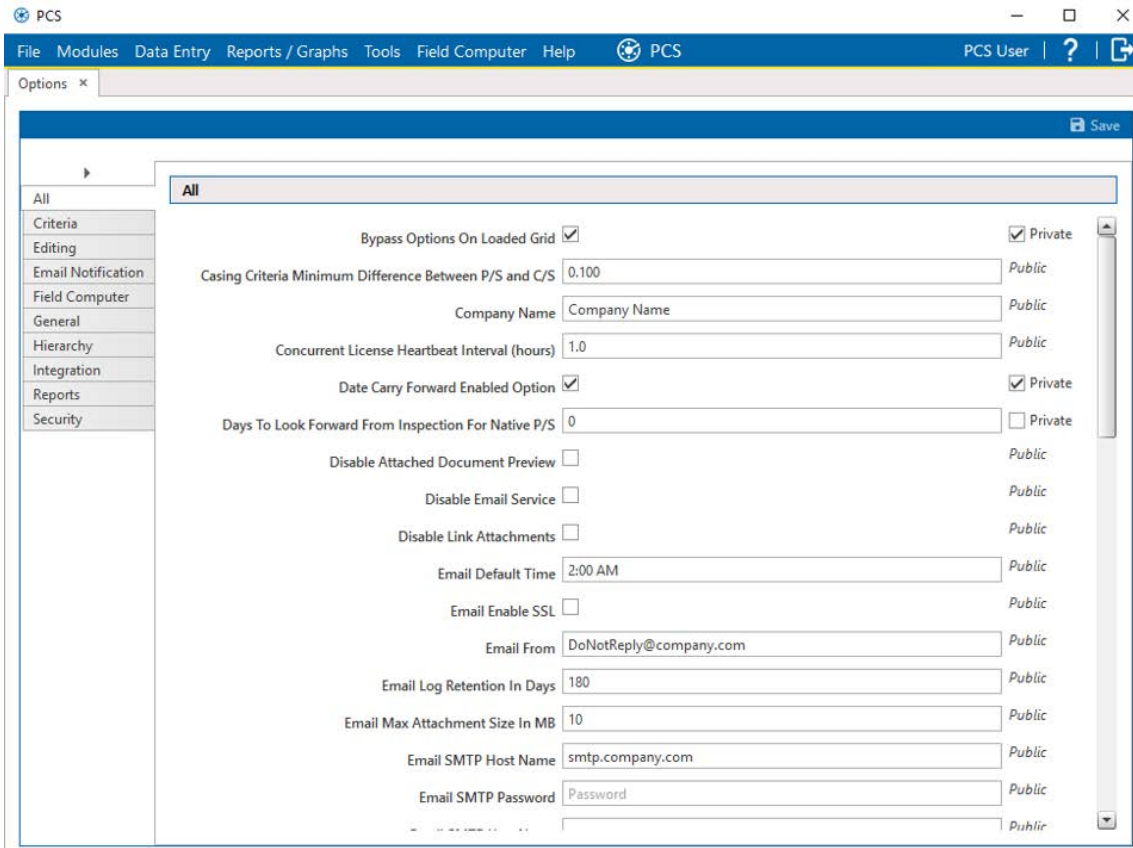


Figure 2-8. Options Window

2. Click the **Criteria** tab to open the *Criteria* pane.

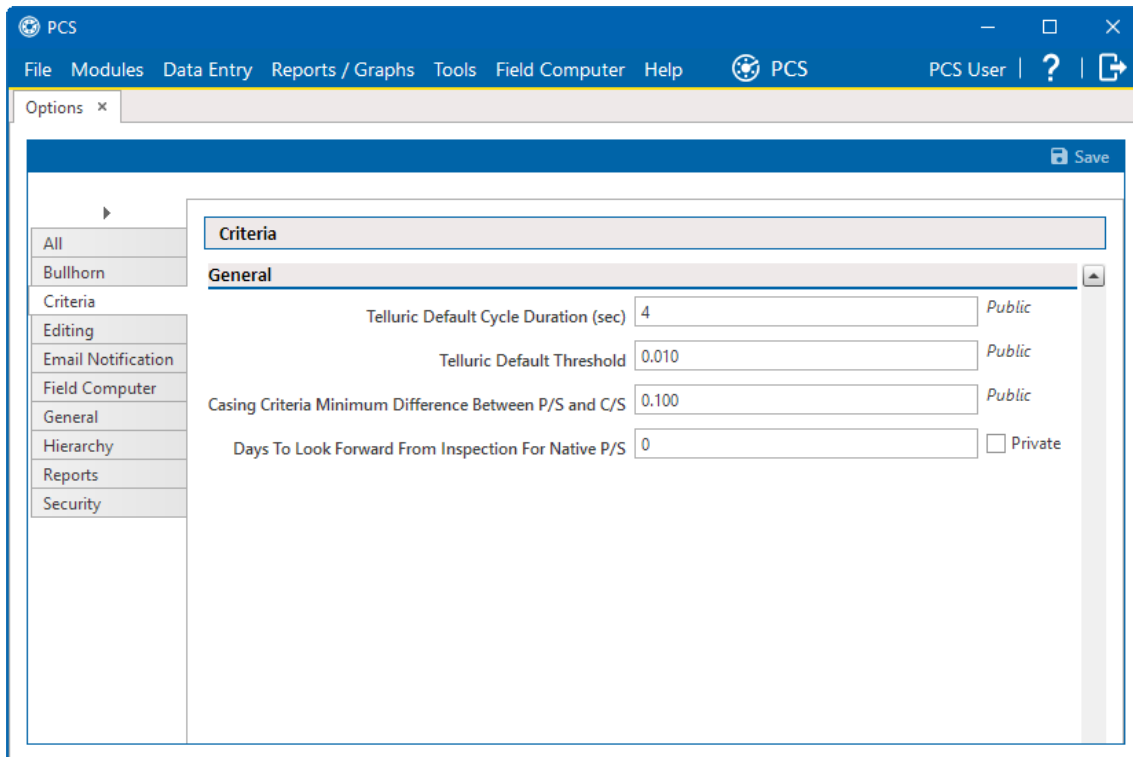


Figure 2-9. Options - Criteria Pane

3. If your PCS license includes the optional *Telluric Compensation* feature, two Telluric fields are included in the *Criteria* pane. Modify the following fields as needed:

- **Telluric Default Cycle Duration (Sec)** – enter a time in seconds in the field provided to define the amount of time for a GPS synchronized on and off cycle.
- **Default Telluric Threshold** – enter a value in volts in the field provided to define the threshold used to identify telluric effects in an SDL (stationary data logger) data set. PCS calculates a baseline average for survey measurements in an SDL data set. If any survey measurement in the data set is above or below the baseline average by the amount specified in the **Default Telluric Threshold** field, this indicates the data set exhibits telluric current effects.


For information about how to upgrade a PCS license to include Telluric Compensation, contact [Technical Support on page 10](#).

4. Identify the isolation criteria for casing inspections. Type a value in the **Casing Criteria Minimum Difference Between P/S and C/S** field to set the minimum difference allowed between pipe-to-soil (P/S) and casing pipe-to-soil (C/S) readings before the casing is considered shorted. The default setting is 100 mV.

PCS displays a warning message when the minimum difference does not meet the casing criteria for an inspection reading entered in the data entry grid. Similarly, an entry is added in the *Field Computer Log* when inspection readings transferred from the Allegro do not meet casing criteria.

5. Identify the number of days after an inspection reading is taken that a native pipe-to-soil (P/S) reading is taken. Type the number of days in the **Days To Look Forward From Inspection For Native P/S** field.

The number of days effects the system calculation for the **Effective Native P/S** and **Effective Native Date** fields in data entry grids. Native P/S is a potential reading taken prior to any current placed on the pipeline. It is also referred to as a depolarized or static potential reading.

6. **(SysAdmin only)** For property settings accompanied by a **Private** check box, check or uncheck the check box based on your company's requirements. When the **Private** check box is checked, the currently logged in user can change the associated property setting. For more information, see [Public and Private Property Settings on page 20](#).
7. Click  **Save** to save changes.

Set Editing Options

Making changes to the *Editing* properties alters the behavior when entering data in data entry grids.

A **Public** caption in this pane indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

Complete the following steps in the *Editing* pane of *Options*:

1. Click **Tools > Options** in the header bar to open the Options window.

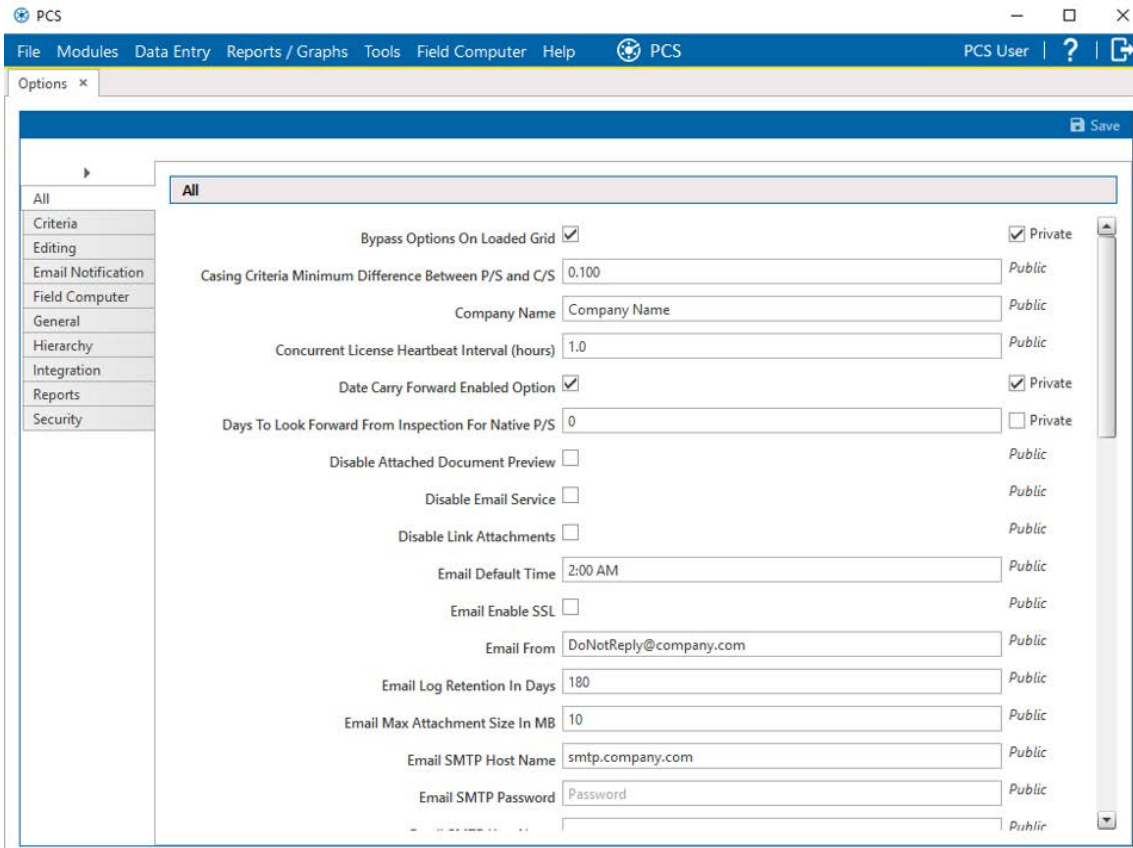


Figure 2-10. Options Window

2. Click the **Editing** tab to open the *Editing* pane.

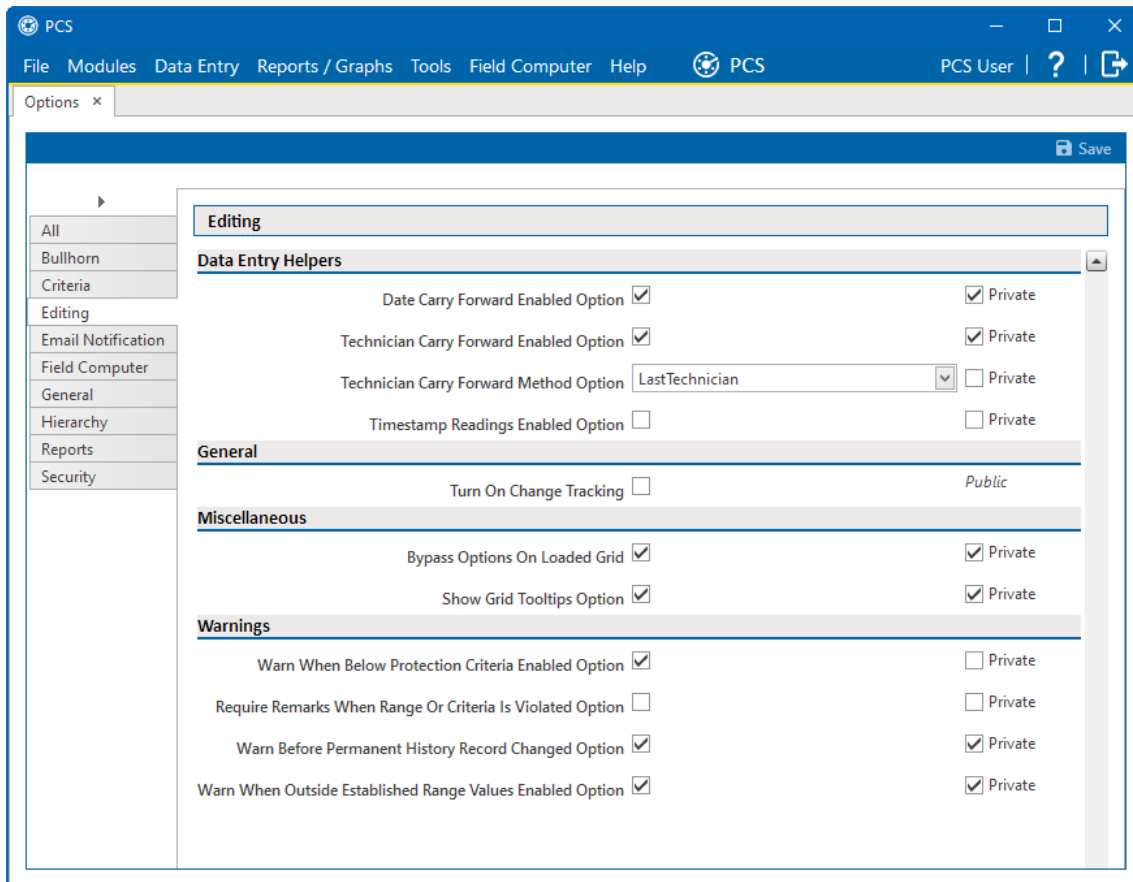


Figure 2-11. Options - Editing Pane


3. Check or uncheck the following option's check boxes or select from the drop downs as needed:
 - **Date Carry Forward Enabled Option** – check the check box to use the survey date that was last entered as the survey date for the next record when working in an *Inspection* grid or form.
 - **Technician Carry Forward Enabled Option** – check the check box to pre-fill the **Technician** field (in the *Inspection* grid) or **Repair Technician** field (in the *Maintenance* grid) with a default value when a new record is created. The default value for these fields is determined by the value selected in the **Technician Carry Forward Method Option** field.
 - **Technician Carry Forward Method Option** – Select a person's name from the drop-down to set the default value for the **Technician** field (in the *Inspection* grid) or **Repair Technician** field (in the *Maintenance* grid). These fields are pre-filled for new records with the default value only when the **Technician Carry Forward Enabled Option** is checked. The following values are available in the drop-down:

- **Last Technician**: uses the name of the last person entered in the **Technician** field.
- **Security**: uses the name of the person currently logged into PCS.
- **Timestamp Readings Enabled Option** – check the check box to automatically update the timestamp in the **Inspection Date** field to the current time for new inspections. The **Inspection Date** is updated after enough survey data is added to mark the inspection as *Surveyed* only if the inspection has an **Inspection Date** that matches today's date.
- **Turn On Change Tracking** – check the check box to enable change tracking and keep a history of changes made to records in PCS. The *Field and UDF Customizations* window allows you to configure which fields' changes are recorded. Refer to [Set Up Change Tracking for Individual Fields on page 71](#).

When change tracking is turned on, the **Change History** button appears in the data entry grid. For more information about setting up and using Change History, refer to [View a Record's Change History on page 292](#).
- **Bypass Options On Loaded Grid** – check the check box to have the data load immediately upon selecting a grid for the second time after entering *Edit <Module> Data*. The first time you view a specific type of grid, the grid's Options show first. However, when you visit that grid again, the Options will not display, and the data that loads is based on the previously configured settings.

If the check box is cleared, the grid's Options will always show first, allowing you to define what records to show before loading data.
- **Show Detail Inspection Entry Grid** – check the check box to display the *CPDM Test Point Inspection Detail* mini-grid.

The **Show Detail Inspection Entry Grid** check box is not available when using the optional PCS Telluric Compensation feature. The mini-grid displays by default with Telluric Compensation and cannot be disabled.
- **Show Grid Tooltips Option** – check the check box to display a description of the field when you move the mouse over a data entry field.
- **Warn When Below Protection Criteria Enabled Option** – check the check box to display a warning message when an inspection reading is entered that is below the protection criteria value specified in the **Test Point Protection Criteria** field.
- **Require Remarks When Range Or Criteria Is Violated Option** – check the check box to require that remarks are entered in the **Inspection Remarks** field any time an entered reading is out of range.

- **Warn Before Permanent History Record Changed Option** – check the check box to display a warning message before changes are made to information fields in permanent history records. The warning will appear for pre-existing records in which the effective date is in the past.
 - **Warn When Outside Established Range Values Enabled Option** – check the check box to display a warning message when an inspection reading is entered that is out of range.
4. **(SysAdmin only)** For property settings accompanied by a **Private** check box, check or uncheck the check box based on your company's requirements. When the **Private** check box is checked, the currently logged in user can change the associated property setting. For more information, see [Public and Private Property Settings on page 20](#).
 5. When you finish, click  **Save** to save changes.

Set Email Notification Options

The *Email Notification* options determine how email reports should be sent.

A **Public** caption in this pane indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

Complete the following steps to set *Email Notification* property settings:

1. Click **Tools > Options** in the header bar to open the Options window.

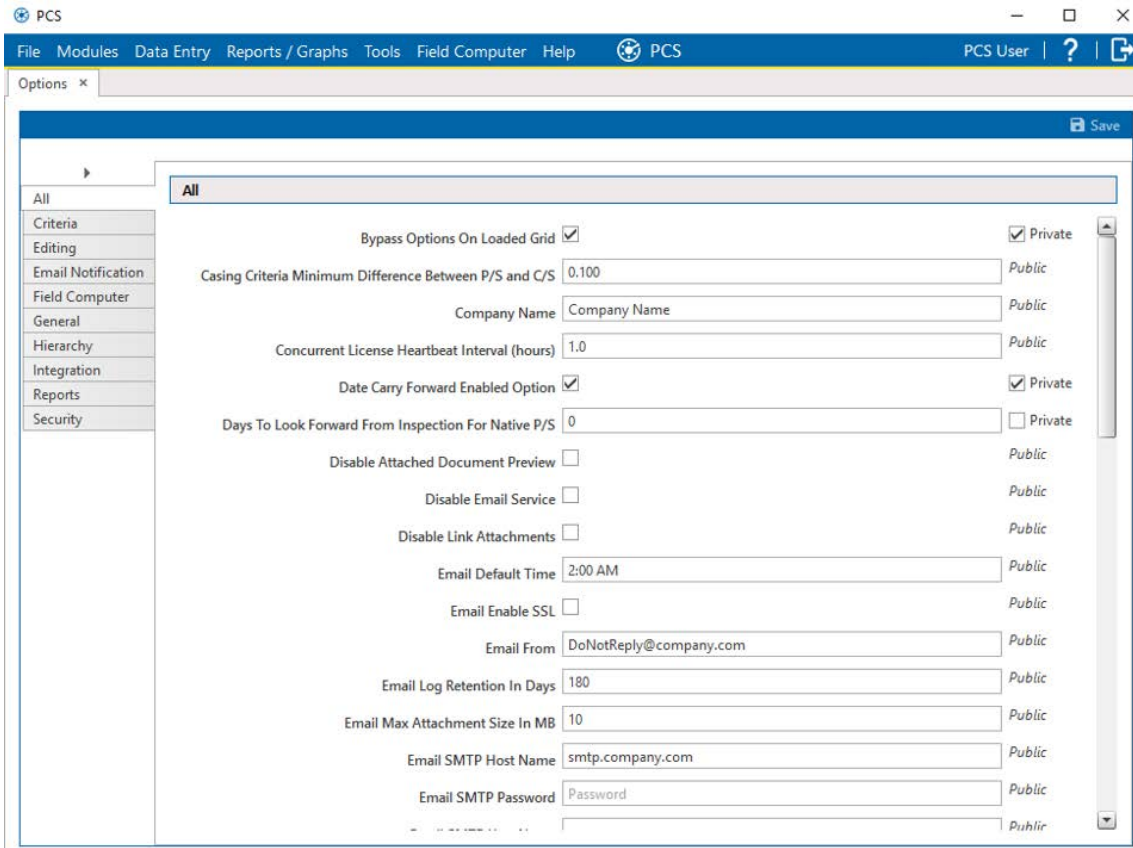


Figure 2-12. Options Window

2. Click the **Email Notification** tab to open the *Email Notification* pane.

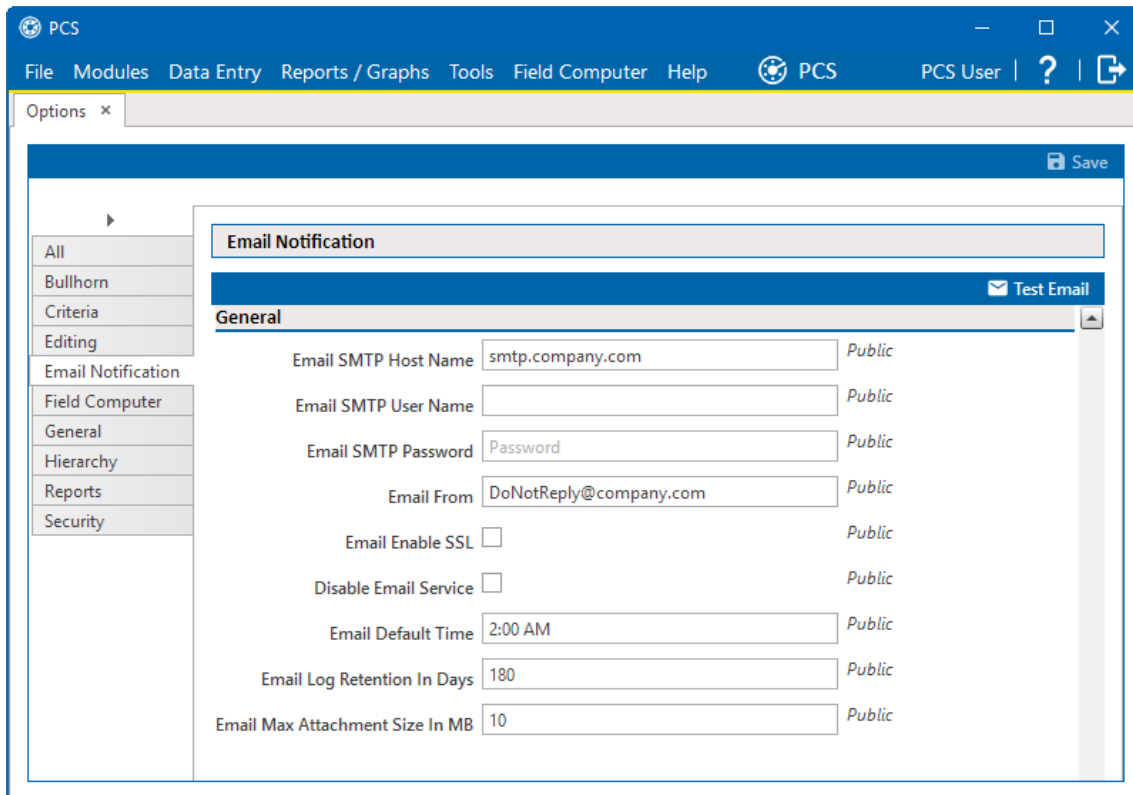


Figure 2-13. Options - Email Notification Pane

3. Fill out the following fields to set up PCS to send emails via your company's Simple Mail Transfer Protocol (SMTP) email server:
 - Type the host name of the SMTP email server your company uses to send email in the **Email Smtip Host Name** field.
 - Type a user name in the **Email Smtip User Name** field that is associated with the email address you plan to use for sending email notifications.
 - Type a password in the **Email Smtip Password** field that is associated with the user name and email address you plan to use for sending email notifications.
 - In the **Email From** field, type the email address you plan to use for sending email notifications.
 - If the email server supports encryption via the secure socket layer (SSL) protocol, click to select the **Email Enable Ssl** check box.
4. To stop or start email notifications, check to select or deselect the **Disable Email Service** check box.

When the **Disable Email Service** check box is selected, email notifications will not be sent to any email recipient. When the **Disable Email Service** check box is deselected, email notifications will be sent according to the currently configured email notification schedules. The next incremental or last run email notifications will send data based on changes or additions since the last time the email was run.

5. Fill out the following fields to define the email notification defaults, log retention policy, and size limitations:

- Enter the desired time for sending email notifications in 12-hour time format (HH:MM AM/PM) in the **Email Default Time** field.

The default time can be overwritten when defining an email report.

- Enter the number of days to store a copy of the email log in the **Email Log Retention In Days** field. Entries in the email log are purged from the log after the specified number of days.

The email log is stored in the database and contains information about each email that was sent, including recipient information, delivery mode and frequency, hierarchy assignments, and the actual emailed report file. A longer retention period will result in a larger database.

- Enter the maximum email size in megabytes (MB) allowed by your email server in the **Email Max Attachment Size In Mb** field. Because some email servers are set up to process emails that are larger than a certain size, it may be necessary to contact your IT department for this information to ensure email recipients receive email notifications.

6. Click  **Save** to save changes.

Set Field Computer Options

The *Field Computer* options provides access to property settings related to the Allegro field computer.

A **Public** caption in this pane indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

If your company plans to use the Allegro field computer with PCS, complete the following steps to set up Field Computer options:

1. Click **Tools > Options** in the header bar to open the *Options* window.

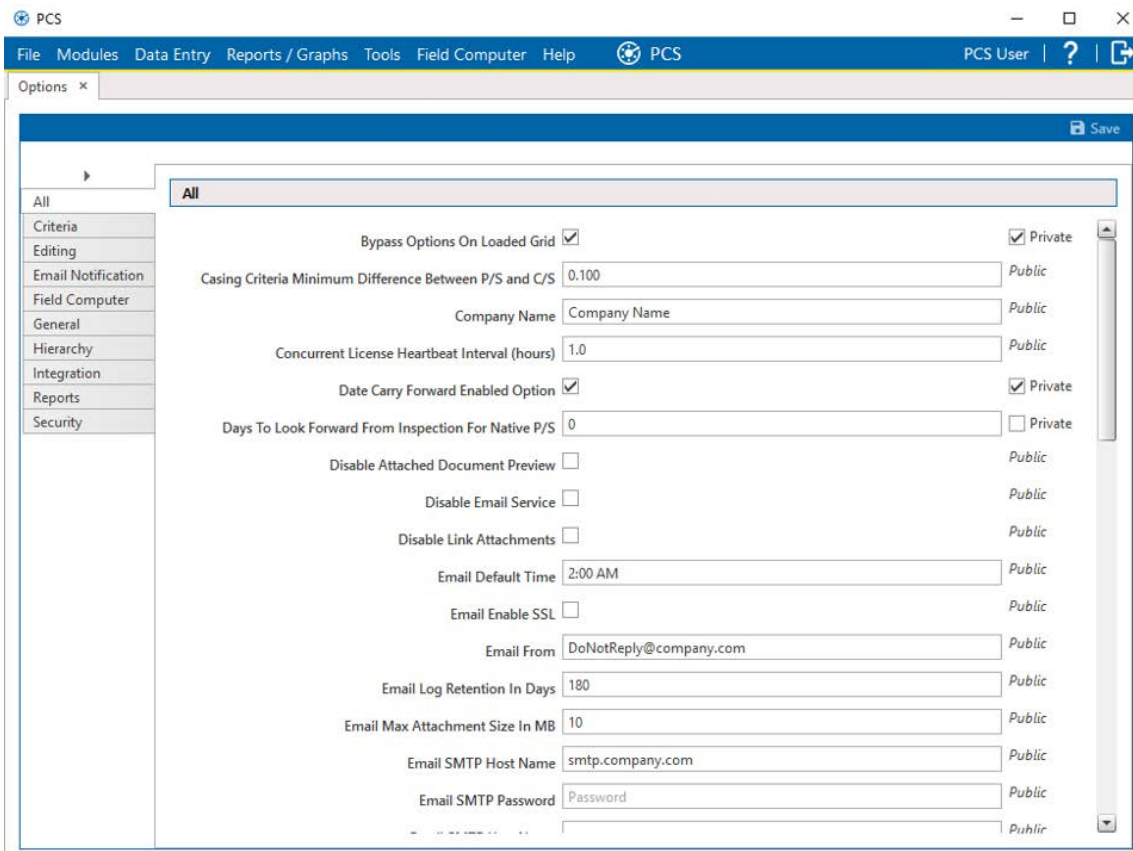


Figure 2-14. Options Window

2. Click the **Field Computer** tab to open the *Field Computer* pane.

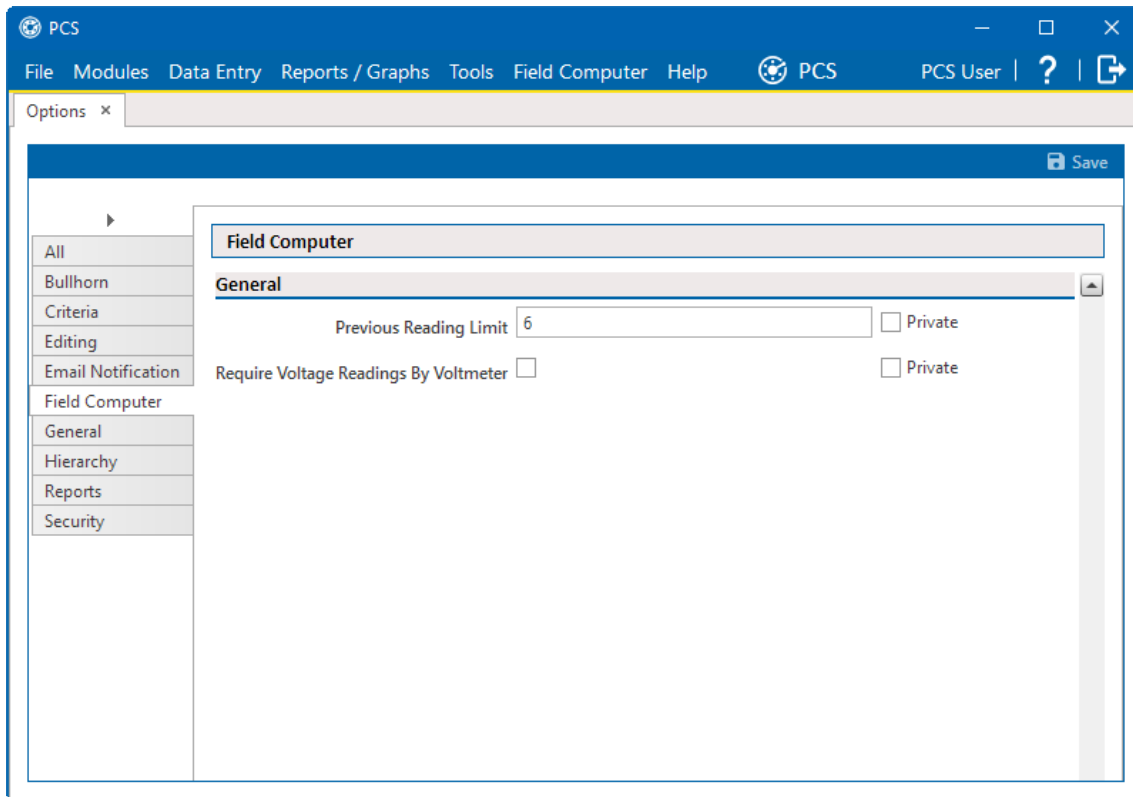



Figure 2-15. Options - Field Computer Pane

3. Set a previous reading limit by entering a value in the field provided. The previous reading limit determines the maximum number of historical readings that can be sent with any survey file. The number of historical readings that are sent with a survey is defined in Allegro Send options and cannot exceed the Previous Reading Limit value set in Options. Allowing more historical readings results in larger data sets sent with the Allegro or mobile device. Sending too many historical records may result in connection and time out problems when sending survey files.
4. To only use the field computer or mobile device's digital voltmeter to record voltage readings, enable the option **Require Voltage Readings By Voltmeter**. Enabling this option prevents manual data entry of voltage readings on the Allegro.
5. **(SysAdmin only)** For property settings accompanied by a **Private** check box, check or uncheck the check box based on your company's requirements. When the Private check box is checked, the currently logged in user can change the associated property setting. For more information, see [Public and Private Property Settings on page 20](#).
6. Click  **Save** to save changes.

Set General Options

The General options set general PCS property settings, such as display settings and general behaviors.

A **Public** caption in this pane indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

Complete the following steps to set property settings in the *General* pane of the *Options* window:

1. Click **Tools > Options** in the header bar to open the *Options* window.

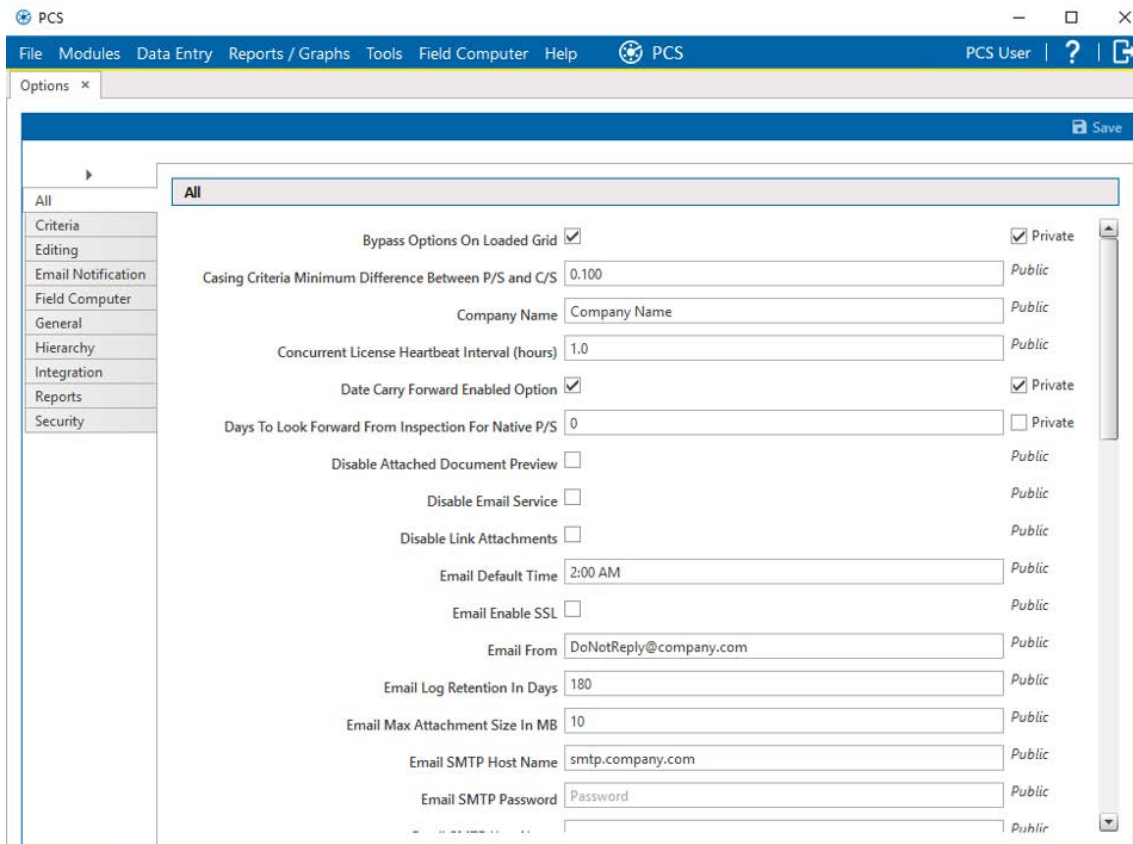


Figure 2-16. Options Window

2. Click the **General** tab to open the *General* options pane.

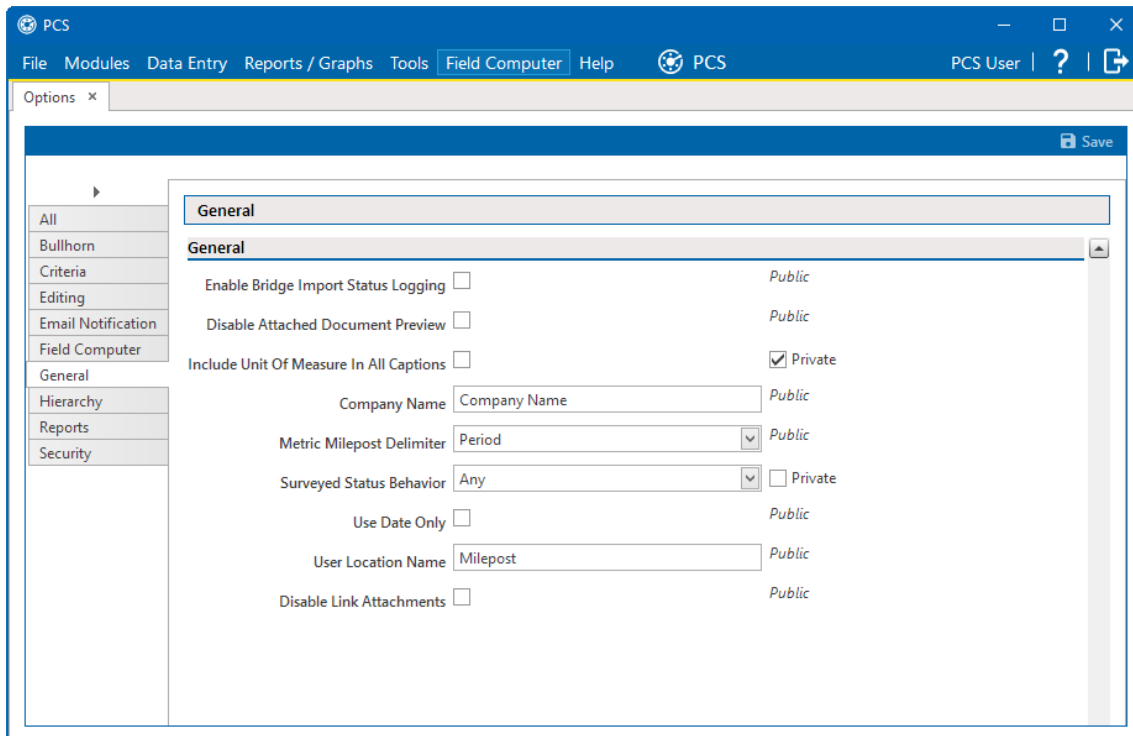



Figure 2-17. Options - General Pane

3. Check or uncheck the following option's check boxes or select from the drop downs as needed:
 - **Enable Bridge Import Status Logging** – click to select the check box and start capturing any warnings and rejections to a status log during a bridge import.
 - **Disable Attached Document Preview** – click to select the check box and disable the ability to preview attached documents within PCS. Documents can still be opened but a preview of the document will not show in the *Preview Attached Documents* window. To show a preview of selected documents in the *Preview Attached Documents* window, click to clear the check box. See [View an Attached Document on page 217](#) for related information.
 - **Include Unit of Measure in All Captions** – click to select the check box to include the unit of measure in the description of column headings and field captions, such as *Structure P/S (Volts)*.
 - **Company Name** – enter your company's name in the field provided. The company name appears in the header of all reports and in the system hierarchy.
 - **Metric Milepost Delimiter** – select a delimiter from the drop down. This delimiter is used to separate the kilometer from the meter when formatting mileposts in PCS.

- **Surveyed Status Behavior** – select a behavior from the drop down to determine how many of an inspection's required fields must be populated before a facility will be marked as *Surveyed*.
 - **Any**: a record will be marked as *Surveyed* as soon as one of the required fields is populated.
 - **All**: a record will only be marked as *Surveyed* when all of the required fields are populated.

You can define which PCS fields are required for an inspection by setting the *System Inspection Surveyed Indicator* status to **Yes** in *Field and UDF Customizations*. If *activate* is required for the field, the field must also be activated in the *Information* grid to be defined as required for an inspection. Refer to [Set Properties in Field and UDF Customizations on page 56](#) for more details about setting the *System Inspection Surveyed Indicator* and *activate* properties.

- **Use Date Only** – click to select the check box to display only the date for date-based fields. Click to clear the check box to show both the date and time for date-based fields.
 - **User Location Name** – enter the word used by your company to refer to inspection points on a pipeline. Common names are `Milepost` or `Station Number`.
 - **Disable Link Attachments** – click to select the check box to limit attachments to embedded documents only. Click to clear the check box to allow documents to be attached with links.
4. **(SysAdmin only)** For property settings accompanied by a **Private** check box, check or uncheck the check box based on your company's requirements. When the **Private** check box is checked, the currently logged in user can change the associated property setting. For more information, see [Public and Private Property Settings on page 20](#).
5. Click  **Save** to save changes.

Set Hierarchy Options

Hierarchy options determine how PCS organizes data in the system.

For additional information about how to set up the PCS system hierarchy, refer to the following topics:

- [The System Hierarchy on page 15](#)
- [Set the System Hierarchy on page 16](#)

A **Public** caption in this pane indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

Complete the following steps to set Hierarchy property settings in *Hierarchy* pane of the *Options* window:

1. Click **Tools > Options** in the header bar to open the *Options* window.

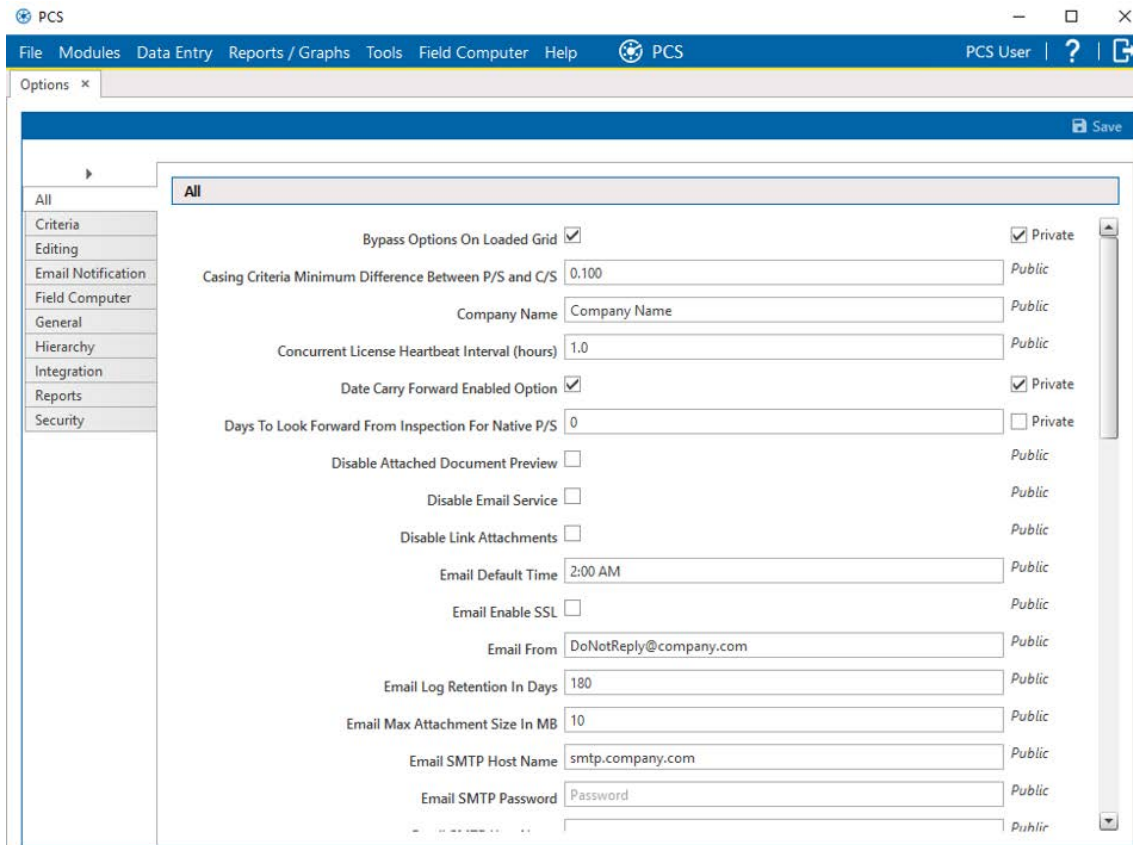


Figure 2-18. Options Window

2. Click the **General** tab on the left side of the window to open the *General* pane.

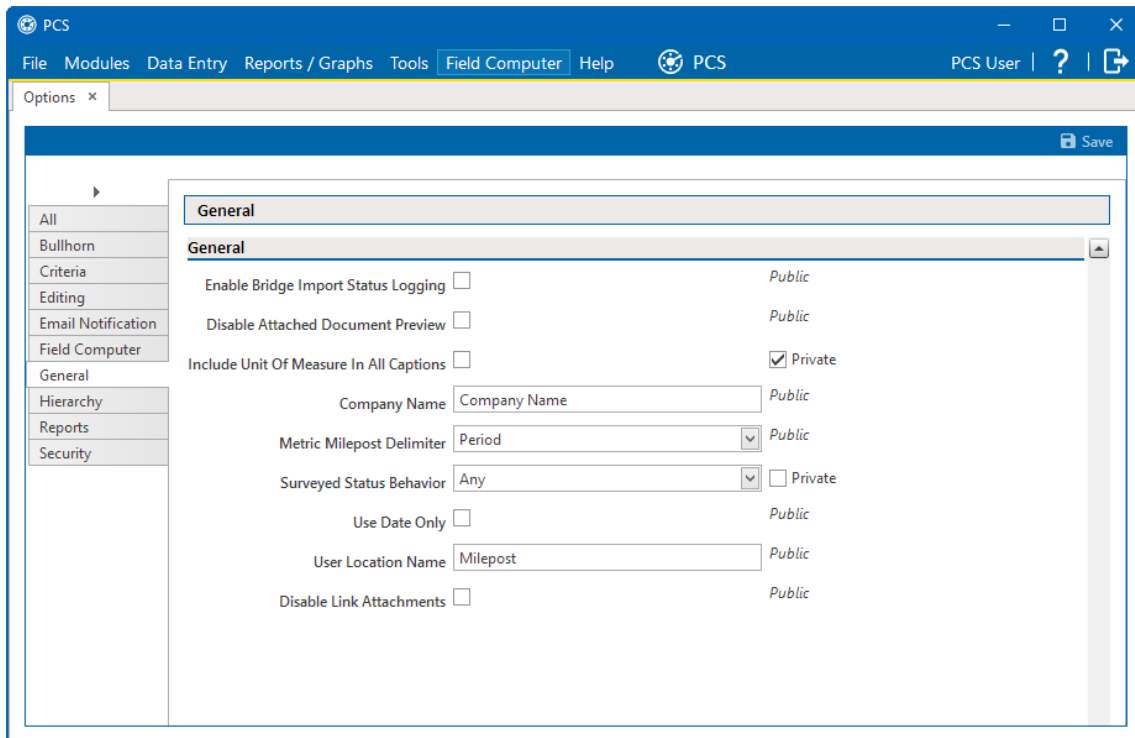


Figure 2-19. Options - General Pane

3. In the **Company Name** field, type the name of your company.
4. In the **User Location Name** field, enter an description of how your company refers to inspection points on a pipeline. For example, type **Milepost**, **Station Number**, **Reference Reading**, or other type of descriptor.
5. Click the **Hierarchy** tab to open *Hierarchy* pane.

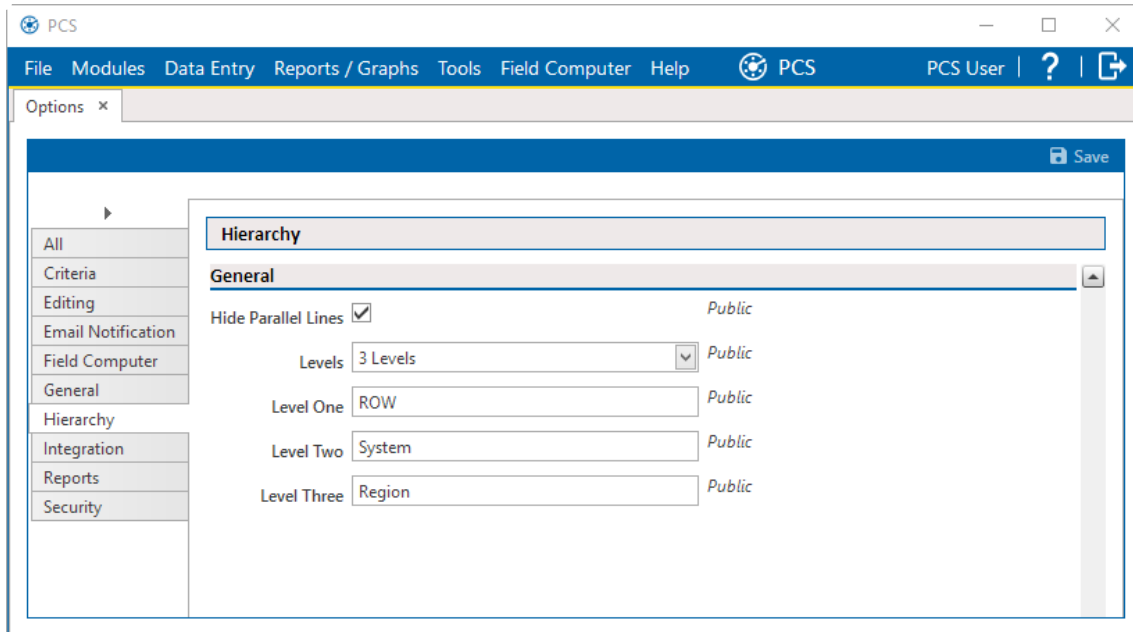



Figure 2-20. Hierarchy Levels

6. Select **Hide Parallel Lines** check box if you want to hide features in PCS that allow you to create and display parallel lines in the hierarchy.

When Hide Parallel Lines is enabled, parallel lines are hidden in *Select ROWs* and in the *Add New Node* windows. Distribution companies with no parallel lines typically use this setting. PCS identifies parallel lines using the Pipe, Pipeline Code, and Pipeline Name fields. For a description of these fields refer to [System Field Descriptions](#).

7. In the **Levels** field, identify how many levels to include in the hierarchy. Click the down arrow and select the number of hierarchy levels in the selection list. The pane updates to include level fields for the number of levels you selected. The example above shows the additional Level One, Level Two, and Level Three fields below the Levels field because **3 Levels** was selected for that field.
8. For each of the level fields below the **Levels** field, identify how pipelines are referred to in the system. For example, type `ROW` or `Segment` in the **Level One** field.
9. **(SysAdmin only)** For property settings accompanied by a **Private** check box, check or uncheck the check box based on your company's requirements. When the Private check box is checked, the currently logged in user can change the associated property setting. For more information, see [Public and Private Property Settings on page 20](#).
10. Click  **Save**.

Set Integration Options

If you plan to use Bridge to transfer data from your account on Bullhorn Web, or PCS Wireless Sync to securely sync field survey data to and from the CartoPac Cathodic Protection app, ensure the Integration options are set first.

NOTE: Refer to the [PCS Wireless Sync data sheet](#) for PCS Wireless Sync requirements and FAQs.

A **Public** caption in this pane indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

Complete the following steps to configure settings in the *Integration* pane of the *Options* window:

1. Click **Tools > Options** in the header bar to open the *Options* window.

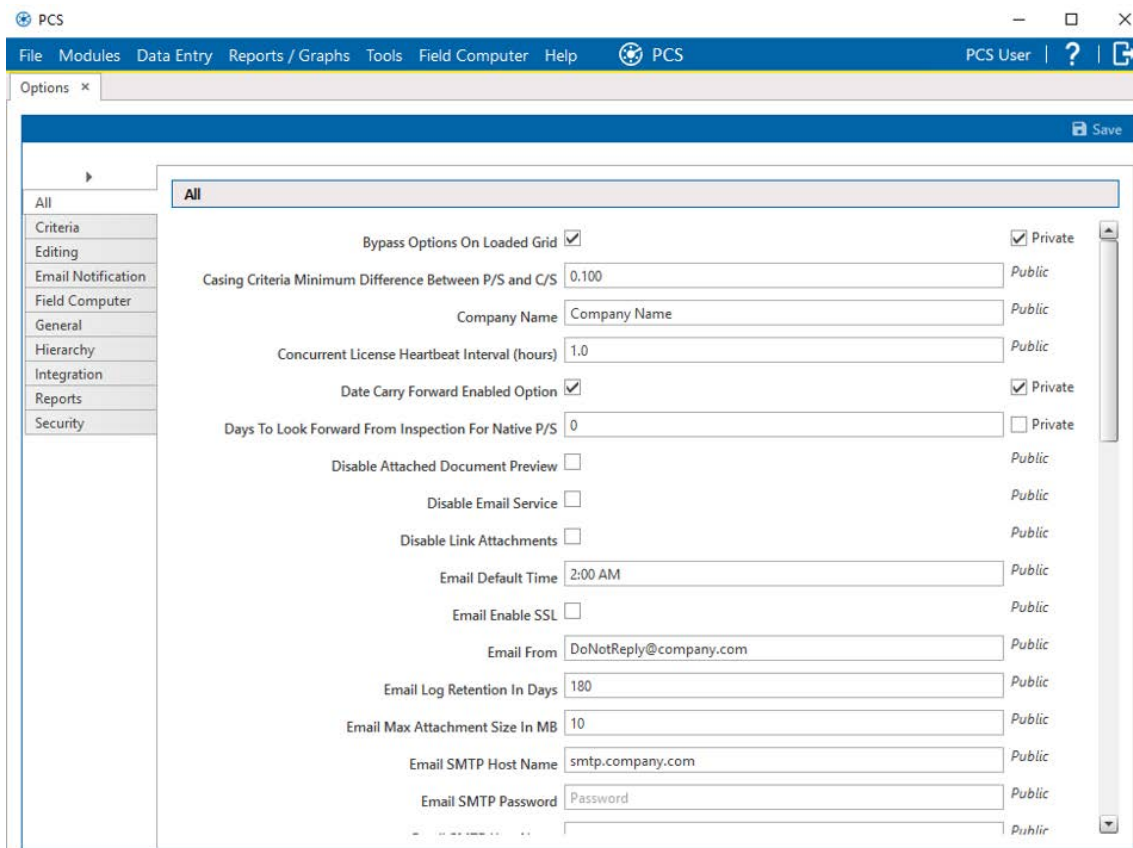


Figure 2-21. Options Window

2. Click the **Integration** tab to open the *Integration* pane.

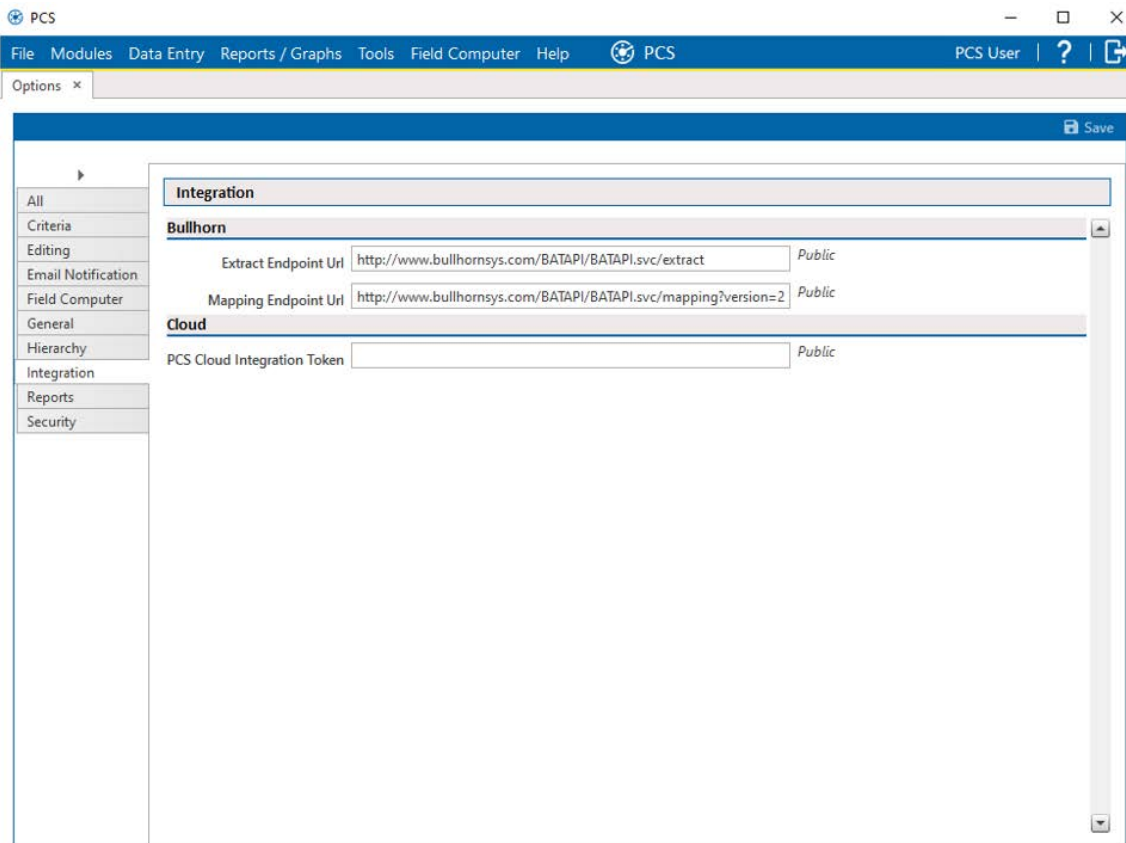




Figure 2-22. Options - Integration Pane

3. Perform the following steps if you plan to use Bridge to transfer data from your account on Bullhorn Web:
 - a. Verify that the correct URL (`http://www.bullhornsys.com/BATAPI/BATAPI.svc/extract`) is entered in the **Extract Endpoint Url** field. If necessary, type the correct URL in the field provided.
 - b. Verify that the correct URL (`http://www.bullhornsys.com/BATAPI/BATAPI.svc/mapping`) is entered in the **Mapping Endpoint Url** field. If necessary, type the correct URL in the field provided.
 - c. Click  **Save** to save changes.
4. Perform the following steps if you plan to use PCS Wireless Sync to securely sync field survey data to and from the CartoPacCathodic Protection app:
 - a. Follow the steps in [PCS Wireless Sync Integration](#) to generate and copy a cloud integration token in PCS Survey Manager.

- b. Paste the cloud integration token into the **PCS Cloud Integration Token** field.
- c. Click  **Save** to save changes.

Set Reports Options

The Reports options determine which signature line caption is used.

A **Public** caption in this pane indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

Complete the following steps to set report property settings in the *Reports* pane of the *Options* window:

1. Click **Tools > Options** in the header bar to open the *Options* window.

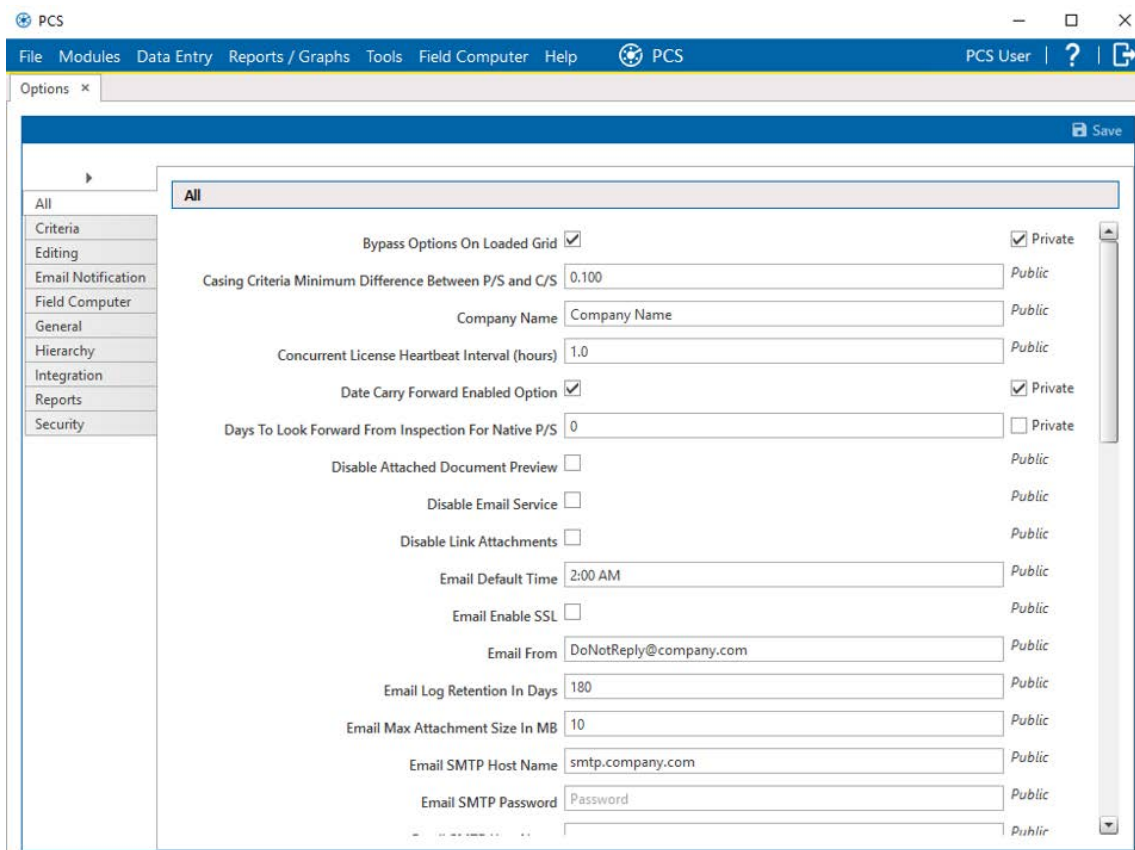


Figure 2-23. Options Window

2. Click the **Reports** tab to open the *Reports* pane.

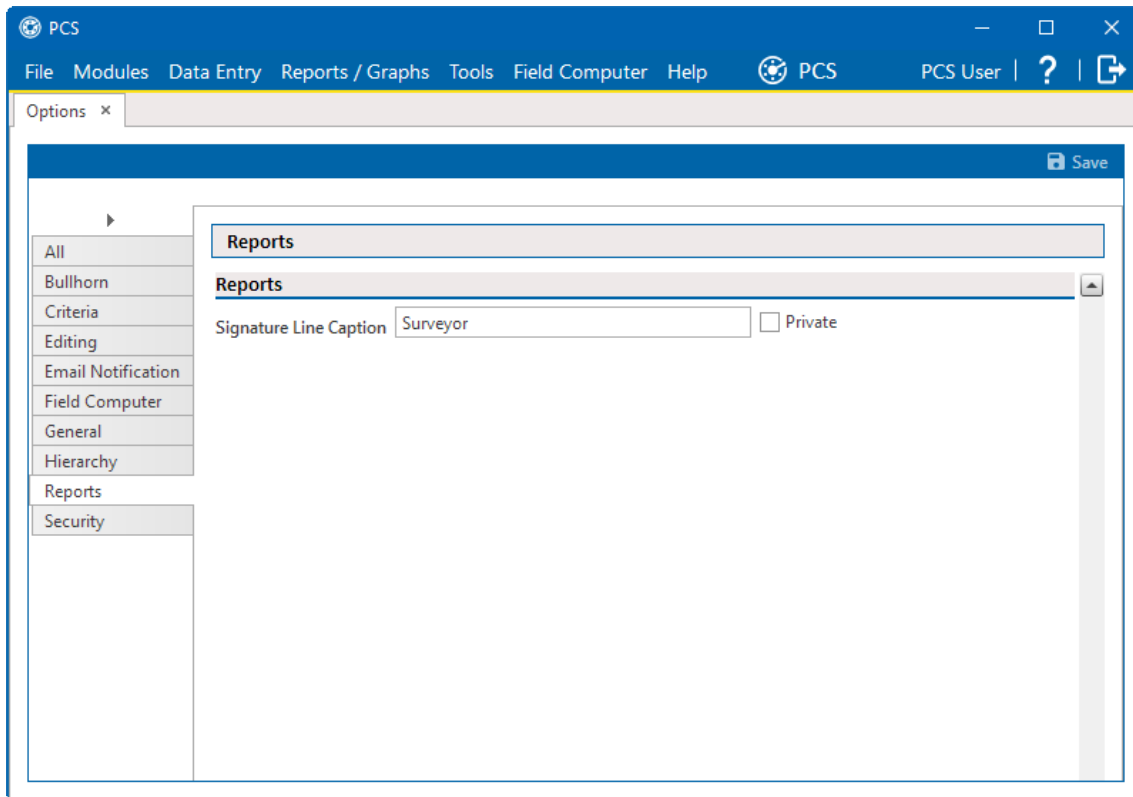



Figure 2-24. Options - Reports Pane

3. If you want to change the default setting used as the caption below the signature line in a *Columnar* report (Surveyor), type a name in the **Signature Line Caption** field.
4. **(SysAdmin only)** For property settings accompanied by a **Private** check box, check or uncheck the check box based on your company's requirements. When the **Private** check box is checked, the currently logged in user can change the associated property setting. For more information, refer to [Public and Private Property Settings on page 20](#).
5. Click  **Save** to save changes.

Set Security Options

Security-related property settings can be configured in the *Security* pane of *Options*.

A **Public** caption in this pane indicates the associated property setting applies globally to all users and can only be changed by a SysAdmin.

Complete the following steps to set security options in the *Security* pane of *Options* window:

1. Click **Tools > Options** in the header bar to open the *Options* window.

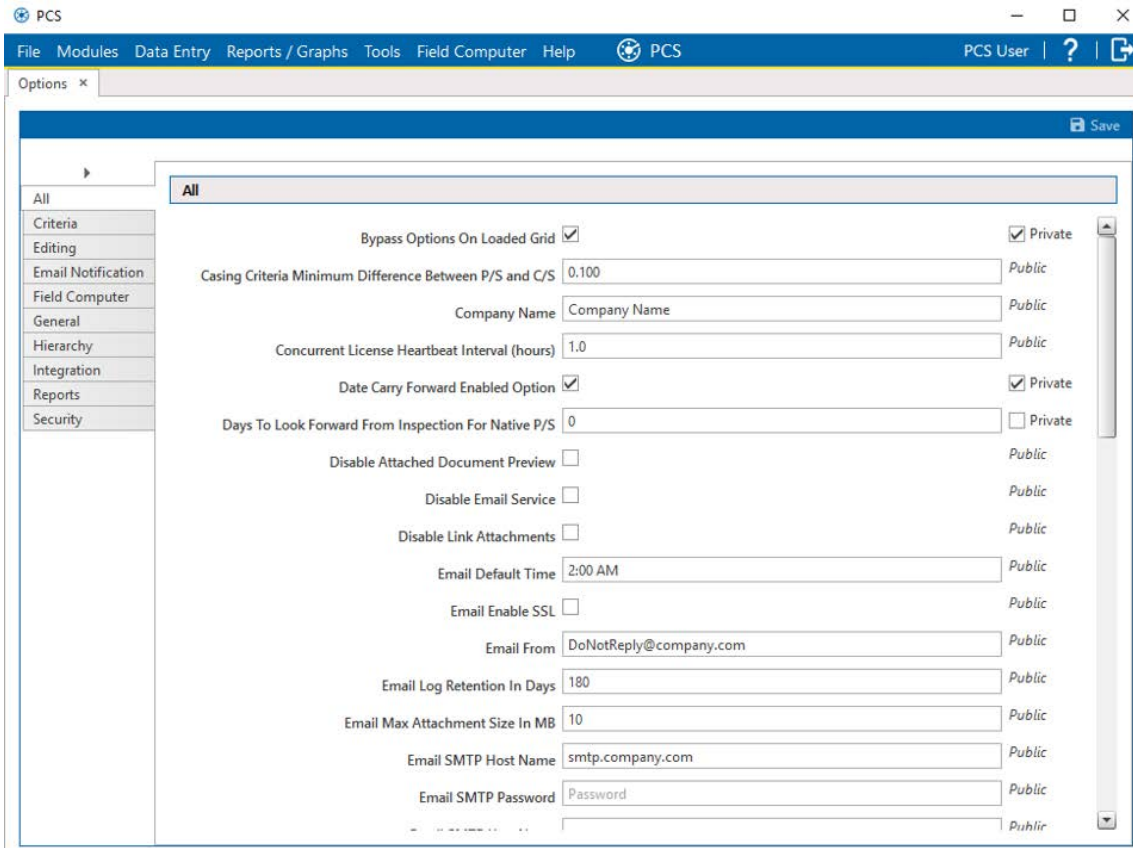


Figure 2-25. Options Window

2. Click the **Security** tab to open the *Security* pane.

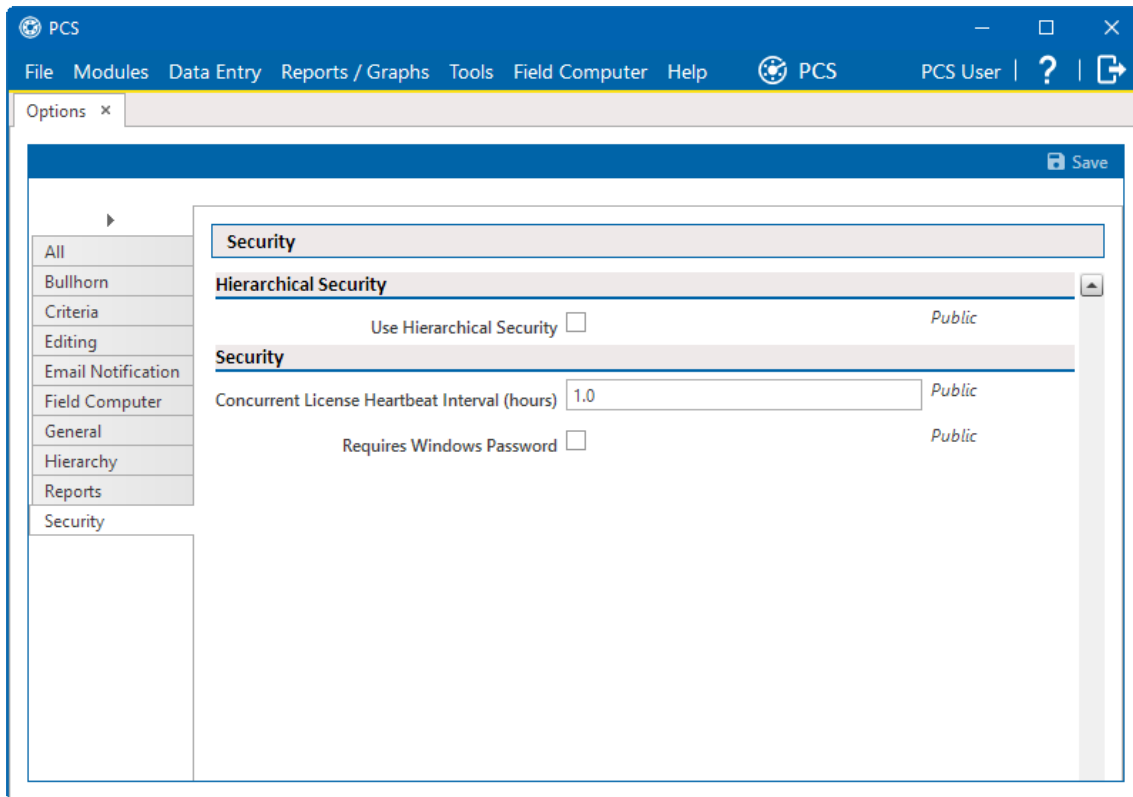



Figure 2-26. Options - Security Pane

3. Review the following information and then set options as needed.
 - **Use Hierarchical Security** – hierarchical security allows you to assign users access rights to individual hierarchy folders. Assigning a user access rights to a hierarchy folders restricts access to the data in the other hierarchy folders. Click to select the check box to enable hierarchical security. Click to clear the check box to remove hierarchical security and grant all users access to all hierarchy folders.
 - **Concurrent License Heartbeat Interval (Hours)** – enter a length of time in hours to determine the heartbeat interval for concurrent license verification and refresh
 - **Requires Windows Password** – click to select the check box to require that the PCS user enter his or her Windows password upon opening PCS. Click to clear the check box to allow PCS to automatically log the user in with their Windows login credentials.
4. **(SysAdmin only)** For property settings accompanied by a **Private** check box, check or uncheck the check box based on your company's requirements. When the **Private** check box is checked, the currently logged in user can change the associated property setting. For more information, refer to [Public and Private Property Settings on page 20](#).
5. When you finish, click  **Save** to save changes.

Custom Security Roles

Custom security roles are an optional feature in PCS that is setup by the PCS administrator. The security feature allows you to grant or deny user access to PCS menus and menu commands as well as data entry fields.

Security Role Management window is used to add and edit a custom security role. A custom security role is a named set of permissions based on your company's business requirements. You create a custom security role using a *Parent Role* as a template and then modify permissions in the custom security role as needed. Roles include permissions for menu-level items (**File, Modules, Data Entry, Report/Graphs, Tools, and Field Computer**) as well as field-level items (**Facility Surveys, Continuous Surveys, and ROW and Pipeline**).


A Parent Role is a PCS installed security role with predefined permissions that cannot be modified. Parent roles include the *SysAdmin, User, and Read Only* security roles. After creating a custom security role based on a parent role, you can then assign it to a PCS user who was set up in [User Management](#).

This chapter includes the following topics:

- [Add a Custom Security Role on page 48](#)
- [Use Copy to Add a Custom Security Role on page 50](#)
- [Edit a Custom Security Role on page 52](#)
- [Delete a Custom Security Role on page 55](#)

Also refer to [Assign a Custom Security Role to a User on page 170](#) for instructions on how to assign a security role to a user.

A Search box is available above the Display Name column to allow you to quickly find a command name.

To adjust the width of a column, hover over the dividing line between columns until the cursor changes to . Click and drag the cursor until the column has expanded to the desired width.

Add a Custom Security Role

Complete the following steps to add a custom security role:

1. Click **Tools > Security Role Management** in the header bar to open the *Security Role Management* window.

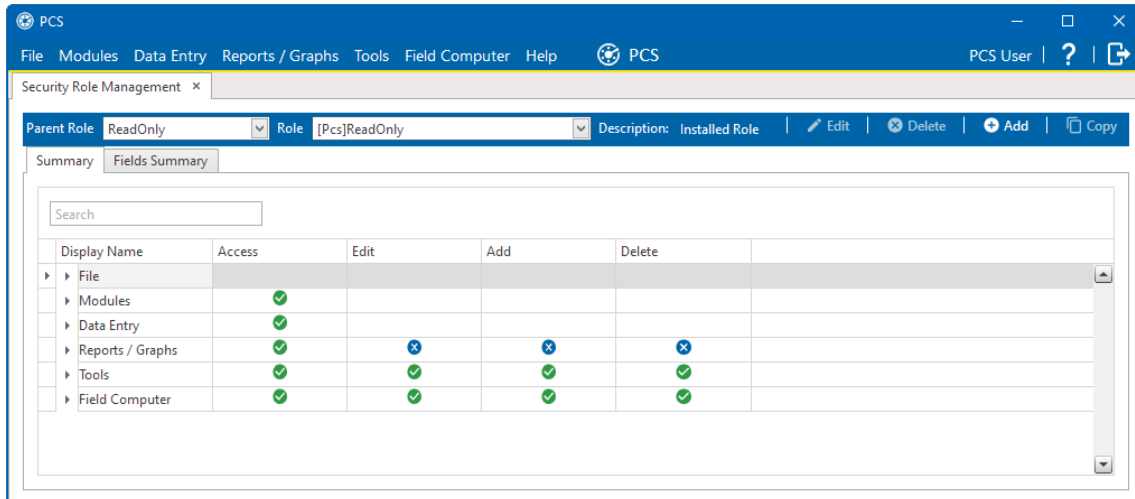



Figure 2-27. Security Role Management

Fields that are unavailable for this role contain the ✗ icon.

2. Click  **Add** to open the *Add Security Role* window.

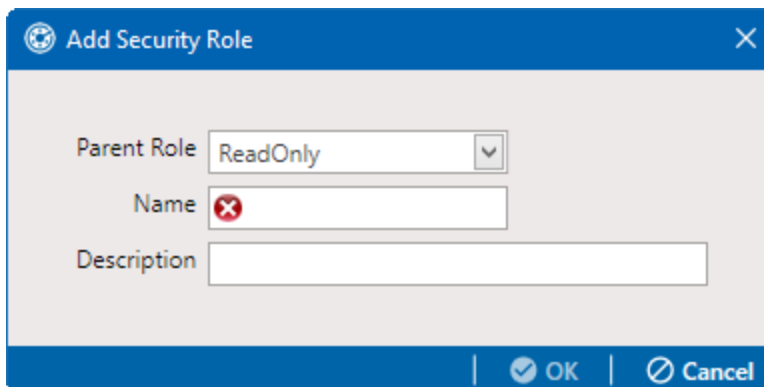


Figure 2-28. Add Security Role

3. Select a **Parent Role** to use as a template to create the custom security role. Click the down arrow in the **Parent Role** field and select a PCS installed security role in the selection list.

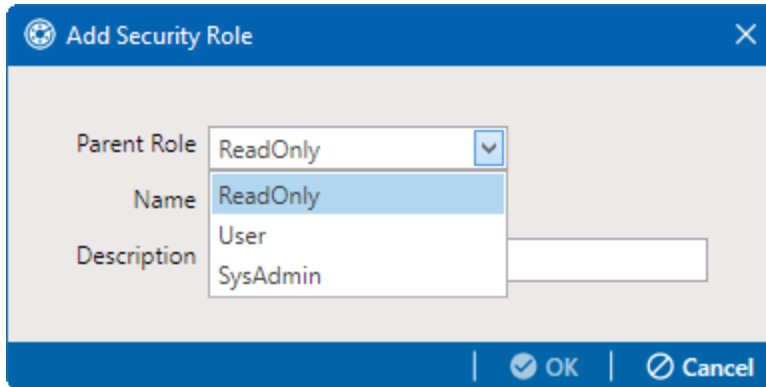




Figure 2-29. Parent Role Drop-down List

4. Type a name for the custom security role in the **Name** field. Fields marked with  are required.
5. If desired, type a description for the custom security role in the **Description** field.
6. Click  **OK** to save changes and return to *Security Role Management* window.

NOTE:  **OK** does not become active until all fields have been completed.

The information you entered in the *Add Security Role* window for the custom security role displays in the **Parent Role**, **Role**, and **Description** fields.

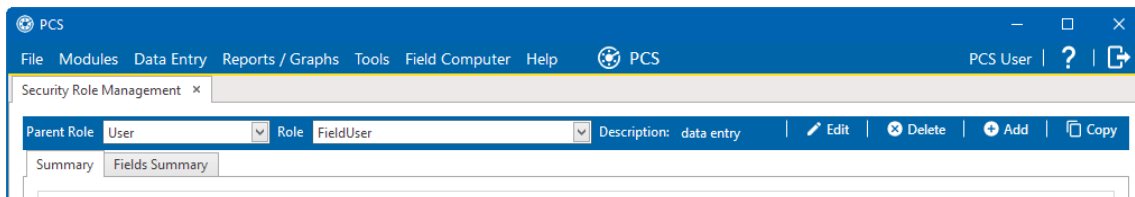


Figure 2-30. New User Information

7. Repeat these steps as needed to add additional custom security roles. To make changes to the custom security role's permissions, refer to [Edit a Custom Security Role on page 52](#).

Use Copy to Add a Custom Security Role

When you want to add a custom security role with permissions that are slightly different than those in an existing customer security role, use the *Copy* command to copy permissions from the existing custom security role.

Complete the following steps to add a custom security role using the Copy command:

1. Click **Tools > Security Role Management** in the header bar to open the *Security Role Management* window.

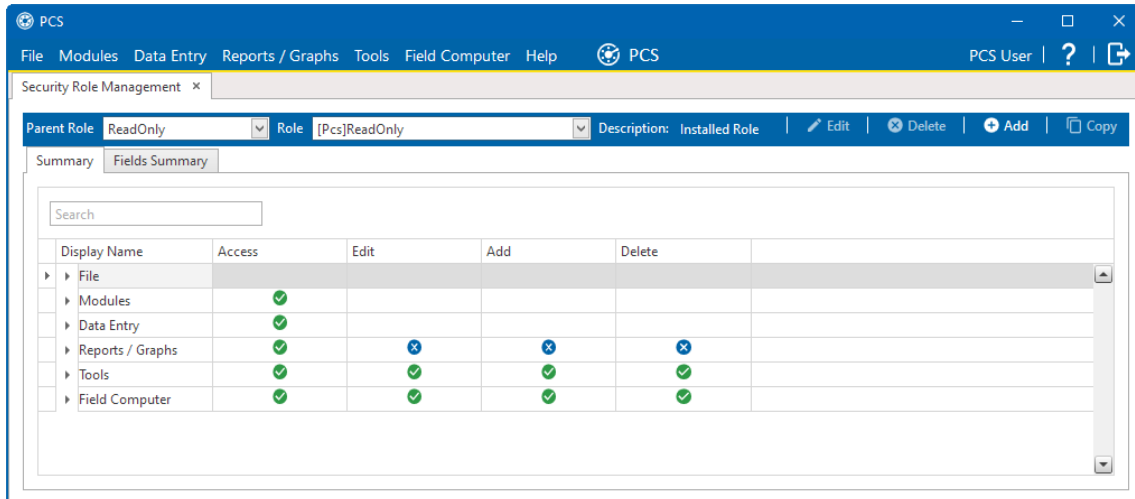



Figure 2-31. Security Role Management

Fields that are unavailable for this role contain the ✗ icon.

- Click  **Copy** to open the *Copy Security Role* window.

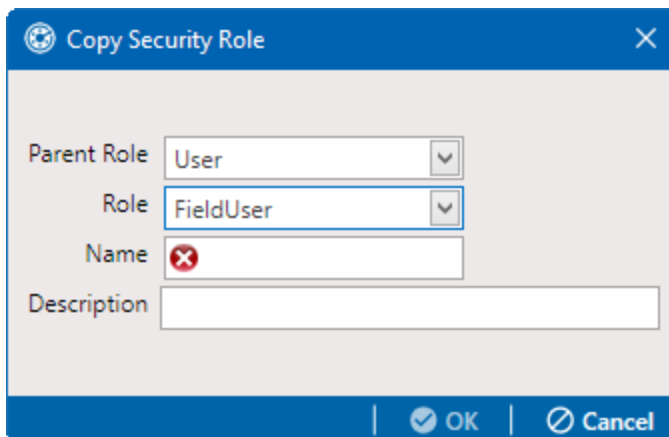



Figure 2-32. Copy Security Role

- Click the down arrow in the **Parent Role** field and select the parent role associated with the existing custom security role.
- Click the down arrow in the **Role** field and select the existing custom security role with permissions you want to copy to the new custom security role.
- Type a name for the new custom security role in the **Name** field. Fields marked with ✗ are required.
- If desired, type a description for the custom role in the **Description** field.
- Click  **OK** to save changes and return to *Security Role Management* window.

NOTE:  OK does not become active until all fields have been completed.

- Repeat these steps as needed to copy additional custom security roles. To make changes to the custom security role's permissions, refer to [Edit a Custom Security Role](#).

Edit a Custom Security Role

Complete the following steps to edit permissions in a custom security role:

- Click **Tools > Security Role Management** in the header bar to open the *Security Role Management* window.

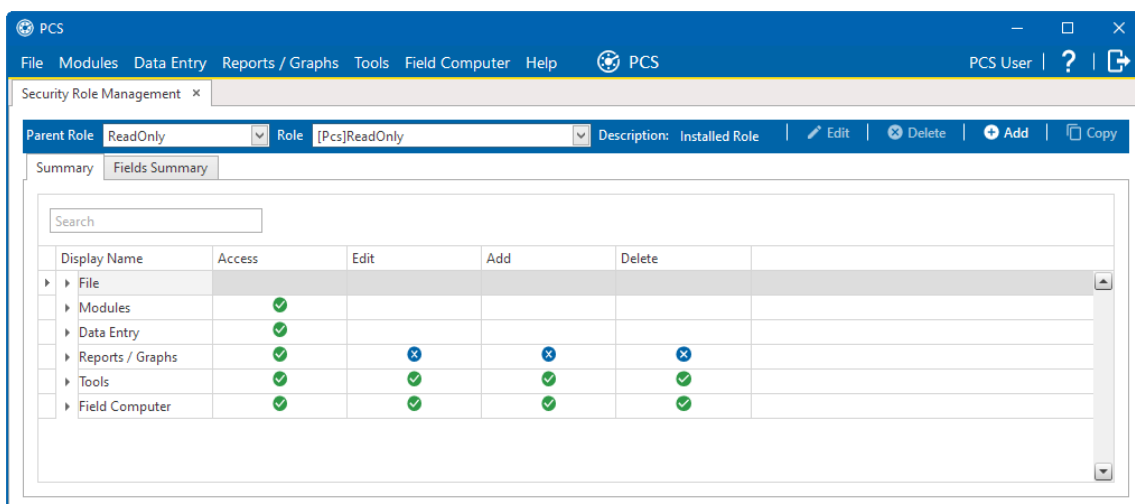




Figure 2-33. Security Role Management

Fields that are unavailable for this role contain the  icon.

- Click the down arrow in the **Role** field and select a custom security role in the selection list. If the custom security role is not visible in the selection list, click the down arrow in the **Parent Role** field and select a user role. Then select the custom security role in the **Role** field.
- Click  **Edit**.

The permissions grid updates to display editable check boxes in place of check marks and  icons. A disabled check box indicates that the specific menu item or field is not available for customization for the current role. A shaded check box indicates selection of some, not all, child menu or field options.

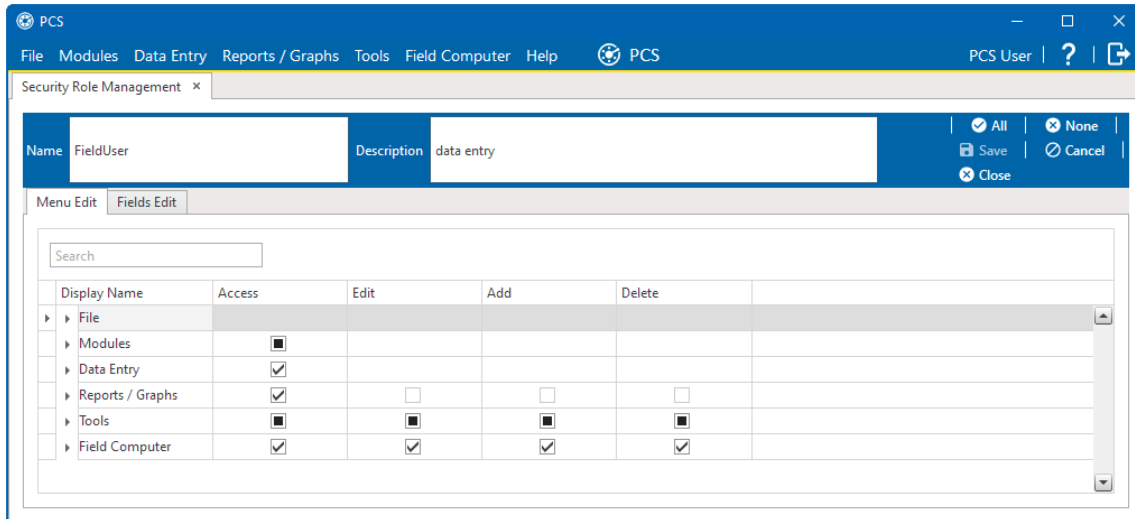


Figure 2-34. Security Role Management - Edit Role

4. The text in the **Name** and **Description** boxes can be edited by deleting and re-typing. You can also use **Ctrl-Z** to undo a change.
5. To edit menu permissions for the custom security role, click the **Menu Edit** tab and use any of the following methods to grant or deny access to menu options:

- To grant access to all menu options available to the current security role, click **All**.
- To deny access to all menu options, click **None**.
- To grant access to all options available to the current security role in a menu listed in the **Display Name** column, click the adjacent check box to place a check mark inside the check box.
If an option within the selected menu is unavailable for the current role, that option will revert to its original value upon save and the check box for the menu will become shaded.
- To deny access to an entire menu listed in the **Display Name** column, click the adjacent check box to remove the check mark inside the check box.
- To grant or deny access to individual options within a menu command, click the arrow next to the main menu name to expand the list.

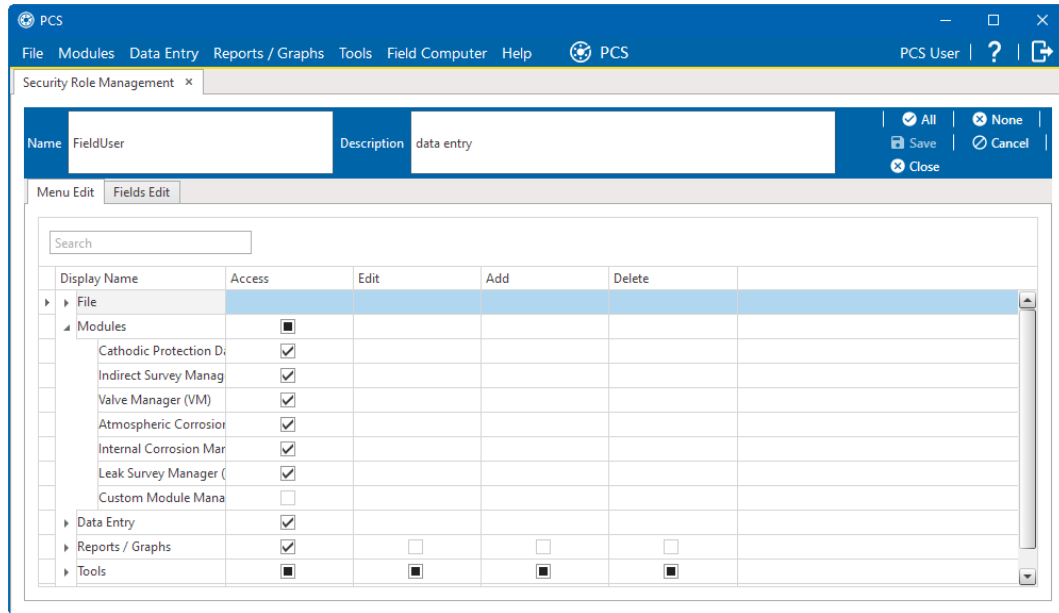


Figure 2-35. Expanded Item in Display Name Column

Grant or deny access to the expanded list:

- To grant access to a specific option listed in the **Display Name** column, click the adjacent check box to place a check mark inside the check box.
- To deny access to a specific option listed in the **Display Name** column, click the adjacent check box to remove the check mark inside the check box.

6. To edit field permissions for the custom security role, click the **Fields Edit** tab.

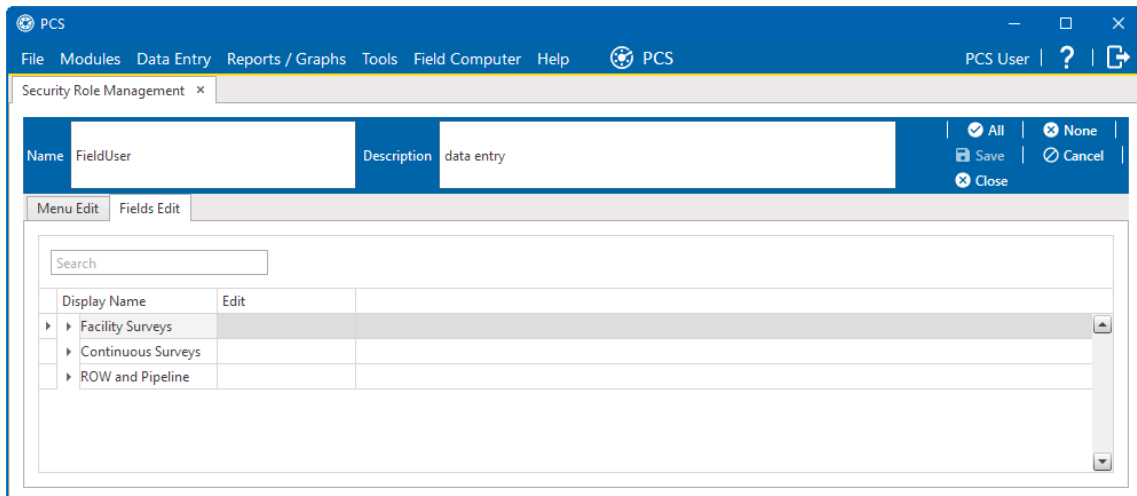


Figure 2-36. Fields Edit Tab

Grant or deny access to specific fields:

- To grant access to all menu options available to the current security role, click **All**.
- To deny access to all menu options, click **None**.
- To grant or deny access to individual fields, find the desired field by clicking the arrow(s) next to the category name(s) to expand the list.

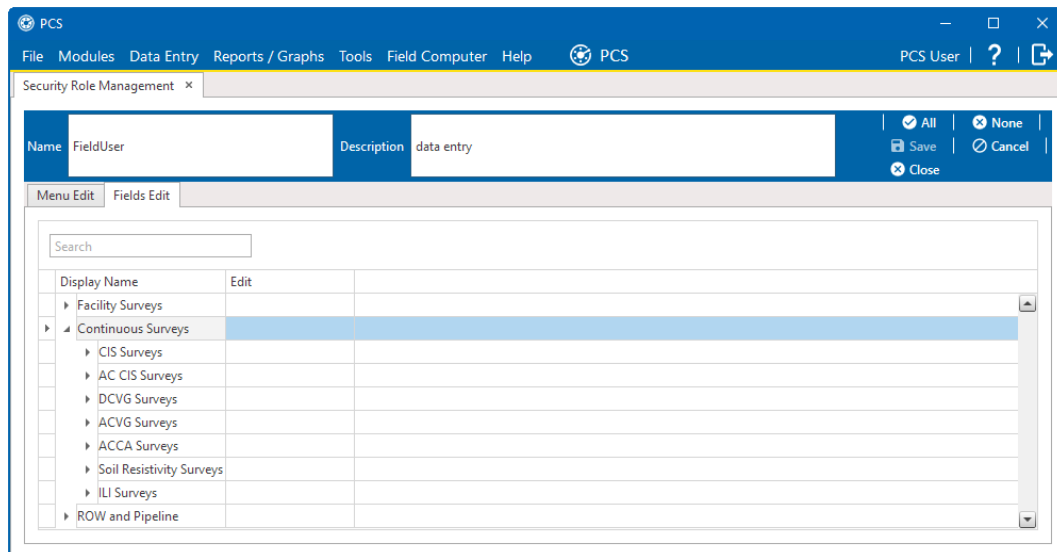


Figure 2-37. Fields Edit - Expanded

Grant or deny access to the expanded list:

- To grant access to a field, click the adjacent check box to place a check mark inside the check box.
- To deny access to a field, click the adjacent check box to remove the check mark inside the check box.

7. Click **Save** to save changes.

To assign a custom security role to a user previously set up in *User Management*, refer to [Assign a Custom Security Role to a User on page 170](#).

Delete a Custom Security Role

Complete the following steps to delete a custom security role:

1. Click **Tools > Security Role Management** in the header bar to open the *Security Role Management* window.

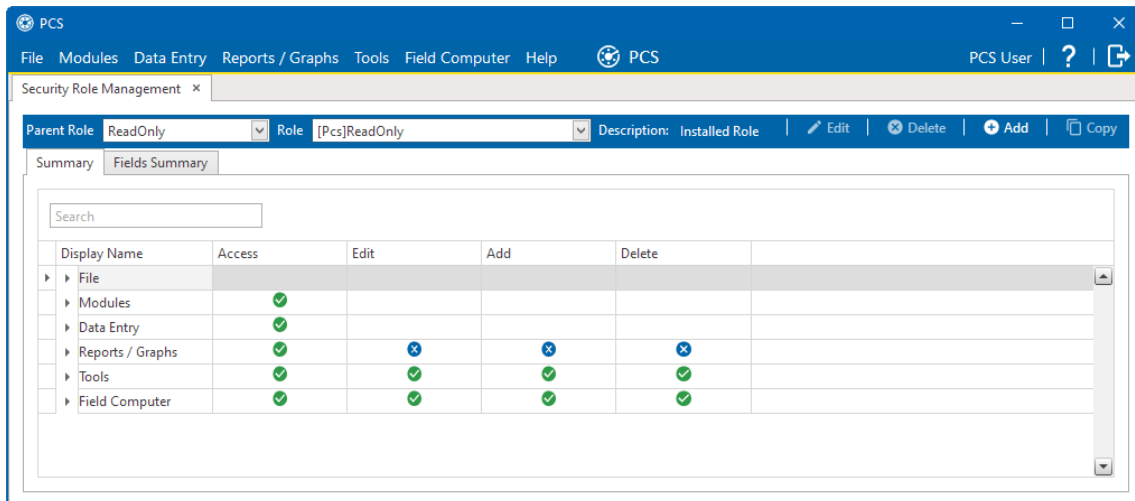


Figure 2-38. Security Role Management

Fields that are unavailable for this role contain the ✗ icon.

2. Click the down arrow in the **Parent Role** field and select the parent role associated with the custom security role you want to delete.
3. Click the down arrow in the **Role** field and select the custom security role you want to delete.
4. Click **✗ Delete**. A *Confirm Delete* window displays.

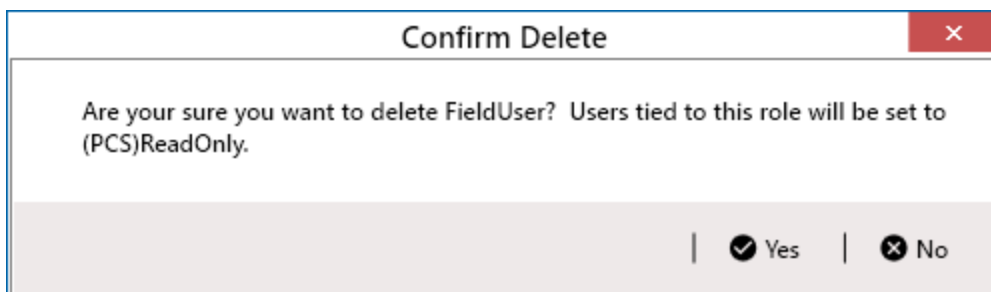


Figure 2-39. Confirm Delete Window

5. Click **✓ Yes** to delete the custom security role and set users tied to this role to the PCS installed role or **✗ No** to cancel the operation.

Set Properties in Field and UDF Customizations

Use *Field and UDF Customizations* to modify property settings for certain PCS installed fields and add one or more user-defined fields (UDFs) when PCS does not provide a specific field for data entry.

Information in this section explains how to use the most common features of *Field and UDF Customizations*. Topics include those in the following list:

- [Navigate Field and UDF Customizations](#)
- [Edit a PCS Installed Layout Theme on page 58](#)
- [Add a Layout Theme Addition on page 61](#)
- [Rename Field Captions on page 65](#)
- [Set Up Range Checking for Inspection Fields on page 69](#)
- [Set Up Change Tracking for Individual Fields on page 71](#)
- [Add User Defined Fields on page 74](#)

Navigate Field and UDF Customizations

The selection tree in the *Properties* pane of *Field and UDF Customizations* window includes three main categories labeled **Facility Surveys**, **Continuous Surveys**, and **ROW and Pipeline**. Each of these categories includes related items for selection. For example, items for selection in **Facility Surveys** are based on module and data grid. Items for selection in **Continuous Surveys** are based on data grid and the various continuous survey types.

When you select an item in the selection tree, a list of related fields and property settings displays in the adjacent grid. The grid layout includes columns, rows and cells similar to a spreadsheet. Grid columns at the top of the grid identify the names of the various properties you can set up for a field. Each grid row contains property settings for a specific field, such as **Casing IRF** shown in the following figure. When a property setting is shaded gray or includes the label **N/A** (not applicable), this indicates the setting cannot be modified.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

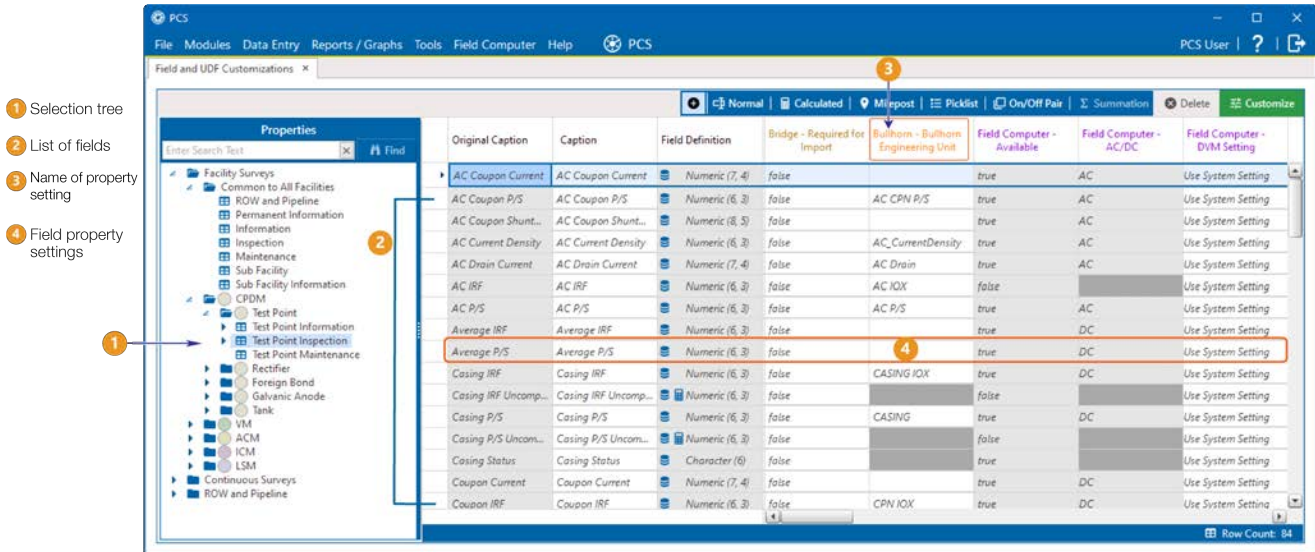


Figure 2-40. Field and UDF Customizations

Edit a PCS Installed Layout Theme

A layout theme is a named set of fields that are present in the grid when working in *Field and UDF Customizations*. PCS includes two types of layout themes: *installed* and *addition*.

An installed layout theme is one that has been installed during the PCS software installation, such as **[PCS] All Fields**.

An addition layout theme is one that you create.

The following procedure explains how to complete the following tasks to edit a PCS installed layout theme:

- add and remove fields in an installed layout theme
- revert an installed layout theme
- save changes as a new baseline installed layout theme

Complete the following steps to edit, revert, and save a PCS installed layout theme:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

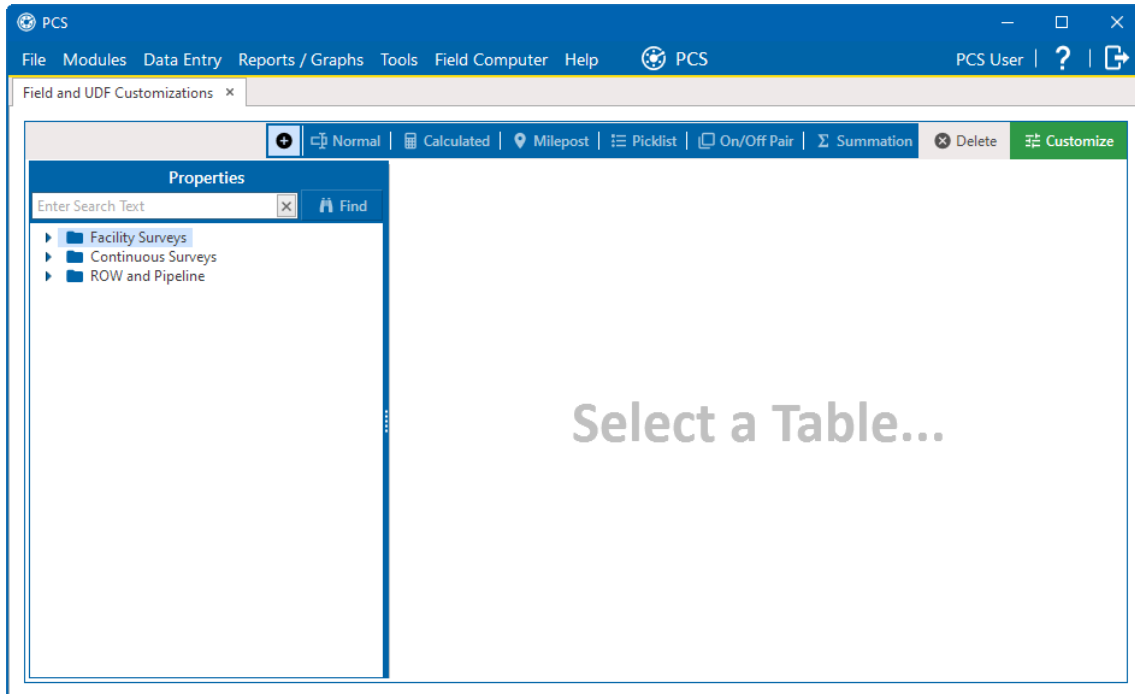



Figure 2-41. Field and UDF Customizations

2. Click  **Customize** to open the *Column Selections* window.

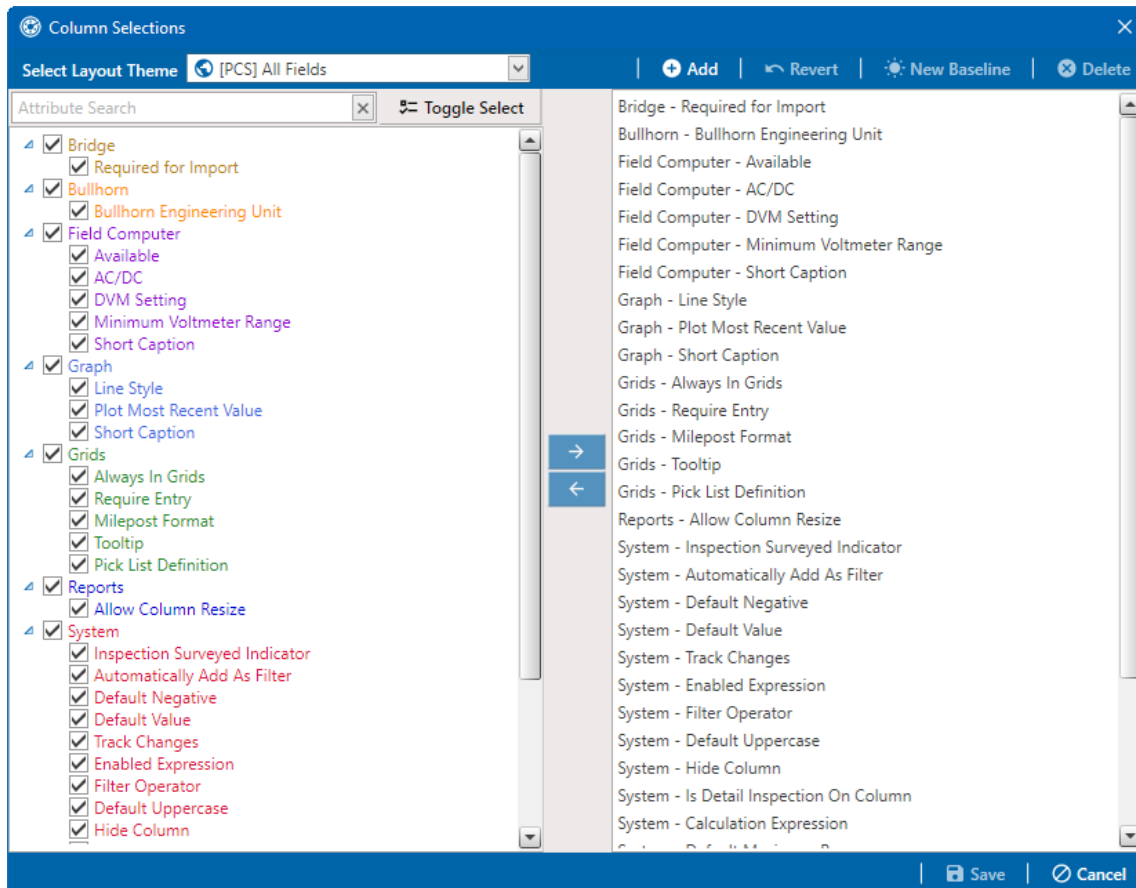


Figure 2-42. Column Selections Window

3. Click the down arrow in the **Select Layout Theme** field and select a theme in the selection list, such as **[PCS] All Fields**.

By default all fields are included in the **[PCS] All Fields** layout theme. If you want to clear all fields listed in the right pane and subsequently remove them from the layout theme, click **Toggle Select**. If you click the button again, all fields are moved to the right pane and added in the layout theme.

4. To add or remove one or more fields in the layout theme, complete one of the following steps:
 - a. To add a field in the left pane to the right pane, select the field and click the button to move the field to the right pane. You can also click in the check box to add a check mark to the field (if it is not already checked). This will automatically add the field to the right pane. The grid layout theme includes all fields listed in the right pane of the *Column Selections* window.
 - b. To remove a field in the right pane, select a field in the right pane and then click the button.




5. Click  **Save** to save changes. The *Column Selections* window closes.
6. To revert an installed theme and restore settings prior to editing, open the *Column Selections* window and click  **Revert**. Click **Yes** when the *Confirm Revert* message displays.



Figure 2-43. Confirm Revert Message Window

7. To save current changes as new baseline settings, click  **New Baseline**. When future changes are made and then reverted, PCS restores the theme with baseline settings.

Add a Layout Theme Addition

Adding a layout theme allows you to choose which fields to include in the grid and then save the new layout as a theme for later use.

Complete the following steps to add a grid layout theme:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

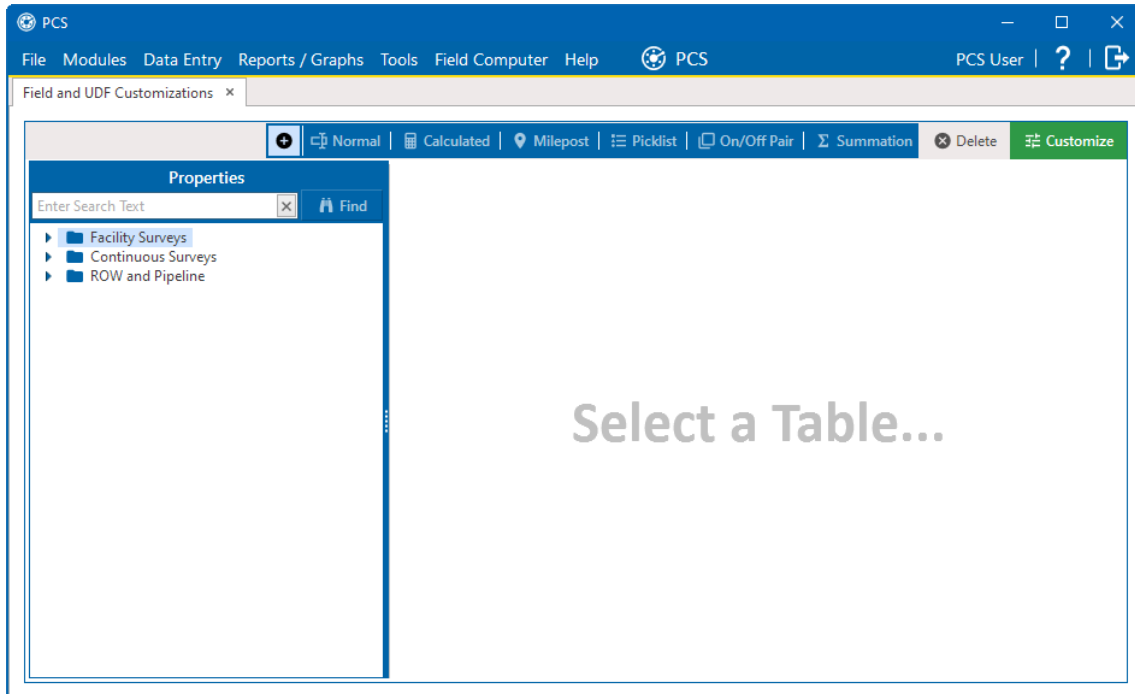



Figure 2-44. Field and UDF Customizations

2. Click  **Customize** to open the *Column Selections* window.

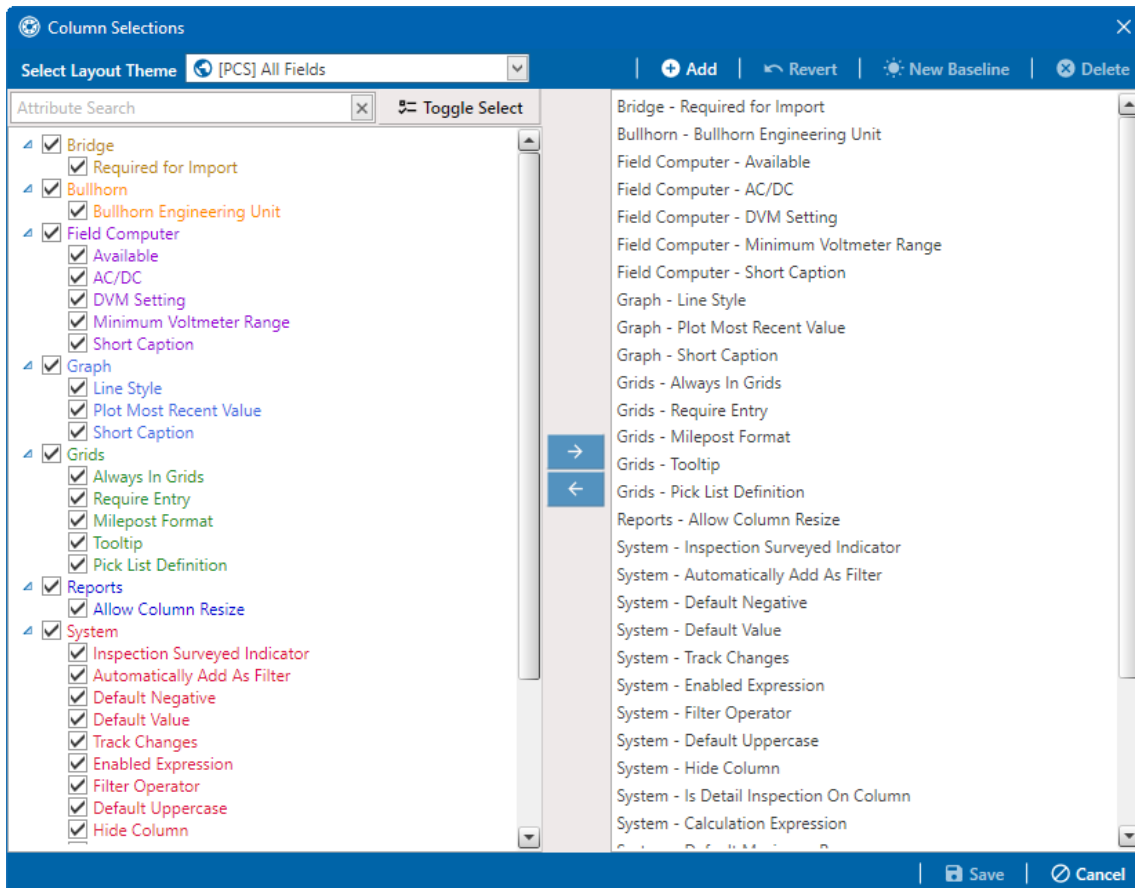


Figure 2-45. Column Selections

3. Click  **Add** to open the *New Layout Theme* window.

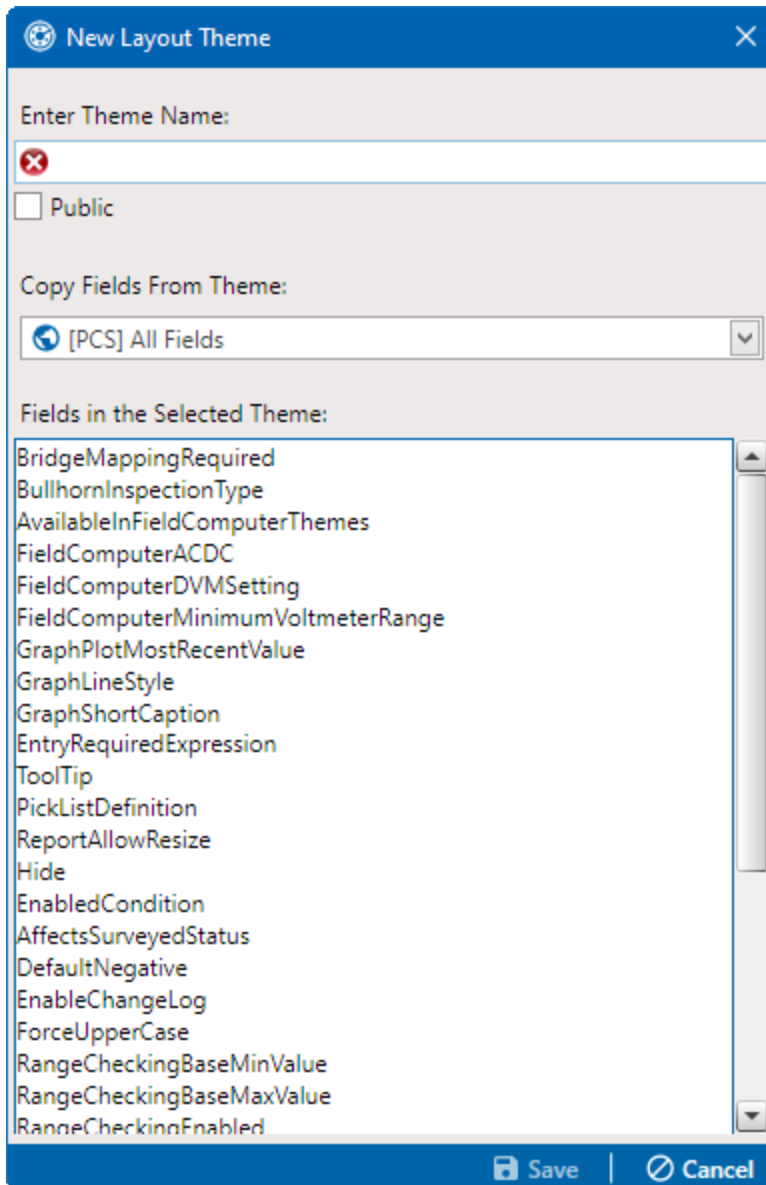





Figure 2-46. New Layout Theme

4. Type a name for the layout theme in the field **Enter Theme Name**.
5. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. If you do not select **Public**, the layout saves as a private theme.
Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it. Also, only public themes will be available for selection for layouts, sorts, or reports.
6. Select a layout theme from the **Copy Fields From Theme** field. The fields in the selected theme display in the box below **Fields in the Selected Theme**.

7. Click  **Save** to save changes and return to the *Column Selections* window.
8. If you want to clear all fields listed in the right pane of the *Column Selections* window and subsequently remove them from the grid, click  **Toggle Select**. Clicking the button again moves all fields to the right pane and adds them in the grid.
9. Choose which fields to include in the layout theme. Select a field in the left pane and then click the  button to move the field to the right pane. Repeat this step as needed. You can also click in the check box to select the field and move it to the right pane.

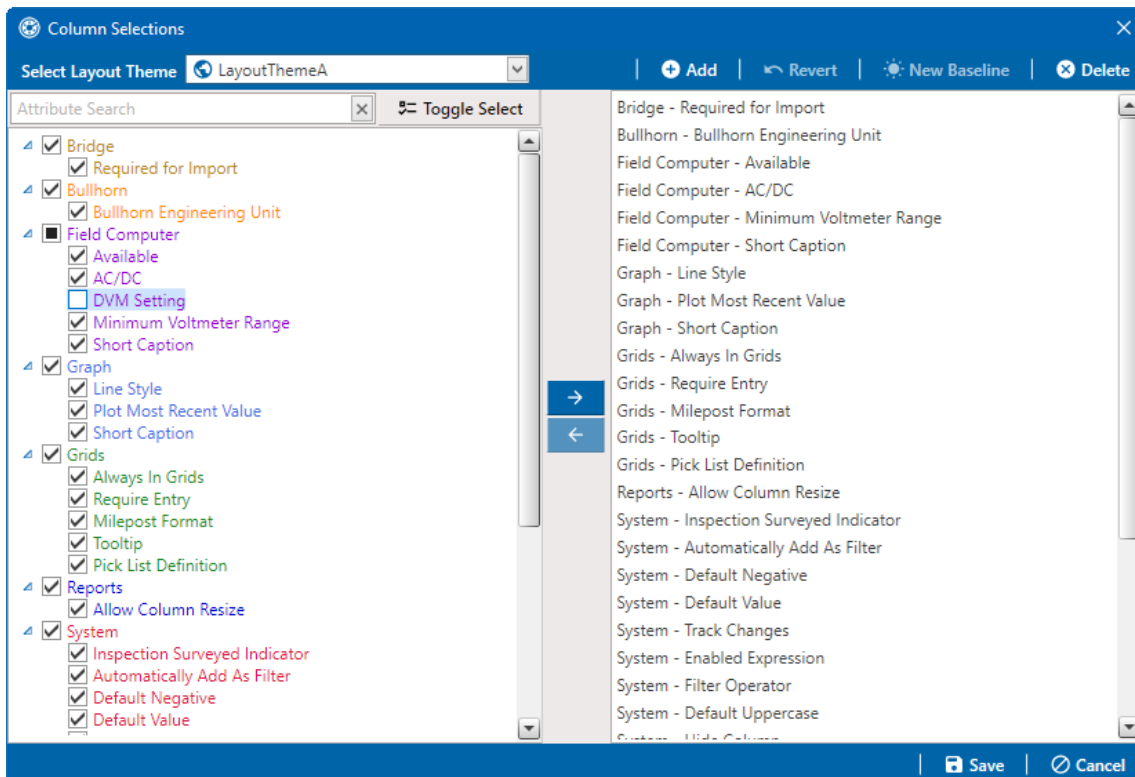




Figure 2-47. Column Selections

10. If you want to remove a field in the layout theme, select a field in the right pane and then click the  button.
The grid layout theme includes all fields listed in the right pane of the *Column Selections* window.
11. Click  **Save** to save changes and return to the *Field and UDF Customizations* grid.

Rename Field Captions

You can rename many of the original PCS field captions with a caption that is more familiar to users in your company.

NOTE: Only users with SysAdmin user permissions can rename field captions.

Complete the following steps to rename a field caption:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.
2. Select an item in the *Properties* pane to display related fields and property settings in the grid.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

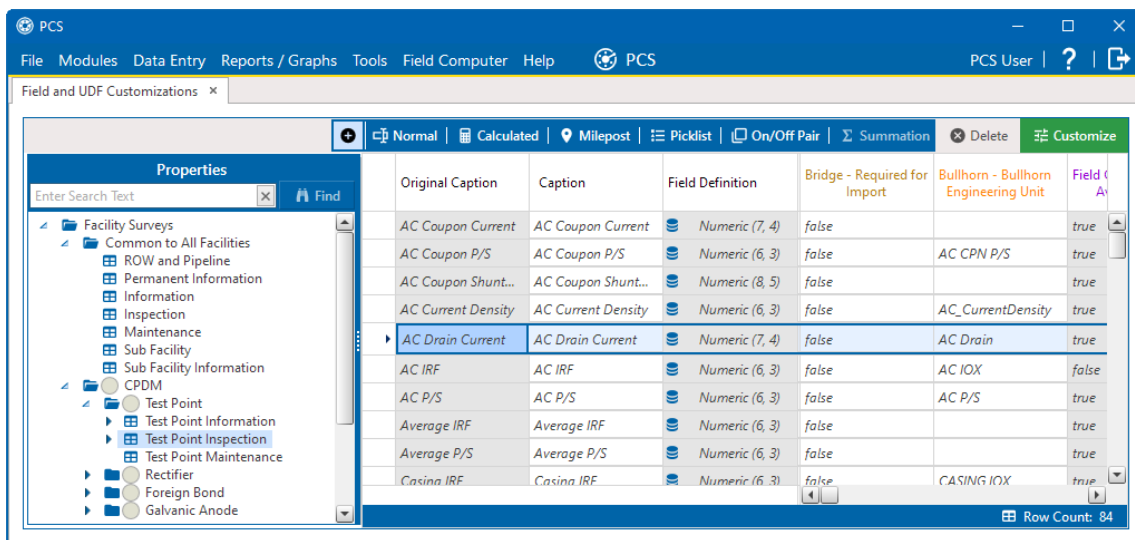


Figure 2-48. Field and UDF Customizations

3. Place your cursor in the **Caption** grid column and edit the name as desired.

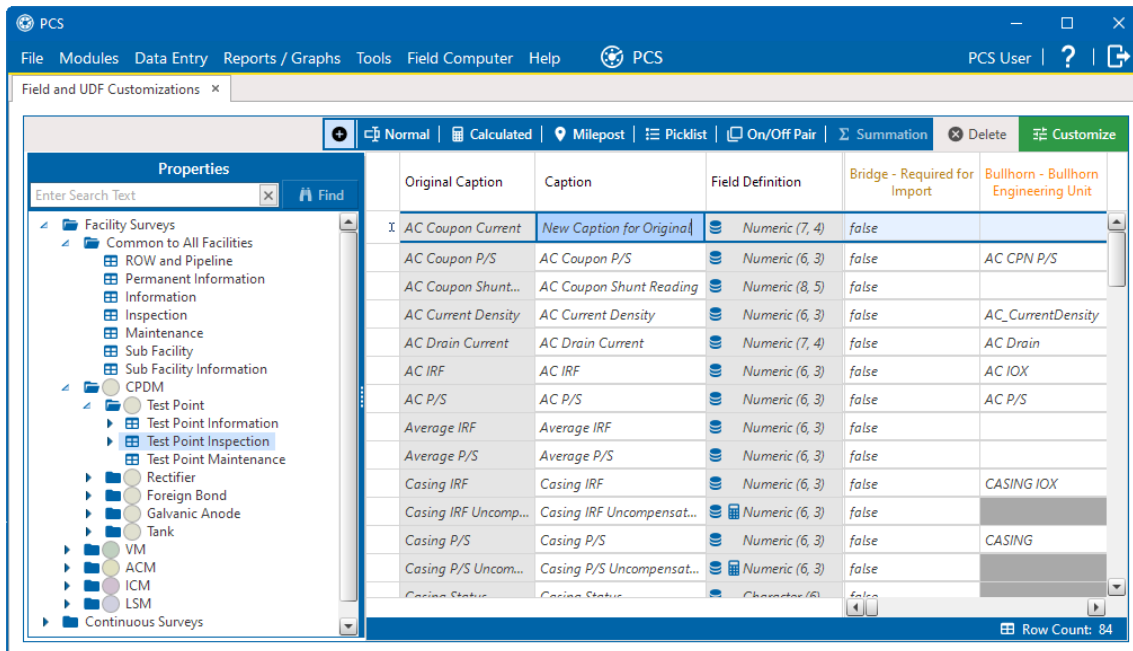


Figure 2-49. Renaming a Field Caption

When you click out of the field, the new **Caption** name is automatically placed in alphabetical order with the other fields and the name is no longer italicized.

Return a Field Caption to the Original Name

A Caption name that had been renamed can be restored to its original name.

NOTE: Only users with SysAdmin user permissions can rename field captions.

Complete these steps to return a field caption to the original name:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.
2. Select an item in the *Properties* pane to display related fields and property settings in the grid.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

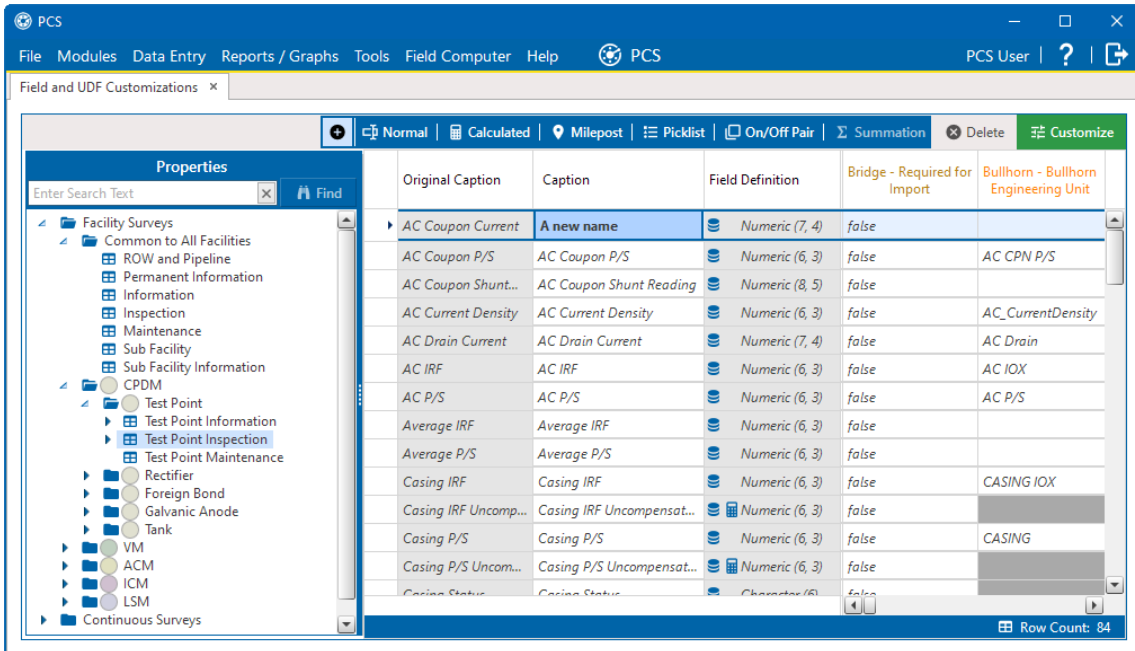


Figure 2-50. Field and UDF Customizations

- Place your cursor in the **Caption** grid cell of the renamed caption and delete the name.

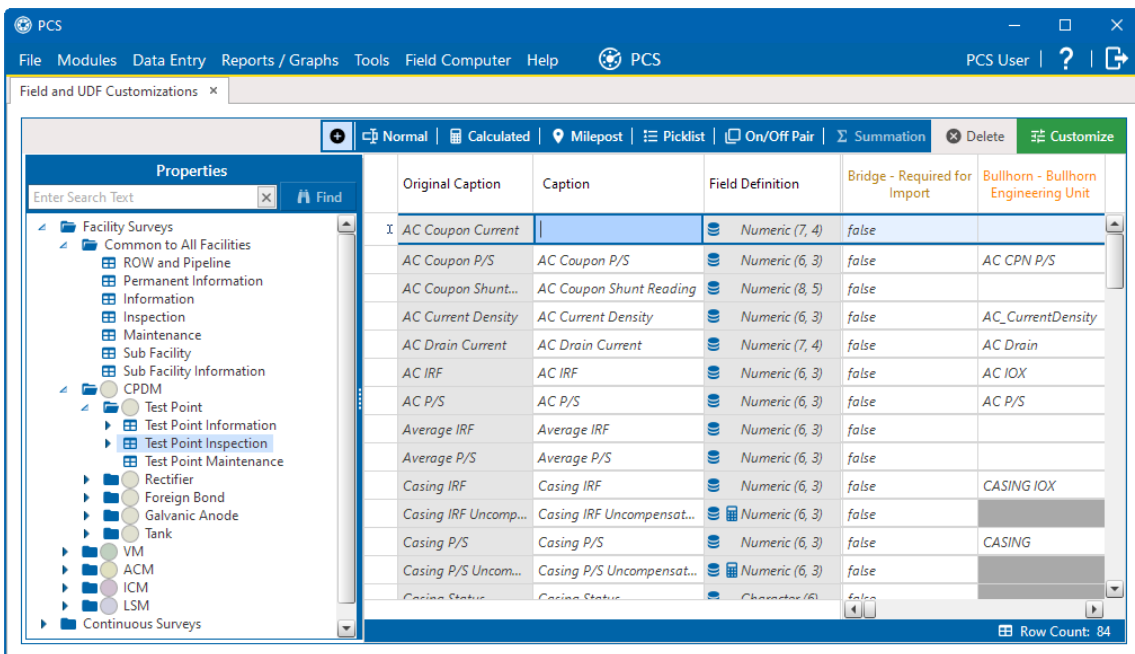


Figure 2-51. Renaming a Field Caption

When you click out of the field, the original **Caption** name is automatically restored, and the grid is re-alphabetized.

Original Caption	Caption	Field Definition	Bridge - Required for Import	Bullhorn - Bullhorn Engineering Unit	Field Computer - Available	Field Computer - AC/DC	Field Computer - DVM Setting
AC Coupon Current	AC Coupon Current	Numeric (7, 4)	false		true	AC	Use System Setting
AC Coupon P/S	AC Coupon P/S	Numeric (6, 3)	false	AC CPN P/S	true	AC	Use System Setting
AC Coupon Shunt...	AC Coupon Shunt...	Numeric (8, 5)	false		true	AC	Use System Setting
AC Current Density	AC Current Density	Numeric (6, 3)	false	AC_CurrentDensity	true	AC	Use System Setting
AC Drain Current	AC Drain Current	Numeric (7, 4)	false	AC Drain	true	AC	Use System Setting
AC IRF	AC IRF	Numeric (6, 3)	false	AC IOX	false		Use System Setting
AC P/S	AC P/S	Numeric (6, 3)	false	AC P/S	true	AC	Use System Setting
Average IRF	Average IRF	Numeric (6, 3)	false		true	DC	Use System Setting
Average P/S	Average P/S	Numeric (6, 3)	false		true	DC	Use System Setting
Casing IRF	Casing IRF	Numeric (6, 3)	false	CASING IOX	true	DC	Use System Setting
Casing IRF Uncomp...	Casing IRF Uncomp...	Numeric (6, 3)	false		false		Use System Setting
Casing P/S	Casing P/S	Numeric (6, 3)	false	CASING	true	DC	Use System Setting
Casing P/S Uncom...	Casing P/S Uncom...	Numeric (6, 3)	false		false		Use System Setting
Casing Status	Casing Status	Character (6)	false		true		Use System Setting
Coupon Current	Coupon Current	Numeric (7, 4)	false		true	DC	Use System Setting
Coupon IRF	Coupon IRF	Numeric (6, 3)	false	CPN IOX	true	DC	Use System Setting

Figure 2-52. Original Caption Restored

Set Up Range Checking for Inspection Fields

Range checking is the acceptable range of values allowed for data entry in an inspection field.

Setting up range checking allows PCS to alert the user when an incorrect value has been entered in an inspection field. For example, if the acceptable range of values is in a range of -10 to 0, and the user enters a value that is outside this range, a warning message will display. The user can then correct the invalid entry. Data entry errors are less likely to occur when inspection fields are set up with range checking.

Settings are applied system-wide when range checking is set up for an inspection field in *Field and UDF Customizations*. You can also set up range checking at the facility level using the minimum/maximum fields available in the *Information and Inspections* data entry grid. Range checking at the facility level overrides range checking at the system level.

Complete the following steps to set up range checking for an inspection field:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.
2. If the **System - Default Minimum Range** and **System - Default Maximum Range** (in red) columns are not included in the grid, modify the layout theme to include these columns. Refer to [Edit a PCS Installed Layout Theme](#).
3. Select an item in the *Properties* pane that includes the inspection field you want to set up for range checking.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

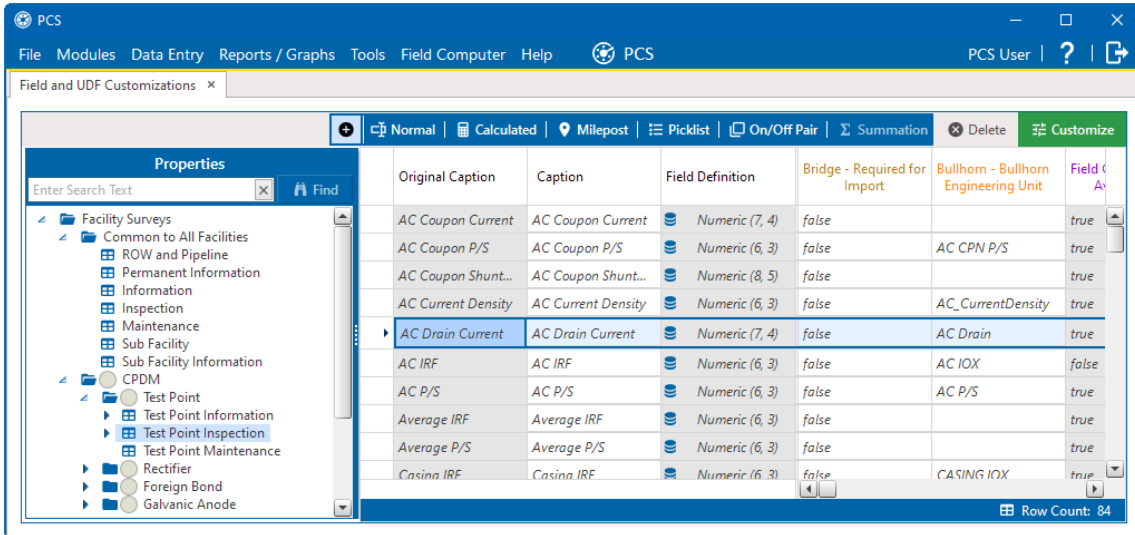


Figure 2-53. Field and UDF Customizations

- In the grid, select the inspection field you want to set up for range checking.

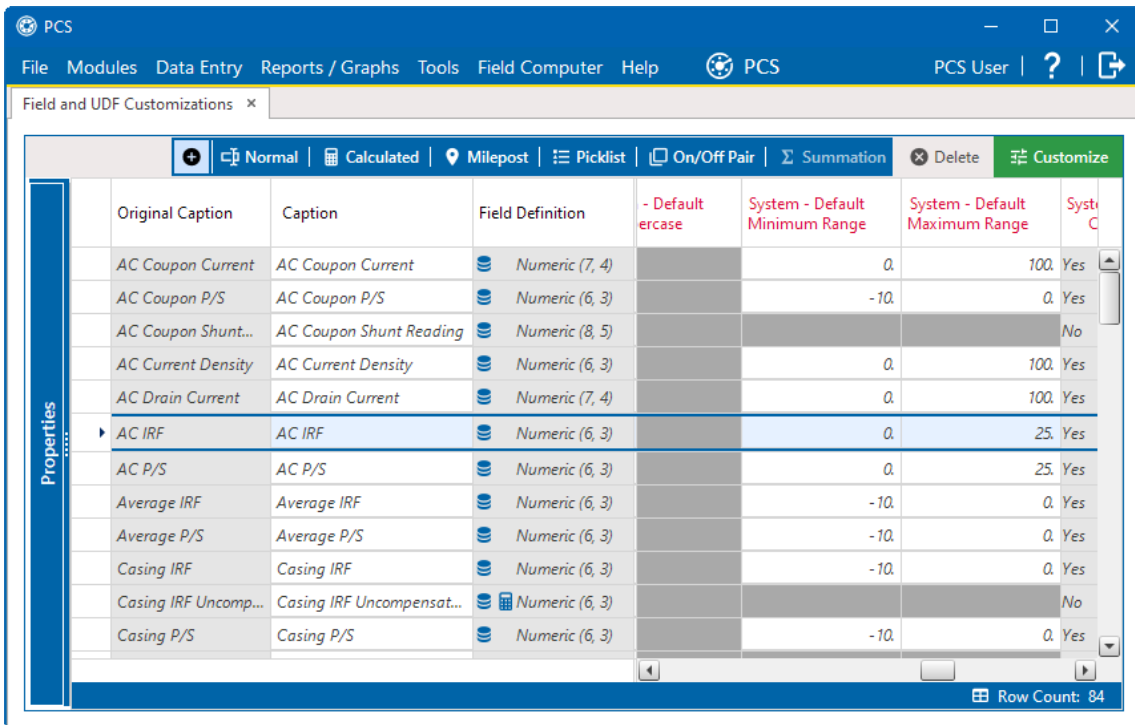


Figure 2-54. System - Default Minimum and Maximum Range

5. Type a minimum range value in the field labeled **System-Default Minimum Range** for the selected field.
6. Type a maximum range in the field labeled **System-Default Maximum Range** field for the selected field.
7. If you want to set up another inspection field with range checking, repeat these steps.
8. When finished, close the *Field and UDF Customizations* window.

Set Up Change Tracking for Individual Fields

If enabled in the *Options* window (**Tools > Options**), PCS keeps a record of all changes made to PCS data. The *Field and UDF Customizations* window allows you to specify which tables or fields will have their changes tracked if change history is enabled in PCS. By default, all fields are set to track changes when change history is enabled.

Refer to [Set Editing Options](#) for more information on setting Change Tracking.

Modifications to an individual field's change tracking status is not meant to be made while PCS is in use by general users. A field becomes locked while its change history setting is modified in *Field and UDF Customizations* window. That is, users are prevented from adding, modifying, or deleting data that contains the field. For this reason, it is recommended that change tracking configurations are made during the initial configuration of PCS or while performing system maintenance.

Complete the following steps to determine whether changes to an individual field are recorded:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

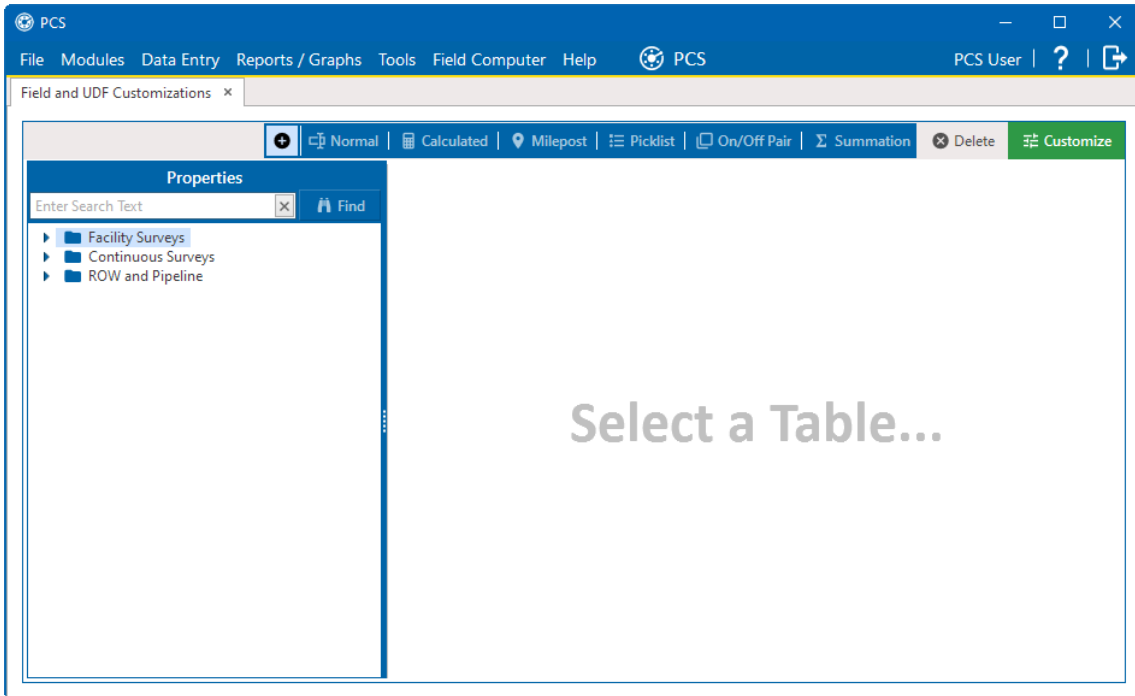


Figure 2-55. Field and UDF Customization Window

2. Select an item in the *Properties* pane to display related fields and property settings in the grid.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

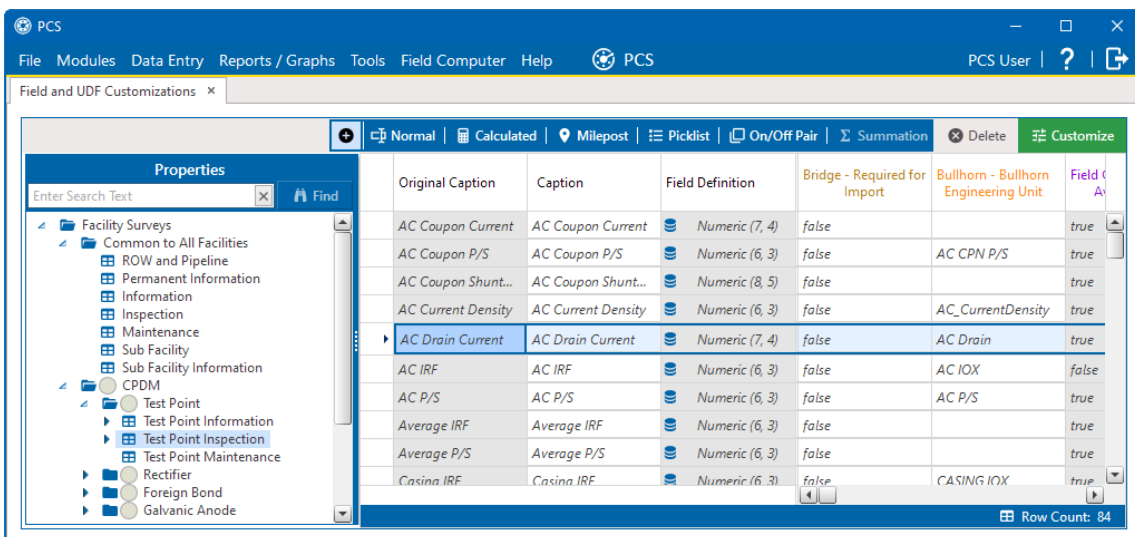


Figure 2-56. Field and UDF Customizations

- If the **Enable Change History** column is not visible in the grid, use the slide bar at the bottom to move the columns until the **Enable Change History** is visible.

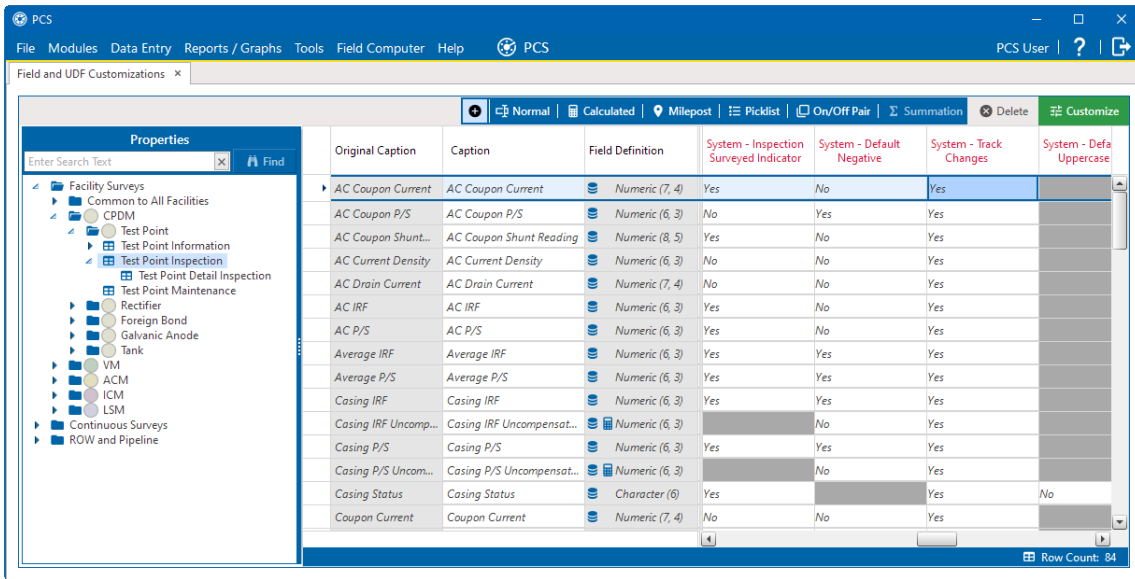


Figure 2-57. Grid Slider

- Select the field you want to set up for change tracking.
- In the **Enable Change History** column, select **Yes** to track changes made in the selected field while change history is enabled. Select **No** to not record any changes made in the field, even if change history is enabled in the *Options* window.

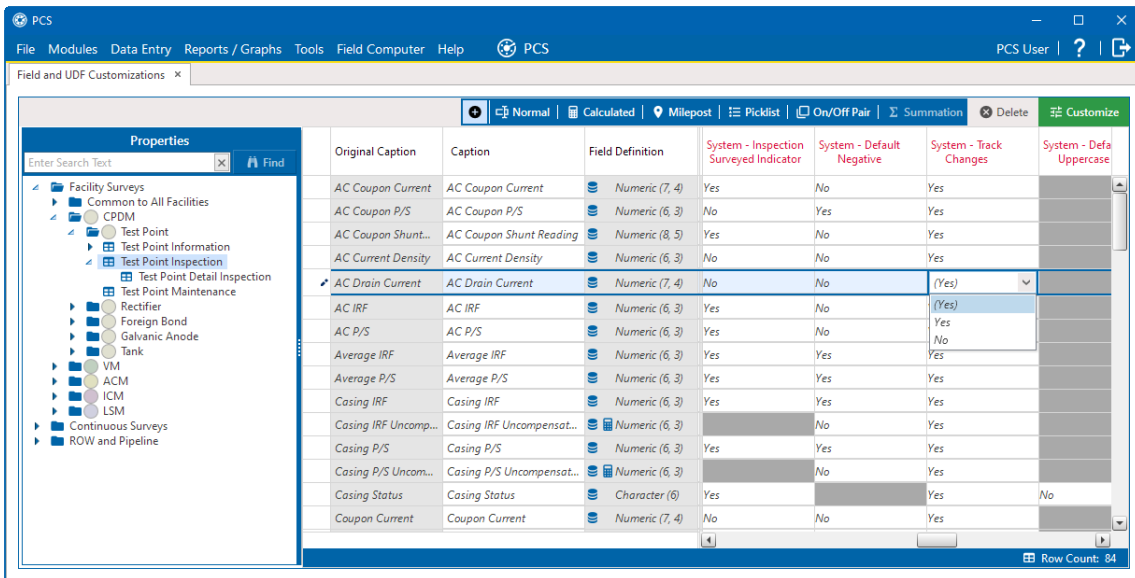


Figure 2-58. Enabling Change Tracking

6. Repeat these steps for any additional fields. Your changes are saved when you close the *Field and UDF Customizations* window.
7. If change history is already enabled in the *Options* window, disable change history in *Options* and then re-enable change history to implement the new change tracking set up. For more information about enabling change history in *Options*, refer to [Set Editing Options on page 26](#).

Add User Defined Fields

A user defined field (UDF) is a field you create when PCS does not provide a field for data entry. The following types of UDFs can be added:

- **Normal**— set up a normal UDF when you want to add any of the following types of fields: character, numeric, date, logical, memo, or date/time field.
- **Calculated**— set up a calculated UDF when you want PCS to perform calculations based on expressions you set up for the UDF.
- **Milepost**— set up a Milepost UDF when you want to assign a different milepost format to one or more facility types on a pipeline.
- **Standard Picklist**— set up a Standard Picklist UDF when you want to limit data entry to a list of valid choices in a selection list. (A Standard Picklist in PCS is similar to a validation table in PCS 7.)
- **Dynamic Picklist** — set up a Dynamic Picklist with a drop-down list of data items that change based on a data item selected in another picklist. This type of picklist uses a cascading parent/child relationship allowing you to set up more than five levels of interdependent picklists.
- **On/Off Pair** — set up a custom pair of on/off fields when PCS does not provide a pair of installed on/off fields for recording inspection readings in a data grid or form. This UDF is available for both facility and continuous surveys.
- **Summation** — set up a Summation UDF when you want PCS to perform an aggregation for a selected **Information**, **Inspection**, or **Maintenance** field. This UDF type supports aggregation on a user-selected target field using any one of the following operators: **Average**, **Count**, **Latest**, **Maximum**, **Minimum**, and **Sum**. You can also include one or more user-defined filters in the set up of the UDF to further filter the results of aggregated data. Summation UDF is a **Permanent Information** field available for use in data grids, forms, reports, and as a filter in scheduling.

If change tracking is configured for your database, review the change tracking configurations after adding a user defined field to ensure that the desired settings were applied to the new field. Refer to [Track Data Changes on page 869](#).

This chapter includes the following topics:

- [Add a Normal User Defined Field on page 75](#)
- [Add a Calculated User Defined Field on page 79](#)
- [Add a Milepost User Defined Field on page 89](#)
- [Add a Standard Picklist User Defined Field on page 93](#)
- [Set Up a Data Entry Field as a Standard Picklist on page 101](#)
- [Add a Dynamic Picklist User Defined Field on page 107](#)
- [Edit a Standard or Dynamic Picklist on page 125](#)
- [Add an On/Off Pair User Defined Field on page 129](#)
- [Summation User Defined Fields on page 134](#)

Add a Normal User Defined Field

Complete the following steps to set up a normal user defined field (UDF) for common data entry:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

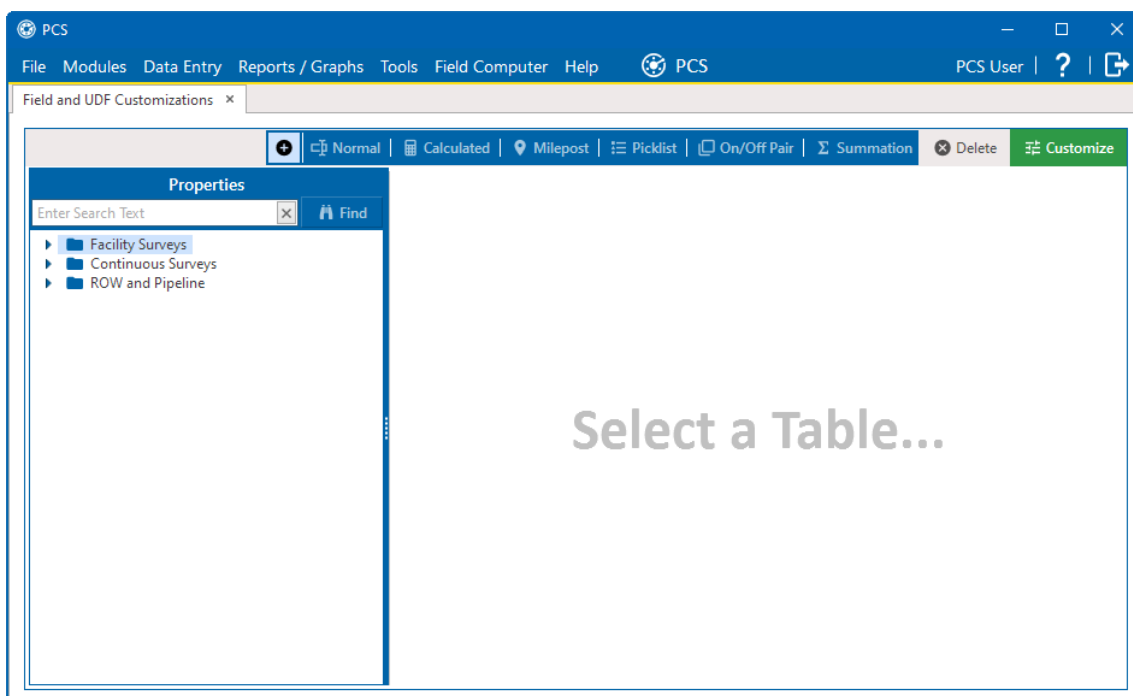


Figure 2-59. Field and UDF Customization Window

- If you want to select a grid layout theme, click  **Customize** to open the *Column Selections* window, select a theme from the **Select a Layout Theme** field, and click  **Save**.

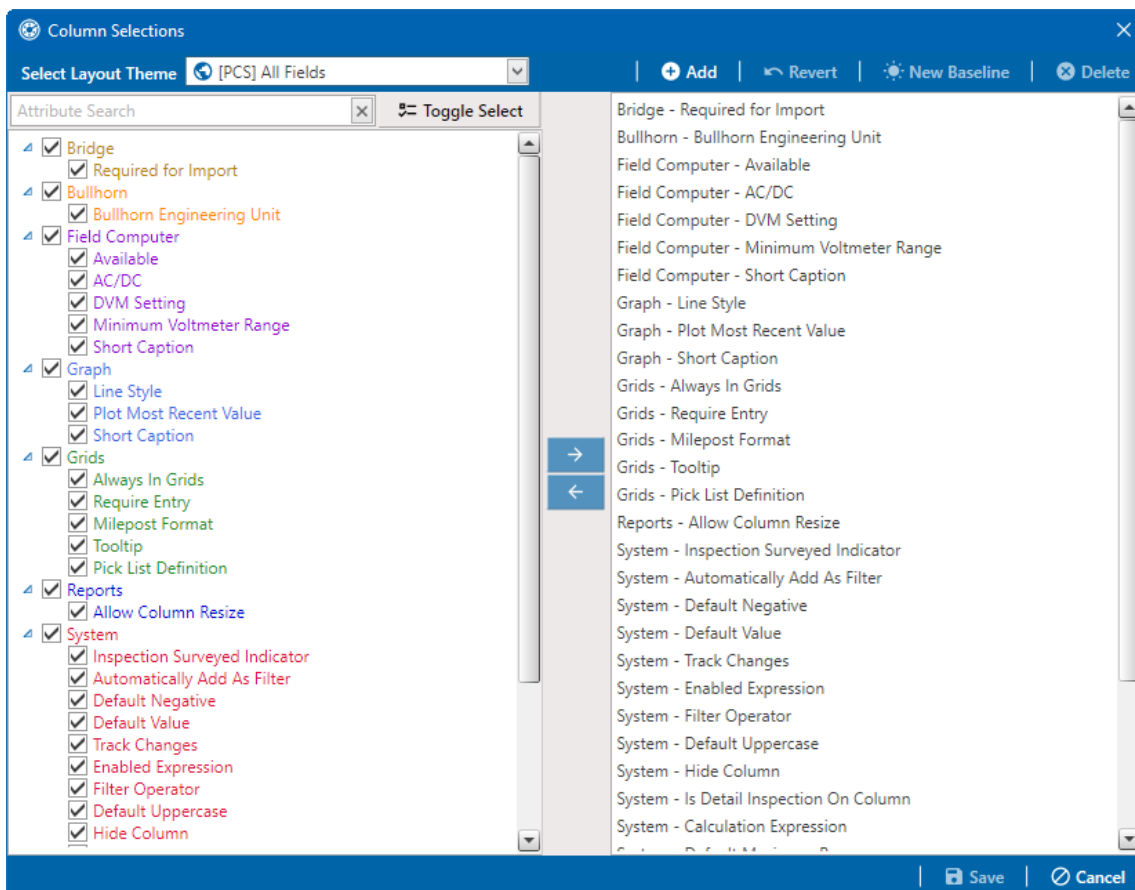


Figure 2-60. Column Selections Window

- Select a table in the *Properties* pane that includes the data entry grid to which you want to add a UDF.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

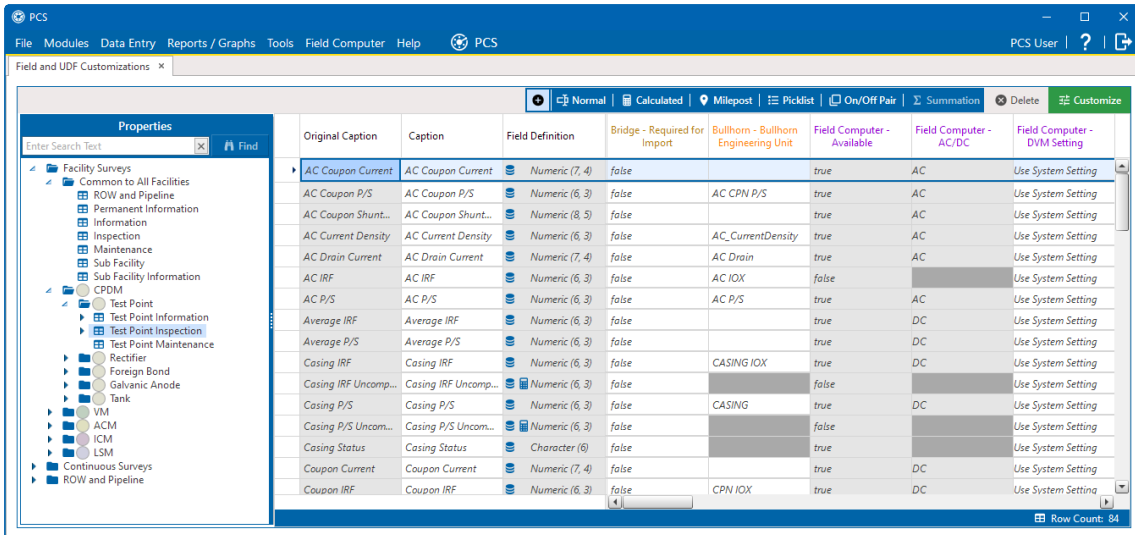



Figure 2-61. Field and UDF Customizations

- Click  **Normal** in the toolbar to open the *Add Normal Field* window.

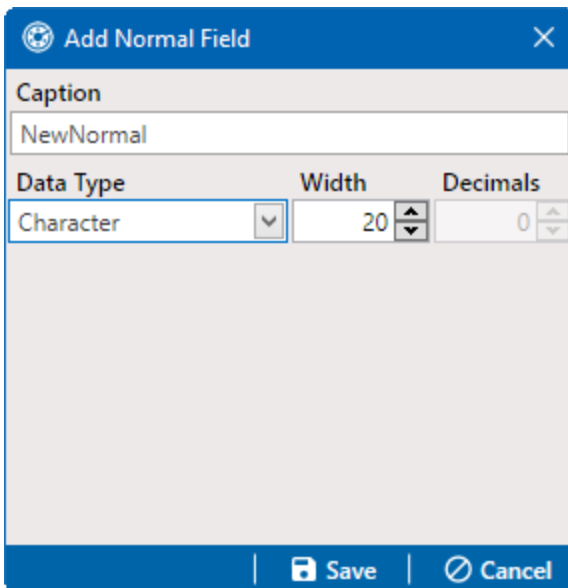


Figure 2-62. Add Normal Field

- Type a unique name for the UDF in the **Caption** field.
- Select the type of field you want to add from the **Data Type** drop-down field and select one of the following options:

- **Character**– supports characters such as A, B, and C. This data type can be used for both character and numeric data. If you plan to use mixed data, such as a number and a character or dash, define the data type as a character. If you plan to create a picklist for the UDF, use the **Character** data type. For more information about picklists, see [Add a Standard Picklist User Defined Field on page 93](#).
 - **Numeric**– supports values such as 1, 2, 3, and numeric values that use formats such as 999.999 or -99.999.
 - **Date**– supports a date format using MM/DD/YYYY (month, day, year), such as 11/12/2012.
 - **Logical**– supports a yes/no selection in the form of a check box to enable or disable an option in the data entry grid.
 - **Memo**– supports more than 255 characters and carriage returns.
 - **DateTime2**– supports a date and time format using HH:MM:SS (hours, minutes, seconds) and MM/DD/YYYY (month, day, year), such as 11:15:45, 12/11/2012.
 - **Integer**– supports a positive or negative whole number or zero, such as -2, 4, 123, and 3,245.
7. If you selected either the Character or Numeric data type, set the length of the field by typing the number of characters required for the UDF in the **Width** field.
Clicking the up arrow in the **Width** field increases the value; clicking the down arrow decreases the value.
 8. If you selected the Numeric data type, set the number of decimal places required for the UDF by typing a value in the **Decimals** field.
 9. If you selected the Numeric data type and want to set up range checking for the UDF, click the **Range Checking** option and then type a minimum and maximum value in the respective fields.

The screenshot shows a dialog box titled "Add Normal Field" with a close button (X) in the top right corner. The dialog is divided into several sections:

- Caption:** A text input field containing "NewNormal".
- Data Type:** A dropdown menu set to "Numeric".
- Width:** A numeric input field set to "6".
- Decimals:** A numeric input field set to "3".
- Options:**
 - Range Checking: This option is unchecked. Below it are two text input fields for "Minimum" and "Maximum", both containing the value "0".
 - Detail Inspection On Column: This option is also unchecked.
- Buttons:** At the bottom, there are "Save" and "Cancel" buttons.

Figure 2-63. Add Normal Field Window - Numeric Data Type

Range checking is the acceptable range of values allowed for data entry in a field. Setting up range checking allows PCS to alert the user when an incorrect value has been entered.

10. Click  **Save** to close the window and return to the *Field and UDF Customizations* window.

The UDF is now available for adding in a data entry grid.

If needed, refer to [Themes and Filter Groups on page 372](#) for information about how to add fields in a data entry grid.

Add a Calculated User Defined Field

Set up a calculated user defined field (UDF) when you want to include an expression for a specific calculated outcome. Calculated fields are read-only.

Complete the following steps to add a calculated UDF:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

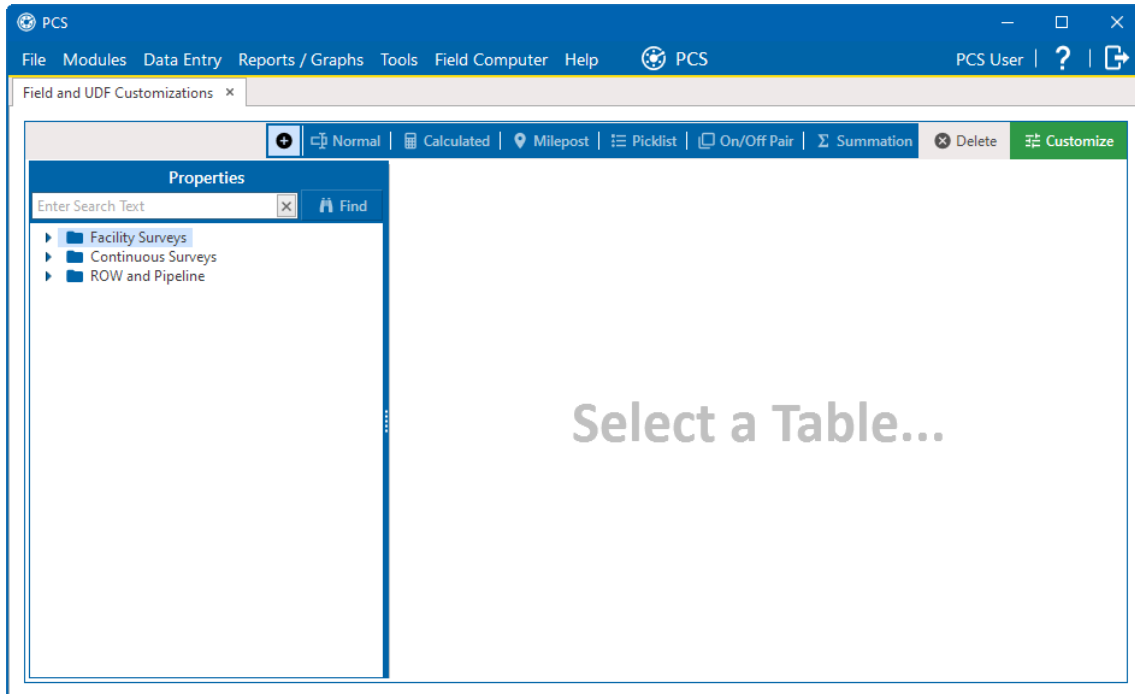


Figure 2-64. Field and UDF Customization Window

2. If you want to select a grid layout theme, click **Customize** to open the *Column Selections* window, select a theme from the **Select a Layout Theme** field, and click **Save**.

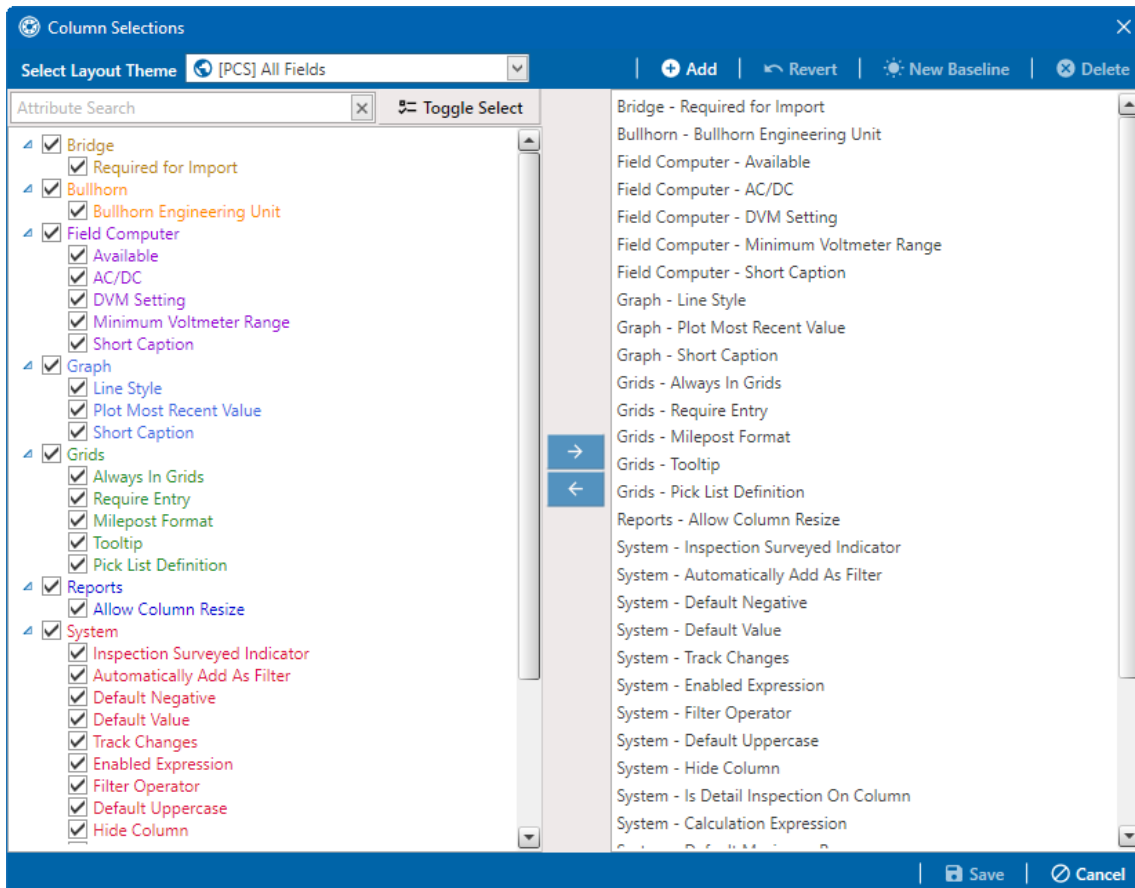


Figure 2-65. Column Selections Window

3. Select a table in the *Properties* pane that includes the data entry grid to which you want to add a UDF.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

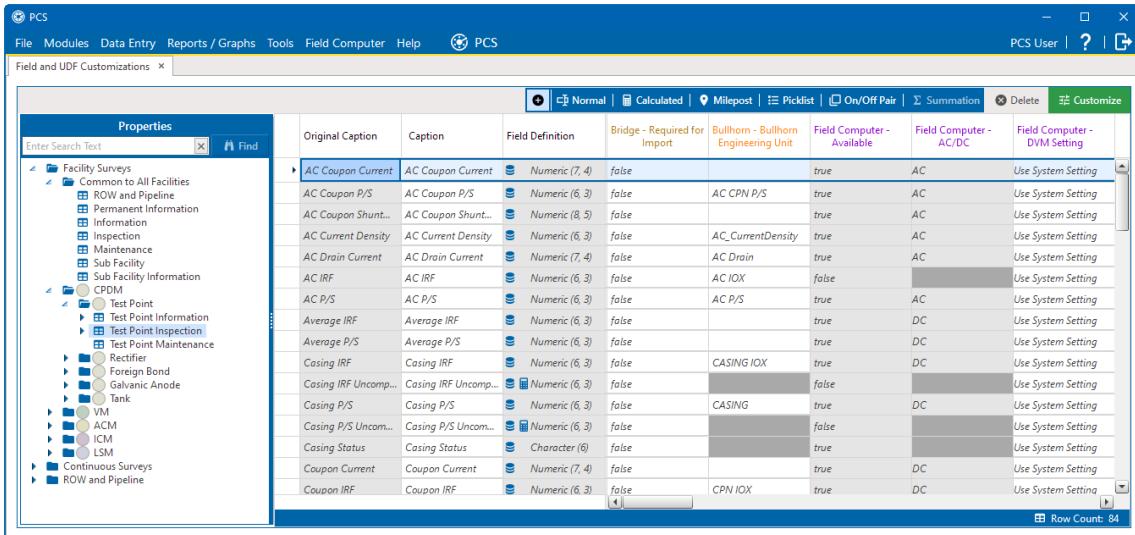


Figure 2-66. Field and UDF Customizations

- Click **Calculated** in the toolbar to open the *Add Calculated Expression* window.

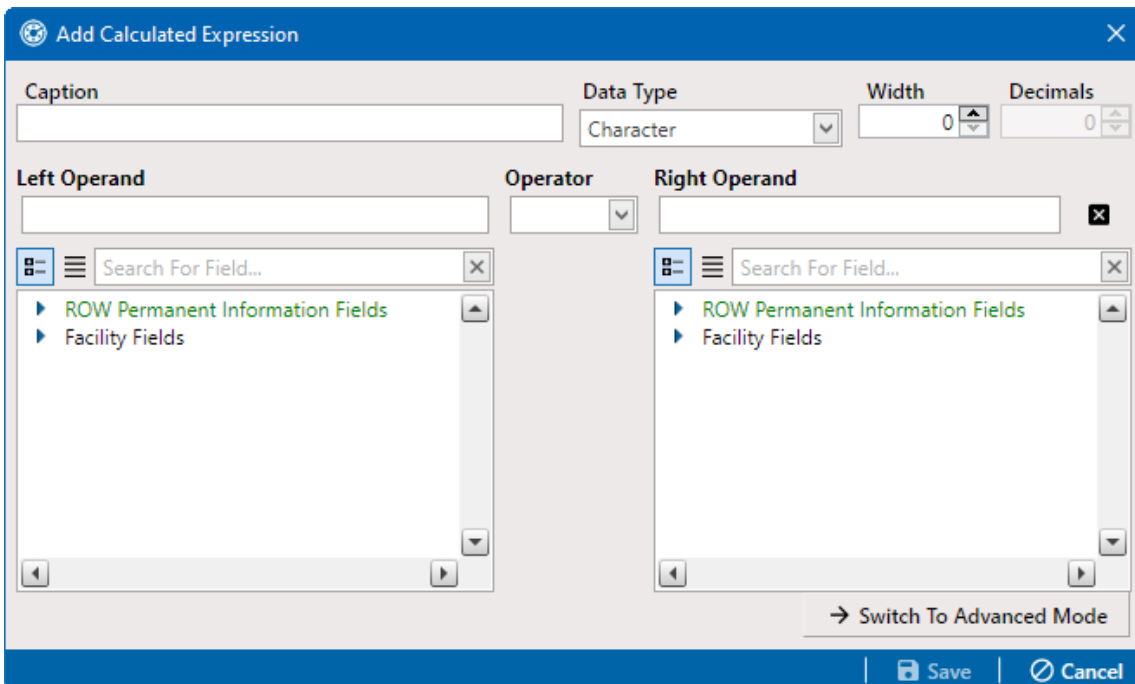


Figure 2-67. Add Calculated Expression

- Type a unique name for the field in the **Caption** field.
- Select a data type from the **Data Type** drop-down field.

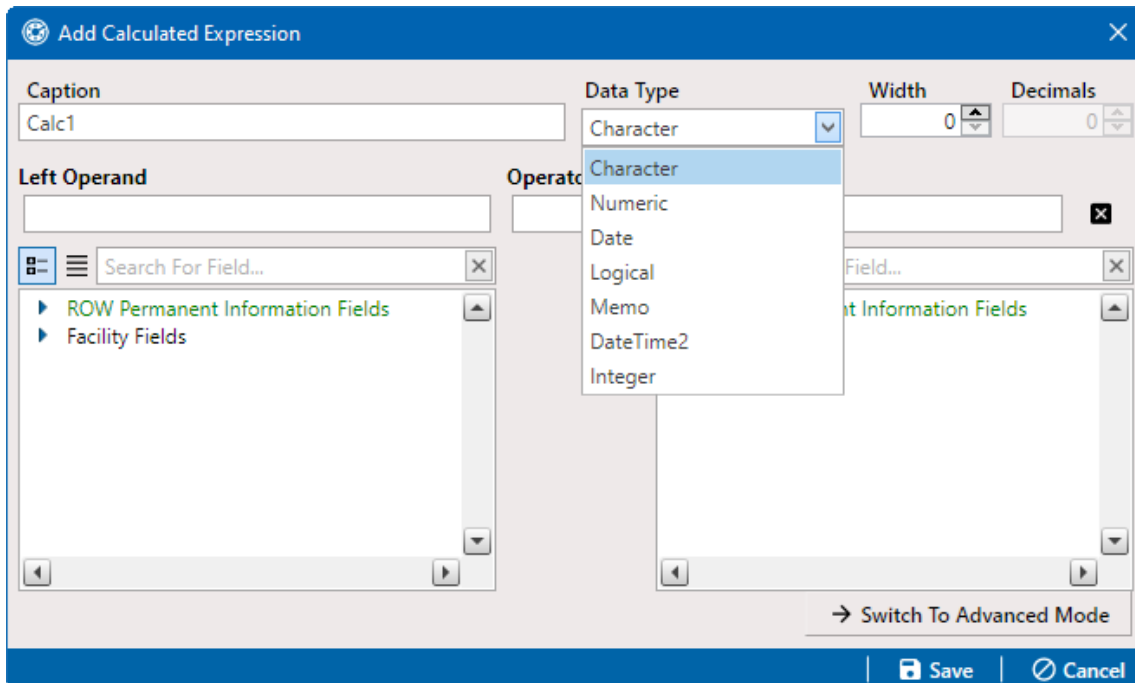


Figure 2-68. Add Calculated Expression - Data Type

7. If you selected either the Character or Numeric data type, set the length of the field by typing the number of characters required for the field in the **Width** field. Clicking the up arrow in the **Width** field increases the value; clicking the down arrow decreases the value.
8. If you selected the Numeric data type, set the number of decimal places required for the field by typing a value in the **Decimals** field. Decimals refer to the number of digits that will be shown to the right of the decimal point.

Numeric fields will have the width and/or decimal values displayed next to the field type in the Field Definition column. For example, a numeric field with a width of 4 and decimal value of 3 will display as `Numeric (4,3)`.

WARNING: Once the width and decimal values have been set and saved for a calculated field, they cannot be edited.

9. Define the expression. Calculations can be creating in either a simple mode or a more advanced mode. The simple mode can be used for simple calculations, while the advanced mode can be used for more complex calculations with one or more operators and/or functions. The following steps describe how to create a calculated expression in either of the modes.

- **Simple Mode** – to create a calculated field in simple mode:
 - a. Select a field from the list shown in the left pane that will be used first in the calculation and double-click the name to add it to the **Left Operand** field. You can also type a value in the **Left Operand** field.

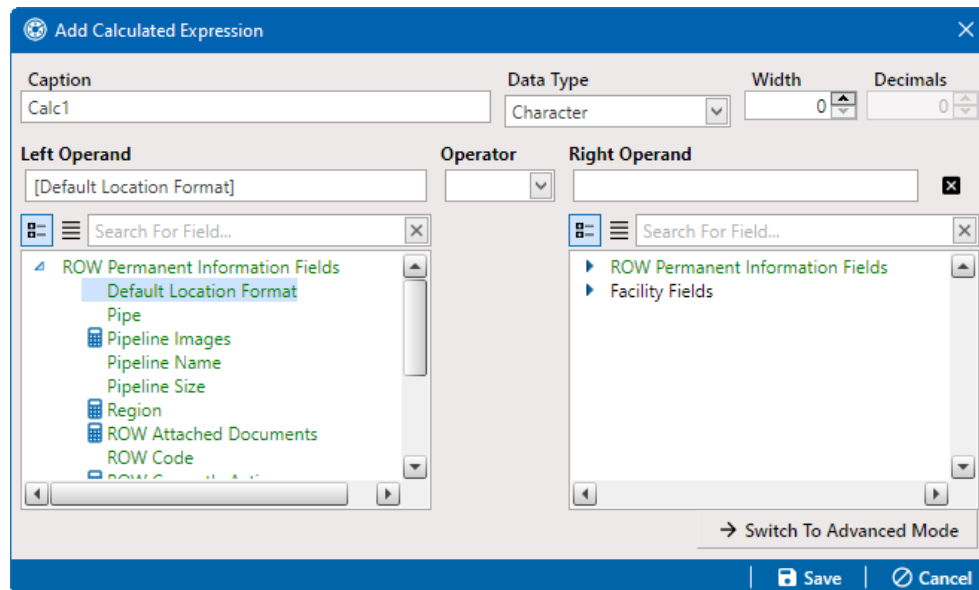


Figure 2-69. Left Operand Field

- b. Select an operator from the **Operator** drop-down field.

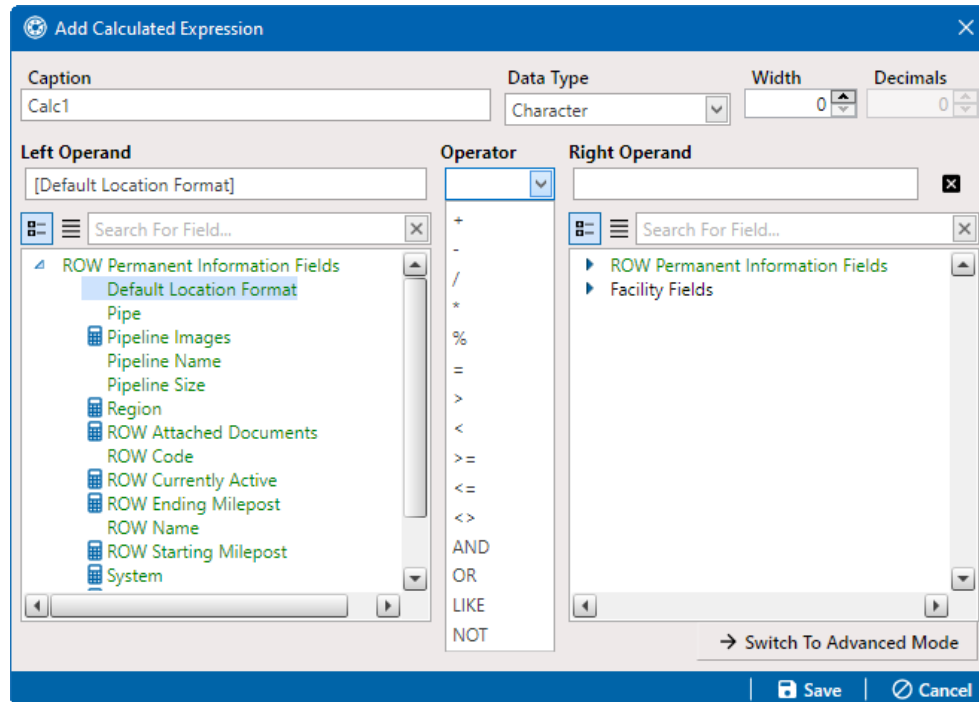


Figure 2-70. Operator

- c. Select a field from the list shown in the right pane that will be used after the operator and double-click the name to add it to the **Right Operand** field. You can also type a value in the field.

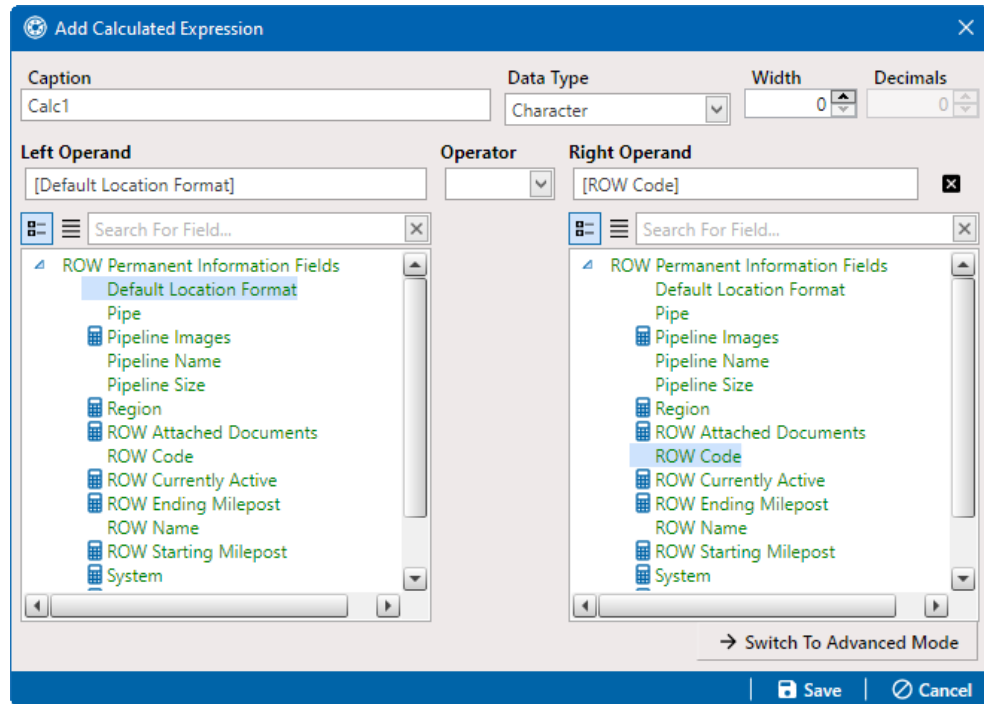


Figure 2-71. Right Operand

- **Advanced Mode** – to create a calculated field in advanced mode:

- a. Click → **Switch To Advanced Mode**.

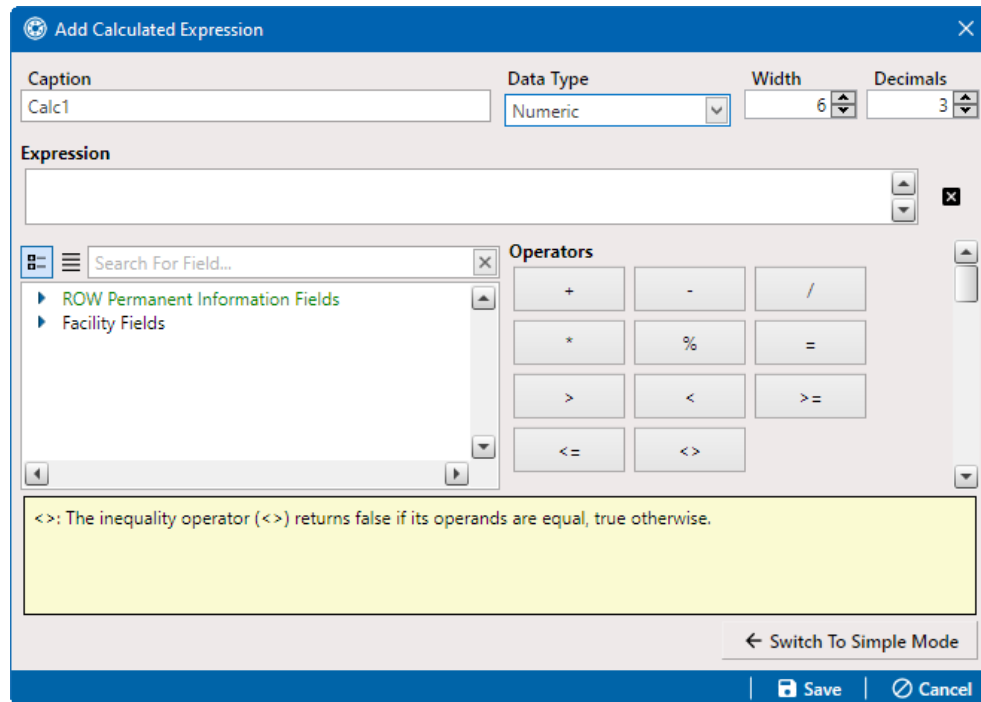


Figure 2-72. Add Calculated Expression (Advanced Mode)

- b. Define the field's calculation in the **Expression** field by adding fields from the list of fields and the operator and function buttons. You can also type values in the **Expression** field.

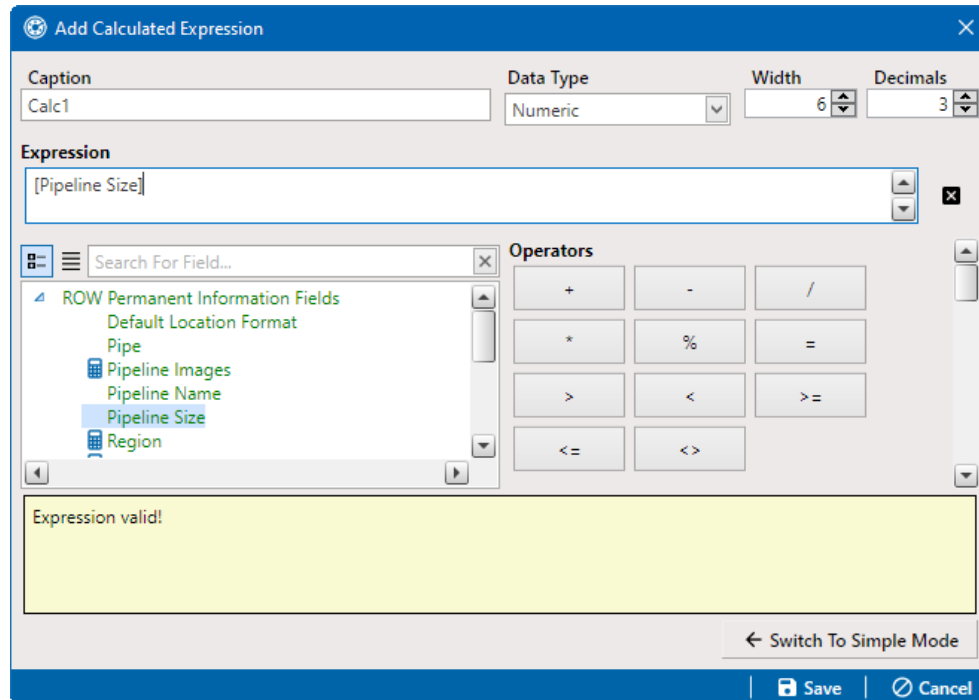


Figure 2-73. Add Calculated Expression - Advanced Mode

10. Click **Save** to save the new field and close the window. The field is now included in the *Field and UDF Customizations* window grid.

The screenshot shows the 'Field and UDF Customizations' window in the PCS application. The window title is 'Field and UDF Customizations'. The interface includes a menu bar with 'File', 'Modules', 'Data Entry', 'Reports / Graphs', 'Tools', 'Field Computer', and 'Help'. Below the menu bar, there are several icons and labels: 'Normal', 'Calculated', 'Milepost', 'Picklist', 'On/Off Pair', 'Summation', 'Delete', and 'Customize'. The main area is a table with the following data:

Original Caption	Caption	Field Definition	Bridge - Required for Import	Bullhorn - Bullhorn Engineering Unit
Bridge ID	Bridge ID	uniqueidentifier	false	
Calc1	Calc1	Character (20)	false	
Creation Date	Creation Date	DateTime2	false	
End Milepost	End Milepost	Character (15)	\$TopFacility.IsRang...	
End Relative Milep...	End Relative Milepost	Character (50)	false	
End Series	End Series	uniqueidentifier	false	
Milepost	Milepost	Character (50)	true	
Primary Link	Primary Link	Loical	false	

The 'Row Count' at the bottom right of the table is 11.

Figure 2-74. Completed Calculated User Defined Field

Add a Milepost User Defined Field

Set up a milepost user defined field (UDF) when you want to assign a different milepost format to a facility type on a pipeline. For example, if coupons require a different milepost format than other facility types on a pipeline, set up a milepost UDF and then assign the UDF at the facility type level in the *Facility Location ID Formats* mini-grid of *Edit ROW Detail* (Data Entry > Edit ROW Detail).

Complete the following steps to add a milepost UDF:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

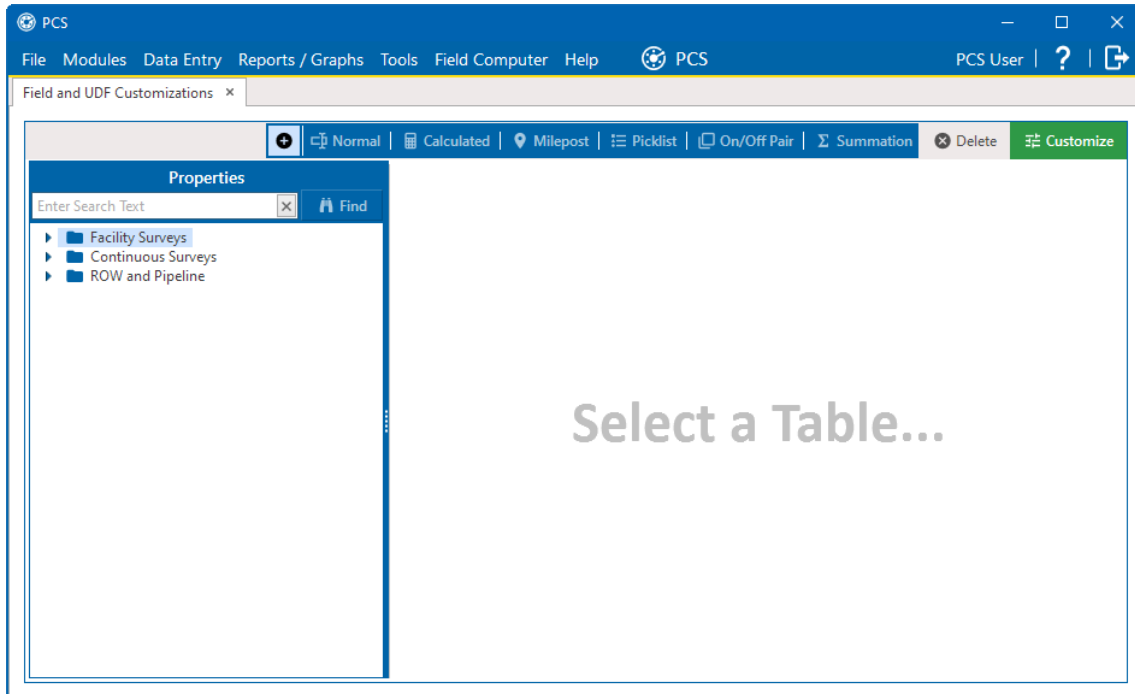


Figure 2-75. Field and UDF Customization Window

2. If you want to select a grid layout theme, click **Customize** to open the *Column Selections* window, select a theme from the **Select a Layout Theme** field, and click **Save**.

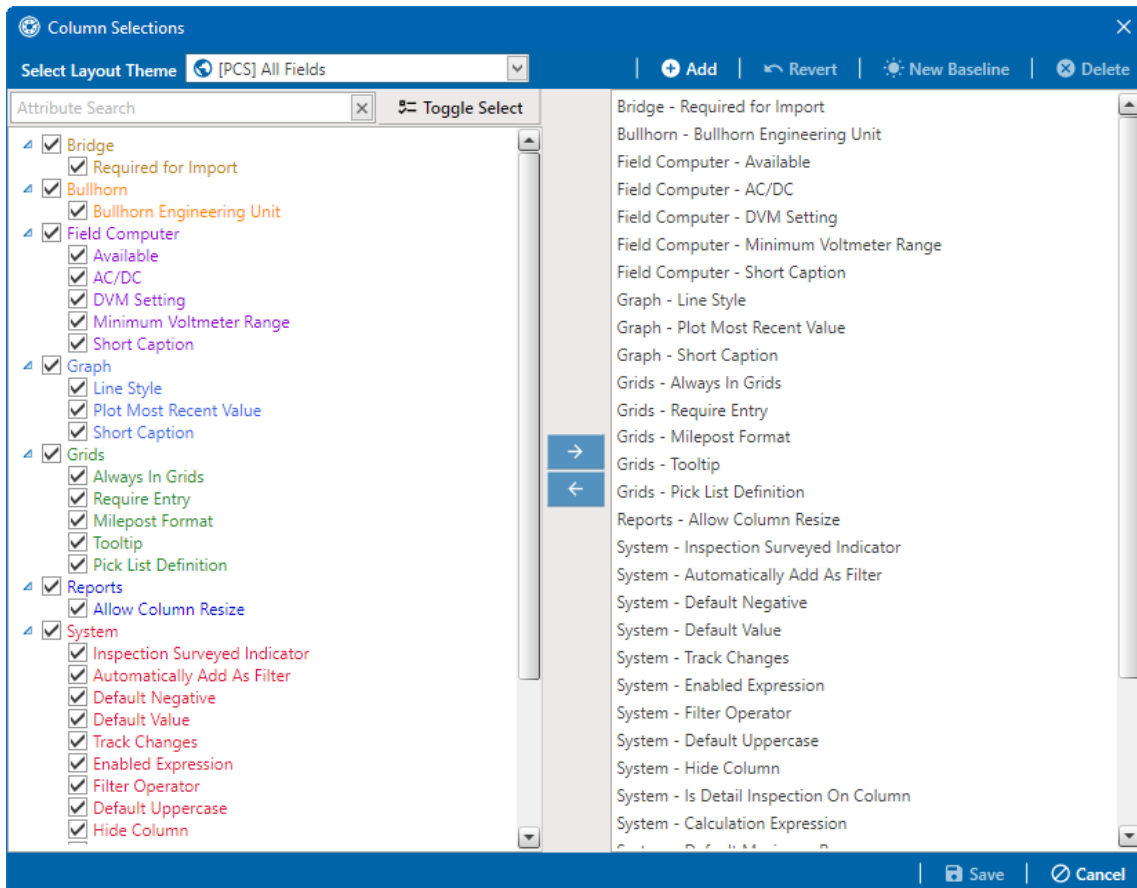


Figure 2-76. Column Selections Window

3. Select a table in the *Properties* pane that includes the data entry grid to which you want to add a UDF.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

Original Caption	Caption	Field Definition	Bridge - Required for Import	Bullhorn - Bullhorn Engineering Unit	Field Computer - Available	Field Computer - AC/DC	Field Computer - DVM Setting
AC Coupon Current	AC Coupon Current	Numeric (7, 4)	false		true	AC	Use System Setting
AC Coupon P/S	AC Coupon P/S	Numeric (6, 3)	false	AC CPN P/S	true	AC	Use System Setting
AC Coupon Shunt...	AC Coupon Shunt...	Numeric (8, 5)	false		true	AC	Use System Setting
AC Current Density	AC Current Density	Numeric (6, 3)	false	AC_CurrentDensity	true	AC	Use System Setting
AC Drain Current	AC Drain Current	Numeric (7, 4)	false	AC Drain	true	AC	Use System Setting
AC IRF	AC IRF	Numeric (6, 3)	false	AC IOX	false		Use System Setting
AC P/S	AC P/S	Numeric (6, 3)	false	AC P/S	true	AC	Use System Setting
Average IRF	Average IRF	Numeric (6, 3)	false		true	DC	Use System Setting
Average P/S	Average P/S	Numeric (6, 3)	false		true	DC	Use System Setting
Casing IRF	Casing IRF	Numeric (6, 3)	false	CASING IOX	true	DC	Use System Setting
Casing IRF Uncomp...	Casing IRF Uncomp...	Numeric (6, 3)	false		false		Use System Setting
Casing P/S	Casing P/S	Numeric (6, 3)	false	CASING	true	DC	Use System Setting
Casing P/S Uncom...	Casing P/S Uncom...	Numeric (6, 3)	false		false		Use System Setting
Casing Status	Casing Status	Character (6)	false		true		Use System Setting
Coupon Current	Coupon Current	Numeric (7, 4)	false		true	DC	Use System Setting
Coupon IRF	Coupon IRF	Numeric (6, 3)	false	CPN IOX	true	DC	Use System Setting

Figure 2-77. Field and UDF Customizations

- Click Milepost in the toolbar to open the *Add Milepost Field* window.

Figure 2-78. Add Milepost Field

- Type a unique name for the UDF in the **Caption** field.
- Select a milepost format from the **Milepost Formats** drop-down field.

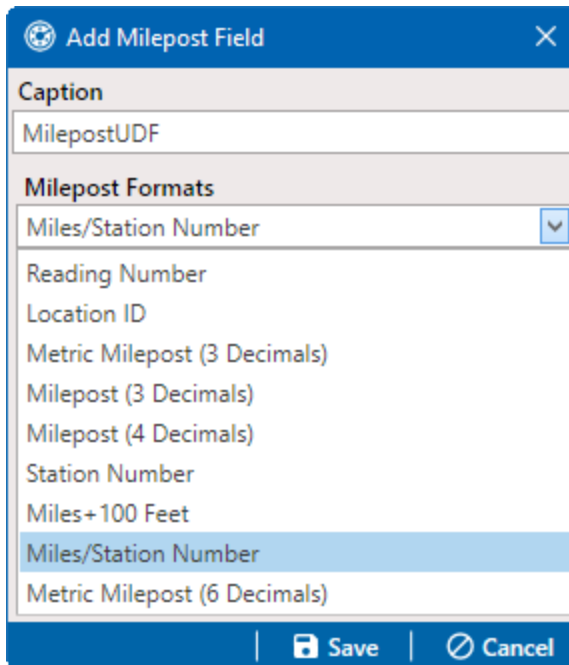


Figure 2-79. Milepost Format Drop-down

7. Click  **Save** to close the window and return to the *Field and UDF Customizations* window.

The UDF is now available for selection in the **Facility Location ID Formats** mini-grid of **Edit ROW Detail**. Refer to [Pipeline Records on page 173](#) for more information.

Add a Standard Picklist User Defined Field

A Standard Picklist is a list of acceptable choices for a field in a data entry grid that a user selects from when entering data. This feature improves data consistency and accuracy by allowing users to select from a list of predefined choices instead entering data manually.

A Standard Picklist contains a list of valid items for selection, a description of each item, and a value assigned to each item that determines the sorting order of items in the list.

Refer to [Add a Dynamic Picklist User Defined Field](#) for more information on setting up a Dynamic Picklist.

NOTE: A Standard Picklist in PCS is similar to a validation table in PCS 7.x.

Complete the following steps to add a Standard Picklist user defined field (UDF):

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

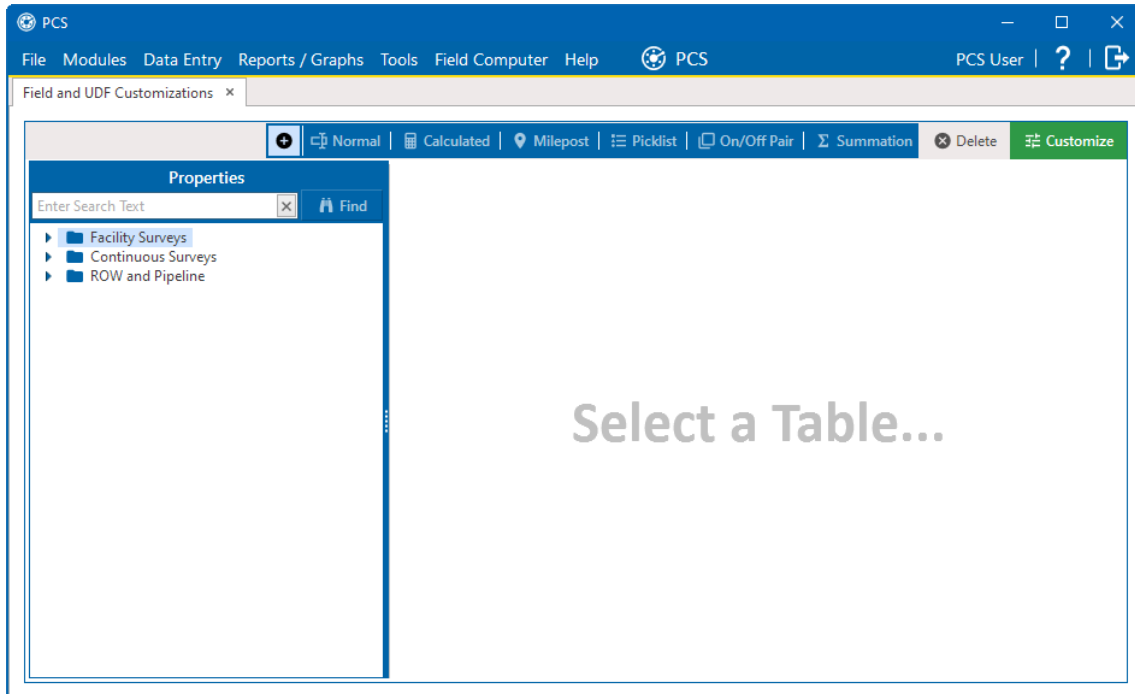


Figure 2-80. Field and UDF Customization Window

2. If you want to select a grid layout theme, click **Customize** to open the *Column Selections* window, select a theme from the **Select a Layout Theme** field, and click **Save**.

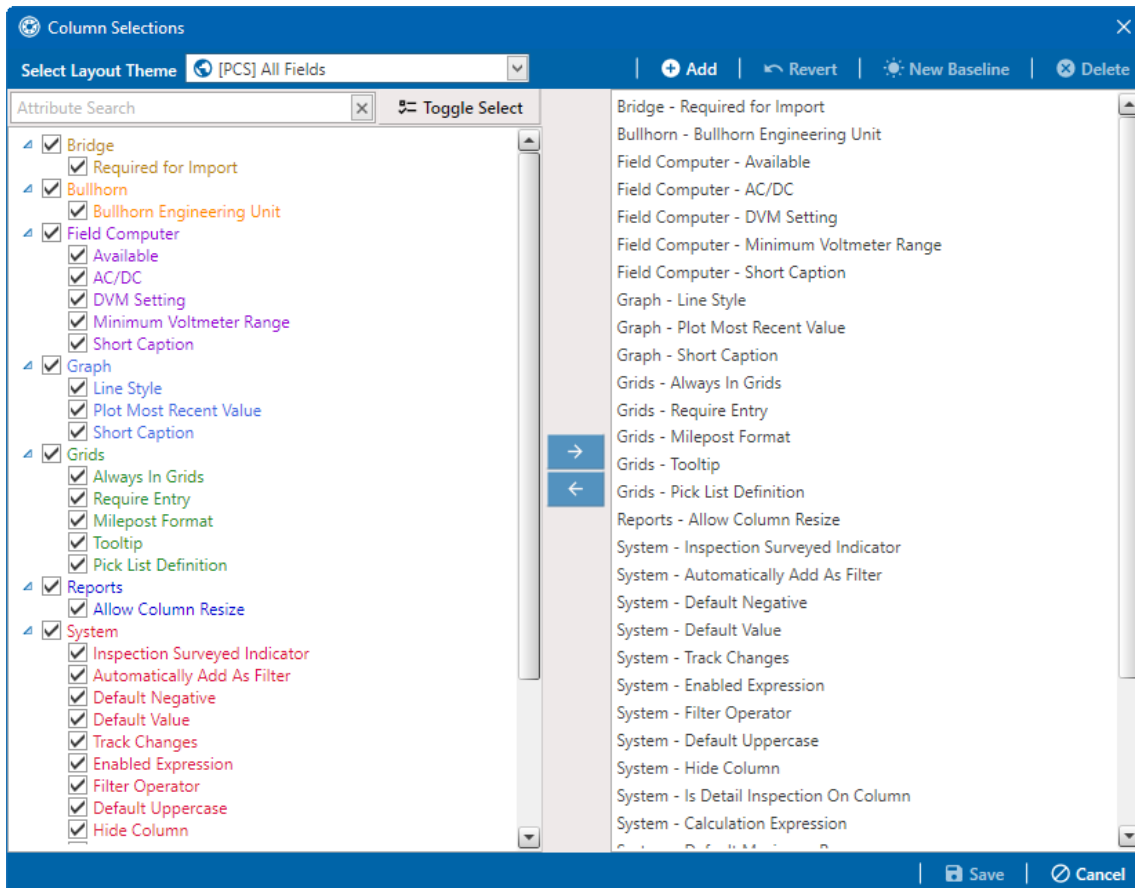


Figure 2-81. Column Selections Window

3. Select a table in the *Properties* pane that includes the data entry grid to which you want to add a UDF.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

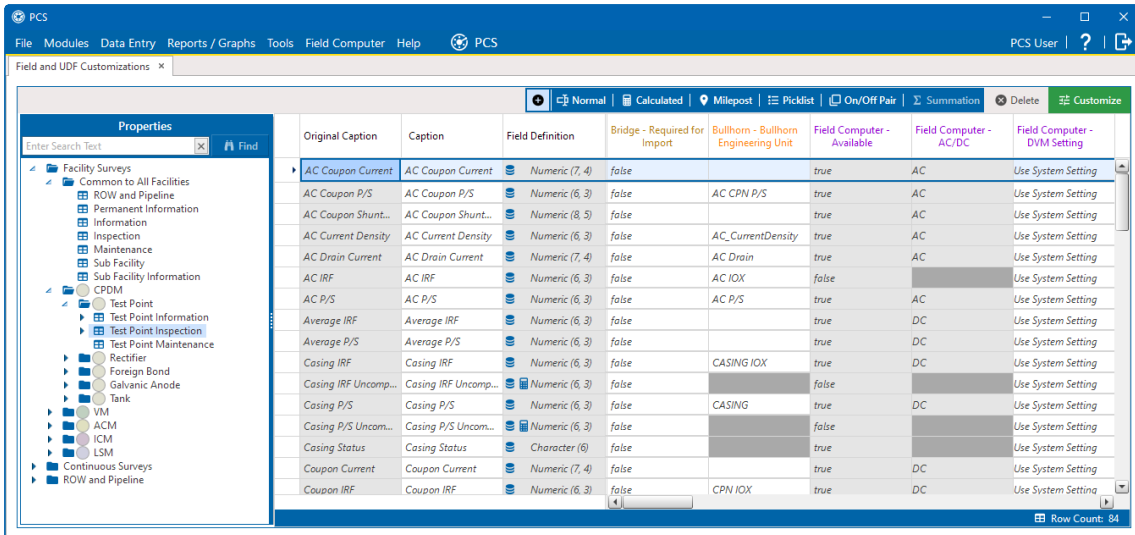



Figure 2-82. Field and UDF Customizations

4. Click  **Picklist** in the toolbar to open the *Select Picklist Type* window.

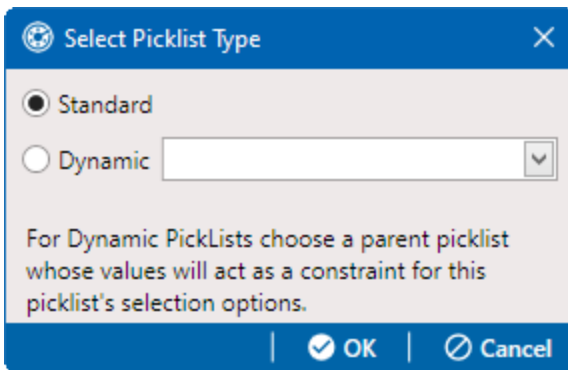



Figure 2-83. Select Picklist Type

5. Click **Standard** radio button.
6. Click  **OK**. The *Select Picklist Type* window closes, and a *Add Picklist Field* window opens.

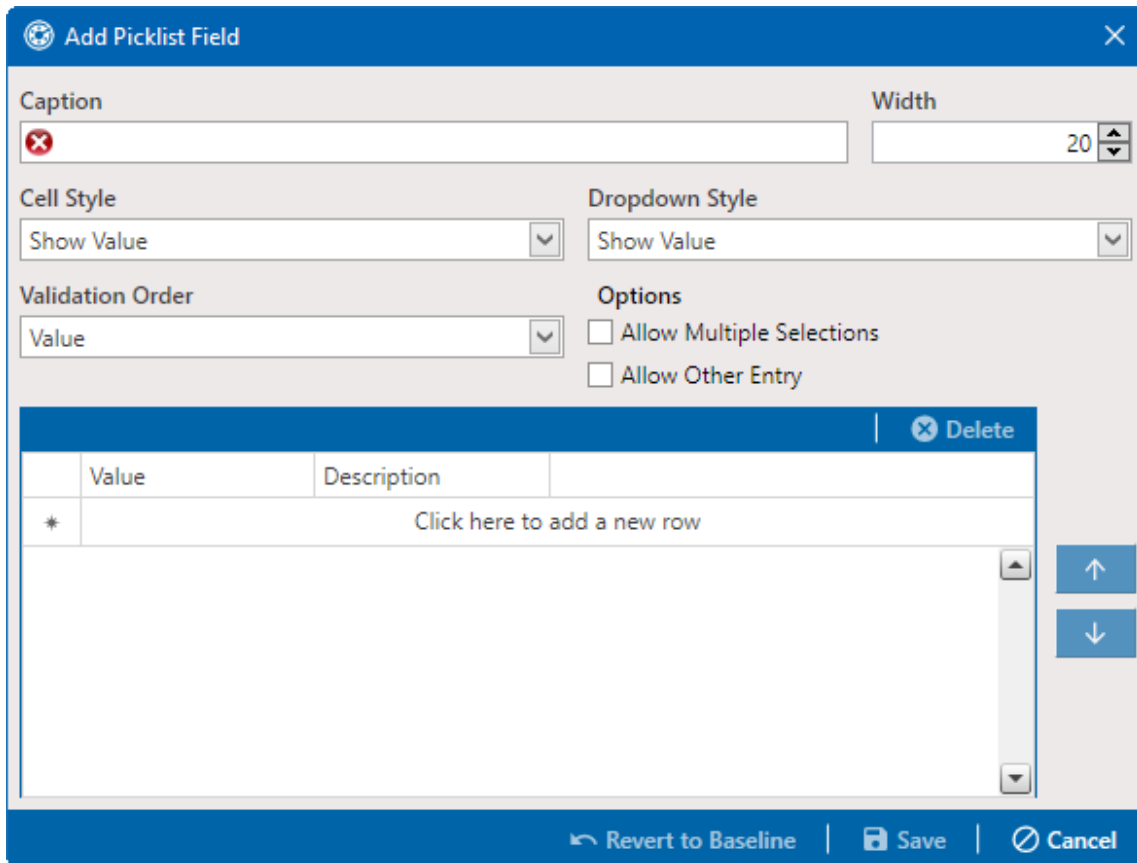


Figure 2-84. Add Picklist Field Window

7. Type a unique name for the UDF in the **Caption** field.

Figure 2-85. Add Picklist Field

8. Set the length of the field by typing the number of characters required for the UDF in the **Width** field.

Clicking the up arrow in the *Width* field increases the value; clicking the down arrow decreases the value.

9. Select an option from the **Cell Style** field drop-down for how the UDF field will display in data entry grids. The options include:
 - **Show Value** – displays the assigned value of the selected item in the picklist.
 - **Show Description** – displays the description of the selected item in the picklist.
 - **Show Value And Description** – displays the assigned value and description of the selected item in the picklist.
 - **Show Description And Value** – displays the description and assigned value of the selected item in the picklist.

10. Select and option from the **Dropdown Style** drop-down field for how items will display in the picklist. The options include:
 - **Show Value** – displays only the assigned value of items in the picklist.
 - **Show Description** – displays only the description of items in the picklist.
 - **Show Value And Description** – displays the assigned value and description of items in the picklist.
 - **Show Description And Value** – displays the description and assigned value of items in the picklist.

11. Select and option from the **Validation Order** drop-down field for how items in the picklist will be sorted. The options include:
 - **Value** – sorts items numerically based on values assigned to items in the picklist.
 - **Description** – sorts items alphanumerically based on the description of items in the picklist.
 - **Defined** – sorts items based on the order of items listed in the *Customize Picklist* window.

12. If you want the UDF to support multiple selections in the picklist, click the check box **Allow Multiple Selections**.

13. If you want the UDF to allow data entry of other data in addition to picklist items for selection, click the check box **Allow Other Entry**.

14. To add picklist items for selection:

- a. Click the message **Click here to add new row** to add an empty row of fields for data entry.

Figure 2-86. Add Picklist Field




- b. Type a value in the **Value** field to associate a code number with the picklist item. They type a description for the picklist item in the **Description** field. You can press **Tab** to move to the **Description** field.
- c. Press **Enter** on the keyboard to add another empty row of fields for data entry.
- d. Repeat as needed until all picklist items have been added.
- e. To reorder the items in the list, use the  and  buttons. These buttons become active after items have been added to the grid.

Figure 2-87. Add Picklist Field - List of Items and Reorder Buttons

- f. When finished, click  **Save** to close the window and return to the *Field and UDF Customizations* window.

The UDF is now available for adding in a data entry grid.

If needed, refer to [Themes and Filter Groups on page 372](#) for information about how to add fields in a data entry grid.

Set Up a Data Entry Field as a Standard Picklist

A Standard Picklist is a list of acceptable choices for a data entry grid field. A user selects one of these choices when entering data into the field. This feature improves data consistency and accuracy by allowing users to select from a list of predefined choices instead entering data manually.

For example, setting up a picklist with valid repair codes or status conditions allows users to choose from a list of valid items instead of typing information to describe the repair status or condition of a facility test station or pipeline.

A Standard Picklist contains a list of valid items for selection, a description of each item, and a value assigned to each item that determines the sorting order of items in the list.

NOTE: A Standard Picklist in PCS is similar to a validation table in PCS.

Complete the following steps to set up a data entry field as a Standard Picklist:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

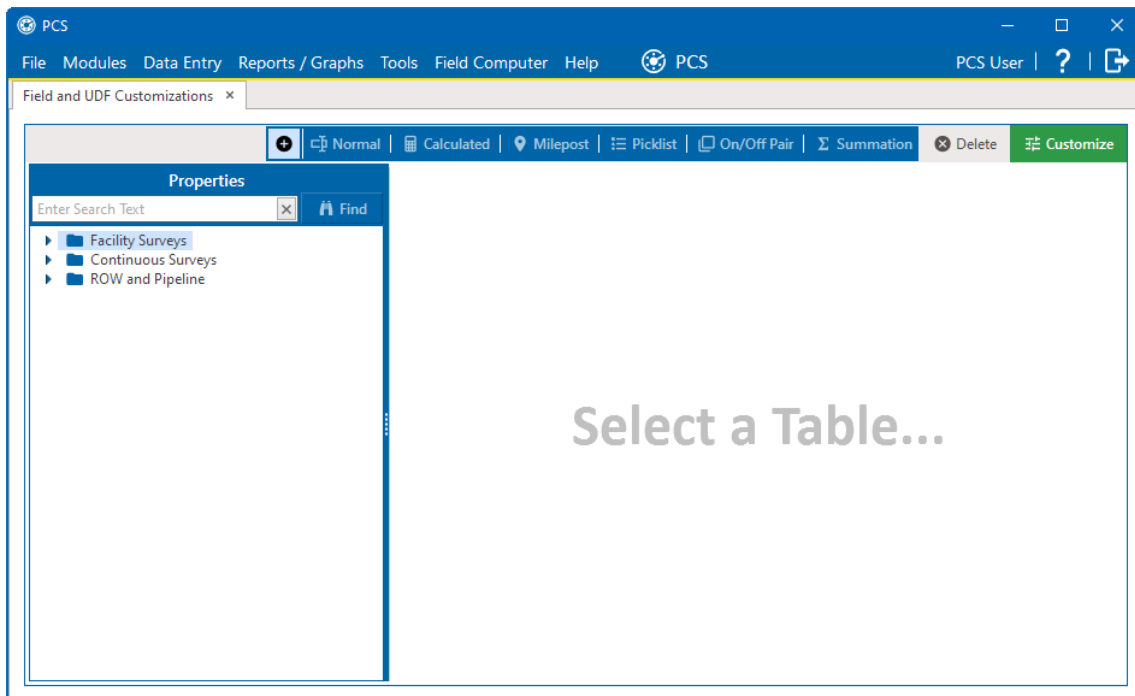


Figure 2-88. Field and UDF Customization Window

2. If you want to select a grid layout theme, click **Customize** to open the *Column Selections* window, select a theme from the **Select a Layout Theme** field, and click **Save**.

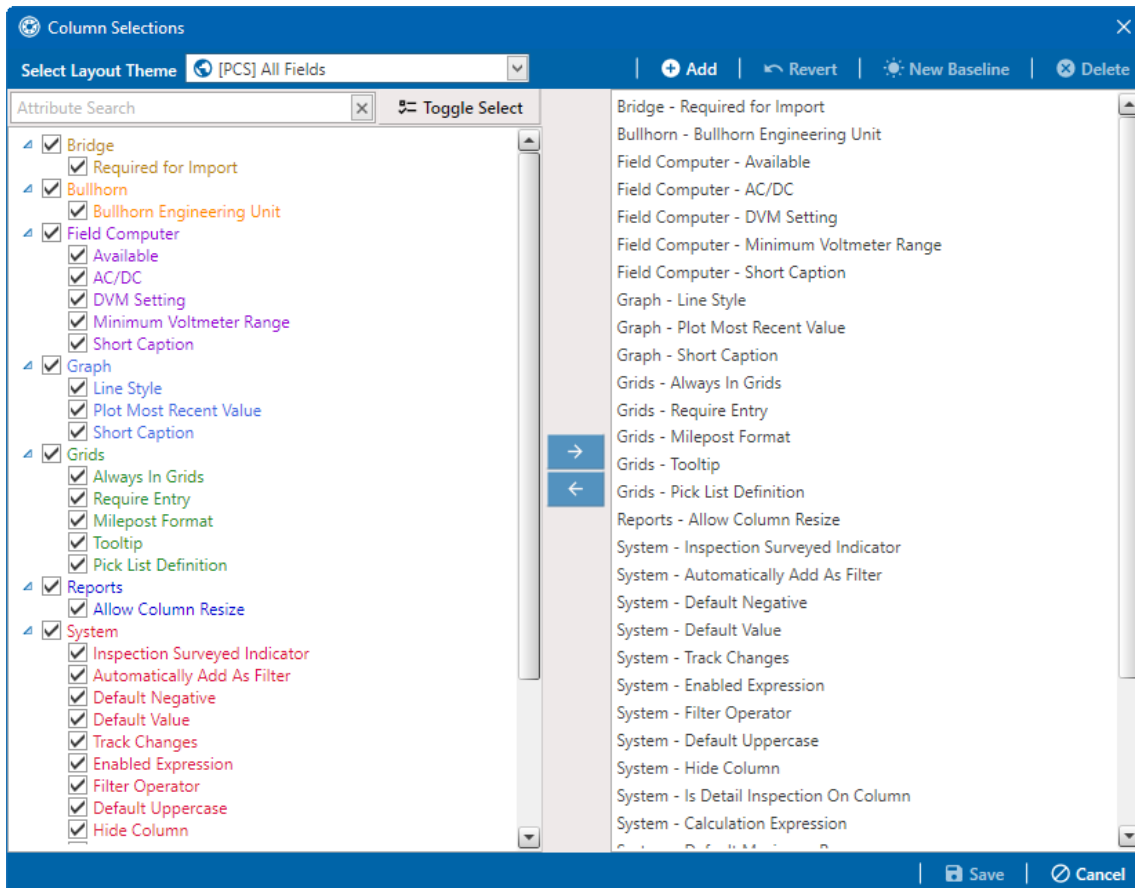


Figure 2-89. Column Selections Window

3. Select a table in the *Properties* pane that includes the data entry grid to which you want to add a UDF.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

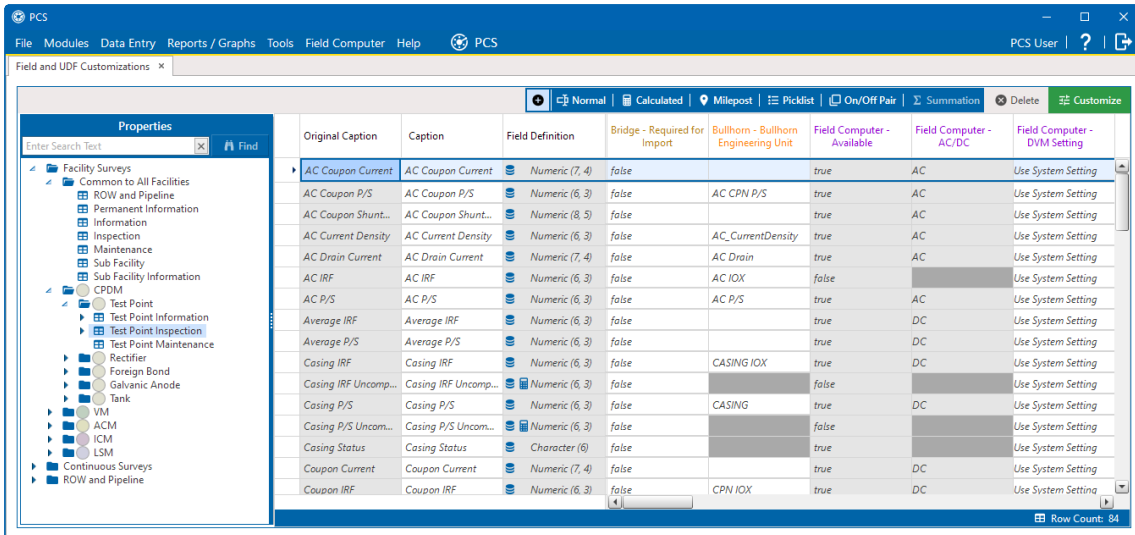


Figure 2-90. Field and UDF Customizations

- Use the horizontal scroll bar near the bottom of the grid to display the **Grids - Picklist Definition** grid column.

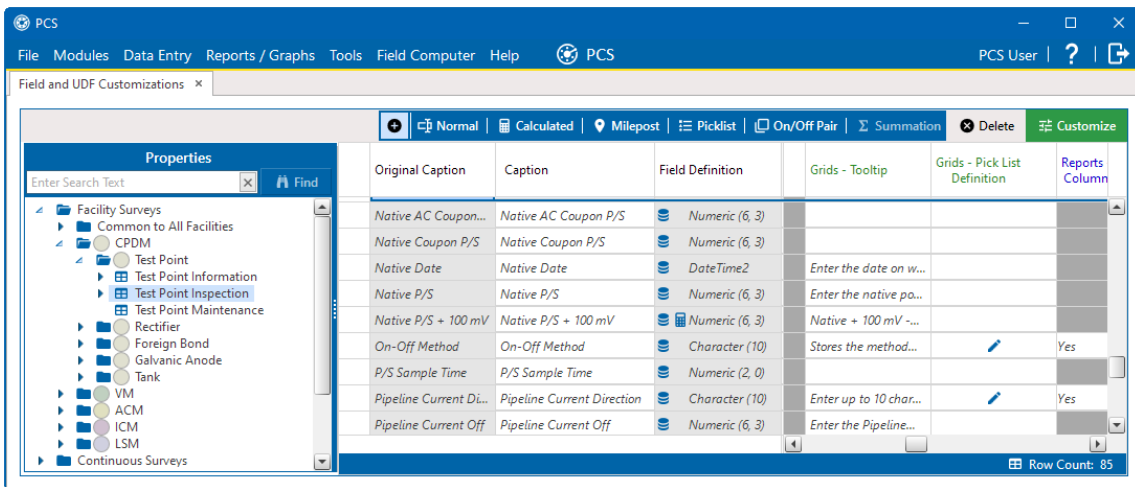


Figure 2-91. Field and UDF Customizations - Grids - Picklist Definition

- Select the data entry field you want to set up as a Standard Picklist.

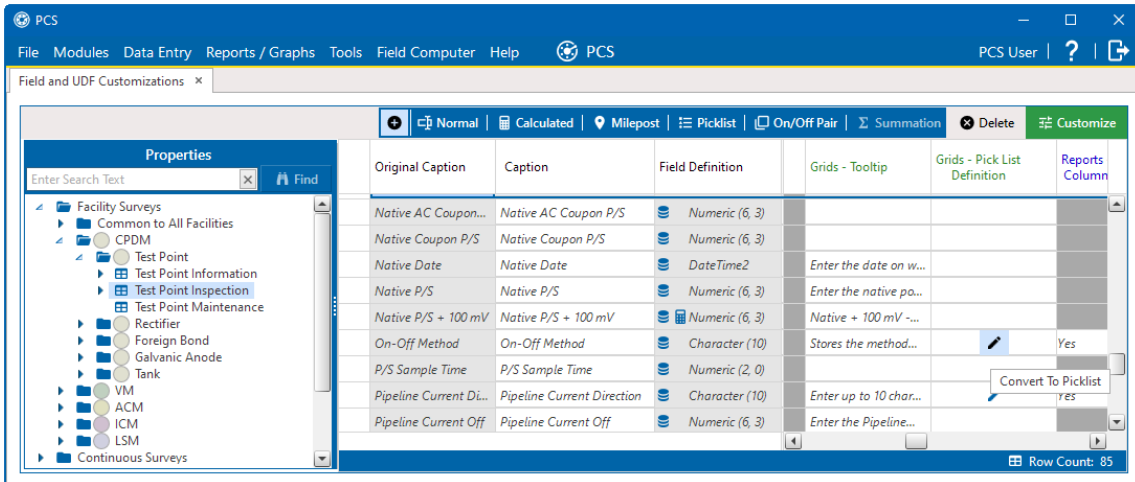


Figure 2-92. Convert To Picklist

- Click the edit icon in the **Grids - Picklist Definition** cell for the selected data entry field.

When a data entry grid includes existing data for the data entry field you want to convert to a Standard Picklist, PCS displays a message to notify you of the number of affected records. You can either click **Yes** in the message to continue converting the field to a Standard Picklist or **No** to cancel the operation. Selecting **Yes** allows PCS to use existing data as valid items for selection in the Standard Picklist.

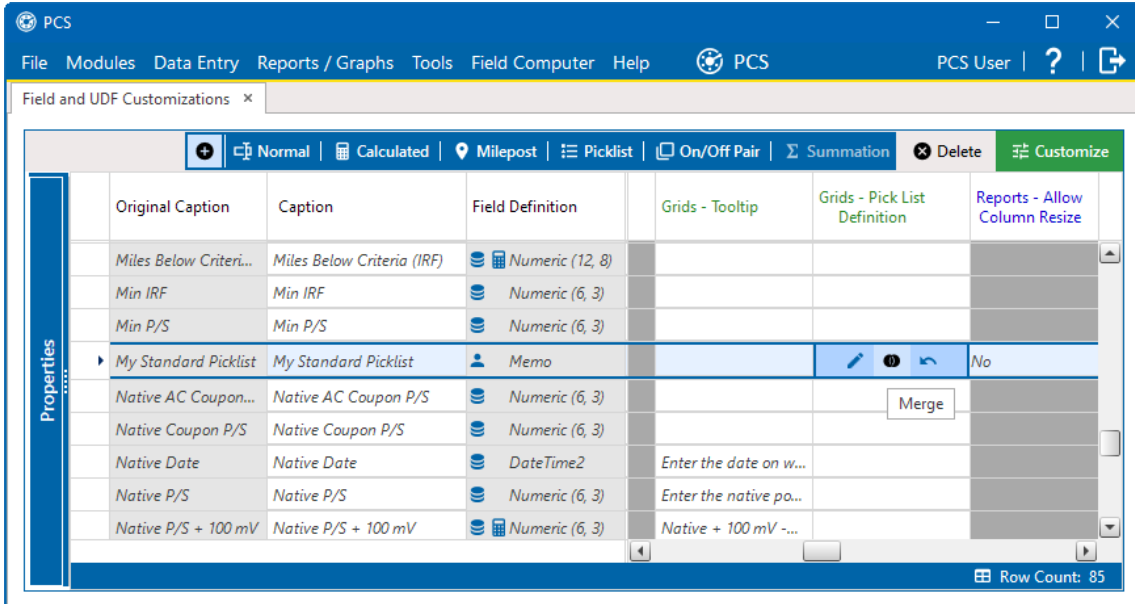





Figure 2-93. Merge a Picklist

If you decide later you want to convert the Standard Picklist to a normal data entry field, click the  **revert** icon and then click **Yes** when a confirmation message displays. PCS then re-populates affected fields in the data entry grids with unaltered data that was available prior to the field conversion.

7. Use the  **merge** icon merge picklist items as needed. In the *Merge Picklist Items* window, move items from the left pane to merge them with items in the right pane and click  **Save** when finished.

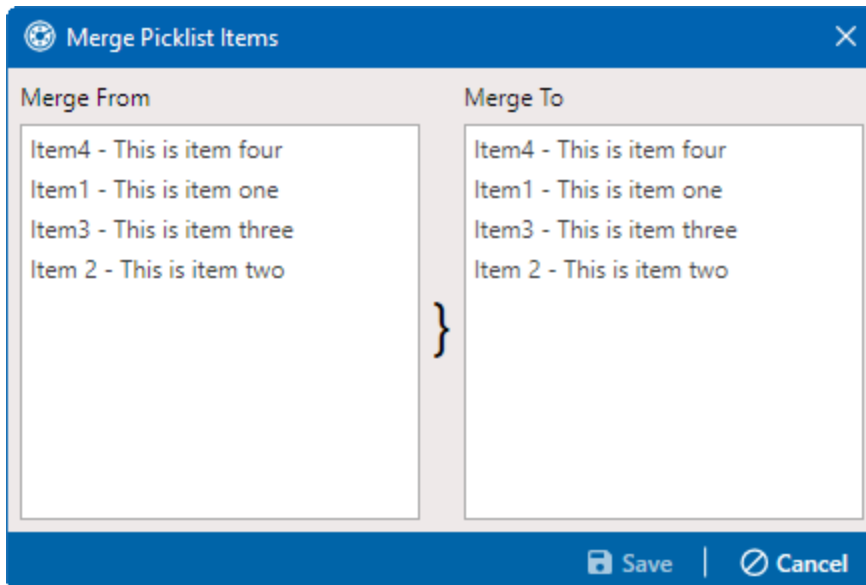


Figure 2-94. Merge Picklist Items Window

8. Edit picklist items in the *Edit Picklist Field* window.

Value	Description
*	Click here to add a new row
Item4	This is item four
Item1	This is item one
Item3	This is item three
Item 2	This is item two

Figure 2-95. Edit Picklist Field

Refer to [Add a Standard Picklist User Defined Field](#) for descriptions of the different options and how to add list items.

9. Click  **Save** to save changes and close the *Edit Picklist Field* window.

The UDF is now available for adding in a data entry grid. If needed, refer to [Themes and Filter Groups on page 372](#) for information about how to add fields in a data entry grid.

For information about how to edit a picklist refer to [Edit a Standard or Dynamic Picklist on page 125](#).

Add a Dynamic Picklist User Defined Field

The information in this section is intended for the PCS SysAdmin or a user with SysAdmin user permissions.

A Dynamic Picklist UDF is a dynamic drop-down list with data items that change based on a data item selected in another picklist. This dependency uses a cascading parent/child relationship. For example, selecting a data item in the drop-down list of picklist A (parent) determines which data items are available for selection in the drop-down list of picklist B (child).

Dynamic Picklists are helpful to users when entering data in a data grid or form. It allows for easier and more accurate data entry.

Building a Dynamic Picklist allows you to control the data entered in a field by limiting the choices to those in a pre-defined list. For example, instead of a user typing a lengthy description for sub-station locations throughout the country, you might want to build a Dynamic Picklist with a parent picklist named **My Sub-Station Type** that includes three associated child picklists labeled **My Sub-Station State**, **My Sub-Station County**, and **My Sub-Station City**. Each of these are dependent upon the other and form the Dynamic Picklist.

Building a Dynamic Picklist is a 2-part process. You begin with creating the initial parent picklist as a Standard Picklist and then add and map one or more child Dynamic Picklists. Once this process is complete, you can then add the parent and child picklists in data entry grids/forms, reports, and prompts sent to the Allegro Field Computer or other mobile devices.

Topics in this section explain how to add and edit a Dynamic Picklist. They include those in the following list:

- [Add the Initial Parent Picklist on page 108](#)
- [Add a Child Picklist and Mapping Data Items on page 116](#)

As an example to demonstrate how to build a Dynamic Picklist, information in this section uses a 2-level Dynamic Picklist with **My Pipeline State** as the initial parent picklist and **My Pipeline County** as the associated child picklist. Although Dynamic Picklists support an unlimited number of child picklists, the example uses one for clarity purposes. The process for adding multiple child picklists is the same as adding one child picklist.

[Add the Initial Parent Picklist](#)

Complete the following steps to add the initial parent picklist:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

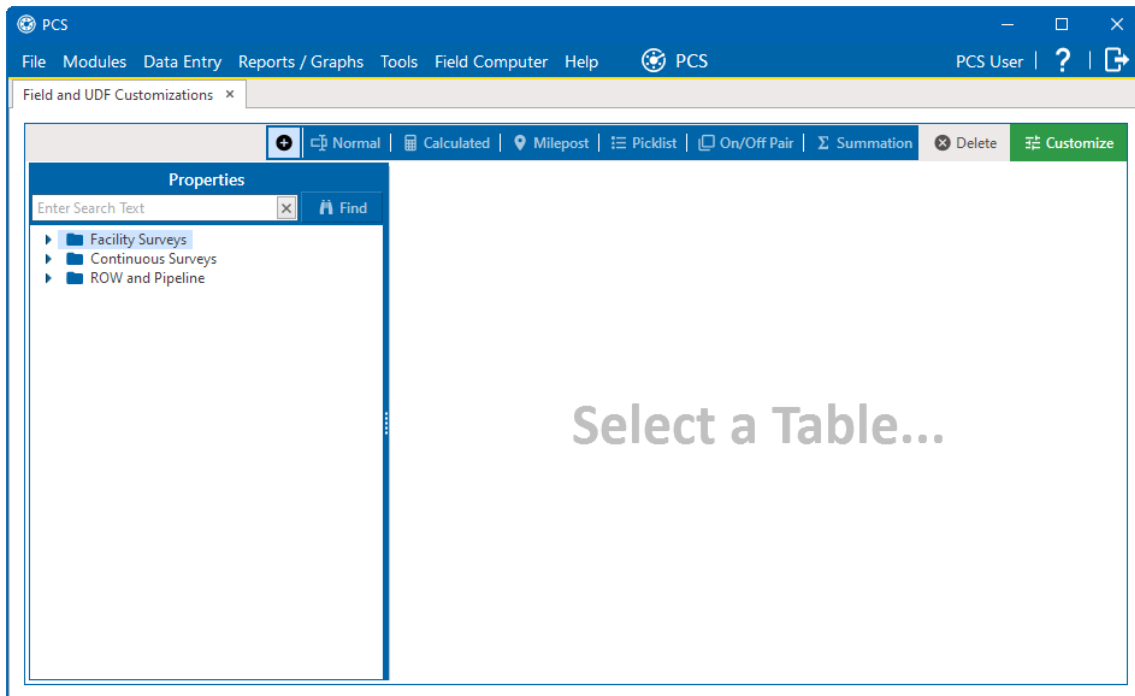


Figure 2-96. Field and UDF Customization Window

2. If you want to select a grid layout theme, click **Customize** to open the *Column Selections* window, select a theme from the **Select a Layout Theme** field, and click **Save**.

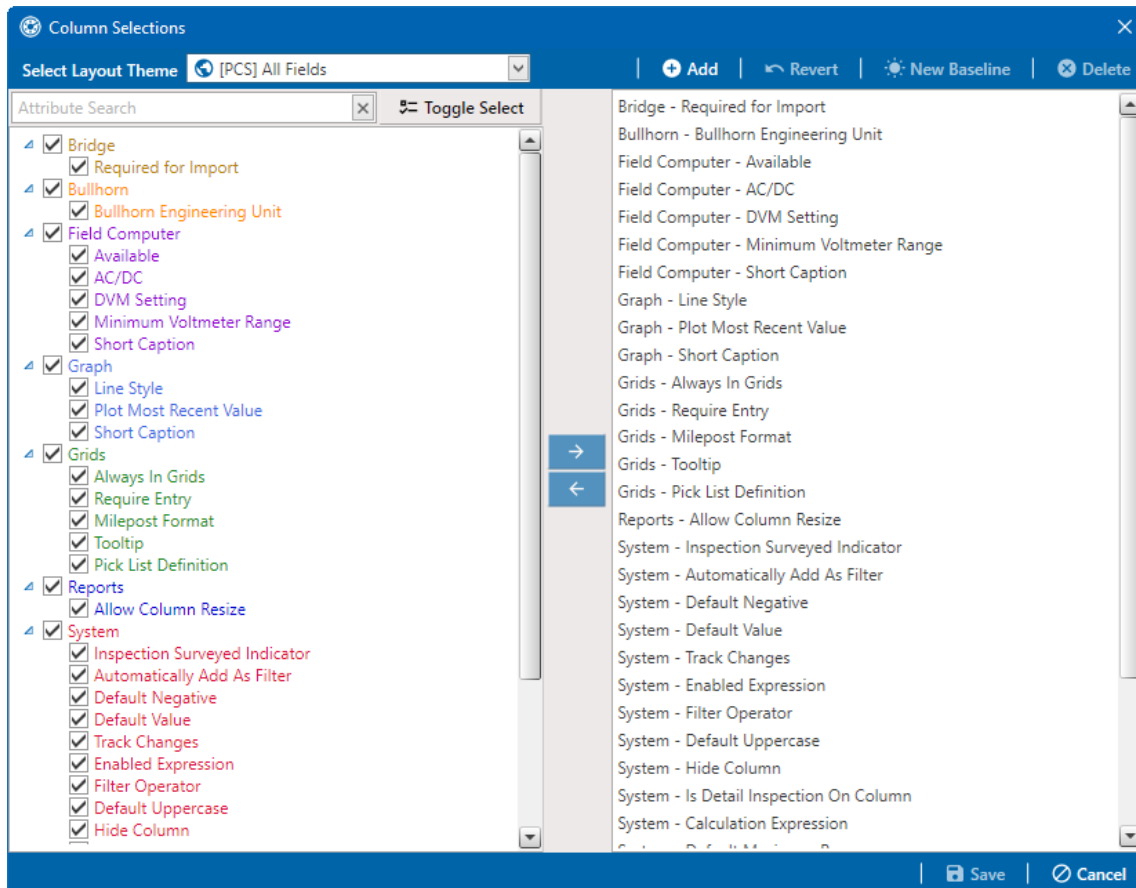


Figure 2-97. Column Selections Window

3. Select a table in the *Properties* pane that includes the data entry grid to which you want to add a UDF.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

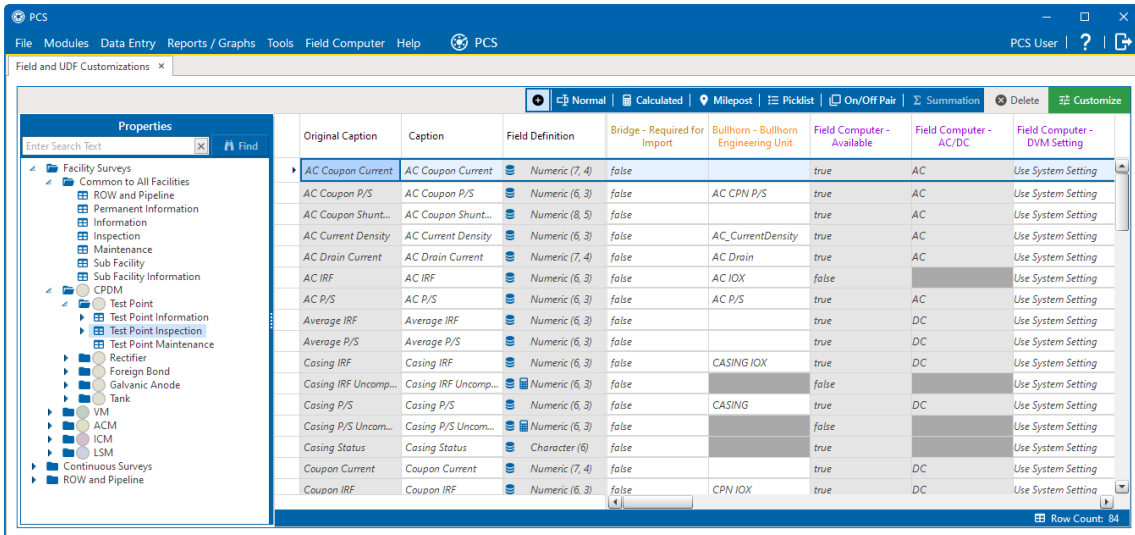


Figure 2-98. Field and UDF Customizations

- Click **Picklist** in the toolbar of the *Field and UDF Customizations* window to open the *Select Picklist Type* window.

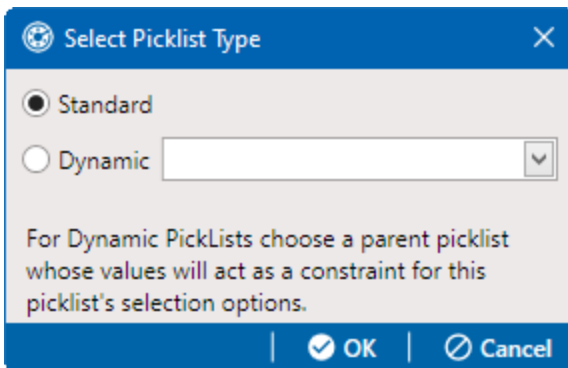


Figure 2-99. Select Picklist Type

- Click **Standard** and then click **OK** to close the window. A *Add Picklist Field* window opens.

The screenshot shows the 'Add Picklist Field' dialog box. It features a blue header with a globe icon and the title 'Add Picklist Field'. The main area is divided into several sections:

- Caption:** A text input field with a red 'X' icon on the left and a 'Width' spinner set to 20.
- Cell Style:** A dropdown menu set to 'Show Value'.
- Dropdown Style:** A dropdown menu set to 'Show Value'.
- Validation Order:** A dropdown menu set to 'Value'.
- Options:** Two checkboxes: 'Allow Multiple Selections' (unchecked) and 'Allow Other Entry' (unchecked).

Below these sections is a table with two columns: 'Value' and 'Description'. The table has a 'Delete' button in the top right corner and a 'Click here to add a new row' message in the first row. To the right of the table are two blue buttons with up and down arrows. At the bottom of the dialog are three buttons: 'Revert to Baseline', 'Save', and 'Cancel'.

Figure 2-100. Add Picklist Field

6. Type a unique name for the parent picklist in the **Caption** field.
7. Type a value in the **Width** field to indicate the number of characters to allow in the name of the parent picklist. You can alternatively use the up/down arrows to select a value. Clicking the up arrow increases the value; clicking the down arrow decreases the value.
8. Select an option from the **Cell Style** drop-down list for how the UDF field will display in data entry grids. The options include:
 - **Show Value** – displays the assigned value of the selected item in the picklist.
 - **Show Description** – displays the description of the selected item in the picklist.
 - **Show Value And Description** – displays the assigned value and description of the selected item in the picklist.
 - **Show Description And Value** – displays the description and assigned value of the selected item in the picklist.

9. Select an option from the **Dropdown Style** drop-down list for how items will display in the picklist. The options include:
 - **Show Value** – displays only the assigned value of items in the picklist.
 - **Show Description** – displays only the description of items in the picklist.
 - **Show Value And Description** – displays the assigned value and description of items in the picklist.
 - **Show Description And Value** – displays the description and assigned value of items in the picklist.

10. Select an option from the **Validation Order** drop-down list for how items in the picklist will be sorted. The options include:
 - **Value** – sorts items numerically based on values assigned to items in the picklist.
 - **Description** – sorts items alphanumerically based on the description of items in the picklist.
 - **Defined** – sorts items based on the order of items listed in the *Customize Picklist* window.

11. Ensure that the **Allow Multiple Selections** and **Allow Other Entry** check boxes are deselected. These options do not apply to parent picklists for Dynamic Picklists.

12. Complete the following steps to add data items that will be available for selection in the drop-down list of the parent picklist.

The following figure shows an example of a data item labeled **OK-1 Oklahoma**, which will be available for selection in the parent picklist, **My Pipeline States**. Data items are set up later as child picklists in [Add a Child Picklist and Mapping Data Items](#).

Add Picklist Field

Caption: My Pipeline States Width: 20

Cell Style: Show Description And Value Dropdown Style: Show Description And Value

Validation Order: Description Options: Allow Multiple Selections, Allow Other Entry

	Value	Description	
	OK-1	Oklahoma	

Revert to Baseline | Save | Cancel

Figure 2-101. Add Picklist Field

- a. Click the message **Click here to add a new row** to add an empty row of fields for data entry.

Figure 2-102. Add Picklist Field - Adding Picklist Items



- b. Associate a code with the name of the data item (child picklist). Type one or more letters, numbers, or a combination of both in the **Value** field. Then type a description for the data item (child picklist) in the **Description** field.
- c. Press **Enter** to add another empty row of fields for data entry.
- d. Repeat as needed for all items in the picklist.
- e. To reorder the items in the list, use the  and  buttons. These buttons become active after items have been added to the grid.

Figure 2-103. Add Picklist Field - List of Items and Reorder Buttons

- f. When finished adding all items, click  **Save** to close the window and return to the *Field and UDF Customizations* window.

PCS adds the parent picklist in the list of other fields in the *Field and UDF Customizations* window.

To add child picklists and map the necessary data items, refer to [Add a Child Picklist and Mapping Data Items](#).

Add a Child Picklist and Mapping Data Items

Complete the following steps to add a child picklist and then map data items in the child picklist to data items in a parent picklist:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

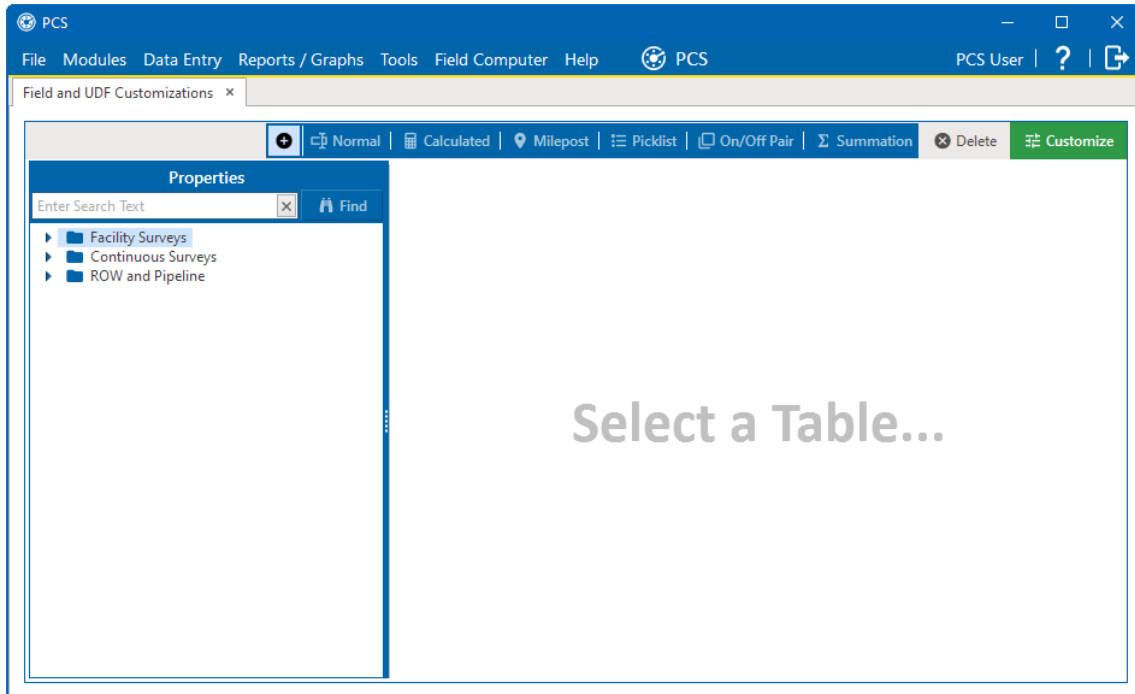


Figure 2-104. Field and UDF Customization Window

2. Select a table in the *Properties* pane that includes the data entry grid to which you want to add a UDF.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

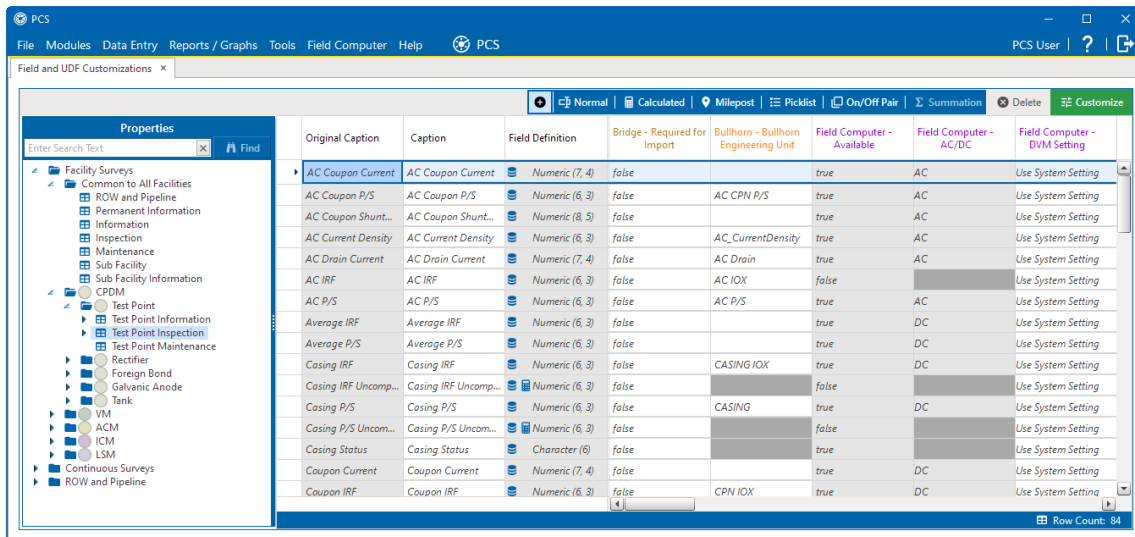



Figure 2-105. Field and UDF Customizations

3. Click  **Picklist** in the toolbar of the *Field and UDF Customizations* window to open the *Select Picklist Type* window.

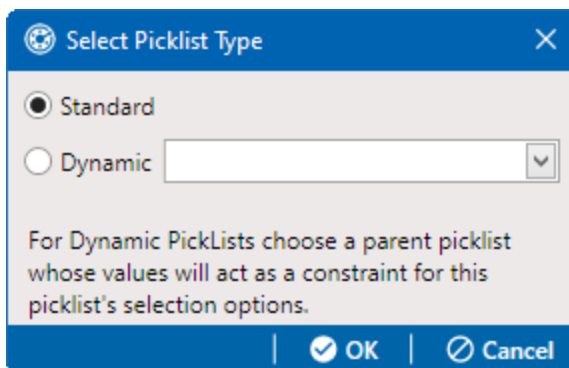


Figure 2-106. Select Picklist Type

4. Click **Dynamic** and then select a parent picklist that you want to associate with the child picklist from the drop-down field.

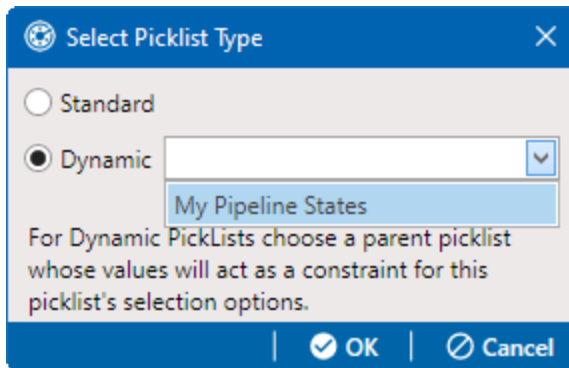


Figure 2-107. Select Picklist Type - Dynamic

5. Click OK. The *Select Picklist Type* window closes, and a *Add Picklist Field* window opens.

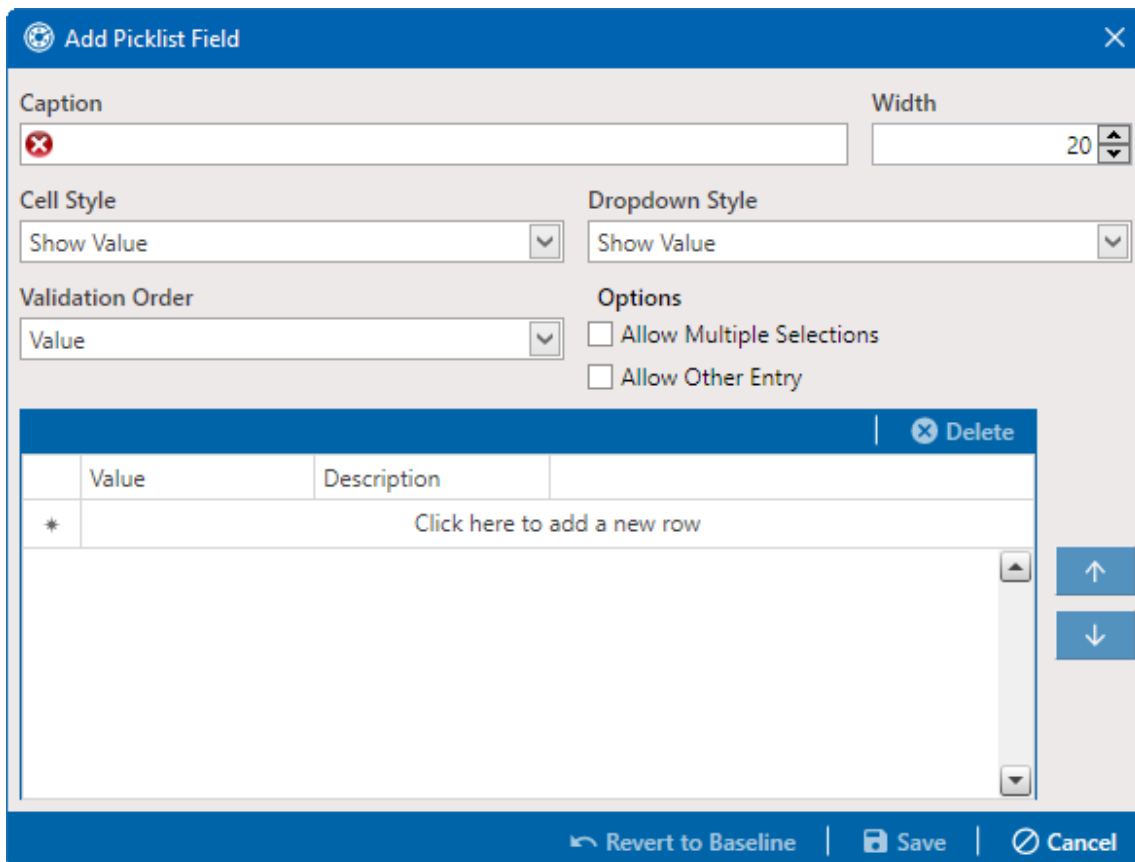


Figure 2-108. Add Picklist Field Window

6. Type a unique name for the UDF in the **Caption** field.

Add Picklist Field

Caption: Width:

Cell Style: Dropdown Style:

Validation Order: Options: Allow Multiple Selections, Allow Other Entry

	Value	Description
*	Click here to add a new row	

Buttons: Revert to Baseline | Save | Cancel

Figure 2-109. Add Picklist Field

7. Set the length of the field by typing the number of characters required for the UDF in the **Width** field.
Clicking the up arrow in the *Width* field increases the value; clicking the down arrow decreases the value.
8. Select an option from the **Cell Style** drop-down list for how the UDF field will display in data entry grids. The options include:
 - **Show Value** – displays the assigned value of the selected item in the picklist.
 - **Show Description** – displays the description of the selected item in the picklist.
 - **Show Value And Description** – displays the assigned value and description of the selected item in the picklist.
 - **Show Description And Value** – displays the description and assigned value of the selected item in the picklist.

9. Select and option from the **Dropdown Style** drop-down list for how items will display in the picklist. The options include:
 - **Show Value** – displays only the assigned value of items in the picklist.
 - **Show Description** – displays only the description of items in the picklist.
 - **Show Value And Description** – displays the assigned value and description of items in the picklist.
 - **Show Description And Value** – displays the description and assigned value of items in the picklist.

10. Select and option from the **Validation Order** drop-down list for how items in the picklist will be sorted. The options include:
 - **Value** – sorts items numerically based on values assigned to items in the picklist.
 - **Description** – sorts items alphanumerically based on the description of items in the picklist.
 - **Defined** – sorts items based on the order of items listed in the *Customize Picklist* window.

11. To add picklist items for selection:

- a. Click the message **Click here to add new row** to add an empty row of fields for data entry.

Value	Description
*	Click here to add a new row

Figure 2-110. Add Picklist Field

- b. Type a value in the **Value** field to associate a code number with the picklist item. They type a description for the picklist item in the **Description** field. You can press **Tab** to move to the **Description** field.

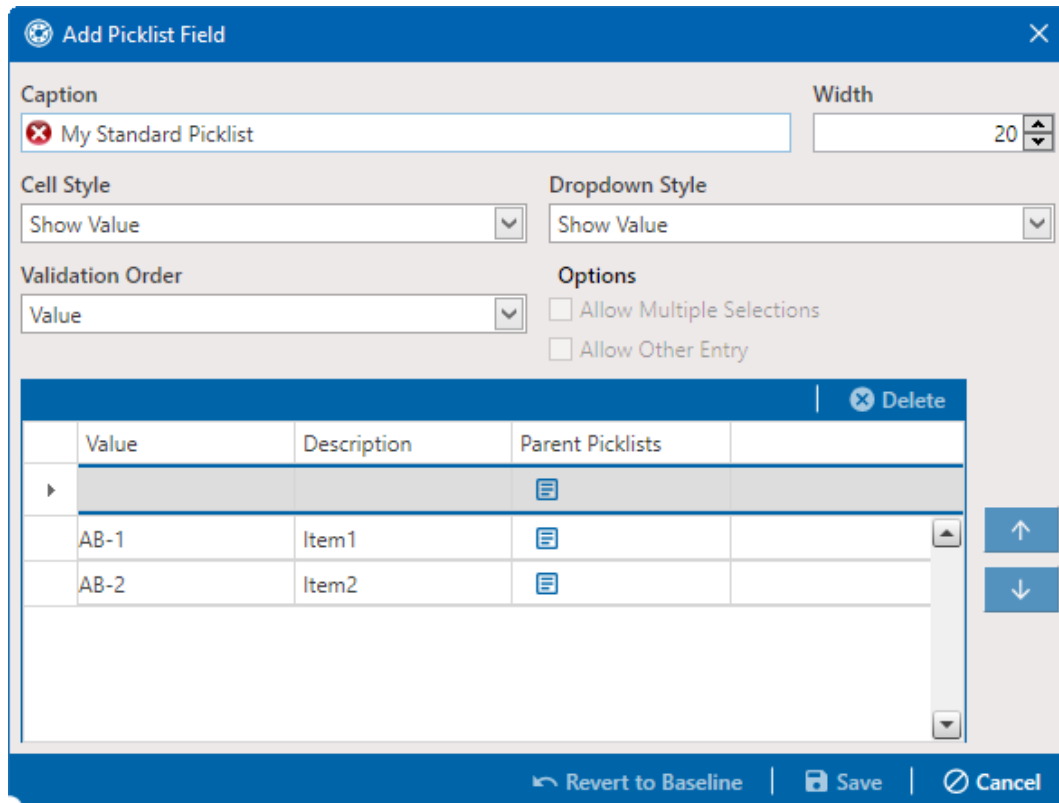



Figure 2-111. Add Picklist Field - List of Items and Reorder Buttons

- c. Click the  parent picklist icon to open the *Select Parent Picklist Values* window.

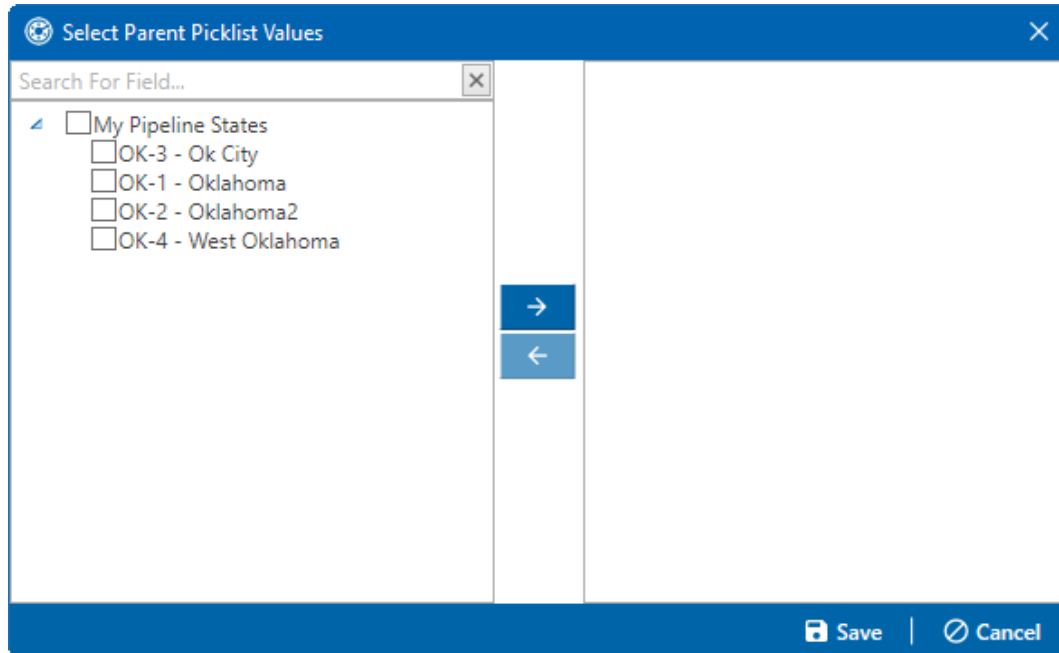



Figure 2-112. Select Parent Picklist Values

- d. Map a data item in the parent picklist to the currently selected data item in the child picklist. Select a value in the right pane and then click the  button to move it to the right pane.

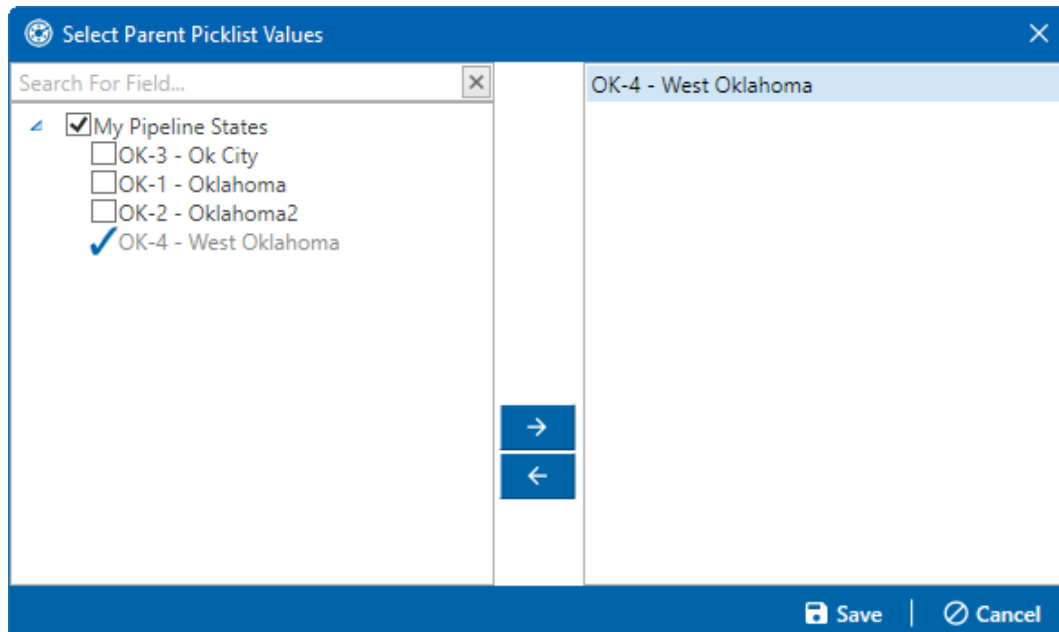




Figure 2-113. Mapping Picklist Values

- e. When finished, click  **Save** to save settings and close the window.
 - f. Repeat these steps to add additional data items in the child picklist.
12. When you finish adding and mapping all data items in the child picklist, click  **Save** to close the window and return to the *Field and UDF Customizations* window.

The process for adding a Dynamic Picklist UDF is now complete. You can add the Dynamic Picklist (parent and child picklist fields) in the layout theme of a data grid, form, or report, as well as in a prompt theme for prompts sent to the Allegro or mobile device. Refer to [Themes and Filter Groups on page 372](#) for information. For information about editing a picklist, refer to [Edit a Standard or Dynamic Picklist on page 125](#).

Edit a Standard or Dynamic Picklist

After creating an standard or dynamic picklist, you may edit these picklists to add, delete, or edit the item information.

Complete the following steps to edit either a standard or a dynamic picklist:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

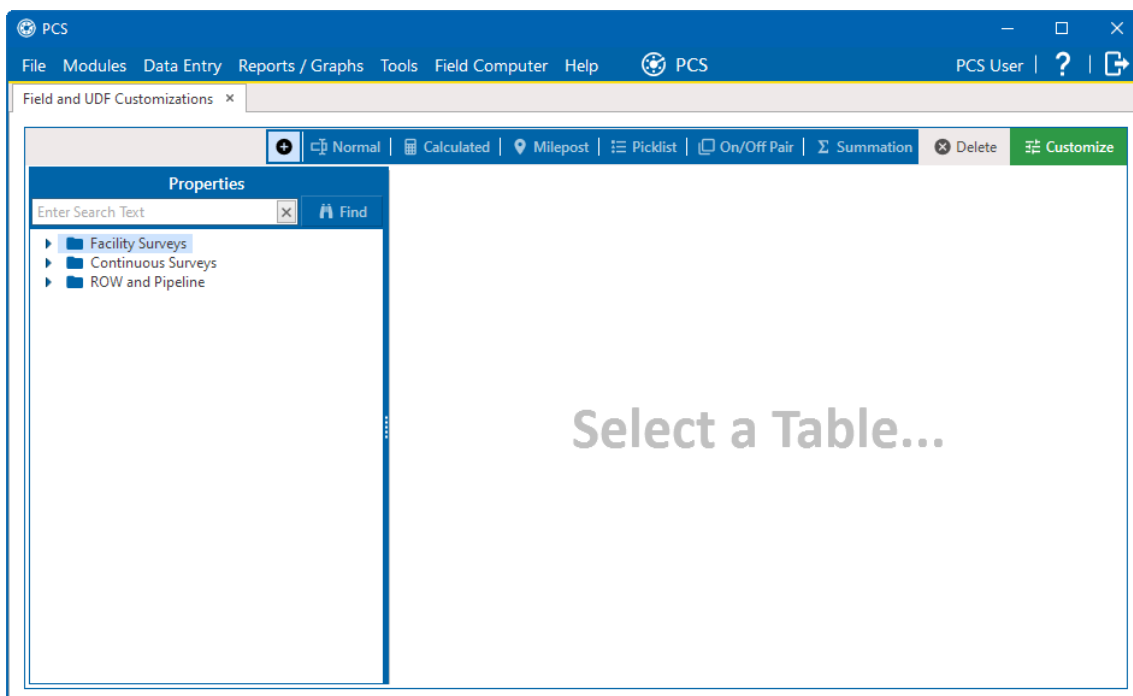


Figure 2-114. Field and UDF Customization Window

2. Select a table in the *Properties* pane that includes the data entry grid to which you want to add a UDF.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

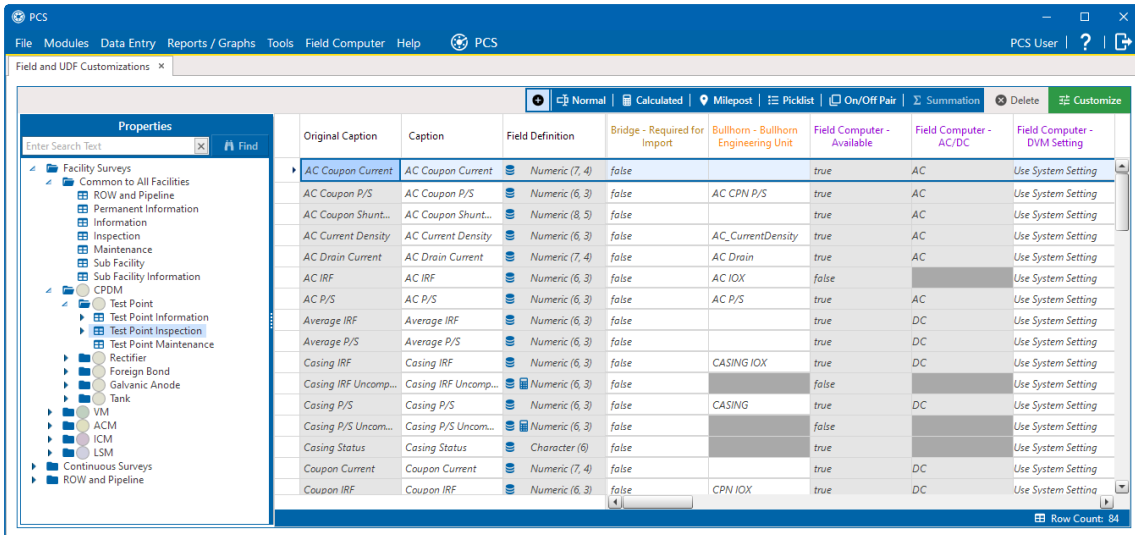


Figure 2-115. Field and UDF Customizations

3. Select the picklist UDF you want to work with in the grid of the *Field and UDF Customizations* window.

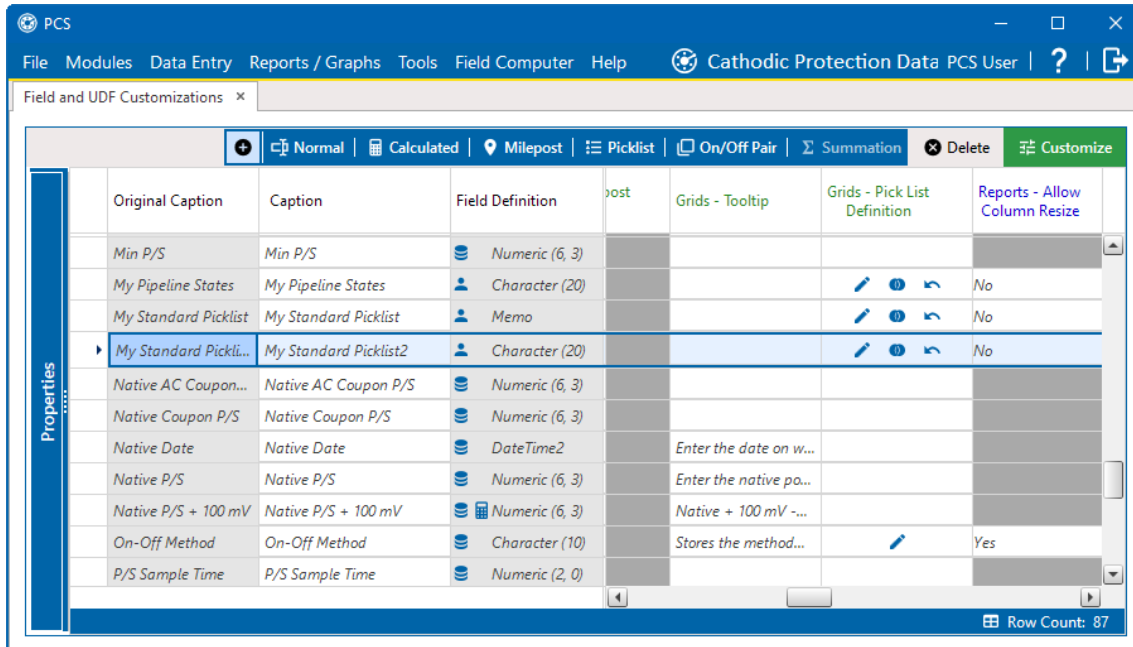


Figure 2-116. Selected Picklist UDF on Grid

- To delete the picklist UDF, click **Delete** in the toolbar of the *Field and UDF Customizations* window. Then click **Yes** if the *Confirm Delete* window.
- To delete, edit, or add data items in a picklist UDF, slide the scroll bar at the bottom of the grid until the **Grids - Pick List Definition** column displays.

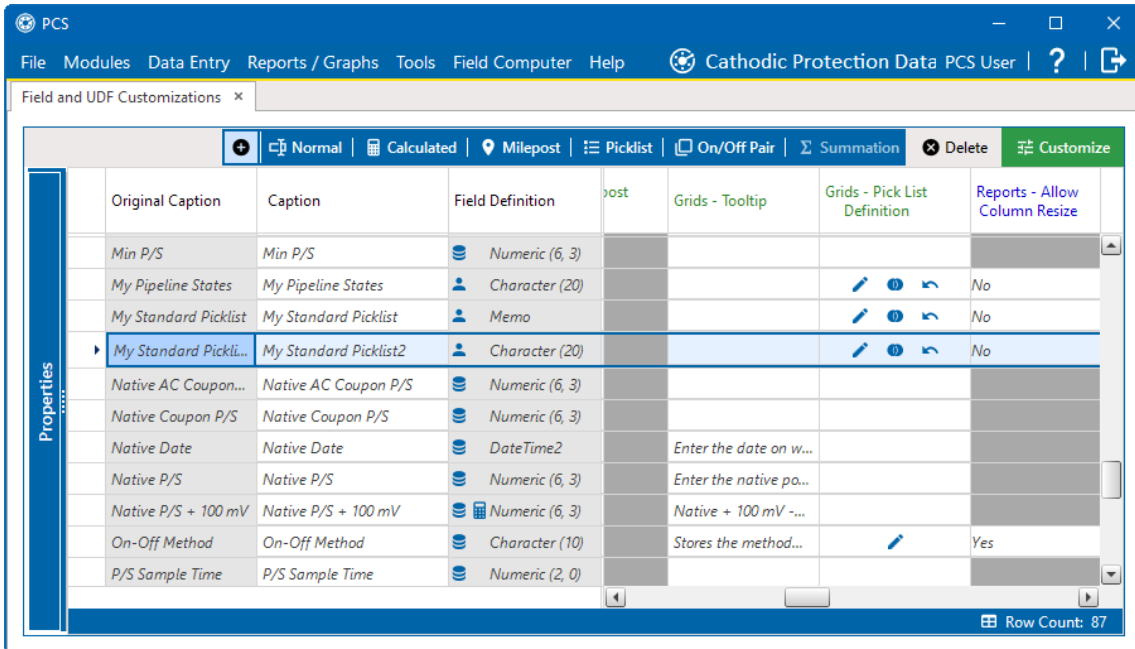


Figure 2-117. Edit Icon for Selected Picklist UDF

- a. Click the  edit icon to open the *Edit Picklist Field* window.

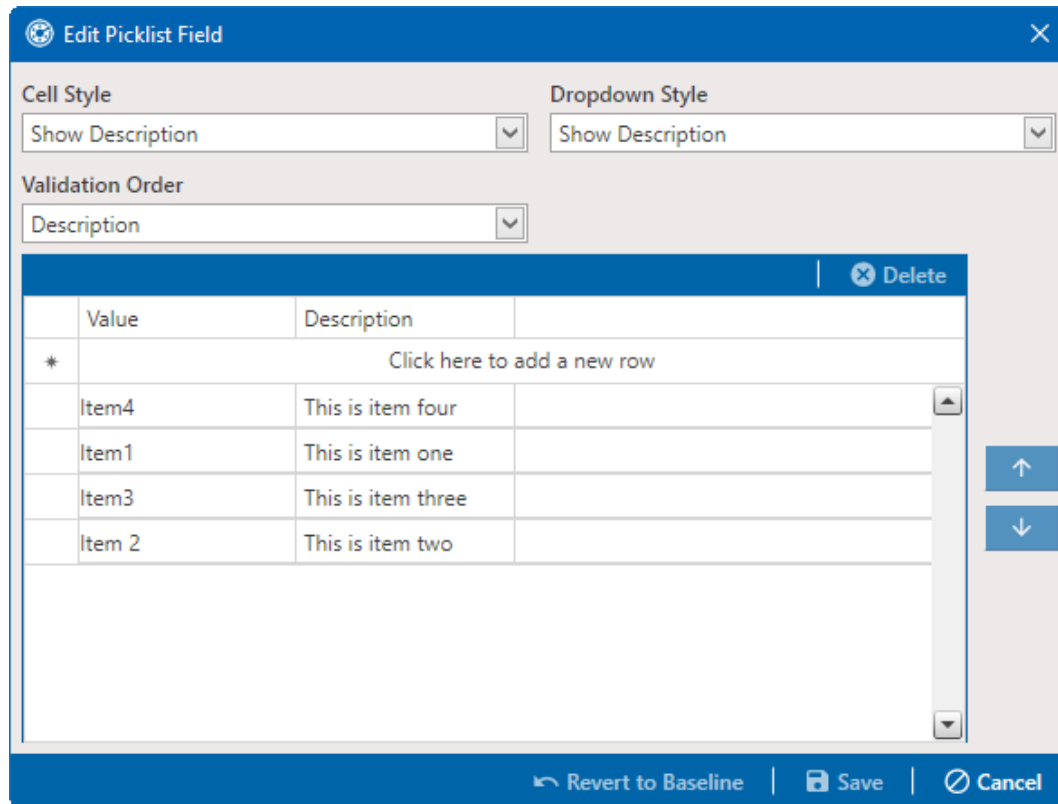




Figure 2-118. Edit Icon for Selected Picklist UDF

- b. To delete a data item, select the item and then click  **Delete**. Then click  **Yes** if the *Confirm Delete* window.
- c. To edit a data item, select the item and edit as needed.
- d. To add a data item, click the row with the message **Click here to add a new row** and enter a **Value** and **Description**.

If you are adding a data item in a child dynamic picklist, refer to [Add a Child Picklist and Mapping Data Items](#) for instructions on how to map the new item.

6. Click  **Save** to save settings and close the window.

Add an On/Off Pair User Defined Field

PCS provides several pairs of installed on/off fields for recording inspection readings in a data grid or form, including the following:

- AC P/S and AC IRF
- Casing P/S and Casing IRF
- Foreign P/S and Foreign IRF
- Insulator P/S and Insulator IRF
- Structure P/S and Structure IRF

If PCS does not provide an installed pair of on/off fields you can use to record inspection readings for a test point facility, you can create a custom On/Off Pair user defined field (UDF).

Complete the following steps to create an On/Off Pair UDF:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

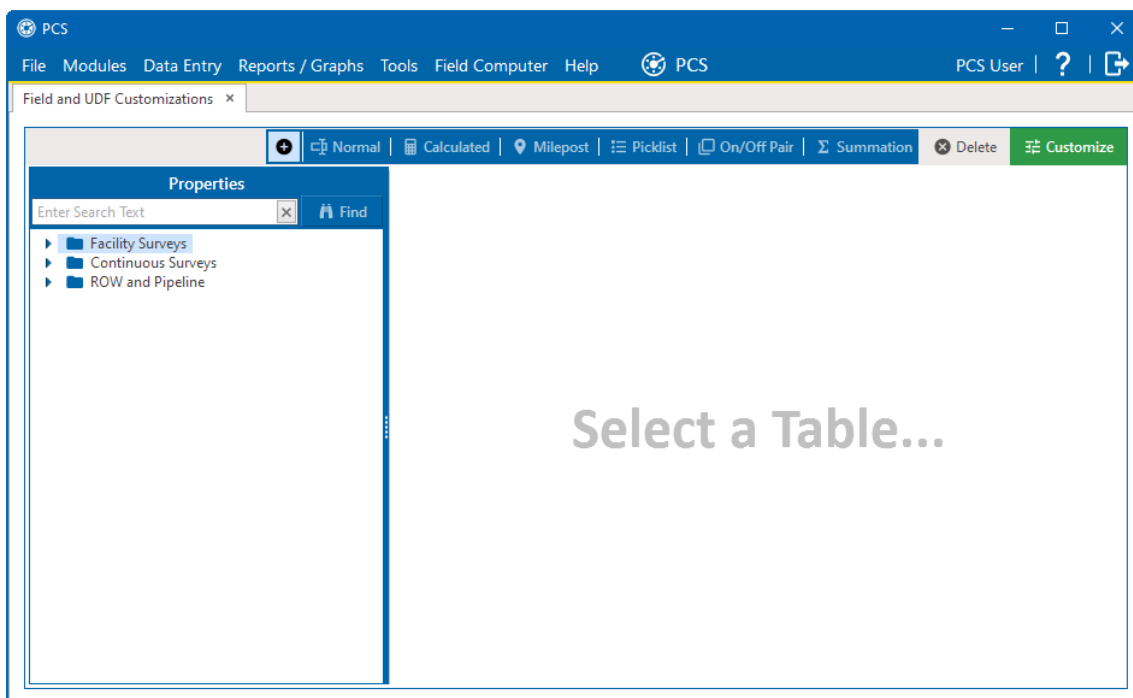


Figure 2-119. Field and UDF Customization Window

2. If you want to select a grid layout theme, click **Customize** to open the *Column Selections* window, select a theme from the **Select a Layout Theme** field, and click **Save**.

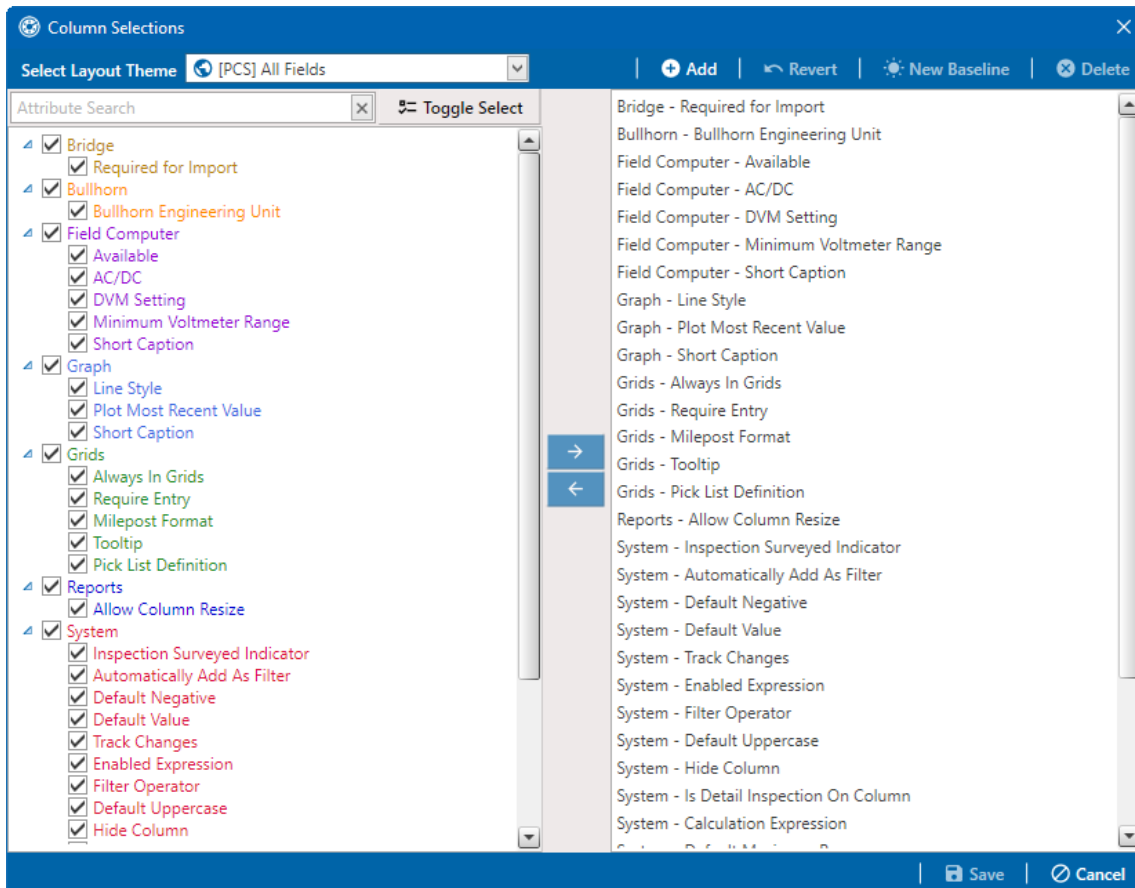


Figure 2-120. Column Selections Window

3. Select a table in the *Properties* pane that includes the data entry grid to which you want to add a UDF.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

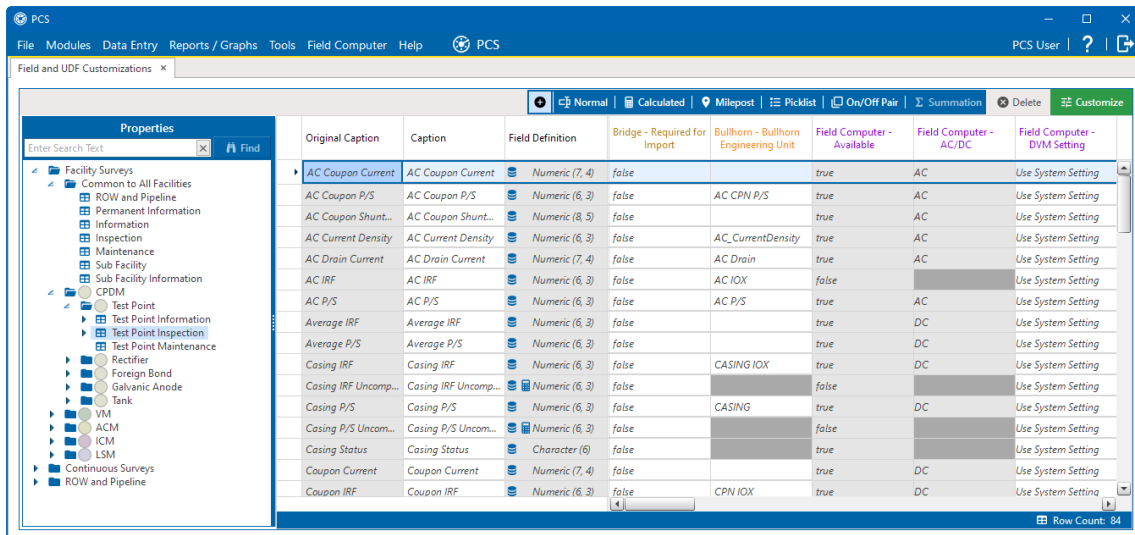



Figure 2-121. Field and UDF Customizations

- Click  **On/Off Pair** in the toolbar to open the *Add On/Off Pair Fields* window .

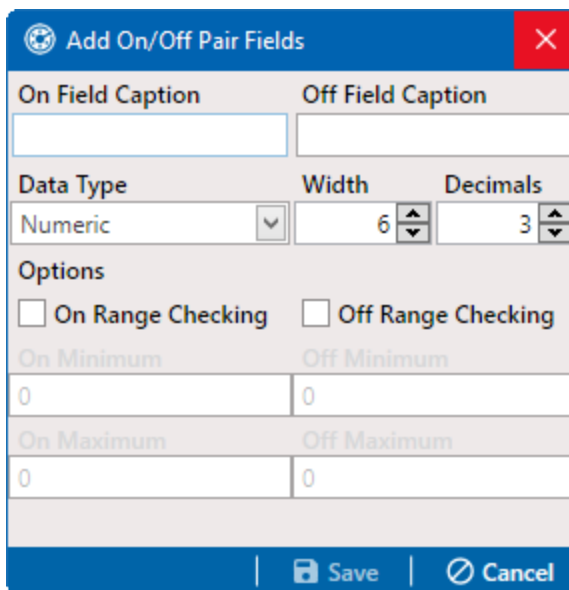


Figure 2-122. Add On/Off Pair Fields

- Type a unique name in the **On Field Caption** and **Off Field Caption** fields .
- Select a data type from the **Data Type** drop-down field.

A **Numeric** data type is a positive or negative value with decimal precision, such as 1.123 and -1.123. An **Integer** data type is a positive or negative whole number, such as 5 and -5.

7. If you selected the **Numeric** data type, set the length of the field using the **Width** and **Decimal** fields.

Clicking the up arrow in **Width** or **Decimal** fields increases the value; clicking the down arrow decreases the value.

8. If you want PCS to apply **Range Checking** to the **On** reading in the On/Off Pair, complete the following steps:

Range checking is the acceptable range of values allowed for data entry in an inspection field.

Setting up range checking allows PCS to alert the user when an incorrect value has been entered in an inspection field. For example, if the acceptable range of values is in a range of -10 to 0 and the user enters a value that is outside this range, a warning displays allowing the user to correct the invalid entry. Data entry errors are less likely to occur when using *Range Checking*. For more information, see [Set Up Range Checking for Inspection Fields on page 69](#).

Add On/Off Pair Fields	
On Field Caption	Off Field Caption
<input type="text"/>	<input type="text"/>
Data Type	Width Decimals
Numeric	6 3
Options	
<input checked="" type="checkbox"/> On Range Checking	<input type="checkbox"/> Off Range Checking
On Minimum	Off Minimum
0.4	
On Maximum	Off Maximum
1.000	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	


Figure 2-123. On Range Checking

- a. Click the **On Range Checking** check box.
 - b. Type a minimum range value in the **On Minimum** field.
 - c. Type a maximum range value in the **On Maximum** field.
9. If you want PCS to apply **Range Checking** to the **Off** reading in the On/Off Pair, complete the following steps:

On Field Caption	Off Field Caption	
Data Type	Width	Decimals
Numeric	6	3
Options		
<input checked="" type="checkbox"/> On Range Checking	<input checked="" type="checkbox"/> Off Range Checking	
On Minimum	Off Minimum	
0.4	0.3	
On Maximum	Off Maximum	
1	2,000	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>		

Figure 2-124. Off Range Checking

- a. Click the **Off Range Checking** check box.
- b. Type a minimum range value in the **Off Minimum** field.
- c. Type a maximum range value in the **Off Maximum** field.

10. When finished with configuring the On/Off Pair, click  **Save**.

The On/Off Pair UDF is now available for adding in a data entry grid. If needed, refer to [Themes and Filter Groups on page 372](#) for information about how to add fields in a data grid or form.

Summation User Defined Fields

A Summation user defined field (UDF) is a **Permanent Information** field available for use in a data grid, form, report, or as a filter in scheduling. It is a simple yet powerful UDF that provides useful information when analyzing pipeline data.

The function of a Summation UDF is to aggregate data for a target field using one of the following operators: *Average*, *Count*, *Latest*, *Maximum*, *Minimum*, and *Sum*. As an option, you can also include one or more filters that run either before or after the data aggregation.

Refer to the following topics on how to add or edit a Summation UDF:

- [Add a Summation User Defined Field](#)
- [Edit a Summation User Defined Field on page 140](#)

Add a Summation User Defined Field

Complete the following steps to add a Summation UDF:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

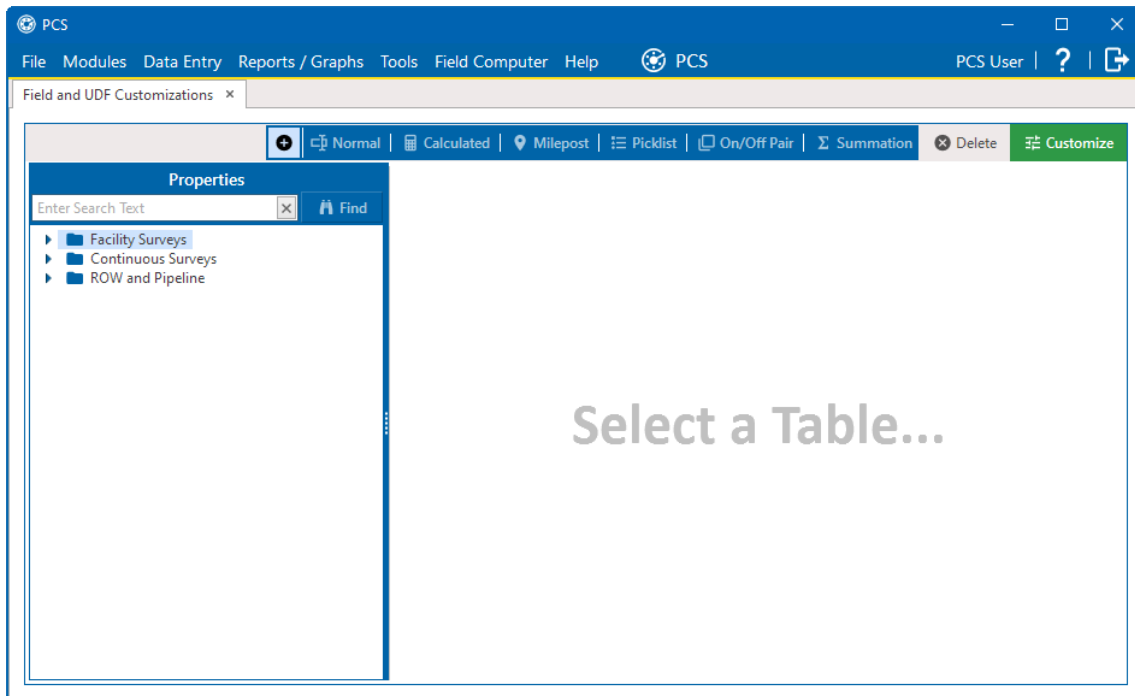


Figure 2-125. Field and UDF Customization Window

2. If you want to select a grid layout theme, click **Customize** to open the *Column Selections* window, select a theme from the **Select a Layout Theme** field, and click **Save**.

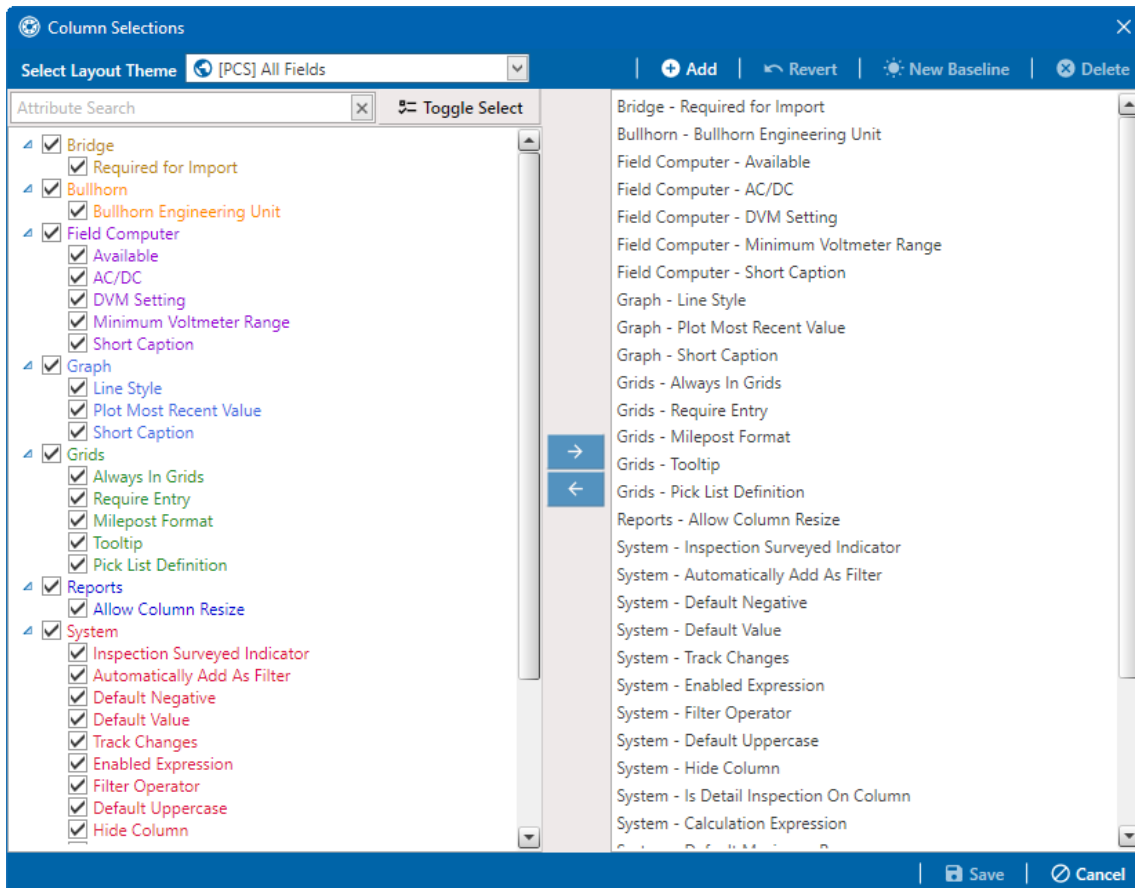


Figure 2-126. Column Selections Window

3. Double-click **Facility Surveys > Common to All Facilities** in the *Properties* pane. Then click **Permanent Information** to display a grid with fields and property settings common to all facilities).

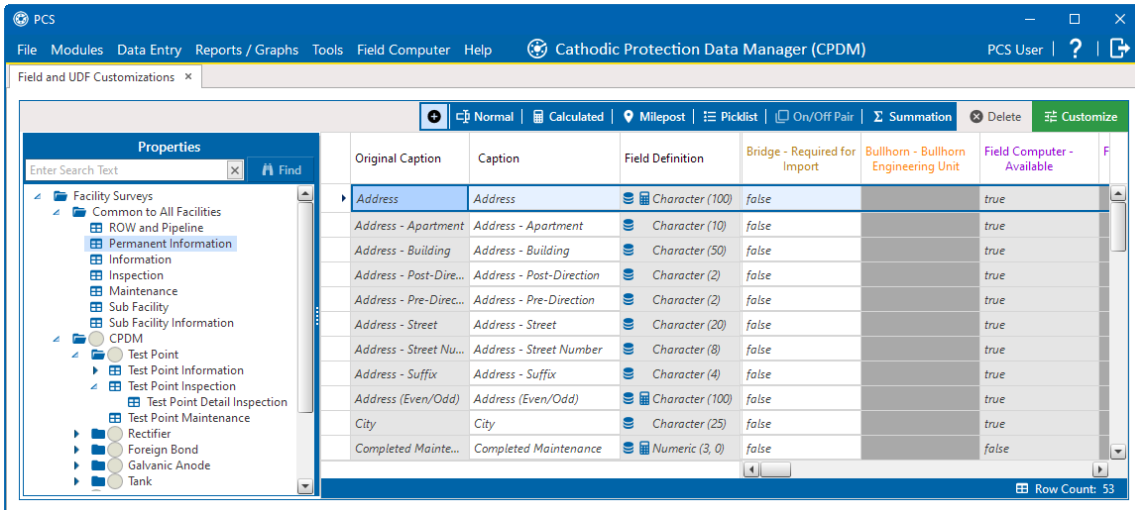


Figure 2-127. Field and UDF Customizations - Permanent Information Table

- Click **Σ** Summation in the toolbar to open the *Add Summation Field* window.

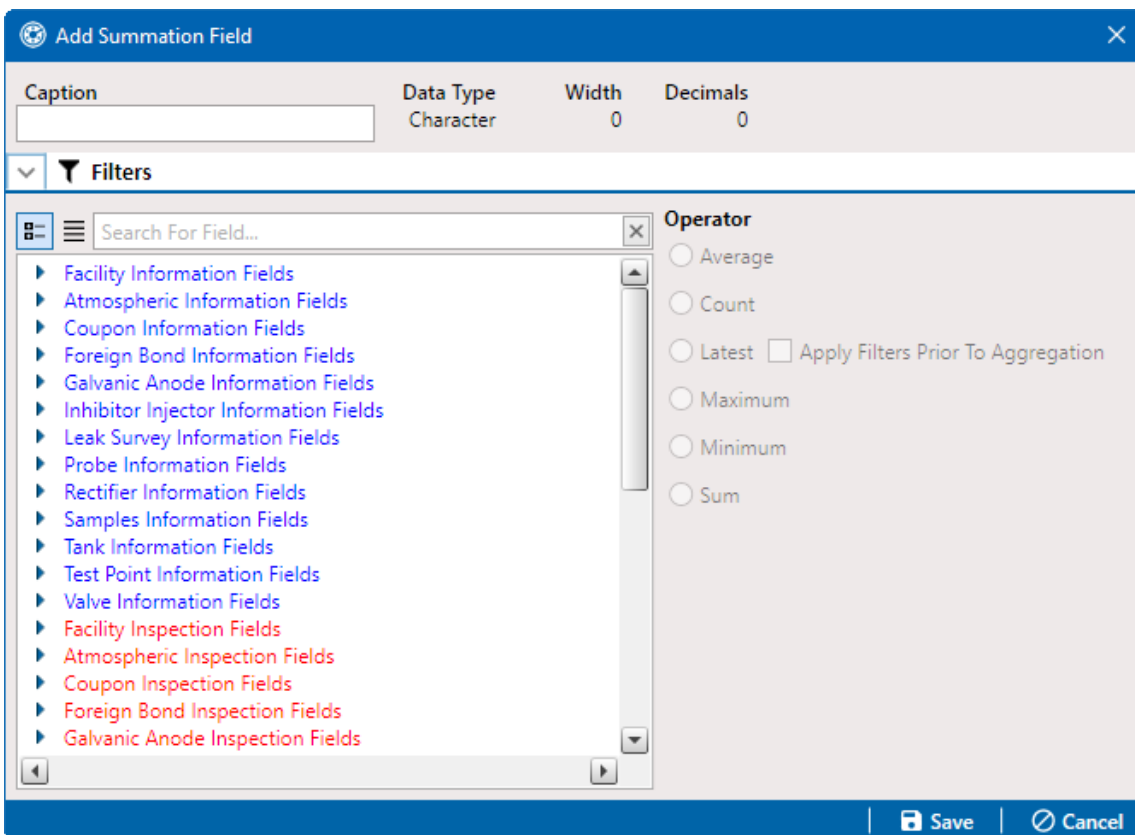


Figure 2-128. Add Summation Field

- Type a unique name for the UDF in the **Caption** field.

6. Select a target field in the list of fields in the selection pane. For example, click the ► expand icon for **Galvanic Anode Information Fields**, then double-click **Activate Galvanic Anode P/S**. A indicates a selection.

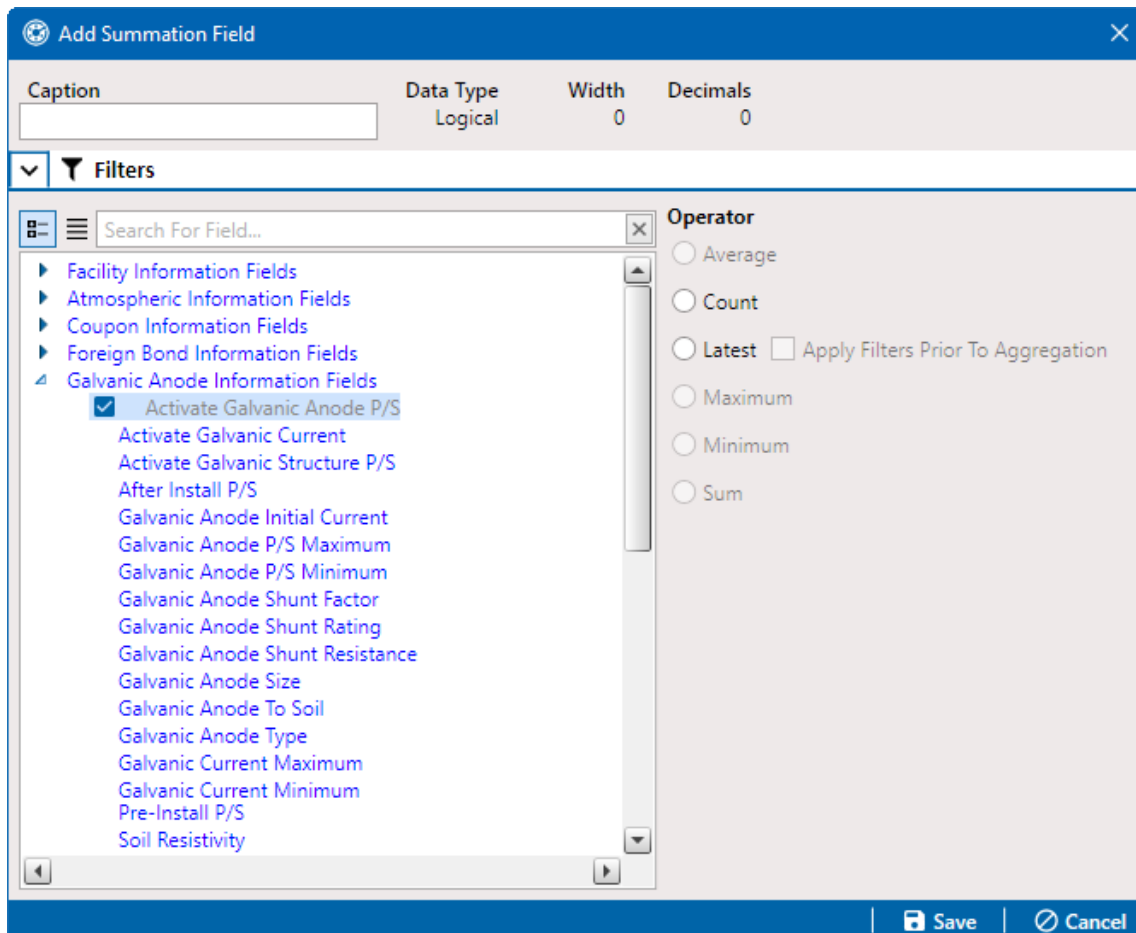
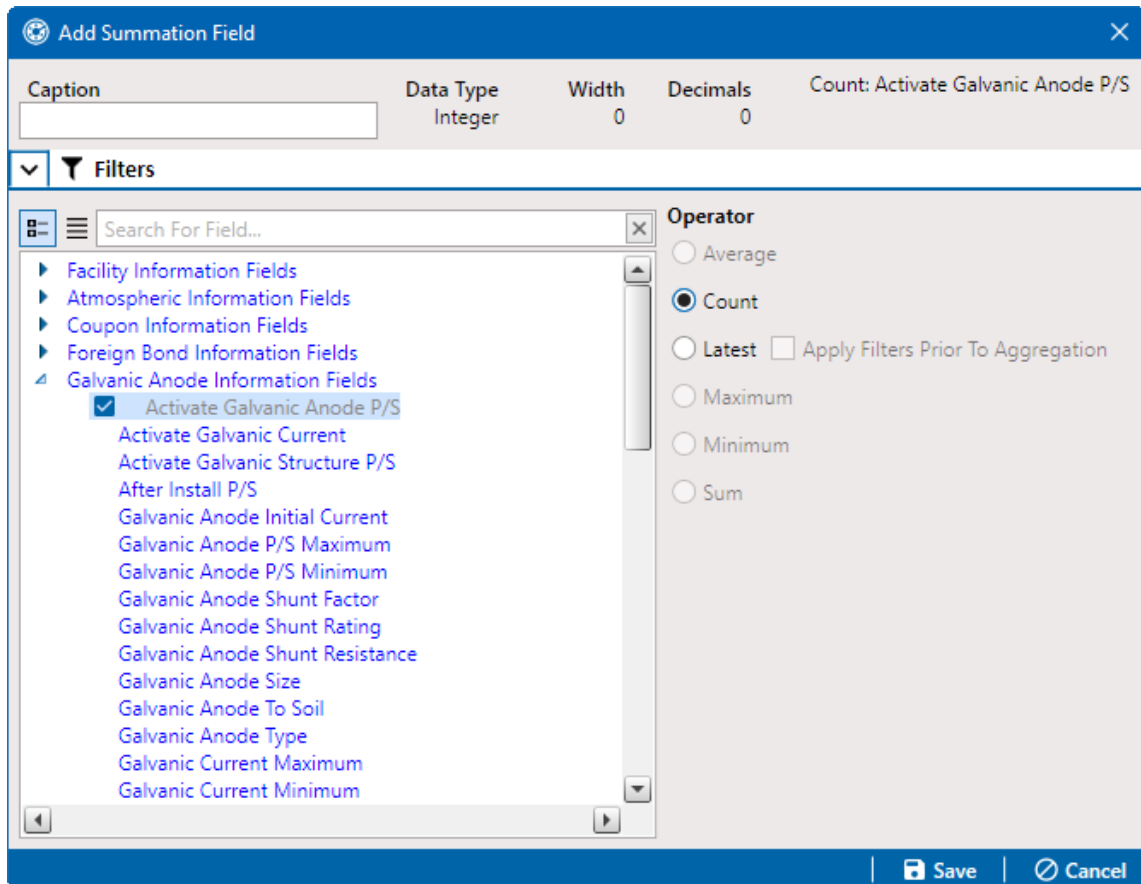


Figure 2-129. Summation Target Field

7. Select an **Operator** option.

The Summation expression displays in the top right-hand corner of the window, such as **Count: Activate Galvanic Anode P/S**, as shown in the following example.



Target Field and Operator

8. If you want to filter the data included in the summation, add an AND filter or OR filter as needed. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any of the filter conditions. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Refer to the *Themes and Filter Groups for Pipeline Records* sections *Add or Edit an AND Filter Group for Pipeline Records* and *Add or Edit an OR Filter Group for Pipeline Records* for information on using these filters.

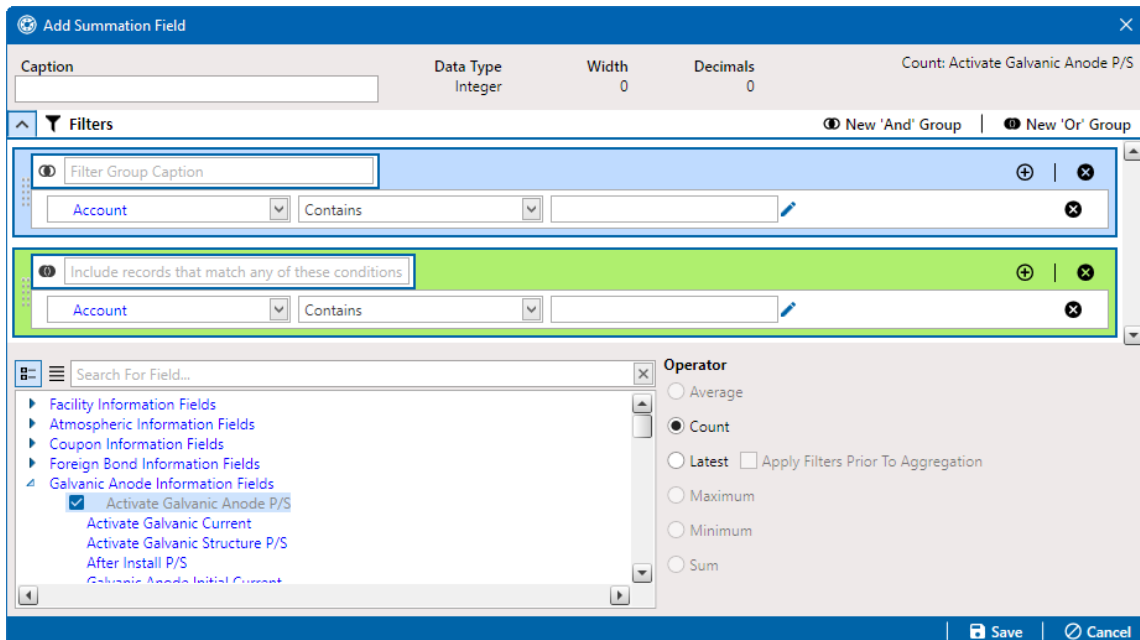



Figure 2-130. New 'And' and 'Or' Filters

9. Click  **Save** to save your UDF and close the *Add Summation Field* window.

Edit a Summation User Defined Field

Complete the following steps to edit a Summation UDF previously added in PCS:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

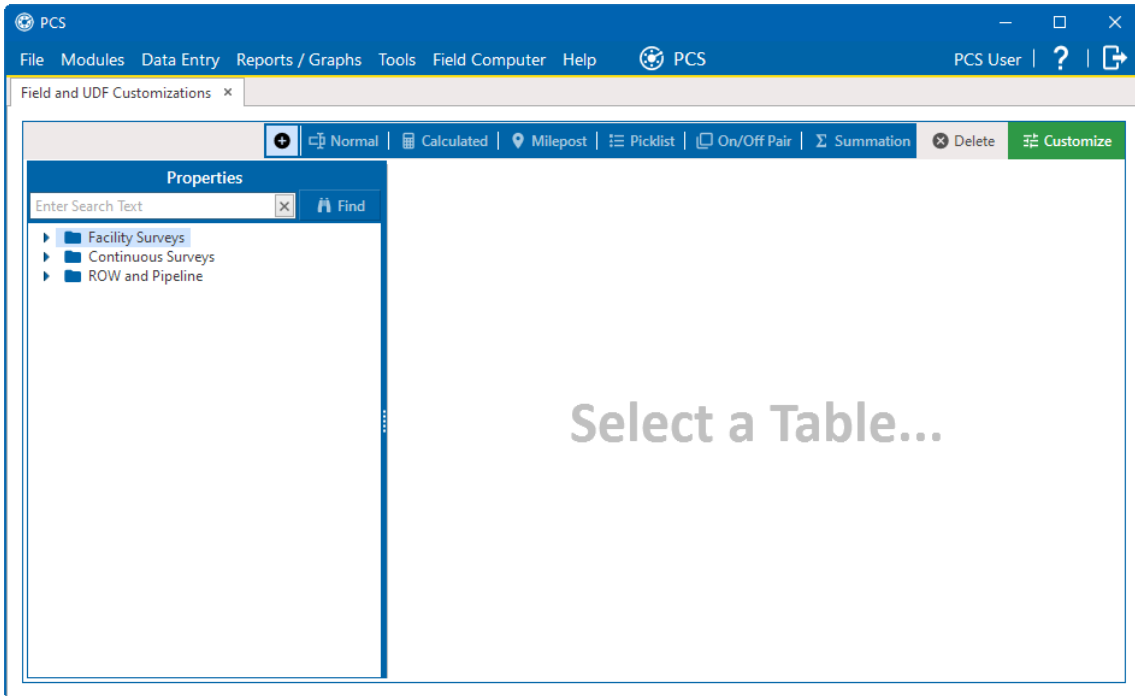


Figure 2-131. Field and UDF Customizations

2. Double-click **Facility Surveys > Common to All Facilities** in the *Properties* pane. Then click **Permanent Information** to display a grid with fields and property settings common to all facilities).

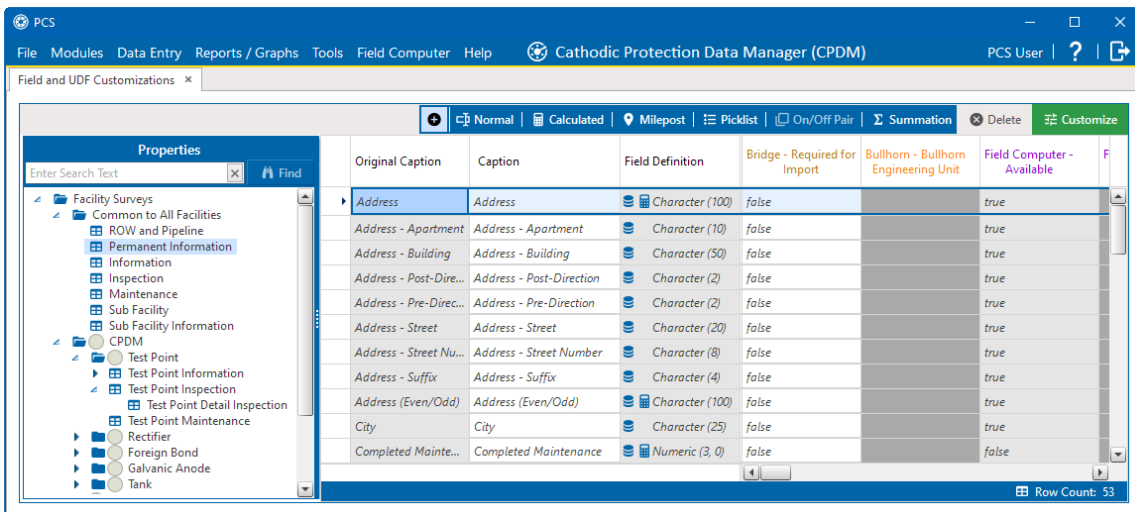


Figure 2-132. Field and UDF Customizations - Permanent Information Table

3. Select the Summation UDF you want to edit in the grid of the *Field and UDF Customizations* window. Then navigate to the **System-User Defined Summation Definition** column and click the ... ellipsis button next to the UDF name.

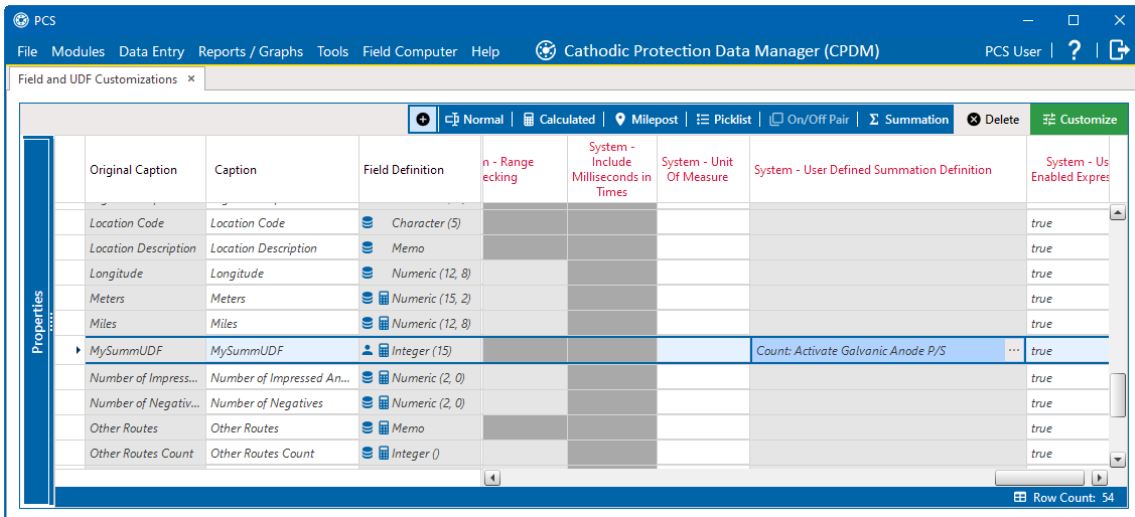


Figure 2-133. System-User Defined Summation Definition

4. In the *Edit Summation Field* window, edit UDF settings as needed.

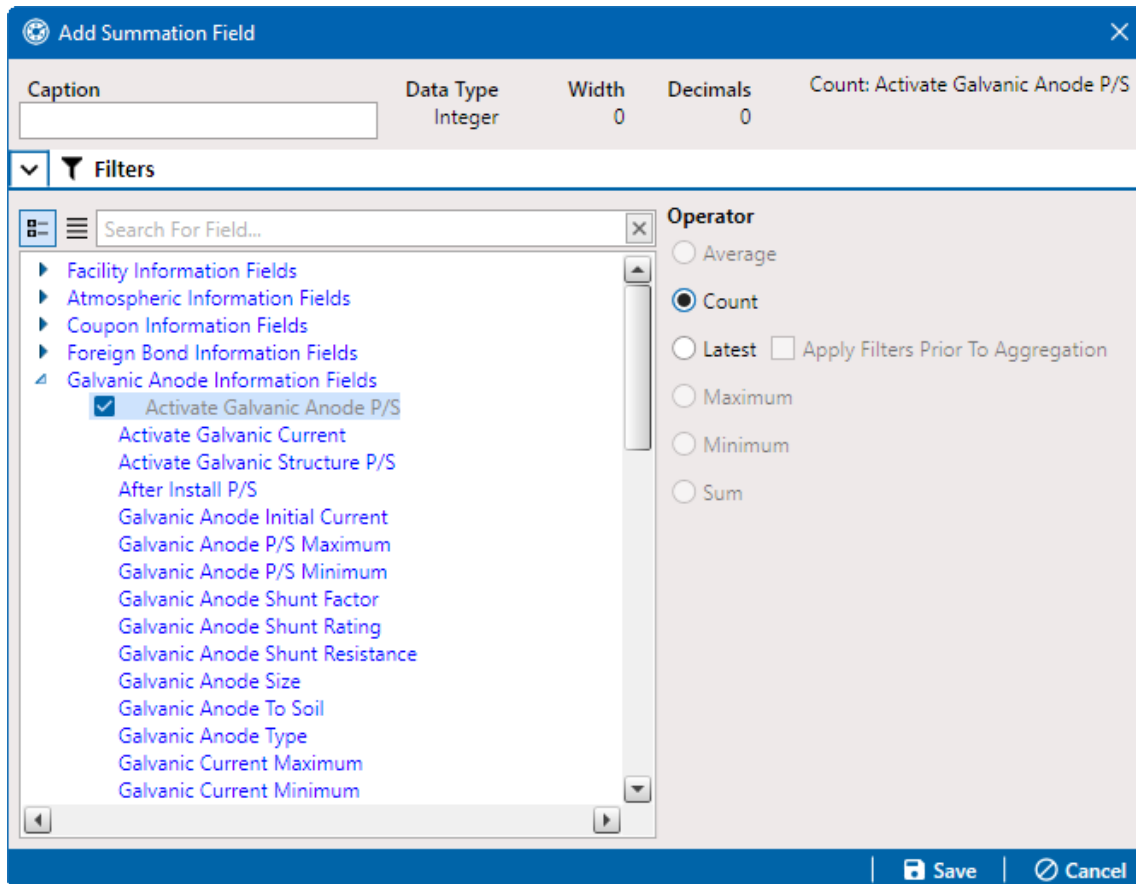


Figure 2-134. Edit Summation

5. If the Summation UDF includes filter settings you want to change, click the **Filters** button to open the *Filters* pane and make changes as needed. Use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
6. Click **Save** to save settings and return to the *Field and UDF Customizations* window.

Choosing a Printer for PCS

PCS uses your computer's default printer to print reports and graphs. If a color printer is available, you may want to print graphs on a color printer. If you need to add or set up a local or network printer, contact your company's network administrator or IT department for assistance.

Pipeline Series

A pipeline series defines each segment of a pipeline, where the starting milepost of a pipeline series corresponds to the starting milepost for a segment of the pipeline, and the ending milepost of the pipeline series corresponds to the ending milepost for the same segment of pipeline.

This chapter includes the following topics:

- [About Pipeline Series](#)
- [Add and Apply Pipeline Series on page 144](#)

About Pipeline Series

When a discontinuity occurs in a pipeline, use **Pipeline Series** to adjust facility numbers on the pipeline. A discontinuity typically occurs when an extension is added to the pipeline, the pipeline is re-routed, or when a company designates two pipelines as parallel lines. Instead of physically renumbering pipeline location numbers on-site, Pipeline Series allows you to shift pipeline numbering in PCS using Relative Milepost locations.

A Pipeline Series is an ordered list of milepost locations with a starting milepost and an ending milepost that serve as connectors to preceding and subsequent Pipeline Series. All Pipeline Series snapped end to end map the pipeline. Multiple connected Pipeline Series form a Pipeline Series chain.

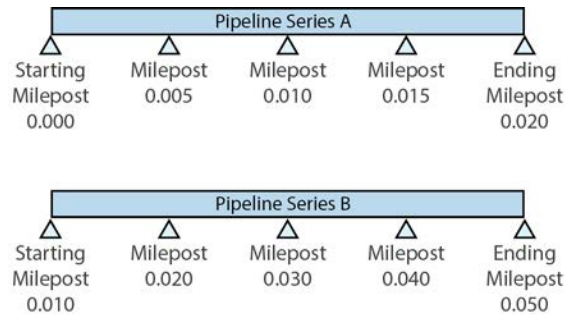
Additional characteristics of Pipeline Series include the following:

- All facilities on the pipeline must be assigned to a Pipeline Series when a Pipeline Series is used with a segment of the same pipeline. An entire pipeline can be made up of several Pipeline Series.
The starting milepost of a Pipeline Series corresponds to the starting milepost for a segment of the pipeline. The ending milepost of the Pipeline Series corresponds to the ending milepost for the same segment of pipeline. Each Pipeline Series joins together, end-to-end, to make up the entire pipeline. Pipeline Series defines each segment and is then used to calculate the Relative Milepost.
- A pipeline with several different numbering schemes can be converted into a sequential line using a Pipeline Series for each segment of the pipeline. This allows you to graph the entire distance of the pipeline using the Relative Milepost.
- Pipeline Series supports negative milepost locations, which helps identify milepost locations that are in an opposite direction of other milepost locations in a series.
- Red facility records in a data entry grid identify milepost numbers that require a Pipeline Series be applied to the record.

Add and Apply Pipeline Series

The *Pipeline Series* window (**Data Entry > Pipeline Series**) allows you to add new pipeline series definitions and combine the series into a chain. This allows you to easily update milepost locations of points in the pipeline series when a discontinuity occurs by modifying the start and end milepost values.

A pipeline series defines each segment of a pipeline, where the starting milepost of a pipeline series corresponds to the starting milepost for a segment of the pipeline, and the ending milepost of the pipeline series corresponds to the ending milepost for the same segment of pipeline. Each pipeline series joins together, end-to-end, to make up the entire pipeline. The pipeline series definitions are used to calculate the Relative Milepost of facilities on the pipeline.



Adding Pipeline Series B to the Chain After Pipeline Series A

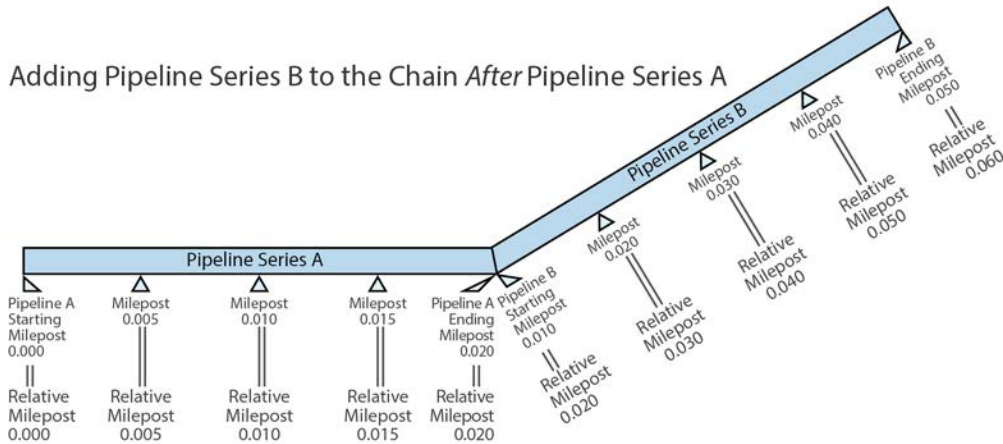


Figure 2-135. Two Pipeline Series Combined to Form a Chain

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to add new Pipeline Series, combine multiple Pipelines Series into a chain, and apply Pipeline Series to facility records:

1. Click **Data Entry > Pipeline Series** to open the *Pipeline Series* window.

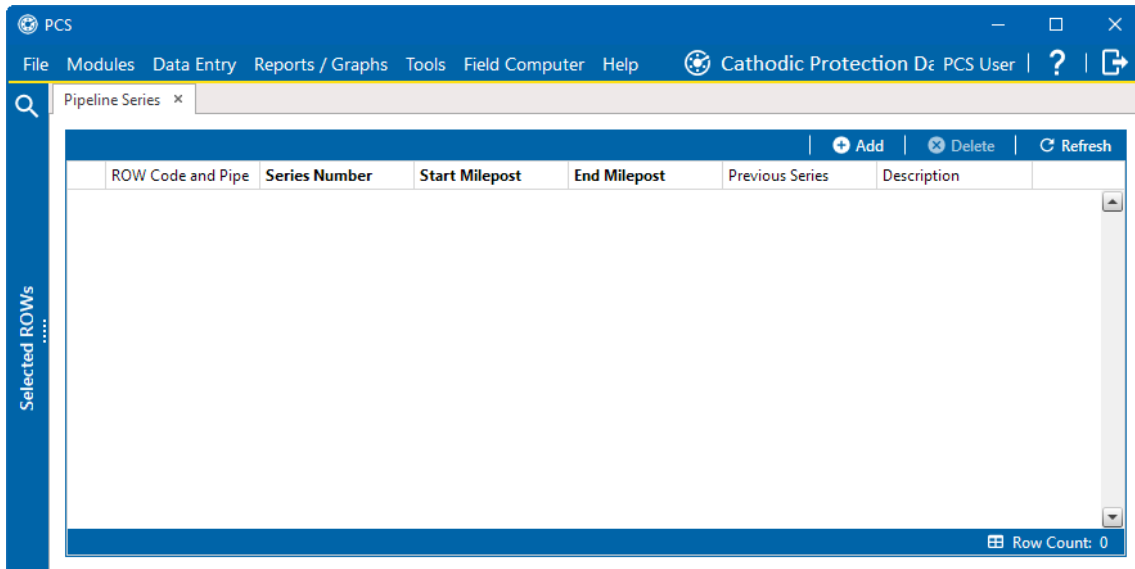


Figure 2-136. Pipeline Series

2. Complete the following steps for each pipeline series you wish to add:
 - a. Click **+ Add** and then select the **ROW Code** and **Pipe** you want to work with.

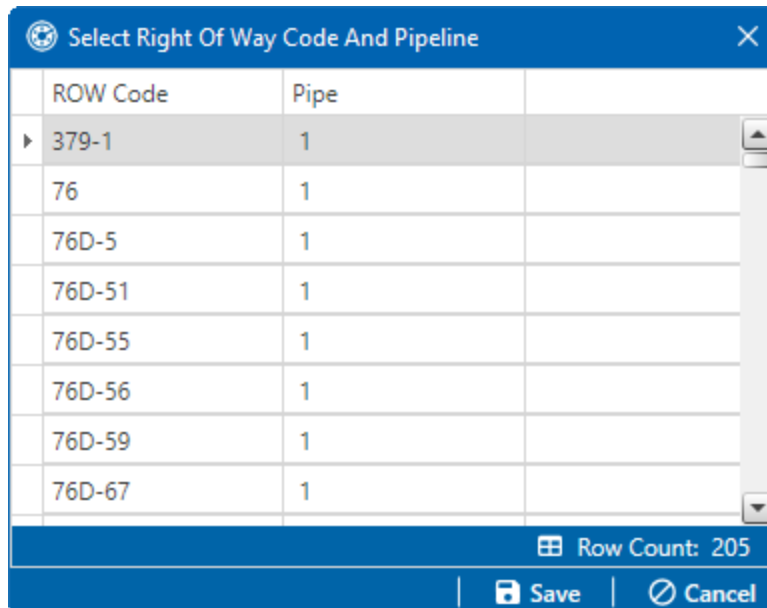


Figure 2-137. Select Right Of Way Code And Pipeline


- b. Click **Save** to open the *Add Record* window.

The screenshot shows a dialog box titled "Add Record" with a blue header bar containing a refresh icon and a close button. The dialog contains four input fields:

- ROW Code and Pipe:** A dropdown menu with the value "76" selected.
- Series Number:** A text input field that is currently highlighted in blue.
- Start Milepost:** An empty text input field with a red "X" icon to its left.
- End Milepost:** An empty text input field with a red "X" icon to its left.

At the bottom of the dialog, there are two buttons: "Save" (with a floppy disk icon) and "Cancel" (with a circle and slash icon).

Figure 2-138. Add Record

- c. Type a unique identifier for the pipeline series in the **Series Number** field. This field accepts up to 10 alphanumeric characters including spaces and special characters, such as a hyphen (-) or pound sign (#).
- d. Type the starting milepost for the segment of the pipeline in the **Start Milepost** field and the ending milepost for the same segment of the pipeline in the **End Milepost** field.
- e. Click  **Save** to close the window and add the record in the *Pipeline Series* grid.

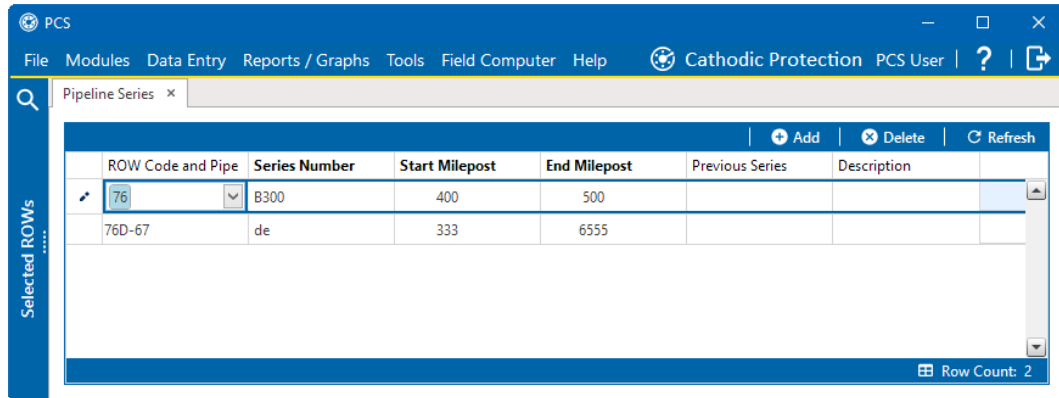


Figure 2-139. Pipeline Series Grid with New Records

- f. If you want to add a description or other type of information for the pipeline series, type the information in the **Description** field. This field supports up to 30 alphanumeric characters.
3. Complete the following steps to combine multiple pipeline series together in a chain:
- a. Select a pipeline series that is **not** the first segment of the chain.

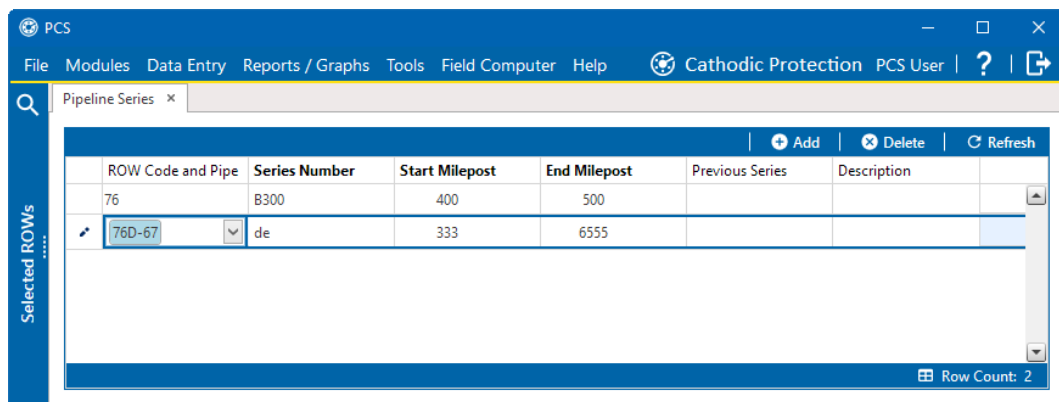


Figure 2-140. Second Segment of Pipeline Series

- b. Click the down arrow in the **Previous Series** field and select the series that precedes the currently selected series.

PCS uses the start and end milepost values of the preceding pipeline series in the chain to determine the Relative Milepost of any point in a pipeline series.

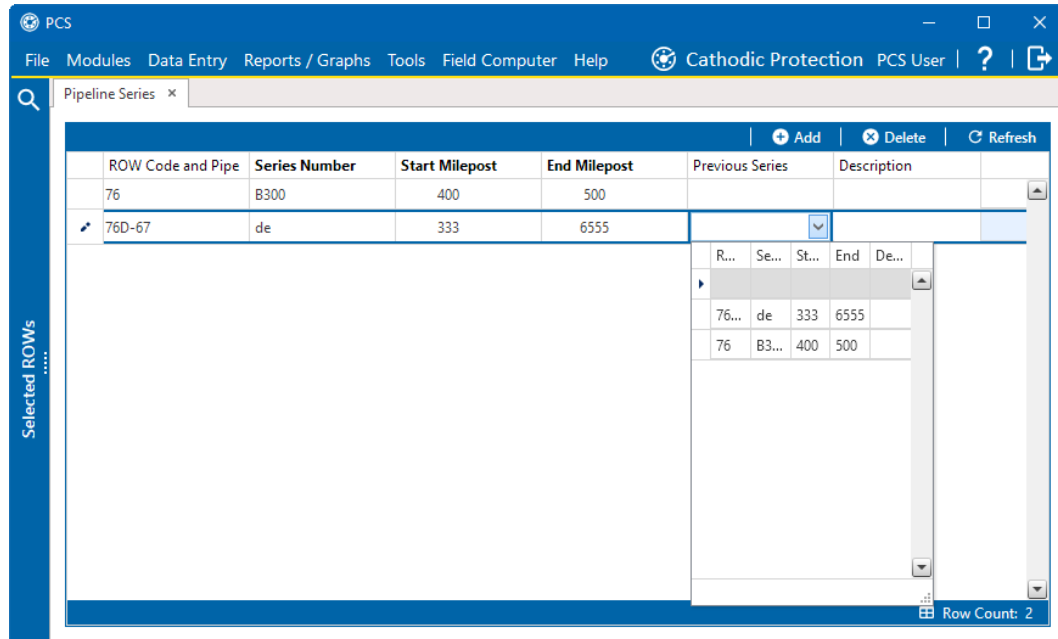


Figure 2-141. Pipeline Series

- c. Repeat these steps as necessary to add additional pipeline series to the chain.
 - d. When you are done defining pipeline series and creating pipeline chains, click the **x** icon to close the *Pipeline Series* window.
4. Complete the following steps to apply a Pipeline Series to facility records:
 - a. Click **Data Entry > Edit CPDM Data** to open the Edit CPDM Data window and select the view. Click **Apply**.

PCS will highlight the Series and Milepost fields for facility records that need to be assigned to a series or are assigned to an incompatible series.

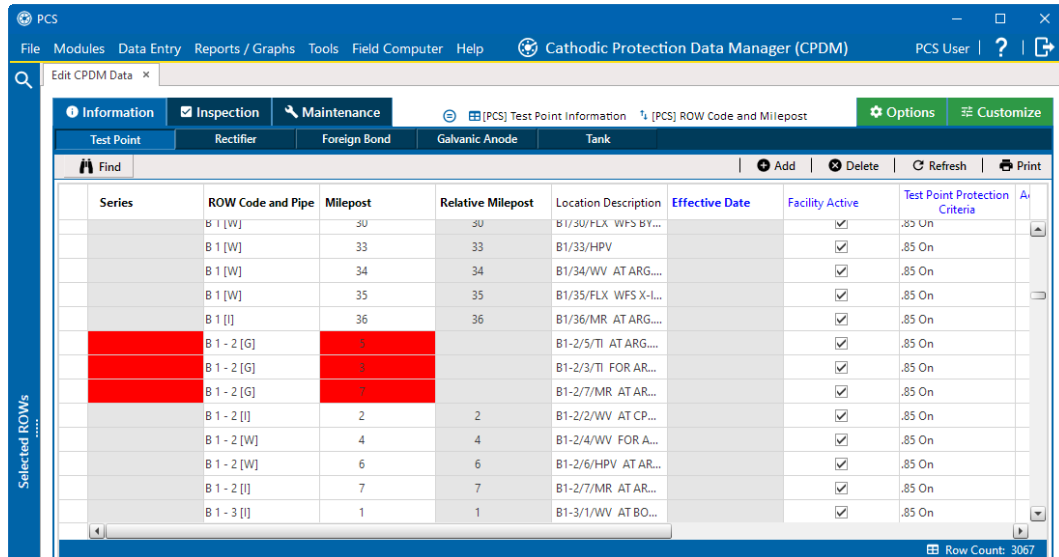


Figure 2-142. Highlighted Fields for Series

- b. To assign a facility record to a pipeline series, click in the **Series** field of the record. Select the correct pipeline series from the drop-down. Repeat this step for each affected facility record in the data grid.

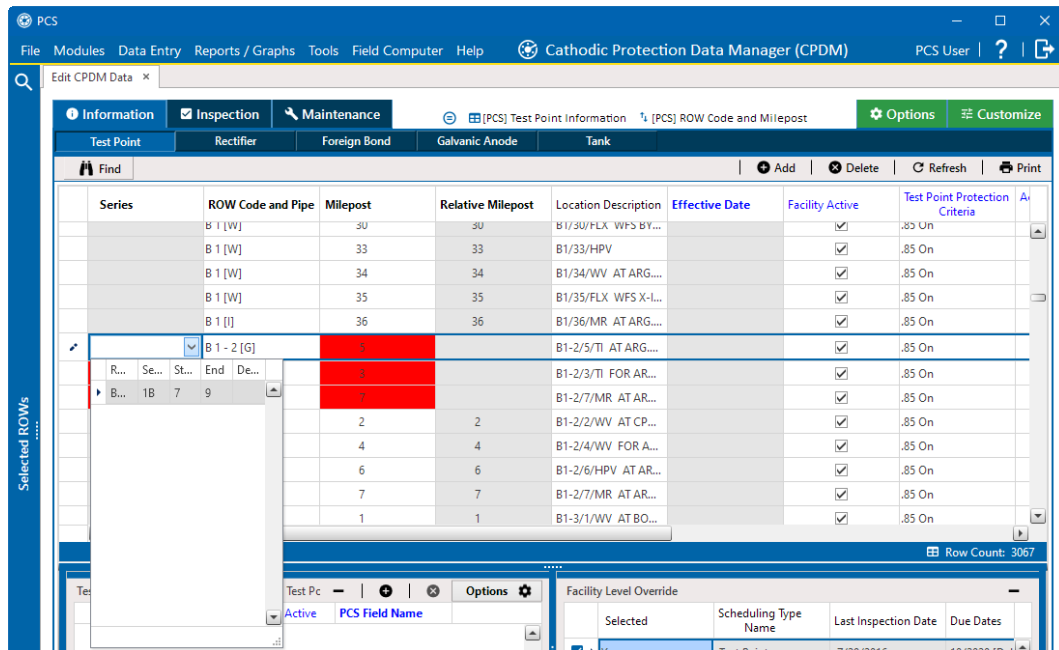


Figure 2-143. Pipeline Series

PCS automatically calculates the *Relative Milepost* for each facility record assigned a pipeline series in the data entry grid.

Manage Custom Modules and Facilities

CMM is an optional add-on feature that requires an activation key for operation.

Custom Module Management (CMM) (**Modules > Custom Module Management**) allows you to manage compliance data for facility types not included within a specific module of PCS or create an entirely new module with all new custom facility types. If there is an installed module that contains most, but not all, of the facility types you need, you can create a new custom facility type within the existing module. However, if your compliance data needs cannot be fulfilled at all by an existing module, you can create a custom module that contains only custom facility types.

Custom modules and facilities provides the same basic functionality as a system installed modules and facilities and can be used with the same PCS features as system installed modules and facility types. You can enter information, inspection, and maintenance data for custom facility types and perform the same tasks with data in the custom module as you would with data in a system installed module, including running reports, viewing and filtering data, and setting up schedules.

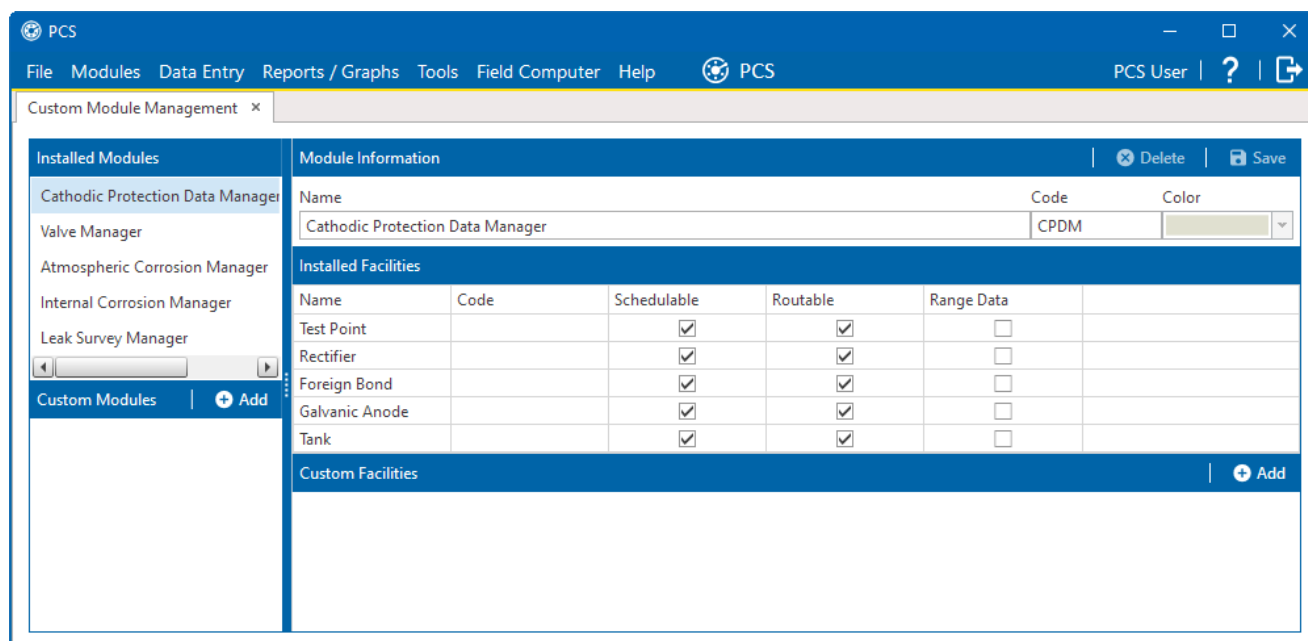


Figure 2-144. Custom Module Management

PCS supports up to ten (10) custom modules with each module supporting up to ten (10) custom facility types.

If your company has purchased the CMM module, use the following information to set up a custom module and custom facility types:

- [Add a Custom Module](#) – add a new custom module with custom facility type(s).
- [Modify a Custom Module](#) – edit or delete an existing custom module.

- [Add a Custom Facility Type](#) – add a new custom facility type to an existing module.
- [Modify a Custom Facility Type](#) – edit or delete an existing custom facility type.
- [Configure PCS for the New Module or Facility Type](#) – finish setting up PCS to use the custom modules and facility types.

Add a Custom Module

If your compliance data needs cannot be fulfilled at all by an existing module, you can create a custom module that contains only custom facility types. A custom module must have at least one facility type and supports up to ten (10) custom facility types.

If change tracking is configured for your database, review the change tracking configurations after adding a new module to ensure that the desired settings were applied to any new tables or fields for the new module. Refer to [Track Data Changes on page 869](#). These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to add a custom module:

1. Click **Modules > Custom Module Management** to open the *Custom Module Management* window.

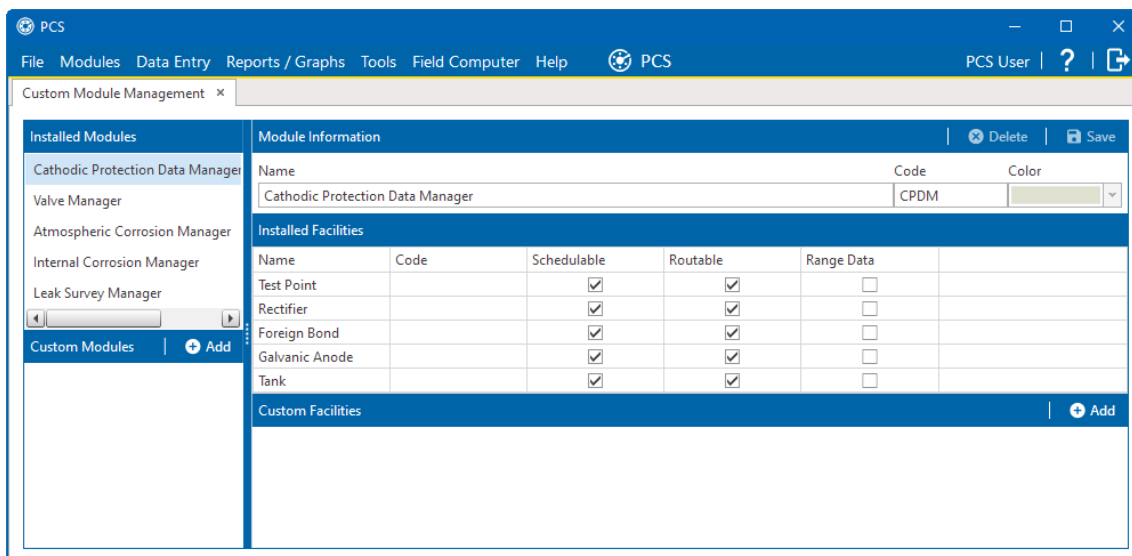


Figure 2-145. Custom Module Management Window

2. Click **+ Add** in the *Custom Module* pane on the left. A new module is created with a single custom facility created.

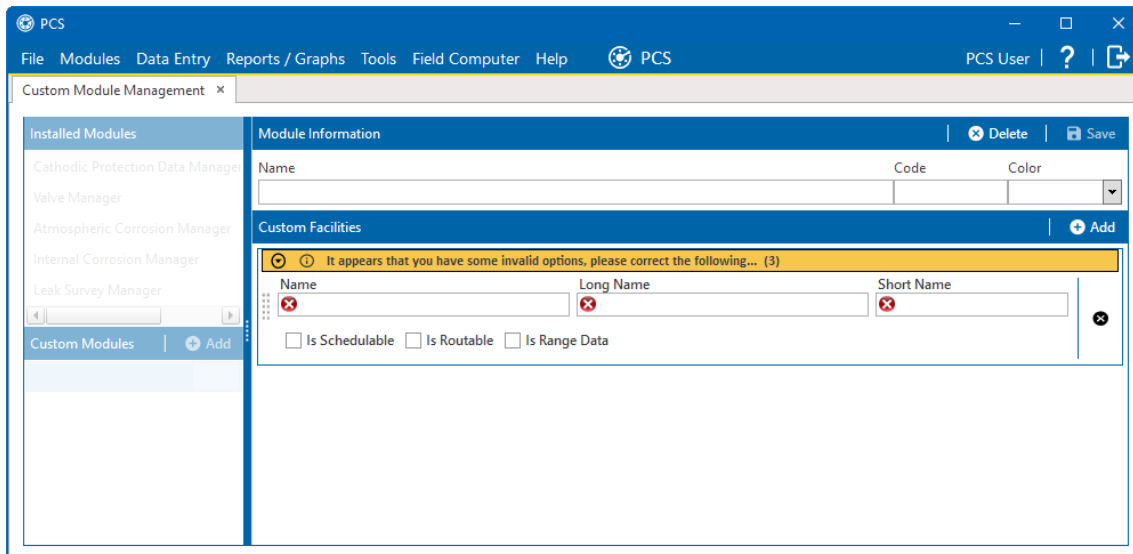


Figure 2-146. Custom Module Management

3. Enter a name for the module in the **Name** field. The field accepts up to 50 alphanumeric characters including spaces and special characters.
4. Enter a code for the module in the **Code** field. This field accepts up to four (4) alpha characters. It does not support numeric or special characters.
5. Assign a color to the module from the **Color** drop-down. To assign a color that does not exist in the drop-down, select **Advanced** in the **Color** drop-down and create a custom color by doing any of the following:
 - a. Select a color with the color slider and color field.
 - b. Enter a hexadecimal value in the field provided.
 - c. Enter Red (R), Green (G), Blue (B), and Alpha (A) values in the field provided.
6. In the *Custom Facilities* pane, type the facility type's name in the **Name** field. The field accepts up to 30 alphanumeric characters including spaces and special character set the properties for the facility type created for the module and add additional facility types as needed by completing the following steps:
 7. Type a longer name for the user defined facility in the **Long Name** field. This field accepts up to 40 alphanumeric characters including spaces and special characters.
 8. Type an acronym for the user defined field in the **Short Name** field. The field accepts up to four (4) alpha characters. It does not support numeric or special characters.
 9. If you want the facility type available for selection when setting up a schedule, click to select the **Is Schedulable** check box.

10. Click to select the **Is Routable** check box to have the facility type available for selection when setting up a route.
11. Click to select the **Is Range Data** check box to allow pipeline segments in this facility type to be defined based on a starting and ending milepost range regardless of series definitions.
12. If additional facility types are needed, click **Add** and repeat these steps.

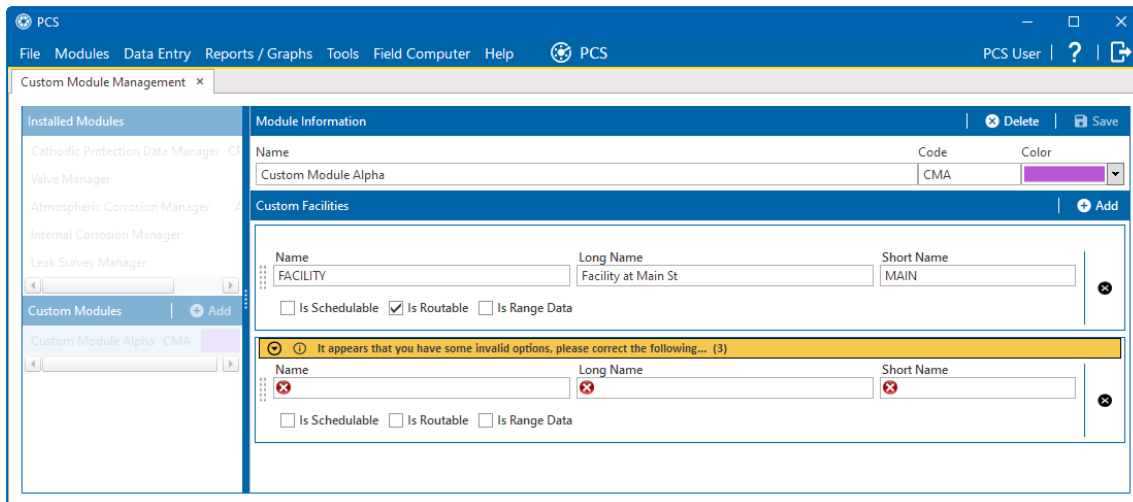


Figure 2-147. Adding Another Facility

13. Click **Save** to save the module information and all custom facility properties.

Modify a Custom Module

A custom module's properties can be edited, the custom module can be removed, and custom facility types can be added to, modified in, or removed from the module. A custom module must have at least one facility type and supports up to ten (10) custom facility types. These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to modify a custom module information or add or delete custom facilities to that module:

1. Click **Modules > Custom Module Management** to open the *Custom Module Management* window.

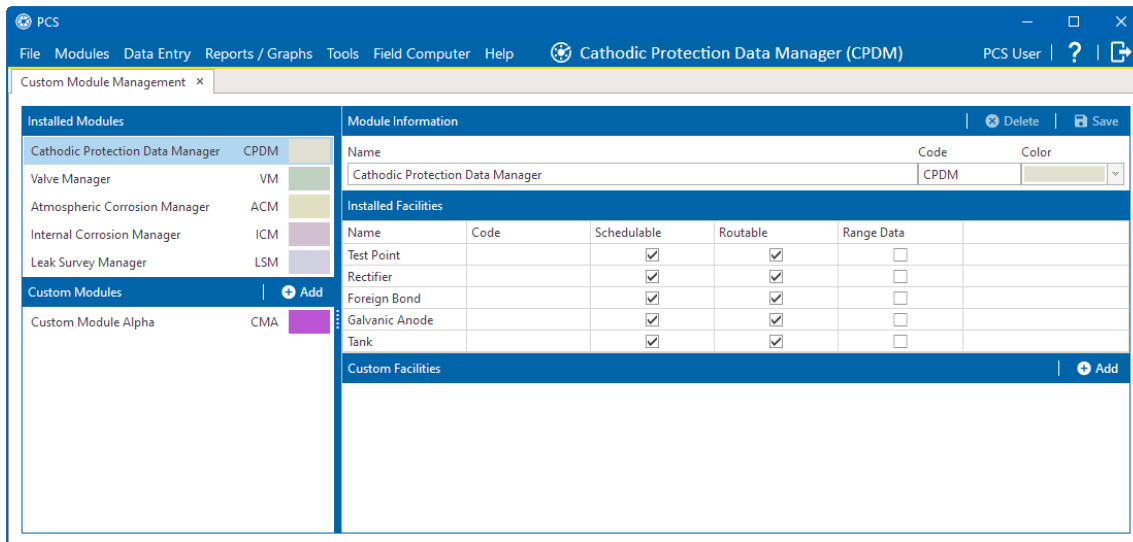


Figure 2-148. Custom Module Management Window - Custom Modules

2. Select the module you wish to modify in the *Custom Modules* pane on the left.

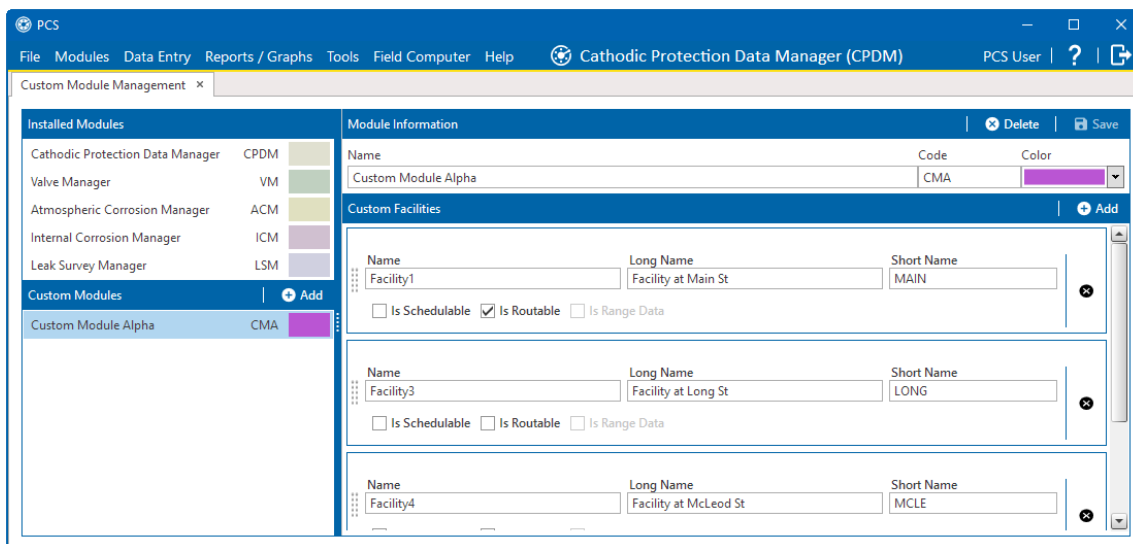



Figure 2-149. Selected Custom Module

3. To add new facility types, click **Add**. Refer to [Add a Custom Module](#) for additional information on how to add a facility type.
4. To edit the module information or custom facilities, edit the **Name**, **Code**, and **Color** fields as needed. Edit the fields in the *Custom Facilities* pane for any custom facility you wish to edit. Refer to [Add a Custom Module](#) for additional information on these fields.

5. To delete a custom facility, click the  icon in the facility box. You cannot delete a facility type while Job Service is running. If Job Service is running when you try to delete the facility, the following error message will display:

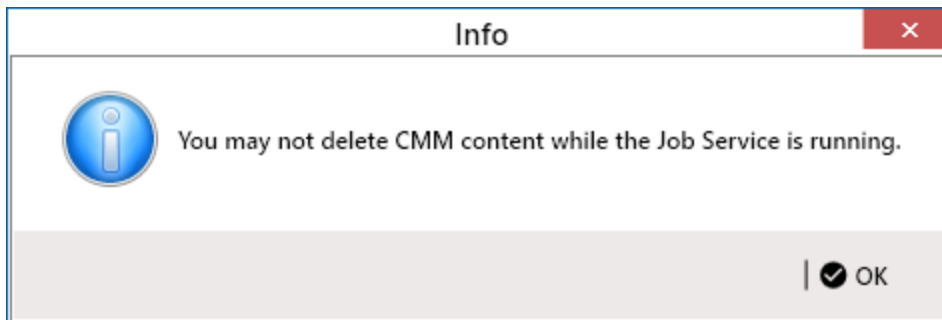


Figure 2-150. Error Message

6. Click  **Save** to save the module information and all custom facility properties.

Add a Custom Facility Type

If there is a module that contains most, but not all, of the facility types you need, you can create a new custom facility type within the existing module. A new custom facility type can be added to a system installed module or to a custom module.

If change tracking is configured for your database, review the change tracking configurations after adding a new facility type to ensure that the desired settings were applied to any new tables or fields for the new facility. Refer to [Track Data Changes on page 869](#). These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to add a custom facility type to an existing module:

1. Click **Modules > Custom Module Management** to open the *Custom Module Management* window.

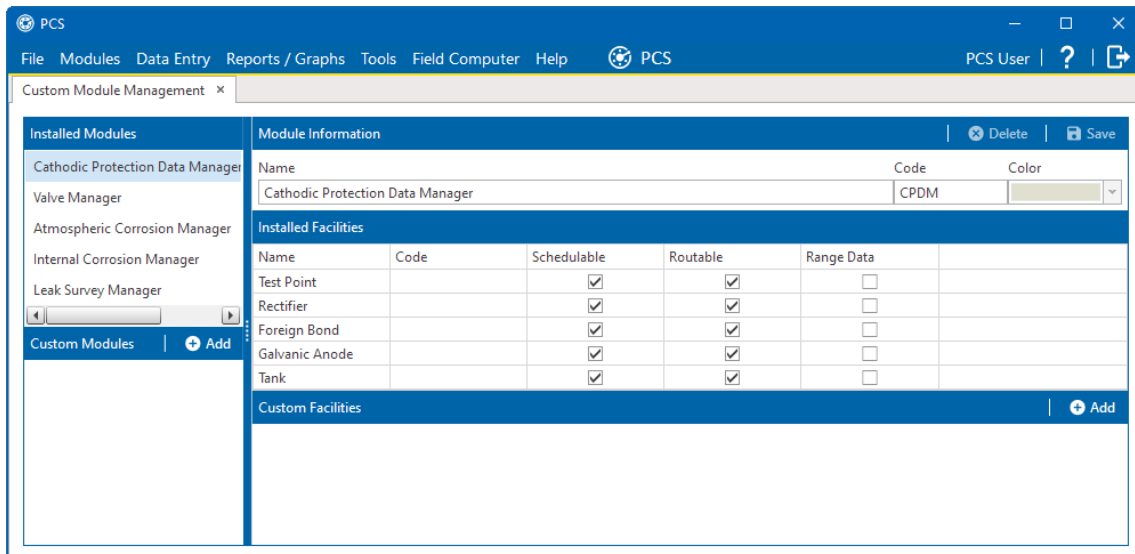



Figure 2-151. Custom Module Management Window

2. Select the module that will contain your new custom facility type from the *Installed Modules* pane.
3. Click  **Add** in the *Custom Facilities* pane on the right to create your custom facility type.

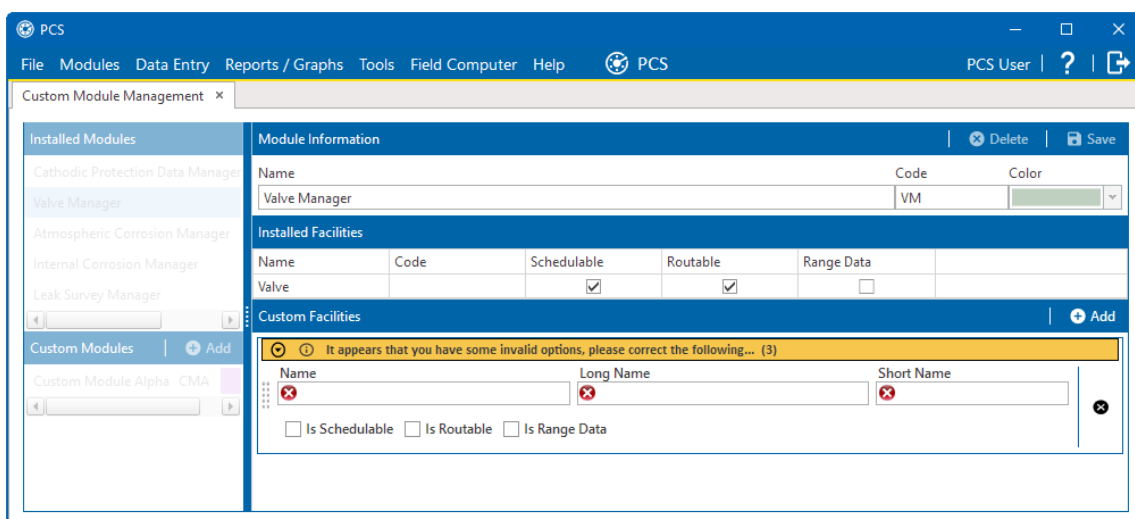


Figure 2-152. Custom Facility Descriptions

4. Enter the facility type's name in the **Name** field. The field accepts up to 30 alphanumeric characters including spaces and special characters.
5. Enter a longer name for the user defined facility in the **Long Name** field. This field accepts up to 40 alphanumeric characters including spaces and special characters.

6. Type an acronym for the user defined field in the **Short Name** field. The field accepts up to four (4) alpha characters. It does not support numeric or special characters.
7. If you want the facility type available for selection when setting up a schedule, click to select the **Is Schedulable** check box.
8. Click to select the **Is Routable** check box to have the facility type available for selection when setting up a route.
9. Click to select the **Is Range Data** check box to allow pipeline segments in this facility type to be defined based on a starting and ending milepost range regardless of series definitions.
10. Click **Save** to save the current facility type's properties.
11. If additional facility types are needed, click **Add** and repeat these steps.
12. Click **Save**.

Modify a Custom Facility Type

Custom facility types that had been added to a system installed or custom module can be edited or deleted as desired. These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to edit or delete a custom facility type:

1. Click **Modules > Custom Module Management** to open the *Custom Module Management* window.

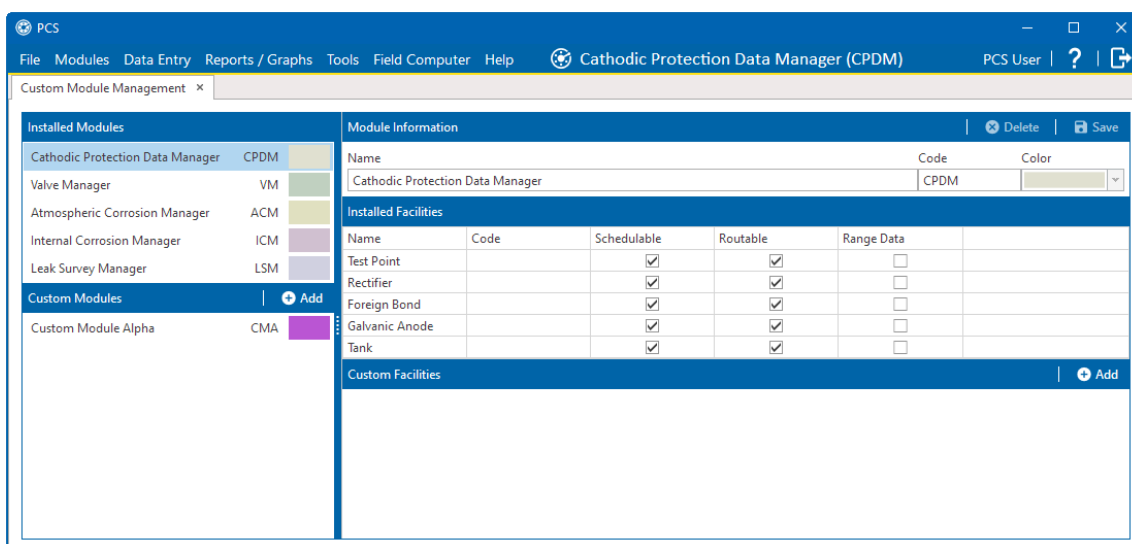


Figure 2-153. Custom Module Management Window - Custom Modules

2. Select the module that will contain your new custom facility type from either the *Installed Modules* or *Custom Modules* pane.

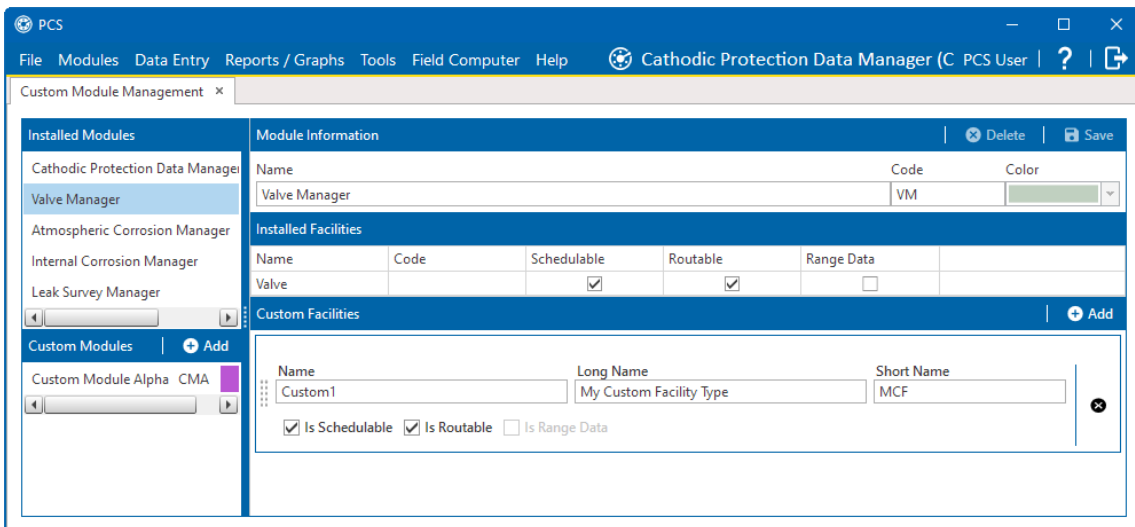


Figure 2-154. Custom Facility for Installed Module

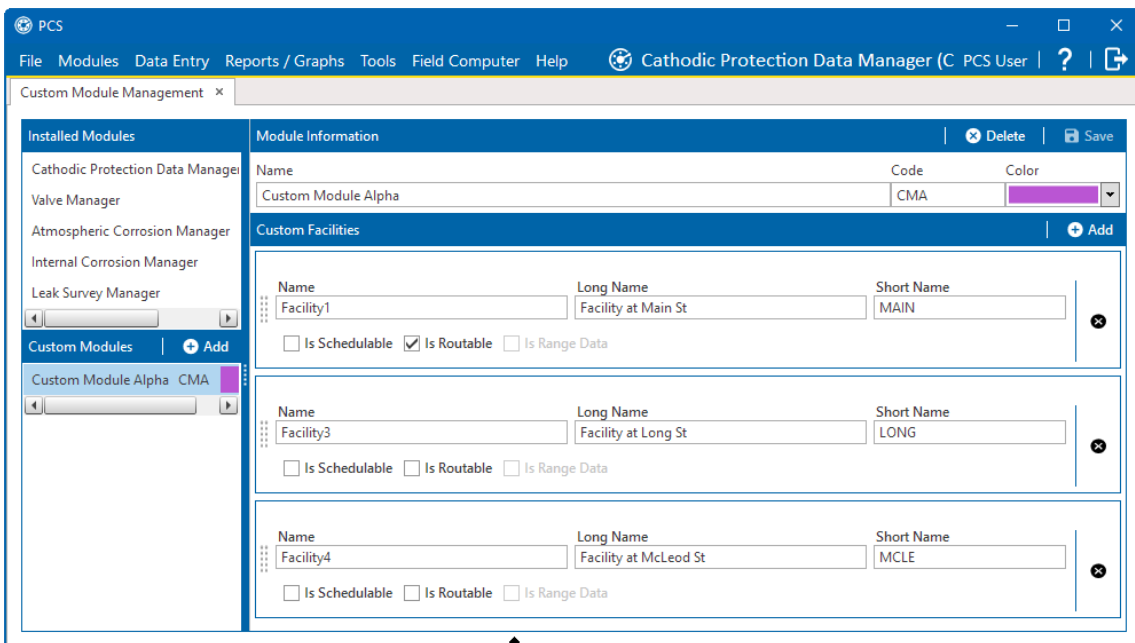


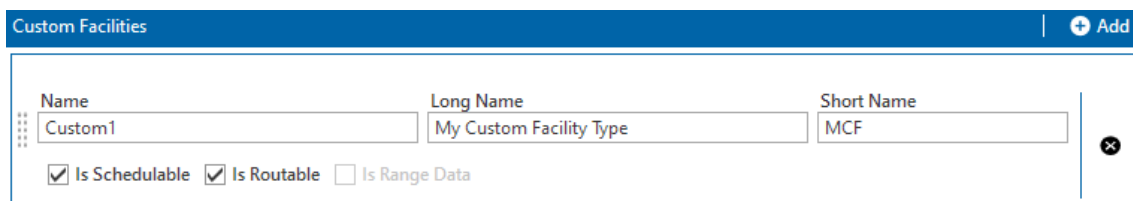


Figure 2-155. Custom Facilities for Custom Module

3. To edit the facility type, change the facility type's properties as needed:
 - Enter the facility type's name in the **Name** field. The field accepts up to 30 alphanumeric characters including spaces and special characters.

- Enter a longer name for the user defined facility in the **Long Name** field. This field accepts up to 40 alphanumeric characters including spaces and special characters.
 - Enter an acronym for the user defined field in the **Short Name** field. The field accepts up to four (4) alpha characters. It does not support numeric or special characters.
 - If you want the facility type available for selection when setting up a schedule, click to select the **Is Schedulable** check box.
 - Click to select the **Is Routable** check box to have the facility type available for selection when setting up a route.
 - Click  **Save** to save the current facility type's properties.
4. To delete the facility type, click the  icon in the facility type's box. Confirm the deletion in the confirmation window.

NOTE: You cannot delete Custom Module Management content while the Job Service is running.



Name	Long Name	Short Name
Custom1	My Custom Facility Type	MCF

Is Schedulable
 Is Routable
 Is Range Data

Figure 2-156. Delete a Custom Facility

Configure PCS for the New Module or Facility Type

Custom modules and facilities provides the same basic functionality as a system installed modules and facilities and can be used with the same PCS features as system installed modules and facility types. However, to take advantage of the basic functionality and features with the new custom module or facility type(s), PCS must be configured further. After creating custom modules or facilities, the following tasks should also be completed:

- Add one or more user defined fields (UDFs) for the new custom module's facility type(s) in Field and UDF Customizations. For detailed instructions, refer to [Add User Defined Fields on page 74](#).
- If change tracking is configured for your database, review the change tracking configurations to ensure that the desired settings were applied to any new tables or fields for the new facility. Refer to [Track Data Changes on page 869](#).

- Configure PCS features for the new module and/or facility types as needed. Some of the tasks you may want to perform include:
 - Set up data entry grid and data entry form themes in Edit <Module> Data (refer to [Themes and Filter Groups on page 372](#) in [Chapter 5, Data Entry Grids and Forms on page 239](#)).
 - Create reports and graphs and, if desired, email notifications for the reports (refer to [Chapter 15, Reports and Graphs on page 746](#) and [Chapter 11, Email Notification on page 627](#)).
 - Configure schedules in Edit Schedule Settings and Define Schedules (refer to [Chapter 8, Schedules on page 510](#)).
 - Define routes ([Chapter 7, Routes on page 442](#)).
 - Create prompt, layout, and sort themes in Field Computer Send (refer to [Work with Themes and Filter Groups on page 666](#) in [Chapter 12, Field Computer on page 650](#)).
 - Set up manual and automatic data imports and exports in Bridge (refer to [Bridge](#)).

User Management

User Management allows a SysAdmin to add, edit, and work with user accounts.

You can access the *User Management* window from the **Tools** main menu.

NOTE: The information in this section or sections is/are intended for users with SysAdmin security permissions, unless noted otherwise.

This chapter includes the following topics:

- [Understanding User Management](#)
- [Use Computer Name User Authentication on page 163](#)
- [Add and Edit Users on page 163](#)

Understanding User Management

User Management (**Tools > User Management**) controls system security using a role based method. Each PCS user is defined in User Management and assigned a PCS installed user role. A user role is a collection of security permissions that tells PCS which system features a user has access to and if the user is allowed to add and edit data.

The following list identifies the three types of PCS installed user roles. Each type gives users a different level of security permissions. Users are assigned only one user role. The SysAdmin user role has full control of all PCS features and functions. For a list of user role permissions assigned to the User and Read Only user roles, refer to [System Security](#).

- SysAdmin
- User
- Read Only

When PCS first installs, it creates the first system account using Computer Name user authentication. This account is automatically assigned the SysAdmin user role, which has the highest set of privileges. Refer to [Use Computer Name User Authentication on page 163](#) for more information.

Use Computer Name User Authentication

PCS uses *Computer Name* user authentication when logging users in to the PCS database. If more than one user will share a single computer installed with PCS, contact your IT department for information about setting up the required Windows user accounts on the computer. Login credentials must be unique for each PCS user. If needed, refer to Windows Help and Support (*Start > Help and Support*), or visit the Microsoft website at the following address to learn more about Windows user accounts: <http://windows.microsoft.com/en-US/windows7/User-accounts-recommended-links>.

Add and Edit Users

The *User Management* window allows SysAdmin users to work with user accounts. The window can be accessed from the **Tools** main menu.

NOTE: The information in this section or sections is/are intended for users with SysAdmin security permissions, unless noted otherwise.

This chapter includes the following topics:

- [Add a New User on page 163](#)
- [Edit an Existing User Account on page 168](#)
- [Change Active User Account Status on page 169](#)
- [Assign a Custom Security Role to a User](#)

Add a New User

Complete the following steps to add a new user in PCS:

1. Click **Tools > User Management** to open the *User Management* window.

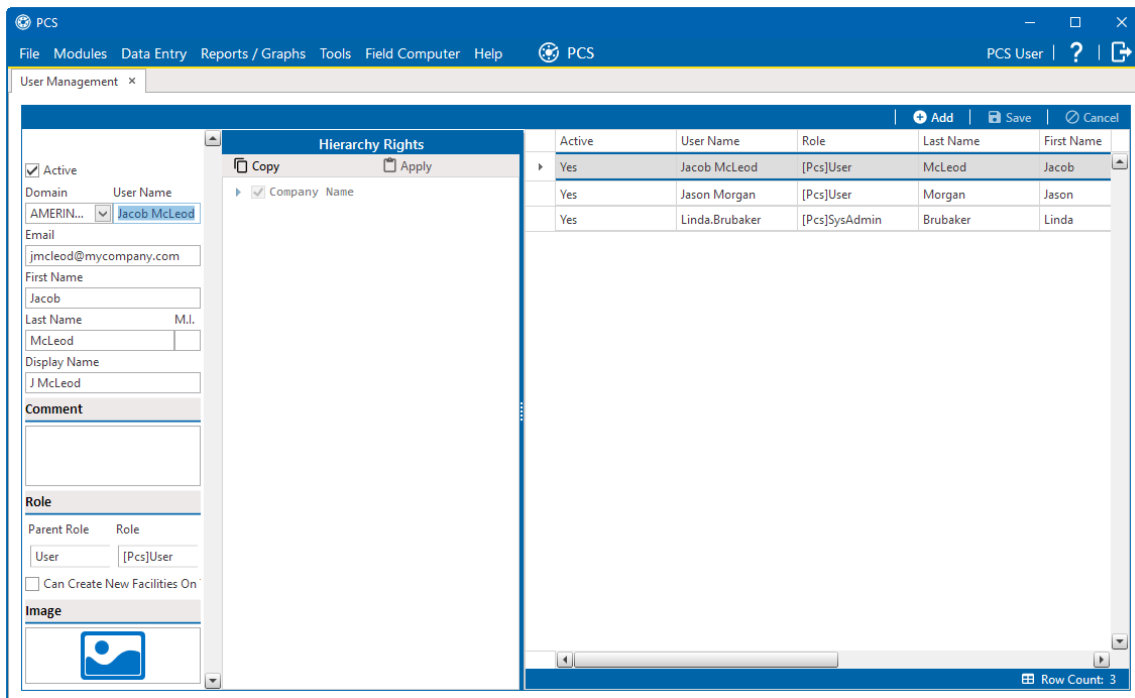


Figure 3-1. User Management Window

Clicking the **Hierarchy Rights** bar collapses the *Hierarchy Rights* pane allowing you to view more of the grid. Clicking the bar again expands the pane.

2. Click  **Add**. The *User Management* side pane presents empty fields for the new user.

User Management x

It appears that you have some invalid

Active

Domain User Name

AMERINNOVA... x

Email

x

First Name

x

Last Name M.I.

x

Display Name

Comment

Role

Hierarchy Rights



Figure 3-2. New User Fields

3. Type a user name in the **User Name** field.
4. Enter the user's email address in the **Email** field.
5. Enter a **First Name**, **Last Name**, and **Display Name** for the user in the respective fields.
6. Select a PCS parent role from the Parent Role drop-down field. If needed, see [System Security on page 935](#) for information about user role security permissions.

The screenshot shows a 'User Management' window with a yellow warning banner at the top that reads 'It appears that you have some invalid opti...'. Below the banner is a form for user management. The form includes a checked 'Active' checkbox, a 'Domain' dropdown menu set to 'AMERINNOVATI...', and a 'User Name' field with a red 'X' icon. Other fields include 'Email', 'First Name', 'Last Name', 'M.I.', and 'Display Name', all with red 'X' icons. A 'Comment' text area is present. The 'Role' section has a 'Parent Role' dropdown menu with 'ReadOnly' selected, and a 'Role' dropdown menu with 'On Field Computer' selected. A 'Can Create New Facilities On Field Computer' checkbox is visible. A vertical blue bar on the right side of the form is labeled 'Hierarchy Rights'.

Figure 3-3. Parent Role Drop-down Field

7. Select the user role from the **Role** drop-down field.
8. If you want to allow the user to create new facilities on the mobile field computers (such as an Allegro), click the **Can Create New Facilities On Field Computer** check box.

9. If you want to include an image in the user account, complete the following steps. Maximum image size is 150 x 150 (measured in pixels). Valid image formats are BMP, JPG, GIF, and PNG.
 - a. Hover the mouse over the **Image** field to display a toolbar .
 - b. Click the  icon in the image toolbar to open Windows Explorer. Locate and select an image, then click **Open** to close the window.
10. If PCS is set up with Hierarchical Security in the *Options* window (**Tools > Options**), set permissions in **Hierarchy Rights** to identify which parts of the hierarchy the user will have access. This step applies only to users assigned with the **User** or **Read Only** user role. SysAdmin has full access to all items in the hierarchy.

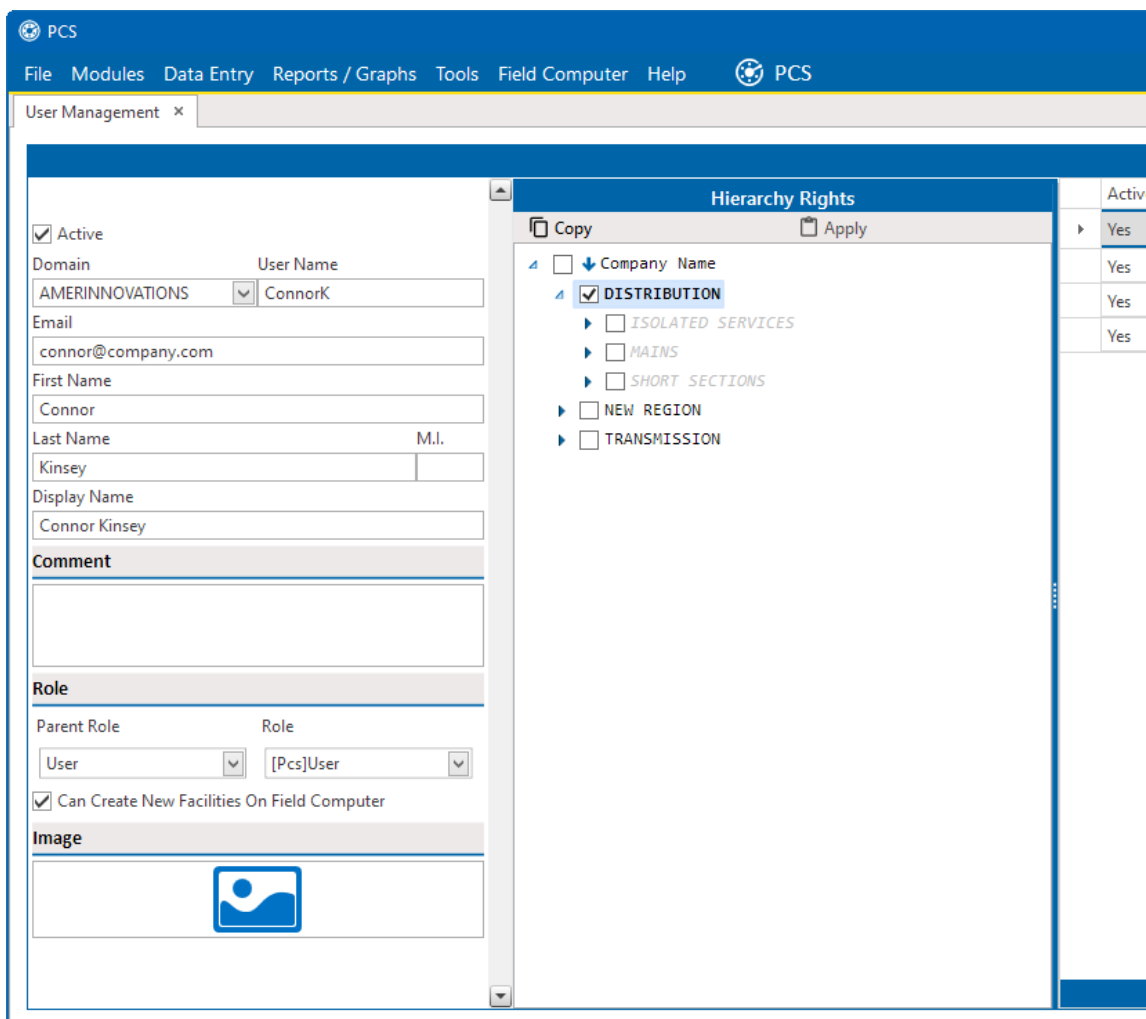


Figure 3-4. Hierarchy Rights for New User

To grant access, select an item in the hierarchy to place a check mark inside the check box. To remove access, click the check box again to remove the check mark. When you finish, click **Apply**. For information about Hierarchical Security in *Options*, see [Set Security Options on page 45](#).

Items in the hierarchy with a check mark indicate the user has access. If a check mark is not present, the user does not have access.

11. Click **Save** to save new user information.

Edit an Existing User Account

Complete the following steps to edit an existing user account in *User Management*:

1. Click **Tools > User Management** to open the *User Management* window.

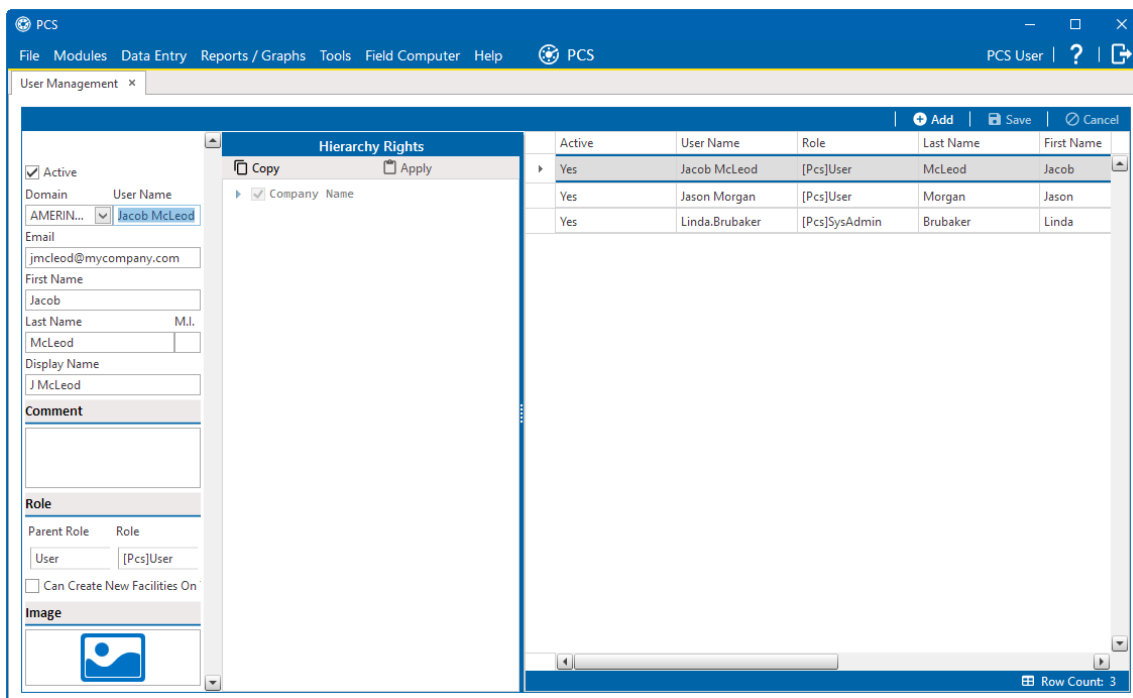


Figure 3-5. User Management Window

Clicking the **Hierarchy Rights** bar collapses the *Hierarchy Rights* pane allowing you to view more of the grid. Clicking the bar again expands the pane.

2. Select a user record in the grid.
3. Change user information and **Hierarchy Rights** as needed.

The screenshot shows the PCS User Management window. The main window has a blue header with the PCS logo and menu items: File, Modules, Data Entry, Reports / Graphs, Tools, Field Computer, Help. Below the header is a tab labeled 'User Management'. The main content area is divided into two panes. The left pane contains user information fields:

- Active
- Domain: AMERINNOVATIONS (dropdown), User Name: ConnorK
- Email: connor@company.com
- First Name: Connor
- Last Name: Kinsey, M.I.:
- Display Name: Connor Kinsey
- Comment: (empty text area)
- Role: Parent Role: User, Role: [Pcs]User
- Can Create New Facilities On Field Computer
- Image: (placeholder icon)

 The right pane is titled 'Hierarchy Rights' and contains a tree view:

- Company Name
- DISTRIBUTION
 - ISOLATED SERVICES
 - MAINS
 - SHORT SECTIONS
 - NEW REGION
 - TRANSMISSION

 To the right of the tree view is a vertical column of 'Active' status indicators, all set to 'Yes'.

Figure 3-6. User Information

4. Click  **Save** to save changes.

Change Active User Account Status

You can change the **Active** status of a user if a user no longer requires access to PCS.

Complete the following steps to change the Active status of a user:

1. Click **Tools > User Management** in the header bar to open the *User Management* window. If the *Hierarchy Rights* pane is open, you can click the title bar to collapse it.

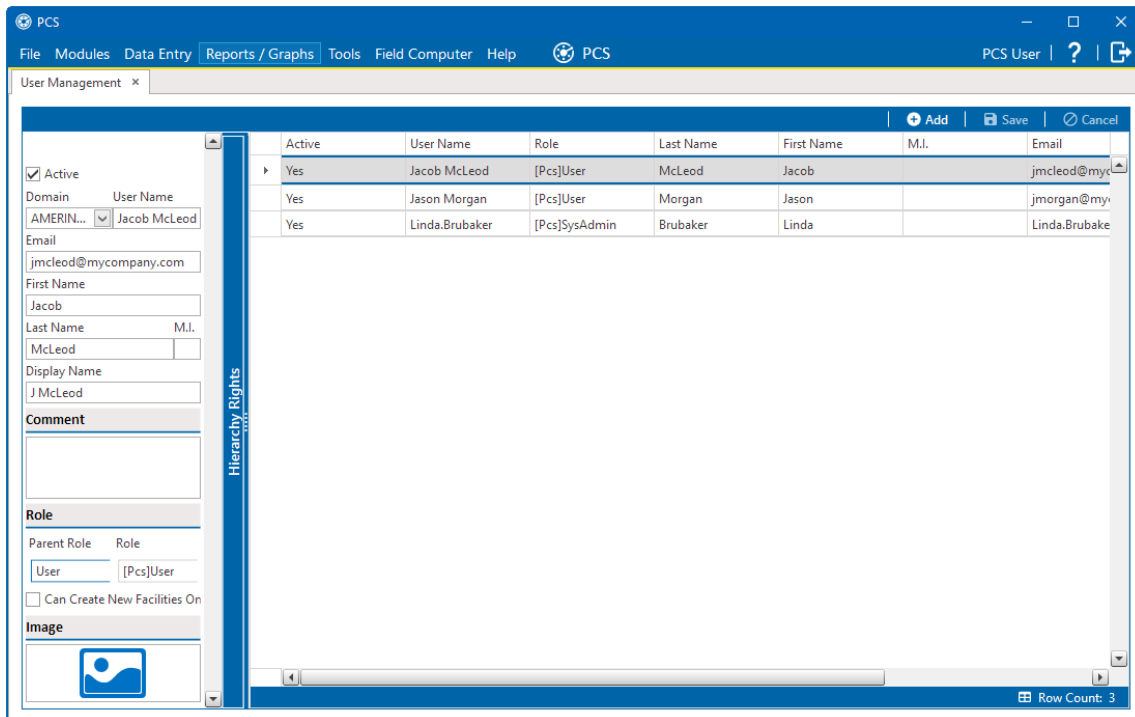


Figure 3-7. User Account Status

2. Select a user record in the grid.
3. Click the **Active** check box to remove the check mark and change the user account status from active to inactive.
4. Click **Save** to save changes.

The **Active** property setting in the grid changes from **Yes** to **No** to indicate the user account is not inactive.

Assign a Custom Security Role to a User

The following information explains how to assign a custom security role to a user. Users are created in the *User Management* window. For more information about *User Management*, see [User Management on page 162](#).

Complete the following steps to change the security role for an existing user:

1. Click **Tools > User Management** in the header bar to open the *User Management* window. If the *Hierarchy Rights* pane is open, you can click the title bar to collapse it.

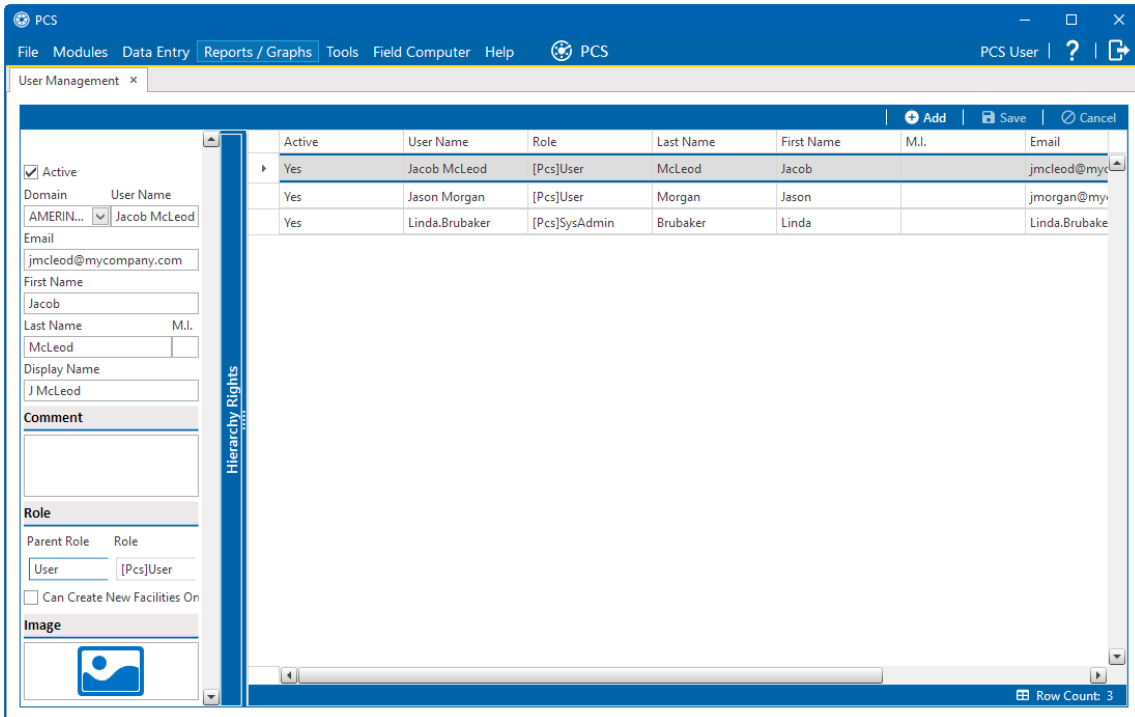


Figure 3-8. User Management Window

2. Select a user record in the grid.
3. Complete the following steps in the **Role** group box on the left side of the window:
 - a. Click the **Parent Role** field and select the parent role associated with the custom security role you want to assign to the user record.

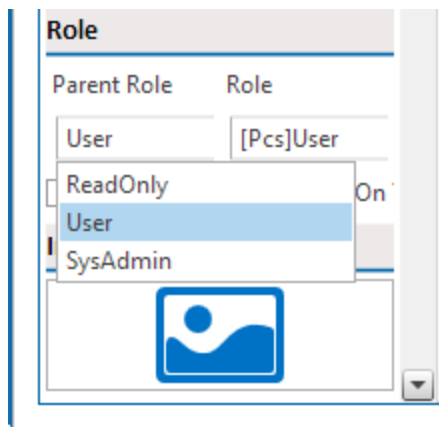


Figure 3-9. Parent Role Drop-down

- b. Click the **Role** field and select the custom security role you want to assign to the user record.

4. Click  **Save** to save changes.

Pipeline Records

Pipeline records can be viewed in the system hierarchy tree, which is separated into folders and pipelines.

NOTE: The information in this section or sections is/are intended for users with SysAdmin security permissions, unless noted otherwise.

This chapter includes the following topics:

- [Select ROWs](#)
- [Select How Data Displays in the Information Grid](#)
- [Select How Data Displays in the Maintenance Grid](#)
- [Add a Folder in the Hierarchy on page 181](#)
- [Add a Pipeline in the Hierarchy on page 184](#)
- [Move and Rename a Pipeline on page 187](#)
- [Delete a Pipeline on page 189](#)
- [Understanding Default Location Formats on page 191](#)
- [Select a Default Location Format on page 193](#)
- [Add a Pipeline Information Record on page 196](#)
- [Add a Pipeline Maintenance Record on page 201](#)
- [Attach a Document to a Pipeline Record on page 208](#)
- [Themes and Filter Groups for Pipeline Records on page 219](#)

Select ROWs

Selections made in the Selected ROWs pane determine which pipeline segments' data is available for use in PCS. Data related to the selected pipeline segments can be seen in *Edit [Module] Data*, is available to send to the Allegro or other mobile device, and is accessible elsewhere in PCS.

If the Hierarchical Security check box is selected in the *Options* window (**Tools > Options**), the data available in PCS is further limited by the selections made for the current user in *User Management*. Refer to [User Management](#) for more information.

To open or close the *Selected ROWs* pane, click in the **Selected ROWs** title bar. You can also click and drag the left border.

The title bar is horizontal when the pane is opened:

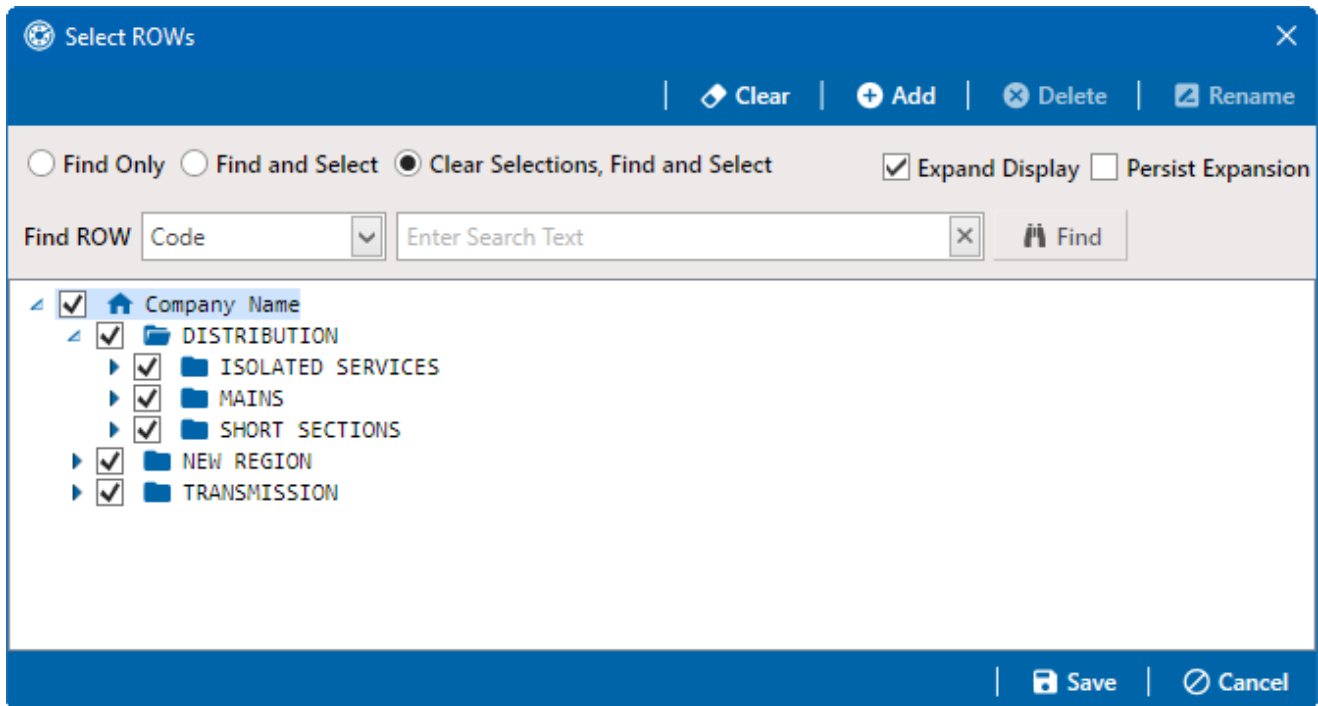


Figure 4-1. Selected ROWs pane Open


The title bar is vertical when the pane is closed.



Figure 4-2. Selected ROWs pane Closed

The currently selected pipeline segments are listed in the *Selected ROWs* pane.

Complete the following steps to change the selection:

1. Click the  icon on the **Select ROWs** title bar (or double-click in the pane or select **File > Select ROWs**) to open the *Select ROWs* window.

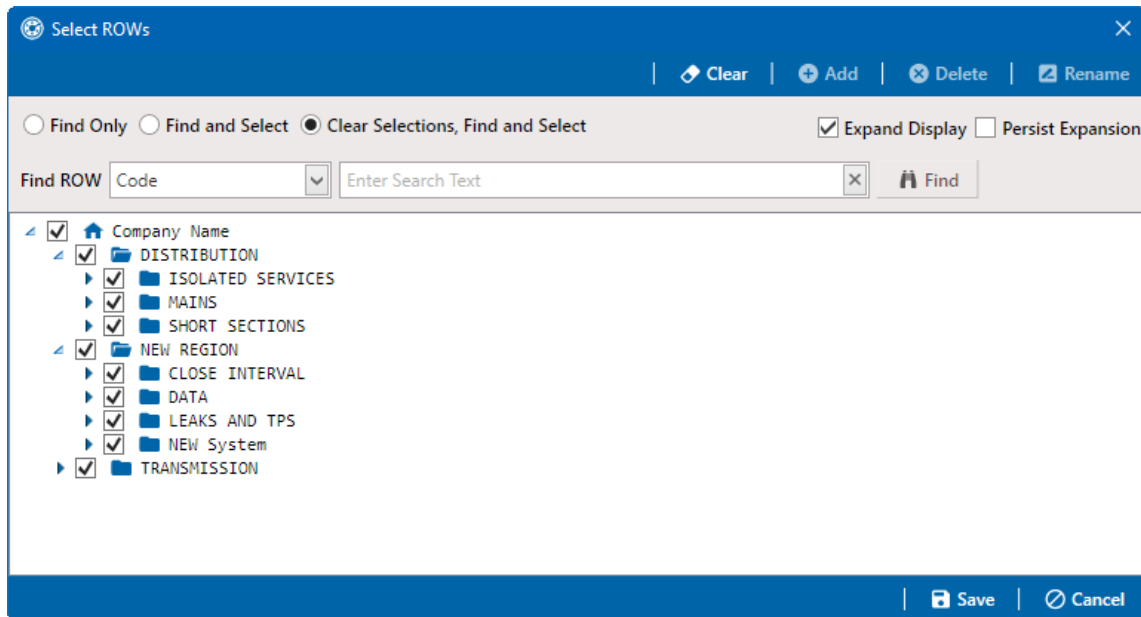



Figure 4-3. Selected ROWs Window

2. Select or deselect the appropriate pipeline segments as desired by doing any of the following:
 - a. To deselect all currently selected segments, click  **Clear**.
 - b. To deselect a single segment, locate the segment and click to clear the segment's check box.
 - c. To select a single segment, locate the segment and click to select the segment's check box.
 - d. To find and select a specific segment:
 - i. Select either **Expand Display** and/or **Persist Expansion** to expand the hierarchy after search is done.
 - ii. Select one of the radio buttons above the search fields. The selection of radio buttons depends on whether or not the **Expand Display** check box is selected:
 - If **Expand Display** is not selected, the search options include **Select** and **Clear Selection and Select**.
 - If **Expand Display** is selected, the search options include **Find Only**, **Find and Select**, and **Clear Selection and Select**.
 - iii. Select whether to search by the pipeline's **Name**, **Code**, or **Name and Code** from the drop-down and enter a search term in the **Find ROW** search box.

- iv. Click **Find**. Depending on which radio buttons are selected, one of the following will occur:
- **Find only:** locates and highlights the next segment that matches the search parameters but does not select the segment. This option is not available if **Expand Display** is deselected.
 - **Select:** locates all segments that match the search parameters and selects the matching segments.
 - **Find and Select:** locates all segments that match the search parameters, expands the hierarchy that the matching segments are a part of, and selects the matching segments. This option is not available if **Expand Display** is deselected.
 - **Clear Selections, Find and Select:** locates all segments that match the search parameters, expands the hierarchy that the matching segments are a part of (if **Expand Display** is selected), selects the matching segments, and deselects all segments that do not match the search parameters.

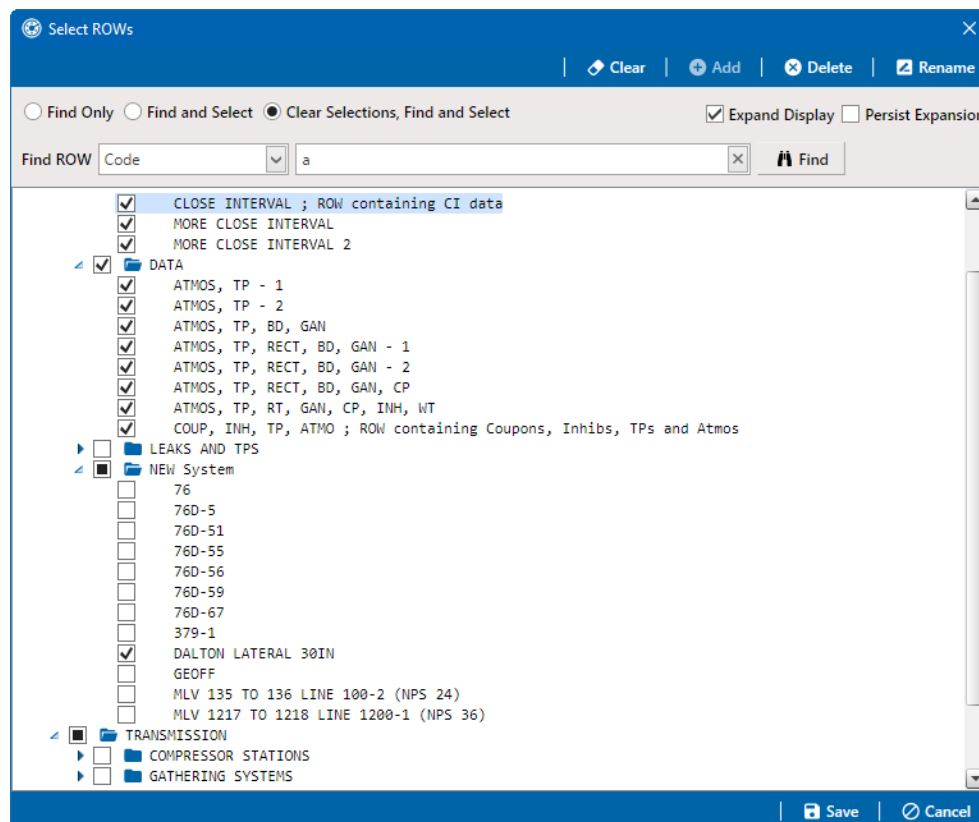



Figure 4-4. Clear Selection, Find and Select Option for Search

3. Click  **Save** to close the *Select ROWs* window.

Select How Data Displays in the Information Grid

Complete the following steps to select how the data will display in the *Information* grid of the *Edit ROW Detail* window:

1. Click **Data Entry > Edit ROW Detail**.
2. Click the **Information** tab, then the **Options** tab to open the *Options* window.

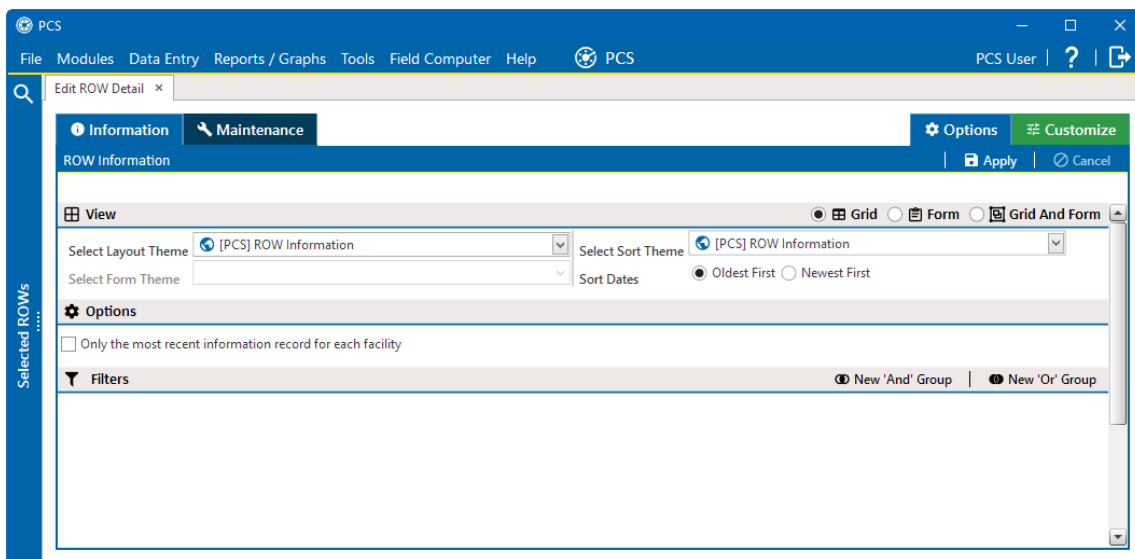


Figure 4-5. Information Grid - Options Window

3. Select how the information will be displayed in the window: **Grid**, **Form**, or **Grid And Form**.
 - a. For **Grid** and **Grid And Form** options, select a **Layout Theme** and **Sort Theme**. **Form** options does not allow a **Layout Theme**.
 - b. For **Form** and **Grid And Form** options, select a **Form Theme**.

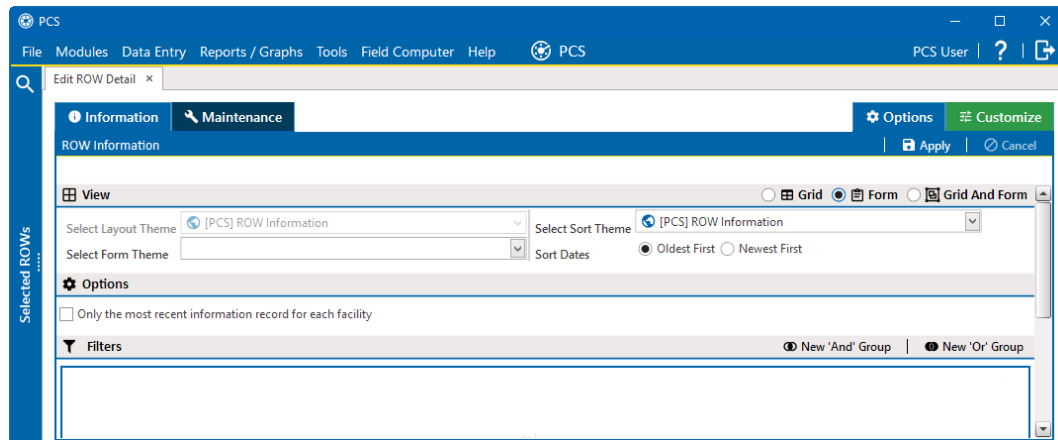


Figure 4-6. Form View Option and Select Form Theme

4. Select either **Oldest First** or **Newest First** radio button for how dates are sorted.
5. To include only the most recent information record for each pipeline, select the **Only the most recent information record for each facility** check box. This option uses the **Effective Date** to filter the data output.
6. When using the **Filters** group box to apply additional filters to the data output, the most recent information record is found first, and then all other filters are applied to the data output. For more information about filters, refer to [Add or Edit an AND Filter Group for Pipeline Records on page 228](#) and [Add or Edit an OR Filter Group for Pipeline Records on page 233](#).
7. Click **Apply** to save and apply changes. The Information grid displays with the data selected.
8. To cancel changes, click the **Optionstab** or **Cancel** to return to the grid.

Select How Data Displays in the Maintenance Grid

Complete the following steps to select how the data will display in the *Maintenance* grid of the *Edit ROW Detail* window:

1. Click **Data Entry > Edit ROW Detail**.
2. Click the **Maintenance** tab, then the **Options** tab to open the *Options* window.

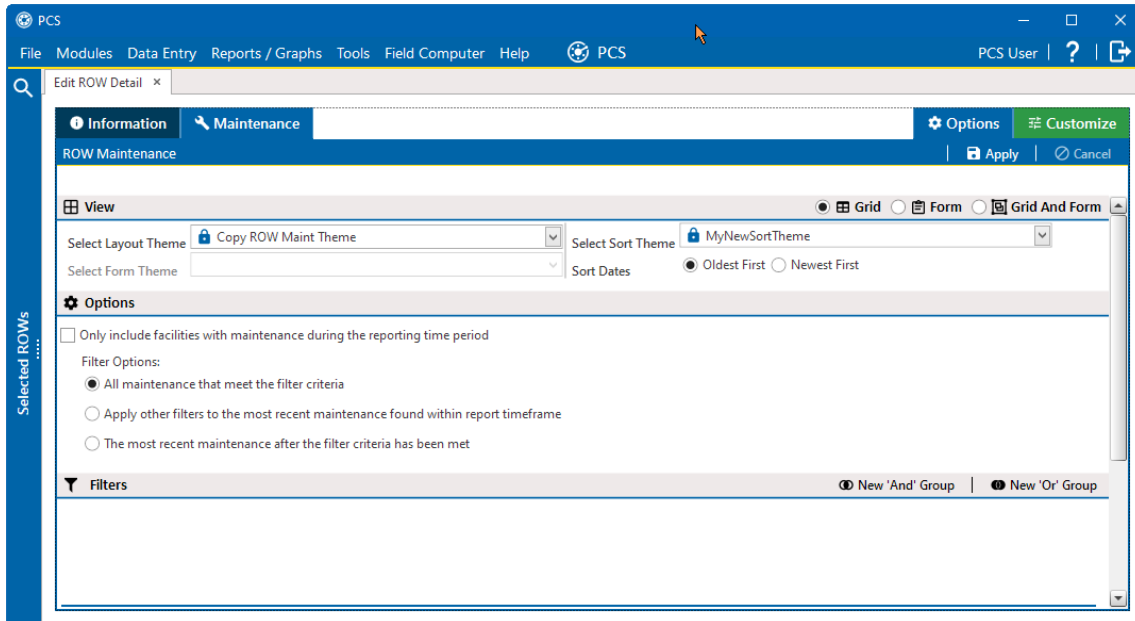


Figure 4-7. Maintenance Tab - Options

3. Select how the information will be displayed in the window: **Grid**, **Form**, or **Grid And Form**.
 - a. For **Grid** and **Grid And Form** options, select a **Layout Theme** and **Sort Theme**. **Form** options does not allow a **Layout Theme**.
 - b. For **Form** and **Grid And Form** options, select a **Form Theme**.

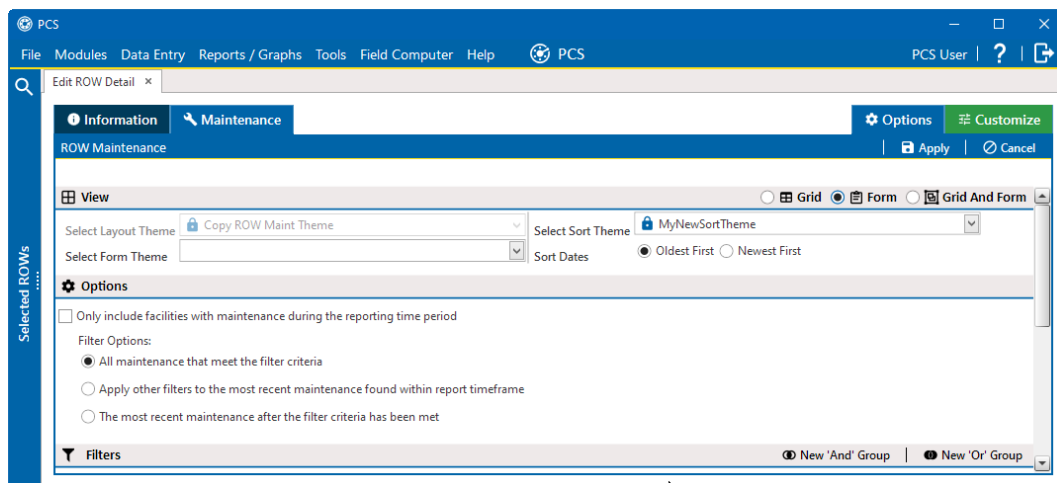




Figure 4-8. Form View Option and Select Form Theme

4. Review the following descriptions and then select one or more filter options as required:


- **Only include facilities with maintenance during the reporting time period:** The data output for this option only includes those maintenance records that meet the filter criteria defined for a particular date or date range. Filter criteria is defined by filter settings in the **Filters** group box for any of the following time period fields: Effective Date, Repair Found Date, Repair Initiated Date, and Repair Corrected Date.
 - **All maintenance that meet the filter criteria:** This option includes all maintenance records in the data output that meet filter criteria based on filter settings in the **Filters** group box.
 - **Apply other filters to the most recent maintenance found within the report timeframe:** This option finds the most recent maintenance record within the reporting time frame first, and then applies other filter settings to the data output. Filter criteria for both of these are defined in the **Filters** group box. Use any of the following fields when defining filter criteria for the reporting time frame: Effective Date, Repair Found, Repair Initiated, and Repair Complete.
 - **The most recent maintenance after the filter criteria has been met:** The data output for this option includes the most recent maintenance record only for those pipeline records that meet all other filter criteria first. Filter criteria for both of these are defined in the **Filters** group box. Use any of the following fields when defining a time period for the most recent maintenance record: Effective Date, Repair Found, Repair Initiated, and Repair Complete.
5. When using the **Filters** group box to apply additional filters to the data output, the most recent information record is found first, and then all other filters are applied to the data output. For more information about filters, refer to [Add or Edit an AND Filter Group for Pipeline Records on page 228](#) and [Add or Edit an OR Filter Group for Pipeline Records on page 233](#).
 6. Click  **Apply** to save and apply changes. The Information grid displays with the data selected.
 7. To cancel changes, click the **Optionstab** or  **Cancel** to return to the grid.

Add a Folder in the Hierarchy

The hierarchy is an organizational structure of one or more folders. Folders are organized in a tree structure based on the number of hierarchy levels set up in the system. The top level of the hierarchy is the root level that identifies your company's name. All hierarchy folders are added below the root level. The lowest level of the hierarchy includes a folder with pipelines added in the system.

NOTE: The names of hierarchy folders as well as the ROW Code and ROW Name fields support up to 100 characters.

Complete the following steps to add a folder in the hierarchy:

1. Click the  icon on the **Select ROWs** title bar (or double-click in the pane or select **File > Select ROWs**) to open the *Select ROWs* window.

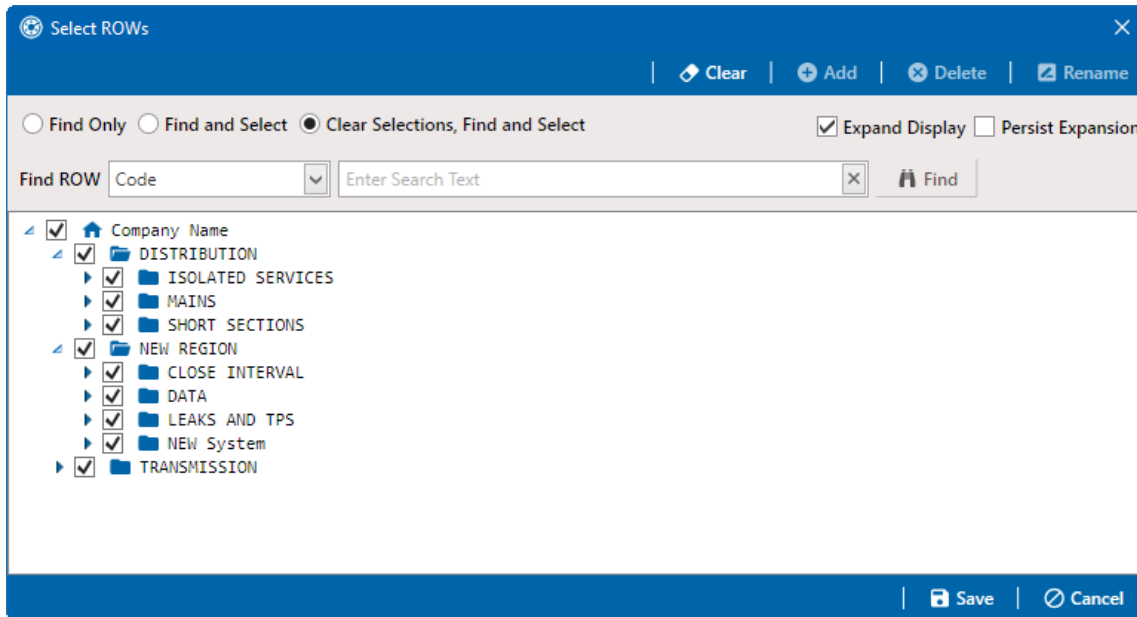


Figure 4-9. Selected ROWs Window

2. Select a level in the hierarchy where you want to add a folder.

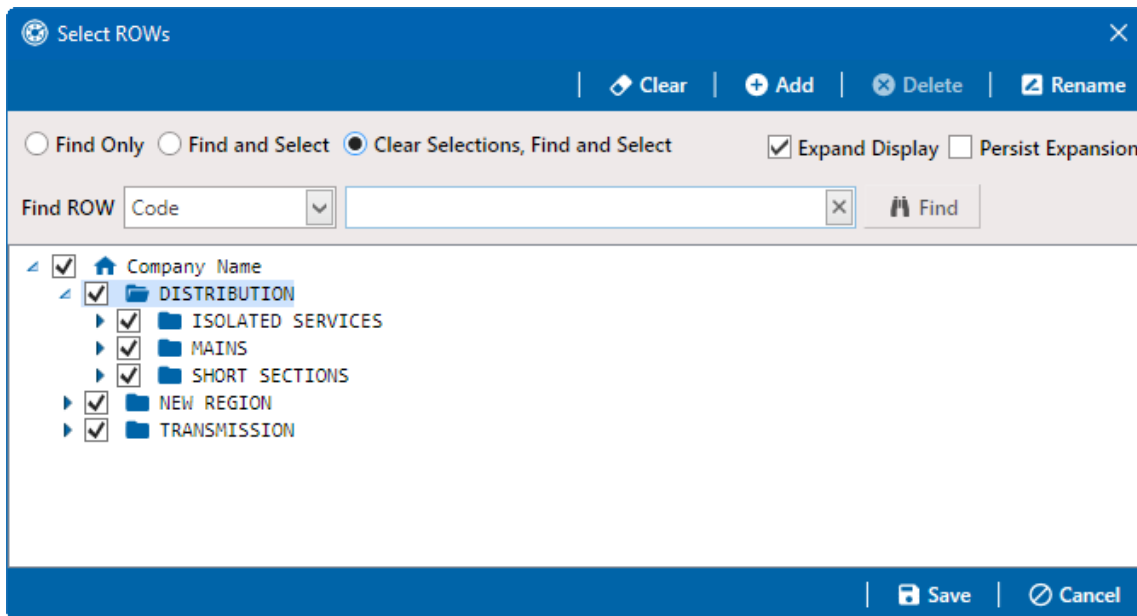




Figure 4-10. Selected Folder in Hierarchy

3. Click  **Add** to open the *Add New Node* window.

NOTE: You can also open the *Add New Node* window by right-clicking a selection in the hierarchy tree and selecting  **Add** in the shortcut menu.

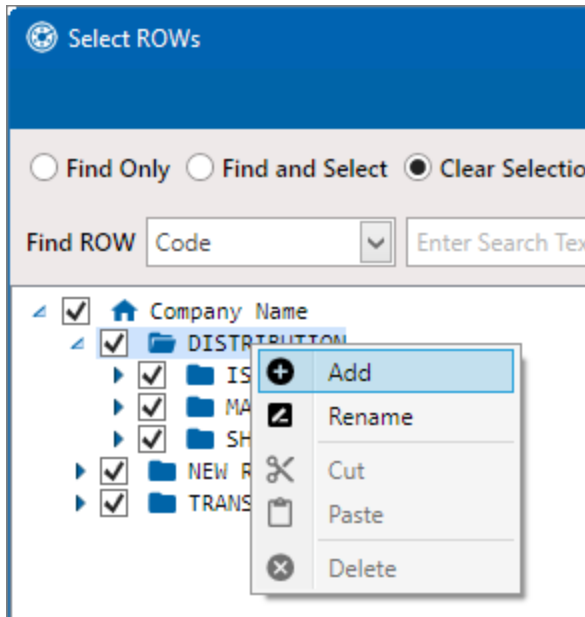


Figure 4-11. Shortcut menu




NOTE: If you do not select a Region in the hierarchy before clicking  **Add**, you can add it to the **Region** field in the *Add New Node* window.

Figure 4-12. Add New Node

4. Add information for the new hierarchy folder. Fields requiring information include a , such as **System** and **ROW Code**.


The names of hierarchy folders, as well as ROW Code and ROW Name fields, support up to 100 characters.

5. Click the option **Expand After Adding** if you want to expand the selection tree after clicking **Apply**.
6. Click  **Apply**. Repeat as needed to add additional folders in the hierarchy tree.

Add a Pipeline in the Hierarchy

The process for adding a pipeline to the hierarchy is the same as for adding a folder, except you select a folder in the hierarchy where you want to add the pipeline instead of a level.

Complete the following steps to add a pipeline in the hierarchy:

1. Click the  icon on the **Select ROWs** title bar (or double-click in the pane or select **File > Select ROWs**) to open the *Select ROWs* window.

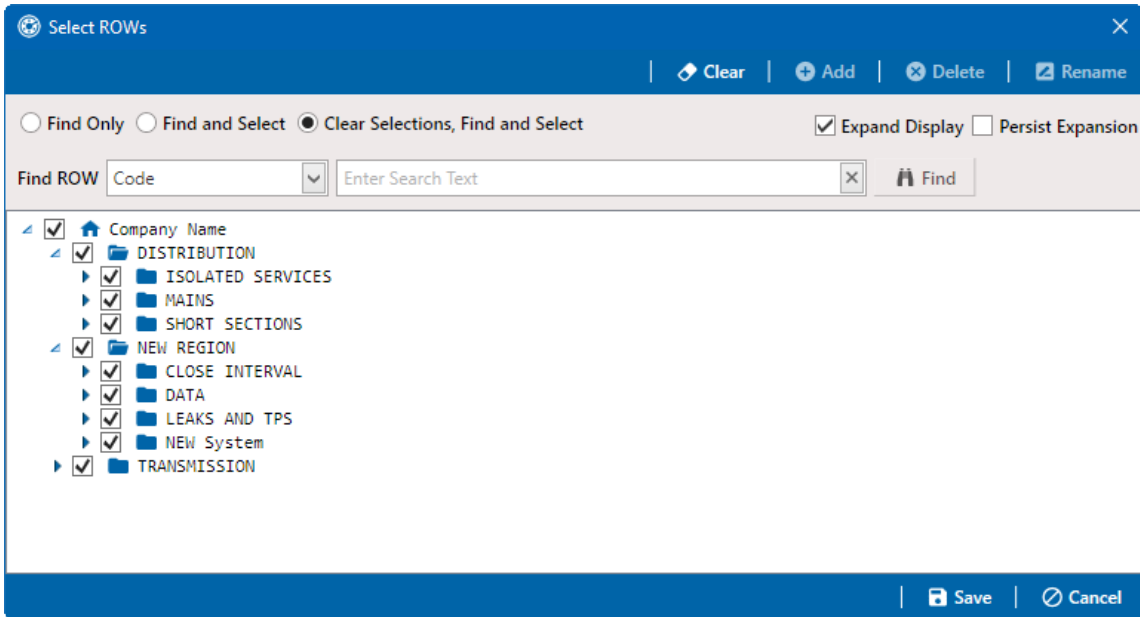


Figure 4-13. Selected ROWs Window

2. Select a folder in the hierarchy you want to add a pipeline.

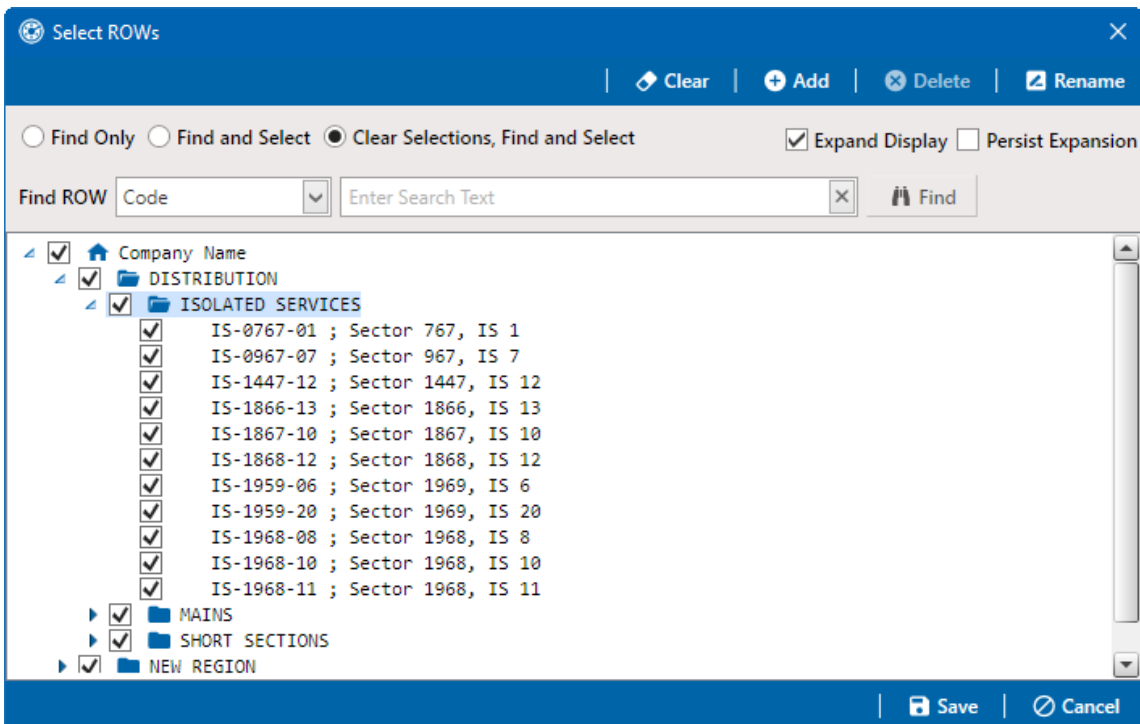


Figure 4-14. Selected Folder for New Pipeline

3. Click **Add** to open the *Add New Node* window.

NOTE: You can also open the *Add New Node* window by right-clicking a selection in the hierarchy tree and selecting **+ Add** in the shortcut menu.

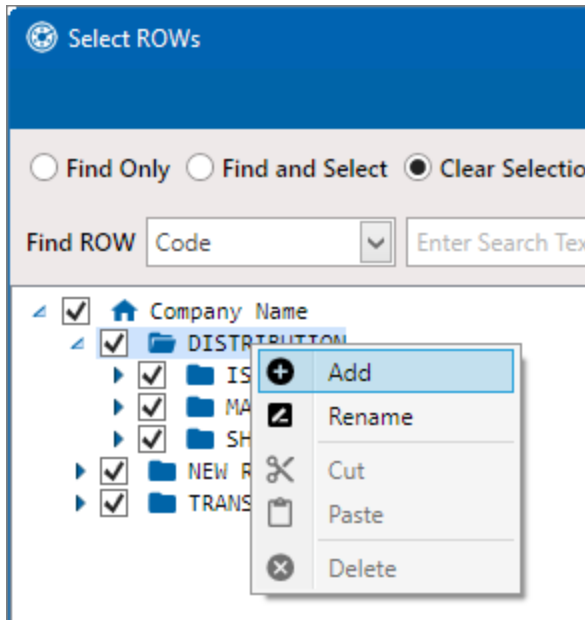


Figure 4-15. Shortcut menu

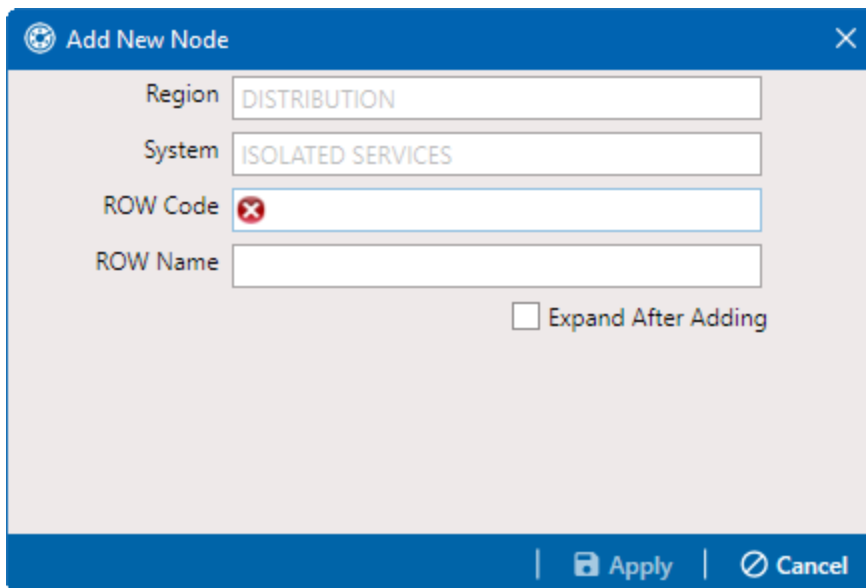




Figure 4-16. Add New Node

4. Enter a pipeline code for the new pipeline in the **ROW Code** field. Fields requiring information include a  red icon, such as **ROW Code**.


The names of hierarchy folders, as well as ROW Code and ROW Name fields, support up to 100 characters.

5. Type a name for the pipeline in the **ROW Name** field.
6. Click the option **Expand After Adding** if you want to expand the selection tree after clicking **Apply**.
7. Click  **Apply**. Repeat these steps as needed to add another pipeline in a selected hierarchy folder.

For information about setting this required field for all pipelines in the system, refer to with [Understanding Default Location Formats on page 191](#)

Move and Rename a Pipeline

Complete the following steps to move or rename a pipeline in the hierarchy:

1. Click the  icon on the **Select ROWs** title bar (or double-click in the pane or select **File > Select ROWs**) to open the *Select ROWs* window.

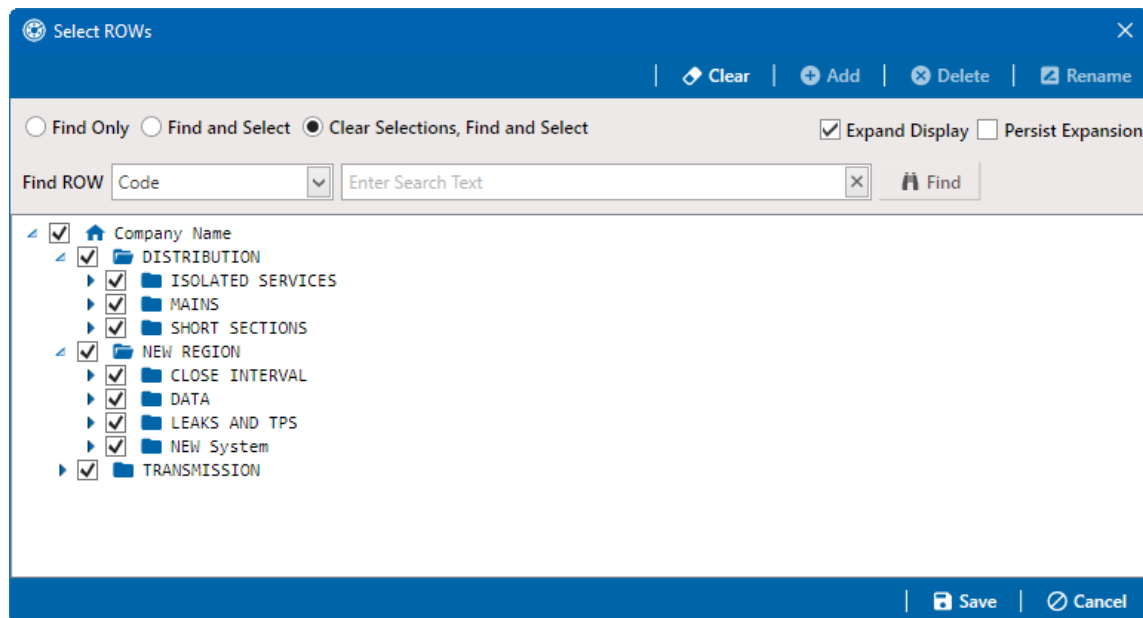


Figure 4-17. Selected ROWs Window

2. To move the selected pipeline to a different hierarchy folder, right-click the pipeline, and then select **Cut** in the shortcut menu.

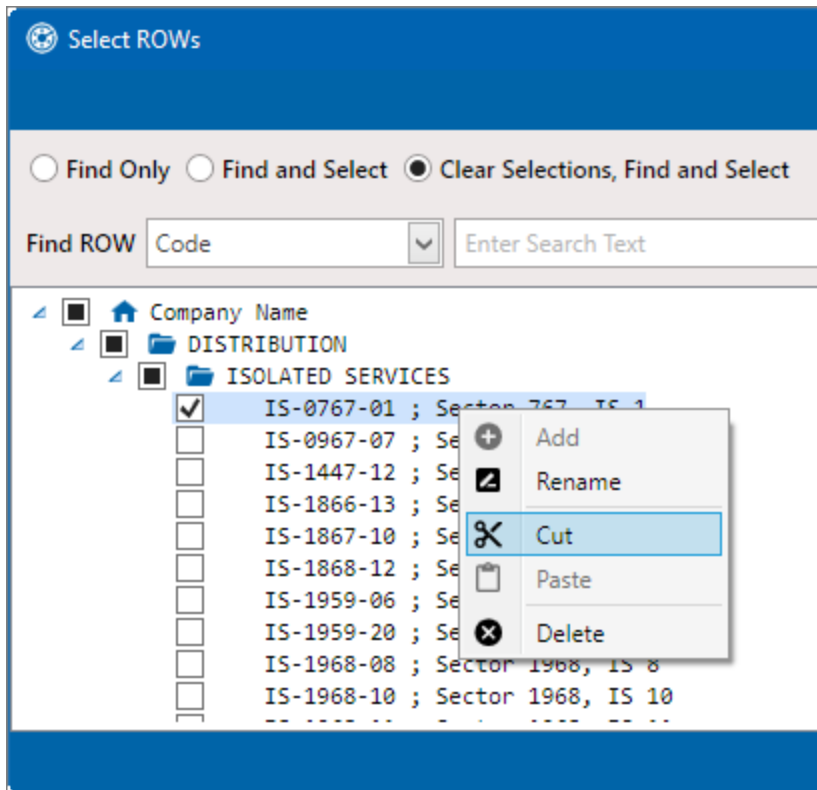


Figure 4-18. Cut Shortcut Menu

3. Right-click on the hierarchy folder you want to move the pipeline to, and then select **Paste** in the shortcut menu.

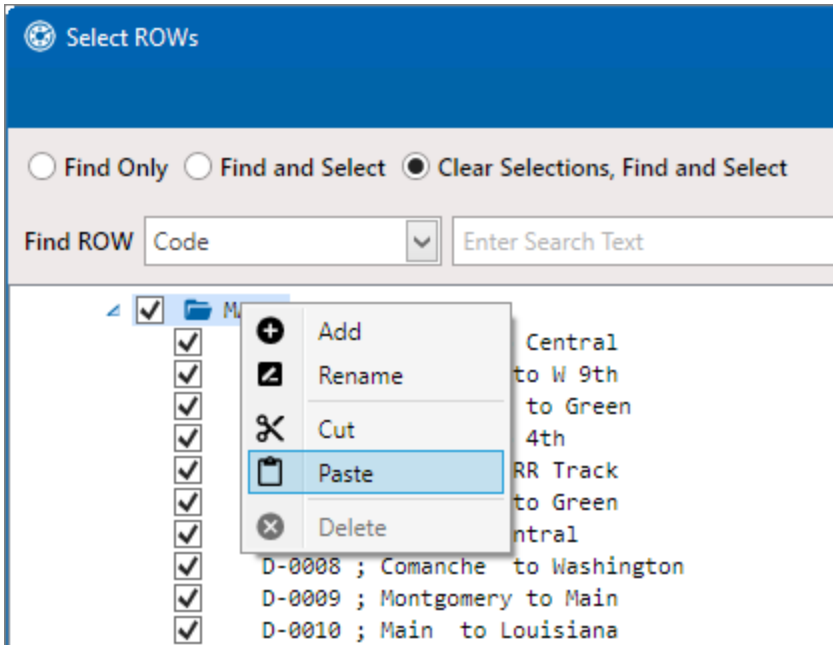


Figure 4-19. Paste Shortcut Menu

- To rename a selected pipeline, click **Rename** (or right-click the pipeline and select **Rename** in the shortcut menu). In the *Rename Right of Way* window, edit the **ROW Code** and/or **ROW Name** fields, and click **Save** to apply the change and close the window.

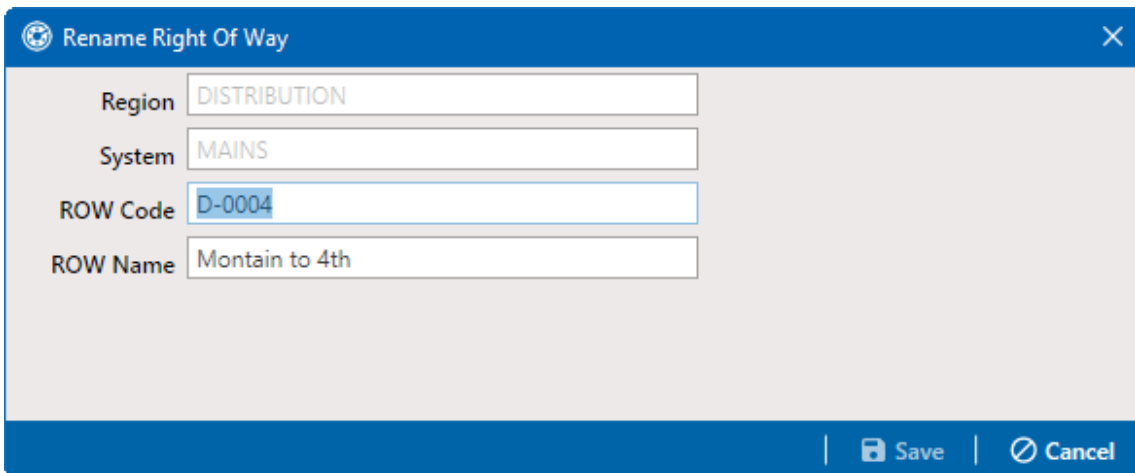



Figure 4-20. Rename Pipeline

Delete a Pipeline

Deleting a pipeline also deletes all facilities and history records associated with the pipeline.

IMPORTANT: Instead of deleting a pipeline, consider creating a new hierarchy folder labeled **Sold**, **Abandoned**, or something similar and then moving the pipeline to that folder. Another option is to change the operational status of the pipeline by disabling the Active check box in *Edit ROW Detail* window (**Data Entry > Edit ROW Detail**).

Complete the following steps to delete a pipeline:

1. Click the  icon on the **Select ROWs** title bar (or double-click in the pane or select **File > Select ROWs**) to open the *Select ROWs* window.

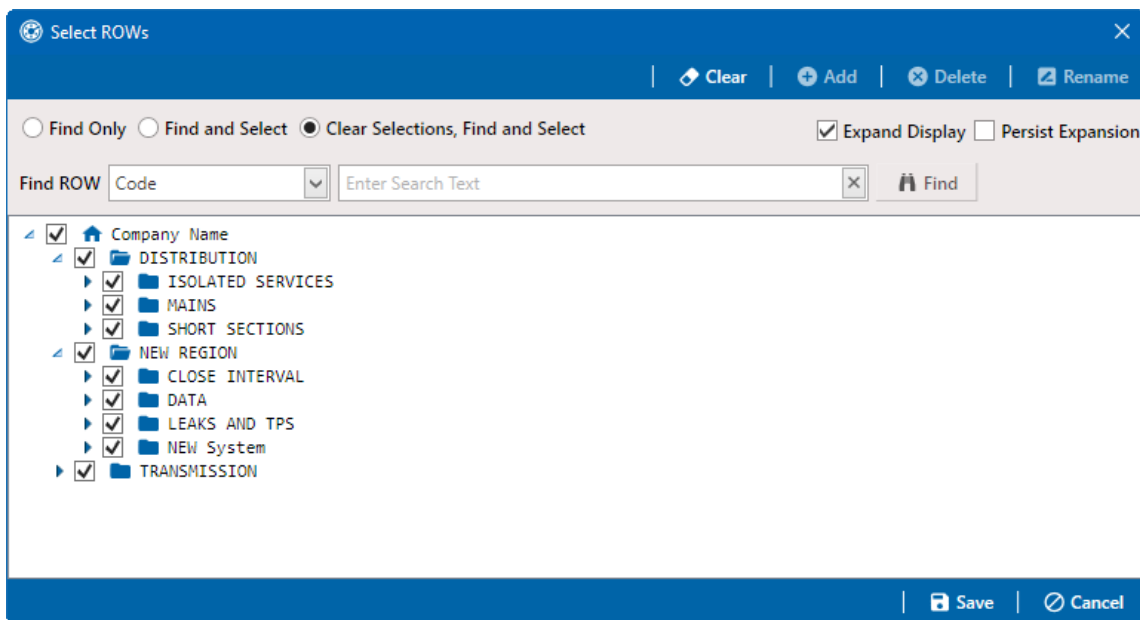



Figure 4-21. Selected ROWs Window

2. Click  **Delete**. Or right-click the selected pipeline in the hierarchy tree and select **Delete** in the shortcut menu.

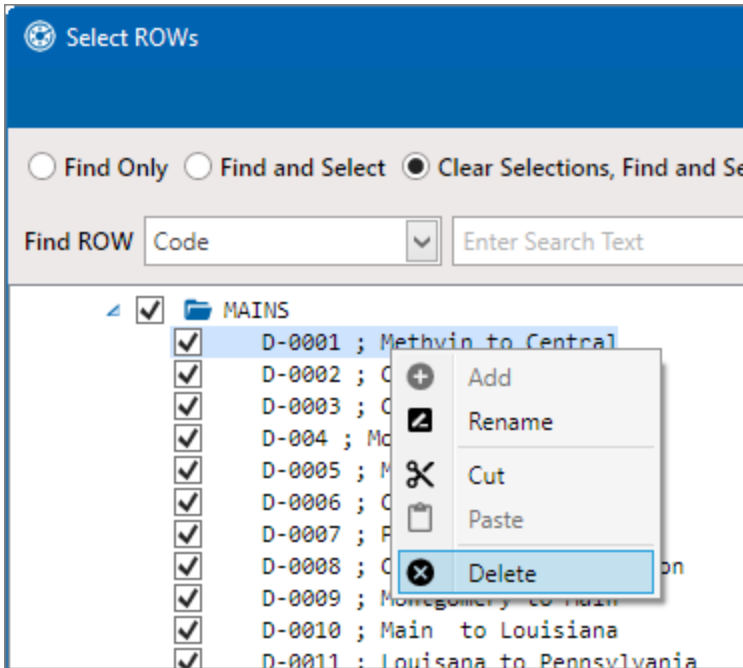


Figure 4-22. Delete Shortcut Menu

The *Confirm Delete* window identifies the pipeline and number of associated facilities to be deleted in the **Count** column.

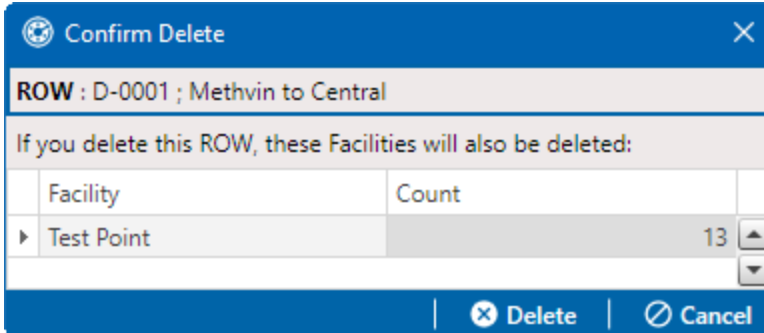


Figure 4-23. Confirm Delete Window

3. Click **Delete** to delete the pipeline or **Cancel** to cancel the operation.

Understanding Default Location Formats

The following table identifies milepost formats available for selection when setting the Default Location Format for a pipeline in the *Edit ROW Detail* window (**Data Entry > Edit ROW Detail**).

Selecting a Default Location Format allows PCS to automatically apply the correct formatting to milepost values you enter for a facility location on a pipeline.

Table 4-6. Description of Default Location Formats

Location Format	Format Example	Description
Metric Milepost	1.234AB, 1,234AB, or 1+234AB	Measurements are in metrics. This format can include two alpha characters at the end of the milepost and can also be graphed. Measurements are in kilometers and meters. Based on the metric delimiter set in system <i>Options</i> , this format supports a Period, Comma, or Plus sign. For example, 1.234AB is 1 kilometer (km) and 234 meters (m).
Milepost (3 Decimals)	12345.567 -or- 1234.567AB	Format supports two alpha characters at the end of the milepost and can also be graphed. This format uses the U.S. Standard measurement system.
Milepost (4 Decimals)	123.5678 -or- 1234.5678A	Format supports one alpha character at the end of the milepost and can also be graphed. This format uses the U.S. Standard measurement system.
Reading Number	12345678AB	This is an alphanumeric format with support for two alpha characters at the end. It is typically used for stations. The format also uses the U.S. Standard measurement system. This format cannot be graphed and the <i>CP Compliance Report</i> does not calculate total feet, total miles, or miles below criteria.
Location ID	1234567891 -or- ABCDEFGHIJ	Use Location ID when footages are not applicable. This format is typically used in distribution systems. Other features include those in the following list: <ul style="list-style-type: none"> • Uses the U.S. Standard measurement system, accepts alphanumeric characters, and cannot be graphed. • CP Compliance Report does not calculate total feet, total miles, or miles below criteria when using this format. <hr/> <p>NOTE: Location ID cannot be changed once it is set up.</p>

Table 4-6. Description of Default Location Formats cont'd

Location Format	Format Example	Description
Station Number	12345+67AB	Measurements are in feet. This format can be graphed, supports two alpha characters at the end of the milepost, and uses the U.S. Standard measurement system.
Miles+100 Feet	12345+12 -or- 12345+12AB	Format uses miles plus two digits to the right to indicate hundreds of feet. For example, 110+12 indicates 110 miles and 1,200 feet. Do not enter values greater than 53 feet; doing so indicates another mile. Other characteristics include: <ul style="list-style-type: none"> • Format can be graphed. • Two alpha characters can be used after the first three numbers. • CP Compliance Report does not calculate total feet, total miles, or miles below criteria. • Uses the U.S. Standard measurement system.
Miles/Station Number	123A 45+67 -or- 123A 12+34	Format uses Miles<space>Station Number with Milepost (three decimals) in graphs. This format uses the U.S. Standard measurement system.

Select a Default Location Format

A Default Location Format must be set for each pipeline added in the system hierarchy. Refer to [Understanding Default Location Formats on page 191](#) for information about available formats.

Complete the following steps to select a default location format:

1. Click **File > Select ROWs** to open the *Select ROWs* window.

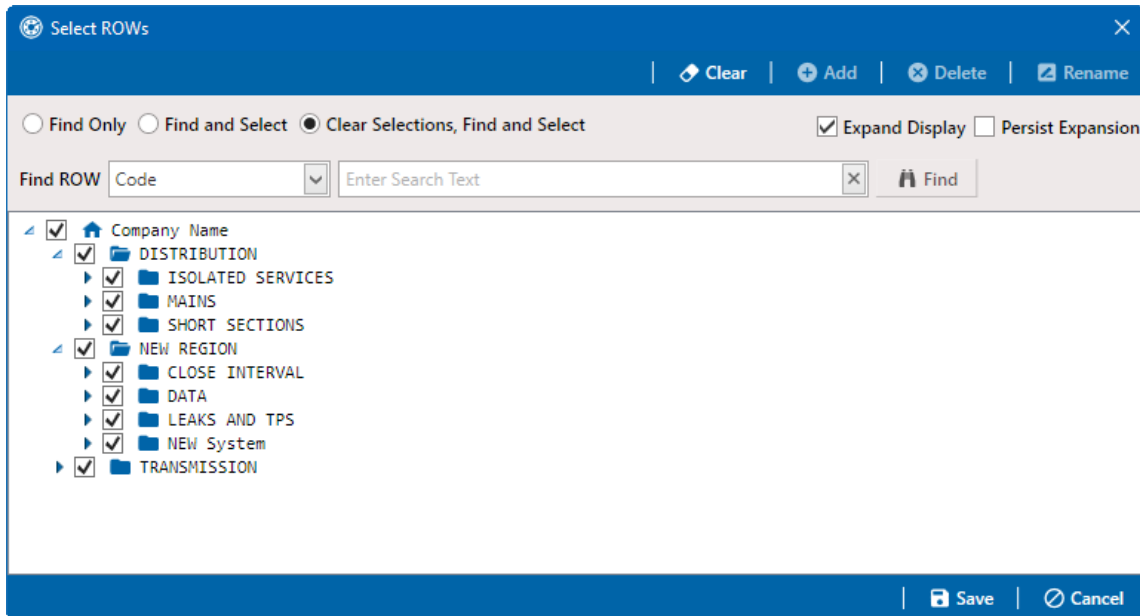


Figure 4-24. Select ROWs

2. Select one or more pipelines, and then click **Save** to close the window.
3. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window. Ensure that the **Information** tab is selected.

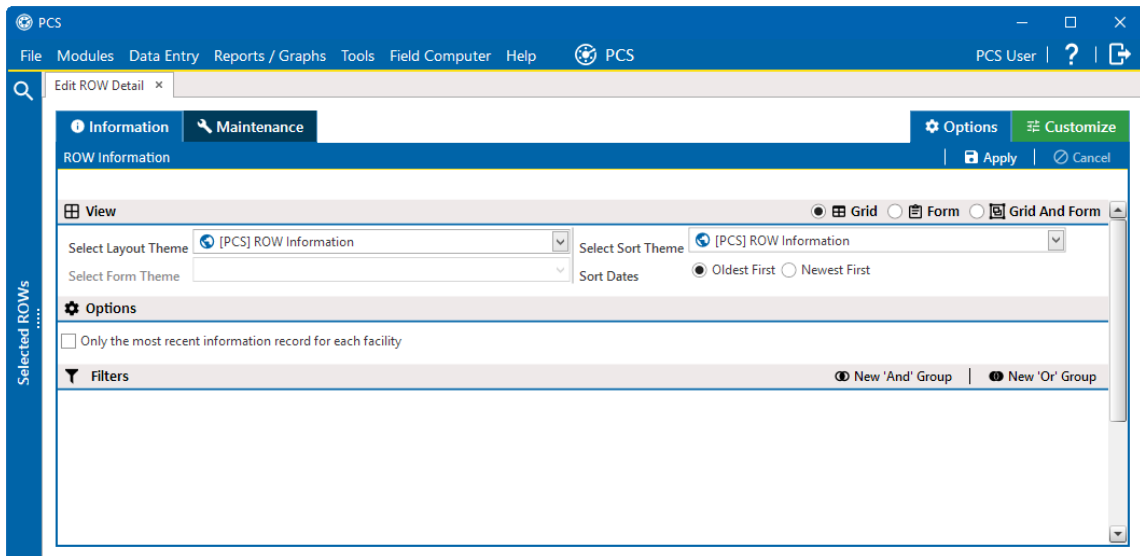



Figure 4-25. Edit ROW Detail Window - Information Tab

4. Select a **Layout Theme** and **Sort Theme**. Optionally, select the **Only the most recent information record for each facility** check box. Click  **Apply**.
5. Select a pipeline in the *Information* grid.

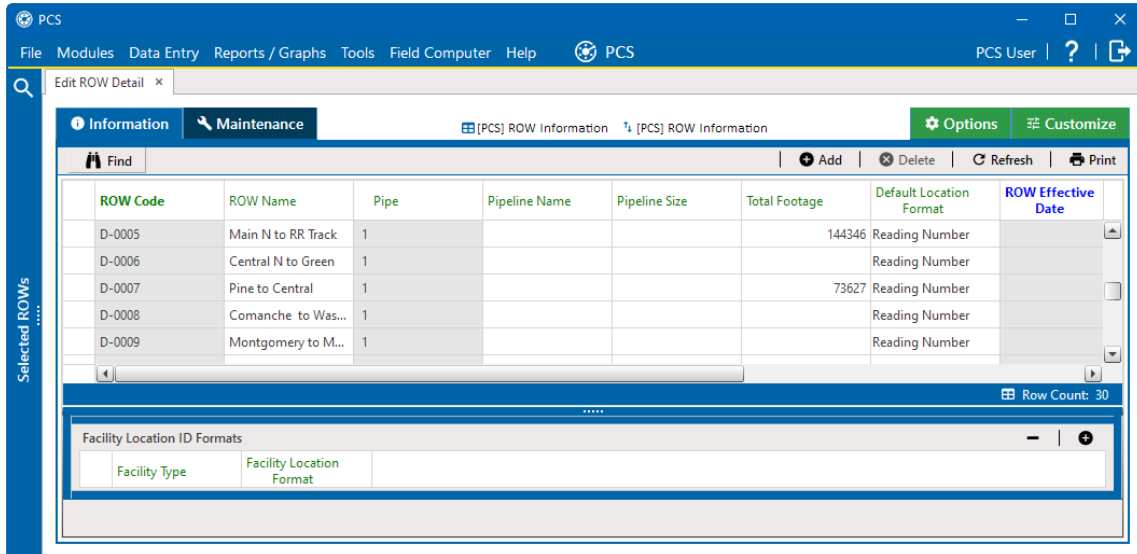


Figure 4-26. Information Tab with Records

6. In the **Default Location Format** field, select a location format in the drop-down list. Refer to *Understanding Default Location Formats on page 191* for a description of available options.

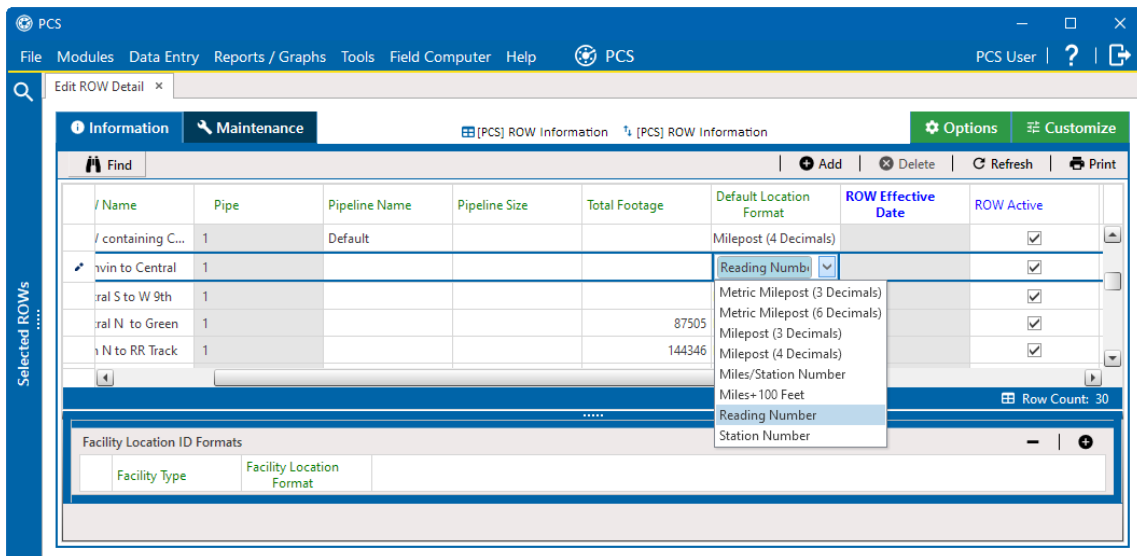


Figure 4-27. Default Location Format Drop-down List

7. In the *Facility Location ID Formats* mini-grid, click **+** Add. A list of all facility types display in the mini-grid with the selected location format.

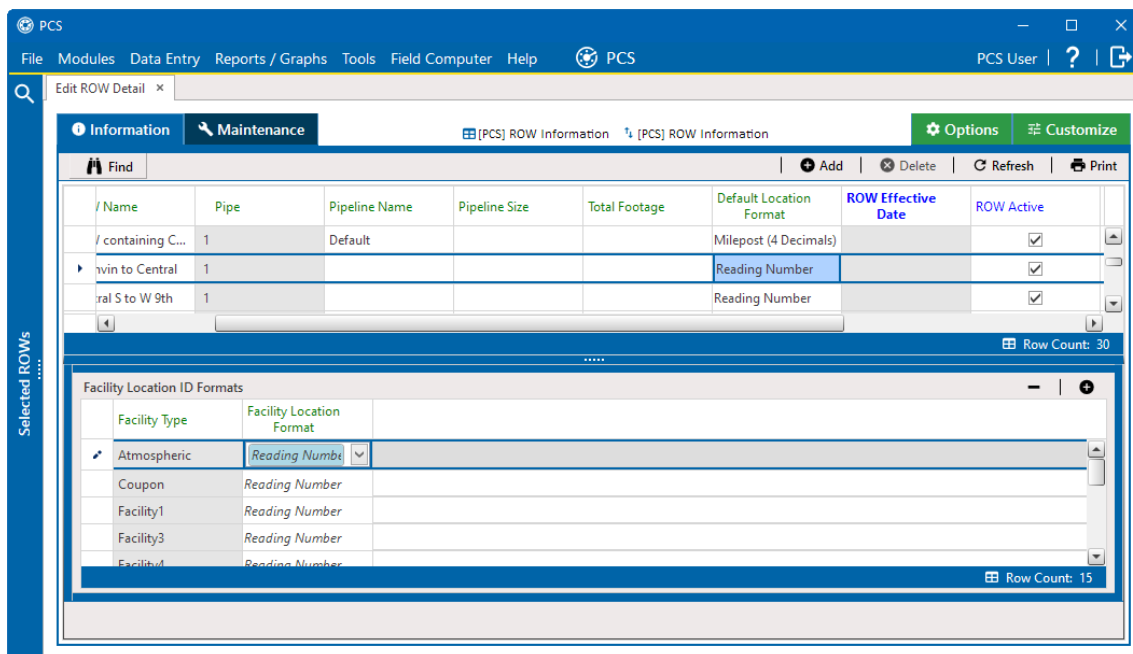


Figure 4-28. Facility Location ID Formats Mini-grid

Complete the following steps if you want to change the location format for a particular facility type listed in the mini-grid:


- a. Select a row of records in the mini-grid with the facility type you want to change the location format.
 - b. In the **Default Location Format** field, select a location format in the drop-down list
8. Set up other pipeline information as needed.
 9. Click **Refresh**.
 10. When finished, click the **x** close icon to close the *Edit ROW Detail* window.

Add a Pipeline Information Record

Use the Information grid in the *Edit ROW Detail* window to add an information record for a pipeline selected in the *Select ROWs* window. Adding an information record allows you to maintain history records when important permanent information changes, such as when a pipeline is taken out of service or is sold to another business.

NOTE: If you are working with the optional *Telluric Compensation* feature, the required Telluric Compensation Required field must be added in the *Information* grid and enabled for each pipeline segment requiring telluric compensation. For more information refer to [Add a Pipeline Record Layout Theme on page 220](#).

Complete the following steps to add a pipeline information records:

1. Click the  icon on the **Select ROWs** title bar (or double-click in the pane or select **File > Select ROWs**) to open the *Select ROWs* window.

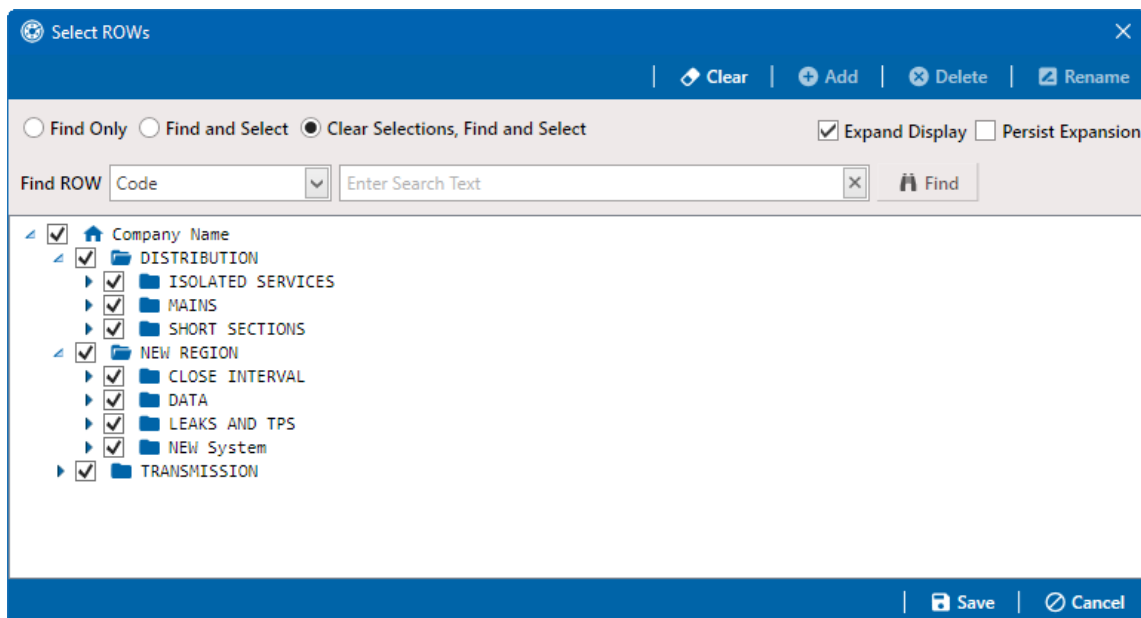



Figure 4-29. Selected ROWs Window

2. Select one or more pipeline segments you want to work with by clicking the check box for each pipeline segment.
A check mark inside a check box indicates a selection. To clear a selection, click the check box again to remove the check mark. A shaded check box indicates selection of some, not all, child folders, ROWs, and pipelines.
3. Click  **Save** to close the window.
4. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window. Ensure that the **Information** tab is selected.

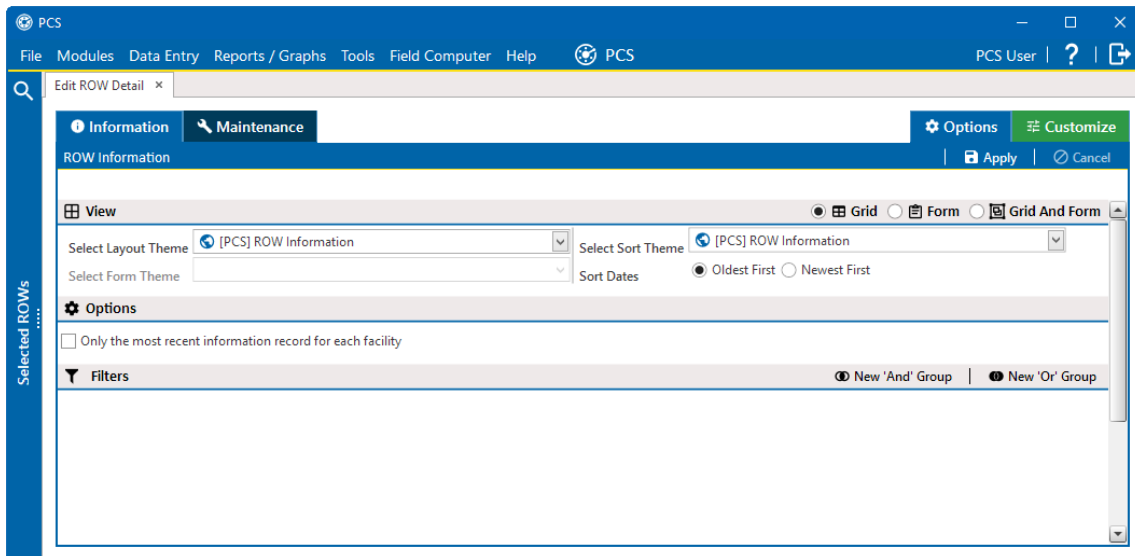


Figure 4-30. Edit ROW Detail Window - Information Tab

5. If you want to collapse the *Selected ROWs* pane to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the pane.
6. Select a **Layout Theme** and **Sort Theme**. Optionally, select the **Only the most recent information record for each facility** check box. Click **Apply**.

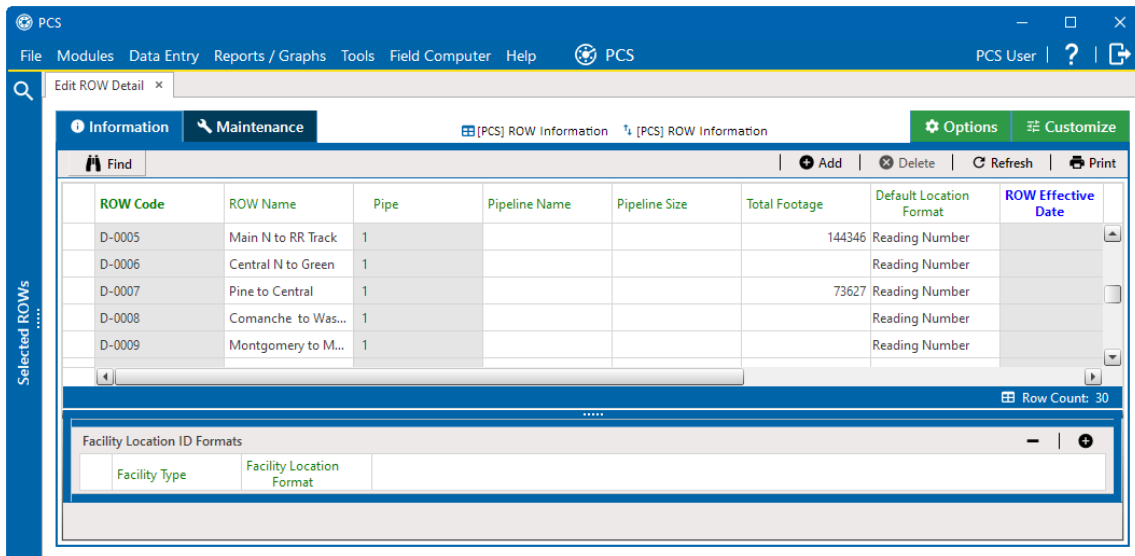


Figure 4-31. Information Tab with Records


7. Click **Add** or press **F4** on the keyboard to open the *Add Record* window.

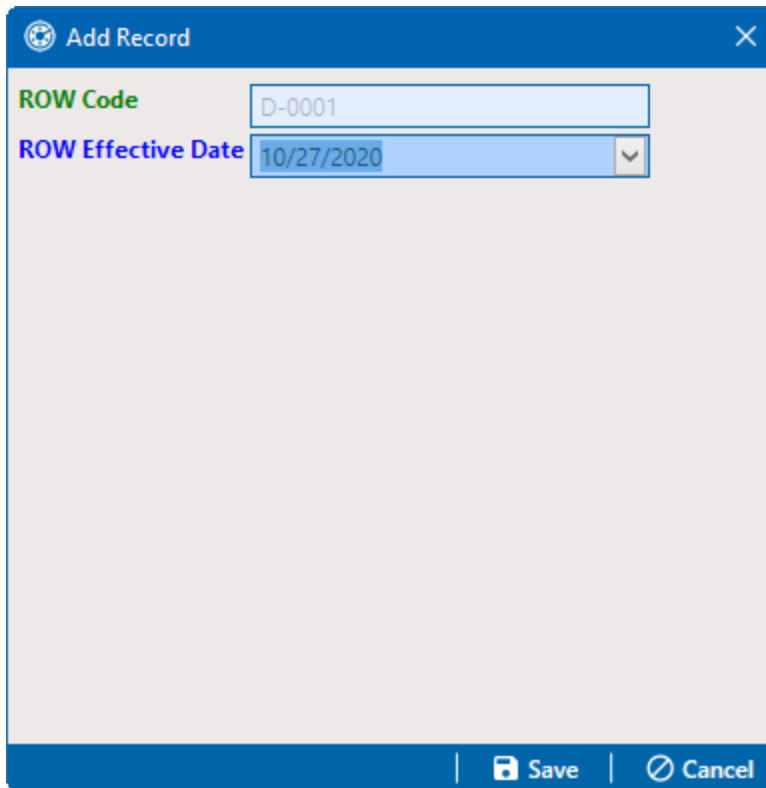
The screenshot shows a dialog box titled "Add Record" with a close button (X) in the top right corner. Below the title bar is a tab labeled "ROW Facility Component Information". The main area contains a table with the following data:

ROW Code	Pipe	
COUP, INH, TP, AT...	1	
▶ D-0001	1	
D-0002	1	
D-0003	1	
D-004	1	
D-0005	1	
D-0006	1	
D-0007	1	
D-0008	1	
D-0009	1	

At the bottom of the table area, there is a "Row Count: 30" indicator. Below the table area are two buttons: "Save" and "Cancel".


Figure 4-32. Add Record

8. Select the pipeline in the window that you want to add an information record.
9. Click  **Save** to open a new *Add Record* window for the new record.



The screenshot shows a dialog box titled "Add Record". It contains two input fields: "ROW Code" with the value "D-0001" and "ROW Effective Date" with the value "10/27/2020". The "ROW Effective Date" field has a dropdown arrow on the right. At the bottom of the dialog, there are two buttons: "Save" and "Cancel".

Figure 4-33. Add Record

10. Type a date in the **Effective Date** field using the format MM/DD/YYYY to indicate the month, day, and year. Or click the down arrow in the field and select a date using a calendar.
Effective Date is the date a history record becomes effective, such as when a pipeline becomes inactive or is taken out of service. refer to [Create History Records Using an Effective Date on page 288](#) for more information.
11. Click  **Save** to close the *Add Record* window and add the new information record in the grid for the existing pipeline.

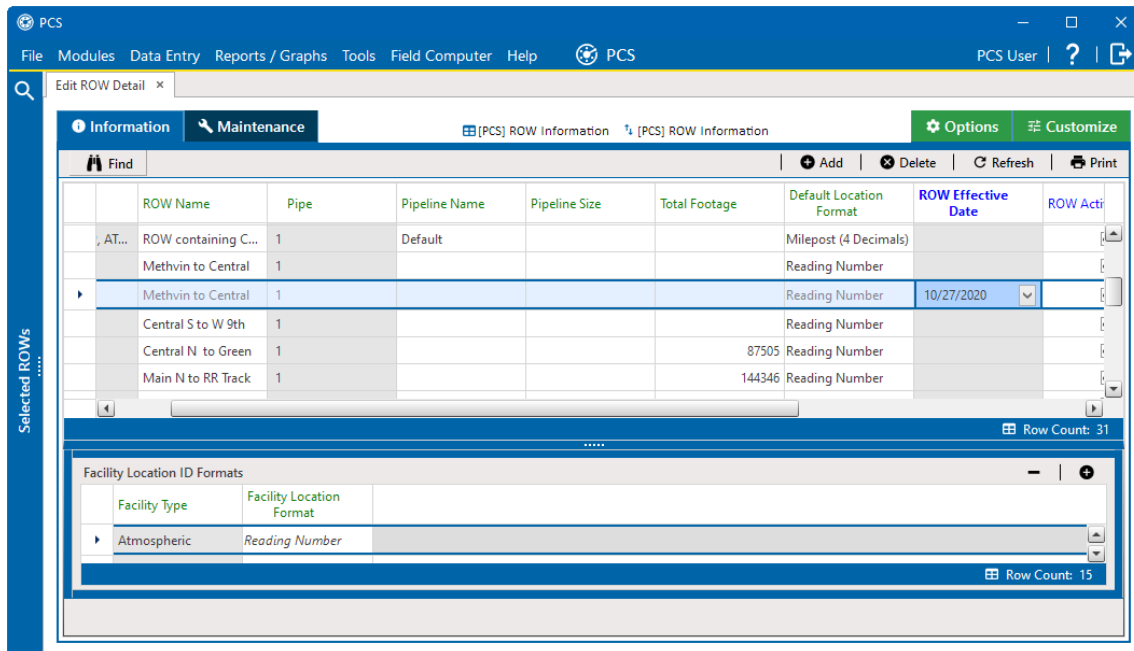




Figure 4-34. ROW Detail Information Grid - New Record

12. Provide other pipeline data in the grid as needed, such as *Permanent Comments*.
13. Click  **Refresh** to update the grid.

Add a Pipeline Maintenance Record

Use the Maintenance grid in the *Edit ROW Detail* window to add a maintenance record for a pipeline selected in the *Select ROWs* window. Adding pipeline maintenance records allows you to examine the effectiveness of a maintenance program. You can either view data in the maintenance grid of *Edit ROW Detail* or run a ROW maintenance report.

Complete the following steps to add a pipeline maintenance records:

1. Click the  icon on the **Select ROWs** title bar (or double-click in the pane or select **File > Select ROWs**) to open the *Select ROWs* window.

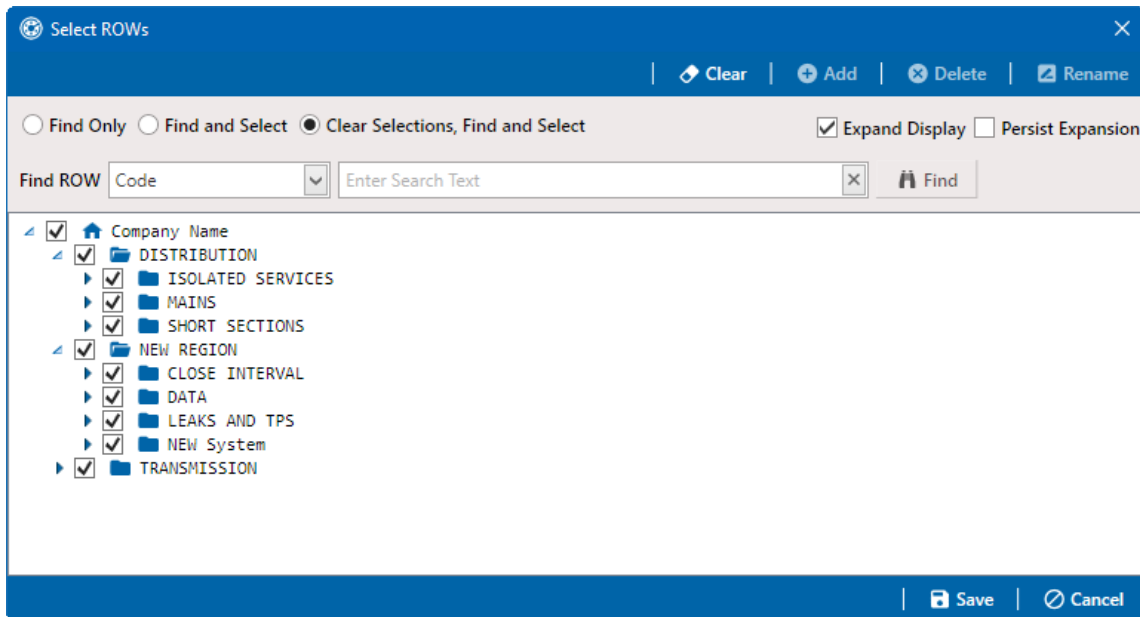



Figure 4-35. Selected ROWs Window

2. Select one or more pipeline segments you want to work with by clicking the check box for each pipeline segment.

A check mark inside a check box indicates a selection. To clear a selection, click the check box again to remove the check mark. A shaded check box indicates selection of some, not all, child folders, ROWs, and pipelines.

3. Click  **Save** to close the window.
4. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window. Ensure that the **Maintenance** tab is selected.

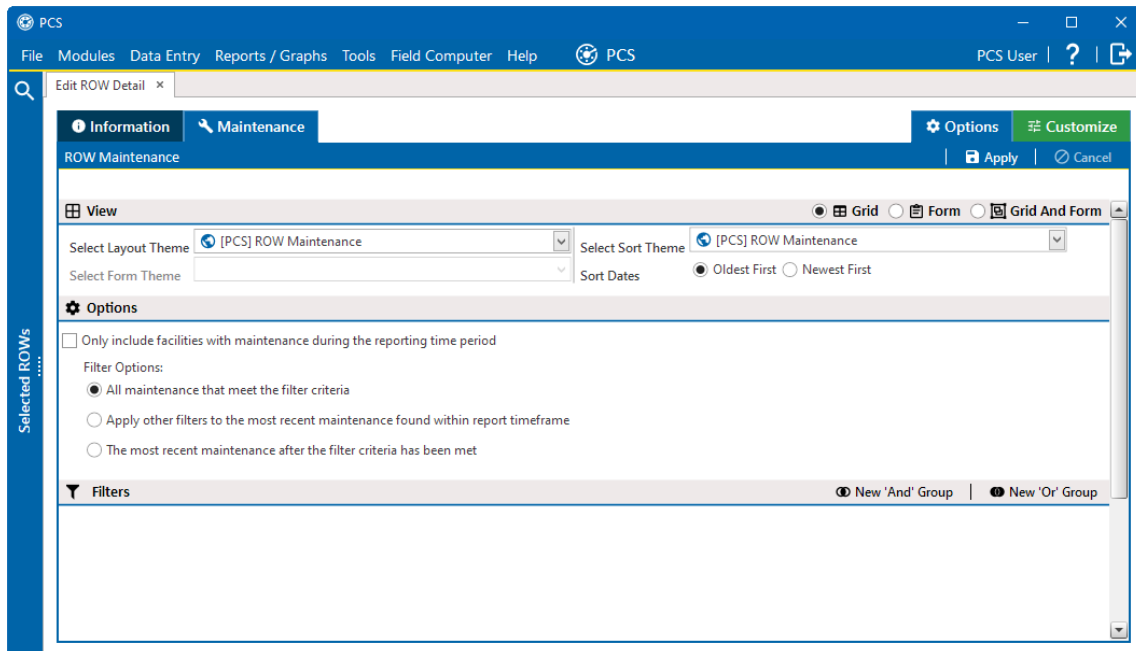



Figure 4-36. Edit ROW Detail Window - Maintenance Tab

5. If you want to collapse the *Selected ROWs* pane to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the pane.
6. Select a **Layout Theme** and **Sort Theme**. Optionally, select the **Only the most recent information record for each facility** check box. Click  **Apply**.

ROW Code	Pipe	ROW Effective Date	ROW Active	ROW Repair Code	ROW Repair Found Date	ROW Repair Initiated Date
D-0005	1		<input checked="" type="checkbox"/>			
D-0006	1		<input checked="" type="checkbox"/>			
D-0007	1		<input checked="" type="checkbox"/>			
D-0008	1		<input checked="" type="checkbox"/>			
D-0009	1		<input checked="" type="checkbox"/>			
D-0010	1		<input checked="" type="checkbox"/>			
D-0011	1		<input checked="" type="checkbox"/>			
D-0012	1		<input checked="" type="checkbox"/>			
D-0013	1		<input checked="" type="checkbox"/>			
D-0014	1		<input checked="" type="checkbox"/>			
D-0015	1		<input checked="" type="checkbox"/>			
D-0016	1		<input checked="" type="checkbox"/>			

Figure 4-37. Maintenance Tab with Records



7. Click **+** Add or press **F4** on the keyboard to open the *Add Record* window.

ROW Code	Pipe
COUP, INH, TP, AT...	1
▶ D-0001	1
D-0002	1
D-0003	1
D-004	1
D-0005	1
D-0006	1
D-0007	1
D-0008	1
D-0009	1

Row Count: 30

Save Cancel

Figure 4-38. Add Record

8. Select the pipeline in the window that you want to add an information record.
9. Click  **Save** to open a new *Add Record* window for the new record. Required fields are identified with the  icon, such as **ROW Repair Code**.

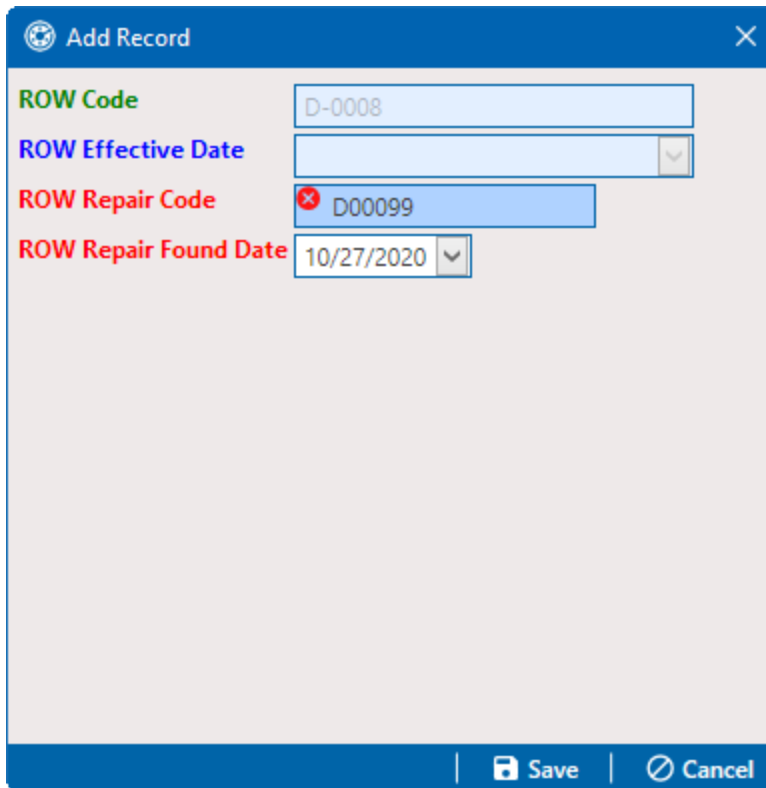
The screenshot shows a dialog box titled "Add Record" with a blue header bar containing a refresh icon and a close button. The dialog contains four input fields:

- ROW Code:** A text box containing the value "D-0008".
- ROW Effective Date:** A date field with a dropdown arrow.
- ROW Repair Code:** A text box with a red error icon (an 'X' in a circle) to its left, indicating a validation error. The field is currently empty.
- ROW Repair Found Date:** A date field with a dropdown arrow, showing the value "10/27/2020".

At the bottom of the dialog, there are two buttons: "Save" (with a floppy disk icon) and "Cancel" (with a circle and slash icon).

Figure 4-39. Add Record

10. Type a repair code in the **ROW Repair Code** field. Repair code is a designation used by your company to identify the type of repair. The field accepts up to 15 alphanumeric characters including special characters such as the pound sign (#), asterisk (*), or hyphen (-).




The screenshot shows a dialog box titled "Add Record" with a close button (X) in the top right corner. The dialog contains four input fields:

- ROW Code:** A text box containing "D-0008".
- ROW Effective Date:** A date picker field with a downward arrow.
- ROW Repair Code:** A text box containing "D00099" with a red "X" icon to its left, indicating an error.
- ROW Repair Found Date:** A date picker field containing "10/27/2020" with a downward arrow.

At the bottom of the dialog, there are two buttons: "Save" (with a floppy disk icon) and "Cancel" (with a circle and slash icon).

Figure 4-40. New Maintenance Record

11. Type a date in the **ROW Repair Found Date** field using the format MM/DD/YYYY to indicate the month, day, and year. Or click the down arrow in the field and select a date using a calendar.
12. Click  **Save** to close the *Add Record* window and add a pipeline maintenance record in the grid.

ROW Code	Pipe	ROW Effective Date	ROW Active	ROW Repair Code	ROW Repair Found Date	ROW Repair Initiated Date
D-0002	1		<input checked="" type="checkbox"/>			
D-0003	1		<input checked="" type="checkbox"/>			
D-0005	1		<input checked="" type="checkbox"/>			
D-0006	1		<input checked="" type="checkbox"/>			
D-0007	1		<input checked="" type="checkbox"/>			
D-0008	1		<input checked="" type="checkbox"/>	D00099	10/27/2020	
D-0009	1		<input checked="" type="checkbox"/>			
D-0010	1		<input checked="" type="checkbox"/>			
D-0011	1		<input checked="" type="checkbox"/>			

Figure 4-41. ROW Detail Maintenance Grid - New Record

13. Provide other maintenance data in the grid as needed. For example, provide a date in the **ROW Repair Initiated Date** and **ROW Repair Corrected Date** fields, a maintenance reference number in the **ROW Reference Number** field, and remarks about the repair in the **ROW Repair Remarks** field.
14. Click **Refresh** to update the grid.

Attach a Document to a Pipeline Record

Attaching a document to a pipeline record in *Edit ROW Details* is similar to attaching a document to a record in a data entry grid. Use the **Attached Document** field in the grids found in the Information and Maintenance tabs of *Edit ROW Details* to link or embed a file or webpage address to a pipeline record. Supported file types include image, video, HTML, XML, music, and text files (such as Microsoft Word, WordPad, Notepad, or PowerPoint files). For instructions attaching a document to a record in a data entry grid, refer to [Data Entry Grids and Forms](#).

Examples of attachments include an image of a pipeline, a document describing your company's safety procedures, or a document identifying a manufacturer's specification for a piece of equipment.

Linking a document identifies the file location on a local computer, company network, FTP site, or webpage on the Internet. Linking documents stored on a local computer are accessible only from that computer. Embedding a document stores a copy of the file in the PCS database.

NOTE: Storing copies of documents in the PCS database increases the size of the database.

If the file type of an attached document is associated with a default software program on the local computer, you can preview the file in the *Preview Attached Documents* window. Additionally, clicking **Open** opens the attached document for editing or viewing purposes.

Editing an embedded document applies changes only to the copy stored in the PCS database; changes do not apply to the source file stored outside of PCS. Likewise, editing a source file applies changes only to the source file, not the copy stored in PCS.

Refer to the following topics for more information on attaching documents:

- [Add the Attached Document Field in the Grid](#)
- [Attach a Document to a Pipeline Record on page 212](#)
- [View an Attached Document on page 217](#)

For information about how to attach a document to a record in a data entry grid, refer to [Data Entry Grids and Forms on page 239](#).

Add the Attached Document Field in the Grid

If the Attached Document field is not present in the grid under the Information or Maintenance tab of the *Edit ROW Details* window, complete the following steps to add the field:

1. Select one or more pipeline segments you want to work with in the *Select ROWs* window. Click **Save** to close the window. Refer to [Select ROWs](#) for more information.
2. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window.

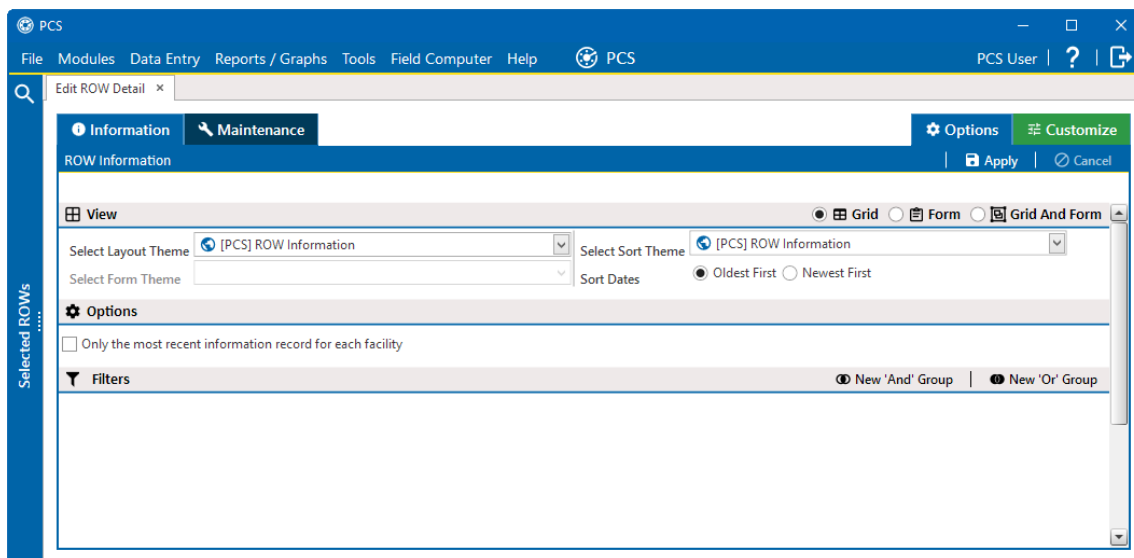



Figure 4-42. Edit ROW Detail Window - Information Tab

3. If you want to collapse the *Selected ROWs* pane to view more of the *Edit ROW Detail* grid, click **Selected ROWs**. To expand the pane, click **Selected ROWs** again.
4. Based on the grid you want to add the Attached Document field, click the **Information** tab or **Maintenance** tab.
5. Select a **Layout Theme** and **Sort Theme**. Optionally, select the **Only the most recent information record for each facility** check box. Click  **Apply**.

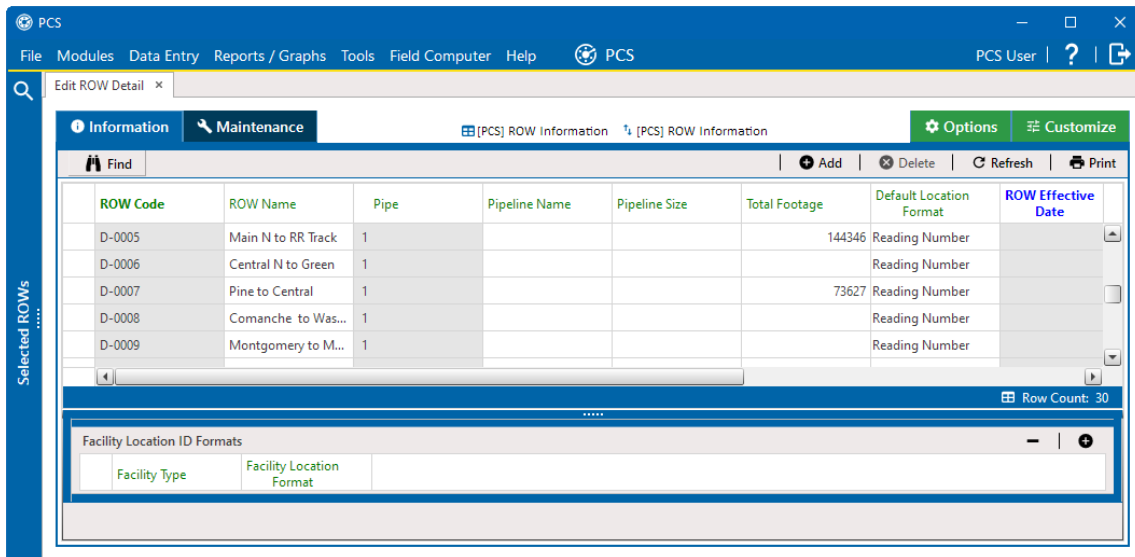


Figure 4-43. Information Tab with Records

6. Click the  **Customize** tab to view the *Layouts* page.

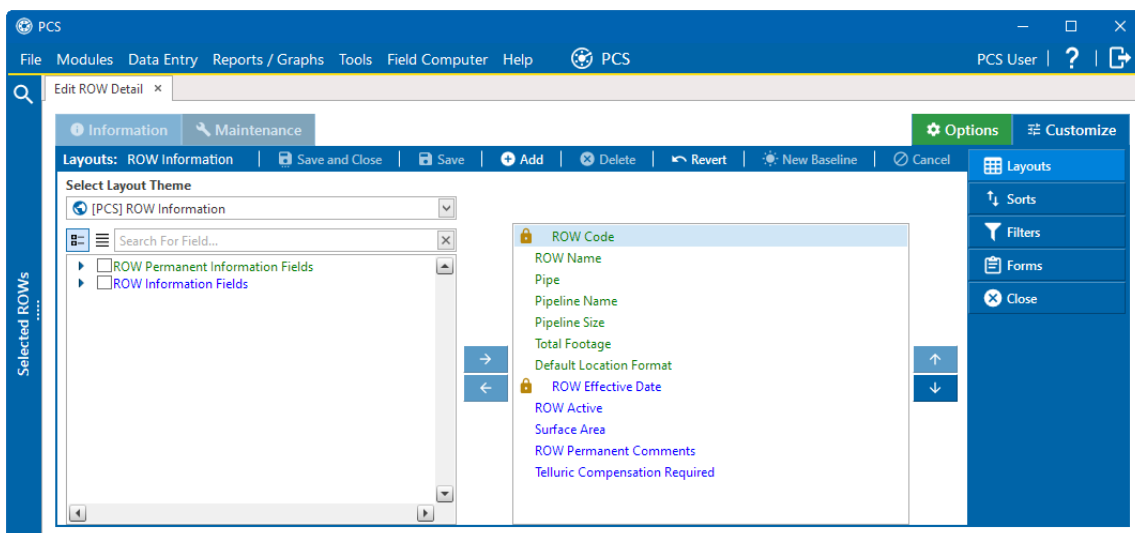


Figure 4-44. Layouts

7. Choose a grid layout theme. Click the down arrow in **Select Layout Theme** and select a layout theme in the selection list.
8. Double-click ► **ROW Permanent Information Fields** in the left pane of the window to view a list of fields available for selection.

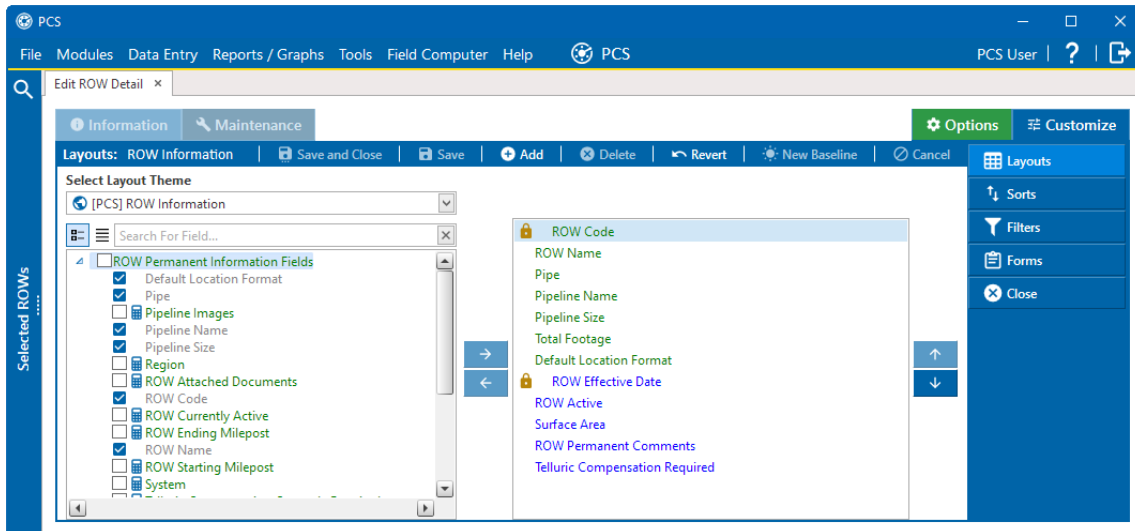


Figure 4-45. Expanded ROW Permanent Information Fields

9. Add the **ROW Attached Documents** field to the layout theme. Double-click **ROW Attached Documents** in the left pane of the *Layouts* window to move it to the right pane. Or click the ► button to move it. Add other fields as required. The layout theme includes all fields listed in the right pane.

NOTE: The ► button becomes active after selecting a field and clicking in the check box.

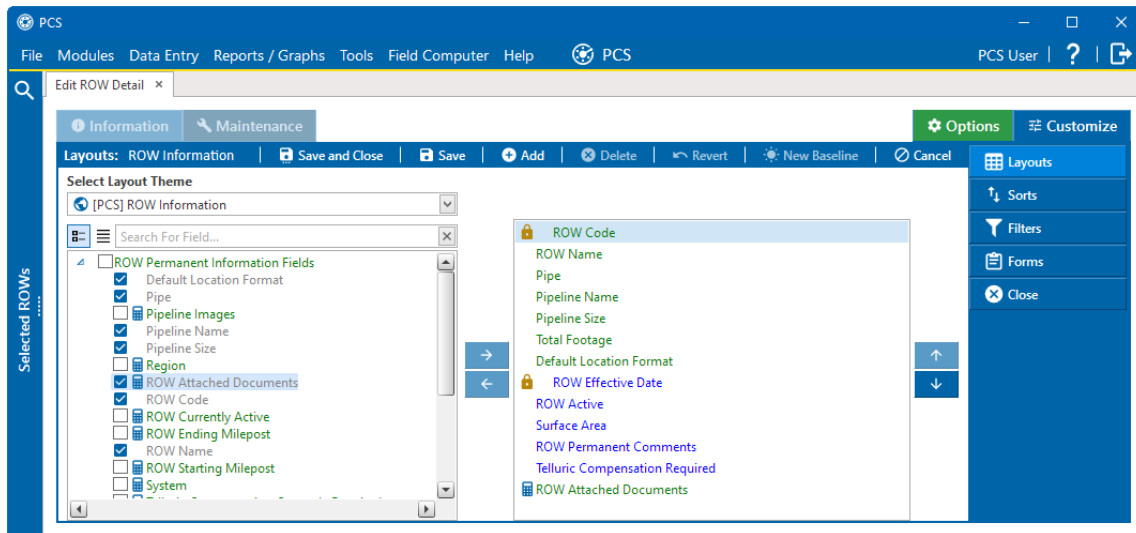






Figure 4-46. ROW Attached Documents Added to Layout

10. To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or select a field and then click the  or  buttons.
11. Click  **Save and Close** to save changes and return to the grid.

Attach a Document to a Pipeline Record

You can attach a document to a pipeline information record or a pipeline maintenance record.

Complete the following steps to attach a document to a pipeline record in the grids of either the Information or Maintenance tabs of the *Edit ROW Detail* window:

1. Select one or more pipeline segments you want to work with in the *Select ROWs* window. Click  **Save** to close the window. Refer to [Select ROWs](#) for more information.
2. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window.

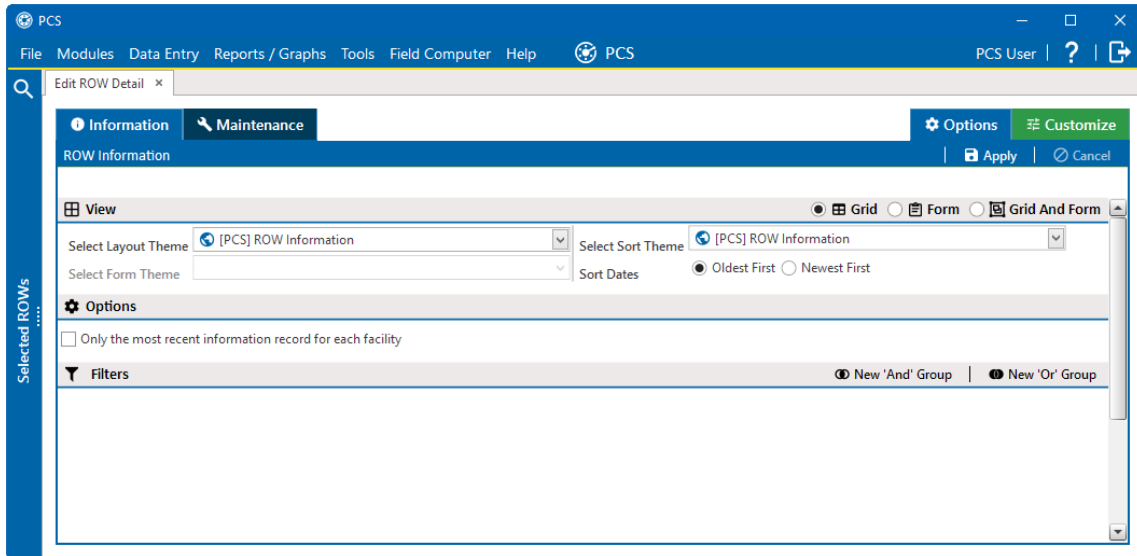



Figure 4-47. Edit ROW Detail Window - Information Tab

3. Select the tab where you want to attach a document to a pipeline record: if in the Information grid, click the **Information** tab; if in the Maintenance grid, click the **Maintenance** tab.
4. Click the  icon in the **ROW Attached Document** field for the pipeline record you plan to attach a document.

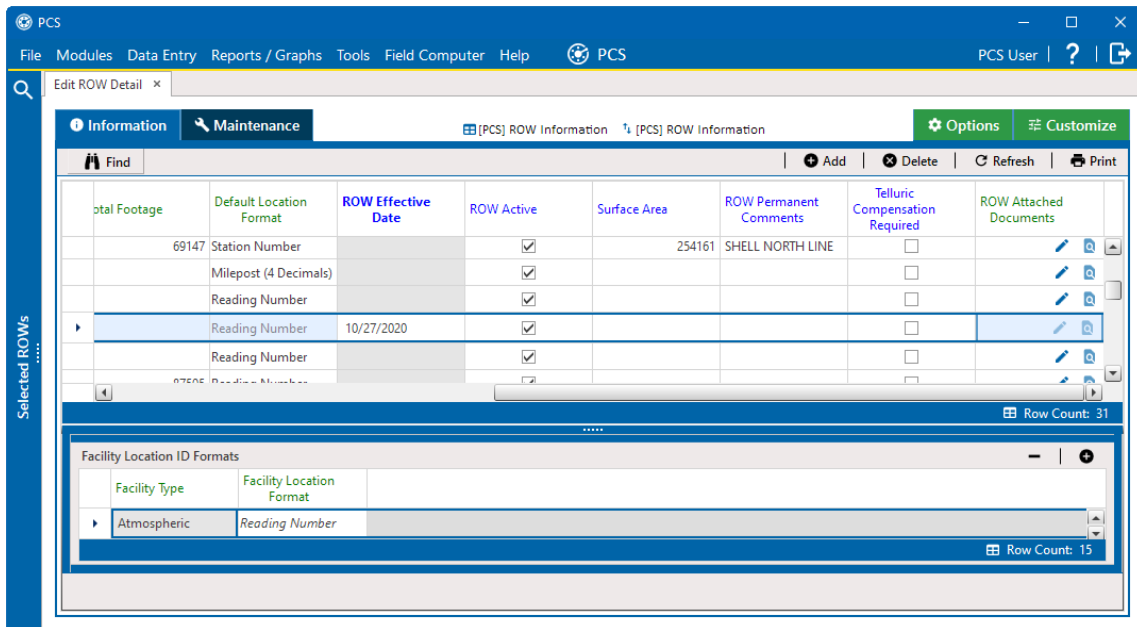


Figure 4-48. Edit ROW Detail

5. Click  **Attach** in the *Maintain Attached Documents* window.

The screenshot shows a window titled "Maintain Attached Documents". The window has a blue header bar with a close button (X) on the right. Below the header is a toolbar with buttons for "+ Attach", "Cancel", "Save and Close", "Save", and "Delete". The main content area has two radio buttons: "Link Document" and "Embedded Document". To the right of these is a "Document" field with a text input and an ellipsis button. Below this is a "Description" field with a text area. At the bottom is a table with columns "Document" and "Document Type", and a "Row Count: 0" indicator.

Figure 4-49. Maintain Attached Documents Window

The **Link Document** and **Embedded Document** options become available.

6. Select one of the following options for attaching a document:
 - **Link Document** – select **Link Document** if you plan to link to a document on a local computer or company network. Edits to the document are made on the local computer or company network, whether accessed from within PCS or not. If you choose to link to a document on a local computer, users who access PCS from another computer may have trouble accessing the document.
 - **Embedded Document**– select **Embedded Document** if you want to store a copy of an attached document in the PCS database. Changes made to the document will not affect copies of the document that may be stored on your local computer or company network.

NOTE: Storing copies of attached documents in the database increases the size of the database.

7. Click the ...ellipsis button in the **Document** field to open the *Link File* window. Then navigate to the file and select it. Click **Open** to link to the file and close the window.

8. Type a description for the linked file in the **Description** field of the *Maintain Attached Documents* window. When a description is not provided, PCS uses the filename of the linked document as the description. The example below shows a linked document and its description. The same process would apply to an embedded document.

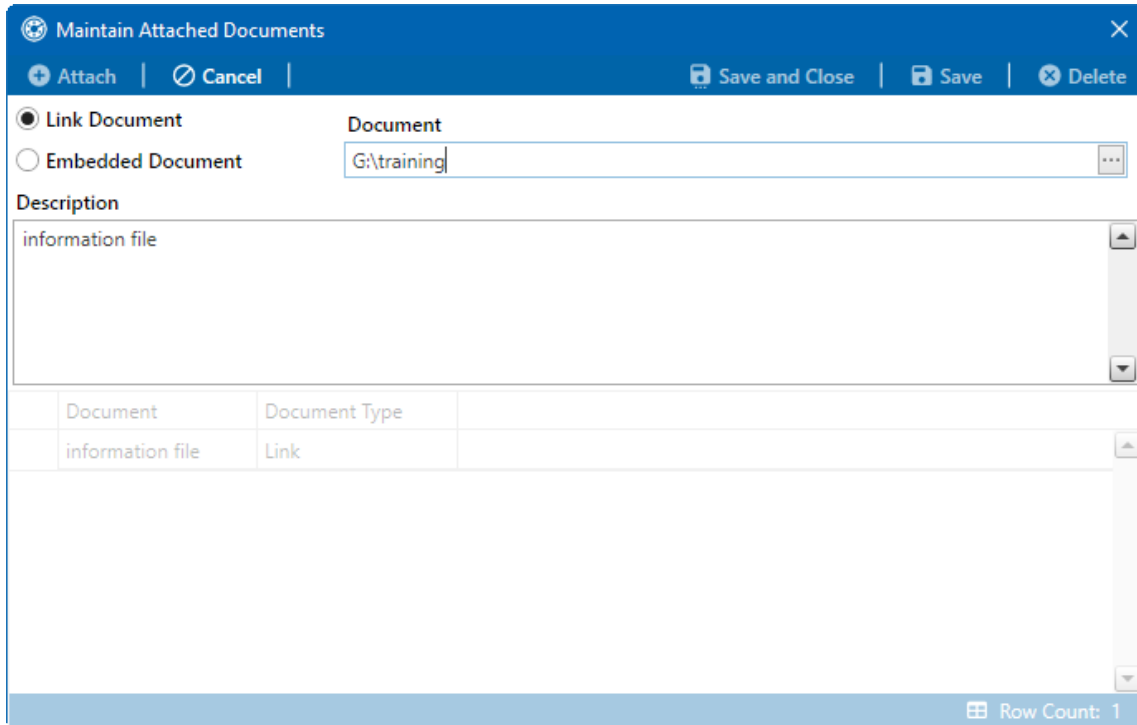


Figure 4-50. Link Document Information

9. Click  **Save** to save changes.

If the document was linked, the following *Confirm document attachment* window displays.

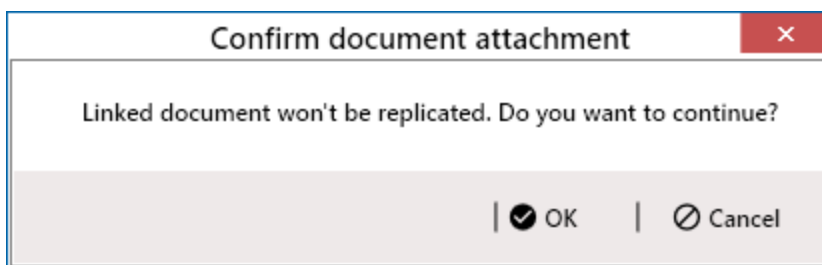


Figure 4-51. Confirm Document Attachment Window for Linked Documents

If the document was embedded, the following *Confirm document attachment* window displays.

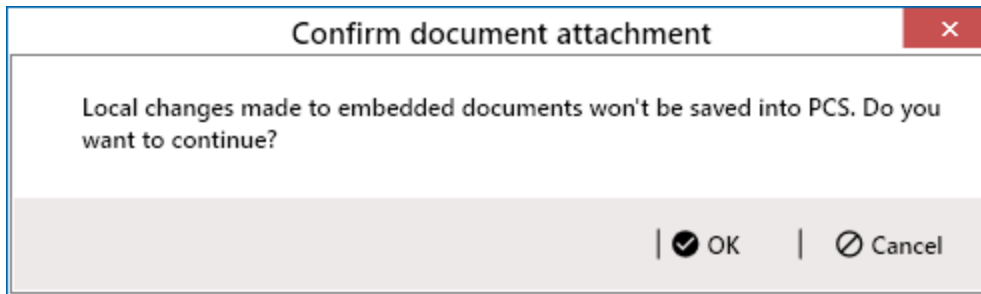


Figure 4-52. Confirm Document Attachment Window for Embedded Documents

10. Click **OK**.

The document is added to the list of attached documents shown in the *Maintain Attached Documents* window.

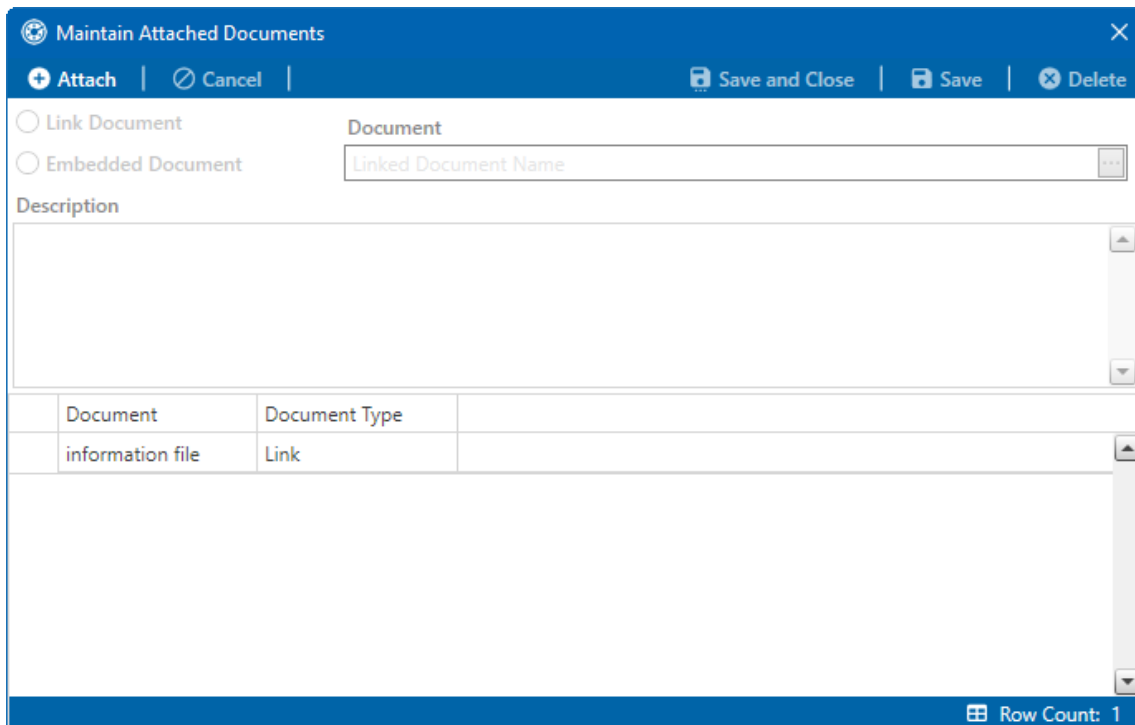




Figure 4-53. Attached Document Added to Record

11. Add additional documents as needed. Additional attached documents display in the window. Selecting an item in the list displays its location in the **Document** field.
12. When finished adding documents, click  **Save and Close**. A message will appear confirming the linked or embedded document. Click **OK**.

View an Attached Document

If the file type of an attached document is associated with a default software program on the local computer, you can preview the file in the *Preview Attached Documents* window. Additionally, clicking **Open** opens the attached document for editing or viewing purposes.

Complete the following steps to view or open an attached document:

1. Select one or more pipeline segments you want to work with in the *Select ROWs* window. Click  **Save** to close the window. Refer to *Select ROWs* for more information.
2. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window.

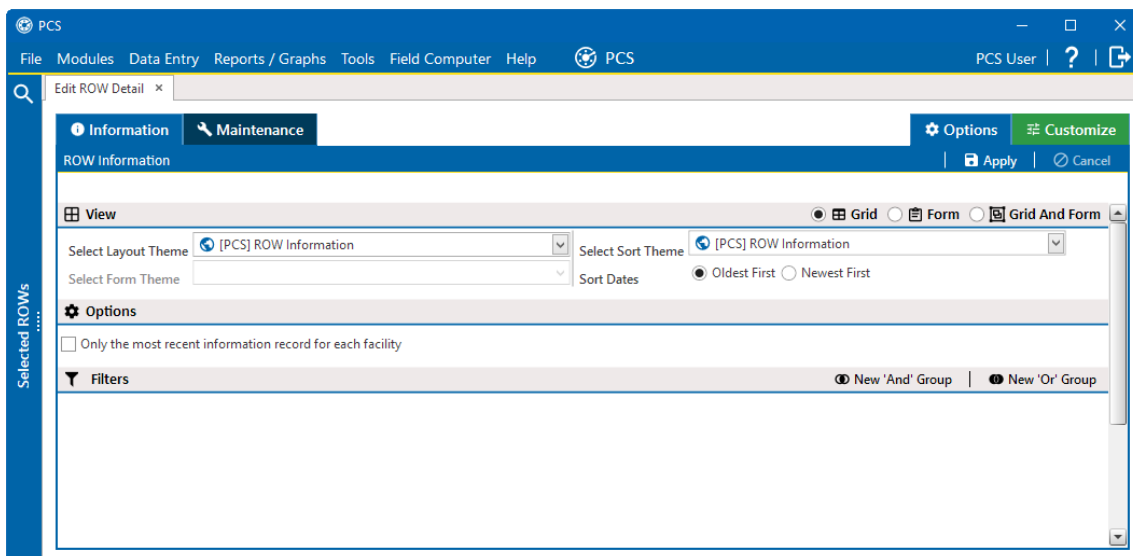



Figure 4-54. Edit ROW Detail Window - Information Tab

3. Select the tab where you want to view an attached document: if in the Information grid, click the **Information** tab; if in the Maintenance grid, click the **Maintenance** tab.
4. Click the  icon in the **ROW Attached Document** field for the pipeline record you plan to attach a document.

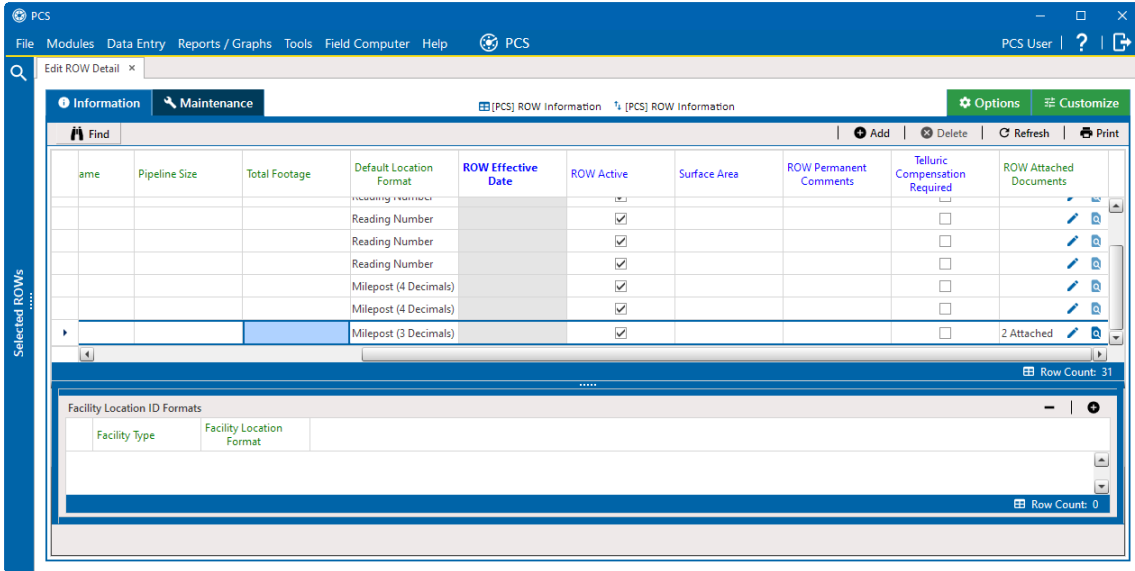


Figure 4-55. Edit ROW Detail - Attached Documents

The *Preview Attached Documents* window opens.

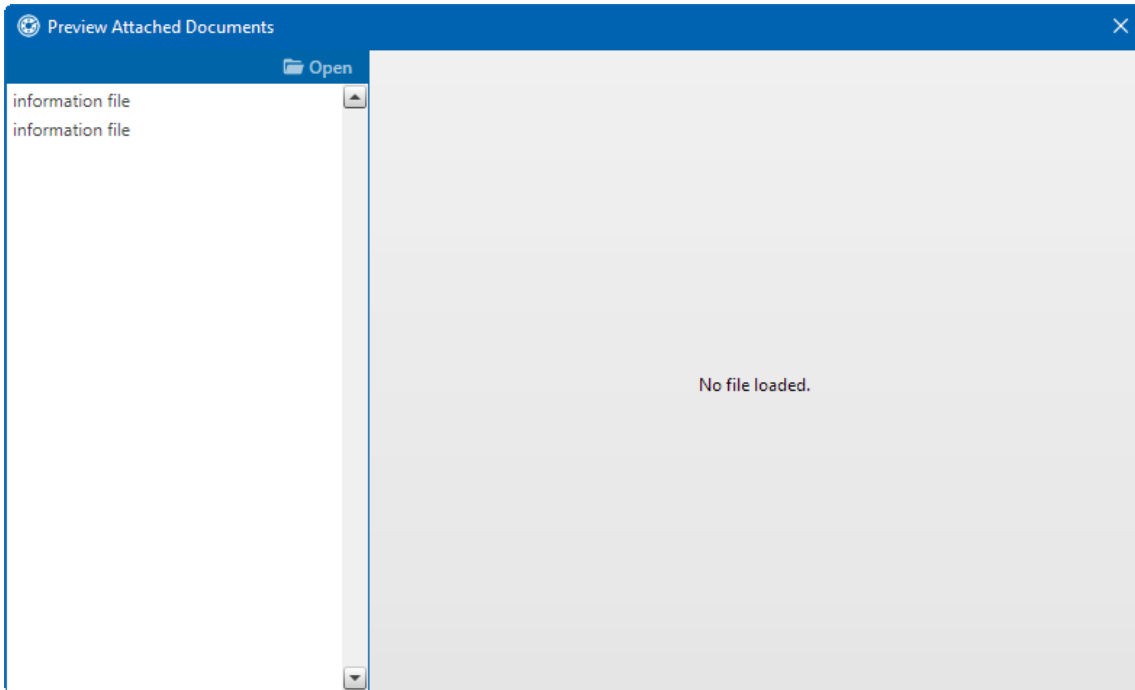


Figure 4-56. Preview Attached Documents Window

5. Select a file in the list on the left side of the window to view the file in the *Preview Attached Documents* window.

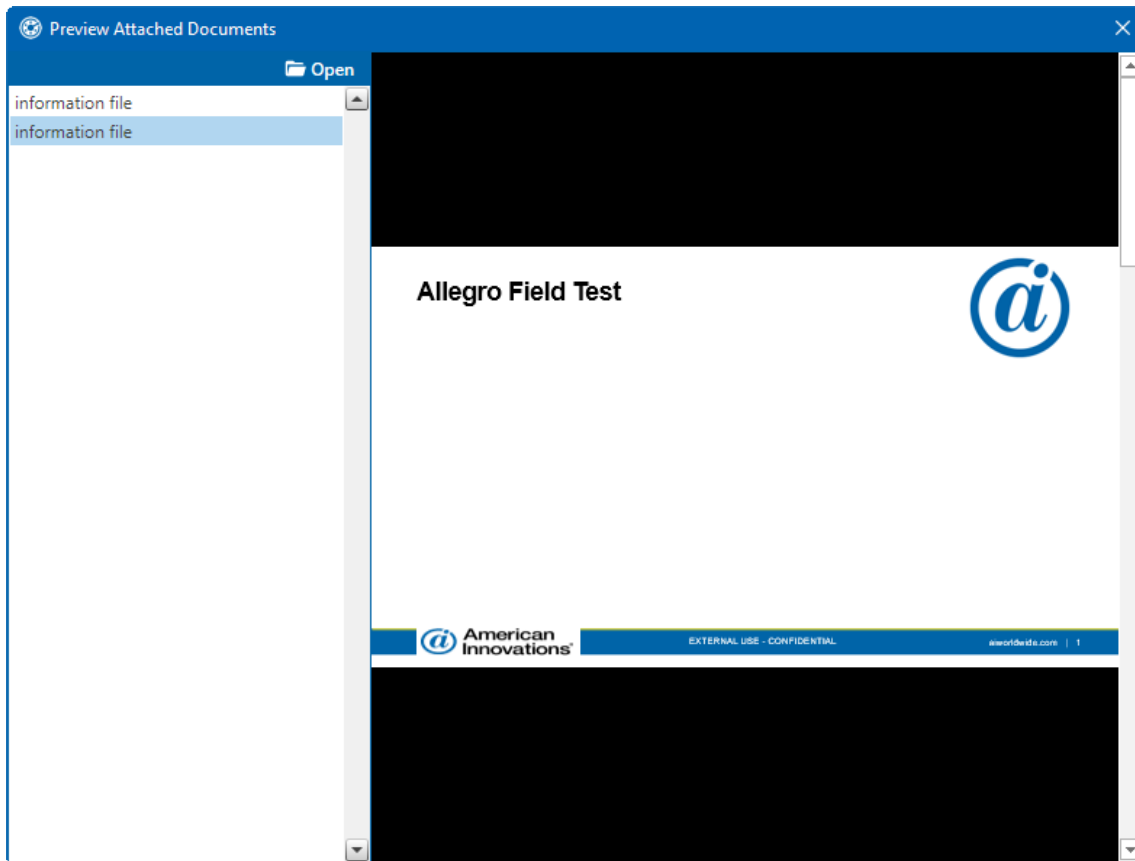





Figure 4-57. Preview Attached Documents

6. If the file type of the attached document is associated with a default software program on the local computer, click  **Open** to open the file.
7. Click  to close the *Preview Attached Documents* window.

When you open and then edit an embedded document, changes apply only to the copy stored in the PCS database; changes do not apply to the source file stored outside of PCS. Likewise, editing the source file applies changes to the source file, not the copy stored in the PCS database.

Themes and Filter Groups for Pipeline Records

A theme is a group of named settings saved for later use, such as grid layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS software installation. PCS installed themes are public themes available to all PCS users. These themes are identified with a globe icon and PCS in brackets, such as  **[PCS] ROW Information**.

NOTE: Only public themes for layouts, sorts, and reports are available for selection. If you would like to use a private theme, your company's system administrator must make your private theme a public one.

A filter group is a named set of one or more filters that affect the data output in the *Edit ROW Detail* grid. PCS provides two types of filter groups you can define. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude in the *Edit ROW Detail* grid. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. When you apply a filter group to the grid, PCS processes filters in descending order beginning with the filter at the top of the group.

The following topics describe how to add a layout theme, sort theme, and an optional filter group in the Information and Maintenance grids of the *Edit ROW Detail* window.

- [Add a Pipeline Record Layout Theme](#)
- [Add a Pipeline Record Sort Theme on page 224](#)
- [Add or Edit an AND Filter Group for Pipeline Records on page 228](#)
- [Add or Edit an OR Filter Group for Pipeline Records on page 233](#)
- [Apply or Remove a Filter Group for Pipeline Records on page 237](#)


Refer to [Select How Data Displays in the Information Grid](#) and [Select How Data Displays in the Maintenance Grid](#) for information about filtering the data output in a data entry grid.

Add a Pipeline Record Layout Theme

A layout theme is a group of fields that determine which fields are available for use in the *Information* and *Maintenance* data grid of *Edit ROW Detail*. Adding a new *Layouts* theme allows you to choose which fields to include in the data grid and then save the layout as a theme for later use.

IMPORTANT: If you are working with the optional *Telluric Compensation* feature, you can add a layout theme that includes the required field *Telluric Compensation Required*. This field must be enabled in the *Information* data grid of *Edit ROW Detail* for each pipeline segment requiring telluric compensation.

Complete the following steps to add a layout theme for the Information or *Maintenance* data entry grid in the *Edit ROW Detail* window:

1. Select one or more pipeline segments you want to work with in the *Select ROWs* window. Click  **Save** to close the window. Refer to *Select ROWs* for more information.
2. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window.

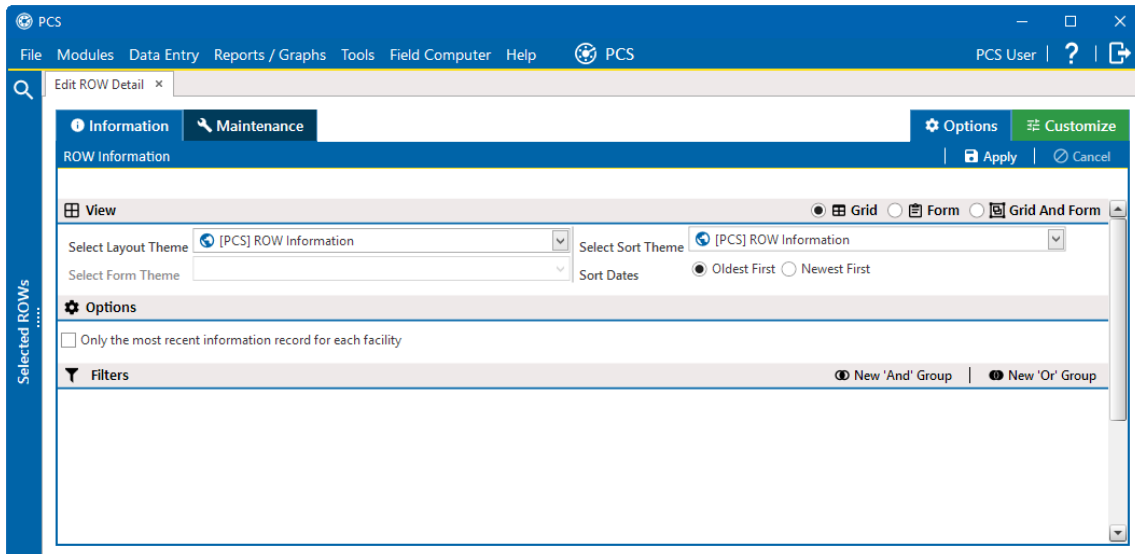



Figure 4-58. Edit ROW Detail Window - Information Tab

3. To add a layout theme for the Information grid, click the **Information** tab if the grid is not visible. Or click the **Maintenance** tab to display the Maintenance grid if you want to create a layout theme for this grid.
4. Click the  **Customize** tab to open the *Customize* window; ensure **Layouts** is selected from the right-hand menu bar.

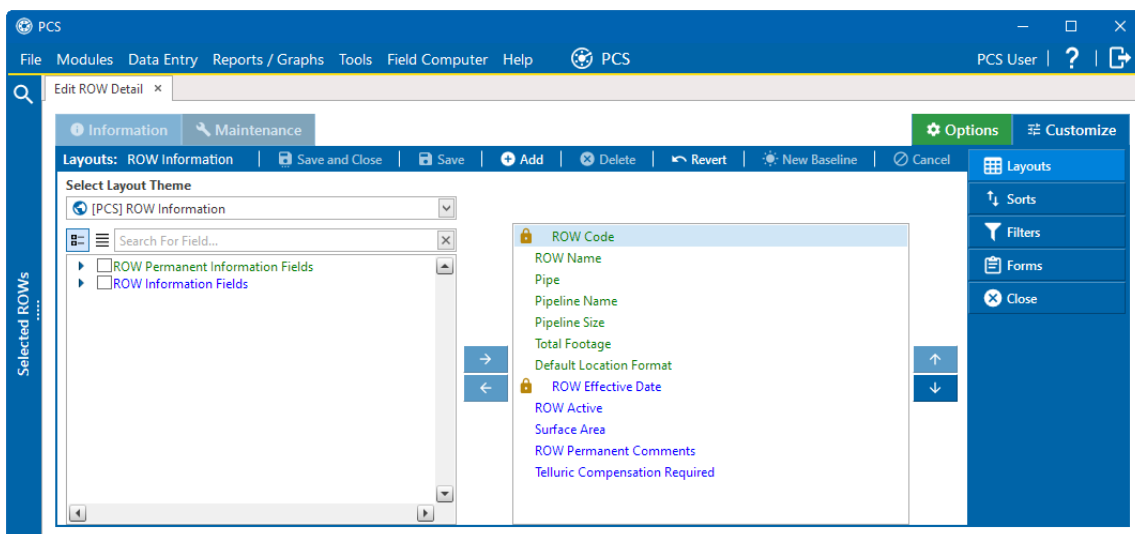

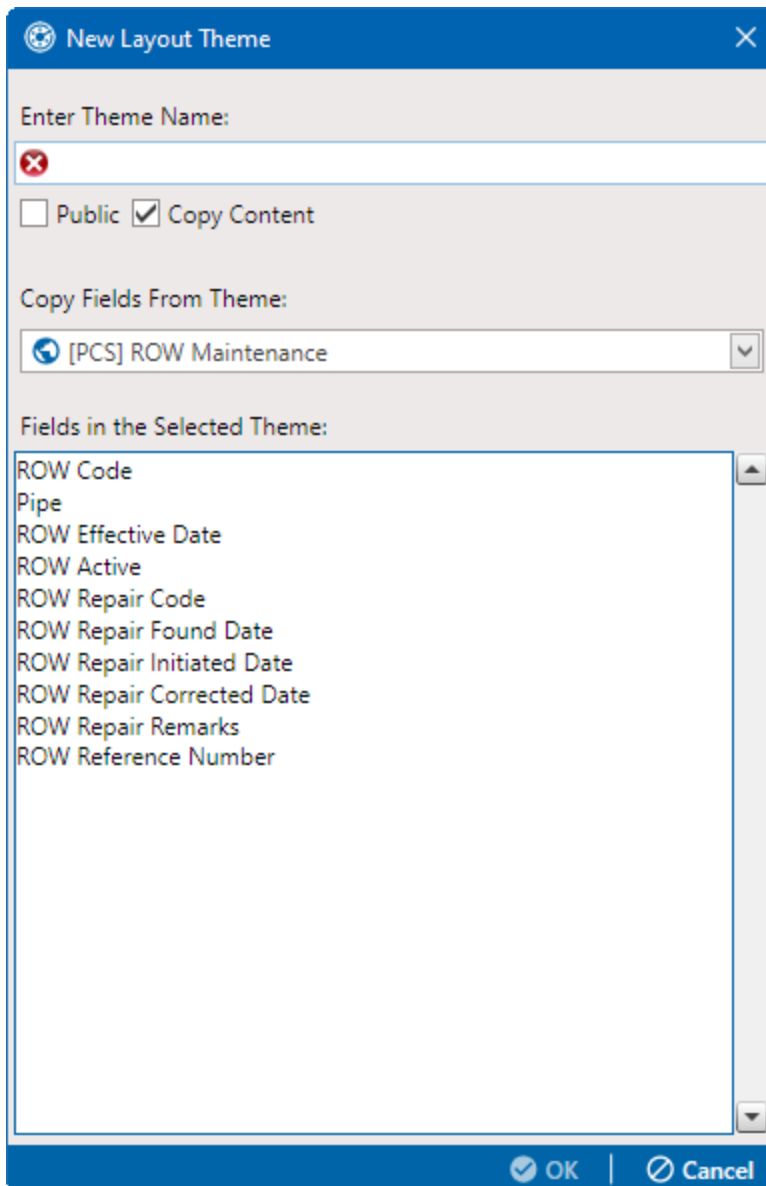


Figure 4-59. Layouts Window

5. Click  **Add** to open the *New Layout Theme* window.



The screenshot shows the "New Layout Theme" dialog box. It features a title bar with a refresh icon and a close button. The main content area is divided into several sections:

- Enter Theme Name:** A text input field with a red "X" icon to its left, indicating it is empty.
- Public** (unchecked) and **Copy Content** (checked) checkboxes.
- Copy Fields From Theme:** A dropdown menu currently displaying "[PCS] ROW Maintenance".
- Fields in the Selected Theme:** A list box containing the following fields:
 - ROW Code
 - Pipe
 - ROW Effective Date
 - ROW Active
 - ROW Repair Code
 - ROW Repair Found Date
 - ROW Repair Initiated Date
 - ROW Repair Corrected Date
 - ROW Repair Remarks
 - ROW Reference Number

At the bottom of the dialog, there are "OK" and "Cancel" buttons.

Figure 4-60. New Layout Theme

6. Type a name for the layout theme in the **Enter Theme Name** field.
7. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a private theme. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
8. If you want to copy the content of the selected theme shown in the **Copy Field From Theme** field, select the **Copy Content** check box. Select a different theme if desired.

9. Click **OK** to save changes and return to the *Layouts* window with the new layout selected.

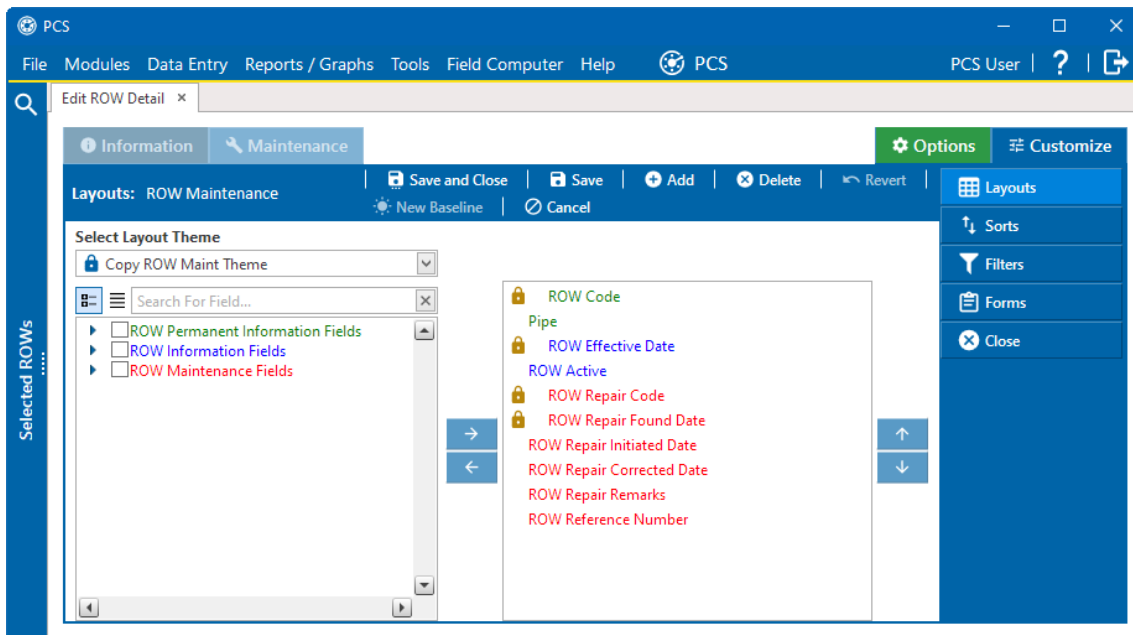





Figure 4-61. Layouts

10. Complete the following steps in the *Layouts* window to add and remove fields in the new layout theme as needed:
- Click the toggle arrow **▶** for a field category in the left pane of the window to view a list of fields available for selection.
 - Double-click a field listed in the left pane to move it to the right pane, or select it and then click the **→** button to move it. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* window.

NOTE: The **→** button becomes active after selecting a field and clicking in the check box.

- If Telluric Compensation is required for the selected pipeline segment(s), add the **Telluric Compensation Required** field in the layout theme.
- To remove a field in the layout theme, double-click a field listed in the right pane to move it to the left pane, or select it and then click the **←** button to move it. Repeat this step as needed.

NOTE: Fields with a **🔒** icon are required and cannot be removed from the theme.

11. To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the  or  buttons.
12. Click  **Save** to save changes.
13. To apply the new layout theme to the data entry grid:
 - a. Click the **Options** tab.

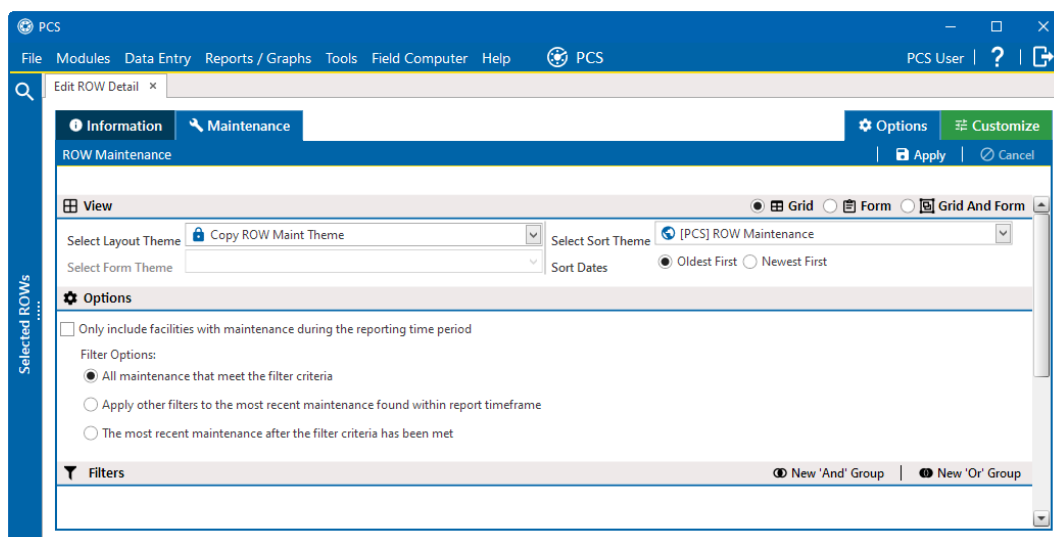




Figure 4-62. Options with New Layout

- b. If the new layout is not shown in the **Select Layout Theme** field, select it from the drop-down list.
 - c. Select a method for sorting survey folders in the data entry grid based on the survey date in the **Start Date** field. Select either Click **Oldest First** or **Newest First** to sort survey folders with the oldest or newest survey **Start Date** first.
 - d. Click  **Apply** to save changes and return to the data entry grid.
14. If Telluric Compensation is required for the selected pipeline segment(s), click the **Telluric Compensation Required** check box for each pipeline segment requiring compensation.

Add a Pipeline Record Sort Theme

A sort theme determines how PCS sorts records in a data entry grid. Adding a sort theme allows you to choose which field(s) to sort records by and if records sort alphanumerically in ascending or descending order.

Complete the following steps to add a sort theme:

1. Select one or more pipeline segments you want to work with in the *Select ROWs* window. Click  **Save** to close the window. Refer to [Select ROWs](#) for more information.
2. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window.

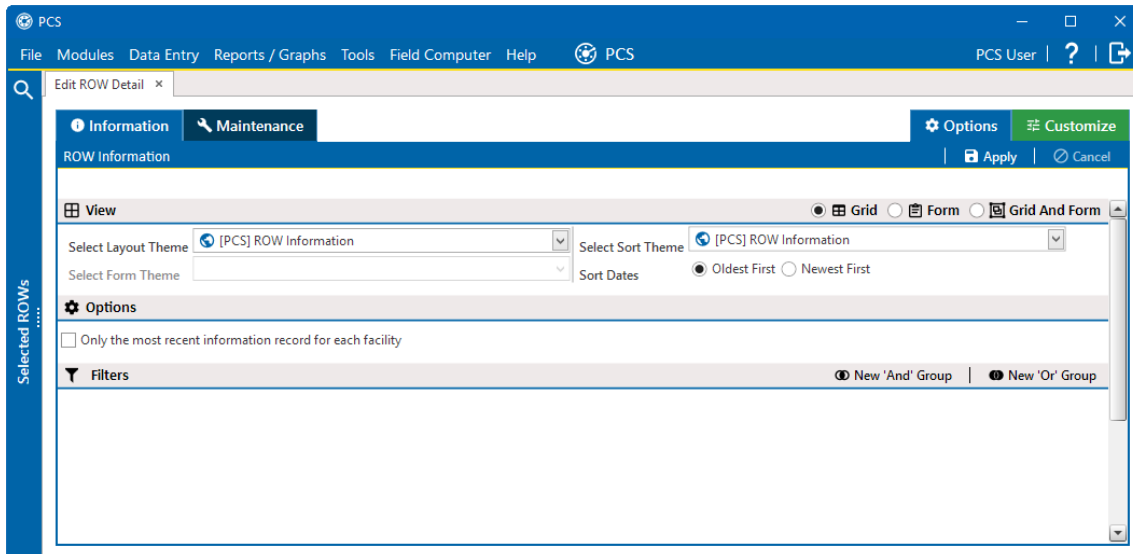




Figure 4-63. Edit ROW Detail Window - Information Tab

3. To add a sort theme for the Information grid, click the **Information** tab if the grid is not visible. Or click the **Maintenance** tab to display the Maintenance grid if you want to create a sort theme for this grid.
4. Click the  **Customize** tab then the  **Sorts** button to open the *Sorts* window.

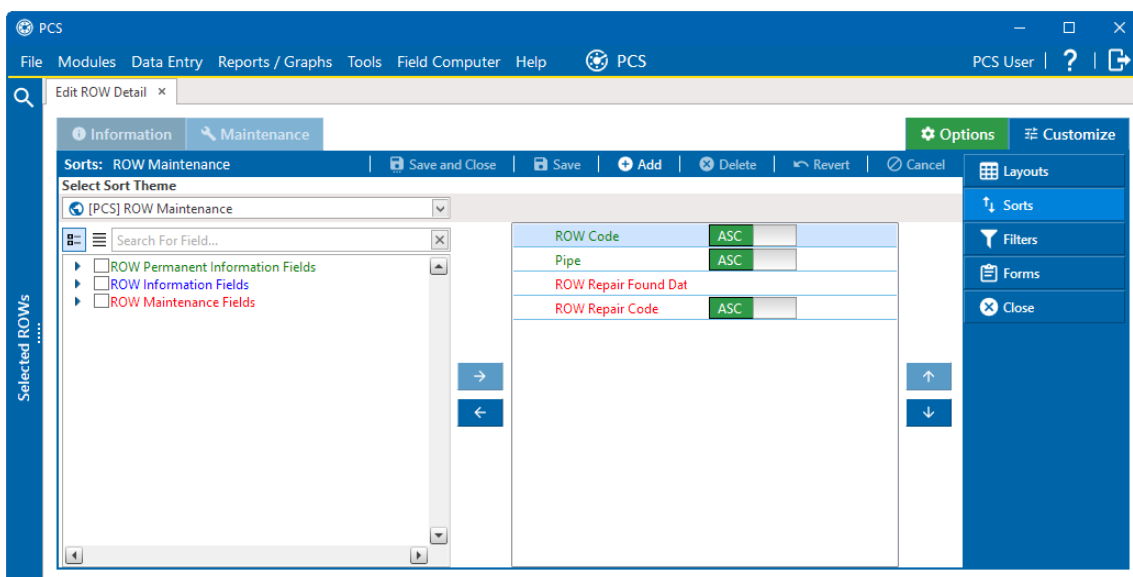
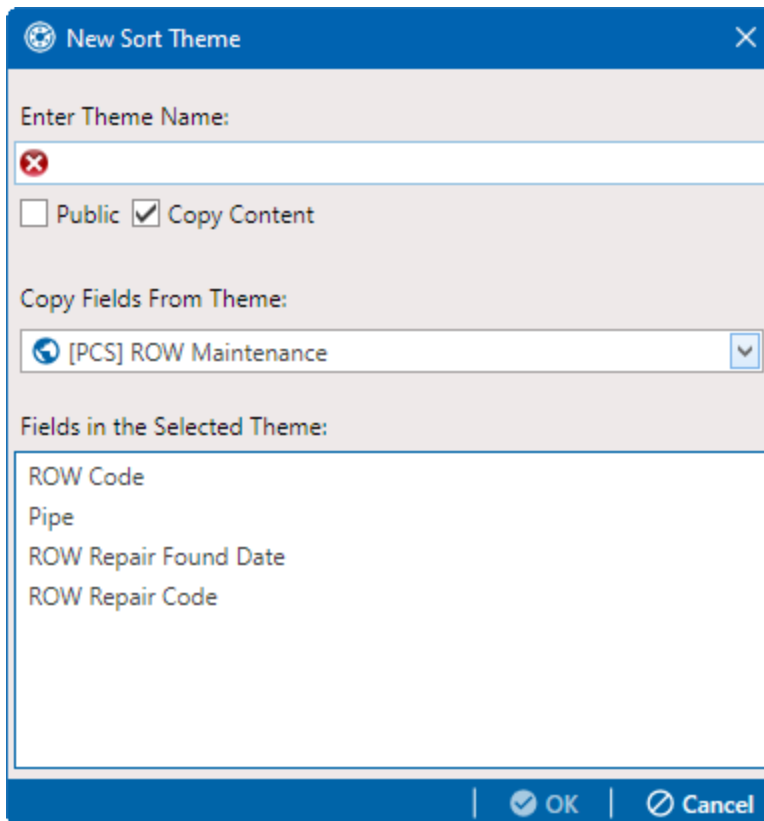


Figure 4-64. Sorts Window


5. Click  **Add** to open the *New Sort Layout* window.



The screenshot shows a dialog box titled "New Sort Theme". It has a blue header bar with a globe icon and a close button. The main area is light gray and contains the following elements:

- Enter Theme Name:** A text input field with a red "X" icon on the left.
- Public** (unchecked) and **Copy Content** (checked) checkboxes.
- Copy Fields From Theme:** A dropdown menu showing "[PCS] ROW Maintenance".
- Fields in the Selected Theme:** A list box containing "ROW Code", "Pipe", "ROW Repair Found Date", and "ROW Repair Code".
- At the bottom, there are **OK** and **Cancel** buttons.

Figure 4-65. New Sort Layout

6. Type a name for the sort theme in the field **Enter Theme Name**.
7. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a private theme. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
8. If you want to copy the content of the selected theme shown in the **Copy Field From Theme** field, select the **Copy Content** check box. Select a different theme if desired.
9. Click  **OK** to save changes and return to the *Sorts* window with the new layout selected.

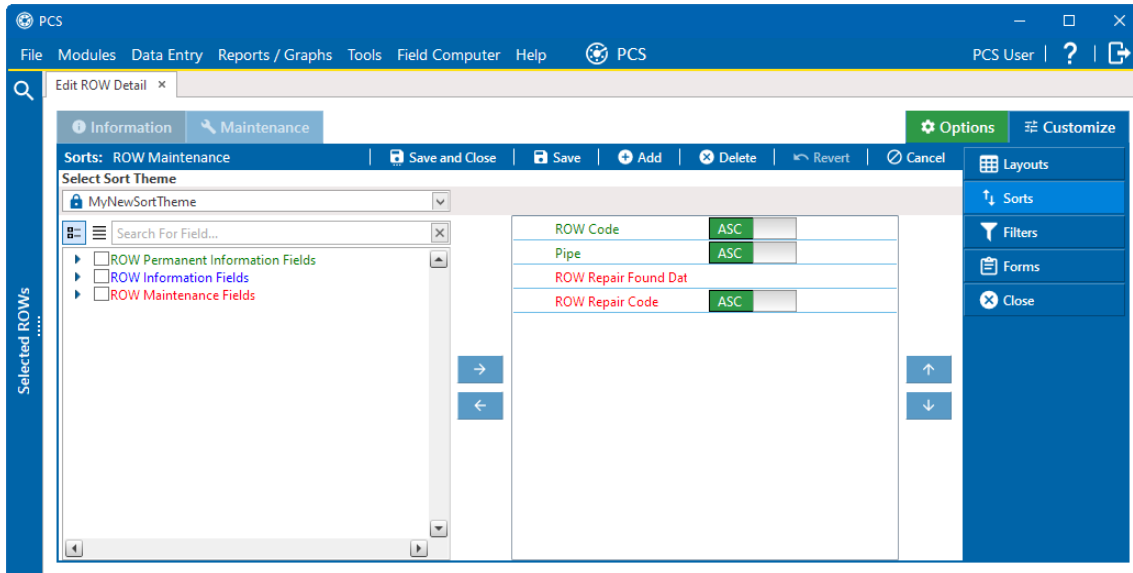


Figure 4-66. Sort Window with New Sort Theme

10. Complete the following steps in the *Sorts* window to add and remove fields in the new sorting theme as needed:




- a. Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection.
- b. Double-click a field listed in the left pane to move it to the right pane, or select it and then click the → button to move it. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* window.

NOTE: The → button becomes active after selecting a field and clicking in the check box.

- c. To remove a field in the layout theme, double-click a field listed in the right pane to move it to the left pane, or select it and then click the ← button to move it. Repeat this step as needed.

NOTE: Fields with a 🗝 icon are required and cannot be removed from the theme.

11. Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select ASC . To sort in descending order, click the toggle button to select DESC .

12. To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the  or  buttons.
13. Click  **Save** to save changes.
14. To apply the new sort theme to the data entry grid:
 - a. Click the **Options** tab.

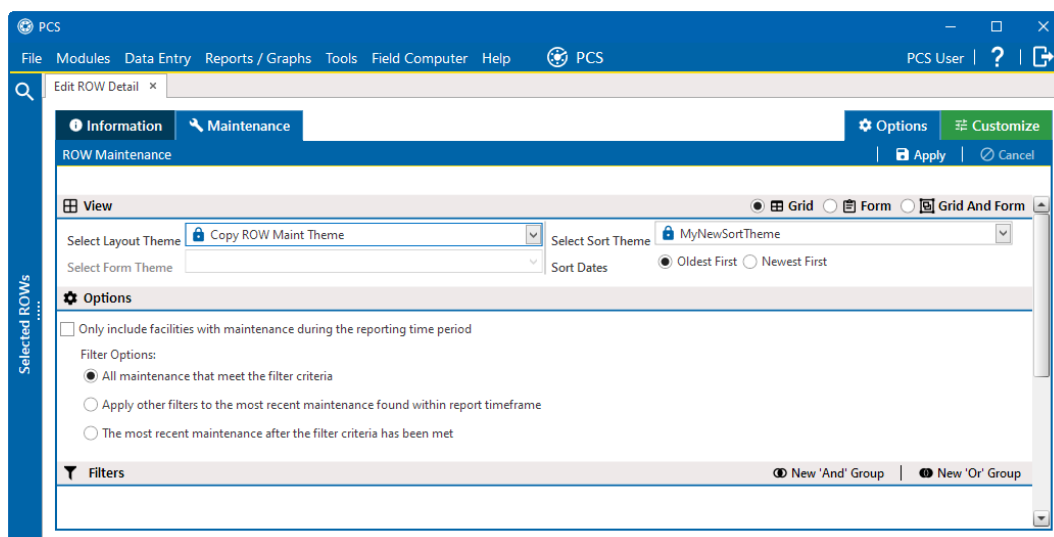



Figure 4-67. Options Window with New Sort Theme

- b. If the new layout is not shown in the **Select Sort Theme** field, select it from the drop-down list.
- c. Click  **Apply** to save and apply changes and then return to the data entry grid.

Add or Edit an AND Filter Group for Pipeline Records

An AND filter group is a named set of one or more filters that affect the data output in the *Edit ROW Detail* grid. Adding an AND filter group produces a subset of records that meet all filter conditions. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to create or edit an AND filter for use on the *Edit ROW Detail* window:

Refer to [Apply or Remove a Filter Group for Pipeline Records](#) for information on how to apply a filter.

1. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window.
2. Select the grid you want to work with by clicking the **Information** tab or the **Maintenance** tab.
3. Click the **Customize** tab and then the **Filters** tab to open the *Filters* window.

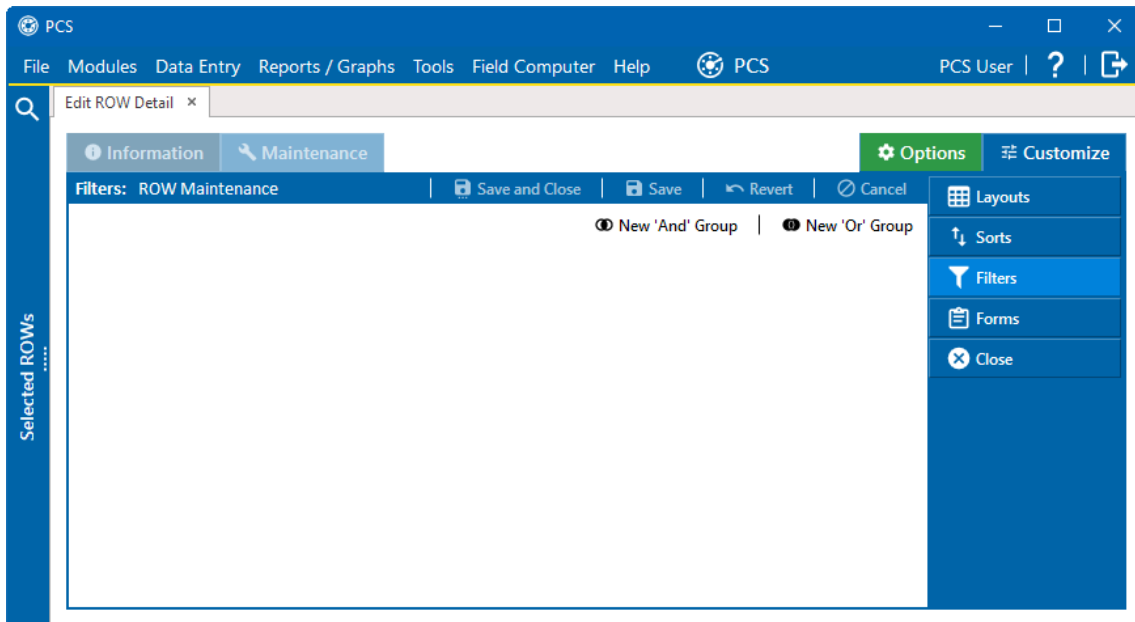


Figure 4-68. Filters Window

4. To add a new 'And' filter group, click **New 'And' Group** to open the filter properties group box.

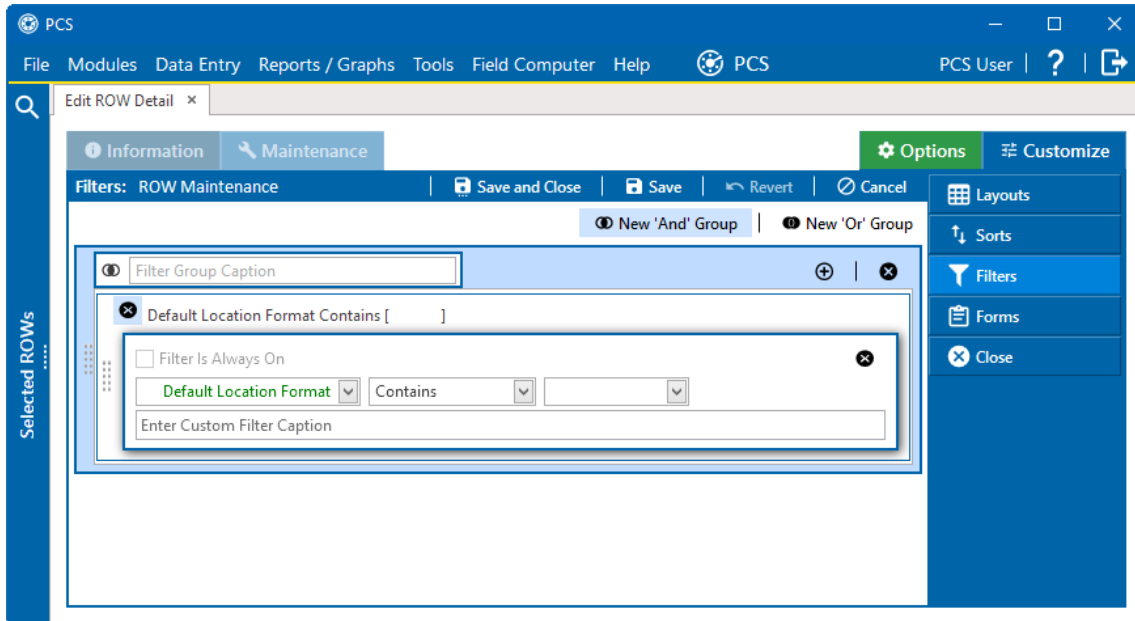


Figure 4-69. New 'And' Group Filter

5. Type a name for the filter group in the **Filter Group Caption** field.
6. If you want the filter to always remain on, select the **Filter is Always On** check box.
It is recommended that you add filters in the order in which you would like them used.
7. Use filter selection fields to set up filter criteria for the new filter. Select a PCS field, operator, and one or more filter conditions. Filter conditions are based on the PCS field selected. The line above the filter selection updates to show how the filter is defined. For example, shown below is a filter based on **Default Location Format**. The field and conditions are also shown in the space above the box.

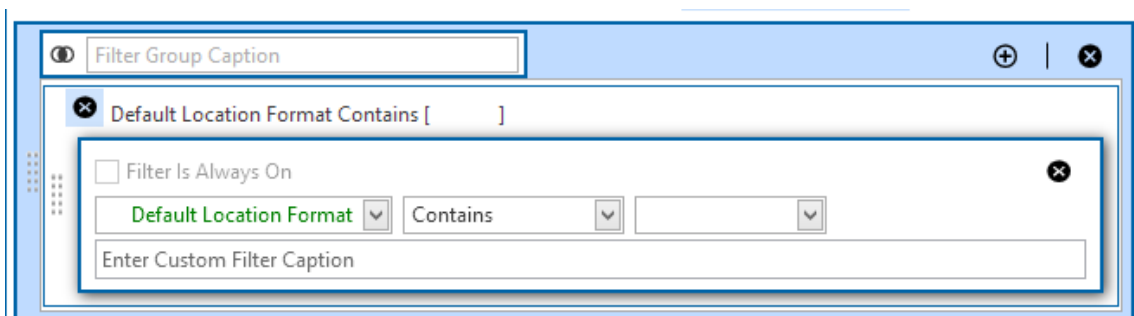


Figure 4-70. 'And' Filter Operators

The line above the box will update as you add or change conditions.

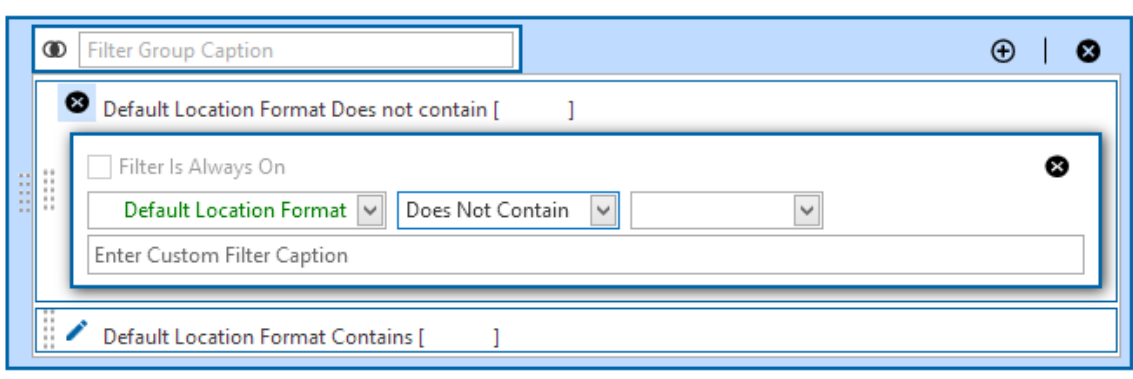


Figure 4-71. 'And' Filter With Conditions

8. If desired, type a name for the filter in the **Enter Custom Filter Caption** field. The line above the filter box will update with this name.

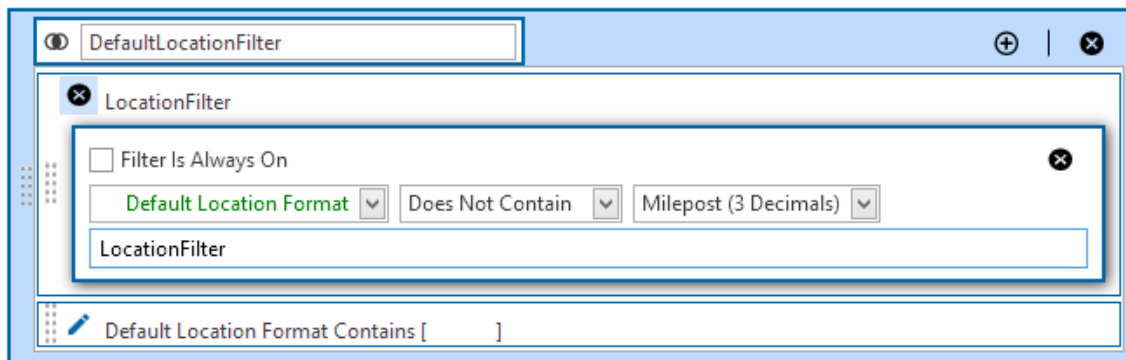


Figure 4-72. Custom Filter Caption Name Update

9. For fields that include a date (such as **ROW Effective Date**), click the down arrow in the start date field to open a calendar and select a date. You can also type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year. Repeat this step for the end date field.

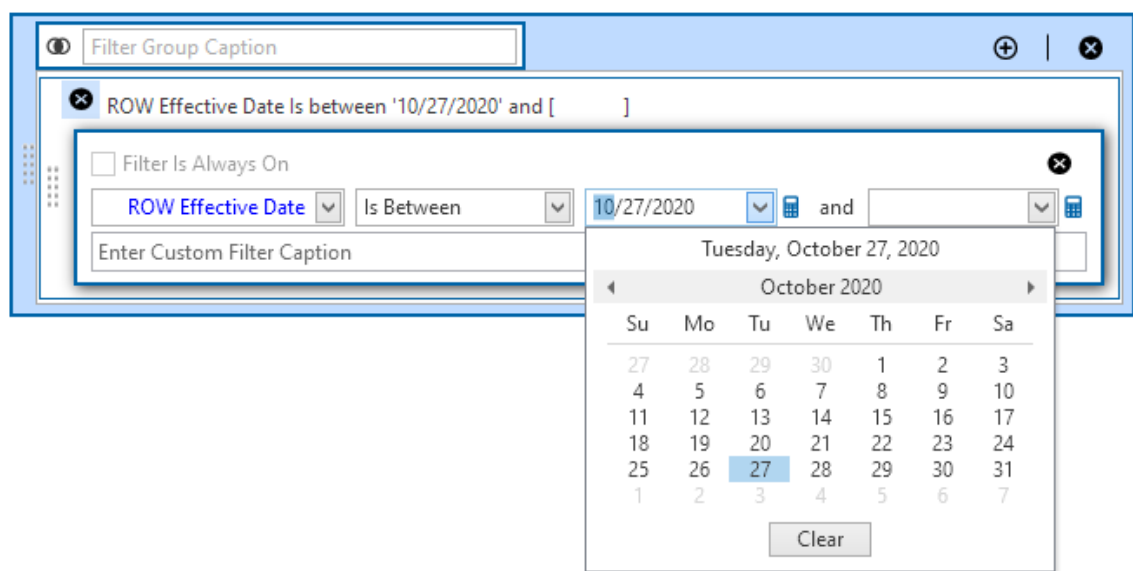





Figure 4-73. Date Filter Start Date

10. To set a date range using dynamic start and end dates, click the  icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the  icon opens and closes dynamic date property fields.
11. To close a filter box, click the  icon in the upper left corner.

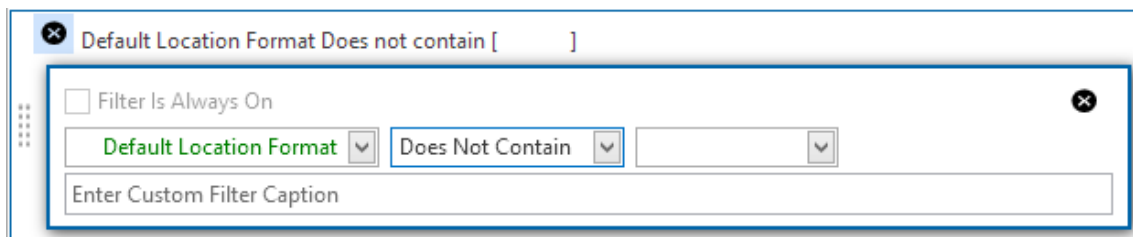




Figure 4-74. Close a Filter Box

12. To delete a filter, click the  icon on the right side of the filter box.
13. If additional filters are needed within the filter group, click  to add a new filter box and repeat these steps.

NOTE: It is recommended that you add filters in the order in which you would like them used.

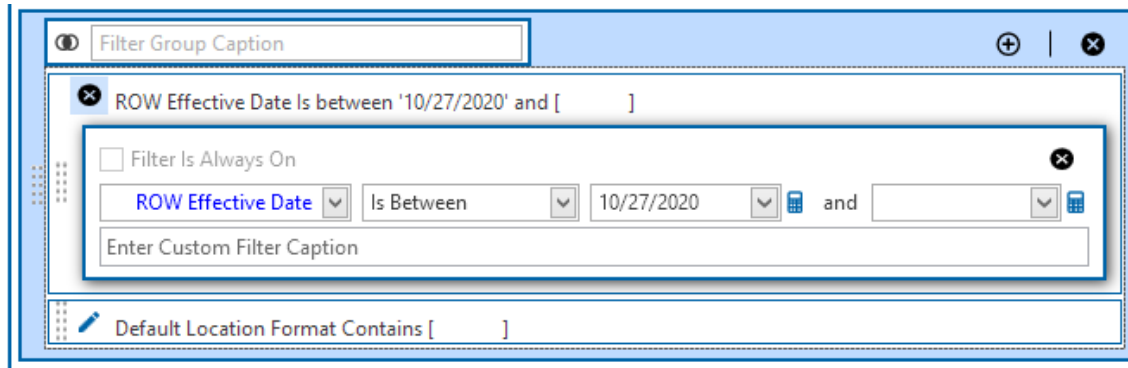





Figure 4-75. Edit Icon with New Filter Group

14. Click the  icon for a filter to open that filter's property settings and change settings as needed.
15. Click  **Save** to save the filter(s). Add or edit filters as desired.
16. When finished, click  **Save and Close** to save filter(s) and close the window.

Refer to [Apply or Remove a Filter Group for Pipeline Records](#) for more information on how to apply a filter group to a data grid.

Add or Edit an OR Filter Group for Pipeline Records

An OR filter group is a named set of one or more filters that affect the data output in the *Edit ROW Detail* grid. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to create or edit an OR filter for use on the *Edit ROW Detail* window:

Refer to [Apply or Remove a Filter Group for Pipeline Records](#) for information on how to apply a filter.

1. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window.
2. Select the grid you want to work with by clicking the **Information** tab or the **Maintenance** tab.
3. Click the **Customize** tab and then the **Filters** tab to open the *Filters* window.

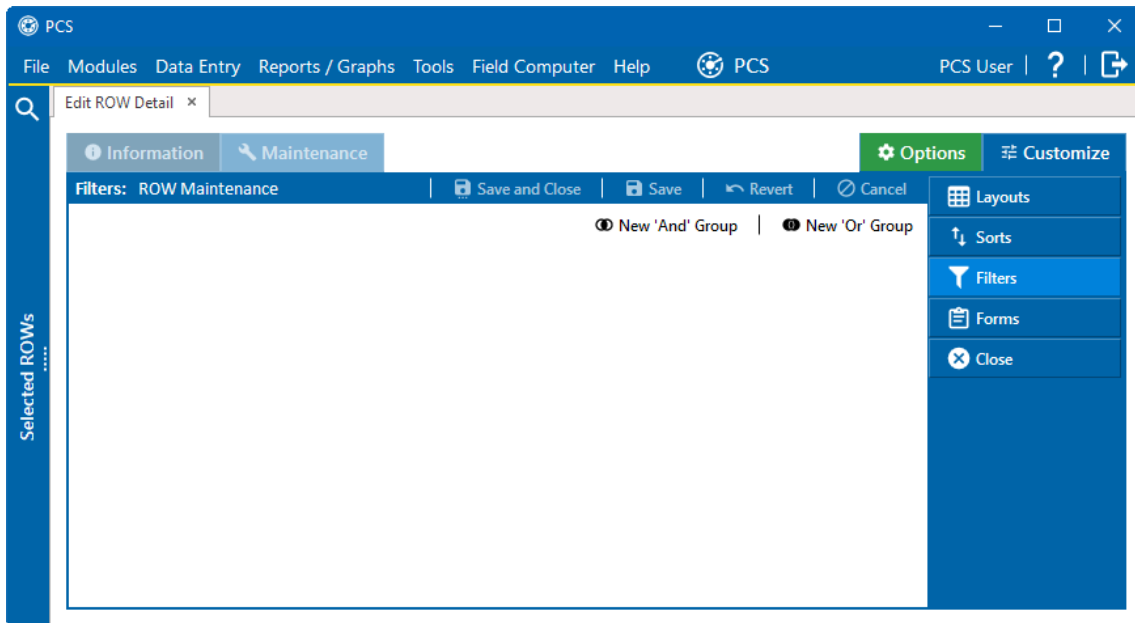


Figure 4-76. Filters Window

- To add a new 'Or' filter group, click **New 'Or' Group** to open the filter properties group box.

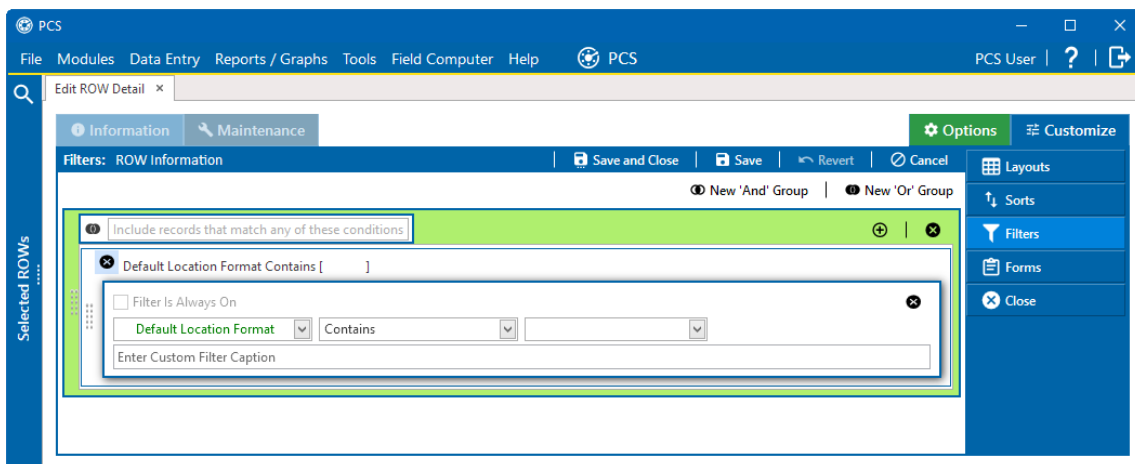


Figure 4-77. Filters

- If you want the filter to always remain on, select the **Filter is Always On** check box.

NOTE: It is recommended that you add filters in the order in which you would like them used.

- Use filter selection fields to set up filter criteria for the new filter. Select a PCS field, operator, and one or more filter conditions. Filter conditions are based on the PCS field selected. The line above the filter selection updates to show how the filter is defined. For example, shown below is

a filter based on **Default Location Format**. The field and conditions are also shown in the space above the box.

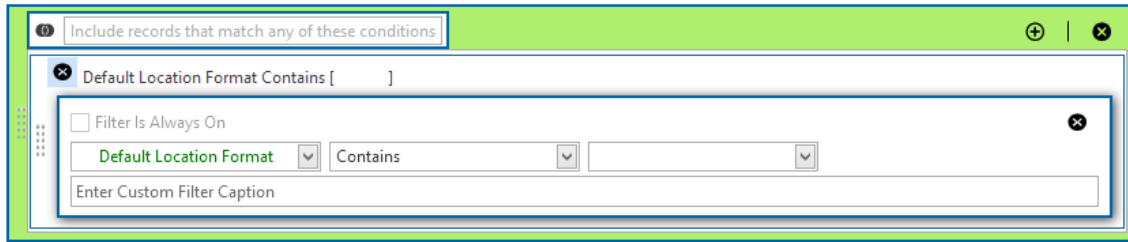


Figure 4-78. 'Or' Filter Operators

The line above the box will update as you add or change conditions, for example changing **Contains** to **Does Not Contain**.

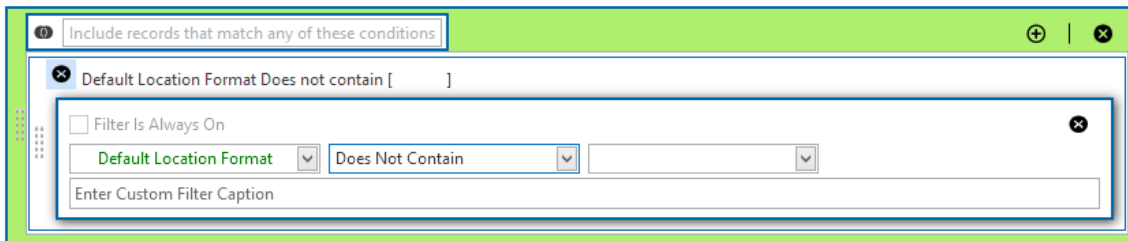


Figure 4-79. 'Or' Filter With Conditions

7. If desired, type a name for the filter in the **Enter Custom Filter Caption** field. The line above the filter box will update with this name.

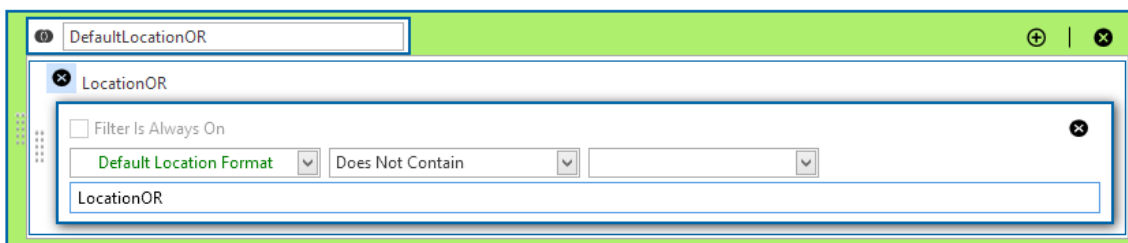


Figure 4-80. Custom Filter Caption Name Update

8. A field that includes an  icon in the operator line indicates that a dynamic value can be set.

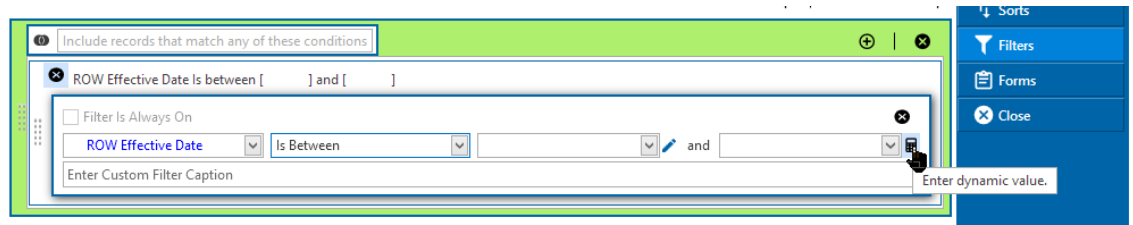




Figure 4-81. Field Operators with Dynamic Values Option

Click the  icon to open dynamic property fields and enter values as needed. Click the  to remove entered values and clear the fields.

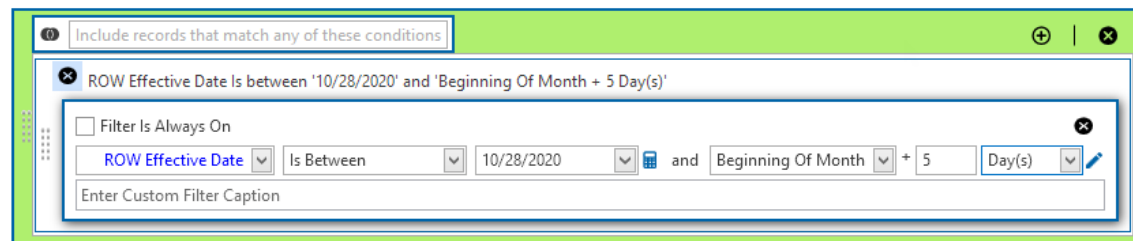





Figure 4-82. Dynamic Field Operators

9. Click  **Save** to save the filter.
10. To re-open the filter box to view or edit the filter, click the  icon.
11. To close a filter box, click the  icon in the upper left corner.

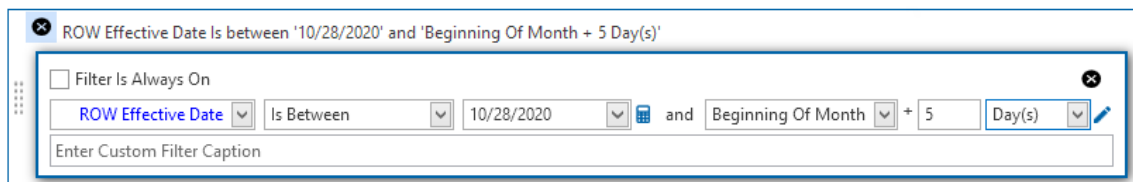




Figure 4-83. Close a Filter Box

12. To delete a filter, click the  icon on the right side of the filter box.
13. If additional filters are needed within the filter group, click  to add a new filter box and repeat these steps.

NOTE: It is recommended that you add filters in the order in which you would like them used.

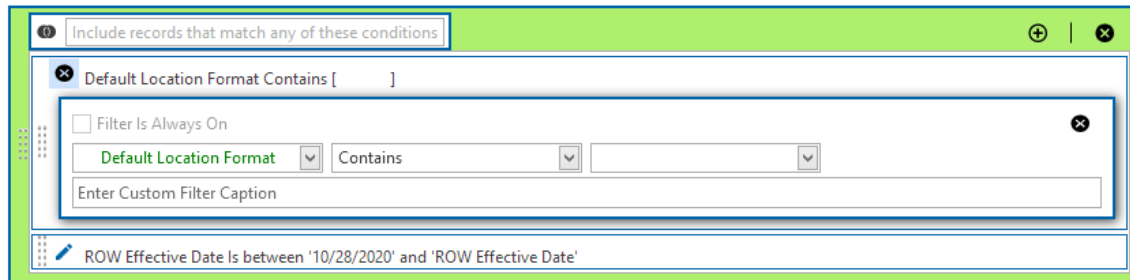




Figure 4-84. Adding a New Filter Box

14. Click  **Save** to save the filter(s). Add or edit filters as desired.
15. When finished, click  **Save and Close** to save filter(s) and close the window.

Refer to [Apply or Remove a Filter Group for Pipeline Records](#) for more information on how to apply a filter group to a data grid.

Apply or Remove a Filter Group for Pipeline Records

After creating an AND or an OR filter group, the filter can be applied to or removed from the data entry grid of the *Edit ROW Detail* window using the *Options* window.

Refer to [Add or Edit an AND Filter Group for Pipeline Records](#) and [Add or Edit an OR Filter Group for Pipeline Records](#) for information on how to create filter groups.

Complete the following steps to apply or remove one or more filters to the data entry grid of the *Edit ROW Detail* window:

1. Click **Data Entry > Edit ROW Detail** to open the *Edit ROW Detail* window.
2. Select the grid you want to work with by clicking either the **Information** tab or the **Maintenance** tab.
3. Ensure that the **Options** tab is selected. The filters will display in the *Filters* pane.

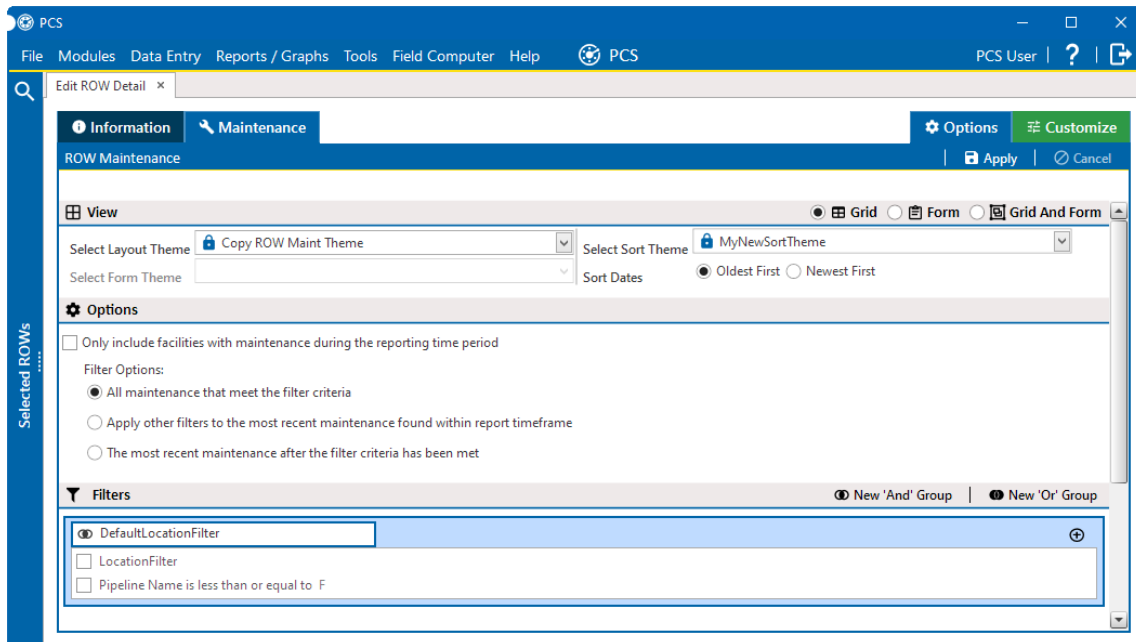




Figure 4-85. Options Window - New Filters in Filters Pane

4. Click the check box for each filter you want to apply.
5. Click  **Apply** to save changes and return to the data entry grid.
6. To remove a filter that has been applied, open the *Options* window and de-select any filter you no longer want to apply. Click  **Apply** to save changes and return to the data entry grid.

Data Entry Grids and Forms

Record data can be viewed using data entry grids and forms in any of the modules.

The grids and form in any of the modules can be accessed through the **Data Entry** menu in the header bar.

This chapter includes the following topics:

- *Types of Data Entry Grids*
- *Field Caption Colors on page 240*
- *View Data in a Grid or Form on page 242*
- *Work with Records on page 258*
- *Build a Survey in the Inspection Grid Based on Schedule on page 344*
- *Work with Continuous Survey Data on page 345*
- *Themes and Filter Groups on page 372*

Types of Data Entry Grids

PCS provides the following data entry grids and mini-grids for organizing and managing facility data. These grids are similar to a spreadsheet in appearance with facility data presented in columns, rows, and individual fields. Several options are available for customizing the layout and sorting order of a grid, as well as applying data filters that allow you to work with a subset of facility records.

- **Information grid** – add and edit permanent facility information, such as the milepost number, location description, operating status, protection criteria, and permanent comments. The *Information* grid is also used for activating fields in the *Inspection* grid.
- **Inspection grid** – add and edit survey inspection data for facilities on a pipeline segment, such as facility inspection readings, GPS coordinates, survey folder assignment, survey remarks, technician name, and so on.
- **Maintenance grid** – add and edit maintenance and repair records for facilities on a pipeline segment.

- **CPDM Test Point Detail Information and Inspection mini-grids** – manage multiple potential measurements for survey points linked to a test point record. These mini-grids function in a similar manner as the rectifier mini-grids when linking rectifier anodes and negatives. The potential measurement selected for compliance reporting in the *Detail Inspection* mini-grid copies to the linked test point record in the main *Inspection* grid.

The *Test Point Detail* mini-grids become available for use after enabling the system option *Show Detail Inspection Entry Grid*. When using the optional *Telluric Compensation* feature, the mini-grids display by default and cannot be disabled.

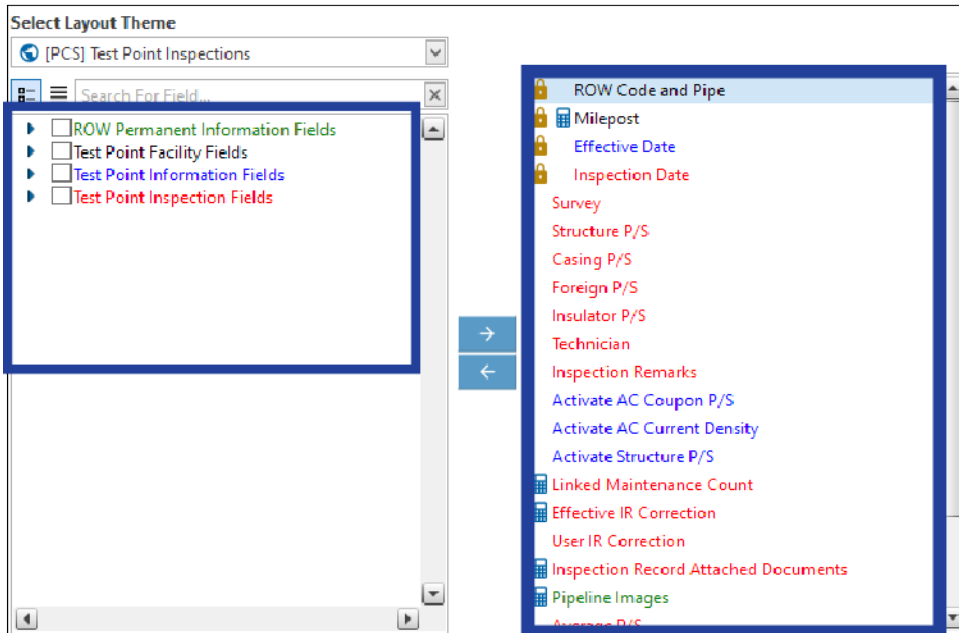
- **Maintenance Links and Inspection Links mini-grids** – use the *Maintenance Links* mini-grid in the *Inspection* grid to view the maintenance records that are related to the selected inspection record. Use the *Inspection Links* mini-grid in the *Maintenance* grid to view the inspection records that are related to the selected maintenance record.
- **Facility Level Override mini-grid** – the *Information* grid for all modules includes the *Facility Level Override* mini-grid. Scheduling properties in *Edit Schedule Settings* can be overridden at the facility level using this mini-grid. Refer to [Schedules on page 510](#) for more information.
- **Rectifier Information mini-grids** – the CPDM Rectifier Information grid includes the Rectifier Anode Information and Rectifier Negative Information mini-grids. Use these mini-grids to add and delete records for impressed anodes and negatives linked to a rectifier information record.
- **Rectifier Inspection mini-grids** – the CPDM Rectifier Inspection grid includes the Rectifier Anode Inspection and Rectifier Negative Inspection mini-grids. Use these mini-grids to enter inspection readings for rectifier anode(s) and negatives linked to one or more pipeline segments.

Field Caption Colors

PCS uses a color code system in field captions throughout the system that allows you to easily identify one data type from another. Below is an example of how column headers and field names are color-coded in the data grid and layout theme, respectively.

ROW Code and Pipe	Milepost	Effective Date	Inspection Date	Survey	Structure P/S
COUP, INH, TP, ATMO	0.0011		5/1/2004 12:00:00...	2004 Annual Survey	-0.953
COUP, INH, TP, ATMO	0.0011		5/19/2005 12:00:0...	2005 Annual Survey	-0.949
COUP, INH, TP, ATMO	0.0011		5/27/2006 12:00:0...	2006 Annual Survey	-0.944
COUP, INH, TP, ATMO	0.0011		6/20/2007 12:00:0...	2007 Annual Survey	-0.937

Grid column headings with color-coded field captions



Grid layout theme with color-coded field captions

Figure 5-1. Colors in Field Captions

Field captions in column headings of a data entry grid are color-coded to help distinguish different data types, such as information, inspection, and maintenance fields. Likewise, field captions in selection lists are also color-coded when creating themes in the **Customize** tab. The following table identifies the different data types with corresponding colors.

Table 5-7. Data Type Color Definitions

Data Type	Color
Facility Field	Black
Facility Information Field	Blue
Inspection Field	Red
Maintenance Field	Red
ROW and Pipeline Field	Green
All Others	Black

View Data in a Grid or Form

Information, inspection, and maintenance records for all facility types in a module can be accessed through the **Data Entry** main menu and then selecting **Edit <Module Name> Data**. In this window, you can define which records you wish to see and how you want to display the data. You can view and edit data in a table-like grid or in a form view reminiscent of paper forms. An example of the *Edit CPDM Data* window is shown below.

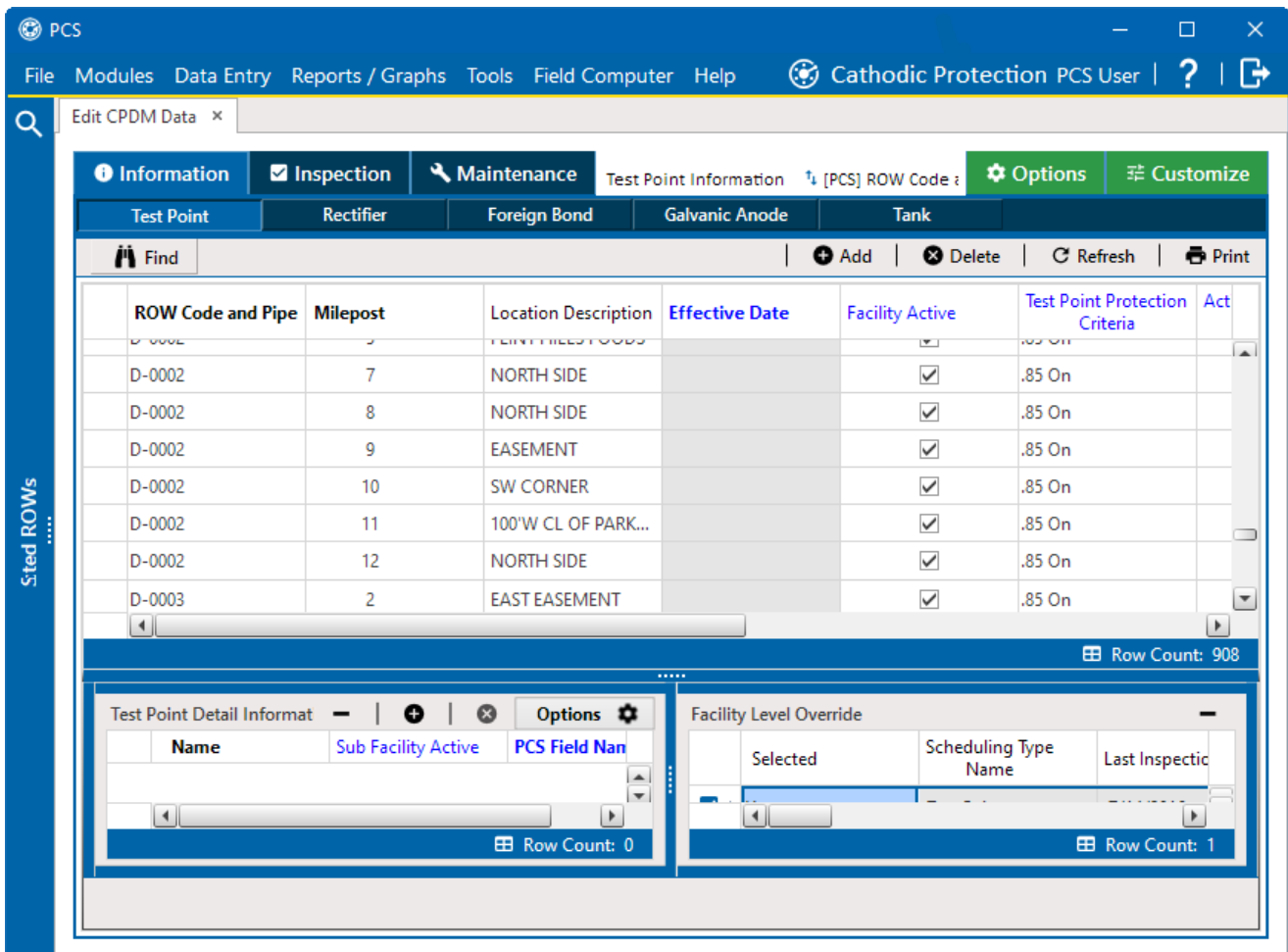


Figure 5-2. Information Grid

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to view a module's data:

1. Select **Edit <Module> Data** in the **Data Entry** menu.
2. Click the **Information**, **Inspection**, or **Maintenance** tab to view information, inspection, or maintenance records.
3. If available, click the facility type's tab. Facility type tabs will not be available for modules with only one facility type.
4. Depending on the module you are in and the settings configured in **Options**, the grid's options may display immediately upon selecting the grid. For instructions detailing how to configure the grid's options, refer to [Set Options for Viewing Data on page 243](#).


The *Edit <Module> Data* window shows only the records defined in the Options tab. The data is loaded with the layout selected for the grid and/or the form selected.

Refer to the following topics for additional information on viewing data in a grid or form:

- [Set Options for Viewing Data](#)
- [Select Records](#)
- [Arrange a Grid and Form](#)
- [Rearrange and Resize Grid Columns](#)
- [Lock and Unlock Grid Columns](#)
- [Use Find to Search a Data Entry Grid](#)
- [Print, Export, or Email Grid Content](#)

[Set Options for Viewing Data](#)

A data grid's Options define which records you see and how you display the data. You can view and edit data in a table-like grid or in a form view. These instructions start with the assumption that you have a data grid selected. For information about accessing a grid of data, refer to [View Data in a Grid or Form on page 242](#).

Depending on the module you are in and the settings configured in Options, the options may display immediately upon selecting the grid. To access the grid's options at any time, click  **Options**.

Complete the following steps to change the data grid's options:

1. Decide if you want to include data to display based on ROWs selected, defined routes, or a schedule definition. Select the radio button for the desired **Based On** mode and fill out the rest of the fields in the *Based On* pane as needed:

- **Selected ROWs** – uses the ROWs selected in the Selected ROWs pane. Refer to [Select ROWs](#) for more information.
- **Route** – select a route from the list. To select multiple routes, press **Ctrl** on the keyboard while selecting routes.
- **Schedule** – select a schedule definition from the drop down.

Figure 5-3. Based on Schedule Option

Define the schedule date range by doing one of the following:

- Using a Calendar: to set up a schedule date range using a calendar:
 - Set a schedule start date. Click the down arrow in the **Start Date** field and select a date in the calendar.
 - Set a schedule end date. Click the down arrow in the **End Date** field and select a date in the calendar.
- Using Dynamic Dates: to set a schedule date range using dynamic start and end dates, follow these steps:
 - Click the **Start Date** calculator to open dynamic start date fields.
 - Click the down arrow in the **Start Date** field and select one of the following options: Today, End Of Month, Beginning Of Year, or End Of Year.
 - In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: Day(s), Month(s), or Year(s). Click the pencil button to close dynamic start date fields.
 - Click the **End Date** calculator to open dynamic end date fields.
 - Click the down arrow in the **End Date** field and select one of the following options: Today, End Of Month, Beginning Of Year, or End Of Year.
 - In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: Day(s), Month(s), or Year(s). Click the pencil button to close dynamic end date fields.

For ISM Modules, select a survey folder from the **Selected Continuous Survey** drop-down.

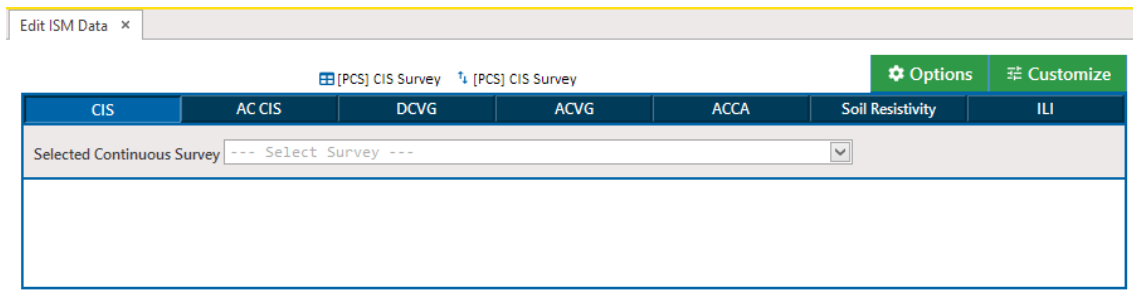


Figure 5-4. ISM Data Selected Continuous Survey Option

2. In the *View* pane, select the radio button to determine the format to use when displaying the data. The **Grid** option puts all included records' data in a standard table grid layout. The **Form** option displays data related to a single selected record in a manner similar to paper forms. The **Grid and Form** option puts all included records' data in a standard table grid layout, with a form showing the selected record's data next to the grid.

Depending on the format selected, the following options may be available:

- **Select Layout Theme** – the layout theme defines the fields to include as a column in the grid view. The layout theme is only available to select if Grid or Grid and Form were selected. Layout themes are defined in the Customize tab. Refer to [Add a Data Grid Layout Theme on page 372](#) for more information.
 - **Select Form Theme** – the form theme defines which field and form elements are displayed on the screen and how they appear. The form theme is only available to select if Form or Grid and Form were selected. Form themes are defined in the Customize tab. Refer to [Work with Form Themes on page 384](#) for more information.
 - **Select Sort Theme** – the sort theme defines the order the records are displayed in the grid or form and is always available. Sort themes are defined in the Customize tab. Refer to [Add a Sort Theme on page 377](#) for more information.
 - **Sort Dates** – the sort dates radio buttons determine whether dates in the sort theme are sorted oldest to newest or newest to oldest.
3. In the *Options* pane, select the appropriate check boxes as available. The options available vary depending on which module you are in and if you chose the Information, Inspection, or Maintenance tab. The options may include:
 - **Only the most recent information record for each facility** – select this check box to limit the data displayed in the grid or form to only the most recent information record based on the Effective Date for each facility. All previous information records will not be displayed.

- **Only show facilities with inspections** – select this check box to limit the data returned so facilities that do not have inspections will not be included.
 - **Filter Options** – these options determine whether to filter results to show only the most recent inspections and if so, whether to apply this most recent inspection filter before or after applying the filters defined in the *Filters* pane. Select the radio button for one of the following options:
 - **All Inspections that meet the filter criteria** – this option will not filter the data returned by the selections made in the Based On pane. The only filters applied to the data will be those made in the *Filters* pane.
 - **Apply other filters to the most recent inspection found within report timeframe** – this option will filter the data to include only the most recent inspections before applying additional filters. In other words, the data that shows in the grid or forms will be determined by the following rules:
 - First, PCS will gather all data that matches the selections made in the *Based On* pane.
 - Next, PCS will include only the most recent inspection for each facility in the Based On set of data.
 - Finally, PCS will filter the most recent inspections data set based on the filters defined in the *Filters* pane.
 - **The most recent inspection after the filter criteria has been met** – this option will filter the data to include only the most recent inspections after applying additional filters. In other words, the data that shows in the grid or forms will be determined by the following rules:
 - First, PCS will gather all data that matches the selections made in the *Based On* pane.
 - Next, PCS will filter the Based On set of data with the filters defined in the *Filters* pane.
 - Finally, PCS will include only the most recent inspection for each facility in the Filters set of data.
4. In *Filters* pane, define the filters in the as needed. The *Filters* pane consists of a set of pre-defined filters as well as on demand filters grouped together with AND or OR joins. A filter group is a named set of one or more filters that affect the data returned. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes all filters in AND filter groups

together then processes all filters in OR filter groups together.

Refer to [Add or Edit an AND Filter Group for Pipeline Records](#), beginning with step 3 for more information on adding an AND filter. The steps to add the filter group are the same, except for the field names.

Refer to [Add or Edit an OR Filter Group for Pipeline Records](#), beginning with step 3, for more information on adding an OR filter. The steps to add the filter group are the same, except for the field names.

Pre-defined filters – named filter groups that have already been defined are listed at the top of the *Filters* pane. To use one of the pre-defined filters, select the check box next to the filter and fill in the filter's fields as appropriate.

5. Click **Apply**. The Options tab closes and Edit <Module> Data grid updates to display only the data defined in the Options tab. The data is loaded with the layout selected for the grid and/or the form selected.

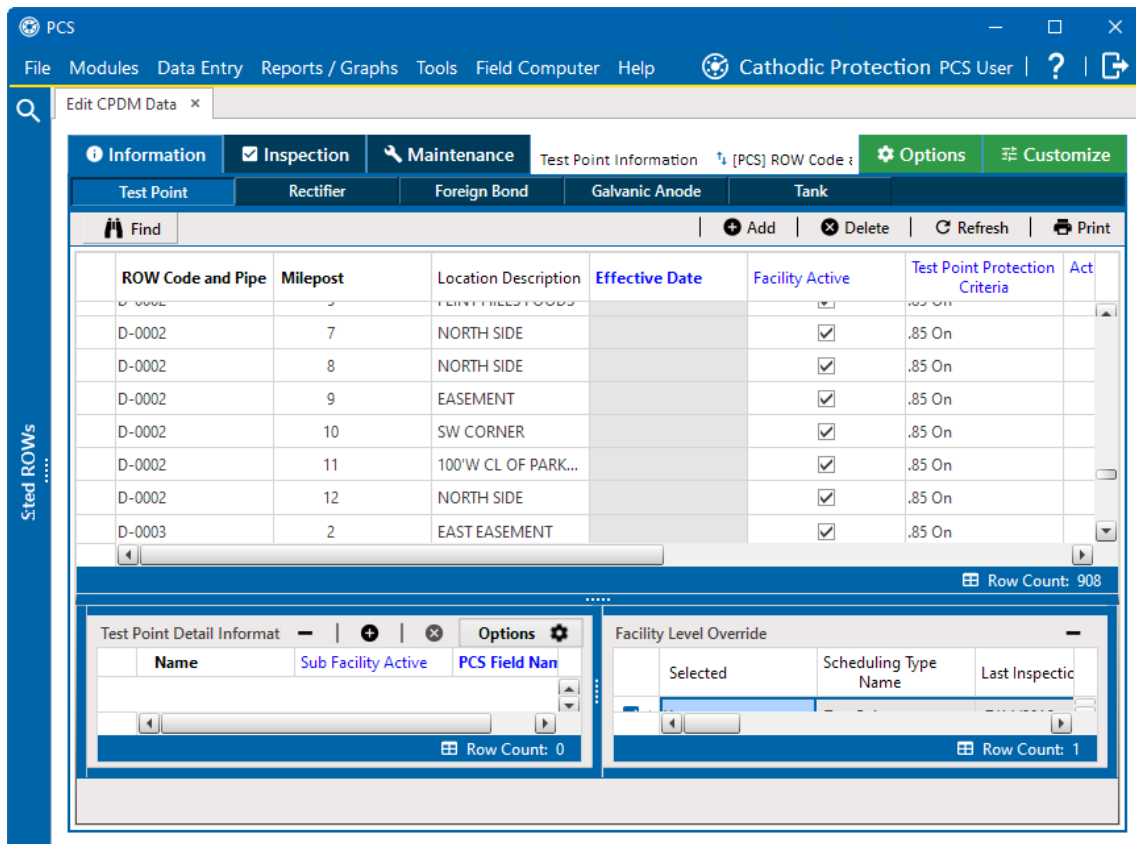


Figure 5-5. Information Grid

Select Records

Depending on the selections made in the *Options* window's *View* pane, the grid's records may show in a table-like grid format, form format, or with both the grid and the form showing. The following is an example of the grid showing both the grid and form.

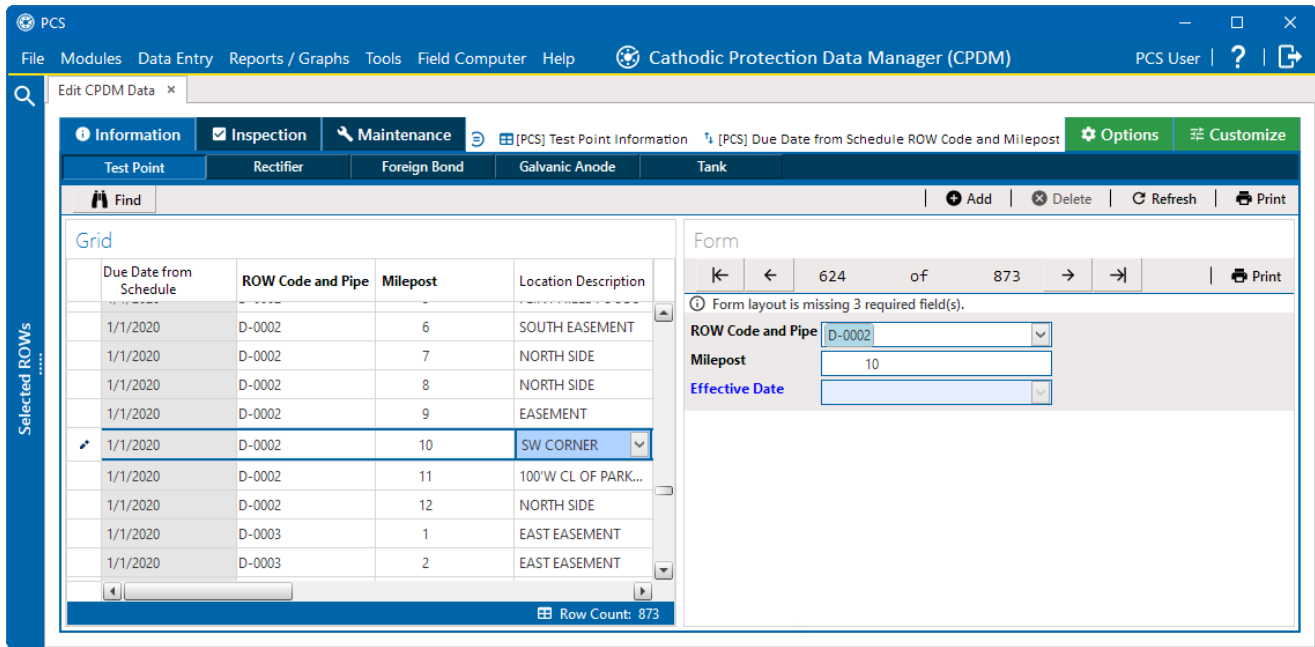


Figure 5-6. Grid and Form

Specific records can be selected with any of the following methods, depending on the view selected:

- **Selecting records in a grid** – scroll up or down in the grid to locate and select the record.
- **Selecting records in a form** – click the navigation buttons at the top of the form to view the first, ← previous, → next, and → last facility record.

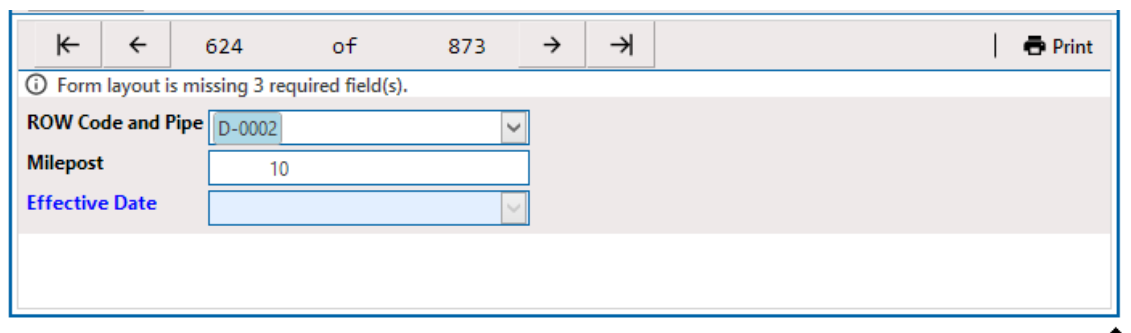



Figure 5-7. Navigating Records in Form View

- **Selecting records in a grid and form** – select a record in the grid to view or edit in either the grid or form, or click the navigation buttons at the top of the form to locate your record and view it in the form or grid. When a record is edited in either the grid or form, the record edits are displayed in both the grid and the form.

Complete the following steps to find records based on specific criteria:

1. Click  **Find** to open the search properties pane.

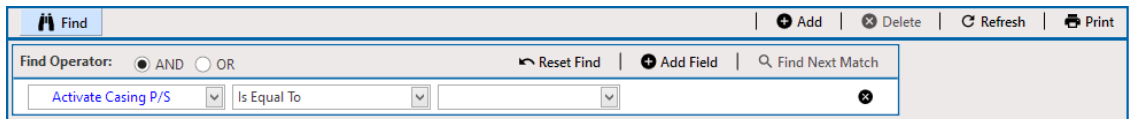






Figure 5-8. Find

2. Select a **Find Operator** radio button. If you want search results to meet all search criteria, select the **AND** operator. If you want search results to meet any search criteria, select the **OR** operator.
3. Set up search criteria. Select a PCS field, operator, and value using the selection fields. To add another row of selection fields, click  **Add Field** and then select a PCS field, operator and a value using the added row of selection fields.
4. Click  **Find Next Match** to search the grid for the first record that matches the criteria entered. Click the button again to find the next match.
5. Click  **Reset Find** to clear and reset search selection fields and click  **Find** to close the search properties pane.

Arrange a Grid and Form

When the option Grid And Form is selected in the *Options* window, you can arrange the grid and form using any of the following methods:

- Right-clicking the title bar in the *Form* or *Grid* pane opens a shortcut menu allowing you to select the **Dock** or **Float** command. Select **Dock** to anchor a pane within the PCS application. Select **Float** to separate the pane into its own window.

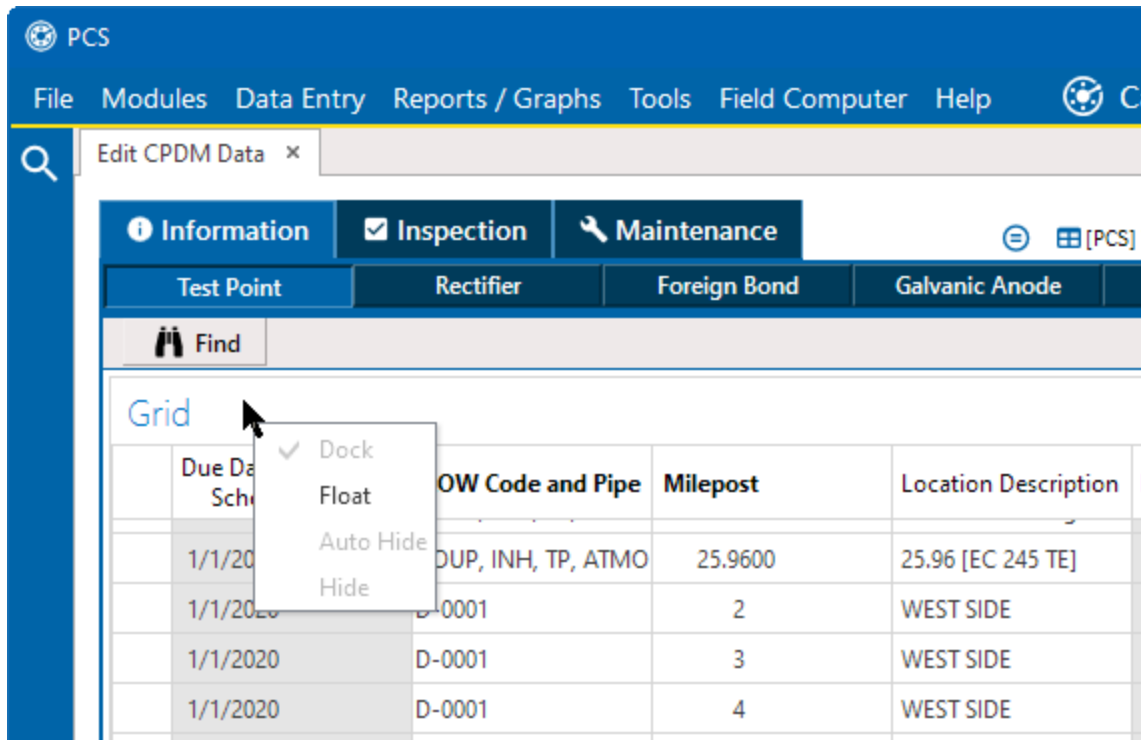


Figure 5-9. Title Bar Options Menu

- Double-click the title bar in the *Form* or *Grid* pane to float these panes when they are docked. To dock the pane again, click and drag the pane to one of the guide boxes that display (see below).
- Select the title bar of a form or grid and then drag the pane to display a guide diamond. Drag the form or grid pane to a one of the guide boxes to select where you want the pane to dock in the window.

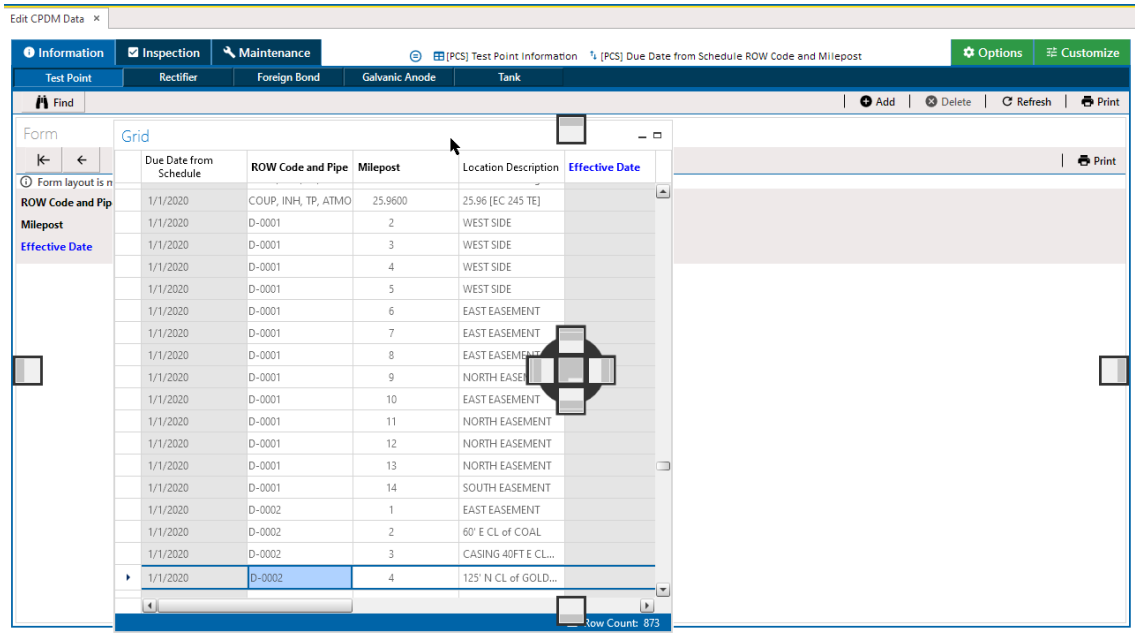


Figure 5-10. Arranging a Grid and Form

The area where you select to move the pane highlights in blue. Release the mouse button to pin it to that area.

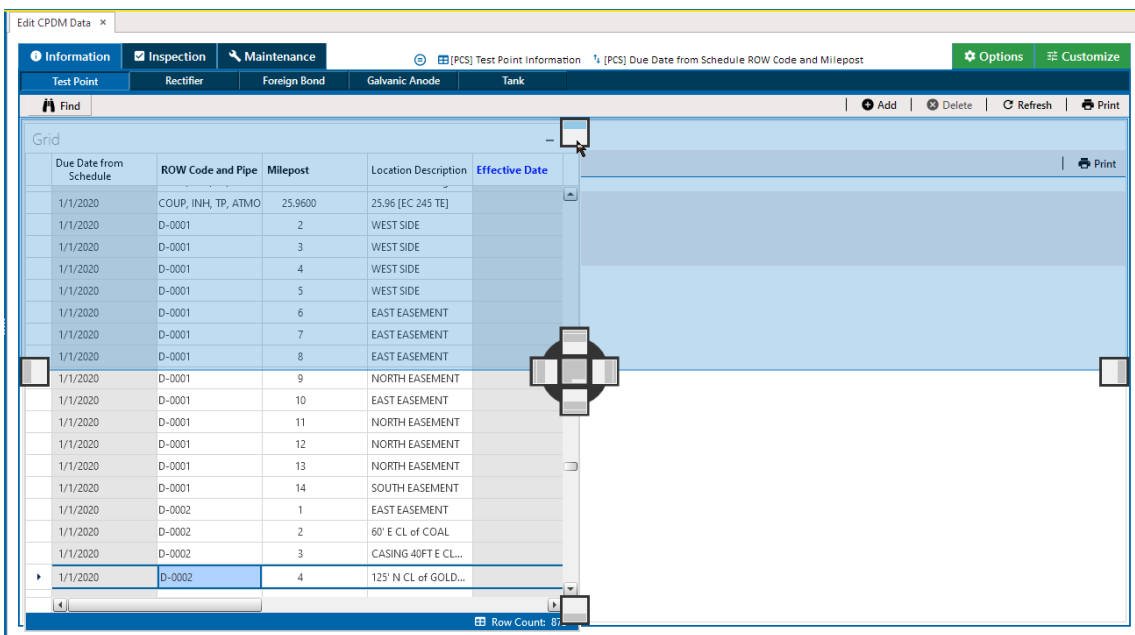


Figure 5-11. Moving a Pane

The panes are re-arranged accordingly.

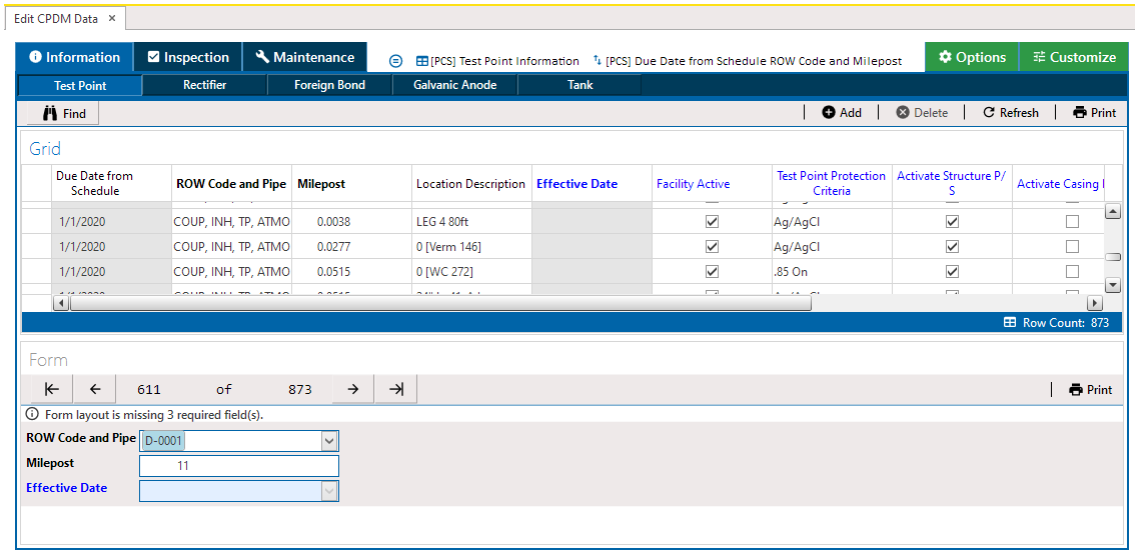


Figure 5-12. Final Placement of Panes

Rearrange and Resize Grid Columns

Rearranging grid columns in a data entry grid is easily accomplished by dragging and dropping a grid column to a new position. Performing this function requires appropriate user permissions for modifying a data entry grid layout theme. If the data entry grid layout theme is *Public*, changes apply only to the current session of the data entry grid and are not saved in the layout theme. When the data entry grid layout theme is *Private*, the new column order is saved in the data entry grid layout theme.

Rearrange Column Order

Drag and drop a selected grid column to a new position in the data entry grid.

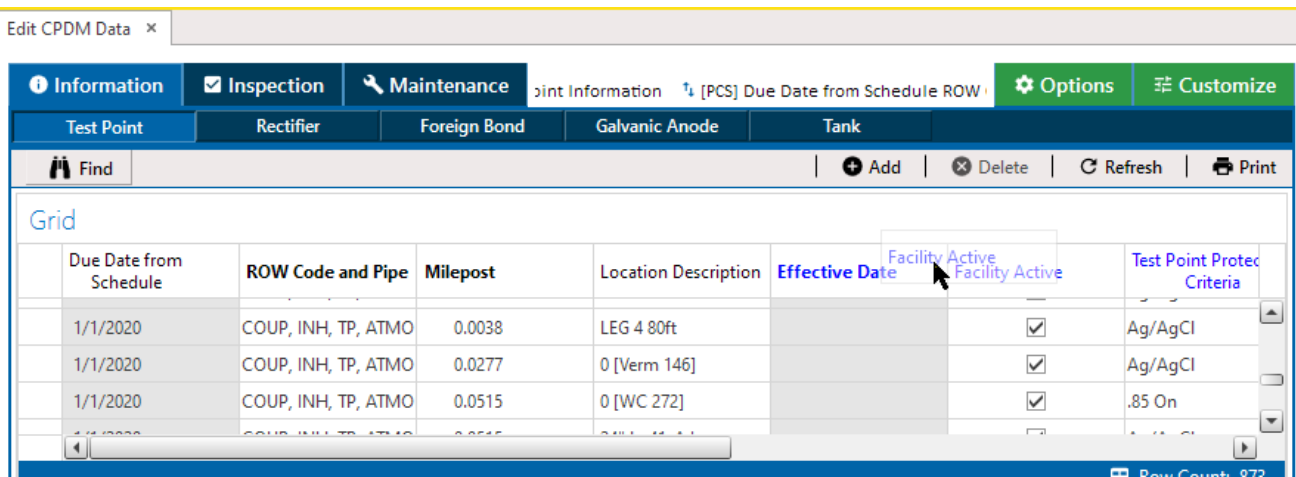


Figure 5-13. Moving a Column

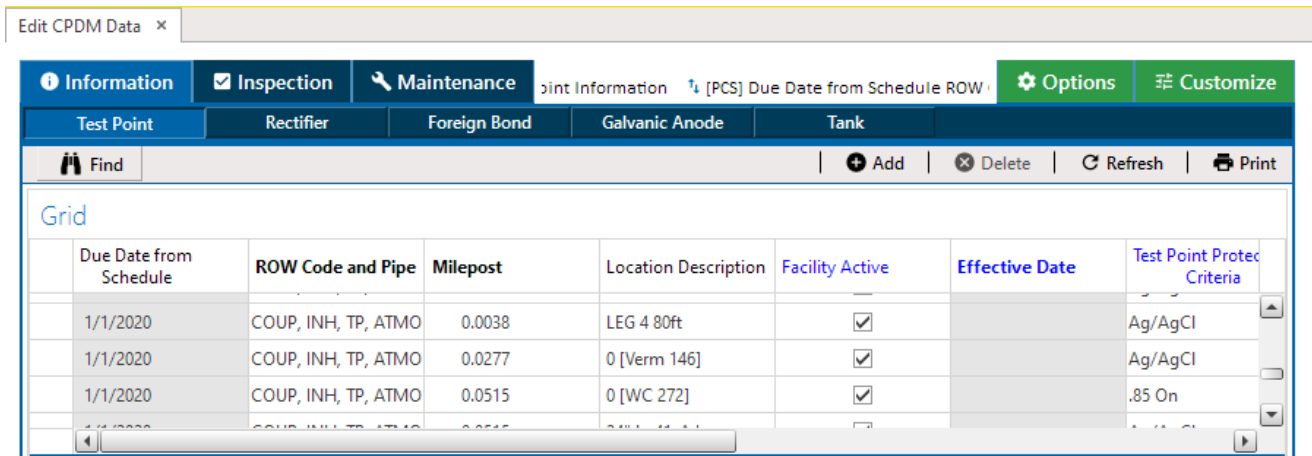


Figure 5-14. Reorder Columns Complete

Resize Grid Columns

Place the mouse over a column boundary to change the cursor to a \leftrightarrow horizontal resize cursor. Then click and drag the column boundary to resize the grid column.

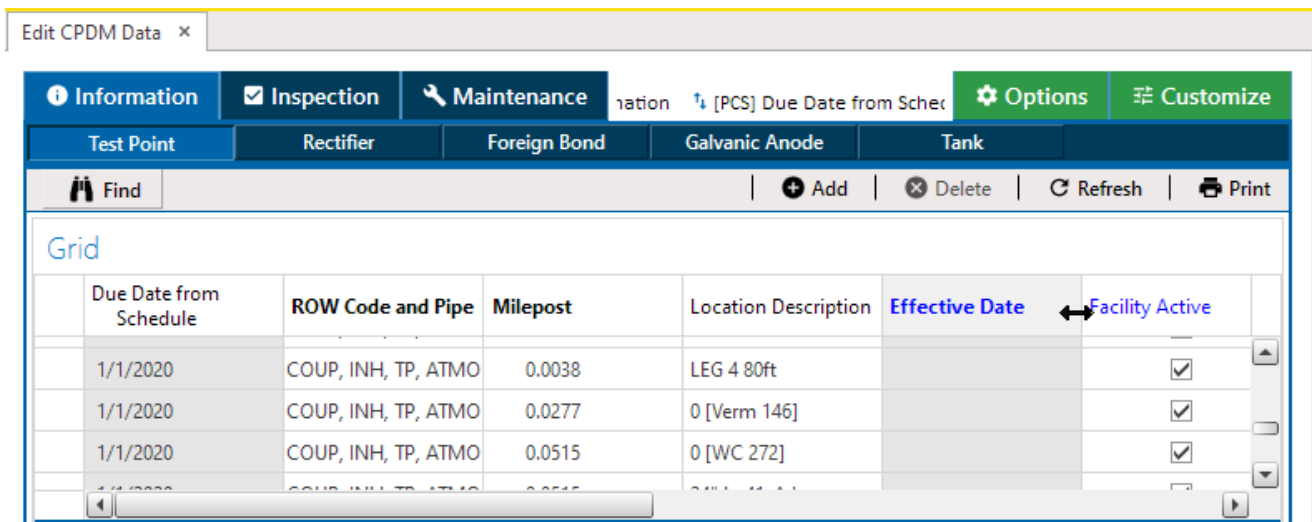


Figure 5-15. Resize a Column

Lock and Unlock Grid Columns

You can lock one or more grid columns on the left side of a data entry grid to prevent them from moving when scrolling the data entry grid. Grid columns to the right of locked columns remain scrollable.

To lock a grid column, right-click a grid column and then select **Lock Column** in the shortcut menu that opens.

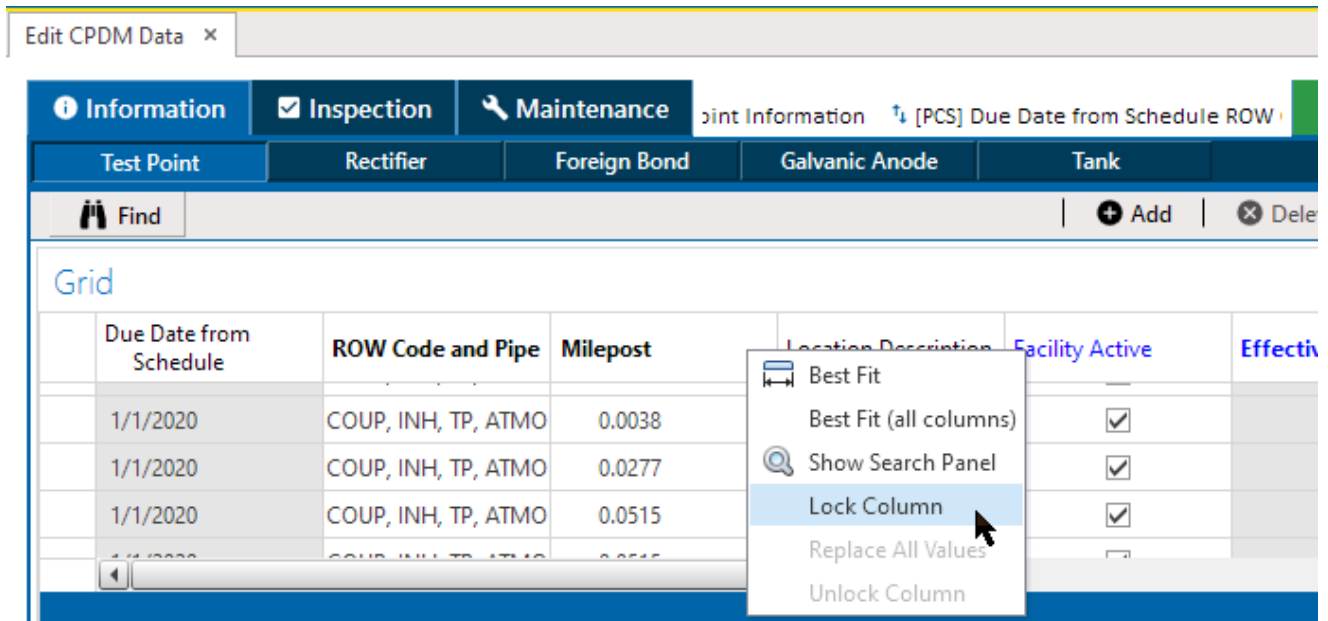



Figure 5-16. Lock Column Menu Option

To unlock a locked grid column, right-click the locked grid column and then select **Unlock Column** in the shortcut menu that opens.

Use Find to Search a Data Entry Grid

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to search the content of a data entry grid:

1. Open the *Edit <module> Data* window. For example, click **Data Entry > Edit CPDM Data** to open the *Edit CPDM Data* window.
2. Select a data entry grid. For example, click the **Information** tab and then the **Test Point** tab to display the *Test Point Information* data entry grid.
3. If the **Options** window is open, press Enter or click  **Apply** to view the grid.

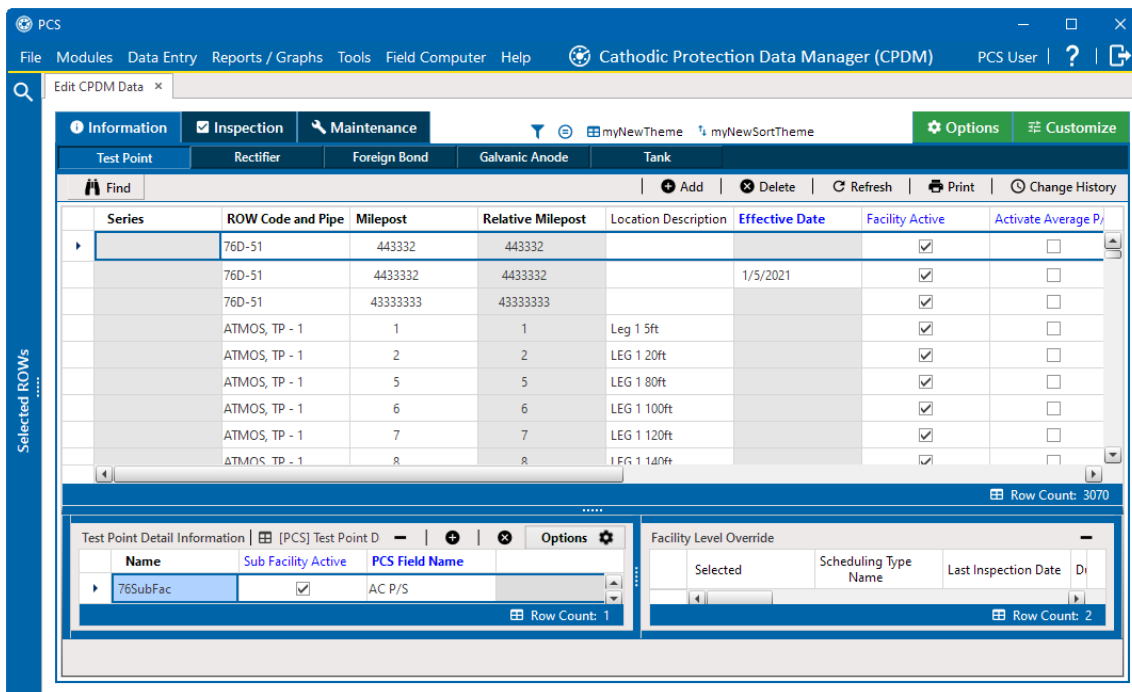


Figure 5-17. CPDM Test Point Information Grid

- Click the **Find** button to open the search properties pane.

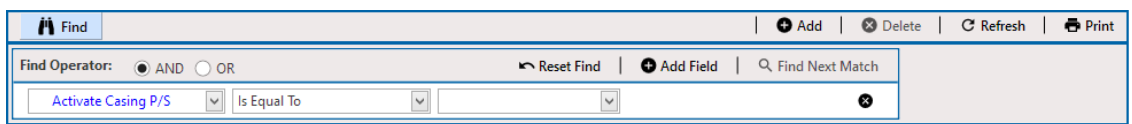


Figure 5-18. Find

- Select a **Find Operator** option. If you want search results to meet all search criteria, select the **AND** operator. If you want search results to meet any search criteria, select the **OR** operator.
- Set up search criteria. Select a PCS field, operator, and value using the selection fields. To add another row of selection fields, click **Add Field** and then select a PCS field, operator and a value using the added row of selection fields.
- Click **Find Next Match** to search the grid. Click the button again to find the next match.
- Click **Reset Find** to clear and reset search selection fields.
- Click the **Find** button to close the search properties pane.

Print, Export, or Email Grid Content

The following information explains how to print and export a report with content in a data entry grid. Supported file formats for exporting a report include PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, and Image (BMP, EMF, WMF, GIF, JPEG, PNG, and TIFF).

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to print, export, or email grid content:

1. Click the **Data Entry** menu and select a module. For example **Data Entry > Edit CPDM Data** will open the *Edit CPDM Data* window.

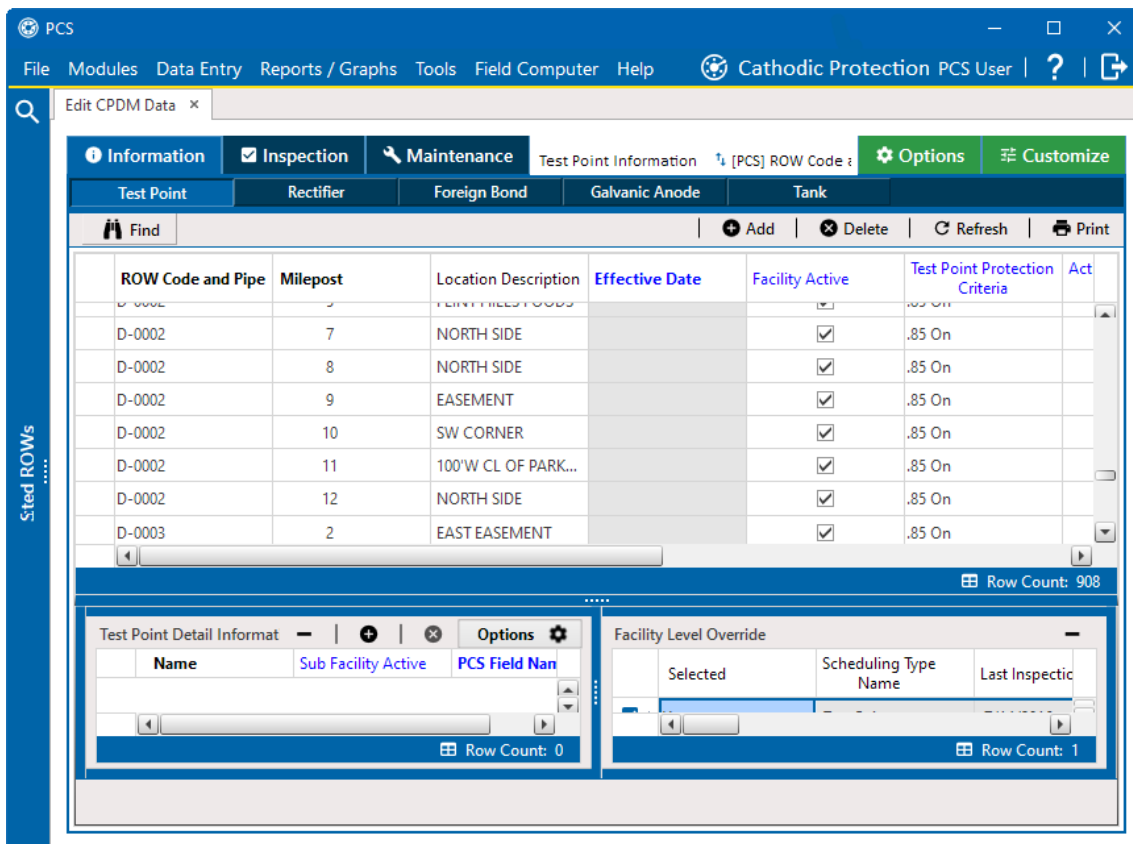


Figure 5-19. Test Point Inspection Grid

2. Select a data entry grid by selecting both a main tab and a facility type. For example, click the **Information** tab and then the **Test Point** tab to display the *Test Point Inspection* data entry grid (as shown in the example above).
3. If you want to collapse the *Selected ROWs* pane to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the pane.
4. Click **Print** to open a print preview window.

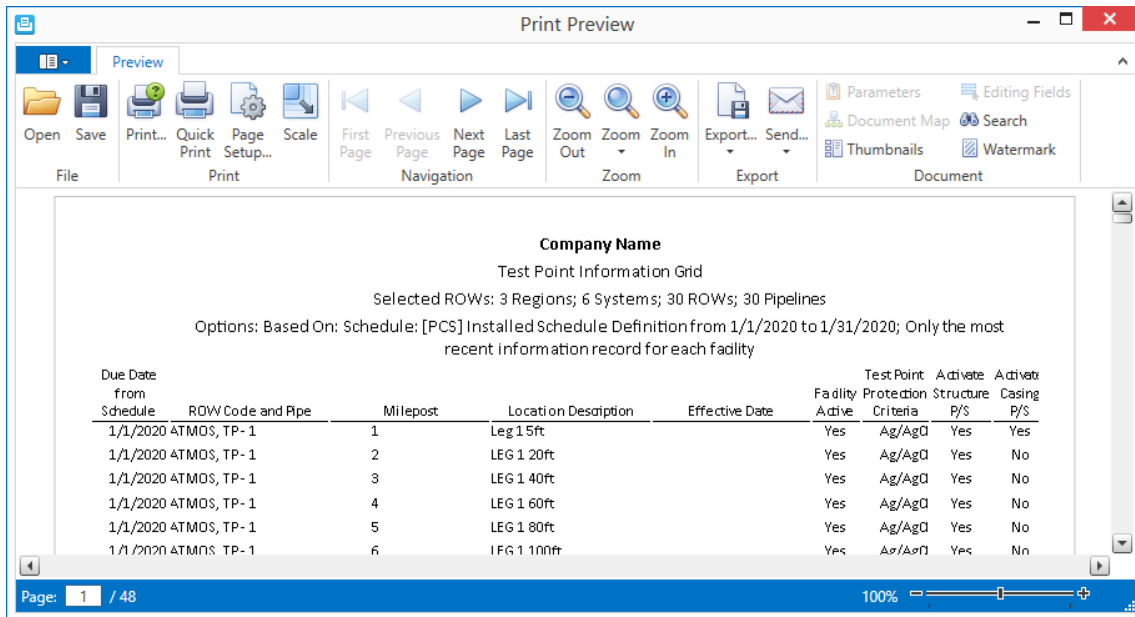


Figure 5-20. Print Preview

5. To print the report using the default Windows printer, click the **Quick Print** button.
6. To open a print window and select a printer to print the report, click the **Print** button.
7. To select a file format and export the report, click the down arrow in **Export Document** and select a file format in the selection list.
 - a. In the *Options* window, set up optional property settings and then click **OK** to close the window.
 - b. In the *Save As* window, type a name for the report in the **File name** field and then navigate to a location on your computer to save the report.
 - c. Click **Save**. click **Yes** or **No** in the *Do you want to open this file* message window,
8. To select a file format and send the report as an attachment in an email, click the down arrow in **Send via E-mail** and select a file format in the selection list.
 - a. In the *Options* window, set up optional property settings and then click **OK** to close the window.
 - b. In the *Save As* window, type a name for the report in the **File name** field and then navigate to location on your computer to save the report.
 - c. When an email message opens with the report as an attachment, select an email recipient and then click **Send**.
9. Click the **Exit** button to close the print preview window and return to the data entry grid.

Work with Records

You can view, add, attach documents to, and work with various record types in a data entry grid.

This chapter includes the following topics:

- [Add Facility Records](#)
- [Activate Facility Inspection Fields for Data Entry on page 282](#)
- [Work with Multiple Test Point Potentials on page 282](#)
- [Replace All Values on page 287](#)
- [Create History Records Using an Effective Date on page 288](#)
- [View a Linked Maintenance or Inspection Record on page 291](#)
- [View a Record's Change History on page 292](#)
- [View Records Based on Selected ROWs](#)
- [View Records Based on a Schedule on page 296](#)
- [View Records Based on a Route on page 298](#)
- [Work with Derived Fields on page 299](#)
- [Work with the Target Structure P/S Field on page 300](#)
- [Record Facility Current Values on page 302](#)
- [Attach a Document to a Grid Record on page 307](#)
- [Work with an Images Field on page 314](#)
- [Link Rectifiers to ROWs on page 329](#)
- [Work with Rectifier Anodes on page 332](#)
- [Work with Rectifier Negatives on page 338](#)

Add Facility Records

Facility information, including facility inspection and facility maintenance, can be added to the data entry grid.

This chapter includes the following topics:


- [Add a Facility Information Record](#)
- [Add a Facility Inspection Record on page 266](#)
- [Add a Facility Maintenance Record on page 273](#)

Add a Facility Information Record

Use the Information grid to add a record for a new facility on a pipeline, add an information record for an existing facility in the grid, add a history record to maintain permanent information about a facility, and activate fields for data entry in the Inspection grid.

These instructions start with the assumption that you have a facility type's Information grid selected. For information about accessing a grid of data, refer to [View Data in a Grid or Form on page 242](#).

Complete the following steps to either add add a record for a new facility or add an information record for an existing facility on a pipeline in the Information grid. These steps can be used to add a new facility type or record for any of the facility types.

1. Select a module from the **Modules** main menu.
2. Click **Data Entry** and then select **Edit <Module> Data**.
3. Click  **Apply** or press **Enter** if the Options window is displayed instead of the grid.
4. Click the **Information** tab and select a facility type from the selections below the Information, Inspection, and Maintenance tabs.

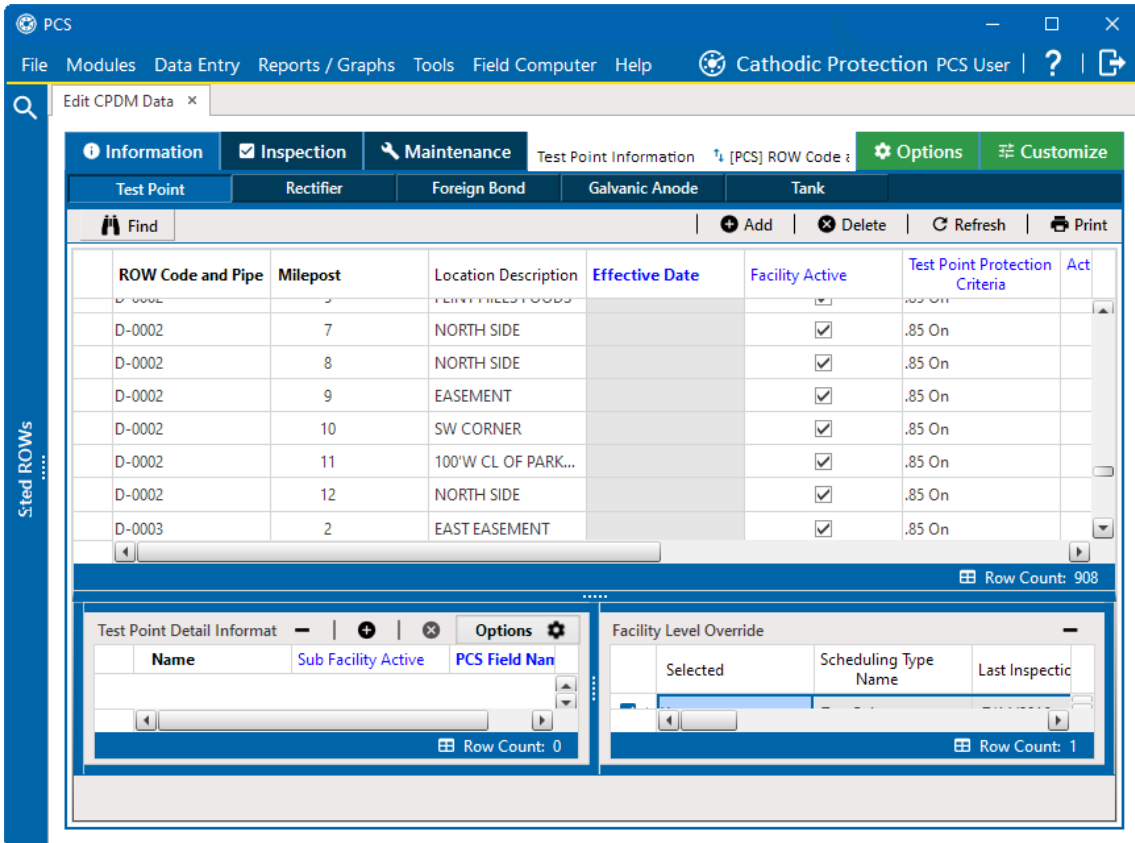


Figure 5-21. Information Grid

5. Click **+** Add to open the *Add Record* window.

ROW Code	Pipe	
76D-5	1	
76D-51	1	
76D-55	1	
76D-56	1	
76D-59	1	
76D-67	1	
379-1	1	

Row Count: 203

Save Cancel

Figure 5-22. Add Record - Add New Facility or Information Record

6. To add a new facility of the selected facility type, select **Add New <facility type>**.

ROW Code	Pipe
76	1
76D-5	1
▶ 76D-51	1
76D-55	1
76D-56	1
76D-59	1
76D-67	1
379-1	1
.Texas TP - 1	1

Row Count: 203

Save Cancel

Figure 5-23. Add Record - Add New Facility Record

- a. Select the pipeline in the window that you want to add a new facility and information record.

ROW Code	Pipe
76D-5	1
76D-51	1
76D-55	1
76D-56	1
76D-59	1
76D-67	1
379-1	1

Figure 5-24. Add Record - Selected Pipeline for Information Record




- b. Click  **Save** to display the *Add Record* window with required field(s) for data entry. Required fields are identified with the  icon, such as **Milepost**.

Figure 5-25. Add Record - New Facility Information Data Entry Fields

- c. Complete data entry fields as needed.
- d. Click  **Save** to close the window and add the new facility record in the *Information* grid.
- e. Activate desired fields for data entry in the *Inspection* grid by clicking in the check box for an "activate" field in the *Information* grid.

For example, click the **Activate Casing P/S** check box for the newly created milepost.

Series	ROW Code and Pipe	Milepost	Relative Milepost	Location Description	Effective Date	Facility Active	Test Point Protection Criteria	Activate Structure P/S	Activate Casing P/S	Activate Foreign P/S	Activate Insulator P/S	Permanent Comments
760-51		443333	443333			<input checked="" type="checkbox"/>	.85 On	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TP - 1		1	1	Leg 1 5ft		<input checked="" type="checkbox"/>	Ag/AgCl	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check this box to enable the casing pipe-to-soil potential field

Figure 5-26. Activate Data Entry Field in Information Grid

- 7. To add a new information record for the existing facility type in the grid, select **Add Information Record to Existing <facility type>**.

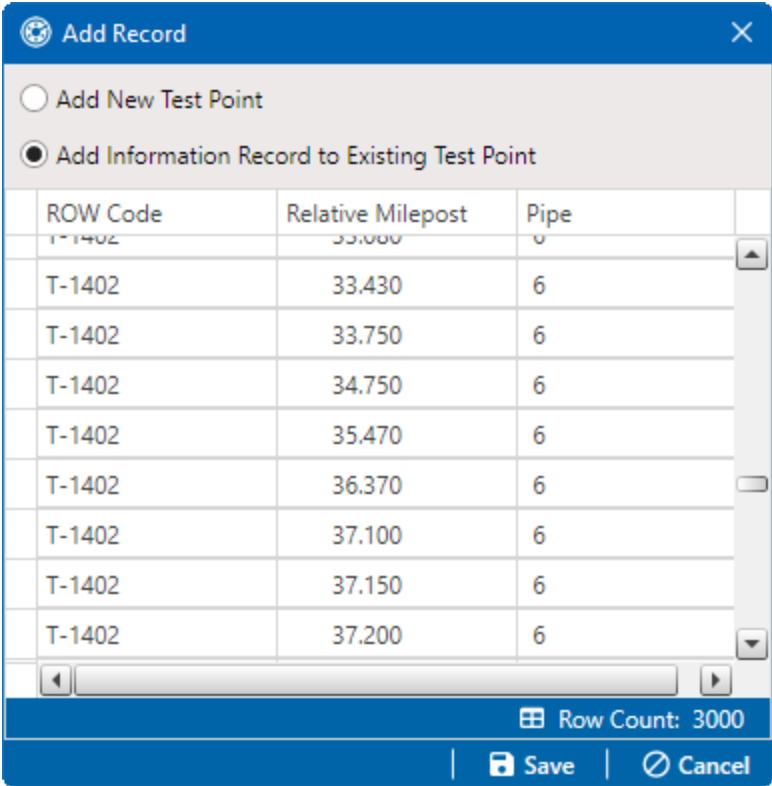


Figure 5-27. Add Record - Add Information Record for Existing Facility Type

- a. Click  **Save** to display the *Add Record* window with required field(s) for data entry.

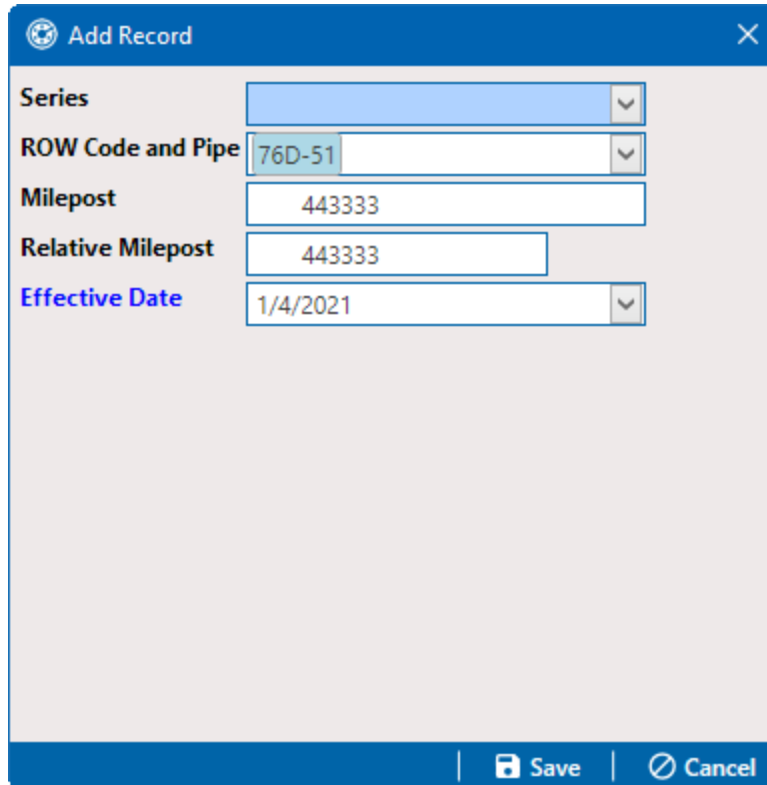



Figure 5-28. Add Record - New Information Record for Facility Type Data Entry Fields

- b. Complete data entry fields as needed. For the date in the **Effective Date** field, use the format MM/DD/YYYY to indicate the month, day, and year. Or click the down arrow in the field and select a date using a calendar.

Effective Date is the date a history record becomes effective. New history records are created with an Effective Date when important permanent information changes. Refer to [Create History Records Using an Effective Date on page 288](#) for more information.

- c. Click  **Save** to close the *Add Record* window and add an information record to the grid for the existing facility.


8. Enter other facility data as needed in the grid.

9. Click  **Refresh** to update the grid.

Add a Facility Inspection Record

These instructions start with the assumption that you have a facility type's Inspection grid selected. For information about accessing a grid of data, refer to [View Data in a Grid or Form on page 242](#).

Complete the following steps to either add a new facility with an inspection record or add an inspection record for an existing facility or in the *Inspection* grid:

1. Select a module from the **Modules** main menu.
2. Click **Data Entry** and then select **Edit <Module> Data**.
3. Click  **Apply** or press **Enter** if the Options window is displayed instead of the grid.
4. Click the **Inspection** tab and select a facility type from the selections below the Information, Inspection, and Maintenance tabs.

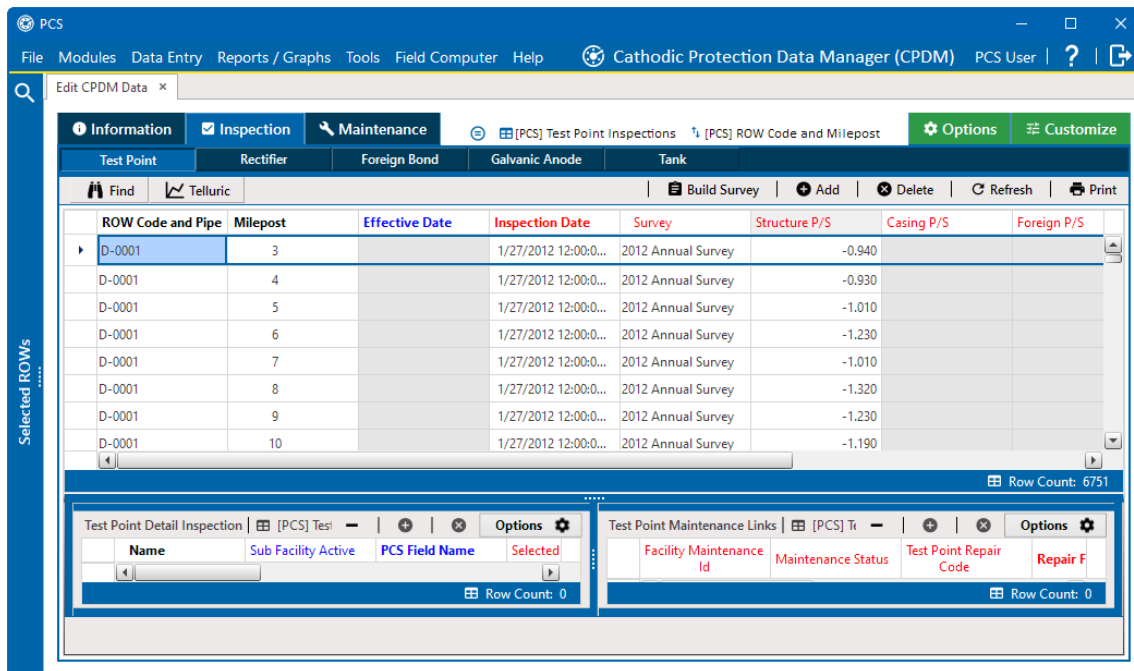


Figure 5-29. Inspection Grid

1. Click **+** **Add** to open the *Add Record* window.

ROW Code	Pipe
76	1
76D-5	1
▶ 76D-51	1
76D-55	1
76D-56	1
76D-59	1
76D-67	1
379-1	1
Texas TP - 1	1

Figure 5-30. Add Record - Add New Facility or New Inspection Record

2. To add a new facility with an inspection record in the *Inspection* grid, select **Add New <facility type>**.

- a. Select a pipeline with the facility you want to add an inspection record.

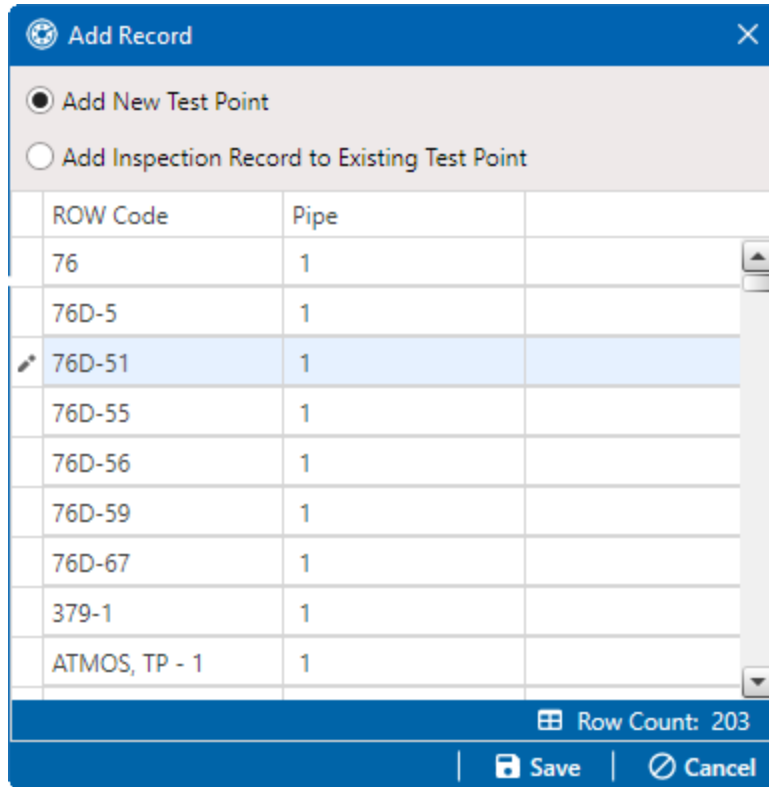


Figure 5-31. Add Record - Selected Pipeline


- b. Click  **Save** to display the *Add Record* window with required field(s) for data entry.

The screenshot shows a dialog box titled "Add Record" with a blue header bar containing a refresh icon and a close button. The dialog contains the following fields:

- Series**: A dropdown menu.
- ROW Code and Pipe**: A dropdown menu with the value "76D-51".
- Milepost**: A text input field with a red "x" error icon.
- Relative Milepost**: A text input field.
- Inspection Date**: A dropdown menu with the value "1/4/2021 12:00:00 AM". The label "Inspection Date" is in red.

At the bottom of the dialog, there are two buttons: "Save" (with a floppy disk icon) and "Cancel" (with a circle and slash icon).

Figure 5-32. Add Record - New Facility Record Data Entry Fields

- c. Complete data entry fields as needed.
 - d. Type an inspection date in the **Inspection Date** field using the format MM/DD/YYYY to indicate the month, day, and year. Or click the down arrow in the field and select an inspection date using a calendar.
 - e. Click  **Save** to close the window and the new facility with an inspection record in the grid.
3. To add a new inspection record to the existing facility type in the grid, select **Add Inspection Record to Existing <facility type>**.

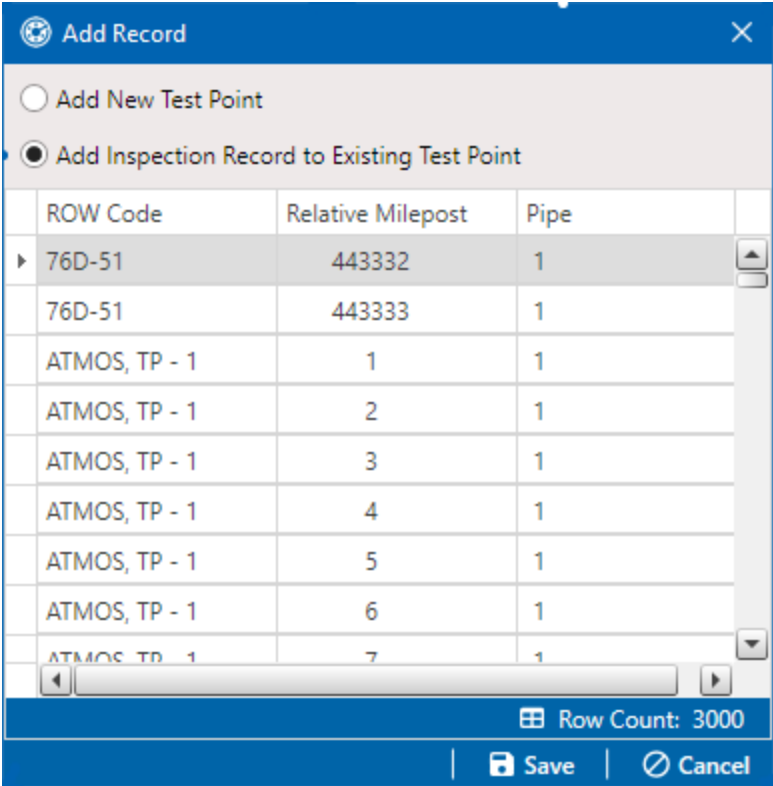


Figure 5-33. Add Record - Add Inspection Record to Existing Facility Type

- a. Select a facility to which to add a new record.

ROW Code	Relative Milepost	Pipe
76D-51	443332	1
76D-51	443333	1
Texas TP - 1	1	1
Texas TP - 1	2	1
Texas TP - 1	3	1
Texas TP - 1	4	1
Texas TP - 1	5	1
Texas TP - 1	6	1
AT TP - 1	7	1



Row Count: 3000

Save Cancel

Figure 5-34. Add Record - Selected Pipeline for Inspection Record

- b. Click **Save** to display the *Add Record* window with required field(s) for data entry. Required fields are identified with the icon.


Figure 5-35. Add Record - Add Inspection Record for Existing Facility Data Entry Fields

- c. Complete data entry fields as needed.
 - d. Type the facility milepost number in the **Milepost** field. Based on your system configuration, the **Milepost** field may have a different caption for User Location Name, such as Station Number or other type of identifier.
 - e. Type an inspection date in the **Inspection Date** field using the format MM/DD/YYYY to indicate the month, day, and year. Or click the down arrow in the field and select an inspection date using a calendar.
 - a. Click  **Save** to close the window and add the inspection record to the grid.
4. Enter other inspection data in remaining fields.
 5. Click  **Refresh** to update the grid.

Add a Facility Maintenance Record

These instructions start with the assumption that you have a facility type's Maintenance grid selected. For information about accessing a grid of data, refer to [View Data in a Grid or Form on page 242](#).

Complete the following steps to either add a new facility with a maintenance record or add a maintenance record for an existing facility or in the Maintenance grid:

1. Select a module from the **Modules** main menu.
2. Click **Data Entry** and then select **Edit <Module> Data**.
3. Click  **Apply** or press **Enter** if the Options window is displayed instead of the grid.
4. Click the **Maintenance** tab and select a facility type from the selections below the Information, Inspection, and Maintenance tabs.

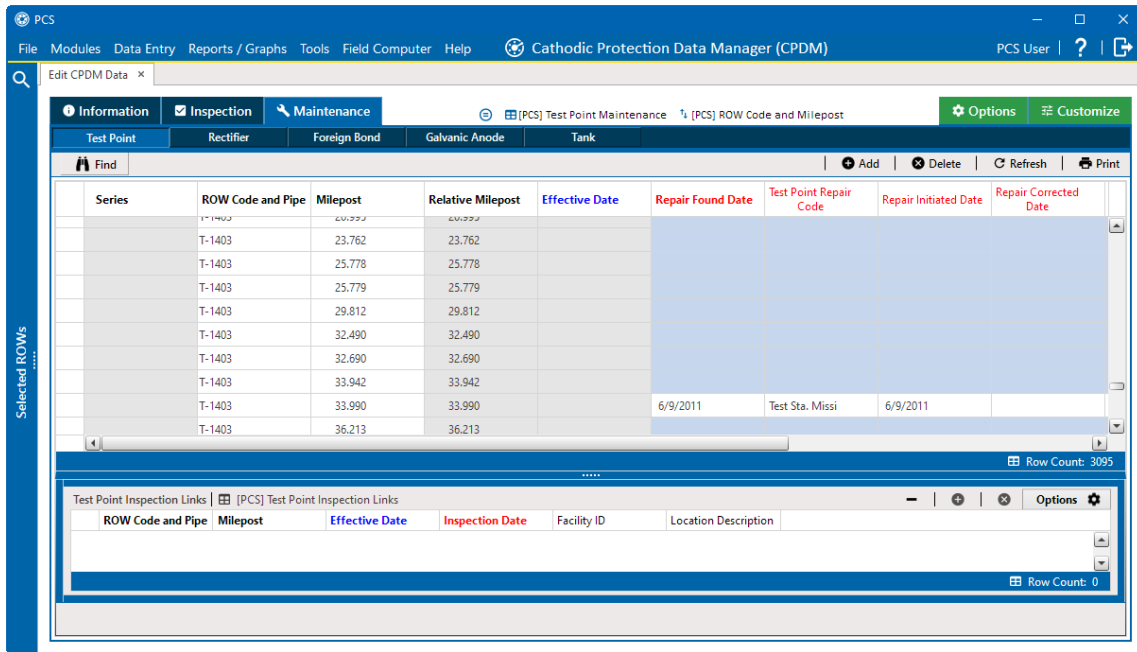


Figure 5-36. Maintenance Grid

1. Click **+Add** to open the *Add Record* window.

ROW Code	Pipe	
76	1	
76D-5	1	
▶ 76D-51	1	
76D-55	1	
76D-56	1	
76D-59	1	
76D-67	1	
379-1	1	
Texas TP - 1	1	

Figure 5-37. Add Record - Add Maintenance Facility or Record

2. To add a new facility in the grid with a maintenance record, select **Add New <facility type>**.

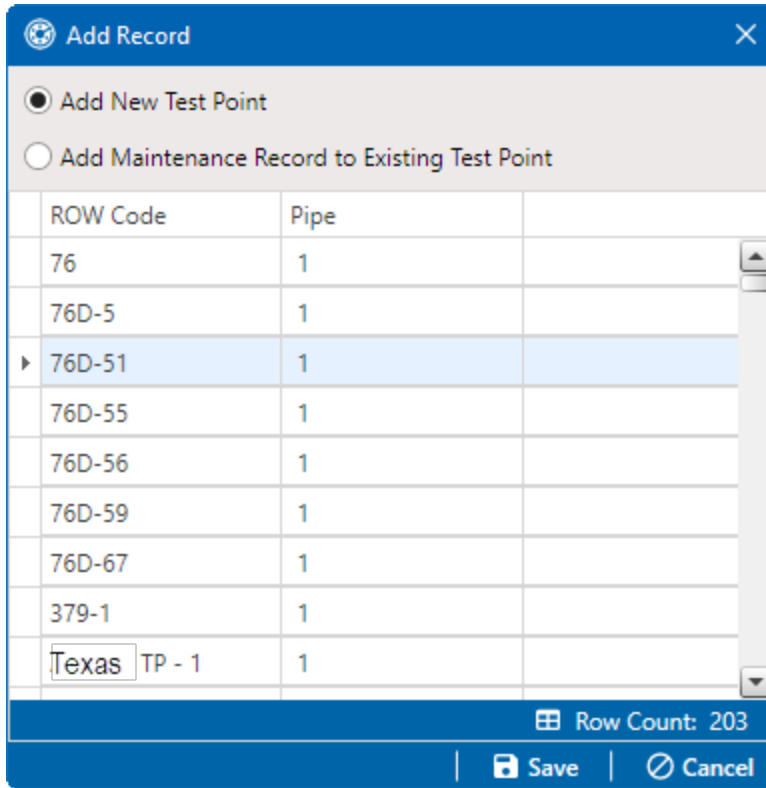


Figure 5-38. Add Record - Add New Facility Record



- a. Select the pipeline in the window that you want to add a new facility and information record.

ROW Code	Pipe	
76	1	
76D-5	1	
✎ 76D-51	1	
76D-55	1	
76D-56	1	
76D-59	1	
76D-67	1	
379-1	1	

Row Count: 203

Save Cancel

Figure 5-39. Add Record - Selected Pipeline


- b. Click  **Save** to display the *Add Record* window with required field(s) for data entry. Required fields are identified with the  icon.

The screenshot shows a dialog box titled "Add Record" with a blue header bar containing a refresh icon on the left and a close button on the right. The main area is light gray and contains five input fields:

- Series:** A dropdown menu.
- ROW Code and Pipe:** A dropdown menu with the value "76D-51" selected.
- Milepost:** A text input field with a red "X" error icon to its left.
- Relative Milepost:** A text input field.
- Repair Found Date:** A dropdown menu with the value "1/4/2021" selected.

At the bottom of the dialog, there is a blue bar with two buttons: "Save" (with a floppy disk icon) and "Cancel" (with a circle and slash icon).

Figure 5-40. Add Record - New Facility Maintenance

- c. Type the facility milepost number in the **Milepost** field. Based on your system configuration, the **Milepost** field may have a different caption for User Location Name, such as Station Number or other type of identifier.
 - d. Type a date in the **Repair Found Date** field using the format MM/DD/YYYY to indicate the month, day, and year. Or click the down arrow in the field and select a date using a calendar.
 - e. Complete data entry fields as needed. If required, enter a repair code in the **Test Point Repair Code** field. Repair code is a designation used by your company to identify the type of repair. The field accepts up to 15 alphanumeric characters including special characters such as the pound sign (#), asterisk (*), or hyphen (-).
 - f. Click  **Save** to close the dialog and add the new facility with an maintenance record in the grid.
3. To add a new information record for the existing facility type in the grid, select **Add Maintenance Record to Existing <facility type>**.



ROW Code	Relative Milepost	Pipe
D-004	17	1
D-004	18	1
D-004	19	1
D-004	20	1
D-004	21	1
D-004	22	1
D-004	23	1
D-004	24	1

Figure 5-41. Add Record - Add Maintenance Records to Existing Facility

- a. Select a pipeline in the window that you want to add a new facility and maintenance record.

ROW Code	Relative Milepost	Pipe
D-0013	2	1
D-0013	3	1
D-0013	4	1
D-0014	1	1
D-0014	2	1
D-0014	3	1
D-0014	4	1
D-0014	5	1

Figure 5-42. Add Record - Selected Pipeline for Maintenance Record



- b. Click  **Save** to display the *Add Record* window with required field(s) for data entry.. Required fields are identified with the  icon.

The screenshot shows a dialog box titled "Add Record" with a blue header bar containing a refresh icon and a close button. The dialog contains the following fields:

- Series:** A dropdown menu.
- ROW Code and Pipe:** A dropdown menu with the value "D-0013" selected.
- Milepost:** A text input field containing the number "2".
- Relative Milepost:** A text input field containing the number "2".
- Effective Date:** A dropdown menu.
- Repair Found Date:** A dropdown menu with the value "1/4/2021" selected.

At the bottom of the dialog, there are two buttons: "Save" (with a floppy disk icon) and "Cancel" (with a red 'X' icon).

Figure 5-43. Add Record - Add New Record to Existing Facility Data Entry Fields

- c. Complete data entry fields as needed.
 - d. Type the facility milepost number in the **Milepost** field. Based on your system configuration, the **Milepost** field may have a different caption for User Location Name, such as Station Number or other type of identifier.
 - e. Type a date in the **Repair Found Date** field using the format MM/DD/YYYY to indicate the month, day, and year. Or click the down arrow in the field and select a date using a calendar.
 - f. Type a repair code in the **Test Point Repair Code** field. Repair code is a designation used by your company to identify the type of repair. The field accepts up to 15 alphanumeric characters including special characters such as the pound sign (#), asterisk (*), or hyphen (-).
 - g. Click  **Save** to close the dialog and add the new facility with an maintenance record in the grid.
4. Enter other maintenance data as needed in the grid.
 5. Click  **Refresh** to update the grid.

Activate Facility Inspection Fields for Data Entry

Inspection fields with *Activate* in the field description must first be added and enabled in the facility *Information* grid to allow data entry of inspection readings in the facility *Inspection* grid.

These instructions start with the assumption that you have a facility type's *Information* grid selected. For information about accessing a grid of data, refer to [View Data in a Grid or Form on page 242](#).

Complete the following steps to activate facility inspection fields for data entry:

1. Click the check box of an *Activate* inspection field for a facility in the grid to place a check mark in the check box. For example, click the **Activate Structure P/S (Volts)** check box for a facility in the grid.
2. Click **Yes** to apply the change when a warning message displays to notify you of a change to the facility's permanent history record.

The inspection field is now available for data entry in the *Inspection* grid for the selected facility. If the inspection field is not present in the *Inspection* grid, refer to [Add a Data Grid Layout Theme on page 372](#) for information about adding fields in a grid.

Work with Multiple Test Point Potentials

Use the CPDM *Test Point Detail Information* and *Test Point Detail Inspection* mini-grids to manage multiple potential measurements for test point subfacilities linked to a test point facility. These mini-grids function in a similar manner as the rectifier mini-grids when linking rectifier anodes and negatives.

The *Test Point Detail Inspection* mini-grid allows you to select which potential measurement to use for compliance reporting. After selecting a potential measurement for compliance reporting, PCS automatically copies it to the associated test point facility in the *Inspection* grid.

NOTE: The Test Point Detail mini-grids become available for use after enabling the system option *Show Detail Inspection Entry Grid*. When using the optional *Telluric Compensation* feature, the mini-grids display by default and cannot be disabled.


Link Multiple Subfacilities to a Parent Test Point Facility

Multiple subfacilities can be linked to a parent test point facility.

You can select one of the subfacility potential measurements (survey readings) for compliance reporting. Once new subfacility records have been added and linked to a parent test point facility in the *Test Point Detail Information* mini-grid, they are then available for use in the *Test Point Detail Inspection* mini-grid.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to link multiple subfacilities to a parent test point facility:

1. Select a module from the **Modules** main menu.
2. Click **Data Entry** and then select **Edit <Module> Data**.
3. Click  **Apply** or press **Enter** if the Options window is displayed instead of the grid.
4. Click the **Information** tab and then select **Test Point**.

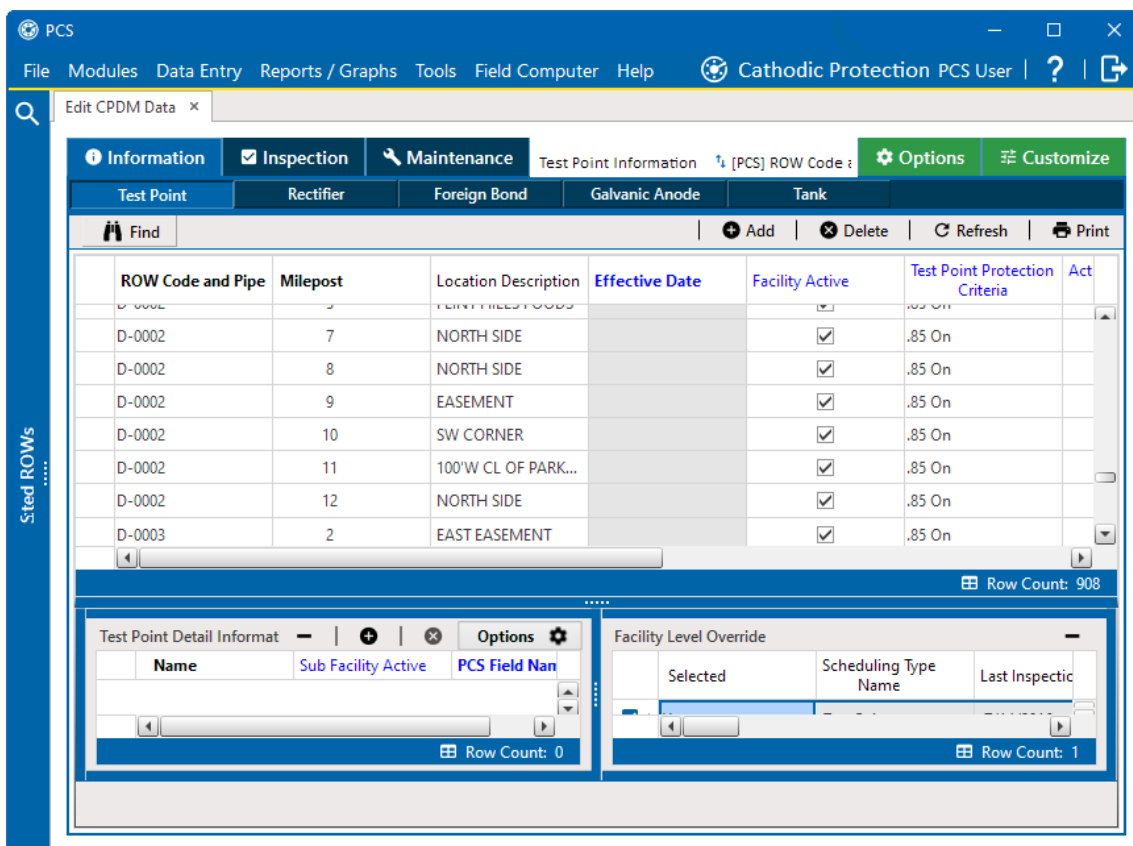


Figure 5-44. Information Grid

5. Select a test point facility in the *Information* grid.

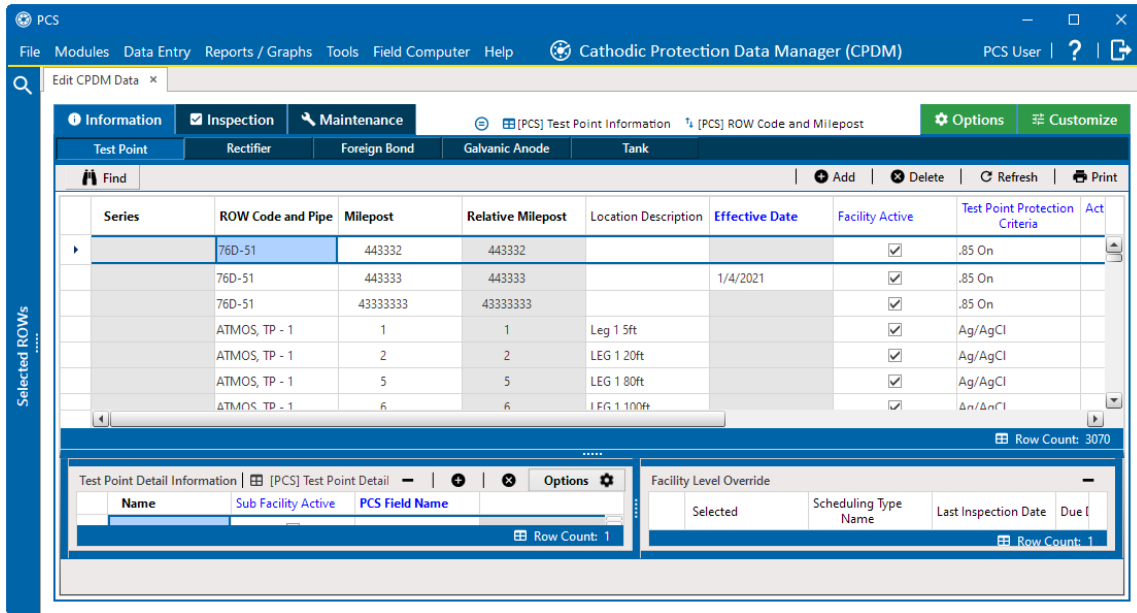


Figure 5-45. Selected Test Point in Information Grid

Repeat these steps for each new subfacility record you want to add and link to the currently selected test point facility record.

- Click **+** in the *Test Point Detail Information* mini-grid.

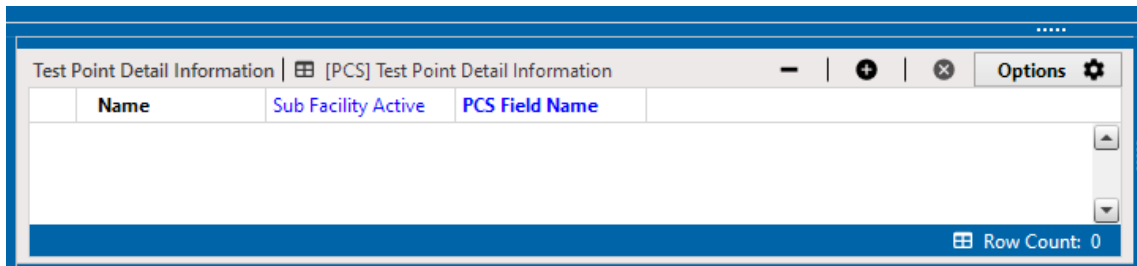
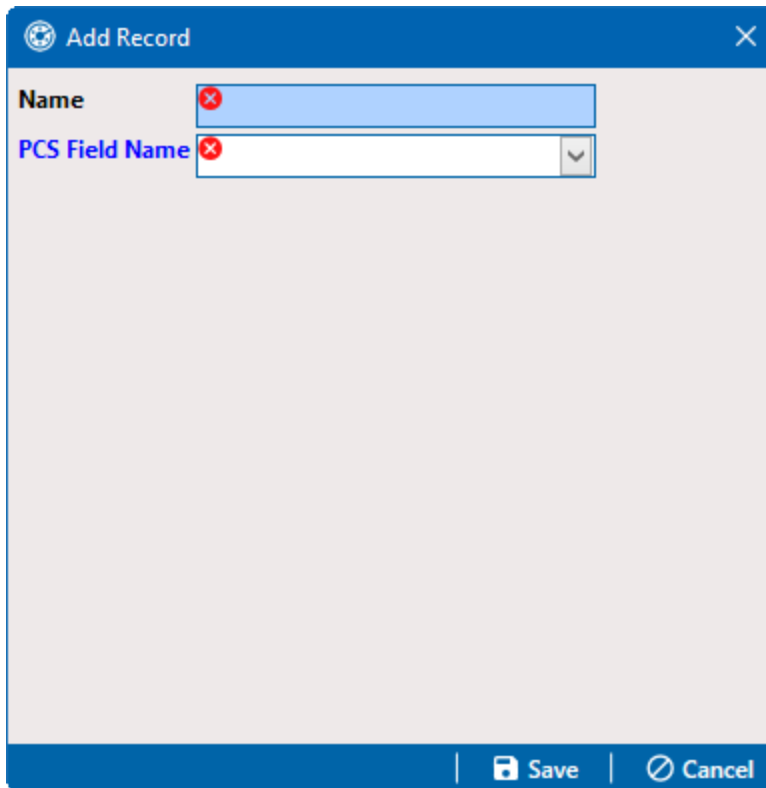


Figure 5-46. Information Test Point - Test Point Detail Information Mini Grid


- In the *Add Record* window type a unique name for the new subfacility in the **Name** field. This field supports up to 100 alphanumeric characters. Fields requiring information include a **x** icon. You must enter information in the required fields before the record will be added.



The image shows a dialog box titled "Add Record" with a blue header bar containing a refresh icon and a close button. The main area is light gray and contains two input fields. The first field is labeled "Name" and has a red "X" icon in its top right corner. The second field is labeled "PCS Field Name" and has a red "X" icon in its top right corner and a drop-down arrow on its right side. At the bottom of the dialog, there are two buttons: "Save" with a floppy disk icon and "Cancel" with a circle and slash icon.

Figure 5-47. Add Record Dialog Box

To prevent adding duplicate subfacility records in the system, it is important to enter a unique name in the **Name** field for each subfacility record.

8. Select the name of a PCS field from the **PCS Field Name** drop-down. Select a PCS field name that matches the type of potential measurement associated with the new subfacility.
9. Click  **Save** to add the record and close the window. The new sub-facility is added to the mini-grid.

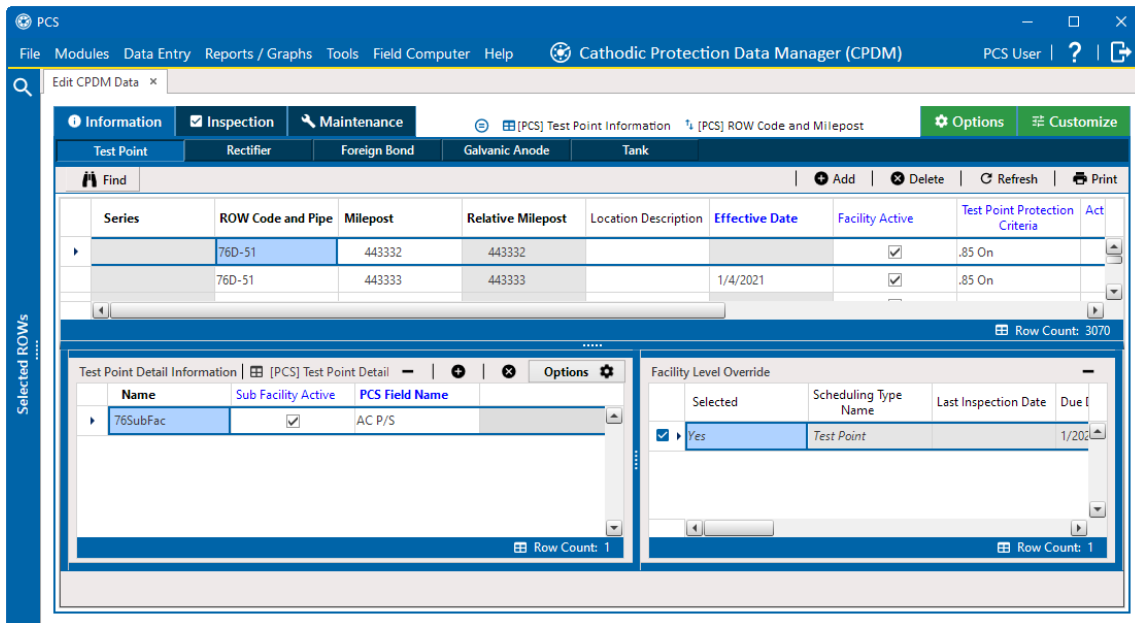


Figure 5-48. New Subfacility Added to Mini-grid

10. Open the Test Point *Inspections* grid. If the *Test Point Detail Inspections* mini-grid is not visible, double-click **Test Point Detail Inspection** at the bottom of the window to open the mini-grid.
11. In the Test Point *Inspections* grid, complete the following steps to add potential measurements (survey readings) for subfacilities in the *Test Point Detail Inspection* mini-grid, and then select one of these for compliance reporting:
 - a. Select a test point facility in the *Inspection* grid that includes subfacilities you want to add potential measurements. For example, the test point that you created the subfacility for in the previous step.

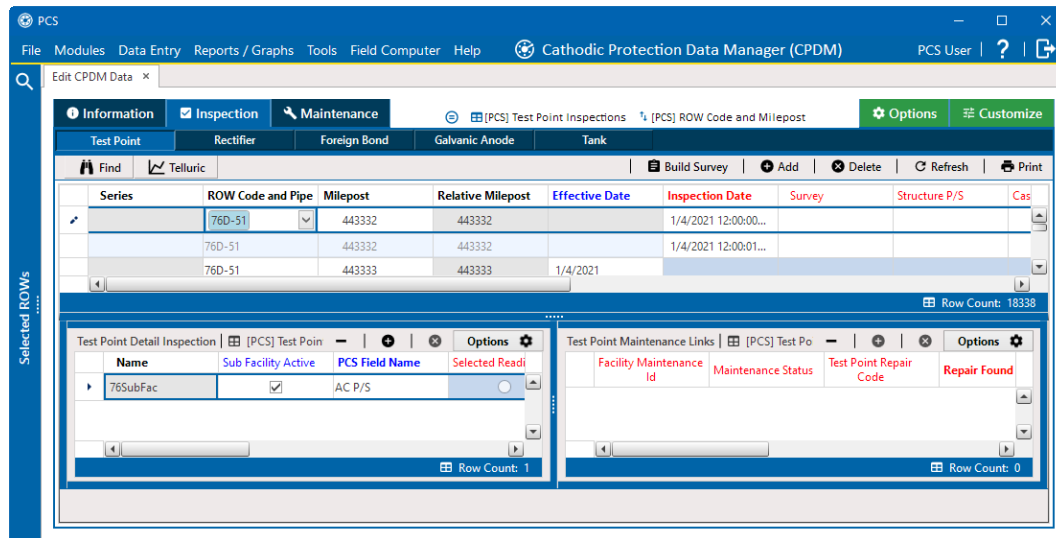






Figure 5-49. Test Point Detail Inspection Mini-Grid

- b. If potential measurements have not previously been added in the mini-grid, click  to enable the mini-grid for data entry.
- c. Select a subfacility in the mini-grid. Then add potential measurements and other related survey data in appropriate mini-grid fields. Repeat this step as needed for other linked subfacilities in the mini-grid.
- d. To select a potential measurement to use for compliance reporting, click the **Compliance** option button in the mini-grid associated with the subfacility record.
- e. Based on your PCS license, the **Compliance** field may be named **Selected Reading** instead.
- f. Click  **Refresh** to copy the selected potential measurement to the linked test point facility in the *Inspection* grid.
- g. When a value for a dependent field has been updated in a data entry grid, a  notification icon displays in the derived field indicating the value has changed and the data entry grid should be refreshed. Clicking  **Refresh** updates all derived values and removes the notification icon. Refer to [Work with Derived Fields on page 299](#) for more information.

Replace All Values

You can replace a values in all fields of a selected grid column with the same value.

NOTE: The **Replace All Values** command is not available for read-only grid columns, fields in a mini-grid, or picklist fields.

Complete the following steps to replace all values in a grid column:

1. Right-click the grid column and select **Replace All Values** in the shortcut menu.

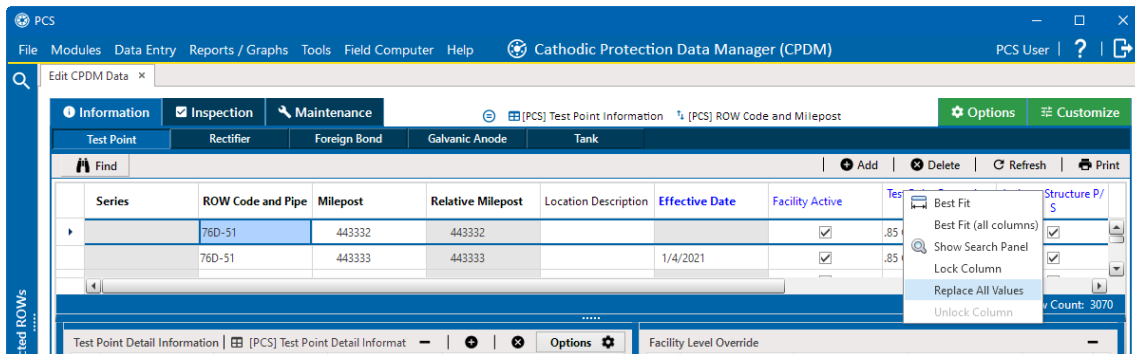


Figure 5-50. Replace All Values Shortcut

2. In the *Replace All Values* window, select a value from the drop-down list that will be used to replace the current value in all fields of the selected grid column.

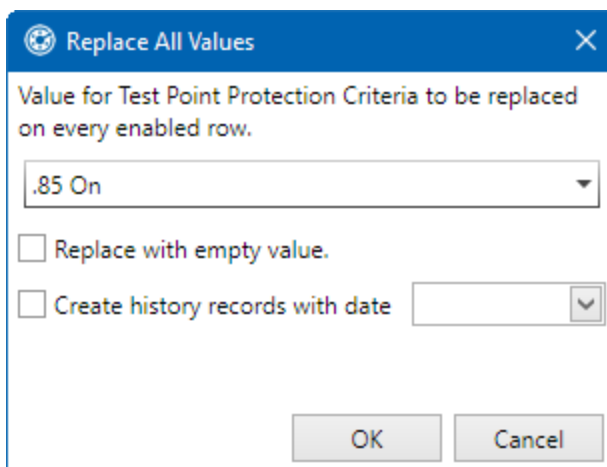


Figure 5-51. Replace All Values Window

3. Select **Replace with empty value** if you would like the fields to be replaced with no value.
4. Select **Create history records with date** and select a date from the drop-down calendar if you would like to create history records with the same date for all fields.
5. Click **OK** to save changes.

Create History Records Using an Effective Date

A history record is a record that identifies changes in facility information, such as the operating status changing from active to inactive. Instead of deleting a facility record, create a history record.

History records help ensure compliance reports are accurate and other reports include correct facility data. For example, information for inactive facilities does not appear in a compliance or scheduling report. Other reports provide an optional filter for excluding inactive facilities. Because information for the time period prior to deactivating a facility is still valuable and is often needed for compliance reports, creating a history record helps ensure facility reporting is accurate.

The following list describes other scenarios for when to create a history record:

- A facility is deactivated for a period of time and you want to ensure records exist showing when the facility was first activated, then deactivated, and finally reactivated again. By creating history records for each of these events, a complete history is available showing (1) when the facility was first active; (2) when the facility was deactivated; and (3) when the facility was reactivated.
- When a change is made to the protection criteria value, such as changing the value from **.85 On** to **100 mV**, creating a history record with an Effective Date identifying when the change occurred allows you to maintain a history for all readings with **.85 On** prior to the Effective Date, as well as all readings with **100 mV** after the Effective Date. Creating a history record in this case is important because the facility may meet the **100mV** criterion but fail the **.85 On** criterion. If history records do not exist, changing the criteria may show readings that were previously within criteria, are now out of criteria.
- You remove a casing and want to document that you are no longer recording Casing P/S inspection readings. Instead of disabling the **Activate Casing P/S** field in the *Information* grid, create a history record. History records provide useful data for an audit or compliance review.

The following list identifies other considerations when creating a history record:

- When you create a history record, all fields in the original record copy to the new record. Both records are initially the same except for the Effective Date. This allows you to change only the field(s) that are different in the new record and also create a history trail that includes the previous record.
- When the operating status of a facility changes from active to inactive or from inactive to active, do not use the original information record to change the operating status. Doing so causes information for the original record to be excluded in reports, such as compliance and delinquency reports. Create a history record to document this type of change instead.
- Do not enter the date a facility was put into service as the Effective Date. Use the **Effective Date** field to enter a date when a facility is taken out of service; when a change is made to the protection criteria; or when a facility is made inactive. Effective Date is used only with history records; it is empty in the original facility record. When a facility is put into service, add the date in the **Installation Date** field.

- To help with using history records consistently, enable the **Warn Before Permanent History Record Changed Option** field in **Options (Tools > Options)**. When enabled, PCS displays a warning message stating a history record should first be created before making changes.

Complete the following steps to create a history record with the a facility type's Information grid open:

- In the *Information* grid for the facility type, click **+** **Add** to open the *Add Record* window. The following example is for a Test Point facility.

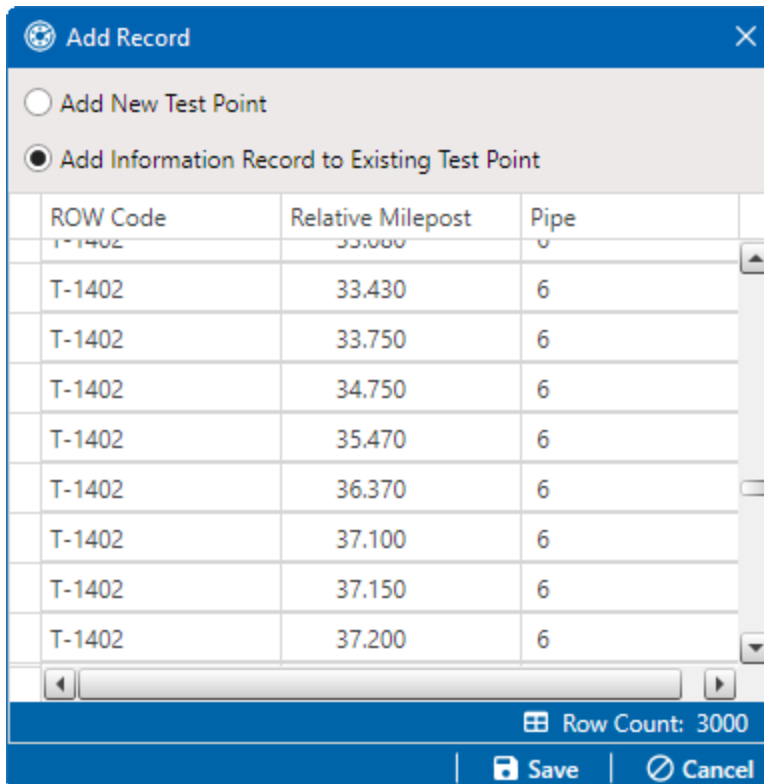


Figure 5-52. Add Record Window

- Select **Add Information Record to Existing <facility type>**.
- Select a facility record for which you want to create a history record.
- Click **Save** to close the window and return to the *Information* grid.

PCS adds a new record in the *Information* grid for the selected facility with today's date showing in the **Effective Date** field. The **Facility Active** check box is also enabled by default in order for the facility to be included in facility survey schedules. The original record becomes the history record.

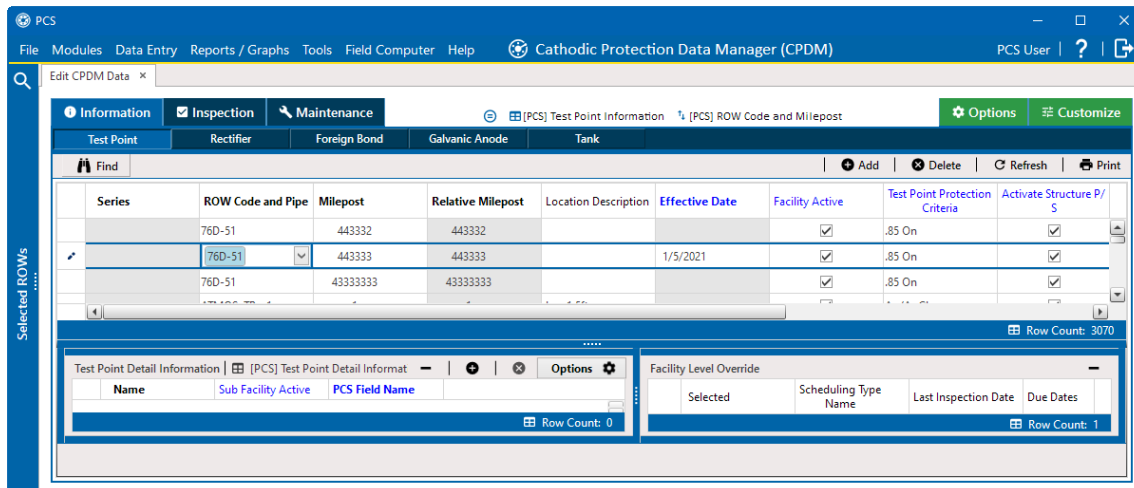


Figure 5-53. Added Effective Date to Record

5. Change information in the new record as needed.
6. Enter a comment in the **Permanent Comments** field about the record change.

View a Linked Maintenance or Inspection Record

You can link new maintenance records to an inspection record using a field computer or mobile device. Conversely, with the same field computer or mobile device you can link inspection records to an existing maintenance record. When a survey file imported from a field computer or mobile device contains both an inspection record and maintenance record for the same site, those records are considered related, and PCS will automatically link the inspection and maintenance records. If open maintenance records were sent to the field computer or mobile device, the new inspection record created for the same site will be linked to the maintenance record. The old inspection record previously associated with the open maintenance record will still be linked to the record.

A **Linked Maintenance Count** field is available in the *Inspection* grid to view which inspection records have linked maintenance records. When a record is selected in the *Inspection* or *Maintenance* grid, the linked records can be reviewed immediately in the *Maintenance Links* or *Inspection Links* mini-grid, respectively.

The screenshot shows the PCS software interface. The main window is titled "Edit CPDM Data" and has a menu bar with "File", "Modules", "Data Entry", "Reports / Graphs", "Tools", "Field Computer", and "Help". The user is identified as "Cath J Smith". The interface features several tabs: "Information", "Inspection" (selected), and "Maintenance". Below the tabs are columns for "Test Point", "Rectifier", "Foreign Bond", "Galvanic Anode", and "Tank". A toolbar includes "Find", "Telluric", "Build Survey", "Add", "Delete", "Refresh", and "Print".

The main grid displays inspection records with the following columns: "ROW Code and Pipe", "Milepost", "Effective Date", "Inspection Date", "Linked Maintenance Count", and "S". The data is as follows:

ROW Code and Pipe	Milepost	Effective Date	Inspection Date	Linked Maintenance Count	S
T-1403	0.000	12/31/2003	3/6/2004 12:00:00...		200
T-1403	0.000	12/31/2003	3/23/2005 12:00:0...		200
T-1403	0.000	12/31/2003	4/12/2019 2:30:42...	1	200
T-1403	0.507		6/6/2004 12:00:00...		200
T-1403	0.507		1/11/2005 12:00:0...		200

The "Row Count" is 16230. A pop-up window titled "Test Point Maintenance Links" is open, showing a grid of maintenance records with the following columns: "Maintenance Status", "Test Point Repair Code", "Repair Found Date", "Repair Initiated Date", and "Repair Corrected Date". The data is as follows:

Maintenance Status	Test Point Repair Code	Repair Found Date	Repair Initiated Date	Repair Corrected Date
In Progress	Damaged Faceplate	4/12/2019	4/19/2019	4/19/2019

The "Row Count" for the pop-up is 0. A "Test Point Det..." button is visible at the bottom of the pop-up.

Figure 5-54. Linked Maintenance Records Related to a Selected Inspection Record

If the **Linked Maintenance Count** field is not in your current grid view, refer to [View Data in a Grid or Form](#) and [Add a Data Grid Layout Theme](#).

View a Record's Change History

If enabled in **Options**, PCS keeps a log of all changes made to PCS data. Any additions, modifications, and deletions of data are stored, as well as additional information about the data change, such as who made the change, what tool was used to make the change, when the change was made, and what the data was before the change. If enabled, additions and modifications of individual records can be viewed by any user from within PCS, and all changes can be reviewed by anyone with permissions to the database.

To enable change tracking, refer to *Set Editing Options on page 26* and *Set Properties in Field and UDF Customizations on page 56*. For more information about the configuration, benefits, and use of change logging, refer to *Track Data Changes on page 869*

Complete the following steps to view the history of all changes made to an individual record:

1. Identify and select the record in the data grid.

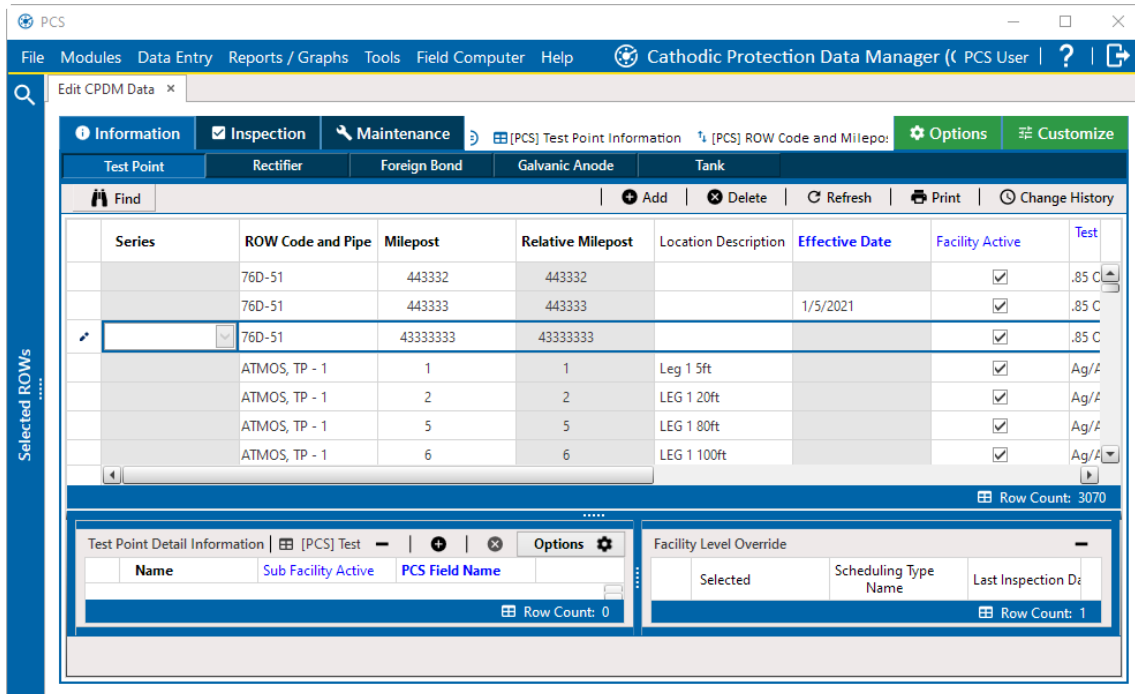


Figure 5-55. Changed Record Selected

2. Click **Change History**. The *Change History* window opens. The table includes all changes made to the selected record in the last year.

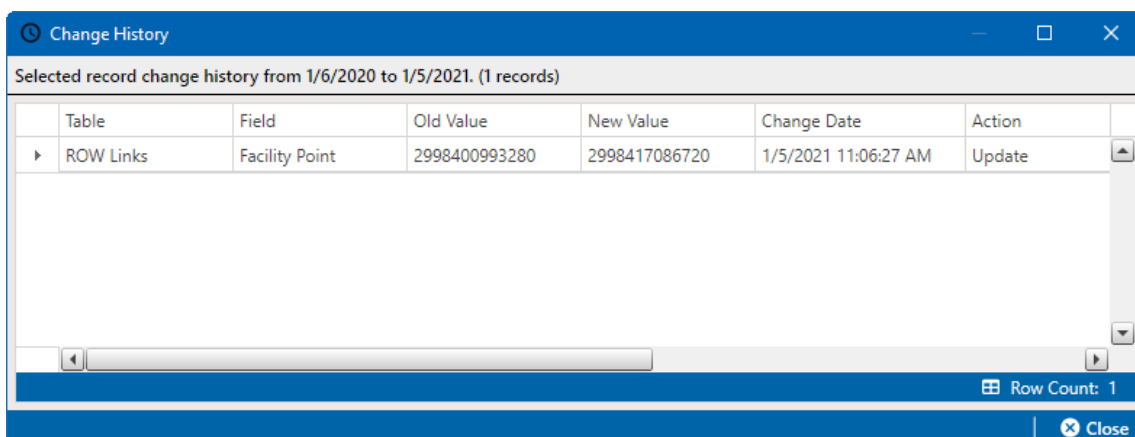



Figure 5-56. Change History

3. Review the changes that are associated with the selected record. For each change found, the record's old and new values are listed, as well as the date and time of the change, the type of change made, which user was logged in when the change was made, and what application made the changes to the data.
4. Click  **Close** to close the window.

View Records Based on Selected ROWs

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to display records in a data entry grid based on pipeline segments selected in the *Select ROWs* window:

1. To open the data entry grid, click **Edit <module> Data**.
2. Select a data entry grid to view. For example, click the **Information** tab and then the **Test Point** tab to display the *Test Point Information* data entry grid.
3. If you want to collapse the *Selected ROWs* pane to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the pane.
4. If the *Options* window is not open, click **Options**.
5. In the **Based On** section, select **Selected ROWs**.

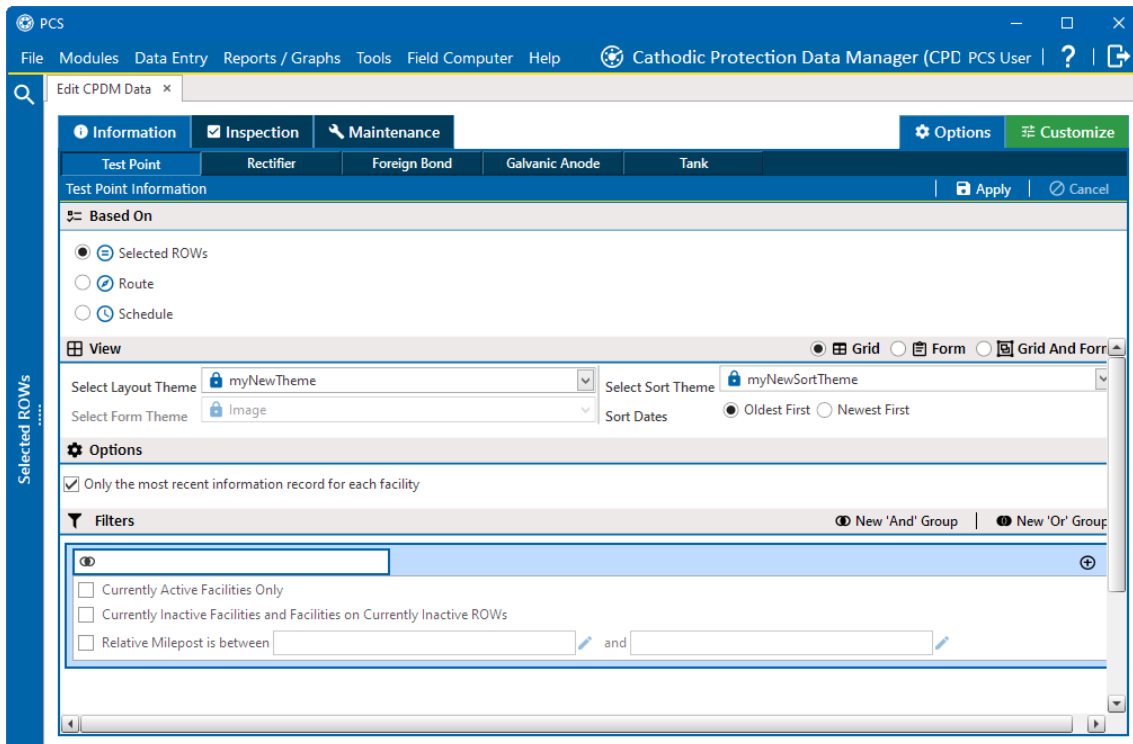




Figure 5-57. Based On Options

6. If you want to change the grid layout, sorting theme, or apply one or more filters to the grid, complete the following steps:
 - a. To change the grid layout theme, click the down arrow in the field **Select Layout Theme** and select a theme in the selection list.
 - b. To change the grid sorting method, click the down arrow in the field **Select Sort Theme** and select a theme in the selection list.
 - c. To apply a filter to the grid, click the check box for a filter listed in the *Filters* group box. You can select more than one.

For example, to include only currently active facilities in the grid, click the **Currently Active Facilities Only** check box. A check mark inside the check box indicates a selection. To remove a filter from the grid, clear the check mark by clicking the check box.

To add a new *AND* or *OR* filter group, refer to [Add, Edit, and Apply an AND or Or Filter Group on page 381](#).

- d. When applying a date filter to the grid, such as *Inspection Date is between*, set a date range using a calendar or dynamic dates in the following manner:

-
- i. To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - ii. To set a date range using dynamic start and end dates, click the  calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
- e. Click  **Apply** to save and apply changes.
Records display in the grid based on selected options.

View Records Based on a Schedule

You can display records in a data entry grid based on a schedule.

NOTE: Scheduling criteria and a schedule definition must be set up prior to performing the following procedure. Refer to [Schedules on page 510](#) for more information.

Examples used in the instructions are based on the CPDM module. However, the information applies to all modules.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to view records in a grid based on a schedule:

1. Click **Data Entry > Edit <module> Data** to open the *Edit <module> Data* window.
2. Select a data entry grid. For example, click the **Inspection** tab and then the **Test Point** button to display the *Test Point Inspection* data entry grid.
3. If you want to collapse the *Selected ROWs* pane to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the pane.
4. If the *Options* window is not open, click **Options**.
5. In the **Based On** section, select **Schedule**.

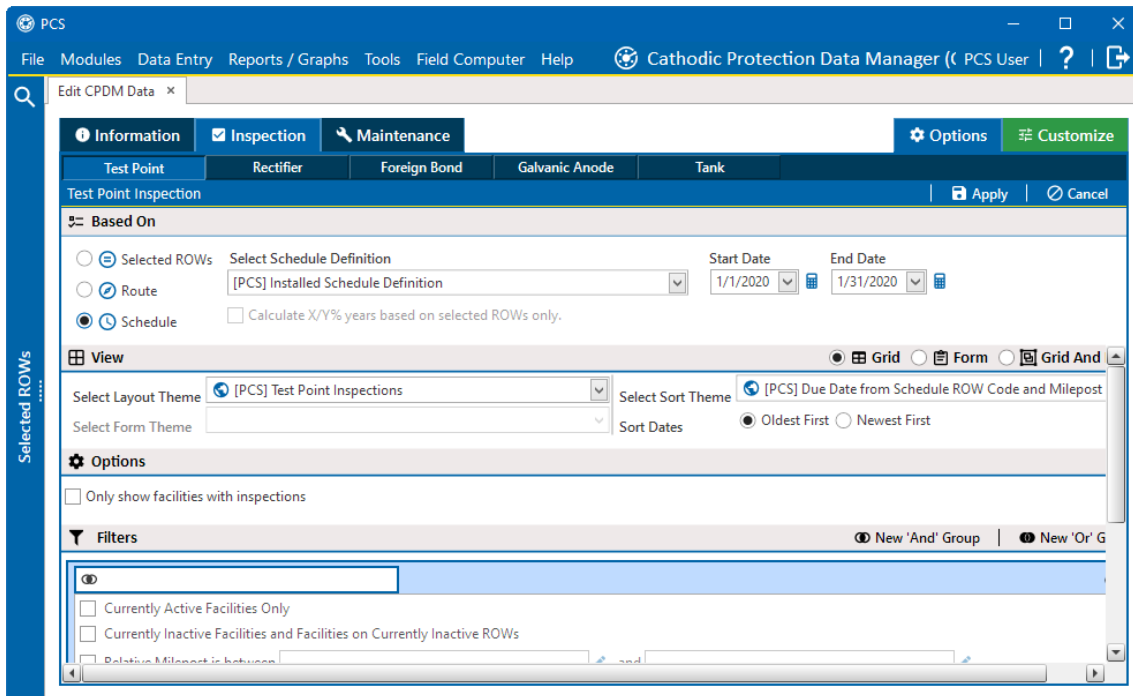



Figure 5-58. Inspection Tab Options

6. Select a schedule definition from the **Select Schedule Definition** drop-down list.
7. To set up a schedule date range using a calendar:
 - a. In the **Start Date** field, set a schedule start date by entering a date or selecting a date from the calendar. When typing a date, use the format MM/DD/YYYY to indicate the month, day, and year.
 - b. To set a dynamic value for the Start Date, click the  icon to expand the field. In the first field, enter a value for the number of days, months, or years from the Start Date. Select an interval from the second drop-down field.

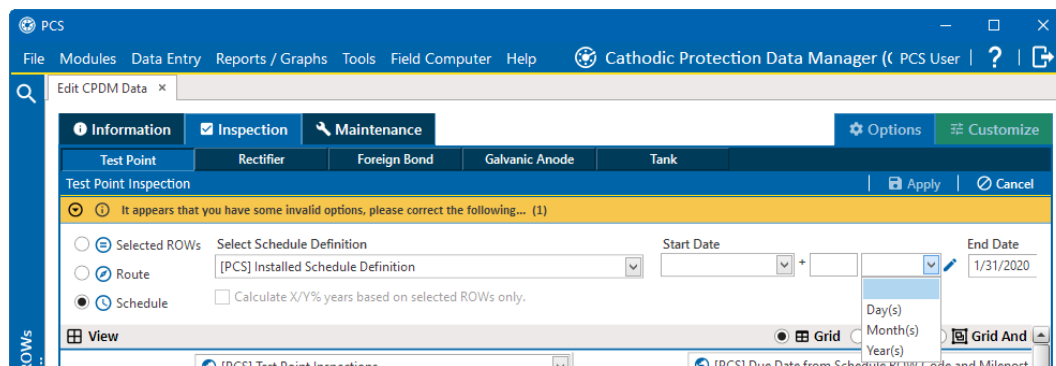





Figure 5-59. Dynamic Start Date

- c. To close the dynamic fields click the  icon.
 - d. In the **End Date** field, set a schedule end date by entering a date or selecting a date from the calendar. When typing a date, use the format MM/DD/YYYY to indicate the month, day, and year.
 - e. To set a dynamic value for the End Date, click the  icon to expand the field. In the first field, enter a value for the number of days, months, or years from the End Date. Select an interval from the second drop-down field.
8. Click  **Apply**. The *Options* window will close, and the data entry grid will open and display records based on the selected schedule definition and date range.

View Records Based on a Route

You can display records in a data entry grid based on a route.

A route is a user-created list of facilities for inspection arranged in a particular order. For example, if a route has previously been set up with facilities arranged in survey order, you can work with records in a data entry grid using the same route to display the grid in survey order.

NOTE: One or more routes must be set up prior to performing the following procedure. For information about how to set up a route, refer to [Routes on page 442](#).

Examples used in the instructions are based on the CPDM module. However, the information applies to all modules.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to view records in a grid based on a route:

1. Click **Data Entry > Edit <module> Data** to open the *Edit <module> Data* window.
2. Select a data entry grid. For example, click the **Inspection** tab and then the **Test Point** button to display the *Test Point Inspection* data entry grid.
3. If you want to collapse the *Selected ROWs* pane to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the pane.
4. In the **Based On** section, select **Route**.

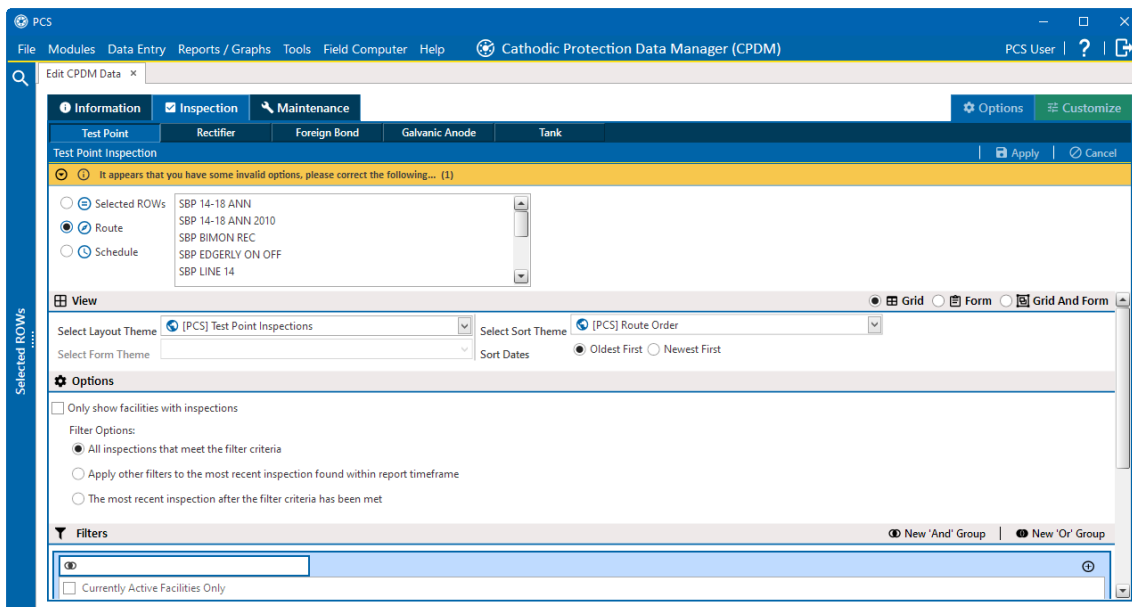


Figure 5-60. Inspection Tab Options



5. Select a Route from the list.
6. Optionally, select options from the **View**, **Options**, and **Filter** sections if you want to change the grid layout theme, sort theme, or apply one or more filters to the grid. Refer to [Themes and Filter Groups](#) for more information about these options.

Work with Derived Fields

A derived field is a system-calculated field with a value based on values in dependent fields. For example, PCS calculates a value for the field Effective IR Correction based on values in the following dependent fields:

- User IR Correction
- Structure P/S
- Structure IRF
- Inspection Date

IMPORTANT: Because some rows share data, making a change to one value could impact multiple rows of data.

When a value for a dependent field has been updated in a data entry grid, a  notification icon displays in the derived field indicating the value has changed and the data entry grid should be refreshed. Click the  **Refresh** button to update all derived values and remove the notification icon.

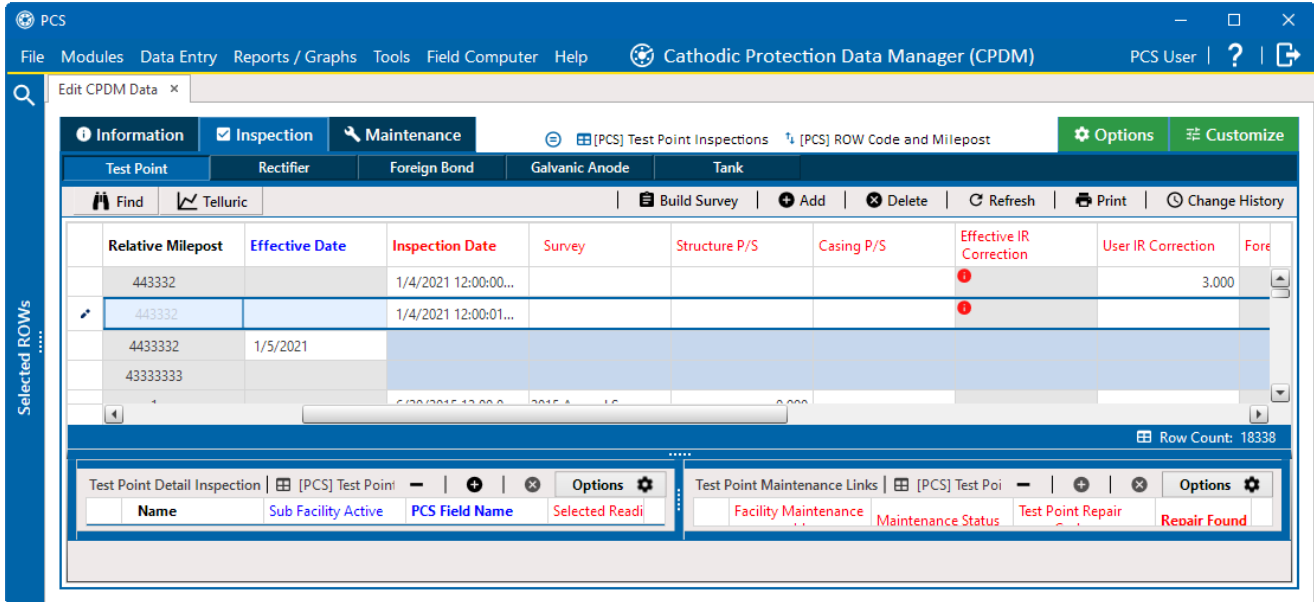


Figure 5-61. Derived Field - With Updated Information

Work with the Target Structure P/S Field

The *Target Structure P/S* field is a system-generated field available in the CPDM Test Point Inspection grid. The field is gray to indicate its contents are system-generated. *Target Structure P/S* is used by PCS to calculate a target reading with a minimum pipe-to-soil (P/S) for meeting criteria. The target reading is calculated based on your selected protection criterion and information in other fields.

Table 5-8. Calculating Target Structure P/S

Protection Criterion	Target Structure P/S Calculation
.85 On (default)	-0.850 V
.85 IRF	$-0.850 - \text{Structure P/S} - \text{Structure IRF} $ Example: $-0.850 - -1.200 - -0.800 = -1.250$ Note: The value in the field User IR Correction (if any) is used instead of the $ \text{Structure P/S} - \text{Structure IRF} $ equation.
100 mV	$\text{Native P/S} - 0.100 - \text{Structure P/S} - \text{Structure IRF} $ Example: $-0.550 - 0.100 - -1.200 - -0.800 = -1.050$ Note: The fields Native P/S and Native Date can be included with any survey regardless of how old. PCS always finds the most recent native reading and date, and the most recent pair of structure "on/off" readings (Structure P/S and Structure IRF). This means if the current-year survey includes only "on" readings, PCS uses the last "on/off" reading and native date. This is the case until a new "on/off" reading is taken.

Table 5-8. Calculating Target Structure P/S cont'd

Protection Criterion	Target Structure P/S Calculation
300 mV	This is no longer recognized by NACE RP0169 or DOT regulations.
Ref Read	Add the field Test Point Reference P/S in the grid when using "Ref Read" (reference reading) protection criterion.
Ag/AgCl	Functions the same as ".85 On" but uses -0.800V instead. Use this protection criterion for off-shore (saltwater) or tank "on" readings when using silver/silver chloride half cell.
The field Target Structure IRF is used for a facility to meet criteria and the calculated minimum value for the Structure IRF field.	
.85 On criteria	Calculation: Target Structure IRF = Null
.85 IRF (off) and 100mV criteria	<p>Structure IRF can be compared to Target Structure IRF to determine if the inspection is in compliance. If Structure IRF is more negative than Target Structure IRF, the test point is in compliance.</p> <ul style="list-style-type: none"> • Calculation for .85 IRF Criteria: Target Structure IRF = -.85. Target Structure P/S is calculated for an inspection that has a Structure IRF. • Calculation for 100mV Criteria: Target Structure IRF = Native P/S - 0.1. Native Date must be added in the grid. Target Structure IRF is calculated for an inspection that has a Structure IRF. Native P/S = Most recent Native P/S before the date of the Structure P/S and Structure IRF.
.85 On	Calculation: Target Structure IRF = Null
300 mV	Calculation: Target Structure IRF = Null
Ref Read	Calculation: Structure P/S = Null

The default setting for *Target Structure P/S* is -0.850.

Complete the following steps to change the setting:

1. Open the Test Point Inspection grid.
2. Select the field **Test Point Protection Criteria** for a test point in the grid. Click the down arrow and select a protection criterion in the selection list. Repeat this step for other test points as needed.
3. Set up other fields used to calculate *Target Structure P/S*. Based on how your data entry grids are arranged, fields may be in the *Test Point Information* or *Inspection* grid.

The following table describes how *Target Structure P/S* is calculated for each protection criterion. Each protection criterion identifies fields required for calculating *Target Structure P/S*. Equations with pipe brackets (|) represent absolute values.

Record Facility Current Values

The following required and optional fields are used for recording facility current values:

- *Record Rectifier Current*
- *Record Pipeline Current on page 304*
- *Record Bond Current on page 306*

Record Rectifier Current

The following table identifies the fields required for recording rectifier current (rectifier DC amps and volts; rectifier anode output current, and rectifier negative output current).

Table 5-9. Recording Rectifier Current Values

Facility & Current Type	Description
Rectifier: DC Amps and DC Volts	<p>Add the following fields in the <i>Rectifier Information</i> grid:</p> <ul style="list-style-type: none"> • Activate Rectifier Output Current Found • Activate Rectifier Output Volts Found <p>The following fields make up the shunt conversion factor and can be added to the <i>Information</i> grid:</p> <ul style="list-style-type: none"> • Rectifier Output Shunt Factor (A/mV): use this field to enter the amps value of the shunt conversion factor. Enter as a whole number value. • Rectifier Output Shunt Rating (mV/A): use this field to enter the millivolts value of the shunt conversion factor. Enter as a whole number value. <p>Add the following fields to the Rectifier Inspection grid:</p> <ul style="list-style-type: none"> • Rectifier Output Current Found (Amps) • Rectifier Output Volts Found (Volts) • Rectifier Output Current Left (Amps) • Rectifier Output Volts Left (Volts) • Rectifier Current Adjusted

Table 5-9. Recording Rectifier Current Values cont'd

Facility & Current Type	Description
Rectifier: Anode Output Current	<p>Add the Number of Impressed Anodes field to the <i>Rectifier Information</i> or <i>Inspection</i> grid.</p> <p>The <i>Rectifier Anode Information</i> mini-grid in the <i>Rectifier Information</i> grid automatically includes the following fields for entering anode data:</p> <ul style="list-style-type: none"> • Impressed Anode Current Minimum (Amps) • Impressed Anode Current Maximum (Amps) • Impressed Anode Shunt Rating (mV/A) • Impressed Anode Shunt Resistance (Ohms) • Impressed Anode Shunt Factor (A/mV) <p>Refer to Work with Rectifier Anodes on page 332 for more information.</p>
Rectifier: Negative Output Current	<p>Add the Number of Negatives field in either the <i>Rectifier Information</i> or <i>Inspection</i> grid.</p> <p>The <i>Rectifier Negative Information</i> mini-grid in the <i>Rectifier Information</i> grid automatically includes the following fields for entering rectifier negative data:</p> <ul style="list-style-type: none"> • Negative Current Min (Amps) • Negative Current Max (Amps) • Negative Current Shunt Rating (mV/A) • Negative Current Shunt Resistance (Ohms) • Negative Shunt Factor (A/mV) <p>Refer to Work with Rectifier Negatives on page 338 for more information.</p>

Record Pipeline Current

The following table identifies the fields required for recording pipeline current values.

Table 5-10. Recording Pipeline Current

Facility & Current Type	Description
Pipeline Current: IR Drop Test Station	<p>Add the following fields in the <i>Test Point Information</i> grid and "activate" fields for use.</p> <ul style="list-style-type: none"> • Activate Pipeline Current On - mV Drop • Activate Pipeline Current Direction • Pipeline Current Calibration Factor (A/mV) – enter the amps value of the current factor when using the resistance of the pipeline to measure current flow on the pipeline. Enter value as whole number. The value is used in the pipeline current calculation. • Pipeline Current Measurement Ratio (mV/A)– enter the current factor when using the resistance of the pipeline to measure current flow on the pipeline. Enter value as whole number. The value is used in the pipeline current calculation. <p>Add the following fields in the <i>Test Point Inspection</i> grid:</p> <ul style="list-style-type: none"> • Pipeline Current On (Amps)– enter amps reading for pipeline current measured with rectifier on. • Pipeline Current Direction– use this field to describe the direction of the current, such as upstream or downstream.
Pipeline Insulator Current: Shunt for Insulated Flange	<p>Add the following fields in the <i>Test Point Information</i> grid and "activate" fields for use.</p> <ul style="list-style-type: none"> • Activate Insulator Current • Insulator Shunt Factor (A/mV) • Insulator Shunt Rating (mV/A) <p>Add the field <i>Insulator Current (Amps)</i> in the <i>Test Point Inspection</i> grid.</p> <p>Use the Insulator Current (Amps) field to enter the amps value of the insulator shunt reading. PCS uses the reading and the value in the Insulator Shunt Rating (mV/A) field to calculate and enter a value in the Insulator Shunt Factor (A/mV) field.</p>

Table 5-10. Recording Pipeline Current cont'd

Facility & Current Type	Description
Pipeline Insulator P/S	<ol style="list-style-type: none"> 1. Add and enable the Activate Insulator P/S field in the <i>Test Point Information</i> grid. 2. Add the Insulator P/S field in the <i>Test Point Inspection</i> grid. Use the Insulator P/S field to enter a potential reading for the other side of an insulated flange, relative to the soil. This type of reading is also referred to as an "insulator-to-soil" potential reading. If the protection criteria option <i>.85 IRF</i> or <i>100mV</i> is selected in Test Point Protection Criteria, add and enable the Activate Insulator IRF field in the <i>Test Point Information</i> grid and then add the Insulator IRF (Volts) field in the <i>Test Point Inspection</i> grid.
Pipeline Galvanic Current: Shunt for Galvanic Anode	<p>Add the following fields in the <i>Galvanic Anode Information</i> grid and "activate" fields for use.</p> <ul style="list-style-type: none"> • Activate Galvanic Current • Galvanic Anode Shunt Factor (A/mV) • Galvanic Anode Shunt Rating (mV/A) <p>Add the field Galvanic Current (Amps) in the <i>Galvanic Anodes Inspection</i> grid.</p> <p>Use the Galvanic Anode Current (Amps) field to enter the amps value of the galvanic anode shunt reading. PCS uses the reading and the value in the field <i>Galvanic Anode Shunt Rating (mV/A)</i> to calculate and enter a value in the Galvanic Anode Shunt Factor (A/mV) field.</p>

Record Bond Current

The following table identifies the fields required for recording bond current using the *Bond Information* and *Inspection* data entry grids (*Data Entry > Edit CPDM Data > Foreign Bond*).

Table 5-11. Recording Bond Current Values

Facility Type	Description
Bond Current	<p>Add the following fields in the <i>Foreign Bond Information</i> grid:</p> <ul style="list-style-type: none"> • Bond Shunt Rating • Bond Shunt Resistance <p>Use the Bond Shunt Rating field to enter the amps reading of the bond conversion shunt factor. Use the Bond Shunt Resistance field to enter the millivolt (mV) reading of the bond conversion factor. Readings in both of these fields automatically update the Bond Shunt Factor field.</p> <p>Add the following fields in the <i>Foreign Bond Inspection</i> grid:</p> <ul style="list-style-type: none"> • Bond Current Found • Bond Current Left • Bond Current Adjusted <p>Use the Bond Current Found field to enter the current reading for a foreign bond as it is found (before adjusting the current). The value automatically copies to the Bond Current Left field. To adjust the Bond Current Found reading, click the Bond Current Adjusted check box and then type the adjusted reading in the Bond Current Left field.</p>

Attach a Document to a Grid Record

When you want to attach a document to a record in the grid, use the **Attached Document** field to link or embed a file or webpage address to a ROW, facility, inspection, or maintenance record. Supported file types include image, video, HTML, Excel, XML, music, and text files (such as Microsoft Word, WordPad, Notepad, or PowerPoint files). Macro-enabled documents (including .xls_m, and .doc_m files) are not supported.

Linking a document identifies the file location on a local computer, company network, FTP site, or webpage on the Internet. Linking documents stored on a local computer are accessible only from that computer. Embedding a document stores a copy of the file in the PCS database.

NOTE: Storing copies of documents in the PCS database increases the size of the database.

If the file type of an attached document is associated with a default software program on the local computer, you can preview the file in the *Preview Attached Documents* window. Additionally, clicking *Open* opens the attached document for editing or viewing purposes.

Editing an embedded document applies changes only to the copy stored in the PCS database; changes do not apply to the source file stored outside of PCS. Likewise, editing a source file applies changes only to the source file, not the copy stored in PCS.

Each of the following fields allow you to attach a document to a record in the grid. If any of these fields are not present in the grid, refer to [Themes and Filter Groups on page 372](#) for information how to add the field to the grid.

- **ROW Attached Documents**— add this field in the *Information, Inspection, or Maintenance* grid if you plan to attach a document to a ROW record.
- **Facility Attached Documents** – add this field in the *Information, Inspection, or Maintenance* grid if you plan to attach a document to a facility record.
- **Inspection Record Attached Documents** – add this field in the *Inspection* grid if you plan to attach a document to an inspection record.
- **Maintenance Record Attached Documents** –add this field in the *Maintenance* grid if you plan to attach a document to a maintenance record.

For more information, continue with one of the following topics:

- [Attach a Document to a ROW, Facility, Inspection, or Maintenance Record on page 308](#)
- [View an Attached Document on page 312](#)

For information about how to attach a document to a pipeline record, refer to [Pipeline Records on page 173](#).


Attach a Document to a ROW, Facility, Inspection, or Maintenance Record

Information in this section explains how to attach a document to a record in the grid using the options **Link Document** and **Embedded Document**.

These instructions start with the assumption that you have the correct facility type grid selected. For information about accessing a grid of data, refer to [View Data in a Grid or Form on page 242](#).

NOTE: If the option **Link Document** is unavailable for selection, your company's PCS administrator has disabled this setting in **Options**.

Complete the following steps to attach a document to a record in the grid:

1. Select a module from the **Modules** main menu.
2. Click **Data Entry** and then select **Edit <Module> Data**.
3. Click  **Apply** or press **Enter** if the Options window is displayed instead of the grid.
4. Click the **Information**, **Inspection**, or **Maintenance** tab and select a facility type from the selections below the Information, Inspection, and Maintenance tabs.

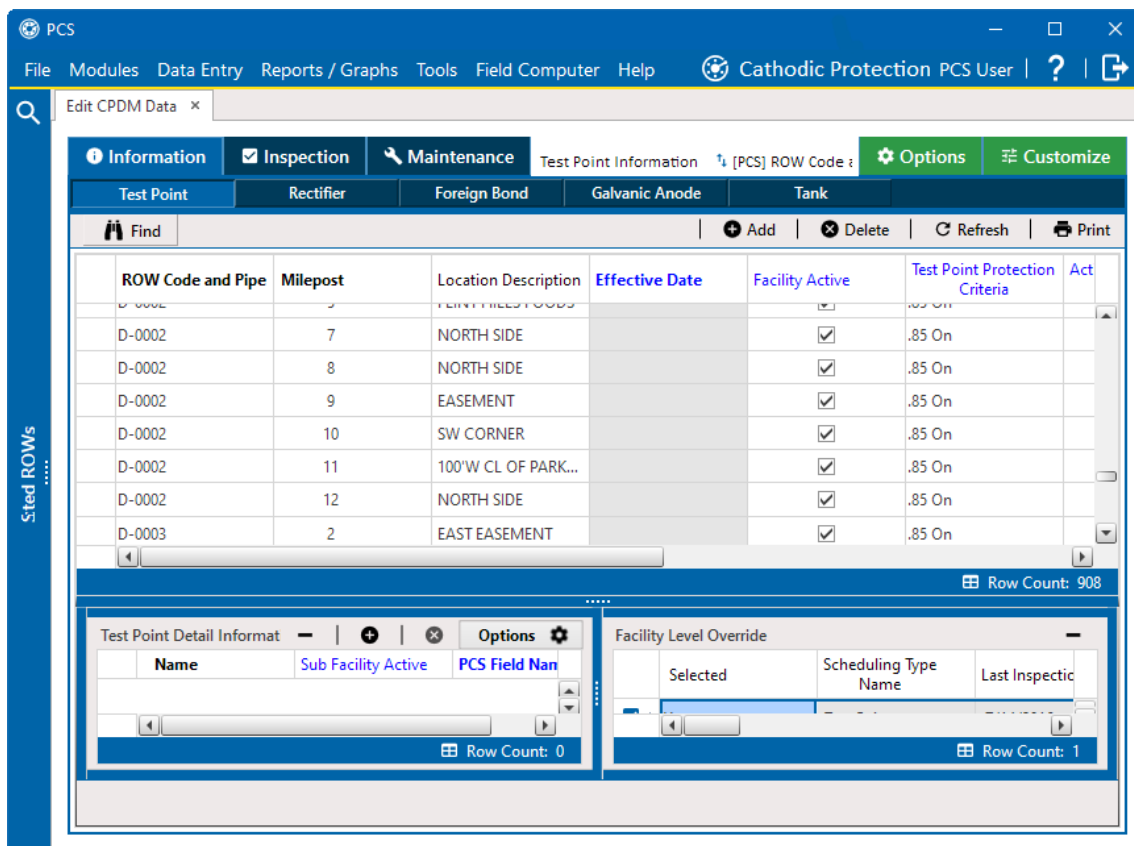



Figure 5-62. Information Grid

1. Click the  icon in the **<record type> Attached Documents** field for the grid record you plan to attach a document. The example below shows the **Inspection Record Attached Documents** from the *Inspection* grid.

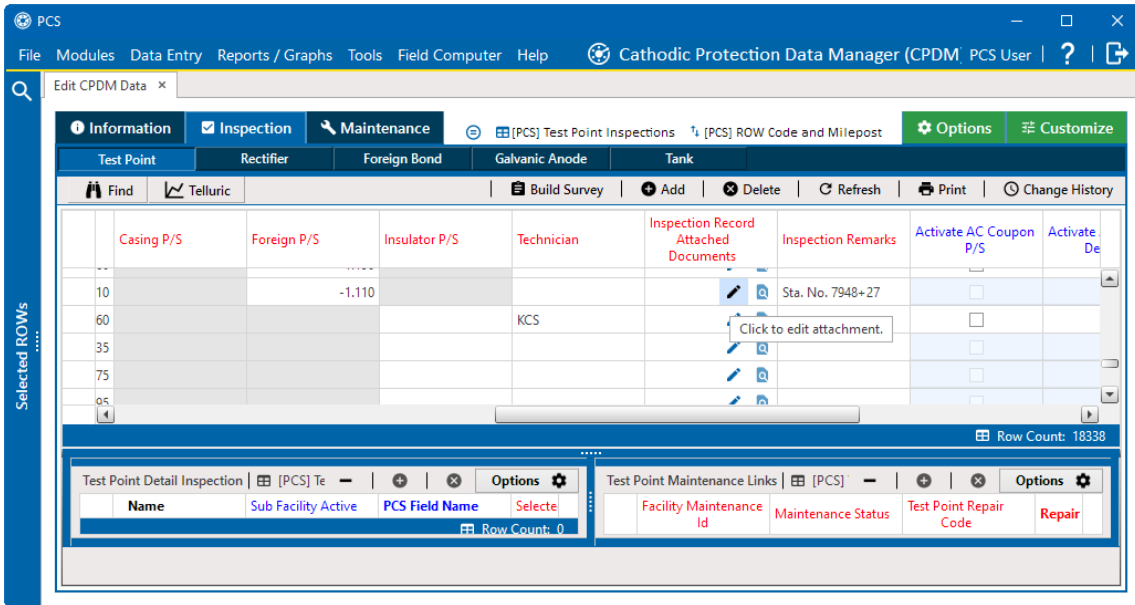


Figure 5-63. Attached Document Field

2. In the *Maintain Attached Documents* window, click **+** **Attach**. The **Link Document** and **Embedded Document** options become available.

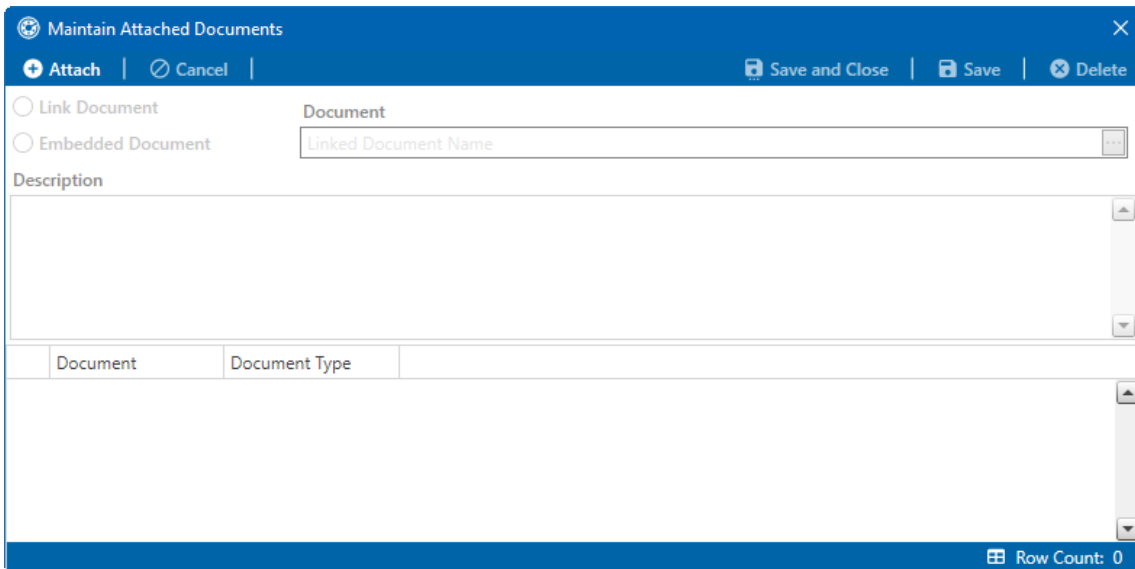


Figure 5-64. Maintain Attached Documents Window




3. Select one of the following options for attaching a document:

- **Link Document** – select this option if you plan to link to a document on a local computer or company network. Edits to the document are made on the local computer or company network, whether accessed from within PCS or not. If you choose to link to a document on a local computer, users who access PCS from another computer may have trouble accessing the document.
- **Embedded Document** – select this option if you want to store a copy of an attached document in the PCS database. Changes made to the document will not affect copies of the document that may be stored on your local computer or company network.

Storing copies of attached documents in the database increases the size of the database.

4. Click the ellipsis button ... in the **Document** field to open the *Link File* window. Then navigate to the file and select it. Click **Open** to link to the file and close the window.
5. Type a description for the linked file in the **Description** field. When a description is not provided, PCS uses the filename of the linked document as the description.

A list of attached documents display in the window. Selecting an item in the list displays its location in the *Document* field.

6. Click  **Save** to save changes and add more documents.
7. Click  **Save and Close** to save changes and close the window. A message will appear confirming whether you intended to link to the document or store a copy in the PCS database. Click  **OK**.

The data grid updates with text in the **Attached Documents** field to denote that a document or documents is/are attached to this record.

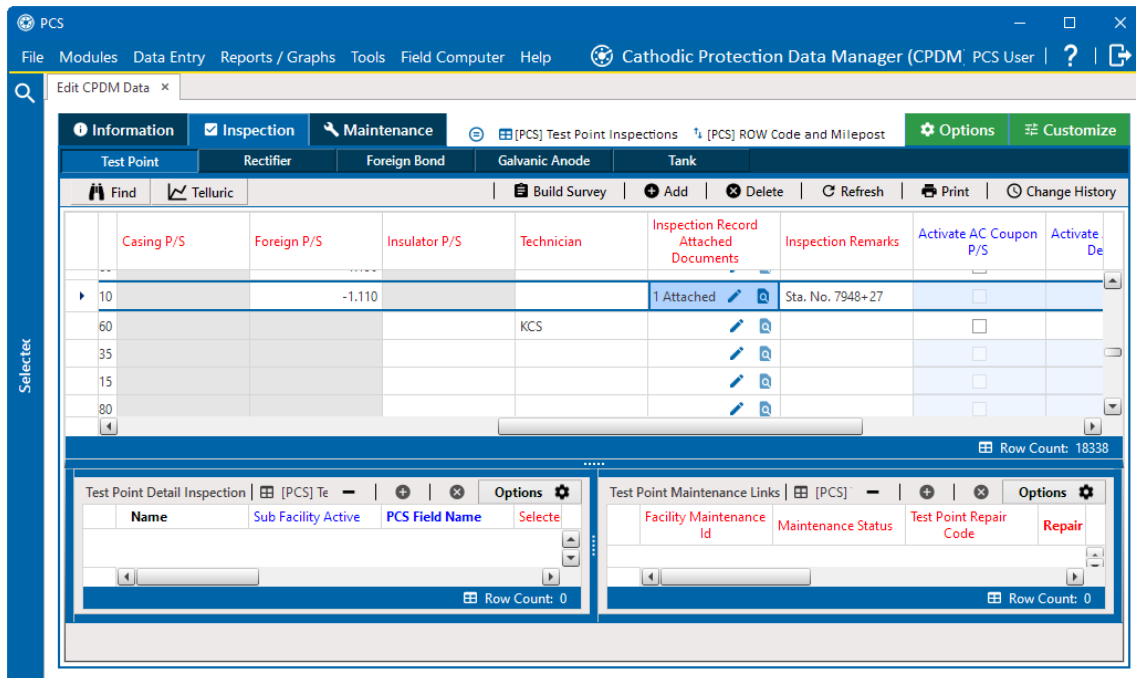


Figure 5-65. Attached Document to Record

View an Attached Document

If the file type of an attached document is associated with a default software program on the local computer, you can preview the file in the *Preview Attached Documents* window. Additionally, you can open the attached document for editing or viewing purposes.

These instructions start with the assumption that you have the correct facility type grid selected. For information about accessing a grid of data, refer to [View Data in a Grid or Form on page 242](#).

Complete the following steps to view or open an attached document:

1. Click the  icon for the grid record with the attached document.

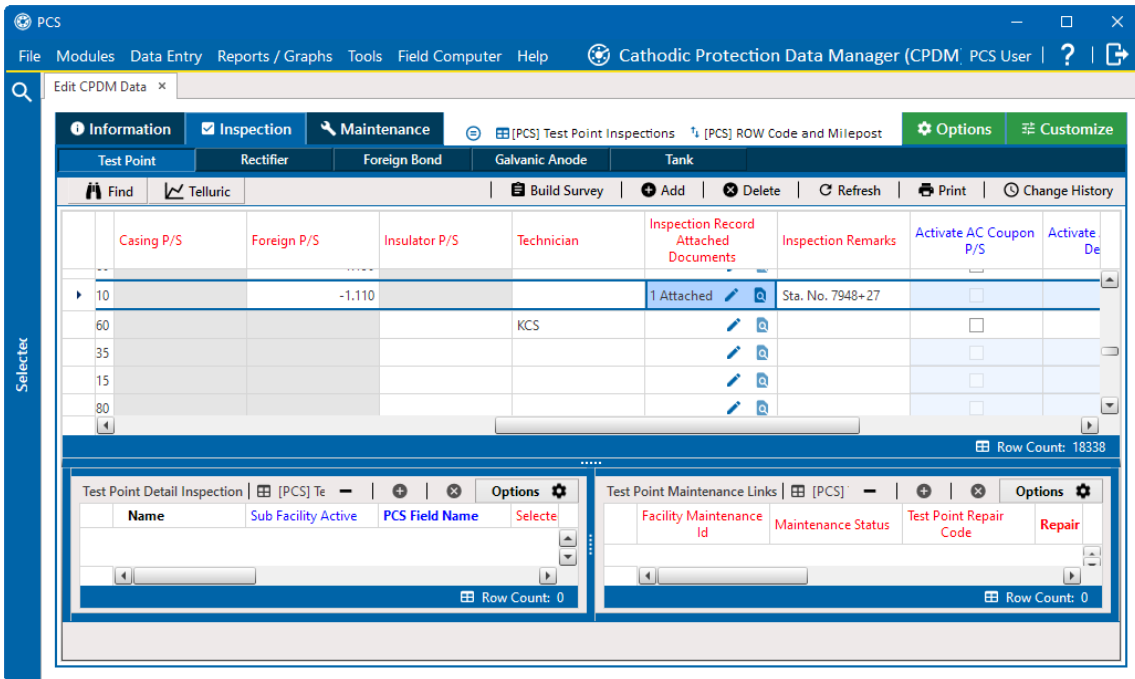


Figure 5-66. View Attached Document

2. In the *Preview Attached Documents* window, select a file in the list on the left side of the window to preview the file (if the previewer supports it).

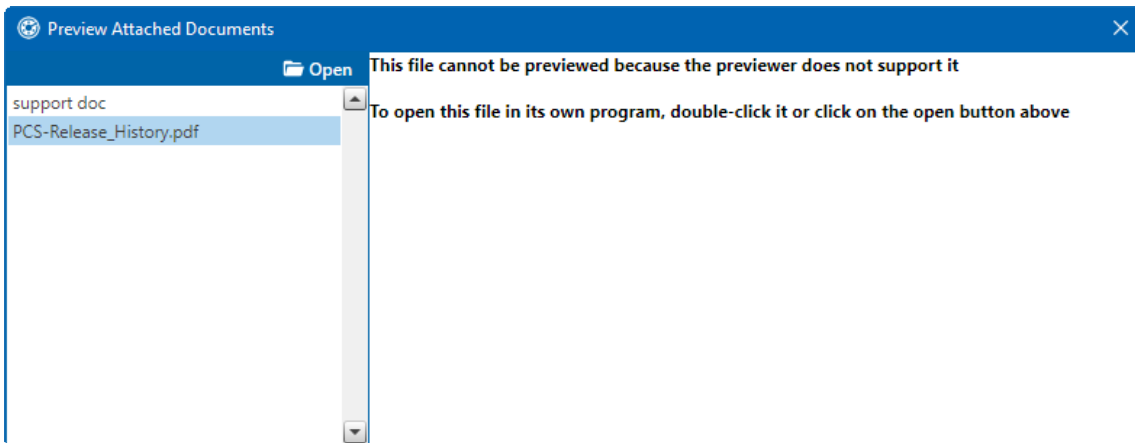



Figure 5-67. Preview Attached Documents Window

3. If the file type of the attached document is associated with a default software program on the local computer, click  **Open** (or double-click it) to open the file.
4. Click the **X** icon to close the *Preview Attached Documents* window.

When you open and then edit an embedded document, changes apply only to the copy stored in the PCS database; changes do not apply to the source file stored outside of PCS. Likewise, editing the source file applies changes to the source file, not the copy stored in the PCS database.

Work with an Images Field

Occasionally, inspection data will be accompanied by images that were captured while performing surveys. These images will often be used to document corrosion in atmospheric surveys or to depict items described within the data fields in any survey. Image fields in PCS allow you to attach these pictures and other graphics to information, inspection, and maintenance records for a pipeline or facility or to the pipeline or facility's base record itself.

When images fields are added to a Form Report theme, all images in the field or a specified number of images from the field can be displayed in the form. The theme can also be restricted to show only the primary image from the image field. For more information about displaying images from images fields in a form report, refer to *Form Report Designer Themes on page 820* in *Reports and Graphs*.

For more information about the images fields available in the data entry grid and form, refer to *Access the Images Fields on page 314*. Once you've found the images fields, the following topics provide instructions detailing how to add, remove and modify, export, and preview images attached to an images field:

- *Add Images to a Record's Images Field on page 315*
- *Manage Images in a Record's Images Field on page 320*
- *Export Images to a Folder on page 327*
- *Preview Images Attached to a Record on page 319*

Access the Images Fields

Images attached to a record in PCS provide a visual representation of the pipeline or facility, whether it is a schematic design, an identifying picture, or other graphic. Information images can show what the pipeline or facility looked like at specific points in time or to demonstrate details included in the information record. Inspection images can further illustrate items described in the inspection. Images attached to a maintenance record before maintenance is performed can show the specific item that requires maintenance, while images attached after the work is done can serve as proof the maintenance was complete.

The following image fields are available and can be added to a grid or form in **Edit <Module> Data** and, depending on the report type, to a form report in **Reports/Graphs**:

- **Pipeline Maintenance Images** – attaches images to a pipeline maintenance record.
- **Facility Images** – attaches images to a base facility record.
- **Facility Information Images** – attaches images to a facility information record.
- **Facility Inspection Images** – attaches images to a facility inspection record.
- **Facility Maintenance Images** – attaches images to a facility maintenance record.

The following image fields may be available to view in **Edit <Module> Data** but are only available for managing images in **Edit ROW Detail**.

- **Pipeline Images** – displays attached images to a base pipeline record.
- **Pipeline Information Images** – attaches images to a pipeline information record.

For more information about adding the fields to a data entry grid or form or to a form report theme, refer to [Themes and Filter Groups on page 372](#) or [Work with Form Themes on page 384](#) or [Form Report Designer Themes on page 820](#) in *Reports and Graphs*.

Add Images to a Record's Images Field

Images can be added to an images field using either an Allegro field computer or PCS. Up to twelve images can be attached to a single field when using an Allegro. When attaching images to a field in PCS, there is no such limitation. However, attaching several images to each record can take up a lot of space in your images database. Contact your PCS database administrator to identify an appropriate number of images to attach to your records.

Refer to the following topics for instructions detailing how to add an image to a record's images field:

- [Add Images with a Mobile Device on page 315](#)
- [Add Images in the Data Entry Grid on page 316](#)
- [Add Images in a Data Entry Form on page 317](#)

Add Images with a Mobile Device

While performing a periodic survey, photographs can be taken with a field computer or mobile device to graphically record inspection and maintenance information for a facility. Those images are attached to the survey's **Facility Inspection Images** or **Facility Maintenance Images** fields. When the survey is transferred to PCS using Field Computer Receive, the images are imported into PCS alongside the rest of the survey data.

Refer to the field computer or mobile device user guide and [Receive a Facility Survey on page 658](#) for more information.

For a field computer or mobile device survey to include images, those images fields must be included in the prompt sent to the device. Refer to [Manage a Prompt Theme on page 674](#) for more information about creating and modifying a prompt.

Add Images in the Data Entry Grid

You can add images directly to the field from the data entry grid from the *Maintain Attached Images* window, as long as an images field has been added to the data entry grid's layout theme. Refer to [Add a Data Grid Layout Theme on page 372](#) for more information about adding fields to a layout theme.

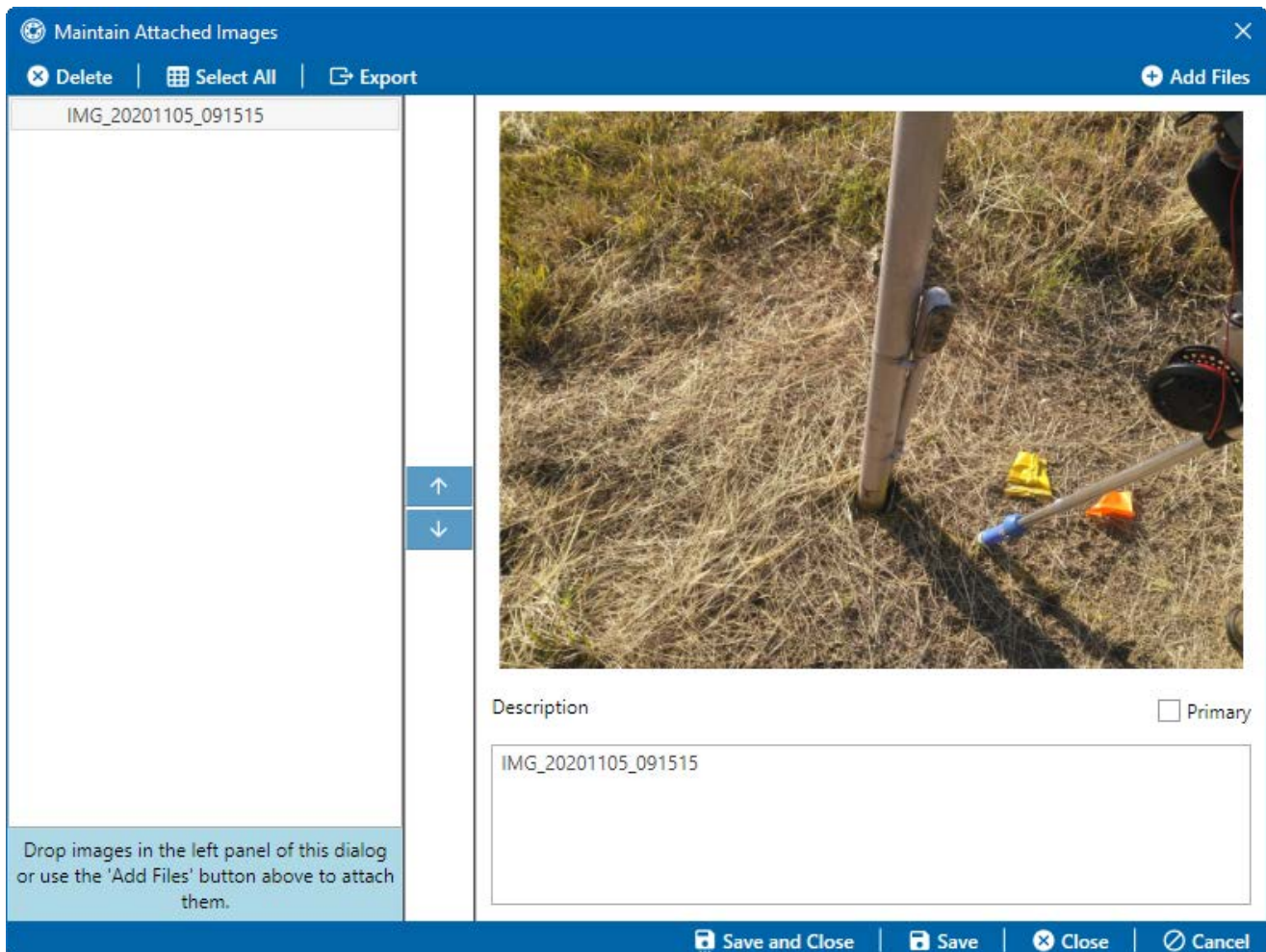






Figure 5-68. Maintain Attached Images

Click  in the record to open the *Maintain Attached Images* window. Complete one of the following to add an image to an images field in the data entry grid:

- **Navigate to the Image** – click  **Add Files** and navigate to the desired image. Select the image and click **Open**. The image is listed in the left pane and loads in the right. The description field below the image is filled out based on the image file name. If desired, select the text in the

description field to enter a new description for the image. Click  **Save** to save the image and image description with the field.

- **Drag and Drop an Image** – select an image on your computer and drag it to the left pane of the *Maintain Attached Images* window. The image is listed in the left pane and loads in the right. The description field below the image is filled out based on the image file name. If desired, select the text in the description field to enter a new description for the image. Click  **Save** to save the image and image description with the field.

Repeat these steps to add more images to the images field. Once the images are added to the images field, you can manage the images in the field or remove images from the field. Refer to [Manage Images in a Record's Images Field on page 320](#) for more information.

Once all images are added to the field, click  **Close** to close the *Maintain Attached Images* window.

Add Images in a Data Entry Form

You can add images directly to the field from the data entry form, as long as an images field has been added to the data entry form's layout theme. Refer to [Work with Form Themes on page 384](#) for more information about adding fields to a form theme.

The screenshot displays the PCS software interface for editing CPDM data. The top navigation bar includes 'File', 'Modules', 'Data Entry', 'Reports / Graphs', 'Tools', 'Field Computer', and 'Help'. The main window title is 'Edit CPDM Data'. Below the navigation bar, there are tabs for 'Information', 'Inspection', and 'Maintenance'. The 'Inspection' tab is active, showing 'Test Point Information' and '[PCS] ROW Code and M'. The form fields are: 'Series' (dropdown), 'ROW Code and Pipe' (76D-51), 'Milepost' (443332), 'Relative Milepost' (443332), and 'Effective Date' (dropdown). A 'Facility Information Images' field is present, containing a photograph of a test point in a field. The interface also features a search bar, a 'Find' button, and various action buttons like 'Add', 'Delete', 'Refresh', 'Print', and 'Change History'.

Figure 5-69. Data Entry Form with an Images Field

Locate the images field on the data entry form and do one of the following to add an image to the images field:

- **Navigate to the Image** – Click **+ Add Files** and navigate to the desired image. Select the image and click **Open**. The image loads in the images field box and the description field below the image is filled out based on the image file name. If desired, select the text in the description field to enter a new description for the image.
- **Drag and Drop an Image** – Select an image on your computer and drag it to the images field box. The image loads in the images field box and the description field below the image is filled out based on the image file name. If desired, select the text in the description field to enter a new description for the image.


Repeat these steps to add more images to the images field. Once the images are added to the images field, you can manage the images in the field or remove images from the field. Refer to [Manage Images in a Record's Images Field on page 320](#) for more information.

Preview Images Attached to a Record

Images attached to a record's images field can be viewed immediately in a data entry form, as long as the images field has been added to the form theme. The data entry grid has a Quickview and a Preview window to easily see the primary image or all images, respectively, for an images field.

In form view, the images are presented along with the record information. Refer to [Add Images to a Record's Images Field](#) and [Manage Images in a Record's Images Field](#) for more information.

To preview the images for an images field in the data entry grid, select the desired record and then do one of the following:

- **Preview Primary Image** – hover your mouse over the  icon for the images field you wish to preview. If a primary image is defined for the images field, that image will appear next to the record in a Quickview window. If no primary image is defined, the first image in the list of images for the images field will be displayed instead.

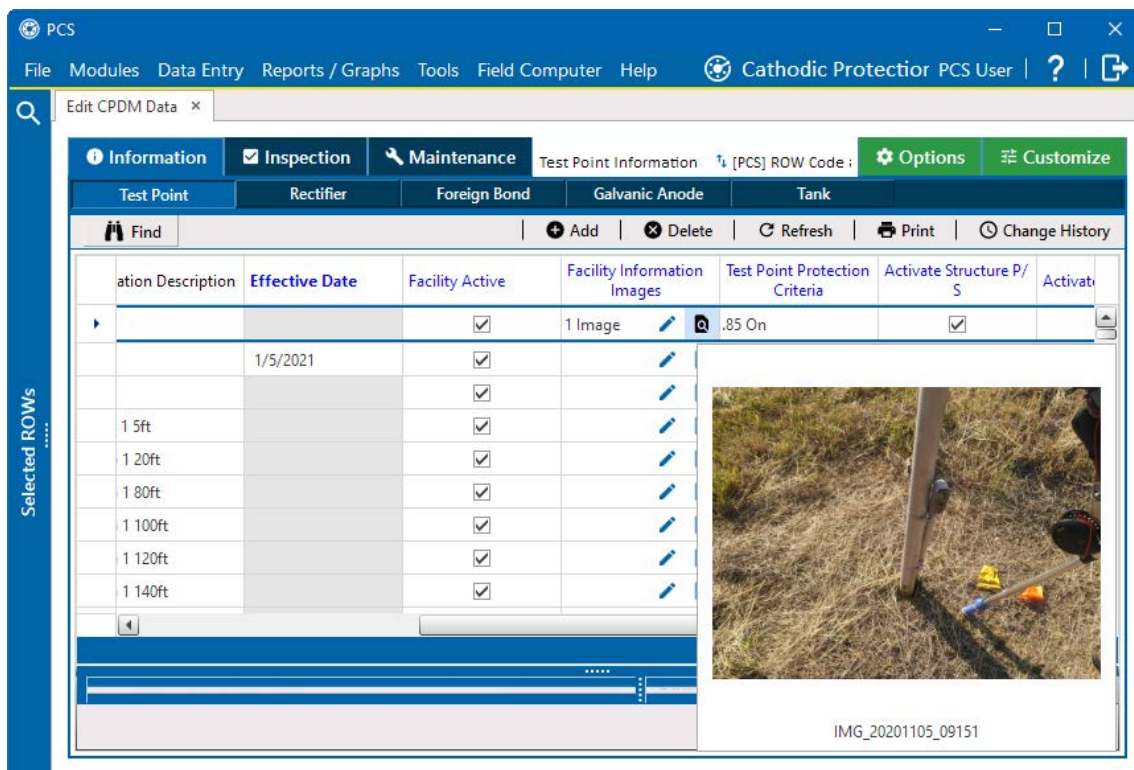


Figure 5-70. Images Field's Quickview



- **View All Images for a Field** – click  in the images field you wish to preview. The *Preview Attached Images* window displays with all images added to the field and their descriptions showing in a grid. Click  **Close** to close the window.



Figure 5-71. Preview of Images for Field

Manage Images in a Record's Images Field

Images that have been added to an images field can be rearranged to display in a different order, the descriptions of the images can be modified, images can be removed from the images field, and a primary image for the field can be set. These changes affect what is shown in the data entry grid and data entry form, as well as what images are shown and how they display in form reports. For more information about viewing images in form reports, refer to *Form Report Designer Themes on page 820* in *Reports and Graphs*.



For instructions detailing how to modify the images in the images field, refer to the following topics:

- [Remove Images from an Images Field on page 321](#)
- [Modify an Image's Description on page 322](#)
- [Set a Primary Image on page 324](#)
- [Rearrange Images on page 327](#)

Remove Images from an Images Field

You can remove an image from an images field in either the data entry grid or form, as long as the images field has been added to the grid layout or form theme.

To remove an image from an images field, locate the desired record in either the data entry grid or form and follow either of the following instructions:

- **From the Data Entry Grid** – click  to open the *Maintain Attached Images* window to view all images attached to the images field. Select the image you wish to remove and click  **Delete** to remove the image from the left pane.

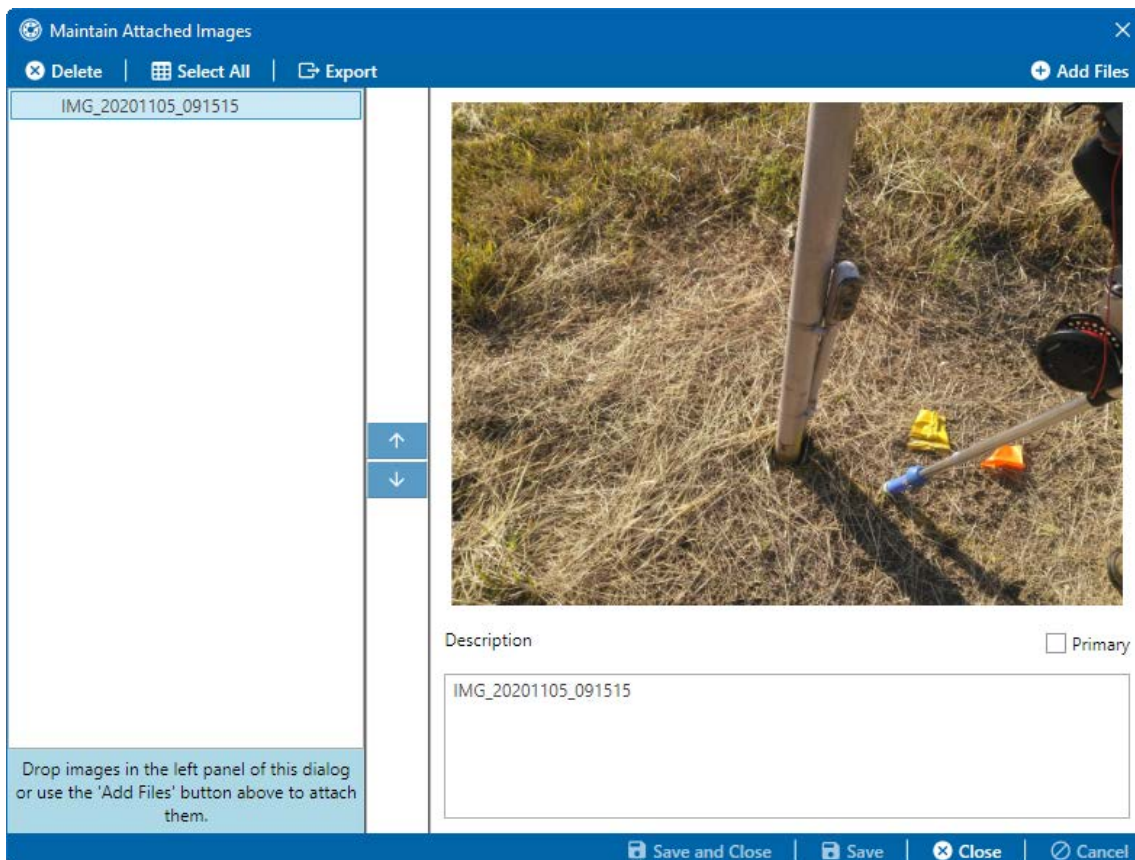





Figure 5-72. Maintain Attached Images

Click  **Save** to save the changes to the images field.

Repeat these steps to remove more images from the images field. Once all desired images are removed from the field, click  **Save and Close** to close the *Maintain Attached Images* window.

- **From the Data Entry Form** – select the image on the form you wish to remove and click  **Delete Selected** to remove the image from the images field. Repeat these steps to remove more images from the images field.

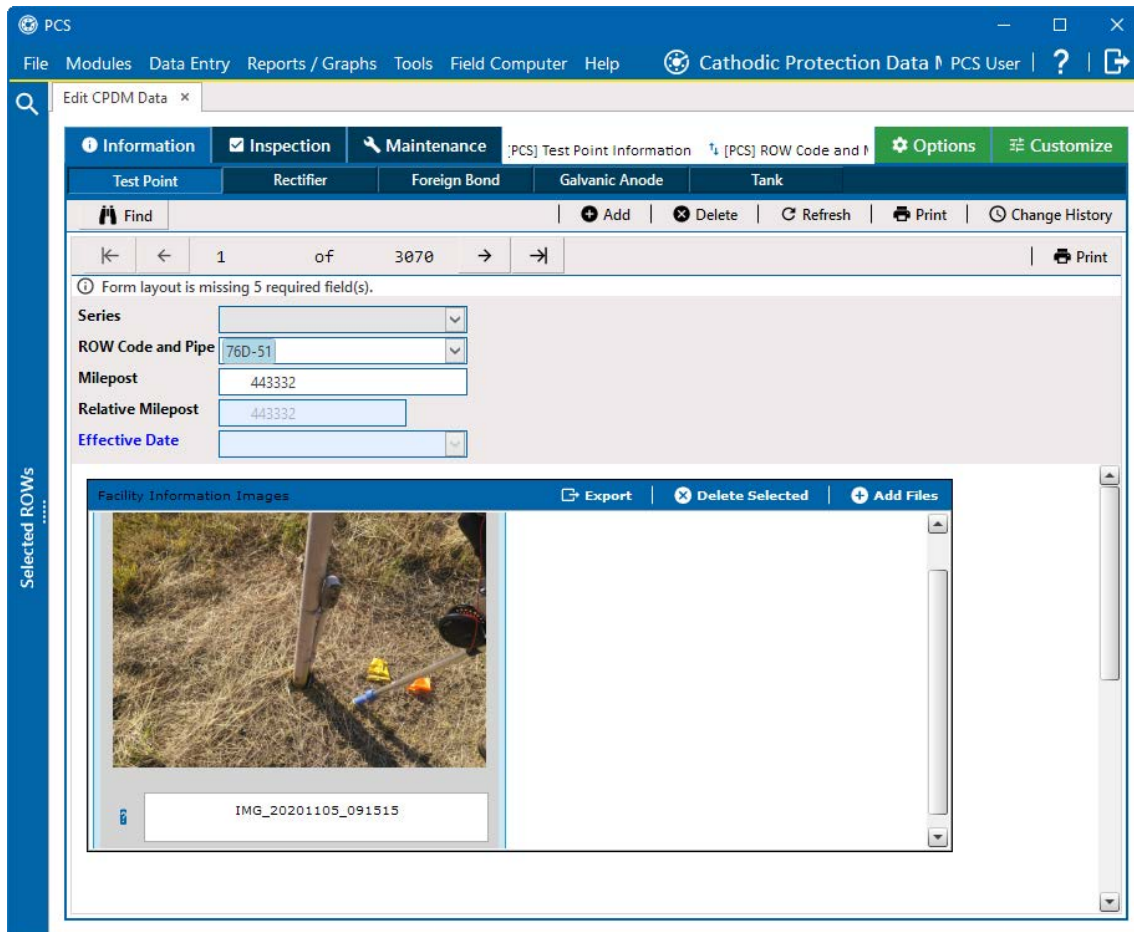




Figure 5-73. Selected Image in Form

Modify an Image's Description

An image's description is a short statement about the image, up to 50 characters long. The description will be used to identify the image in a list, such as the *Maintain Attached Images* window, and will be included alongside the image in a form report. You can change the description for an image from an images field in either the data entry grid or form, as long as the images field has been added to the grid layout or form theme.

To change the description for an image from an images field, locate the desired record in either the data entry grid or form and follow either of the following instructions:

- **From the Data Entry Grid** – Click  to open the *Maintain Attached Images* window and select the image in the left pane of the window. The image and its description loads in the right pane. Select the existing text in the description field and enter a new description for the image. Click  **Save** to save the new description of the image.

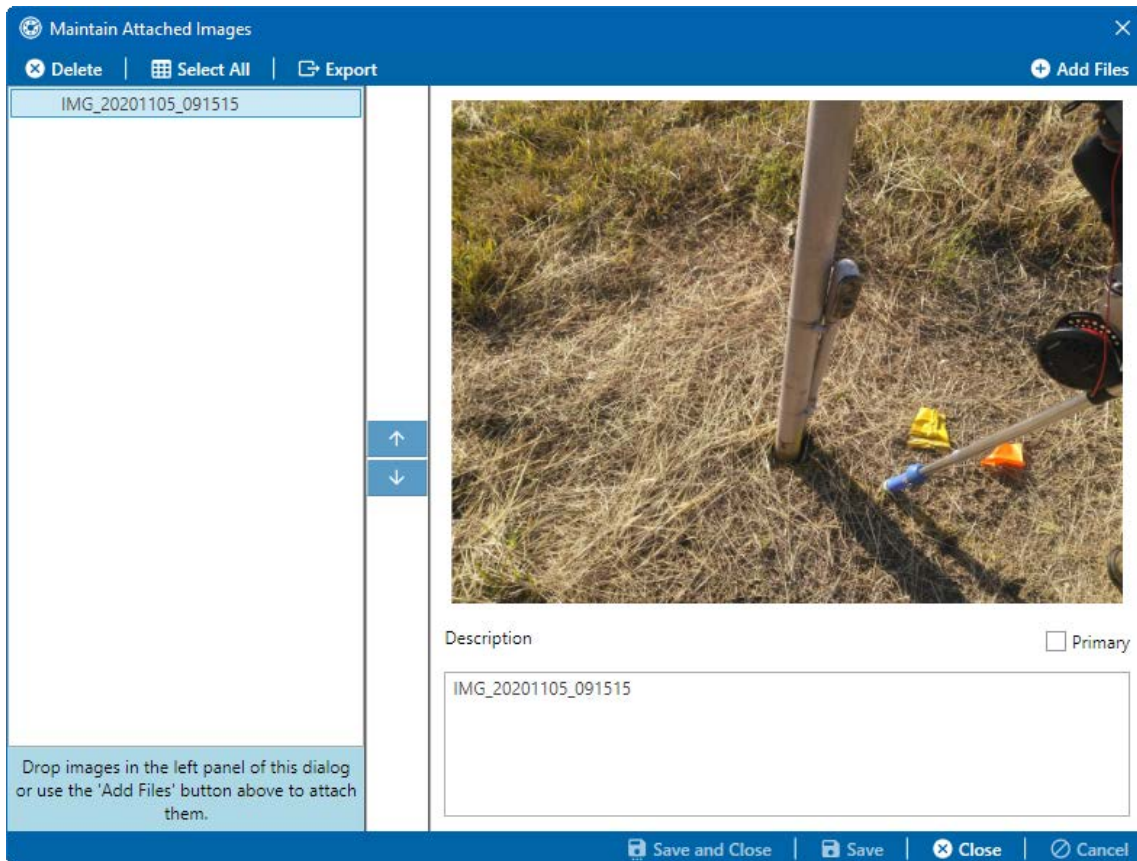



Figure 5-74. Maintain Attached Images

Once all images are modified for the field, click  **Save and Close** to close the *Maintain Attached Images* window.

- **From the Data Entry Form** – select the text in the description field below the image you wish to update and enter a new description for the image. Repeat these steps to update more images for the images field.

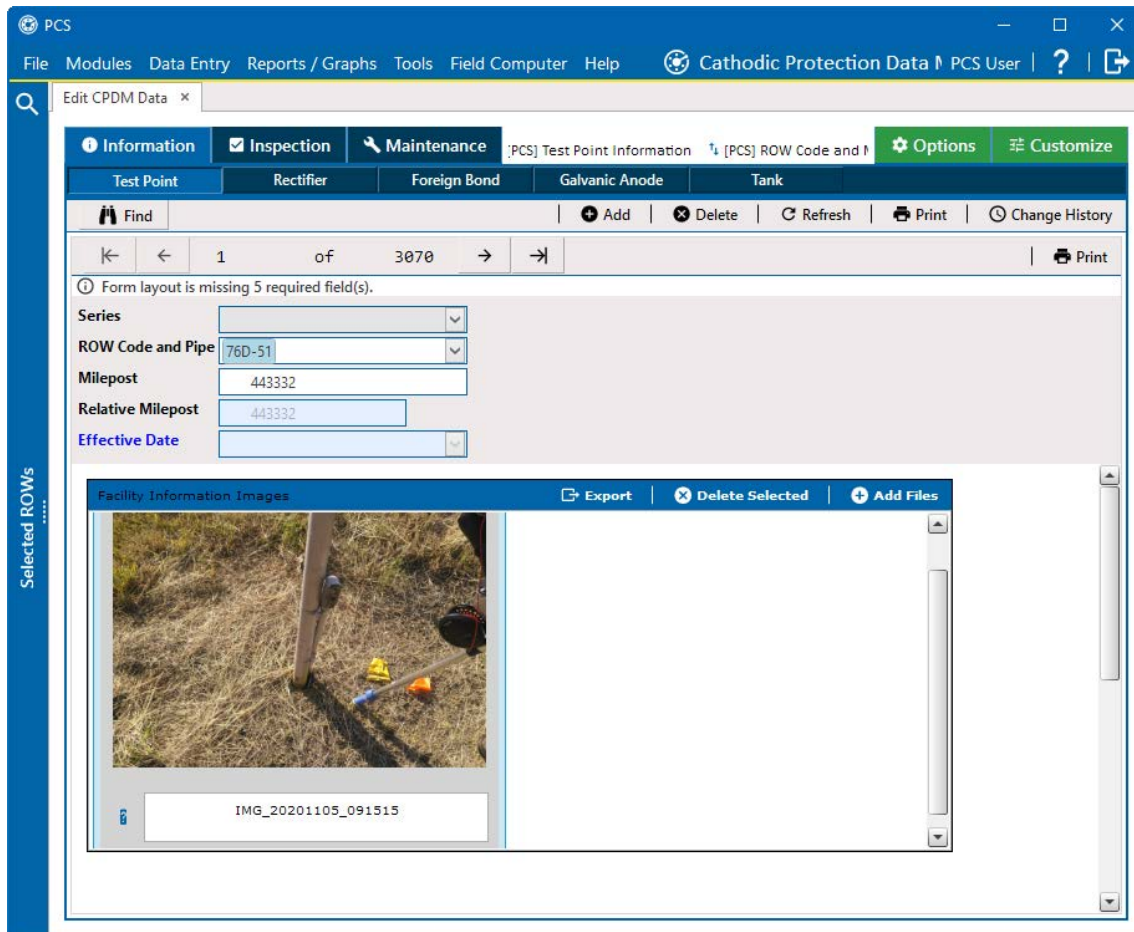



Figure 5-75. Selected Image in Form

Set a Primary Image

A primary image can be configured for an images field to define an image to show when only one image can or should display. Primary images are shown in the Quickview window when you hover over the Preview button for a record's images field and, depending on the options chosen when creating a form report, may be the only image displayed for a record's images field when a report is created. By default, the first image added to the images field is set as the primary image but you can change the primary image for an image from an images field in either the data entry grid or form.

To change the primary image for an images field, locate the desired record in either the data entry grid or form and follow either of the following instructions:

- **From the Data Entry Grid** – Click  to open the *Maintain Attached Images* window and select the image in the left pane of the window. The image and its description loads in the right pane. Select the **Set Primary** check box. The selected image will move to the top of the list in the left pane and a star appears next to the description to indicate its status as primary image.

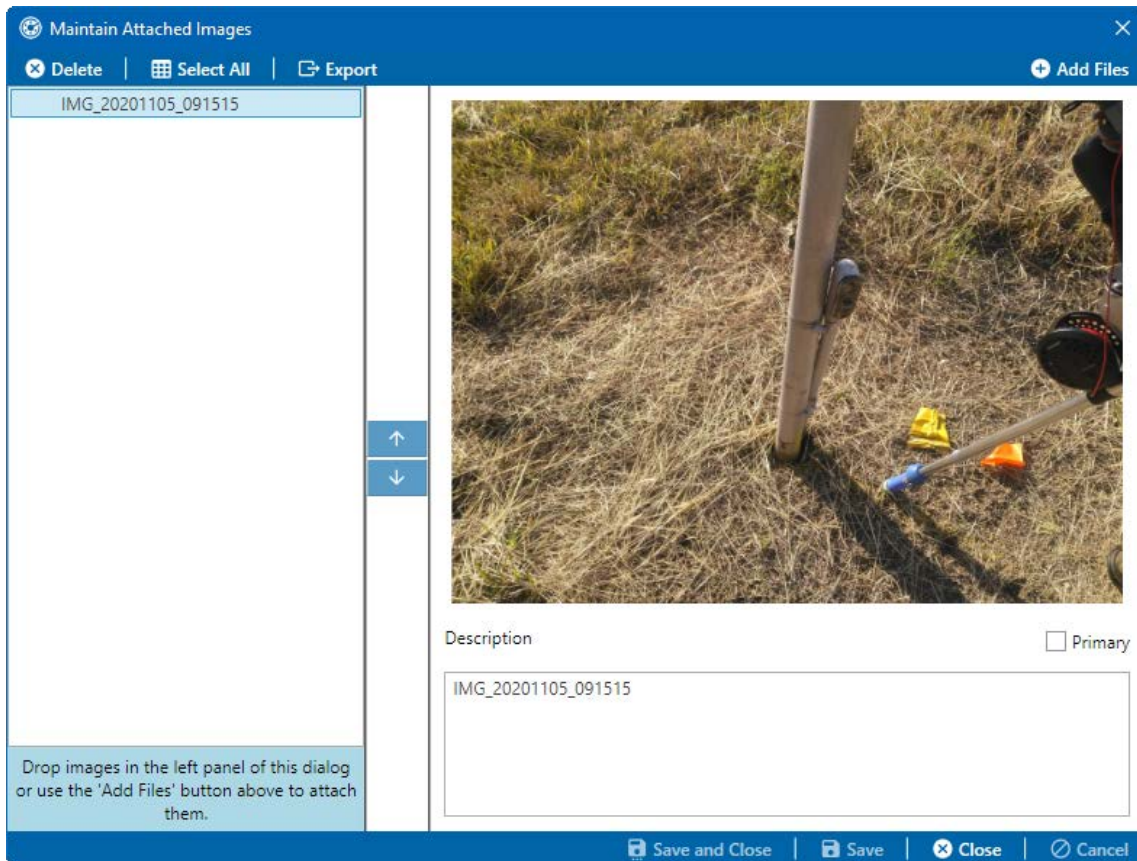





Figure 5-76. Maintain Attached Images

Click  **Save** to save the changes to the images field.

Click  **Save and Close** to close the *Maintain Attached Images* window.

- **From the Data Entry Form** – select  next to the image's description field the image you wish to set as primary image. The selected image will move to the beginning of the image field.

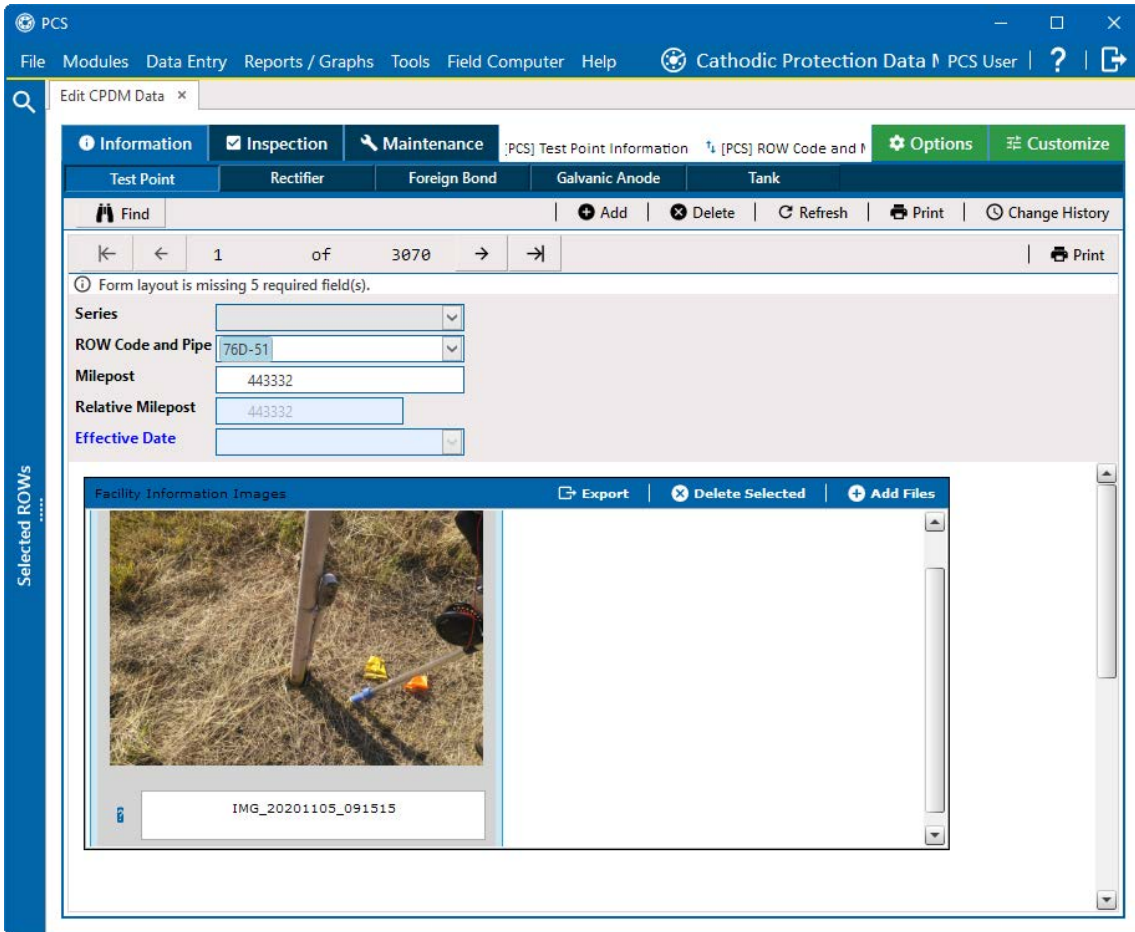


Figure 5-77. Selected Image in Form

The icon changes to  to denote that it is the primary.

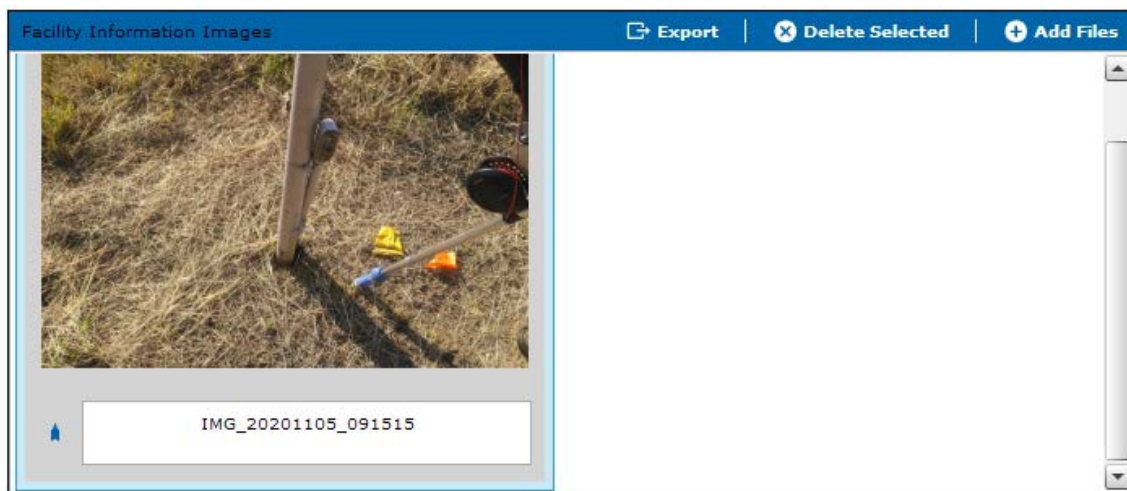





Figure 5-78. Primary Photo Selected in Form

Rearrange Images

By default, images are sorted in the images field based on the order that they were added. When a primary image is set for an images field, that image will move to the beginning of the images list. You can rearrange the order in which the images display for a field for an images field using either the data entry grid or form, as long as the images field has been added to the grid layout or form theme.

To rearrange the images in an images field, locate the desired record in either the data entry grid or form and follow either of the following instructions:



- **From the Data Entry Grid** – click  to open the *Maintain Attached Images* window and locate an image to move in the left pane of the window. Select and drag the image to the desired location in the list of images. Repeat as needed to achieve the preferred sort order. Click  **Save** to save the new order of images for the field.
Click  **Save and Close** to close the *Maintain Attached Images* window.
- **From the Data Entry Form** – locate an image to move in the images field. Select and drag the image to the desired location in the list of images. Repeat as desired to achieve the preferred sort order.

Export Images to a Folder

Images that have been attached to an images field are stored in PCS but can be exported to a folder on your computer and emailed or used in other applications, as long as the images field has been added to the grid layout or form theme.

Figure 5-79. Export Images from a Grid or Form

To export the images in an images field to a folder on your computer, locate the desired record in either the data entry grid or form and follow either of the following instructions:

- **From the Data Entry Grid** – click  to open the *Maintain Attached Images* window and select the image or images you wish to export. To select multiple images, click to select the first image, then press the **Ctrl** key on your keyboard while you click to select the additional images. To select all images, click  **Select All**.

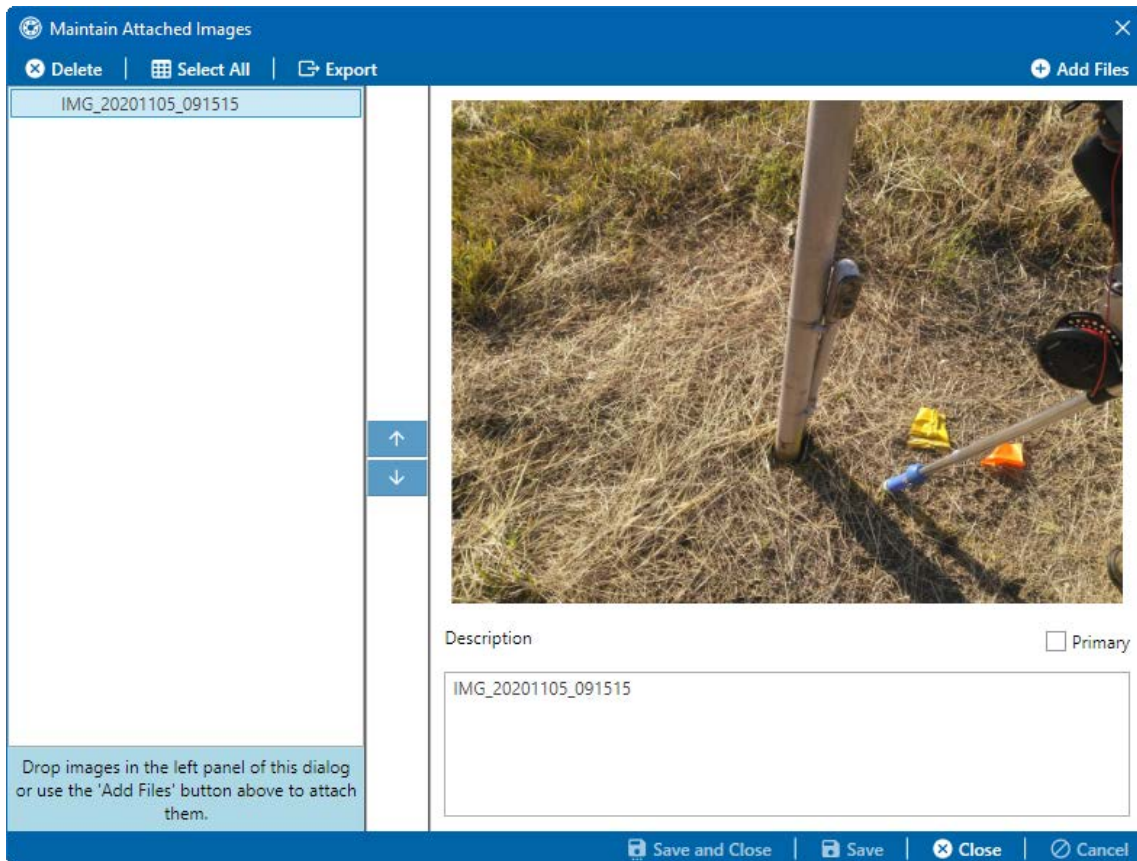




Figure 5-80. Maintain Attached Images

Click  **Export**. In the *Browse For Folder* window, select the folder on your computer where you wish to save the images and click **OK**.

Click  **Save and Close** to close the *Maintain Attached Images* window.

- **From the Data Entry Form** – select the image or images you wish to export. To select multiple images, click to select the first image, then press the **Ctrl** key on your keyboard while you click to select the additional images.

Click  **Export**. If a *Save Changes* window displays, click  **Yes**.

In the *Browse For Folder* window, select the folder on your computer where you wish to save the images and click **OK**.

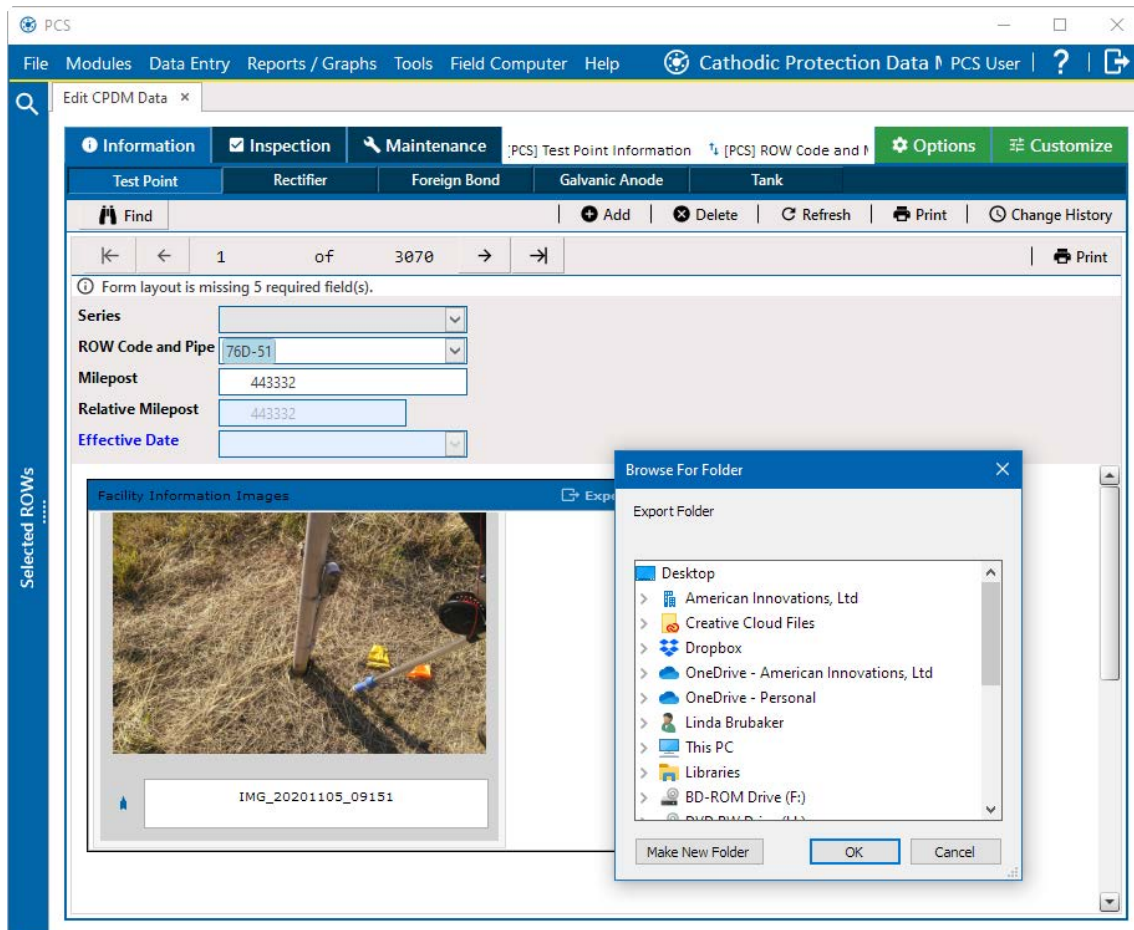



Figure 5-81. Browse For Folder for Export

Link Rectifiers to ROWs

When the same rectifier provides current to one or more pipeline segments, or parallel lines entered in the hierarchy as pipeline segments, use the *ROW Links* mini-grid to link the rectifier to each pipeline segment or parallel line. This allows you to enter rectifier information once instead of re-entering the same rectifier information for each pipeline segment or parallel line. This in turn reduces the number of database records and the potential for data entry errors.

Complete the following steps to link a rectifier to one or more pipeline segments:

1. Select a module from the **Modules** main menu.
2. Click **Data Entry** and then select **Edit <Module> Data**.
3. Click  **Apply** or press **Enter** if the Options window is displayed instead of the grid.
4. Click the **Information** tab and then the **Rectifier** tab below it.

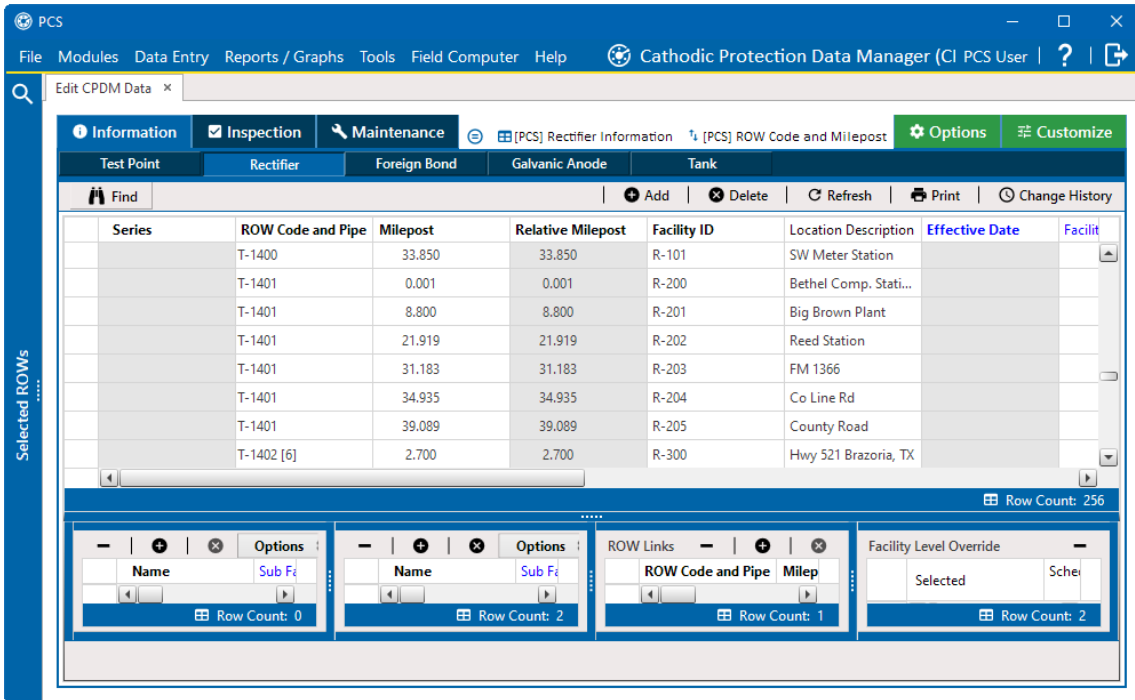


Figure 5-82. Rectifier Information Grid

5. Select a row of records in the grid with the rectifier you want to link to a pipeline segment.

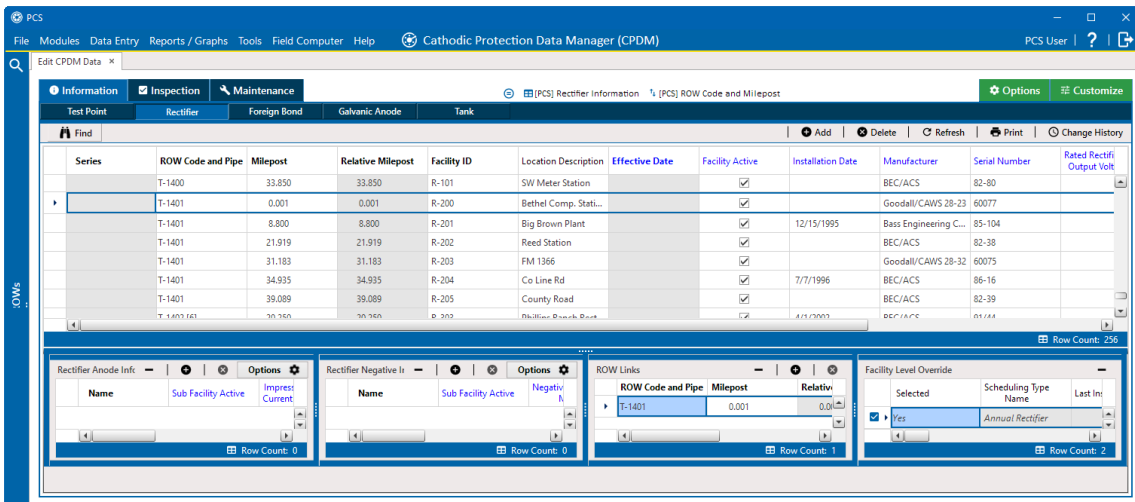


Figure 5-83. Selected Record

6. Click the – in the upper right-hand corner of the *Facility Level Override* mini-grid to hide the mini-grid.

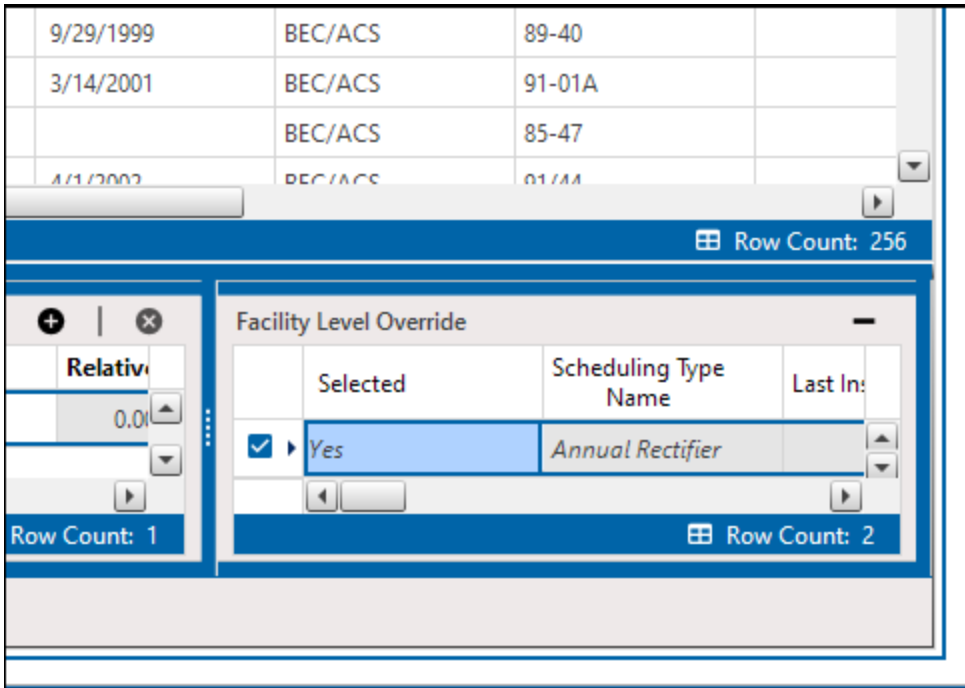


Figure 5-84. Facility Level Override Mini-grid

7. Double-click the **ROW Links** button to open the *ROW Links* mini-grid, if the mini-grid is not already open.

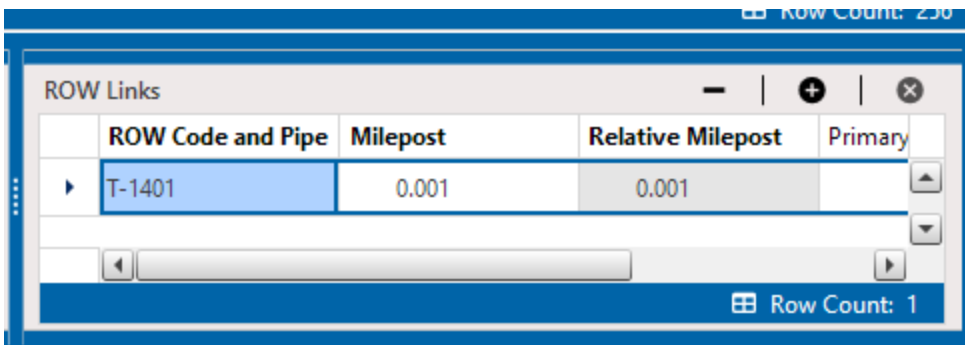


Figure 5-85. ROW Links Mini-grid

8. Click **+** in the *ROW Links* mini-grid to open the *Add Row Link Title* window.

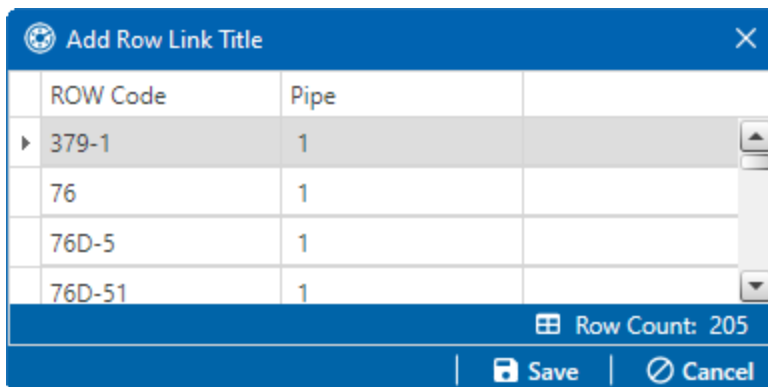



Figure 5-86. Add Row Link

- Identify the milepost number of the pipeline segment you want to link. Type the milepost number in the **Milepost** field, then select the pipeline segment. Click  **Save** to save changes and close the window.

The following operations occur:

- PCS adds a new ROW link for the selected milepost and pipeline segment in the *ROW Links* mini-grid.
If this is the first link in the mini-grid, it automatically becomes the *Primary Link*. PCS copies rectifier information from the *Primary Link* to subsequent links added later in the mini-grid. You can however set any link in the mini-grid as the *Primary Link* by clicking the option button. Only one link can be set as the *Primary Link*.
- PCS adds a new record for the selected milepost and pipeline segment in the *Rectifier Information* grid.

The new record includes rectifier information copied from the record selected as the *Primary Link* in the *ROW Links* mini-grid.

- Provide a date in the **Creation Date** field to identify when you linked the rectifier to the pipeline segment. Select the **Creation Date** field and then click the down-arrow to select a date using a calendar.

Work with Rectifier Anodes

PCS provides two mini-grids for working with rectifier impressed anodes:

- The *Rectifier Anode Information* mini-grid provides anode information, such as the shunt rating or shunt resistance, for each anode in the ground bed of a rectifier. PCS uses this information to automatically calculate the anode shunt factor.

- The *Rectifier Anode Inspection* mini-grid includes inspection readings for each anode in the ground bed of a rectifier, such as a current or shunt reading, for each impressed anode in the ground bed.

Tracking rectifier impressed anodes in PCS allows you to monitor the capacity of the anode ground bed for a rectifier that produces current. You can track the current flow for each anode to determine which anodes have low or no current output.

Refer to the following topics for more information on adding rectifier anode information:

- [Add Rectifier Anode Information on page 333](#)
- [Add Rectifier Anode Inspections on page 336](#)

Add Rectifier Anode Information

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to add a record in the *Rectifier Anode Information* mini-grid for each anode in the ground bed:

1. In the module's data grid, click the **Information** tab and then the **Rectifier** tab.
2. Select a row of records with the rectifier you want to add impressed anode records.

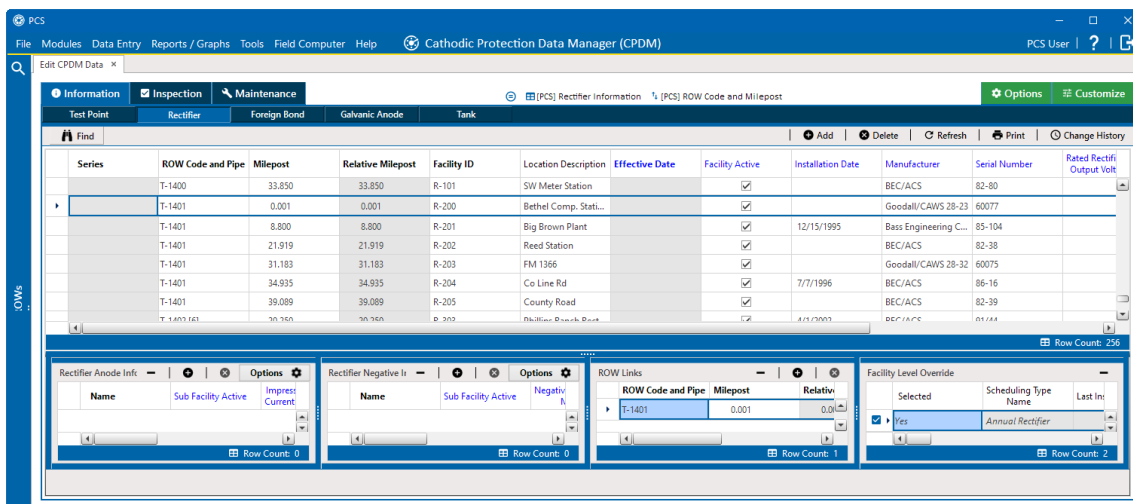


Figure 5-87. Rectifier Anode Information

3. If the *Rectifier Anode Information* mini-grid is not visible, click and drag the **Rectifier Anode Information** button at the bottom of the window to the mini-grid area.

The example below shows the Rectifier Anode Information mini-grid being added to the left of an existing mini-grid in the mini-grid area. Your setup may be different and include none or more than one mini-grids. To replace a mini-grid, move the button over an existing one. To add a mini-grid next to any other mini-grid in the area, move the button to the left or right of the existing one. The border turns orange to show where the mini-grid will be placed.

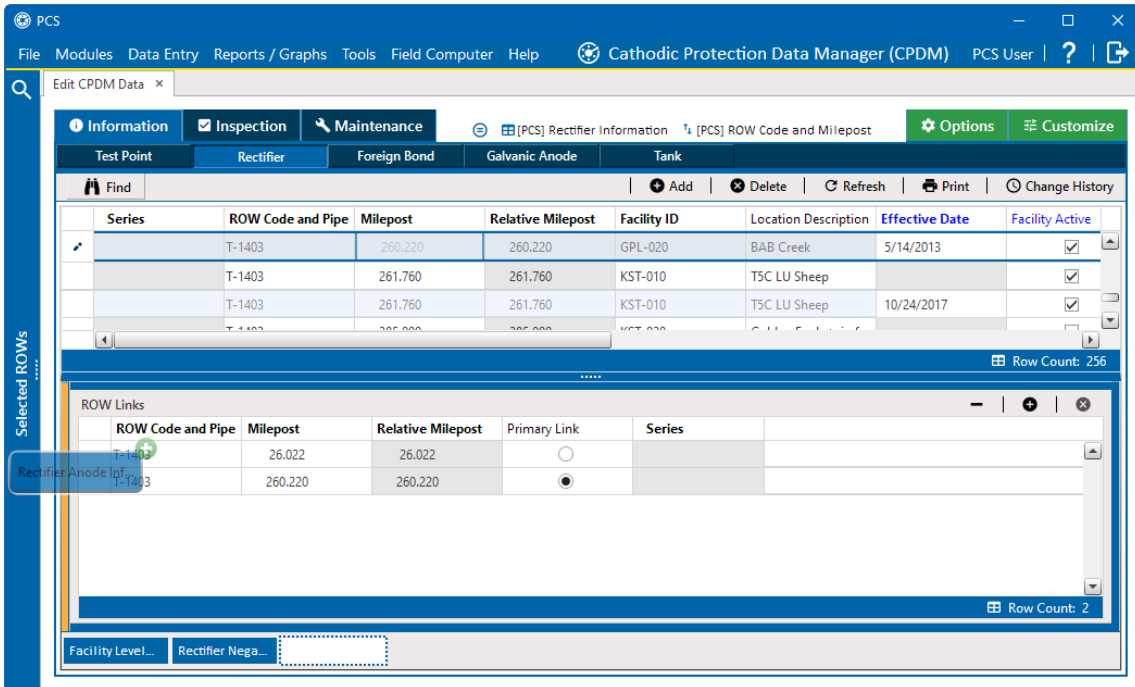


Figure 5-88. Adding a Mini-grid to Mini-grid Area

4. Click **+** in the *Rectifier Anode Information* mini-grid to add an empty record in the mini-grid.

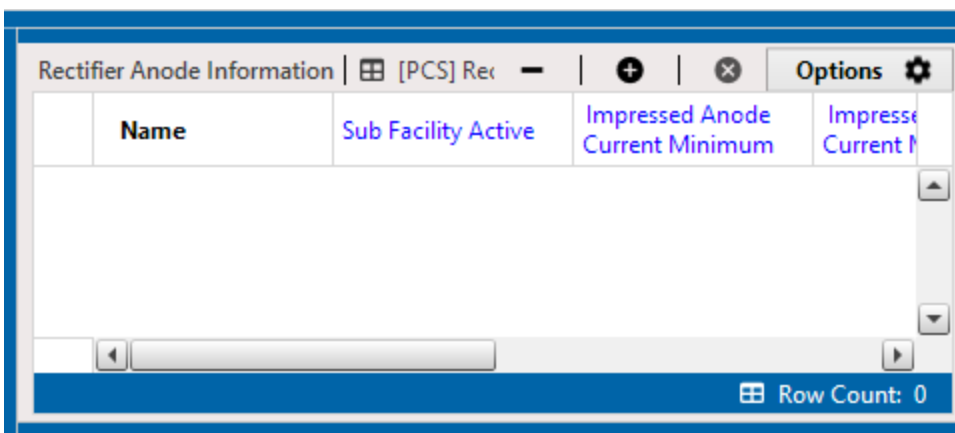



Figure 5-89. Rectifier Information Mini-grids

5. In the *Add Record* window, type a name for the anode in the **Name** field. Fields requiring information include a  icon. You must enter information in the required fields before the record will be added.

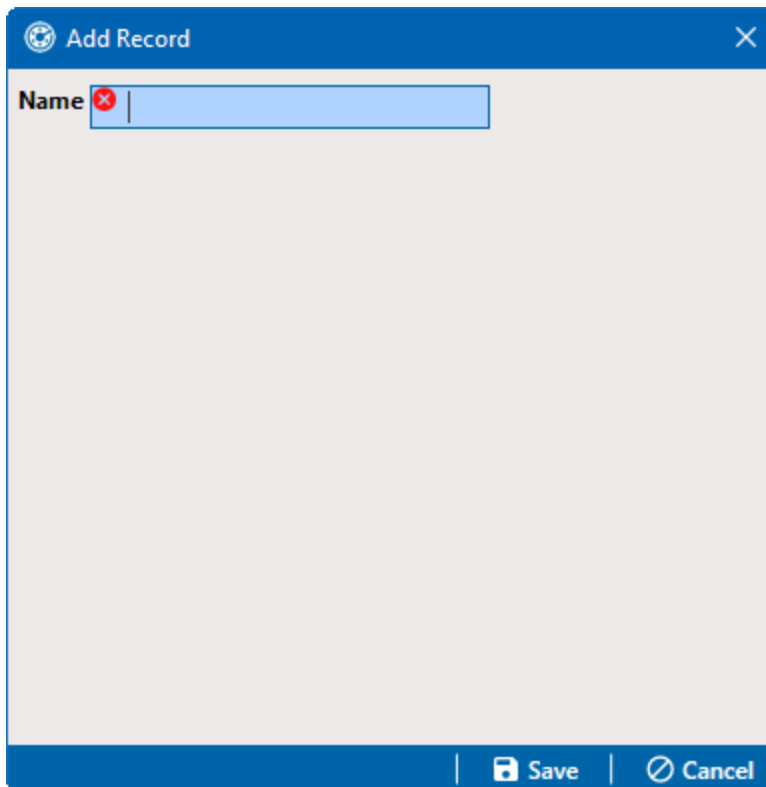





Figure 5-90. Add Record Window

6. Click  **Save** to add the record and close the window.
7. In the *Rectifier Anode Information* mini-grid enter a value in either the **Impressed Anode Shunt Rating** or **Impressed Anode Shunt Resistance** fields.

If entering a shunt rating, enter it as a mV per A ratio using the format nn.n/nn.n, such as 50.0/25.0 for the shunt rating 50 mV/25 A. If entering a shunt resistance value, enter the actual resistance of the shunt in ohms. When both of these fields are empty, you can enter a value in the **Impressed Anode Shunt Factor** field instead. Otherwise, PCS automatically calculates the shunt factor based on the value in the shunt rating or shunt reading field.

Repeat these steps to add additional anode information records.

Click  **Refresh** to update  derived fields, such as **Number of Impressed Anodes**. For more information about derived fields, refer to [Work with Derived Fields on page 299](#).

PCS displays the total number of anodes in the system calculated **Number of Impressed Anodes** field in the *Rectifier Information* and *Inspection* grid. This value is based on the total number of anodes in the *Rectifier Anode Information* mini-grid. If the field is not present in your grid, refer to [Add a Data Grid Layout Theme on page 372](#) to add the field.

Add Rectifier Anode Inspections

If rectifier anode records have not yet been added in the *Rectifier Anode Information* mini-grid, complete the procedure in the previous section first ([Add Rectifier Anode Information on page 333](#)) and then continue with the procedure in this section.

Complete the following steps to enter anode inspection readings in the *Rectifier Anode Inspection* mini-grid:

1. In the module's data grid, click the **Inspection** tab and then the **Rectifier** tab.
2. Select a row of records with the rectifier and anodes you want to add anode inspection readings.

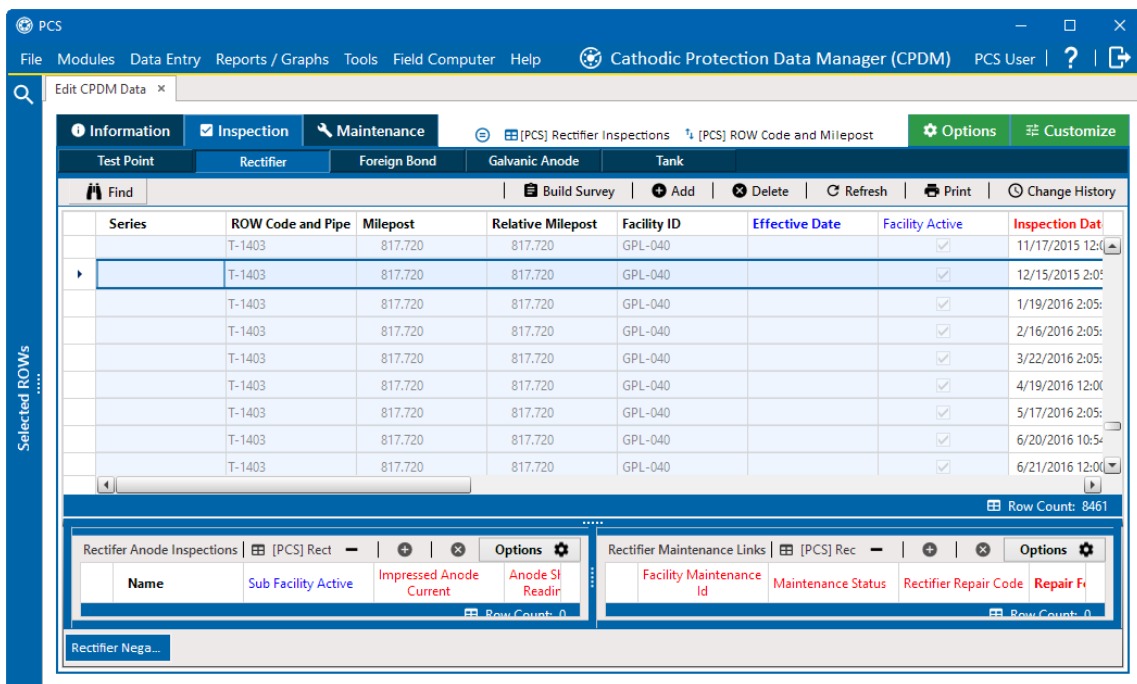


Figure 5-91. Rectifier Inspection Grid

3. If the *Rectifier Anode Inspection* mini-grid is not visible, click and drag the **Rectifier Anode Inspection** button at the bottom of the window to the mini-grid area.

The example below shows the *Rectifier Anode Inspection* mini-grid being added to the left of an existing mini-grid in the mini-grid area. Your setup may be different and include none or more

than one mini-grids. To replace a mini-grid, move the button over an existing one. To add a mini-grid next to any other mini-grid in the area, move the button to the left or right of the existing one. The border turns orange to show where the mini-grid will be placed.

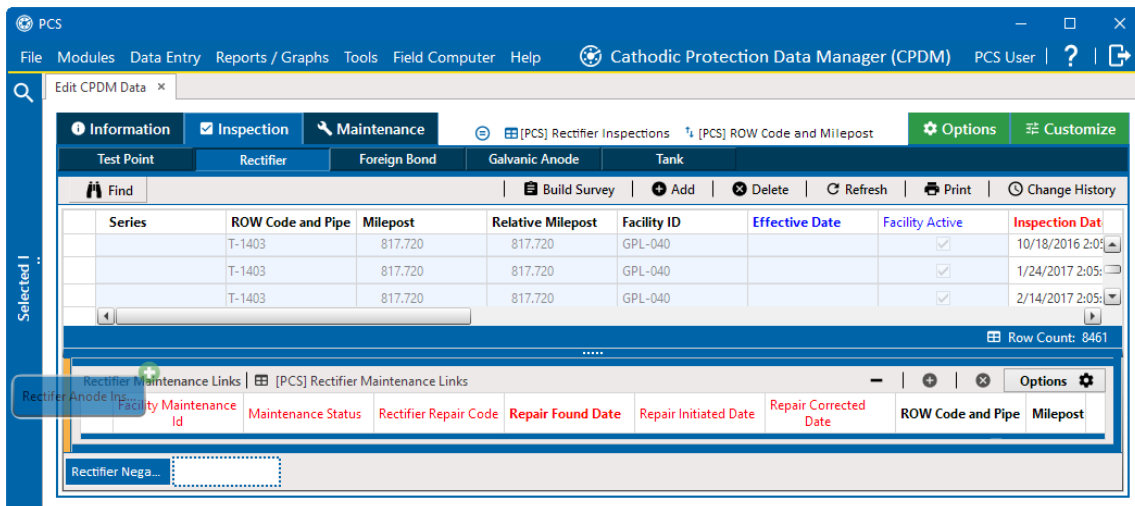


Figure 5-92. Adding a Mini-grid to Mini-grid Area

4. Select an anode in the *Rectifier Anode Inspections* mini-grid.

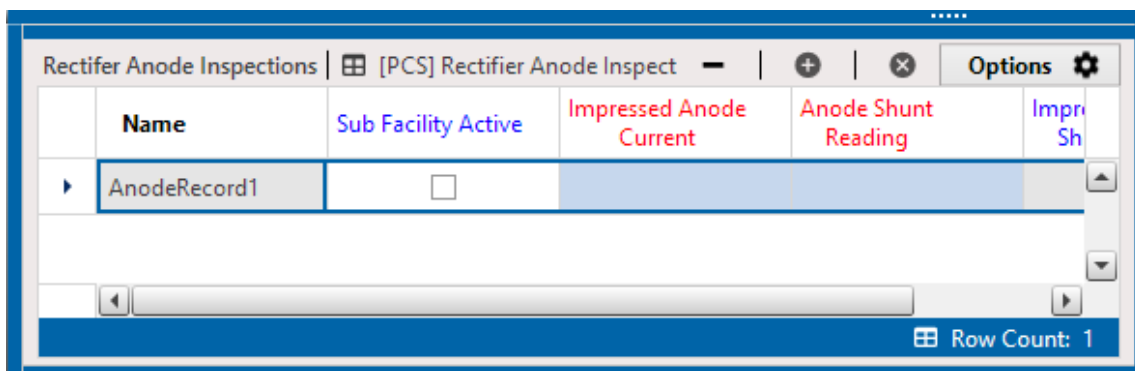




Figure 5-93. Rectifier Information Mini-grid

5. Type an inspection reading in either the **Impressed Anode Current** or **Anode Shunt Reading** field.
6. Click **Refresh** to update  derived fields, such as **Number of Impressed Anodes**. For more information about  derived fields, refer to [Work with Derived Fields on page 299](#).
7. Repeat these steps to enter inspection readings for remaining anodes.

Work with Rectifier Negatives

A rectifier can typically have from one to five negative wires that protect different pipelines. Tracking rectifier negatives in PCS allows you to easily identify which rectifier negative wire is connected to which pipeline. You can also monitor the current flow for each rectifier negative in an effort to determine how much of the total current is used to protect each pipeline.

PCS provides two mini-grids for working with rectifier negatives:

- The *Rectifier Negative Information* mini-grid provides negative information, such as the shunt rating or shunt resistance, for each negative wire of the rectifier. PCS uses this information to automatically calculate the negative shunt factor.
- The *Rectifier Negative Inspections* mini-grid includes inspection readings for each negative wire of the rectifier, such as a current or shunt reading, for each negative wire.

Refer to the following topics for more information on adding rectifier negatives information:

- [Add Rectifier Negative Information on page 338](#)
- [Add Rectifier Negative Inspections on page 342](#)

Add Rectifier Negative Information

Complete the following steps to add a record in the *Rectifier Negative Information* mini-grid for each negative wire of a rectifier providing current to a pipeline(s):

1. In the module's data grid, click the **Information** tab and then the **Rectifier** tab.
2. Select a row of records in the *Rectifier Information* grid with the rectifier you want to add negative records.

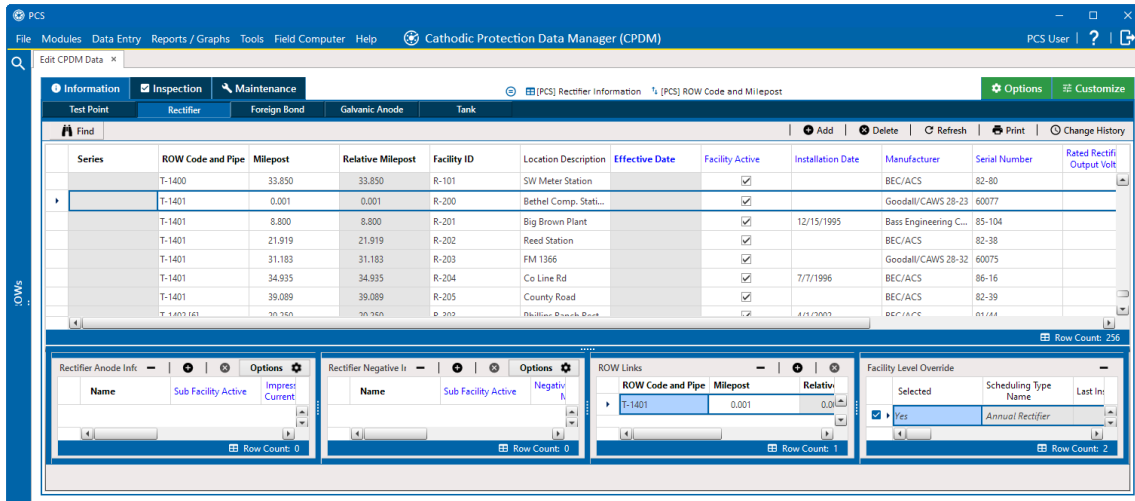


Figure 5-94. Rectifier Information Grid

3. If the *Rectifier Negative Information* mini-grid is not visible, click and drag the **Rectifier Negative Information** button at the bottom of the window to the mini-grid area.

The example below shows the *Rectifier Negative Information* mini-grid being added to the left of an existing mini-grid in the mini-grid area. Your setup may be different and include none or more than one mini-grids. To replace a mini-grid, move the button over an existing one. To add a mini-grid next to any other mini-grid in the area, move the button to the left or right of the existing one. The border turns orange to show where the mini-grid will be placed.

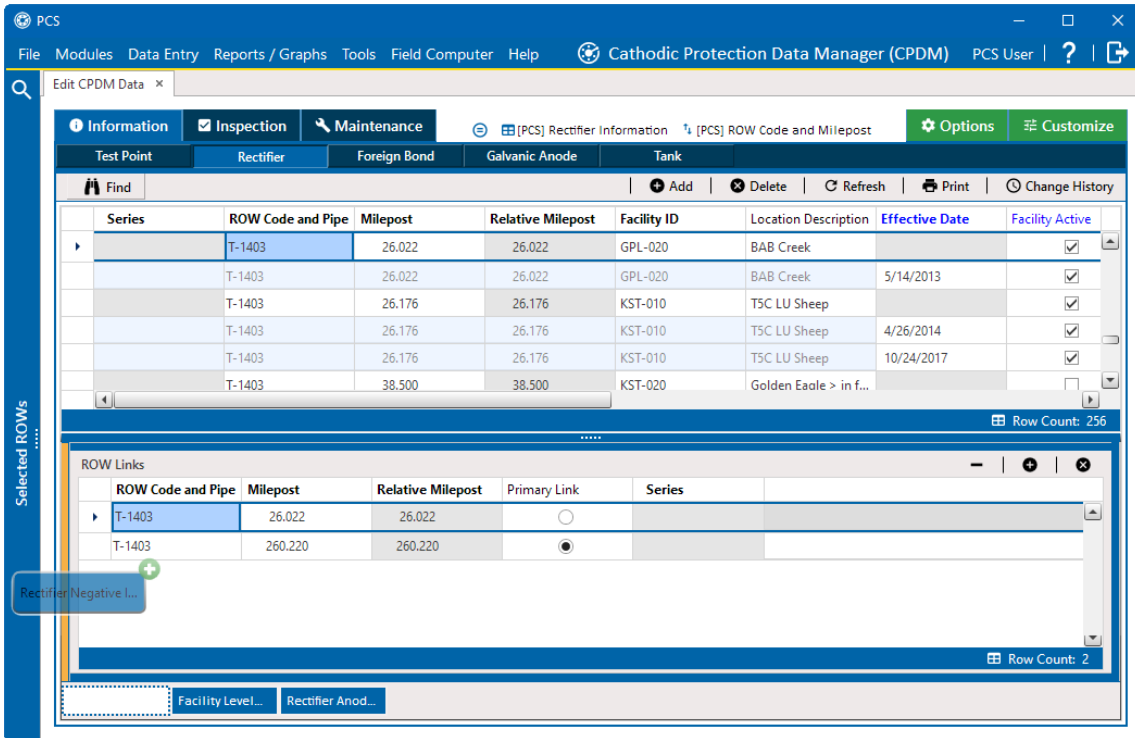


Figure 5-95. Adding a Mini-grid to Mini-grid Area

- Click **+** in the *Rectifier Negative Information* mini-grid to add an empty record in the mini-grid.

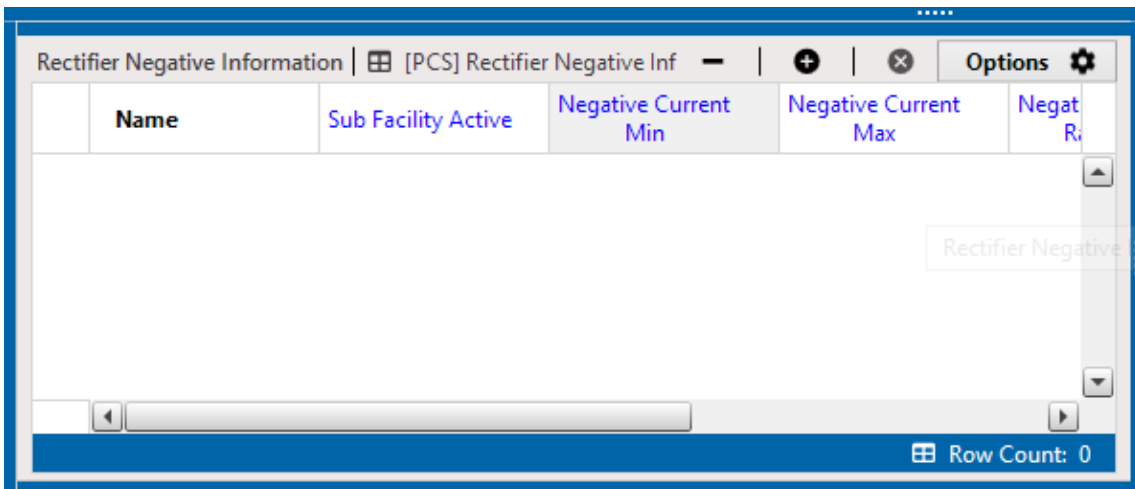


Figure 5-96. Rectifier Negative Information Mini-grid

- In the *Add Record* window, type a name for the record in the **Name** field. Fields requiring information include a ***** icon. You must enter information in the required fields before the record will be added.

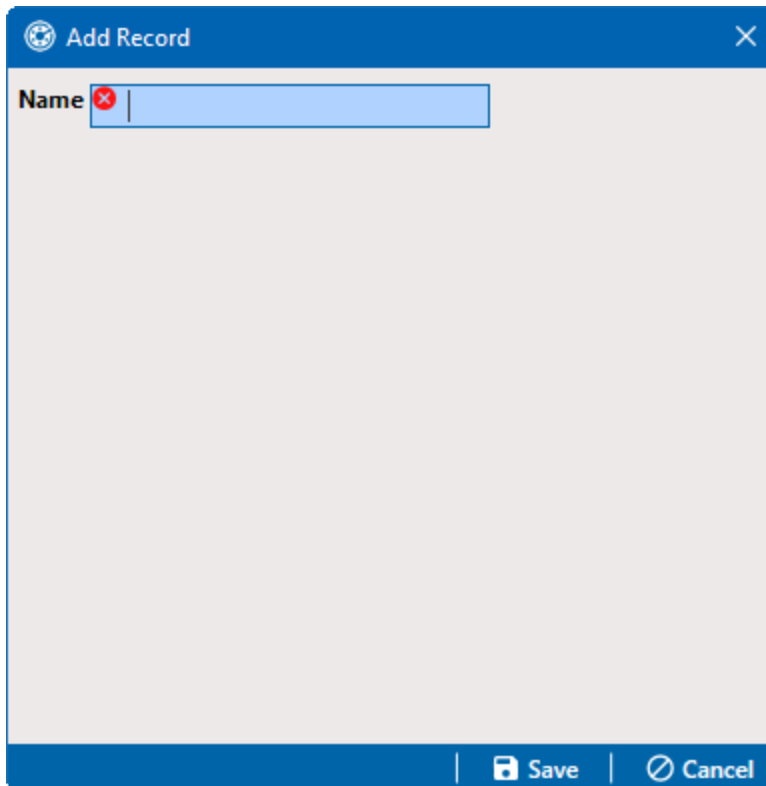






Figure 5-97. Add Record Window

6. Click  **Save** to add the record and close the window.
7. If the rectifier rating is different than the minimum and maximum values provided by PCS in the **Negative Current Min** and **Negative Current Max** fields of the *Rectifier Negative Information* mini-grid, type the rectifier rating in these fields.
8. Type a value in either the **Negative Shunt Rating** or **Negative Shunt Resistance** field.
If entering a shunt rating, enter it as a mV per A ratio using the format nn.n/nn.n, such as 50.0/25.0 for the shunt rating 50 mV/25 A. If entering a shunt resistance value, enter the actual resistance of the shunt in ohms. When both of these fields are empty, you can enter a value in the field *Negative Shunt Factor* instead. Otherwise, PCS automatically calculates the shunt factor based on the value in the shunt rating or shunt reading field.
9. Click  **Refresh** to update  derived fields, such as **Number of Negatives**.
For more information about  derived fields, refer to [Work with Derived Fields on page 299](#).
10. Repeat these steps to add a record for each remaining negative wire.
PCS displays the total number of negatives in the system-calculated **Number of Negatives** field in the *Rectifier Information* and *Rectifier Inspection* grids. If the field is not present in your grid, refer to [Add a Data Grid Layout Theme on page 372](#) to add the field.

Add Rectifier Negative Inspections

If rectifier negative records have not yet been added in the *Rectifier Negative Information* mini-grid, complete the procedure in the previous section first ([Add Rectifier Negative Information on page 338](#)) and then continue with the procedure in this section.

Complete the following steps to enter negative inspection readings in the *Rectifier Negative Inspection* mini-grid:

1. In the module's data grid, click the **Information** tab and then the **Rectifier** tab.
2. Select a row of records in the *Rectifier Inspection* grid with the rectifier and negatives you want to add negative inspection readings.

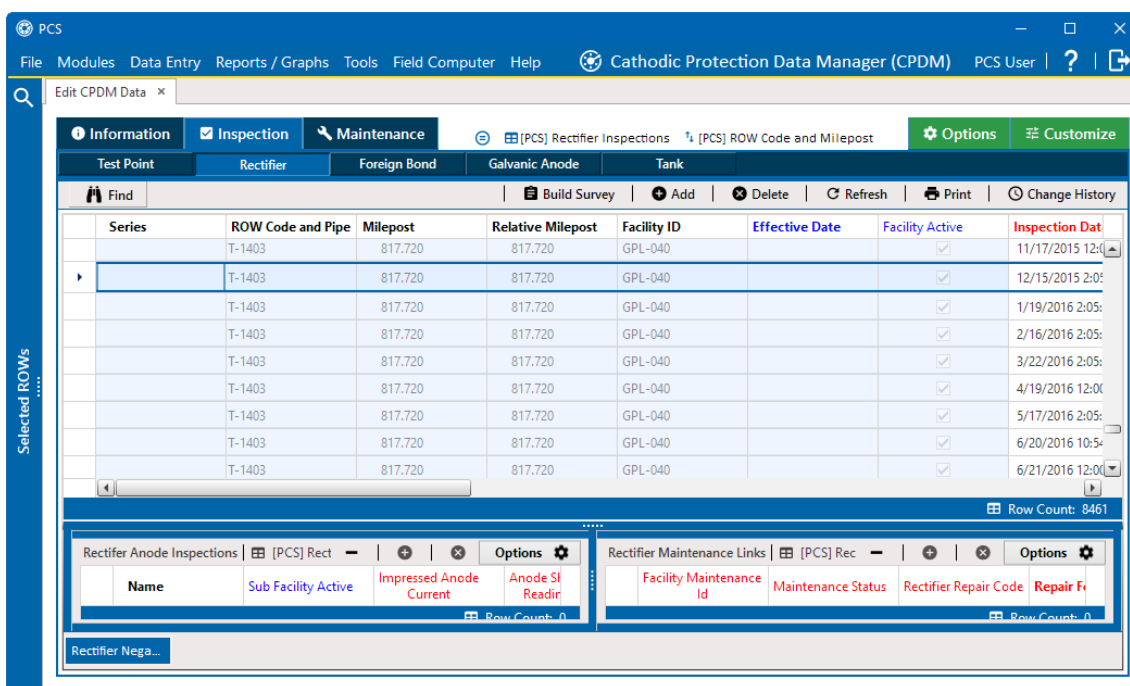


Figure 5-98. Rectifier Inspection Grid

3. If the *Rectifier Negative Inspections* mini-grid is not visible, click and drag the **Rectifier Anode Inspection** button at the bottom of the window to the mini-grid area.

The example below shows the *Rectifier Negative Inspections* mini-grid being added to the left of an existing mini-grid in the mini-grid area. Your setup may be different and include none or more than one mini-grids. To replace a mini-grid, move the button over an existing one. To add a mini-grid next to any other mini-grid in the area, move the button to the left or right of the existing one. The border turns orange to show where the mini-grid will be placed.

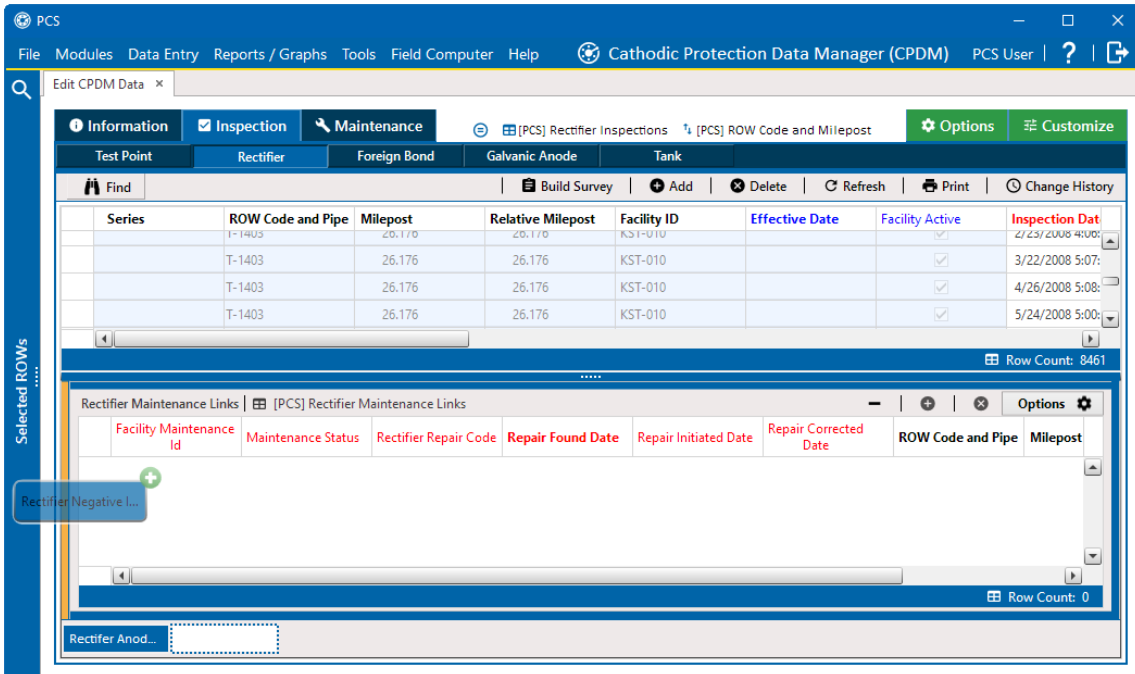


Figure 5-99. Adding a Mini-grid to Mini-grid Area

4. Select a row of records in the *Rectifier Negative Inspections* mini-grid.

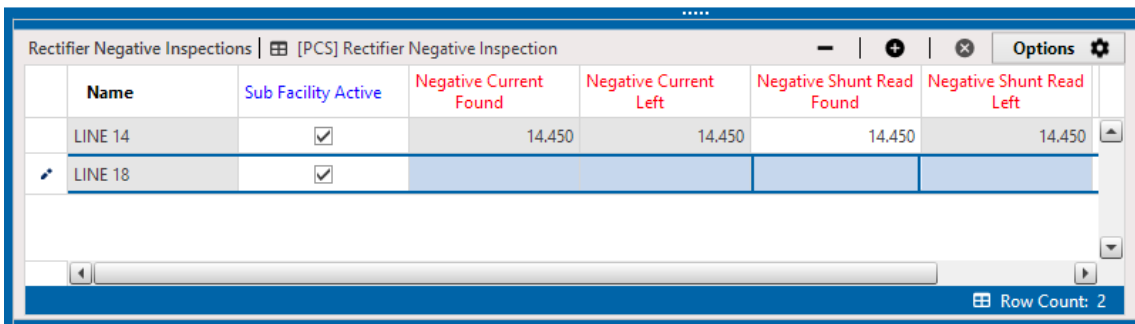





Figure 5-100. Rectifier Negative Inspections Mini-grid

5. If the rectifier output current has been adjusted and the **Rectifier Current Adjusted** check box is enabled in the *Inspection* grid, complete the following steps in the *Rectifier Negative Inspections* mini-grid:
 - a. Type the amperage reading taken before rectifier adjustments in the **Negative Current Found** field.
 - b. Type the amperage reading taken after rectifier adjustments in the **Negative Current Left** field.

6. Type an inspection reading in either the **Negative Shunt Read Found** or **Negative Shunt Read Left** field.
7. Click  **Refresh** to update  derived fields.
For more information about  derived fields, refer to [Work with Derived Fields on page 299](#).
8. Repeat these steps to enter readings for additional negative inspections.

Build a Survey in the Inspection Grid Based on Schedule

Building a survey in the inspection grid based on a schedule allows PCS to automatically add empty inspection records in the grid ready for data entry. This feature saves time by eliminating the need to manually add empty inspection records in the grid, one-by-one. These instructions start with the assumption that you have a facility type's Inspection grid selected. For information about accessing a grid of data, refer to [View Data in a Grid or Form on page 242](#).

Complete the following steps to build a survey in the *Inspection* grid based on a schedule:



1. Use the *Inspection* grid's **Options** to show the desired inspection records and define the schedule date range. For instructions detailing how to use the Options, refer to [Set Options for Viewing Data on page 243](#).
2. Click  **Build Survey** to open the *Build Survey* window.

Figure 5-101. Build Survey Window

3. Select one of the following options in the *Build Survey* window to assign inspection records to a survey folder:
 - **No Assignments**– select this option if you do not want to assign inspection records to a survey folder.
 - **Assign Survey**– select this option to assign inspection records to an annual or multi-year survey folder. Select a survey folder in the **Survey** field drop-down list.
 - **Assign Periodic Survey**– select this option to assign inspection records to a periodic survey. Click the down arrow in the **Periodic Survey** field and select a survey folder in the selection list. Select the survey from the **Periodic Survey** drop-down list and a year from the **Year** drop-down list.
4. Select a date from the **Initial Inspection Date** drop-down calendar.
5. Click  **Build**. Then click **OK** in the *Build Survey* window.

The data entry grid now includes blank inspection records ready for data entry.

Work with Continuous Survey Data

The Indirect Survey Manager (ISM) module can be used to manage survey readings and other data associated with a continuous survey.

Data entry grids in the ISM module are organized based on the following continuous survey methods:

- CIS (Close Interval Survey)
- AC CIS (AC Close Interval Survey)
- DCVG (DC Voltage Gradient)
- ACVG (AC Voltage Gradient)
- ACCA (AC Current Attenuation)
- Soil Resistivity
- In-line Inspection (ILI)

Refer to the following topics for more information on managing continuous survey readings:

- [Add or Delete a Record in a Continuous Survey](#)
- [Work with Survey Maintenance on page 349](#) – includes instructions on using the *Survey Maintenance* window to reverse, shift, copy, append, delete, spike filter rubberband, or reset records in a continuous survey.
- [Print, Export, or Email a Continuous Survey on page 369](#)

IMPORTANT: Survey readings must be assigned to a survey folder in the *Continuous Survey Folder* window before working with data in the ISM module. Refer to [Add a Continuous Survey Folder on page 413](#) for more information.

Add or Delete a Record in a Continuous Survey

These instructions start with the assumption that the ISM module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to add or delete a record in a continuous survey:

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

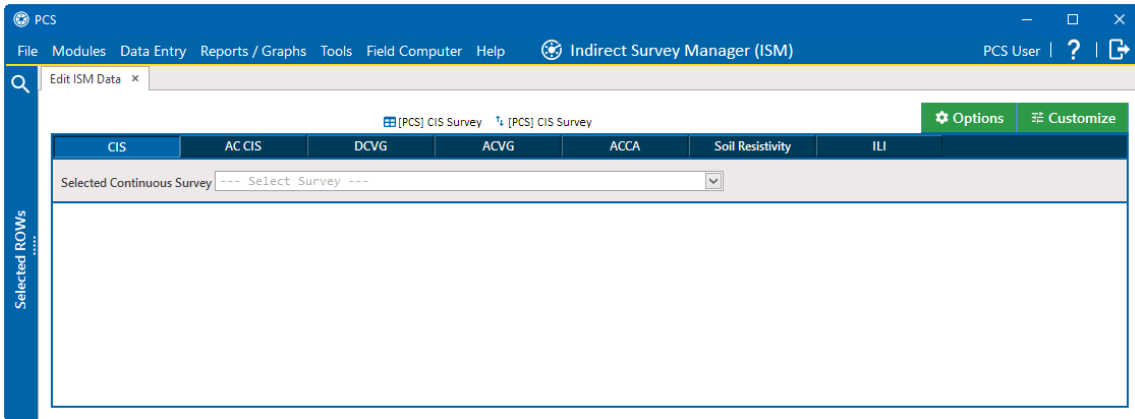


Figure 5-102. Edit ISM Data Window

3. Select a survey folder with survey readings you want to modify from the **Selected Continuous Survey** drop-down list.

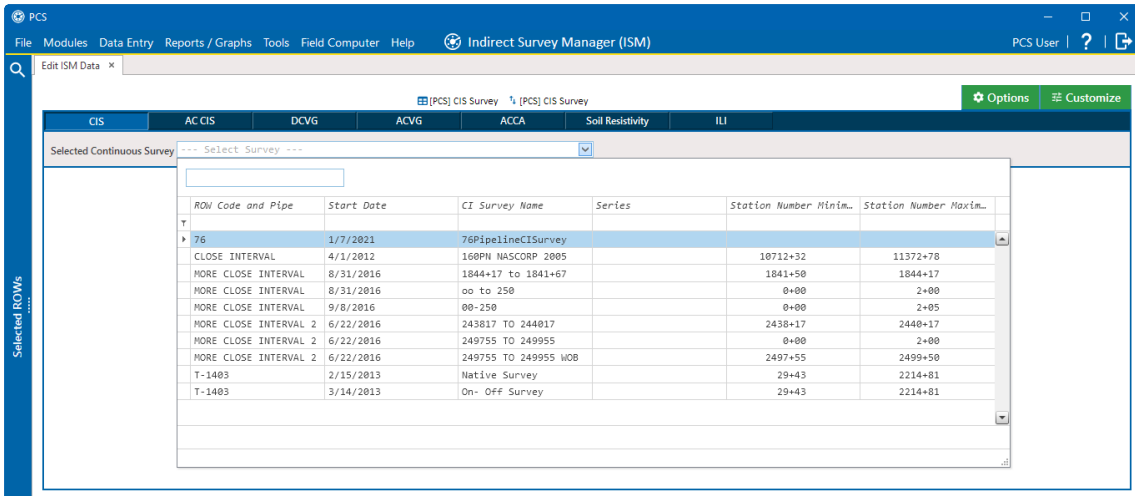


Figure 5-103. Select Continuous Survey List

4. Click **Add** to open the *Add Record* window to add a record in the survey.

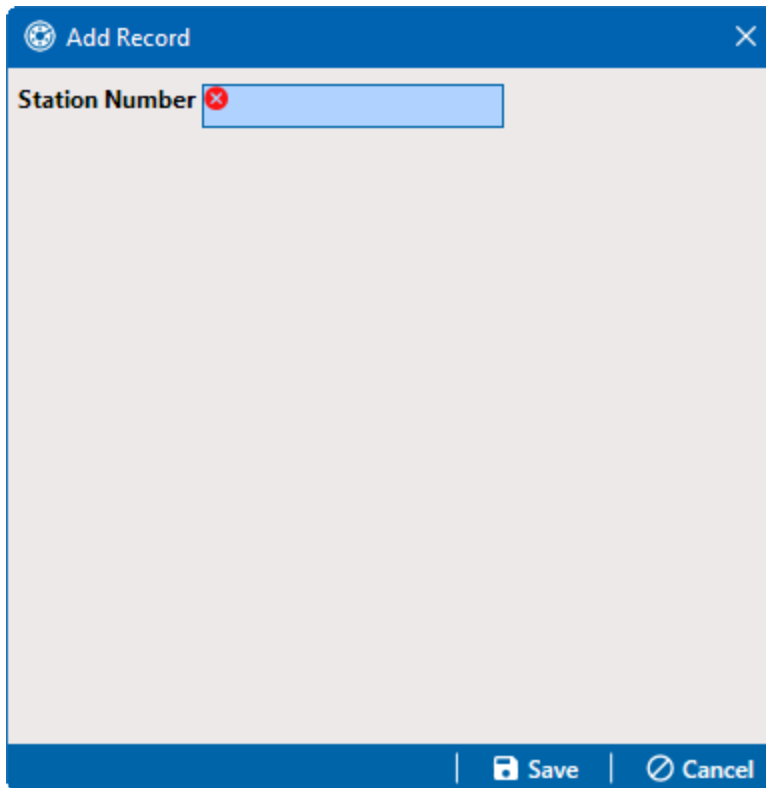



Figure 5-104. Add Record Window

5. Type a survey location in the **Station Number** field. This field is required.
6. Click  **Save** to add the record to the grid.

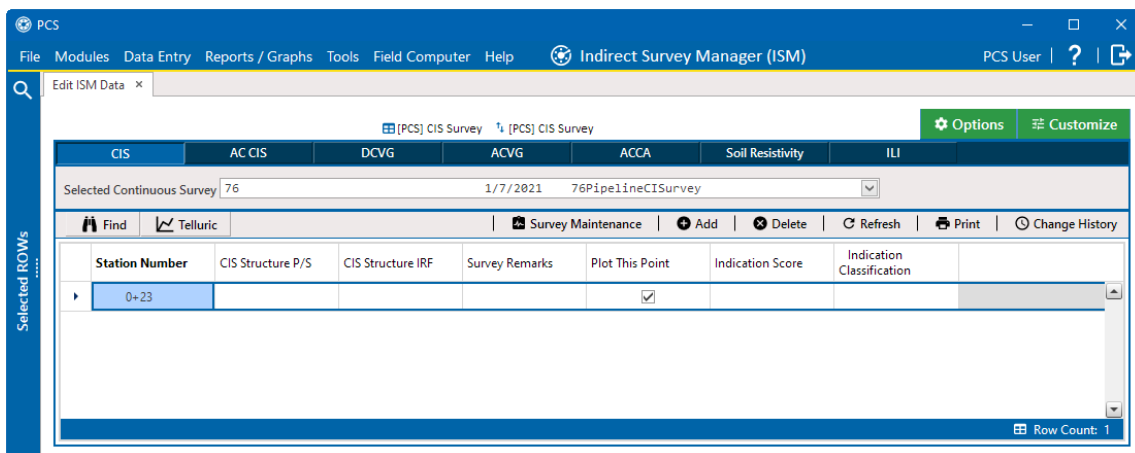






Figure 5-105. New Record in CIS Continuous Survey

7. Enter any survey data as needed for the new record.
8. Repeat steps to add additional records as needed.

9. Click  **Refresh** to update the grid.
10. To delete a record in a survey:
 - a. Click a station number to select a row of records in the grid.
 - b. Click  **Delete**.
 - c. Click  **Delete** in the *Delete Record* window to delete the selected record. Click  **Cancel** to cancel the operation.

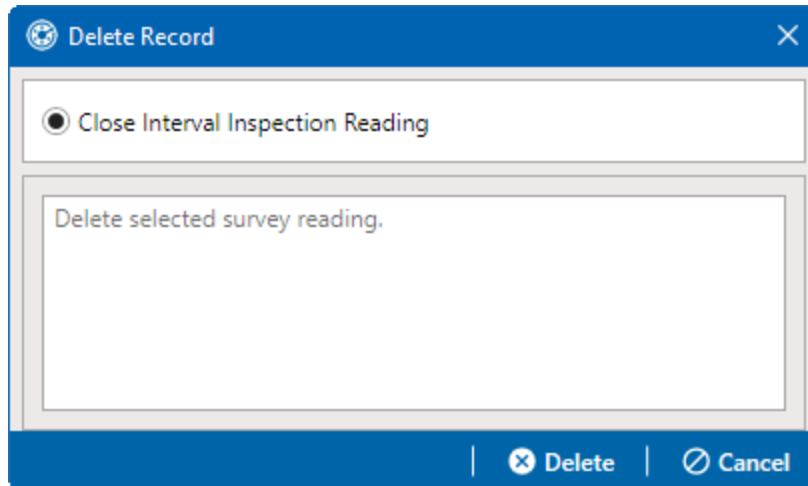


Figure 5-106. Delete Record in Continuous Survey

A *Warning* message window displays.

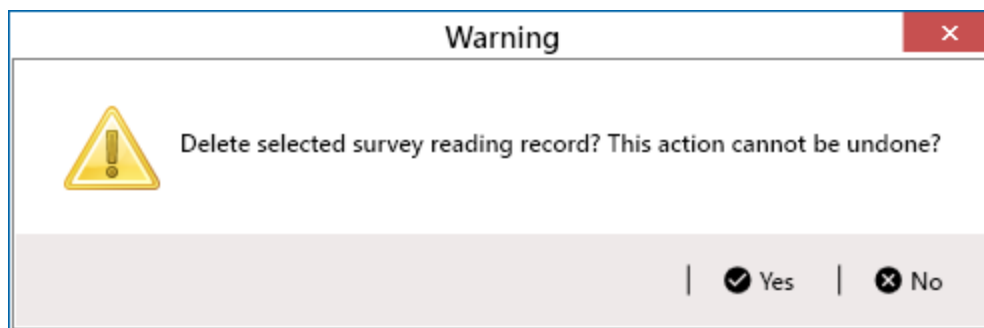





Figure 5-107. Warning Message

- d. Click  **Yes** to delete the survey record or  **No** to cancel the action.
- e. Click  **Refresh** to update the grid.

Work with Survey Maintenance

Survey Maintenance window can be accessed from the *Edit Ism Data* window.

The *Survey Maintenance* window provides several functions that simultaneously change a group of records. For example, instead of editing one record at a time to reverse the order of survey readings, use the **Reverse** tab to change a range of survey records all at the same time.

The *Survey Maintenance* window includes the following functions:

- [Reverse Survey Readings on page 350](#)
- [Shift Station Numbers on page 352](#)
- [Copy Station Numbers to a New Survey on page 354](#)
- [Append a Survey on page 356](#)
- [Delete a Range of Station Numbers on page 359](#)
- [Use Spike Filtering on page 361](#)
- [Use Rubber Band on page 364](#)
- [Reset Station Numbers on page 367](#)

Reverse Survey Readings

Use the **Reverse** option to reverse the order of survey readings so that the first reading becomes the last and the last reading becomes the first. Station numbers for all other survey readings are changed so that the survey is reversed or "flipped". This function is typically used when survey readings were taken in an upstream direction instead of downstream, or vice versa.

These instructions start with the assumption that the ISM module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to reverse the order of survey readings:

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

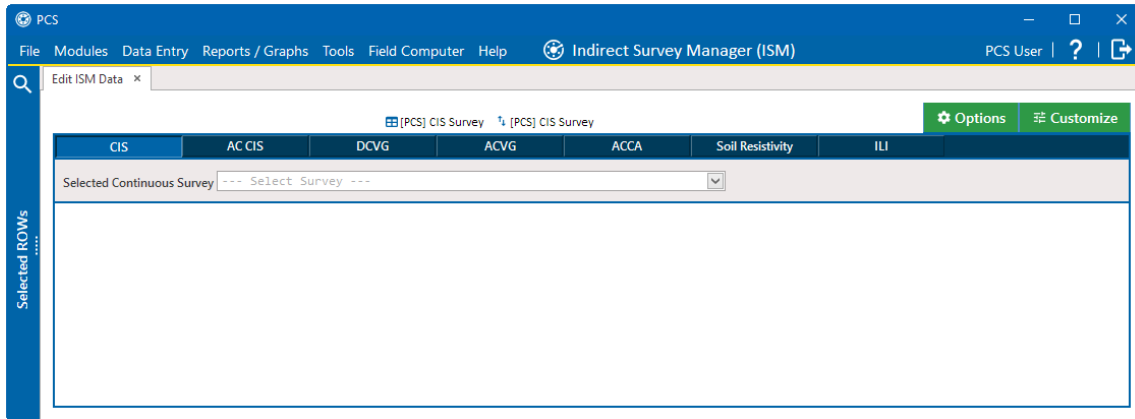


Figure 5-108. Edit ISM Data Window

3. Select a survey folder with survey readings you want to modify from the **Selected Continuous Survey** drop-down list.

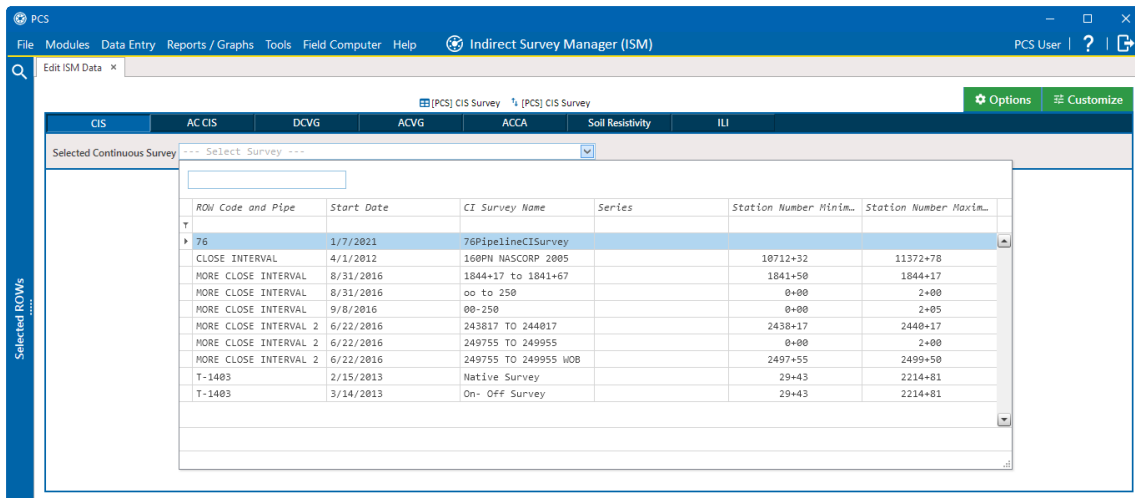



Figure 5-109. Select Continuous Survey List

4. Click  **Survey Maintenance** to open the *Survey Maintenance* window. Then click the **Reverse** tab if the tab is not selected.

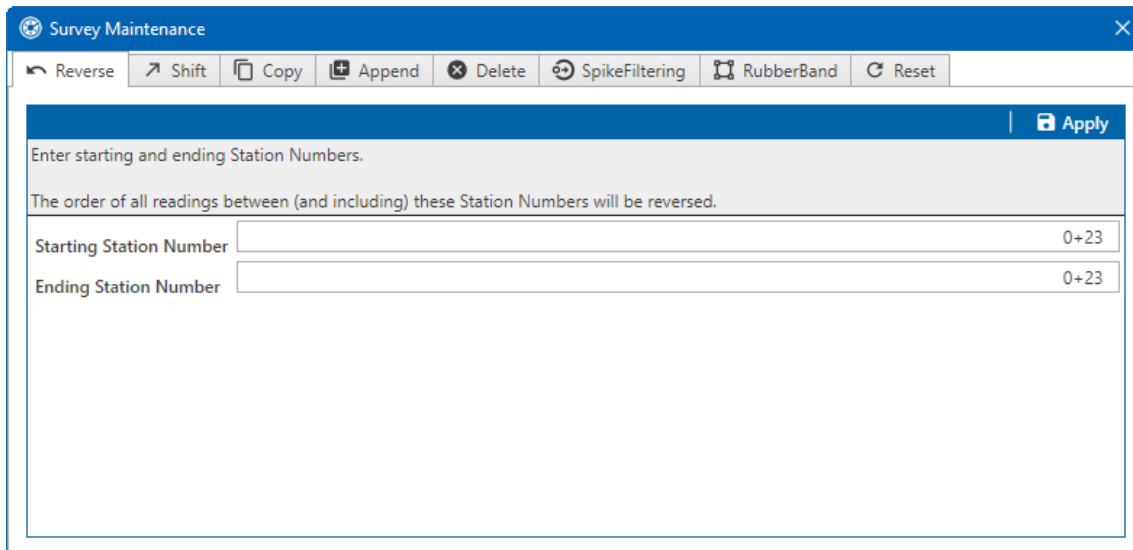



Figure 5-110. Reverse Survey Readings

5. Type a starting station number in the **Starting Station Number** field. Press **Tab** and enter ending station number in the **Ending Station Number** field.
For example, enter 1071232 for a station number 10712+32. When you hit **Tab**, the number adjusts to 10712+32.
6. If desired, click the close button to cancel the operation and close the window.
7. Click  **Apply** to reverse survey readings and update the data entry grid.

Shift Station Numbers

Use the **Shift** option to shift a range of station numbers by a specified number of feet (or meters) or in the direction of an existing facility.

Shift allows you to add or subtract a fixed distance to station numbers for a range of readings in a survey. This function is typically used when station numbers are not known when performing the survey and they need to be shifted to correct station numbers.

These instructions start with the assumption that the ISM module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to shift station numbers:

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

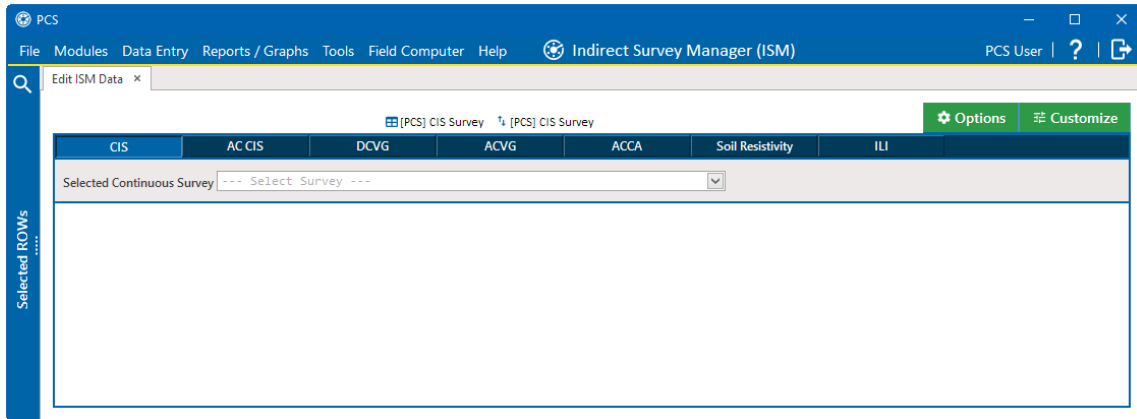


Figure 5-111. Edit ISM Data Window

3. Select a survey folder with survey readings you want to modify from the **Selected Continuous Survey** drop-down list.

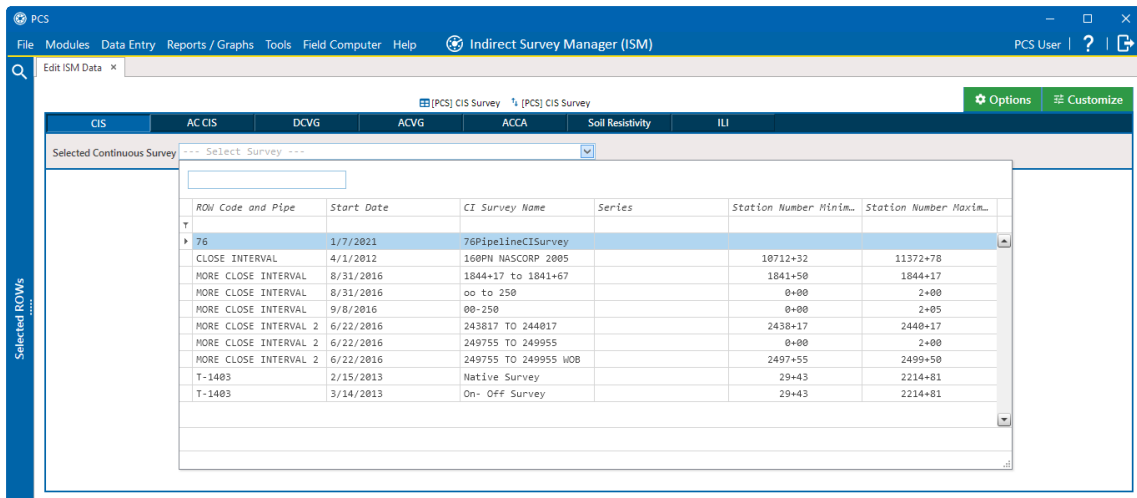


Figure 5-112. Select Continuous Survey List

4. Click  **Survey Maintenance** to open the *Survey Maintenance* window. Then click the **Shift** tab.

The screenshot shows a window titled "Survey Maintenance" with a toolbar containing buttons for Reverse, Shift, Copy, Append, Delete, SpikeFiltering, RubberBand, and Reset. Below the toolbar is an "Apply" button. The main area contains the following text and fields:

Enter starting and ending Station Number and amount of shift.
 The shift distance may be plus or minus indicating the direction of shift.

Starting Station Number

Ending Station Number

Distance (feet)

Shift To Facility

Figure 5-113. Shift Survey Readings

5. Type a starting station number in the **Starting Station Number** field. Press **Tab** and enter ending station number in the **Ending Station Number** field.

For example, enter 1071232 for a station number 10712+32. When you hit **Tab**, the number adjusts to 10712+32.

1. Select either **Distance (feet)** to specify an exact measurement or **Shift To Facility** if you want to shift station numbers in the direction of an existing facility location.
 - a. For **Distance (feet)**, type or select the number of feet in the **Distance (feet)** field. Clicking the up arrow increases the value; clicking the down arrow decreases it.
 - b. For **Shift To Facility**, type a facility location in the **Shift To Facility** field or click to open the *Select Facility* window and select a facility from the list. Then click .
2. If desired, click the close button to cancel the operation and close the window.
3. Click **Apply** to shift station numbers and update the data entry grid.

Copy Station Numbers to a New Survey

Use the **Copy** option to copy a range of station numbers with survey readings to a new survey.

These instructions start with the assumption that the ISM module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to copy a range of station numbers with survey readings to a new survey:

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

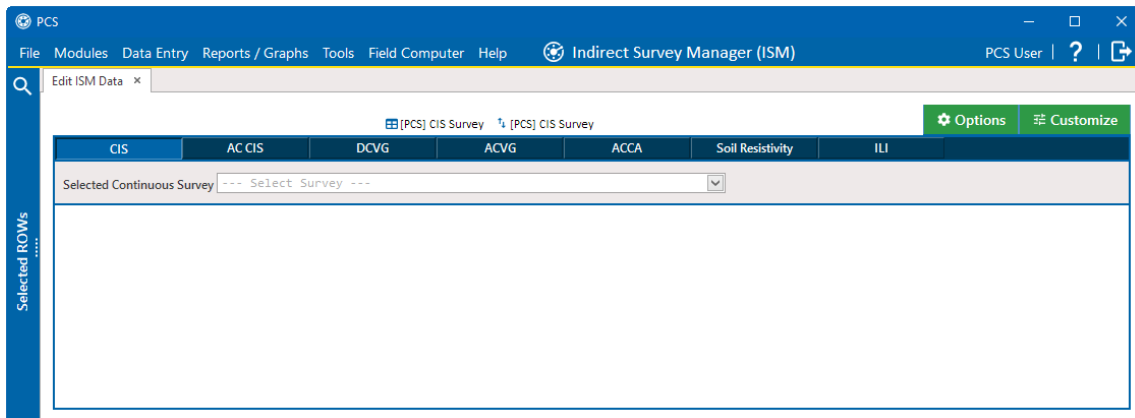


Figure 5-114. Edit ISM Data Window

3. Select a survey folder with survey readings you want to modify from the **Selected Continuous Survey** drop-down list.

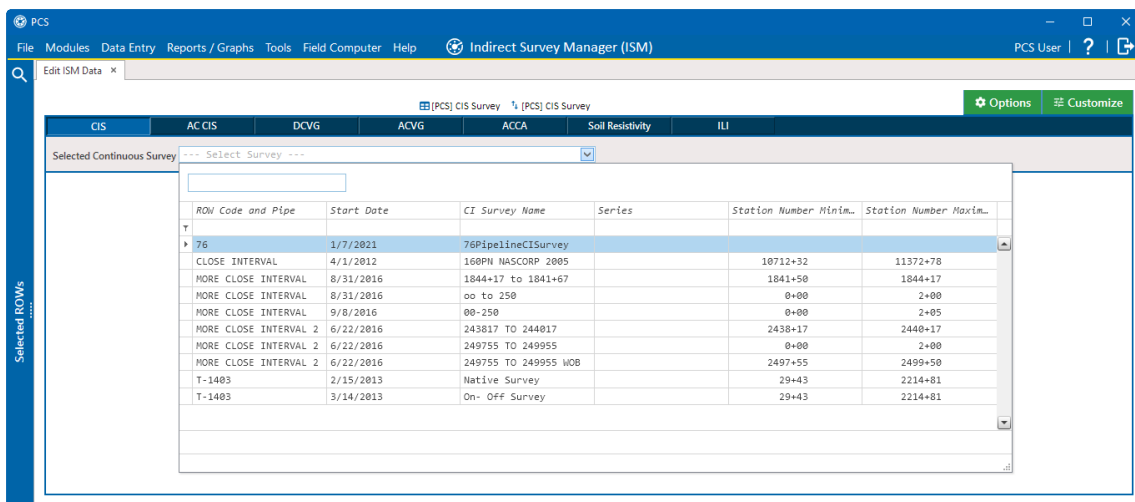


Figure 5-115. Select Continuous Survey List



4. Click  **Survey Maintenance** to open the *Survey Maintenance* window. Then click the **Reverse** tab.

Figure 5-116. Copy Survey Readings

5. Type a starting station number in the **Starting Station Number** field. Press **Tab** and enter ending station number in the **Ending Station Number** field.
For example, enter 1071232 for a station number 10712+32. When you hit **Tab**, the number adjusts to 10712+32.
6. Type a name for the new survey in the **New Survey Name** field.
7. Click the down arrow in the **New Survey Date** field and select a survey date using a calendar.
8. If desired, click the close button to cancel the operation and close the window.
9. Click  **Apply** to copy the range of station numbers with survey readings to a new survey. The new survey is available for selection in the **Selected Continuous Survey** field on the *Edit ISM Data* grid.

Append a Survey

Use the **Append** option to append a range of station numbers from another survey to the selected survey.

These instructions start with the assumption that the ISM module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to append a survey with a range of station numbers from another survey (including associated survey readings):

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

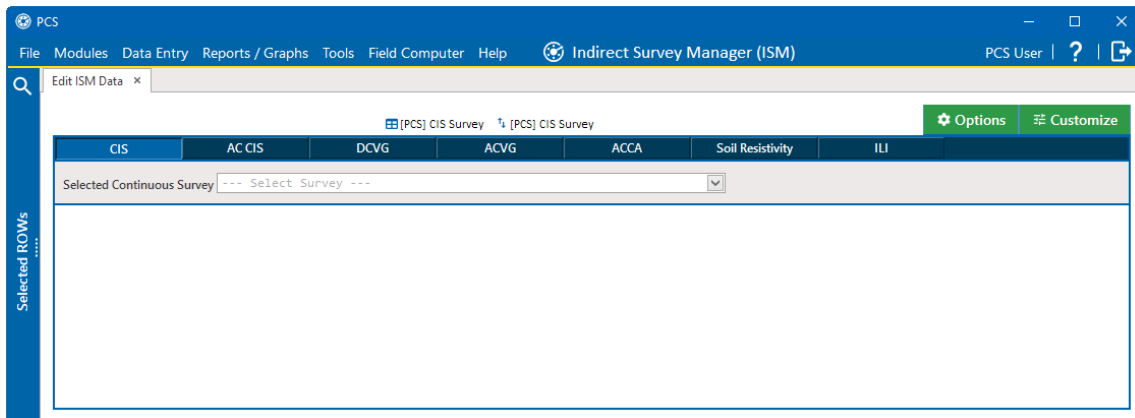


Figure 5-117. Edit ISM Data Window

3. Select a survey folder with survey readings you want to modify from the **Selected Continuous Survey** drop-down list.

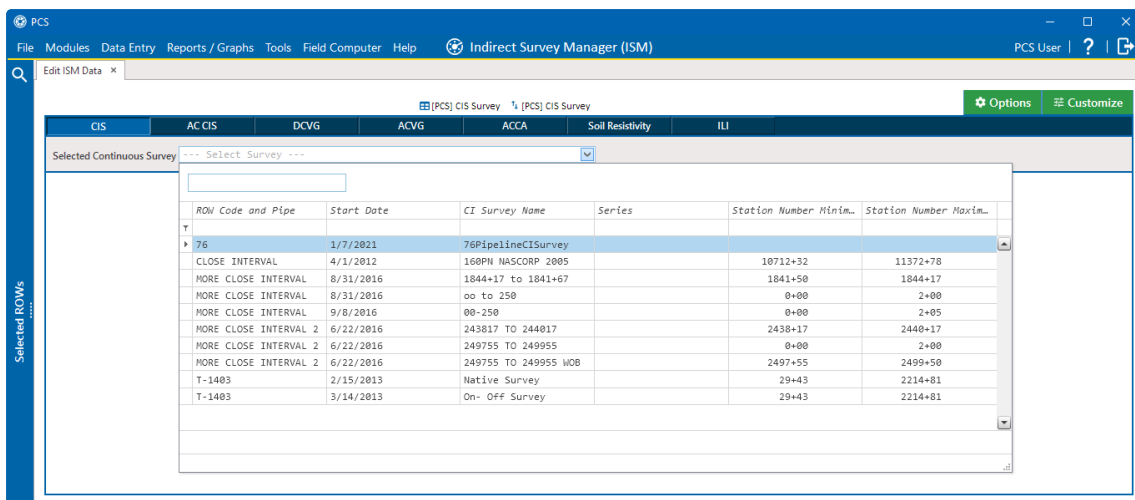


Figure 5-118. Select Continuous Survey List

4. Click **Survey Maintenance** to open the *Survey Maintenance* window. Then click the **Append** tab.

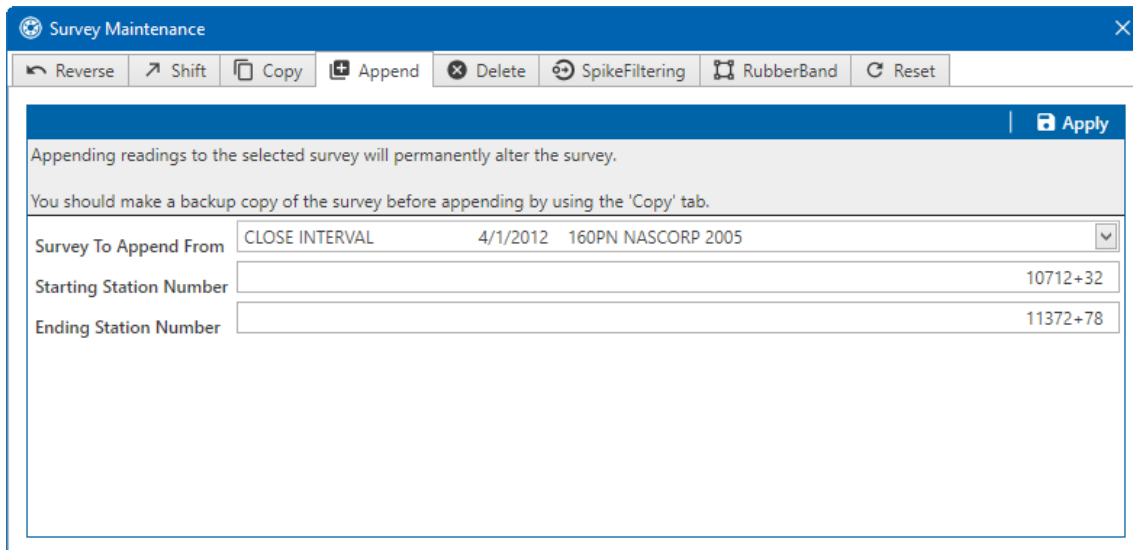


Figure 5-119. Append Survey Readings

5. Select a survey with station numbers you want to add (append) to the survey currently displayed in the ISM data entry grid. Select a survey from the **Survey To Append From** drop-down list.
6. Identify a range of station numbers you want to append to the survey currently displayed in the ISM data entry grid. Type a starting station number in the **Starting Station Number** field. Press **Tab** and enter ending station number in the **Ending Station Number** field.
For example, enter 1071232 for a station number 10712+32. When you hit **Tab**, the number adjusts to 10712+32.
7. If desired, click the close button to cancel the operation and close the window.
8. Click **Apply**. If no duplicate station numbers exist, PCS adds the range of appended station numbers with survey readings to the survey currently displayed in the ISM data entry grid.
9. If duplicate station numbers exist, a message displays requiring you to make one of the selections.

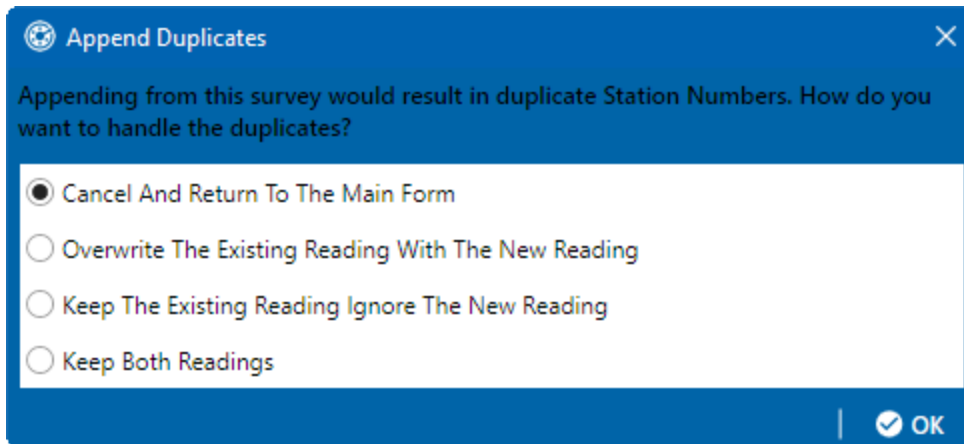


Figure 5-120. Append Duplicates

- a. Select which option you would like to use to hand the duplicates.
- b. Click OK.

Delete a Range of Station Numbers

Use the **Delete** option to delete a range of station numbers in a survey. Survey readings associated with the range of station numbers are also deleted. Deleting all station numbers in a survey also deletes the survey.

These instructions start with the assumption that the ISM module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to delete a range of station numbers in a survey:

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

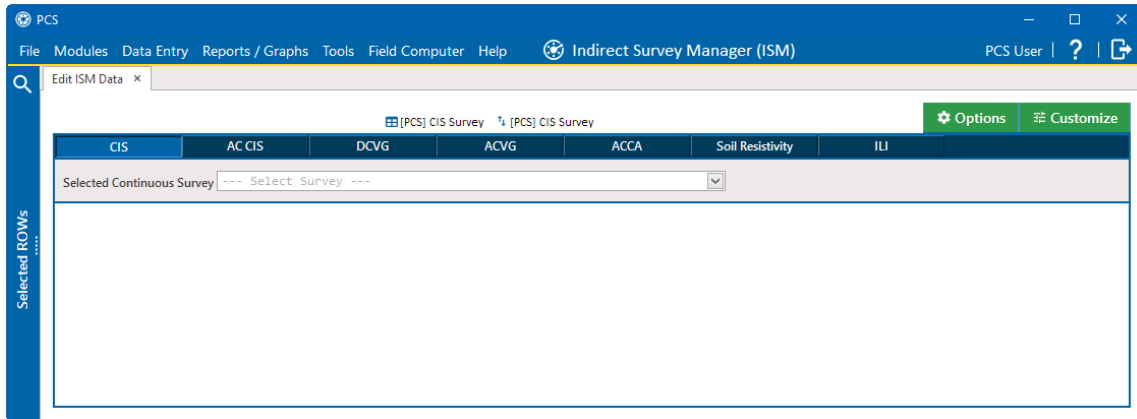


Figure 5-121. Edit ISM Data Window

3. Select a survey folder with survey readings you want to modify from the **Selected Continuous Survey** drop-down list.

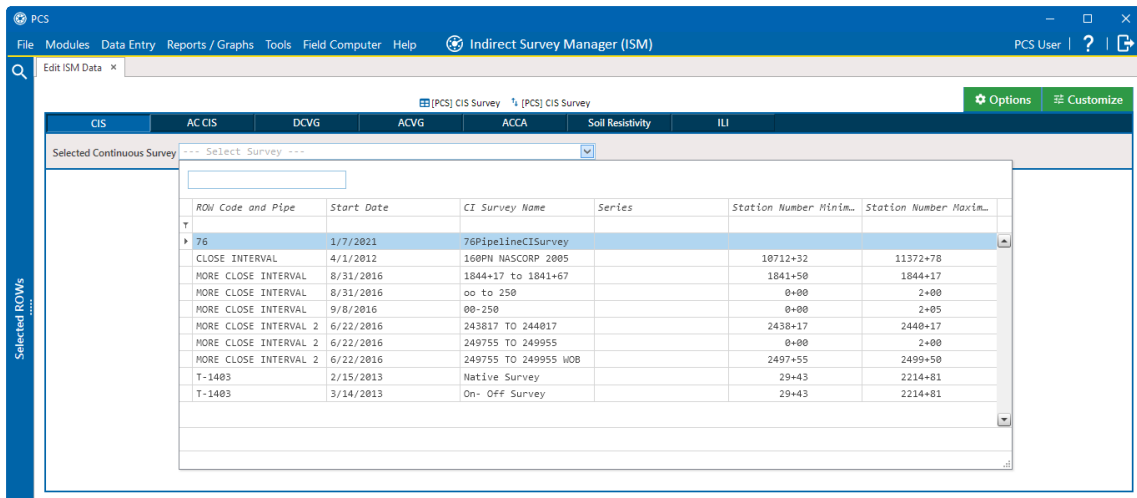



Figure 5-122. Select Continuous Survey List

4. Click  **Survey Maintenance** to open the *Survey Maintenance* window. Then click the **Delete** tab.

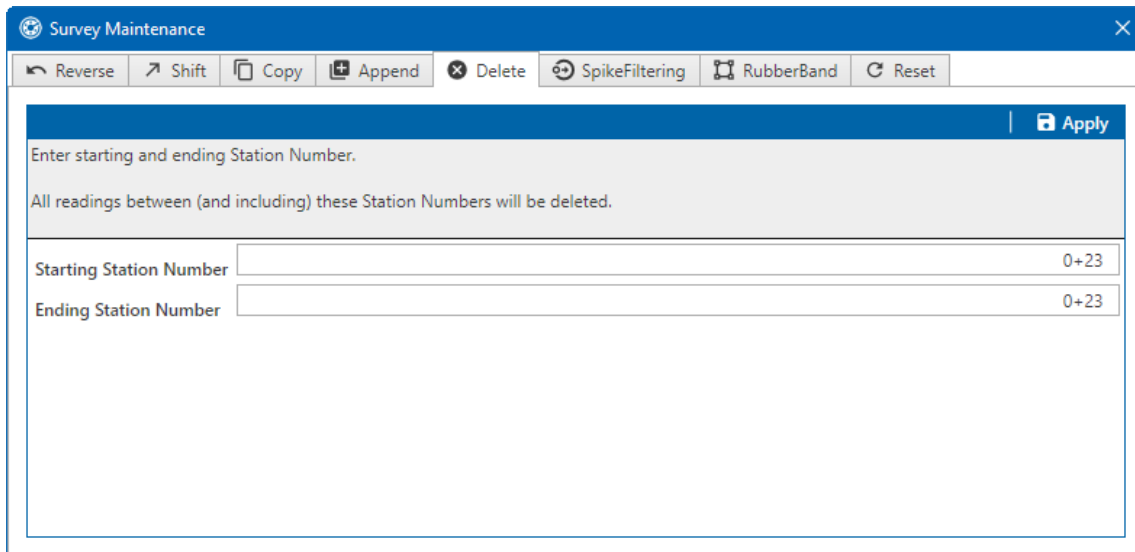





Figure 5-123. Reverse Survey Readings

5. Identify the range of station numbers you want to delete (includes associated survey readings). Type a starting station number in the **Starting Station Number** field. Press **Tab** and enter an ending station number in the **Ending Station Number** field.

For example, enter 1071232 for a station number 10712+32. When you hit **Tab**, the number adjusts to 10712+32.

6. If desired, click the close button to cancel the operation and close the window.
7. Click  **Apply**.
8. Click  **OK** in the *Delete Survey Readings* warning window to delete station numbers and associated survey readings. Click  **Cancel** to cancel the operation.

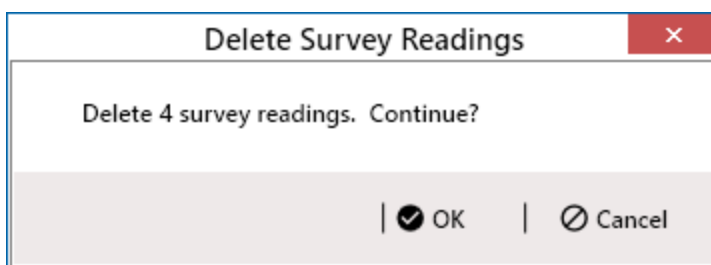


Figure 5-124. Delete Survey Readings

Use Spike Filtering

Spike filtering is available only when working with a close interval survey (CIS). Use spike filtering to exclude inaccurate survey readings in graphs and reports that are typically due to poor contact between the soil and reference electrode. Using this feature allows you to consider only those survey readings that are accurate when analyzing survey data.

Inaccurate readings are excluded based on a percentage value you specify for the filter. PCS compares the on/off values of the current reading with the on/off values of the previous and next reading. If the current survey reading differs from the previous and next survey reading by more than the percentage allowed, PCS disables the option *Plot This Point* for the current survey reading and also excludes it in the *CIS Survey Graph* report.

These instructions start with the assumption that the ISM module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to apply spike filtering to a range of station numbers:

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

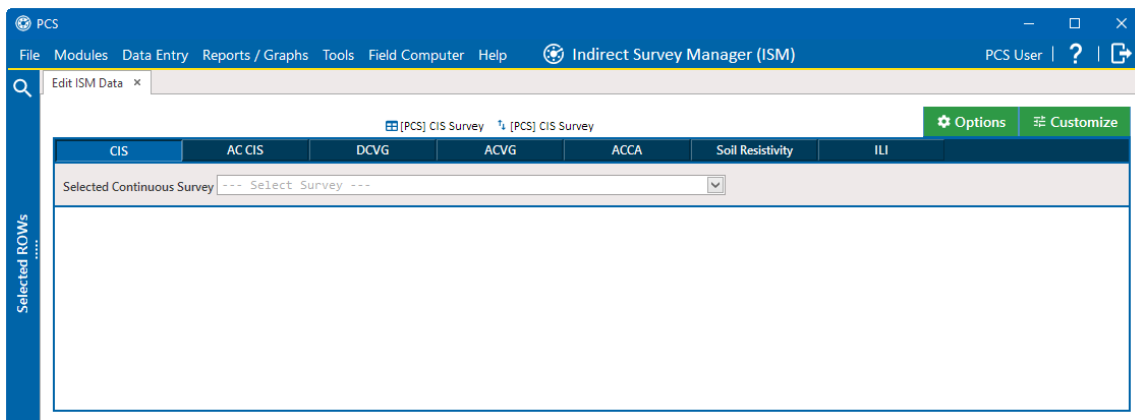


Figure 5-125. Edit ISM Data Window

3. Select a survey folder with survey readings you want to modify from the **Selected Continuous Survey** drop-down list.

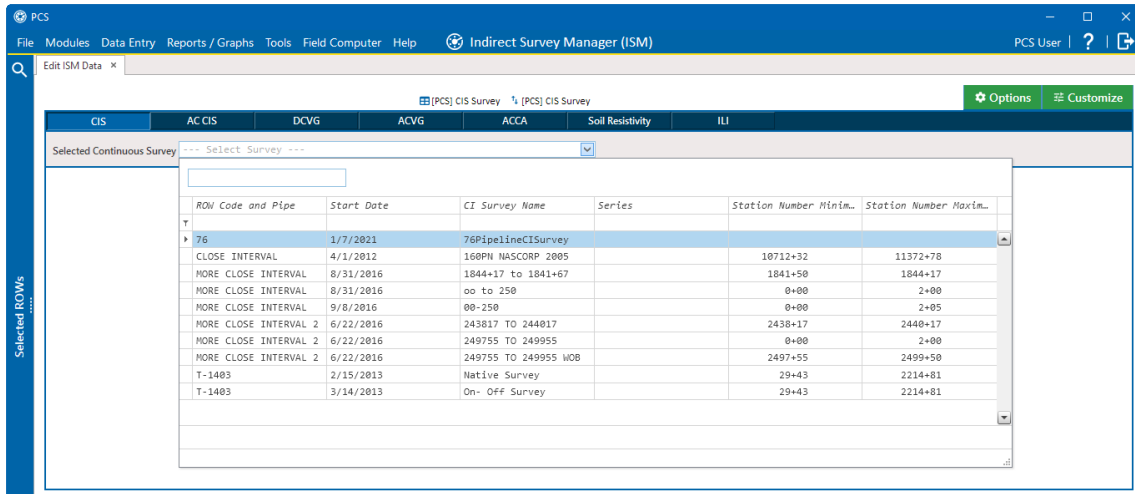


Figure 5-126. Select Continuous Survey List

- Click **Survey Maintenance** to open the *Survey Maintenance* window. Then click the **SpikeFiltering** tab.

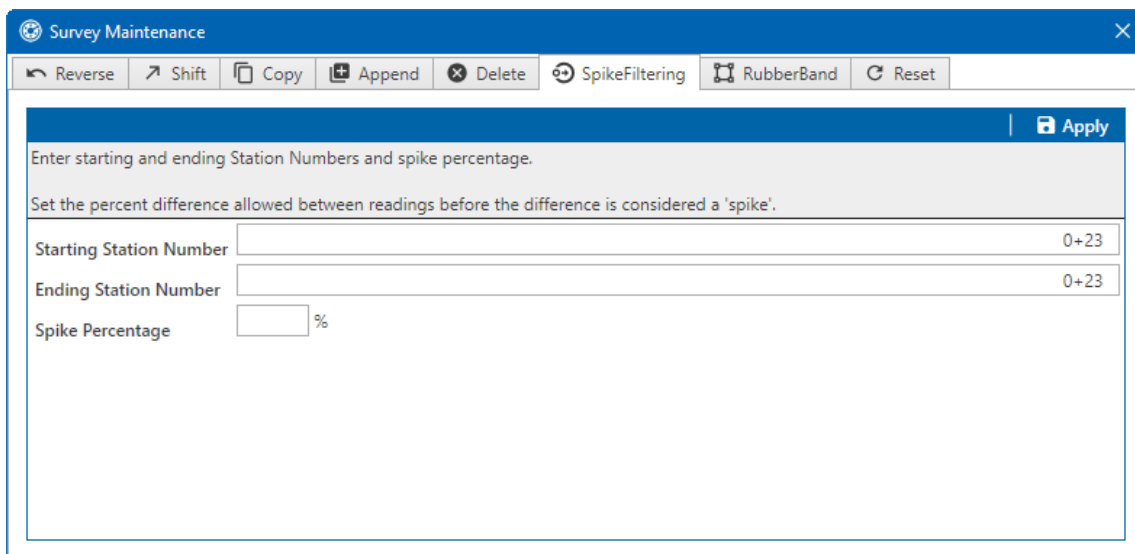


Figure 5-127. Spike Filtering Survey Readings

- Type a starting station number in the field **Starting Station Number**. Press **Tab** and enter ending station number in the **Ending Station Number** field.
For example, enter 1071232 for a station number 10712+32. When you hit **Tab**, the number adjusts to 10712+32.
- Type a value in the **Spike Percentage** field. Valid entries are in a range of 1-99.
- If desired, click the close button to cancel the operation and close the window.

8. Click  **Apply** and then click  **OK** when a status message displays.
-

NOTE: The option **Plot This Point** is disabled in the *Edit ISM Data* grid for station numbers that meet *Spike Filtering* criteria.

Use Rubber Band

Use the **Rubber Band** option to adjust a range of station numbers by stretching or shrinking sections of a survey so that station numbers line up with known points along the survey or existing facilities.

Using Rubber Band allows you to re-align station numbers for a selected survey. After entering known station numbers for the first, last, and any other station numbers in between, Rubber Band adjusts remaining station numbers in a linear manner between known station numbers. Station numbers are then listed in ascending order (lowest to highest).

When you first use Rubber Band, the **Original** and **Target** fields include two match point records by default. These match point records are the first and last station numbers in the selected survey. Station numbers in the **Original** field are the original station numbers initially stored in PCS as a result of importing survey data, entering survey data manually, or receiving survey data from the Allegro field computer. Station numbers in the **Target** field are the corrected or adjusted station numbers that you enter or are entered as a result of the Rubber Band feature.

These instructions start with the assumption that the ISM module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to adjust a range of station stations using the Rubber Band function:

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

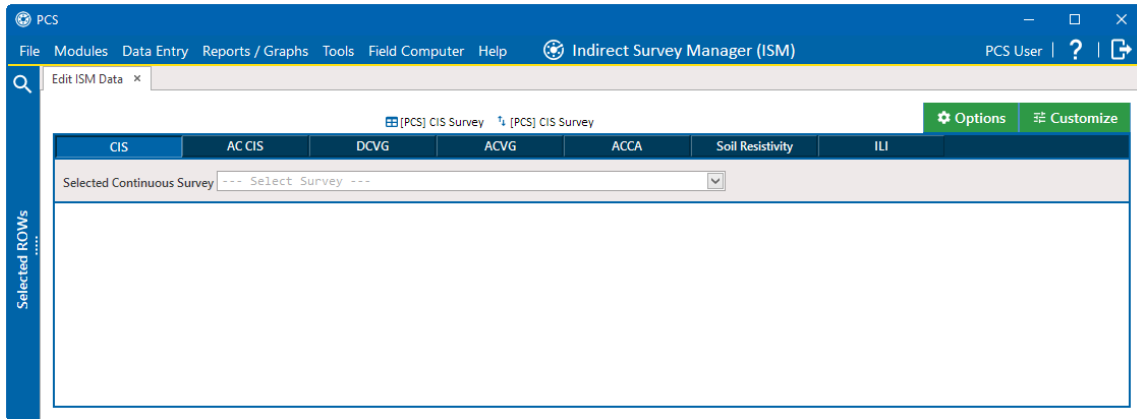


Figure 5-128. Edit ISM Data Window

3. Select a survey folder with survey readings you want to modify from the **Selected Continuous Survey** drop-down list.

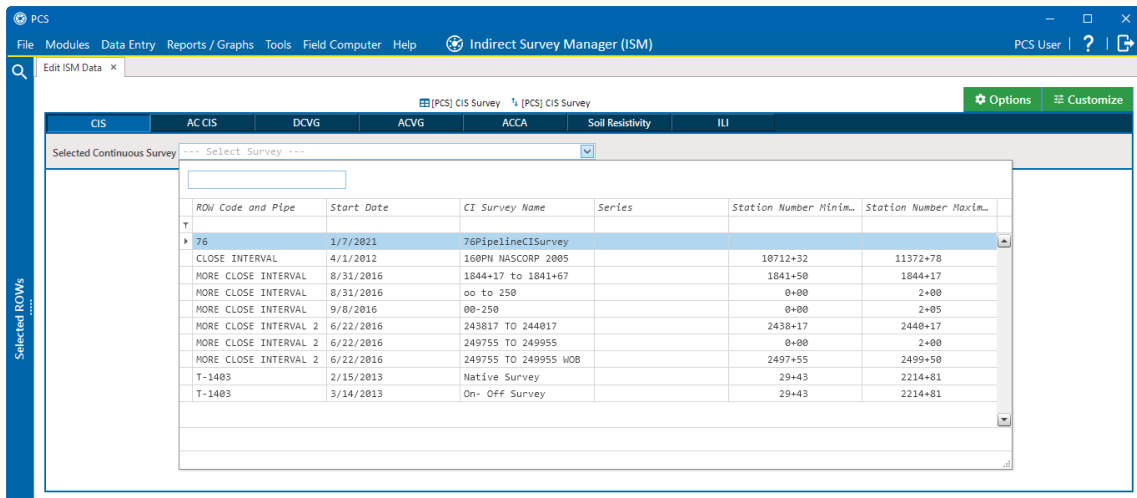



Figure 5-129. Select Continuous Survey List

4. Click  **Survey Maintenance** to open the *Survey Maintenance* window. Then click the **RubberBand** tab.

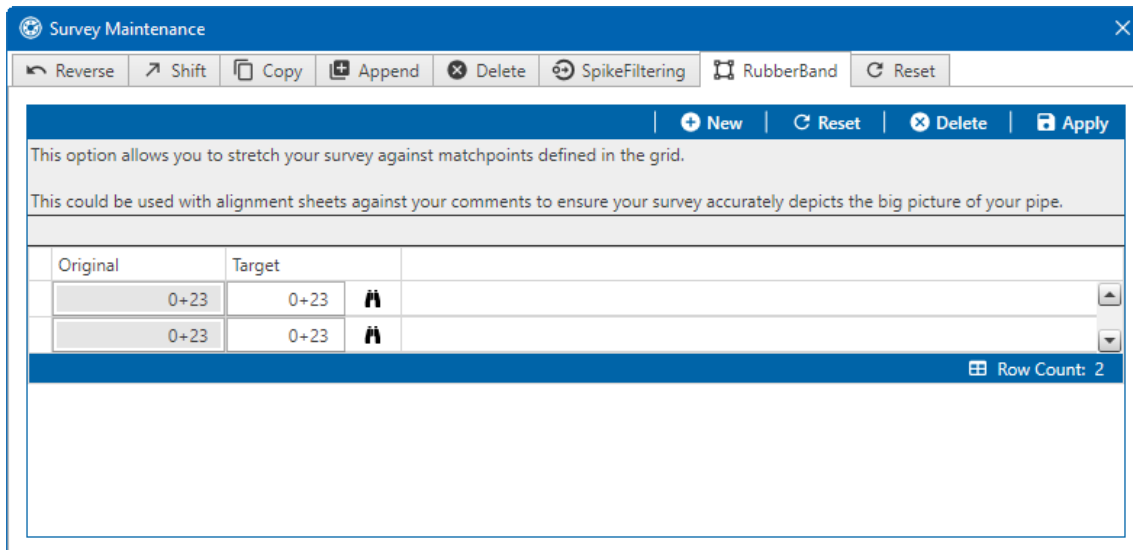
















Figure 5-130. RubberBand Survey Readings

5. Complete the following steps to re-align station numbers in a survey:

- a. To re-align the first station number in the survey, type a new station number in the **Target** field of the first station number.
For example, enter 1071232 for a station number 10712+32. When you hit **Tab**, the number adjusts to 10712+32.
If you want to re-align the first station number to an existing facility instead, click the  icon to open the *Select Facility* window and select a facility in the grid. Then click  **Save**.
- b. To re-align the last station number in the survey, type a new station number in the **Target** field of the last station number.
If you want to re-align the last station number to an existing facility instead, click the  icon to open the *Select Facility* window and select a facility in the grid. Then click  **Save**.
- c. To add new match points for known station numbers, click  **New** to add empty **Original** and **Target** match point fields. Then type the station number you want to re-align in the **Original** field and the adjusted (or corrected) station number in the **Target** field.
If you want to re-align the adjusted station number to an existing facility instead, click the  icon to open the *Select Facility* window and select a facility in the grid. Then click  **Save**.
- d. To delete a row of match points, select the row and then click  **Delete**.
Click  **Reset** before clicking  **Apply** to reset station numbers to their original values.

- e. Click  **Apply**. When the *Apply* message displays, click  **OK** to continue or  **Cancel** to cancel the operation.

6. Click  **Refresh** to update data in the grid.

Reset Station Numbers

Use the **Reset** option to return all station numbers in the selected survey to original station numbers that were collected when the survey was first entered in the ISM data entry grid.

Complete the following steps to reset station numbers:

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

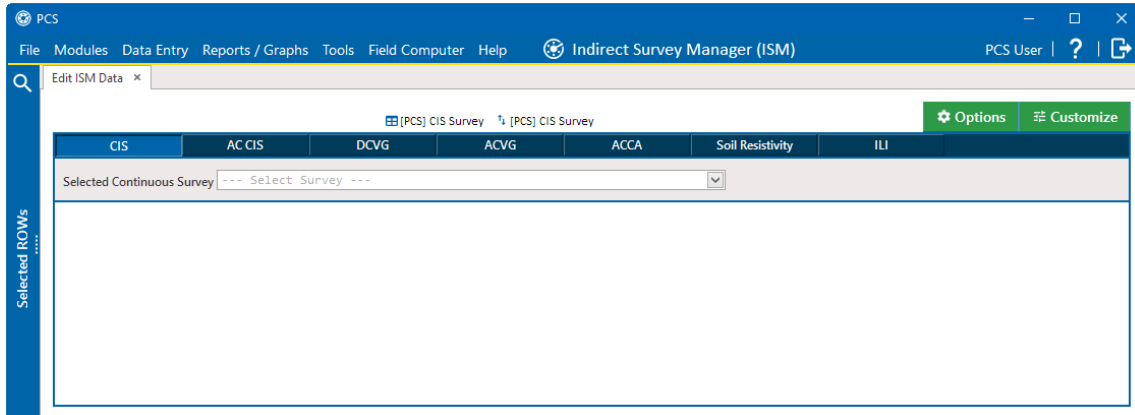


Figure 5-131. Edit ISM Data Window

3. Select a survey folder with survey readings you want to modify from the **Selected Continuous Survey** drop-down list.

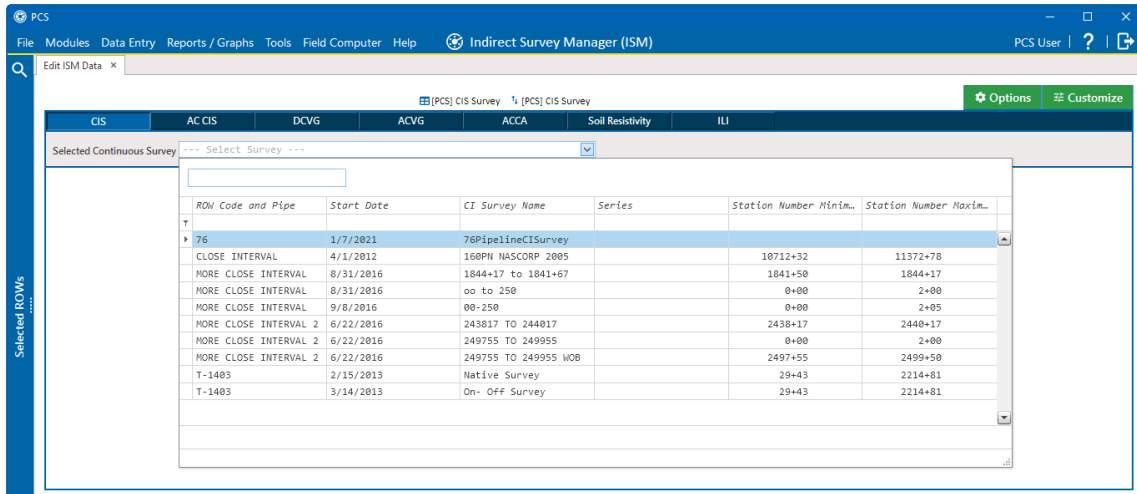


Figure 5-132. Select Continuous Survey List

- Click **Survey Maintenance** to open the *Survey Maintenance* window. Then click the **Reset** tab.

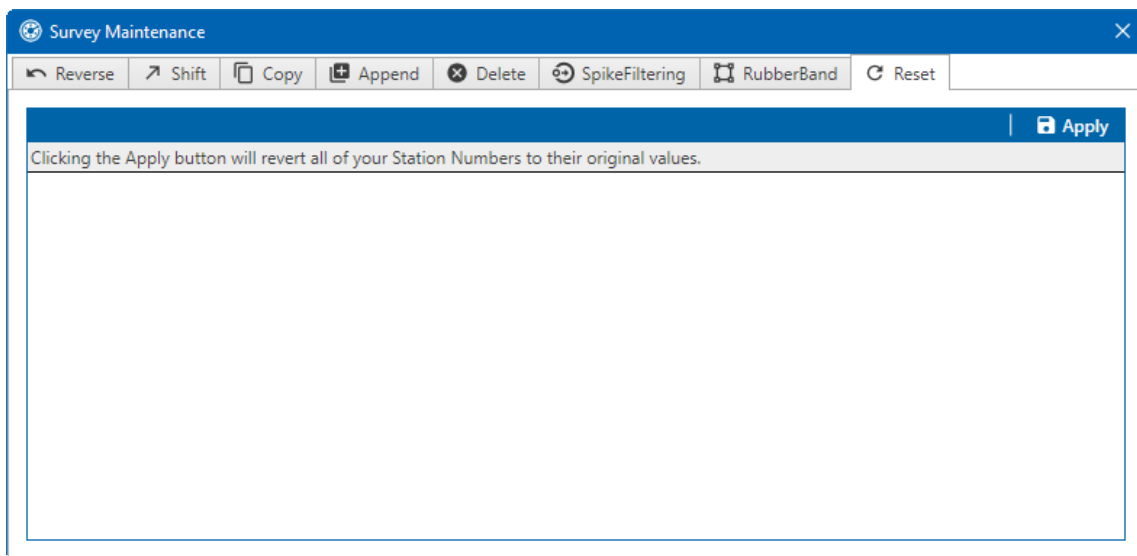


Figure 5-133. Reverse Survey Readings

- Click **Apply**.
When the *Reset Station Numbers* message displays, click **OK** to reset all station numbers or **Cancel** to cancel the operation.

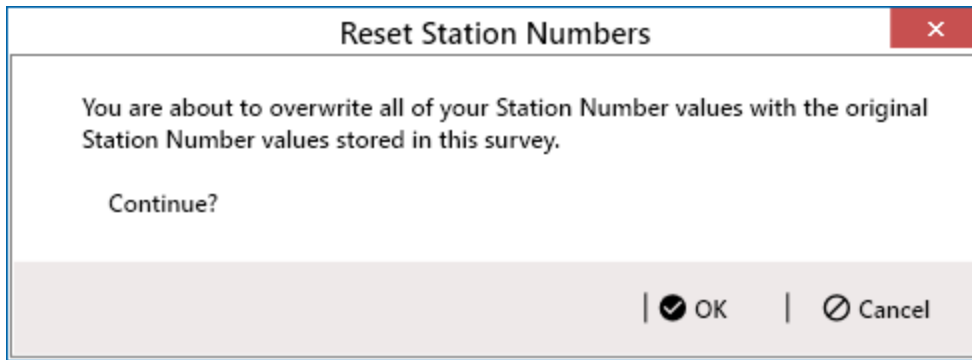


Figure 5-134. Reset Station Numbers

The *Edit ISM Data* entry grid now displays original station numbers.

Print, Export, or Email a Continuous Survey

You can print, export, or email a report for a continuous survey in the *Edit ISM Data* grid. Supported file formats for exporting a report include PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, and image (BMP, EMF, WMF, GIF, JPEG, PNG, and TIFF).

These instructions start with the assumption that the ISM module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to print, export, or send via email a continuous survey report:

1. Click **Data Entry > Edit ISM Data**.
2. Select a continuous survey data type.

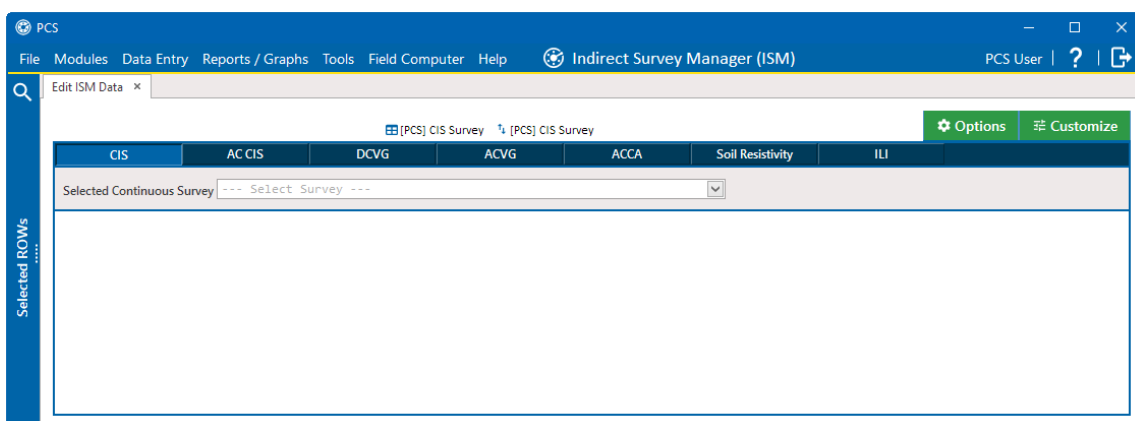


Figure 5-135. Edit ISM Data Window

3. Select a survey folder with survey readings you want to print, export, or email from the **Selected Continuous Survey** drop-down list.

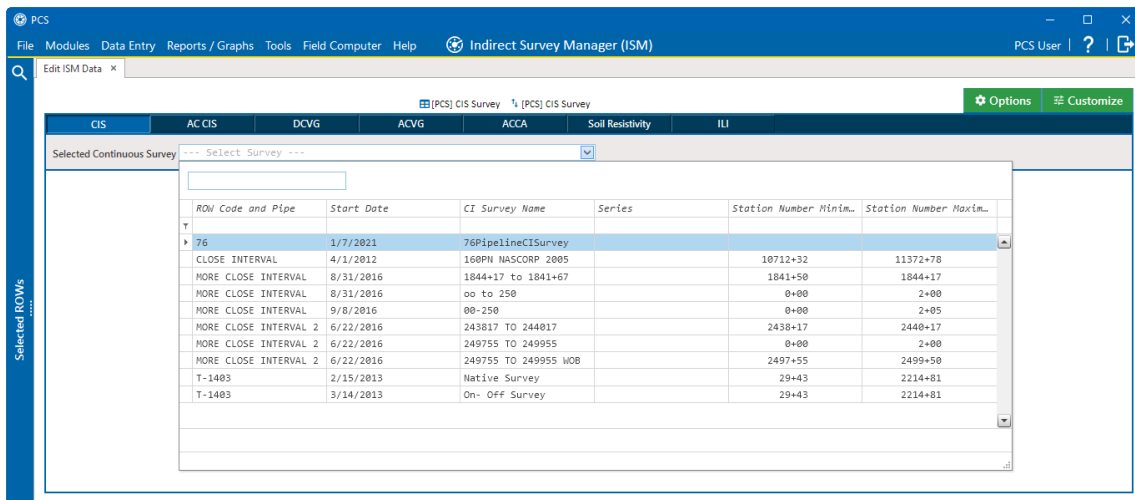


Figure 5-136. Select Continuous Survey List

4. Click **Print** to open a print preview window.

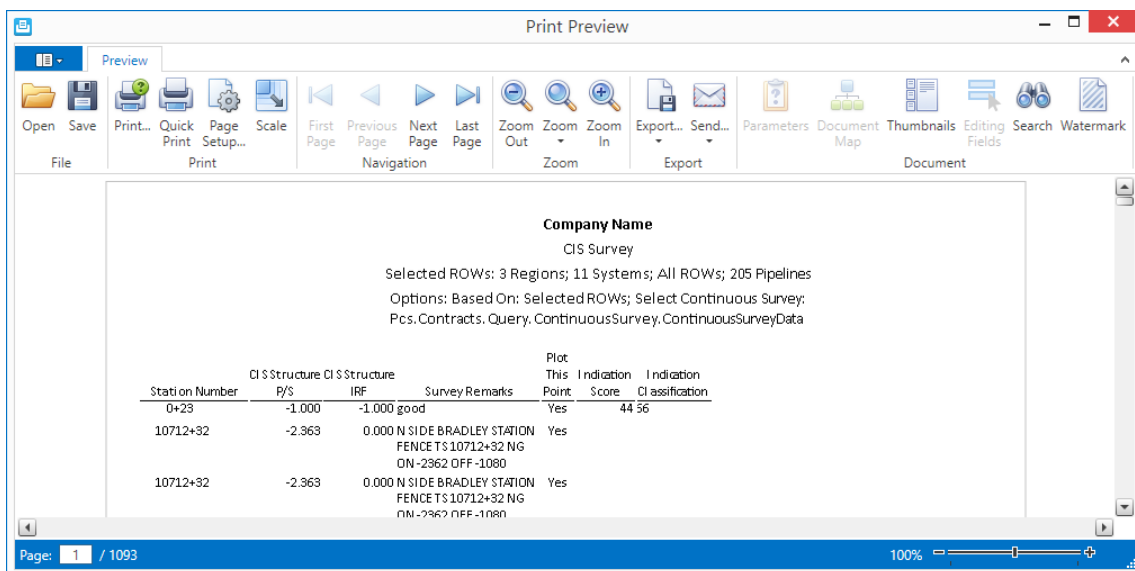




Figure 5-137. Print Preview Window

5. To print the report using the default Windows printer, click **Quick Print**.
6. To open a print window and select a printer to print the report, click **Print**.
7. To export the report in a file format:

- a. Click the down arrow in  **Export Document** and select a file format in the selection list. You can also just click the  icon to open the *Export Document* window where you can select the file type from the **Export format** drop-down list (see below).
- b. In the *Export Document* window, if desired, select the file type from the **Export format** drop-down list. Click the ellipsis button to select a file path. Click **More Options** to see options associated with the file type selected. When finished, click **OK**.

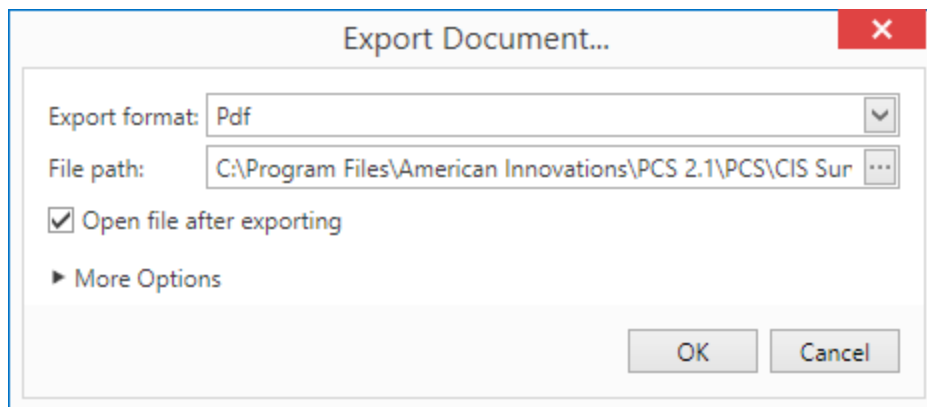




Figure 5-138. Export Document Window

8. To send the report as an attachment in an email:
 - a. Click the down arrow in  **Send** and select a file format in the selection list. You can also just click the  icon to open the *Send via E-Mail* window where you can select the file type from the **Export format** drop-down list (see below).

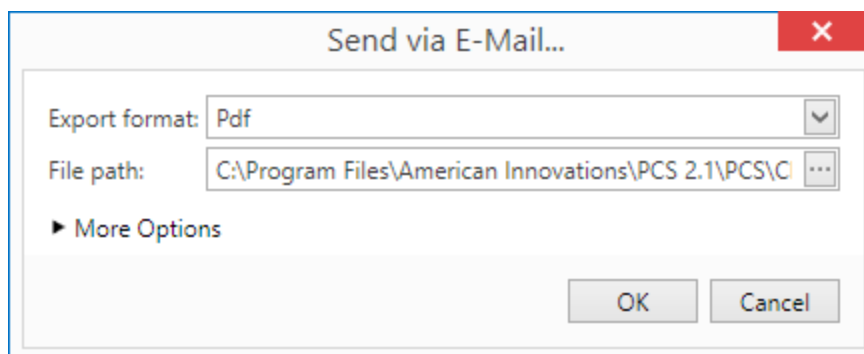





Figure 5-139. Send Via Email Window

- b. Select a file format from the **Export format** drop-down list. Click the ellipsis button to select a file path. Click **More Options** to see options associated with the file type selected. When finished, click **OK**

- c. When an email message opens with the report as an attachment, select an email recipient and then click **Send**.
9. Click  to close the print preview window and return to the data entry grid.

Themes and Filter Groups

A theme is a group of named settings saved for later use, such as a grid layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS software installation. PCS installed themes are public themes available to all PCS users. These themes are identified with a  icon and **[PCS]**, such as  **[PCS] Test Point Inspections**.

A filter group is a named set of one or more filters that determine the data output in the *Define Routes* grid and subsequently, the route itself.

When you add a filter group, you define filter conditions that determine which records to include or exclude in the *Define Routes* grid and the route. Adding an AND filter group produces a subset of records that meet *all* filter conditions. Adding an OR filter group produces a subset of records that meet *any* filter condition. When you apply a filter group, PCS processes filters in descending order beginning with the filter at the top of the group.

The following sections describe how to add a layout theme, sort theme, and one or more optional filter groups:

- [Add a Data Grid Layout Theme](#)
- [Add a Sort Theme on page 377](#)
- [Add, Edit, and Apply an AND or Or Filter Group on page 381](#)
- [Work with Form Themes on page 384](#)

Add a Data Grid Layout Theme

A layout theme is a group of fields in a grid layout. Adding a new layout theme allows you to select which fields you want to include in the grid layout and then save the layout as a theme for later use. The following procedure applies to the grid layout for any data entry grid in PCS.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to add a data grid layout theme:

1. Click **Modules > Edit <module> Data**. For example, click **Data Entry > Edit CPDM Data** to open the *Edit CPDM Data* window.
2. Open the data entry grid that you want to add a new grid layout theme. For example, click the **Inspection** tab and then the **Test Point** tab to display the *Test Point Inspection* grid.

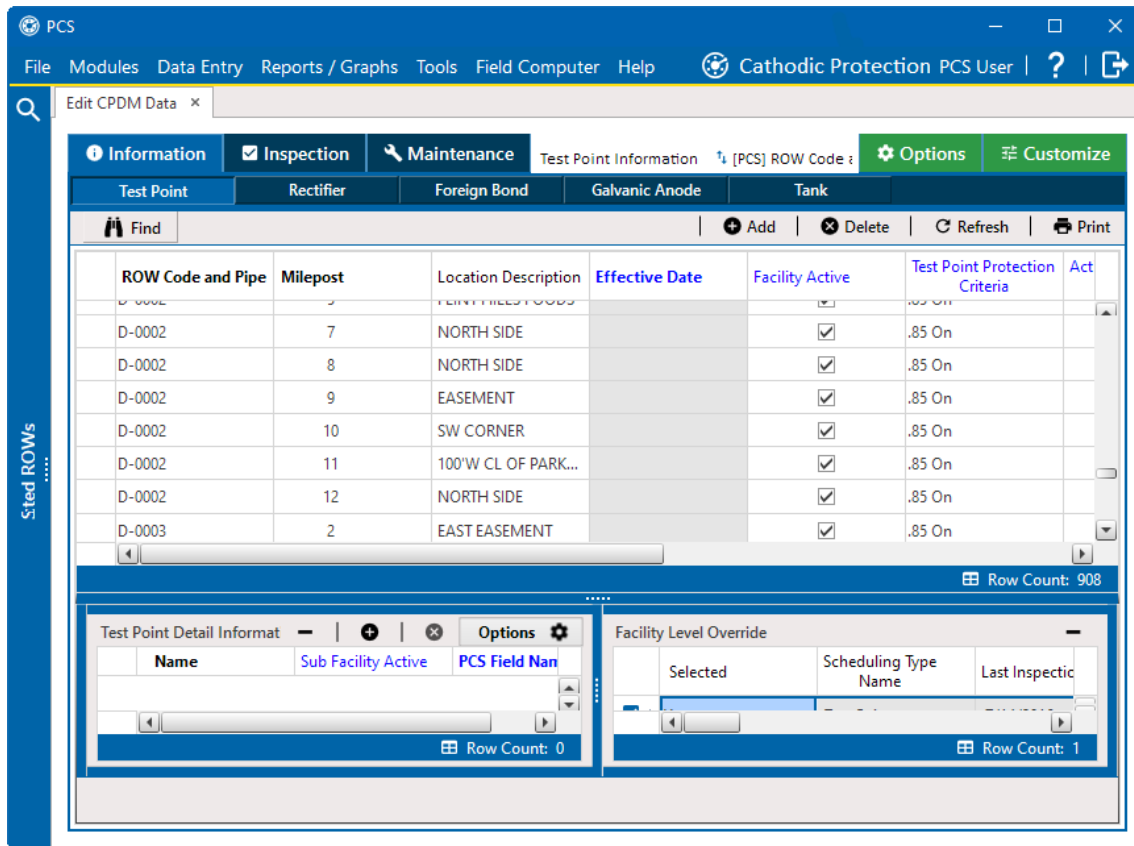


Figure 5-140. Edit CPDM Data Grid - Test Point Information

3. If you want to collapse the *Selected ROWs* pane to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the pane.
4. Click the **Customize** tab.

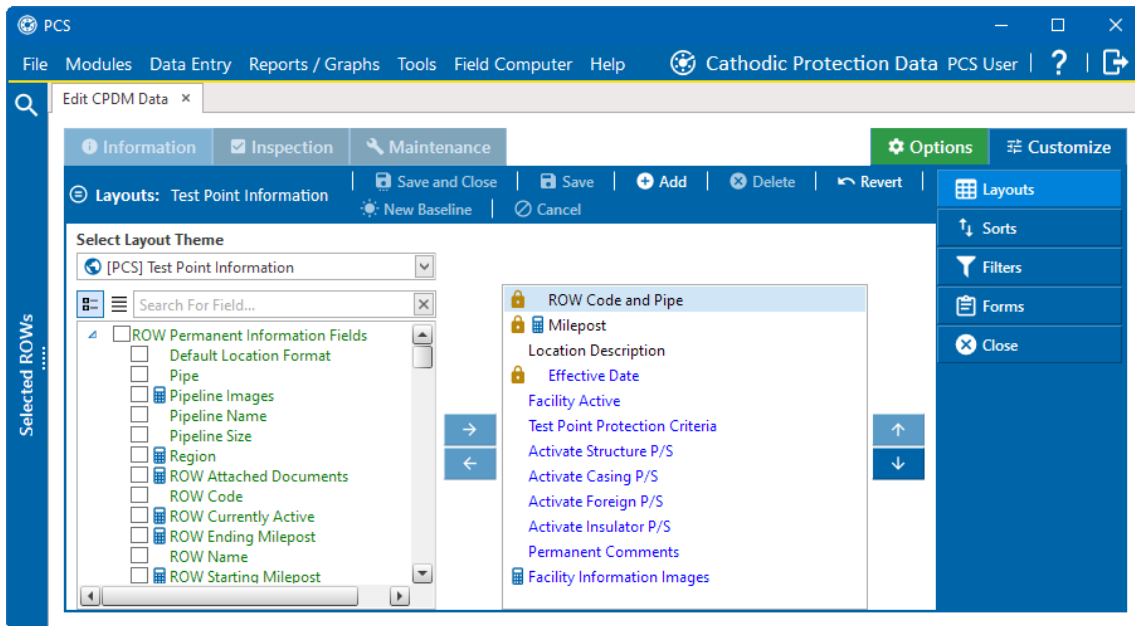


Figure 5-141. Customize Window

5. Click  **Add** to open the *New Layout Theme* window.

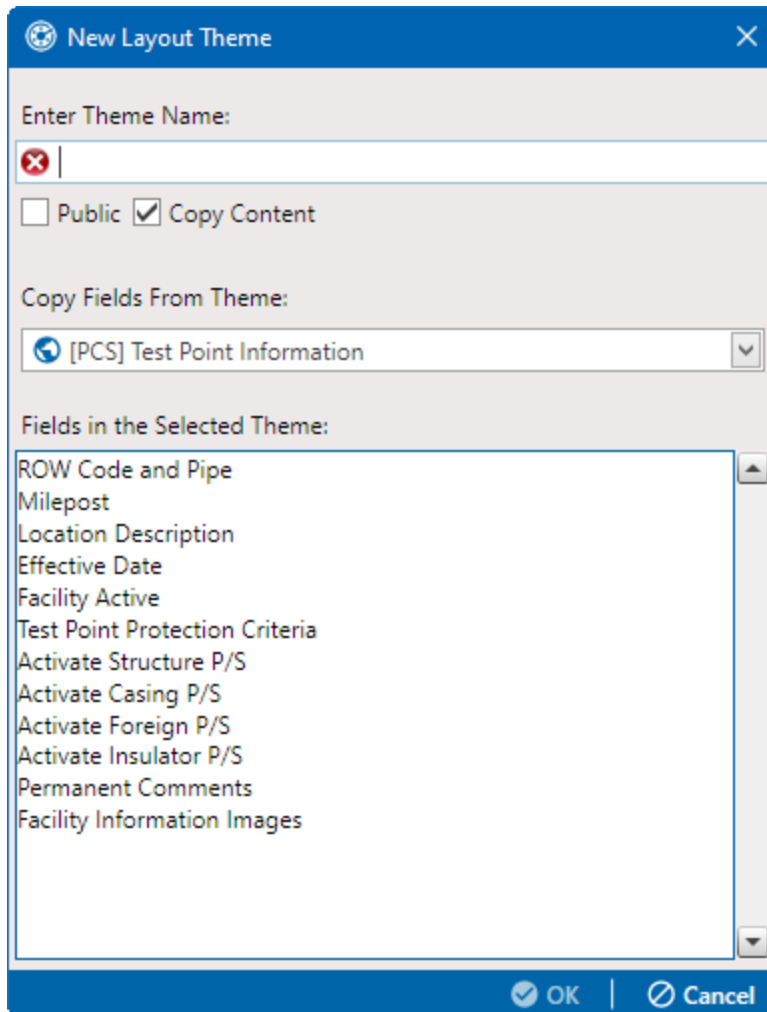



Figure 5-142. New Layout Theme Window

6. Type a name for the layout theme in the **Enter Theme Name** field (required).
7. If you want to create a public theme, select the **Public** check box. When the option is not selected, the layout saves as a private theme.

Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
8. If you want to copy fields from an existing layout theme, select the **Copy Content** check box. Then select a theme from the **Copy Fields From Theme** drop-down list.

If you do not want to copy fields from an existing layout theme, deselect the **Copy Content** check box.
9. Click **OK** to save changes and return to the *Layouts* window.
10. Complete the following steps to add and remove fields in the new layout theme as needed:

- a. Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **All Fields**.
 - b. Check the check box for the field and click → or double-click the field.
 - c. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* window.
 - d. To remove a field in the layout theme, select the field and click ← or double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.
11. To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the ↑ or ↓ button.
 12. Click  **Save and Close** to save changes and return to the data entry grid.
 13. To apply the new layout theme to the data entry grid, click the **Options** tab to open the *Options* window.

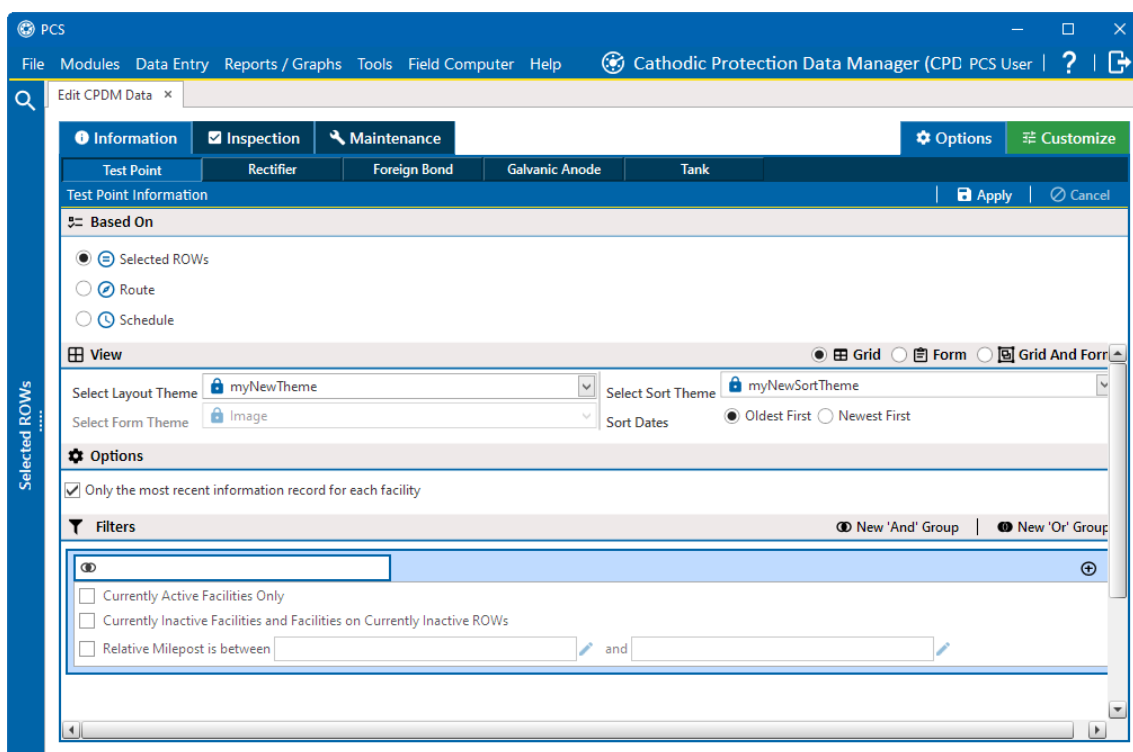



Figure 5-143. Options Window

14. In the **View** pane, select the new layout theme from the **Select Layout Theme** drop-down list.
15. Click  **Apply** to apply changes and return to the data entry grid.

Add a Sort Theme

A sort theme determines how PCS sorts records in the data entry grid. Adding a sort theme allows you to select which field(s) to sort records by and if records sort alphanumerically in ascending or descending order.

Complete the following steps to add a sort theme:

1. Click **Modules > Edit <module> Data**. For example, click **Data Entry > Edit CPDM Data** to open the *Edit CPDM Data* window.
2. Open the data entry grid that you want to add a new grid layout theme. For example, click the **Inspection** tab and then the **Test Point** tab to display the *Test Point Inspection* grid.

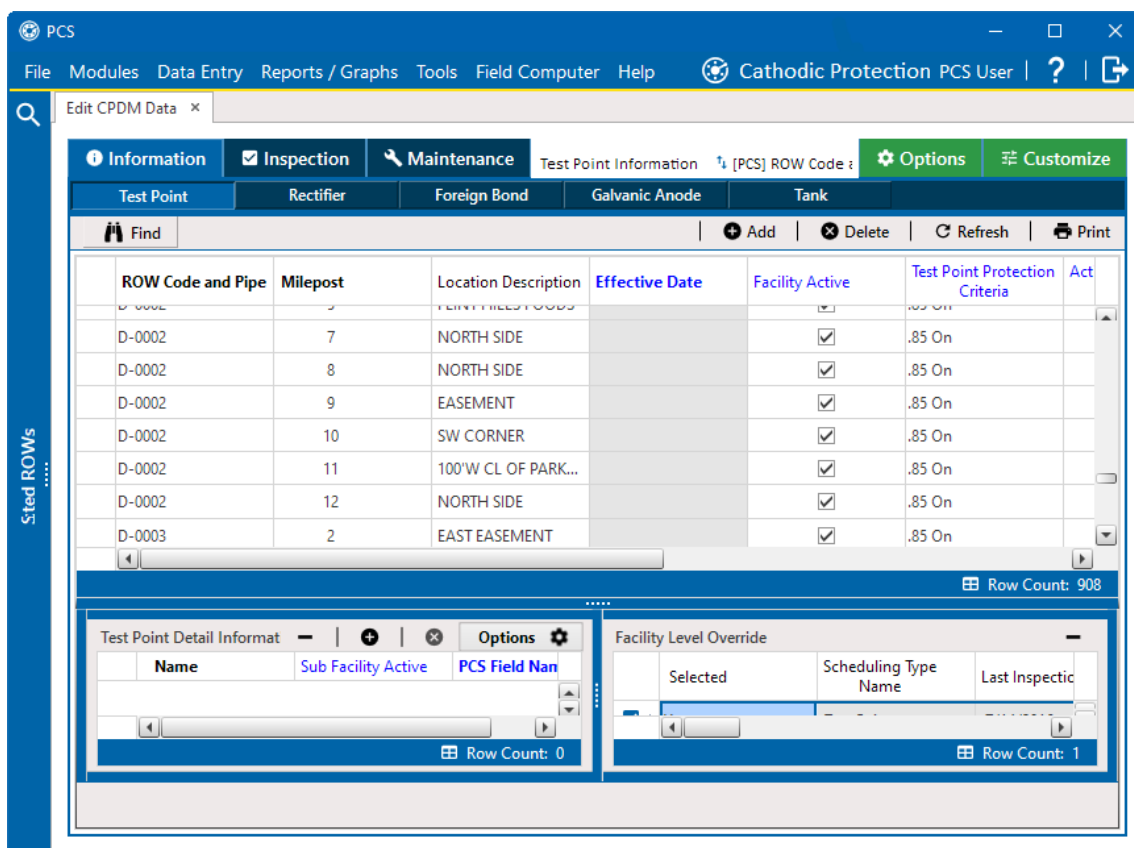


Figure 5-144. Edit CPDM Data Grid - Test Point Information

3. If you want to collapse the *Selected ROWs* pane to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the pane.
4. Click the **Customize** tab and then the **Sorts** tab.

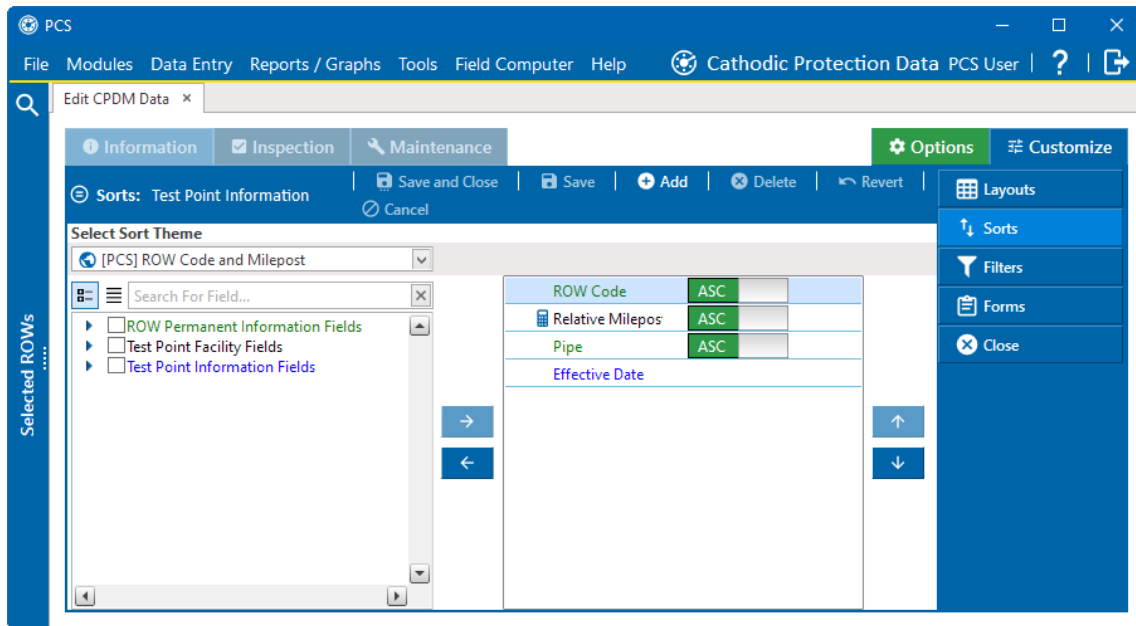


Figure 5-145. Customize Window - Sorts

5. Click **Add** to open the *New Sort Theme* window.

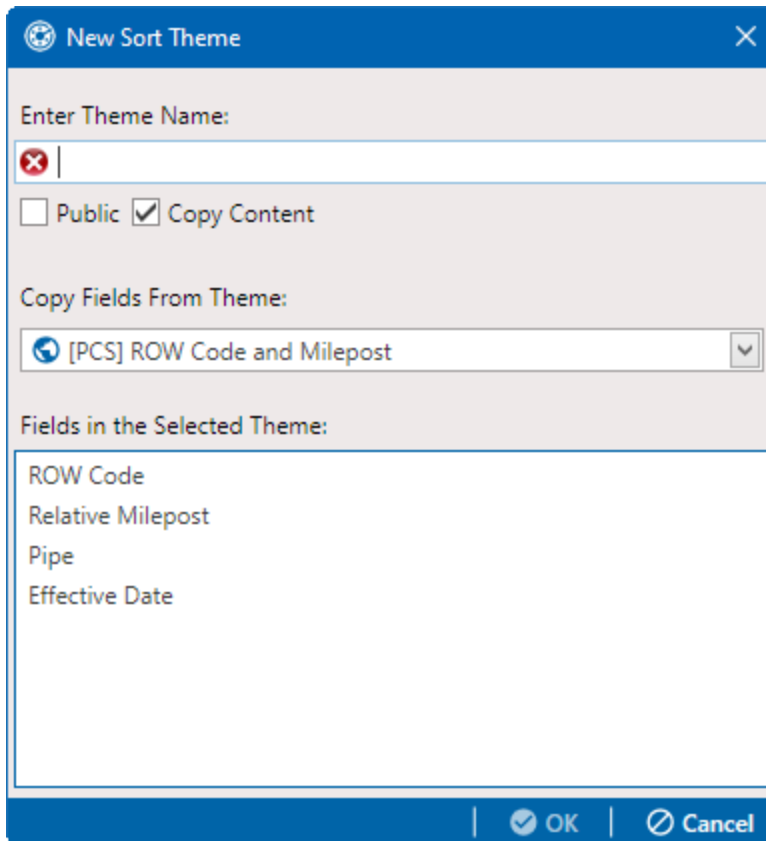









Figure 5-146. New Sort Theme

6. Type a name for the layout theme in the field **Enter Theme Name** (required).
7. If you want to create a public theme, select the **Public** check box. When the option is not selected, the layout saves as a private theme.
Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
8. If you want to copy fields from an existing layout theme, select the **Copy Content** check box. Then select a theme from the **Copy Fields From Theme** drop-down list.
If you do not want to copy fields from an existing layout theme, remove the check mark inside the **Copy Content** check box by clicking the check box.
9. Click **OK** to save changes and return to the *Sorts* window.
10. Complete the following steps to add and remove fields in the new sorts theme as needed:
 - a. Click the toggle arrow **▶** for a field category in the left pane of the window to view a list of fields available for selection. For example, click **▶ All Fields**.

- b. Check the check box for the field and click  or double-click the field. The field is added to the list of sorted fields in the pane on the right.
 - c. Repeat these steps as needed until all desired fields are listed in the pane on the right.
 - d. To remove a field in the layout theme, select the field and click  or double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.
11. Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select . To sort in descending order, click the toggle button to select .
 12. To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the  or  button.
 13. Click  **Save and Close** to save changes and return to the data entry grid.
 14. To apply the new layout theme to the data entry grid, click the **Options** tab to open the *Options* window.

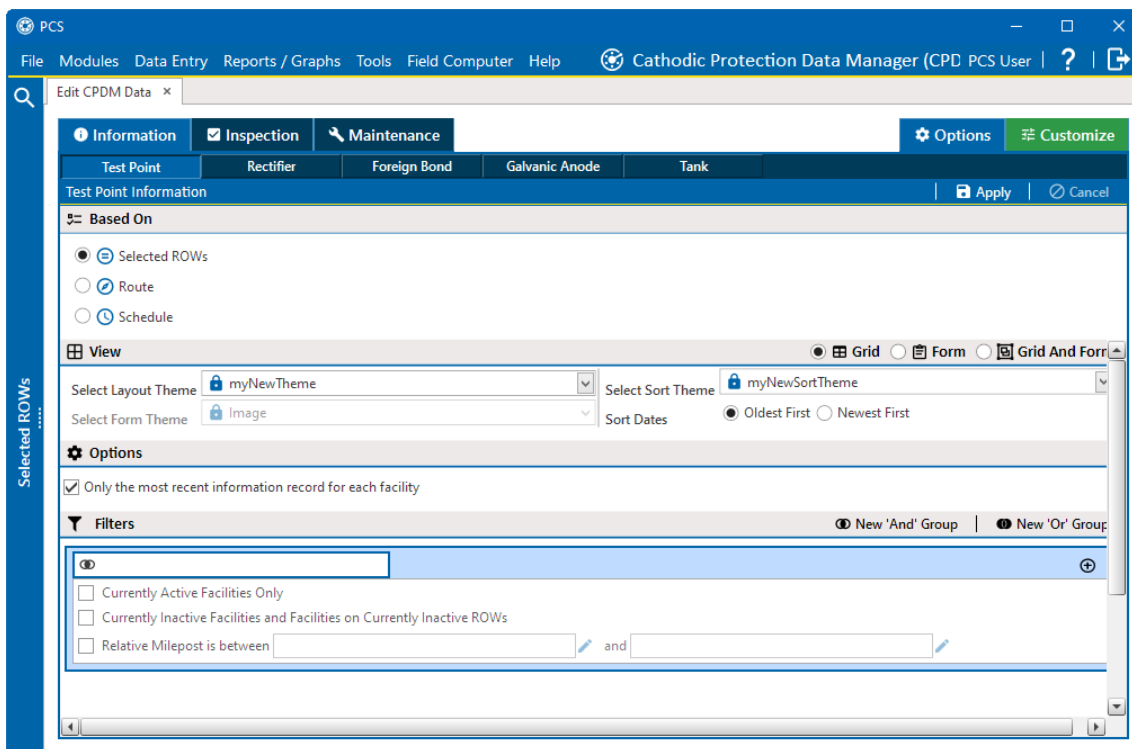



Figure 5-147. Options Window

15. In the **View** pane, select the new sort theme from the **Select Sort Theme** drop-down list.
16. Click  **Apply** to apply changes and return to the data entry grid.

Add, Edit, and Apply an AND or Or Filter Group

An AND filter group is a named set of one or more filters that affect the data output in a data entry grid in *Data Entry*. Adding an AND filter group produces a subset of records that meet *all* filter conditions. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to create and edit either an And or Or filter group and then apply it for use in a module data entry grid:

1. Click **Modules > Edit <module> Data**. For example, click **Data Entry > Edit CPDM Data** to open the *Edit CPDM Data* window.
2. Open the data entry grid that you want to add a new grid layout theme. For example, click the **Inspection** tab and then the **Test Point** tab to display the *Test Point Inspection* grid.

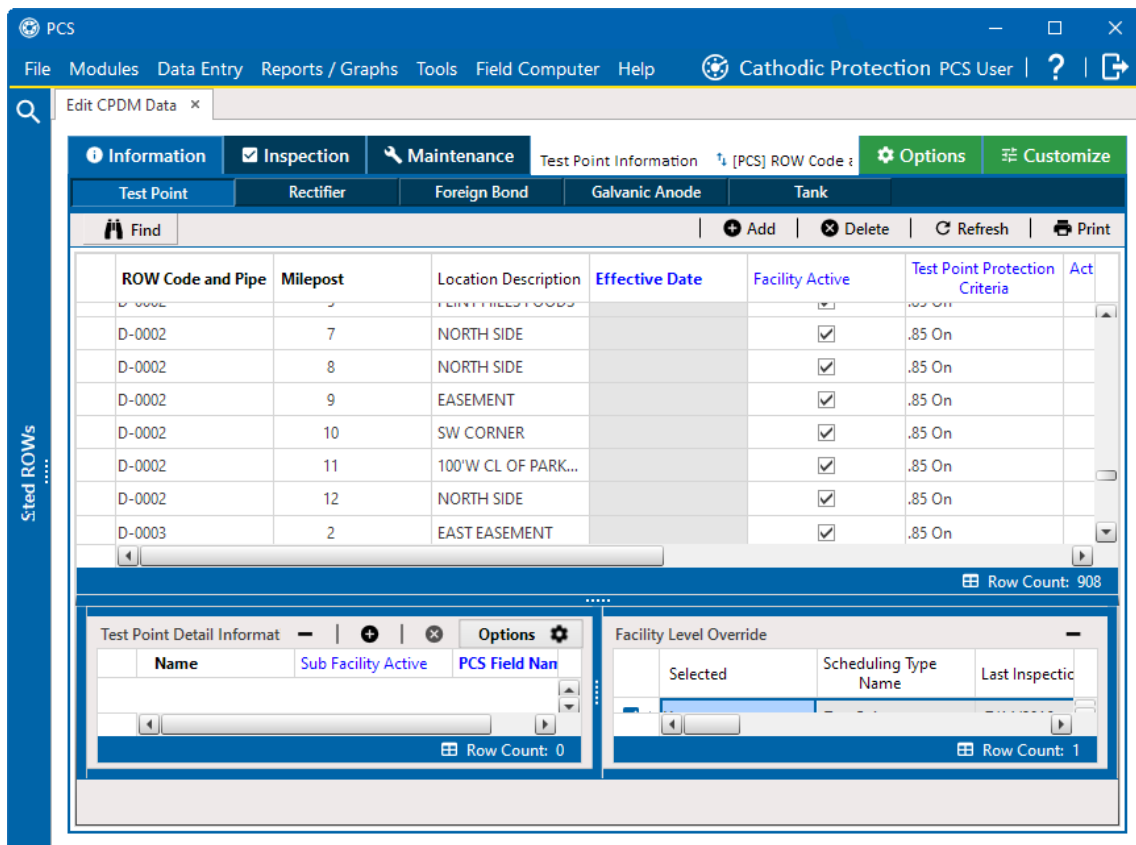


Figure 5-148. Edit CPDM Data Grid - Test Point Information

3. If you want to collapse the *Selected ROWs* pane to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the pane.
4. Click the **Customize** tab and then the **Filters** tab.

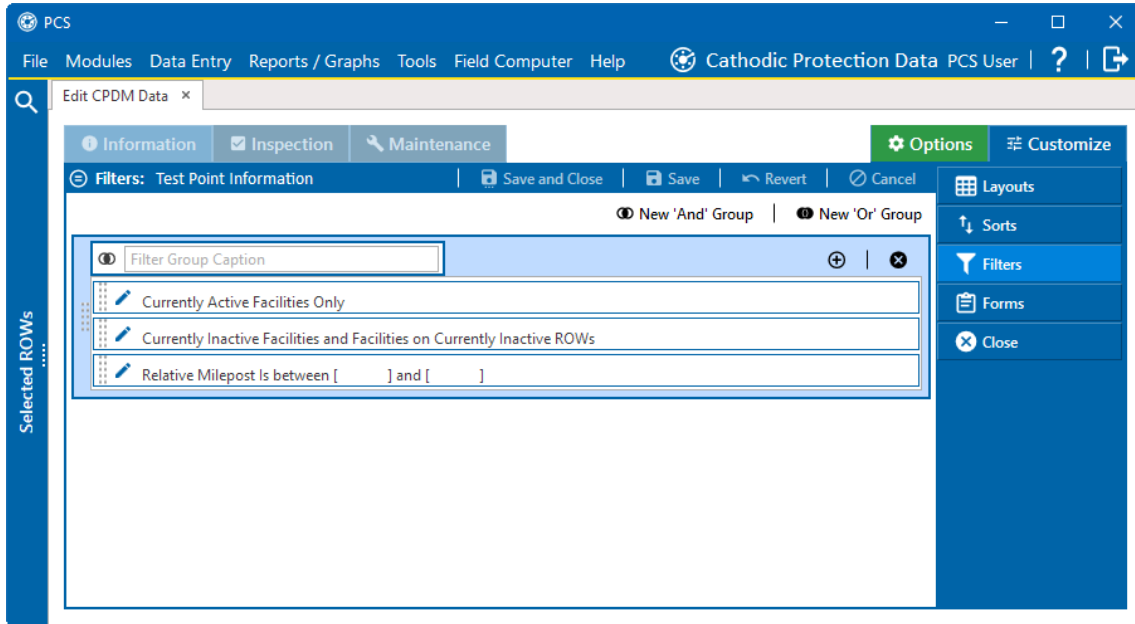


Figure 5-149. Customize Window - Filters

5. To create a new And group, click **New 'And' Group** to open the filter properties group box.

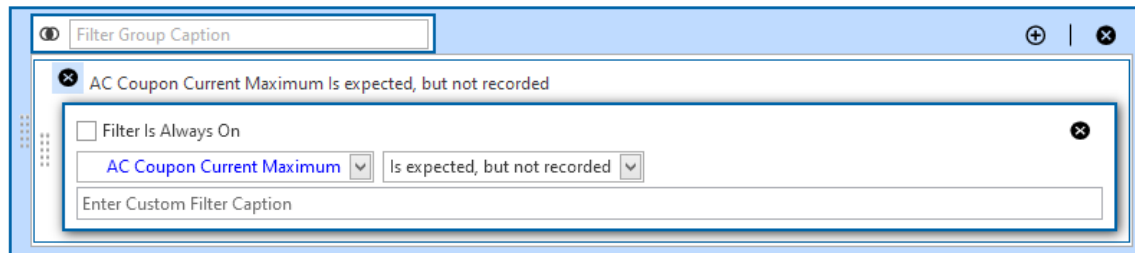


Figure 5-150. And Group Filters

6. To create a new Or group, click **New 'Or' Group** to open the filter properties group box.

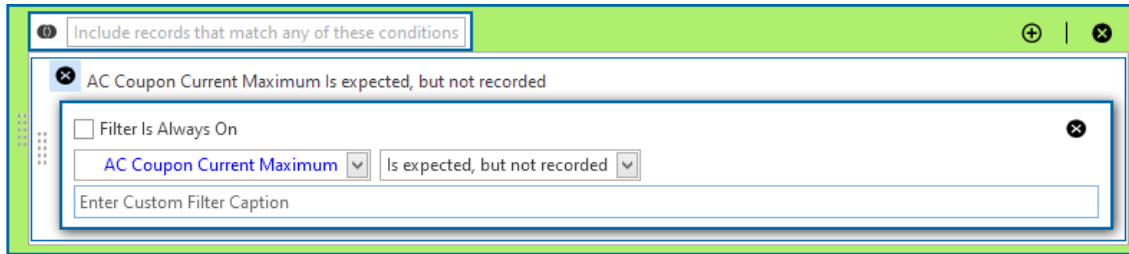







Figure 5-151. Or Group Filters

7. Type a name for the filter group in the **Filter Group Caption** field.
8. Select the **Filter Is Always On** option to keep the filter on.
9. Use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
 - a. When adding a date filter, set a date range using a calendar or dynamic dates in one of the following ways:
 - Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.
 - To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - To set a date range using dynamic start and end dates, click the  calculator icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
 - b. Type a name for the filter in the **Enter Custom Filter Caption** field.
 - c. If additional filters are needed within the filter group, click  and repeat these steps.
10. If necessary, click the  edit icon for a filter to open that filter's property settings and change settings as needed.
11. Click  **Save** to save the filter group.
12. Click  **Save and Close** when finished saving all filter groups.
13. To apply one or more filters to the data entry grid, click the **Options** tab to open the *Options* window.

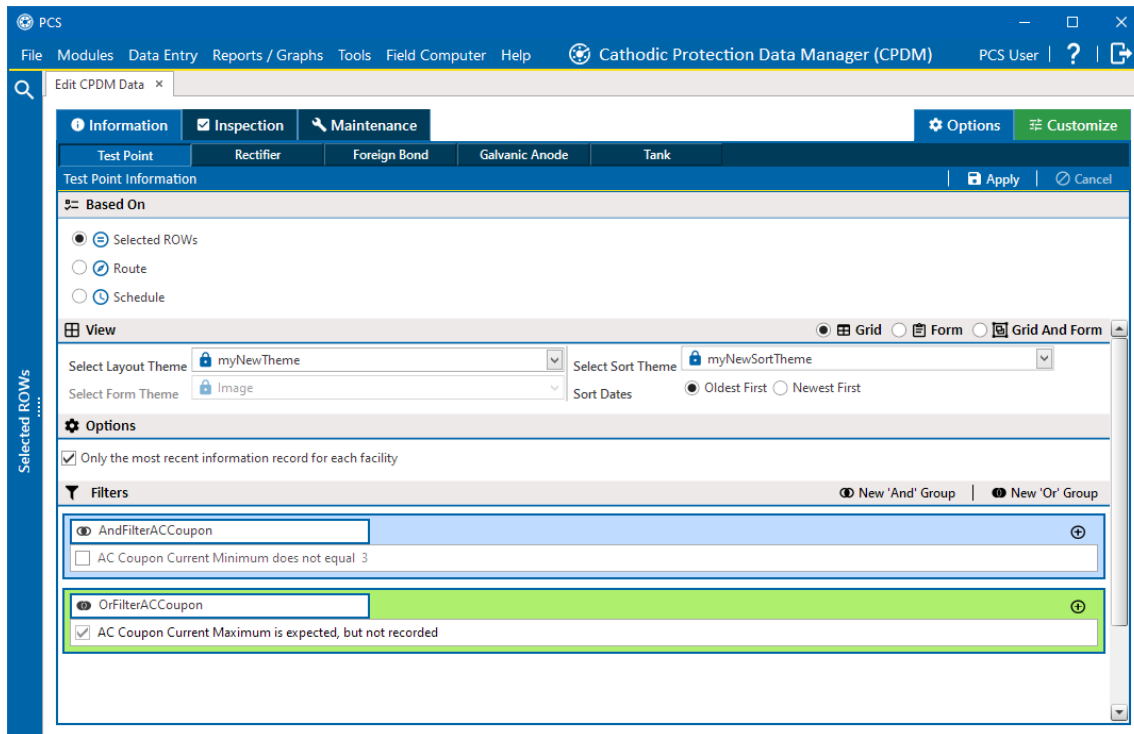



Figure 5-152. Options Window

14. In the **Filters** pane, click the check box for each filter you want to apply. The filters that were created with the **Filter Is Always On** option will be automatically selected.
15. Click  **Apply** to save changes and return to the data entry grid.

Work with Form Themes

A form theme is a named arrangement of fields and controls that determines which form elements are displayed on the screen and how they appear. A form theme can be saved as either public or private; a public theme is available for all users, whereas a private theme is only available to the user who creates it.

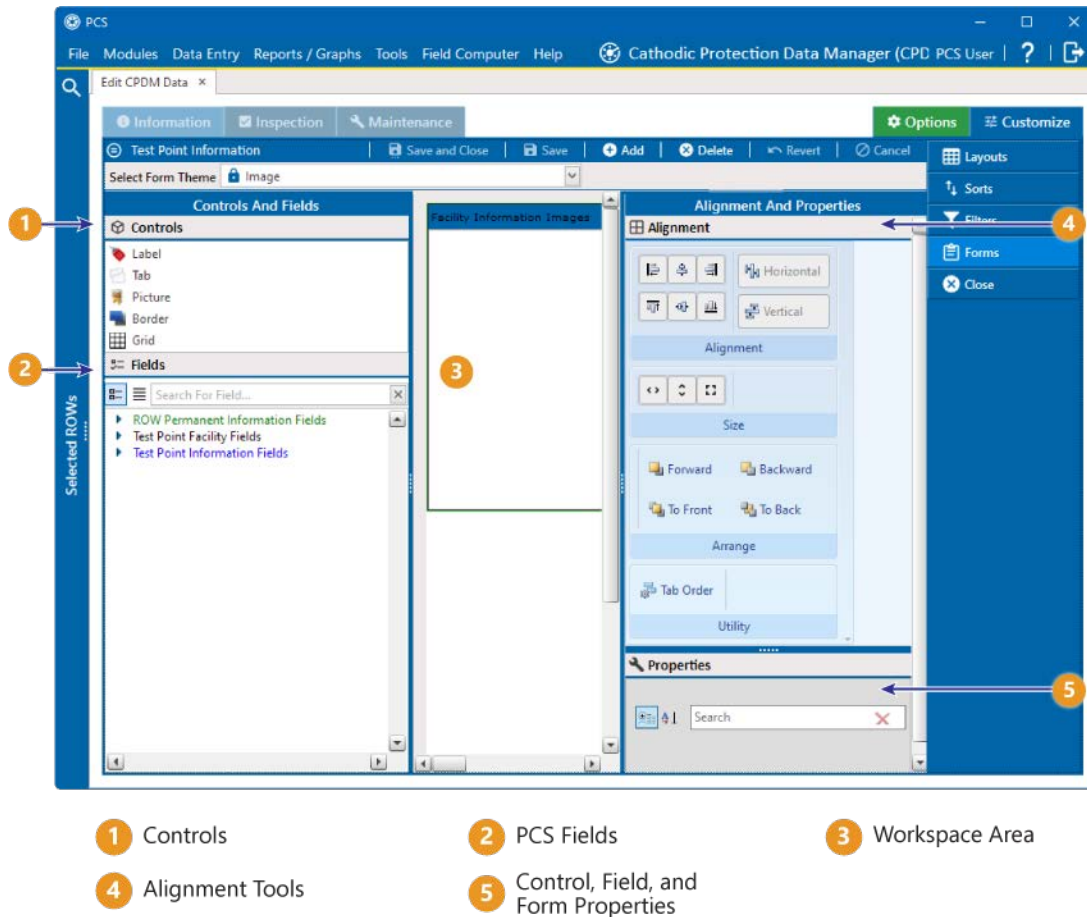


Figure 5-153. Forms Editor

From within the *Forms* editor, a new form theme can be created, a new or existing form theme can be modified, and the form theme can be saved or deleted. Once a form theme is saved, it can be used in *Edit Module Data*.

To close the *Forms* editor, click **Close** (under **Forms**). If there are unsaved changes to a form theme in the *Forms* editor, a *Save Changes* window displays. Click **Yes** to save all changes in the form themes, **No** to close without saving changes, or **Cancel** to return to the *Forms* editor.

Refer to the following topics for more information:

- [The Forms Editor](#)
- [Create a New Form Theme](#)
- [Edit a Form Theme on page 387](#)
- [Manage a Form Theme on page 405](#)
- [Use a Form Theme on page 405](#)

The Forms Editor

The *Forms* editor allows you to create a new form theme or edit an existing theme. Once in edit mode, the size and color of the data entry form theme can be determined; PCS fields can be added to the form theme; labels, images, tabs, and other controls can be placed; and the properties of each item added to the form theme can be determined.

To access the *Forms* editor, click **Customize** from a data entry grid or form and then click **Forms**.

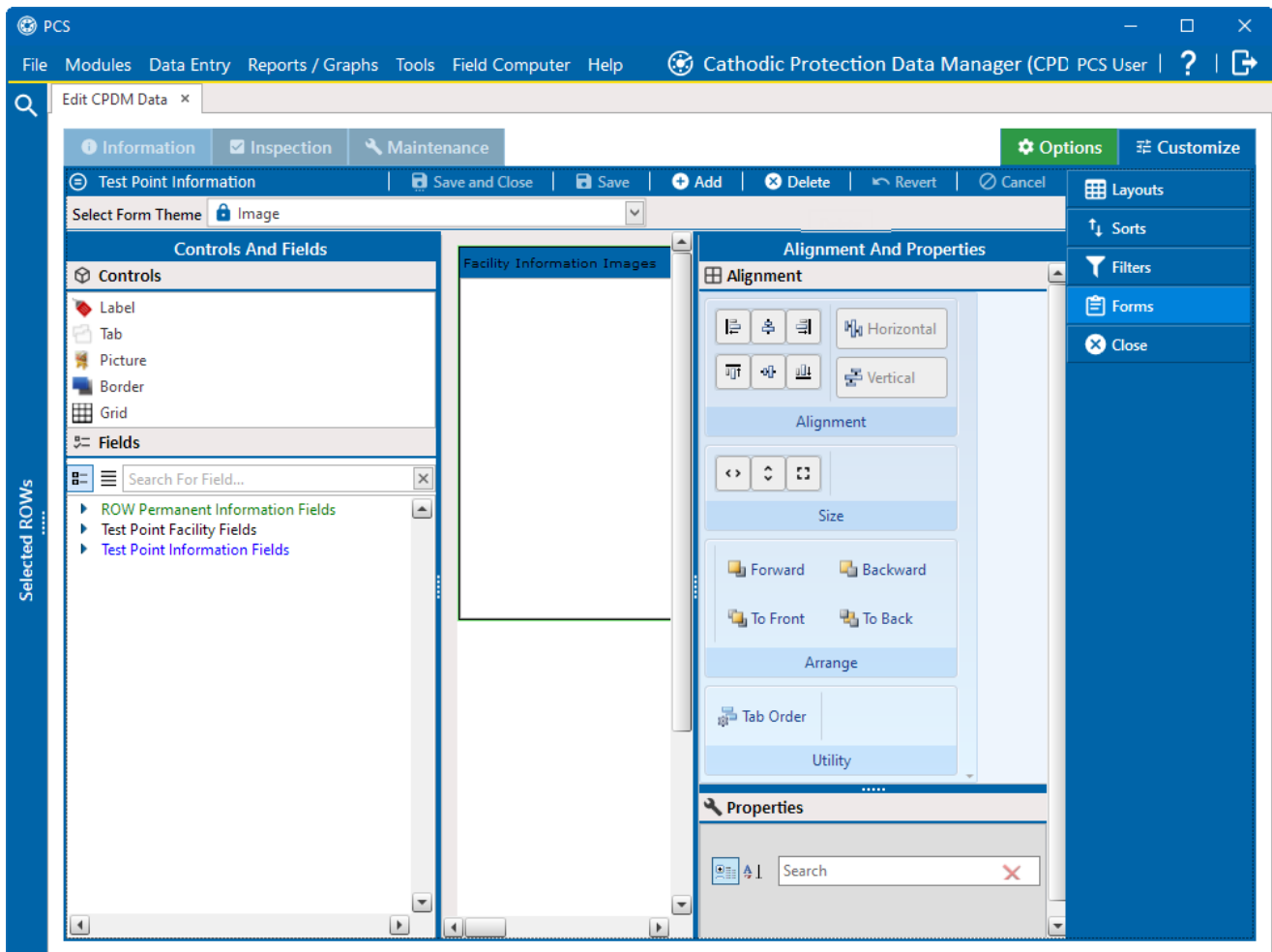


Figure 5-154. Forms Editor

From within the *Forms* editor, a new form theme can be created, a new or existing form theme can be modified, and the form theme can be saved or deleted. Once a form theme is saved, it can be used in *Edit Module Data* grid.

Create a New Form Theme

Complete the following steps to create a new form theme from the *Forms* editor:

1. From within *Forms* editor, click **Add** to open the *Add Form Theme* window.

Figure 5-155. New Form Theme

2. Type a name for the theme in the **Enter Theme Name** field. This field is required.
3. If you want to create a public theme, select the **Public** check box. When the option is not selected, the layout saves as a private theme.
Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
4. To copy the contents of an existing theme, keep the **Copy Content** check box checked and select a theme from the **Copy Fields From Theme** drop-down list.
5. To start with a blank form theme with no pre-existing fields, click to clear the **Copy Content** check box.
6. Click **OK**. A new form theme is created and ready for editing in the *Forms* editor.

Edit a Form Theme

After a form has been created (refer to [Create a New Form Theme](#)) the form theme's general properties can be edited, new controls can be added to the theme, and the controls on the theme can be modified to create the form theme best suited for your needs.

To edit a form theme, open the **Customize** window and select **Forms**. Select a form theme from the **Select Form Theme** drop-down. The workspace area updates to show the selected form theme. If this is a new form (no copied from another form) the areas are blank.

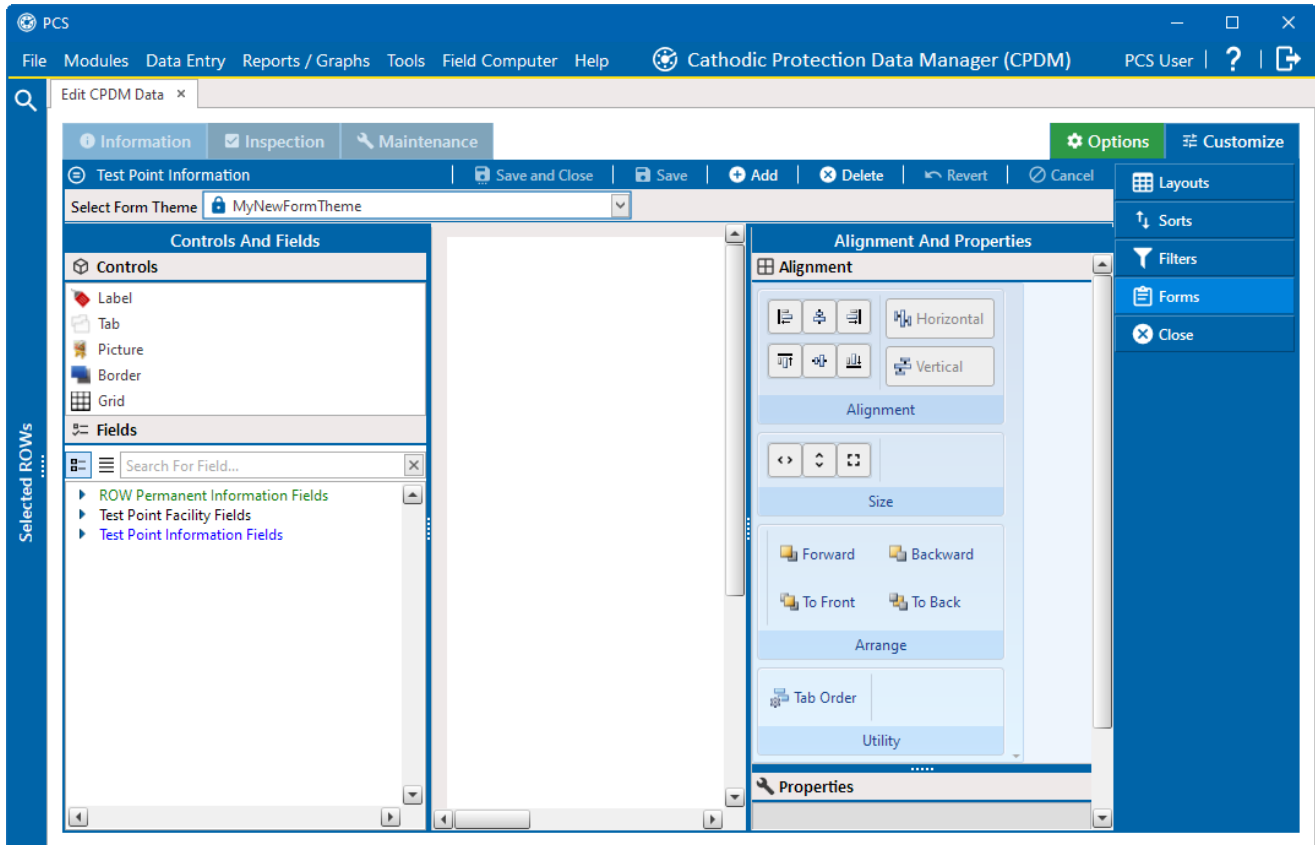


Figure 5-156. Form Theme Ready to Edit

Items can be added to the form theme. The size, shape, style, and contents of the form and its controls can be edited. Refer to the following topics for more information:

- [Add Controls to the Form Theme on page 388](#)
- [Configure Form Theme Properties on page 391](#)
- [Lock or Unlock a Form Object on page 393](#)
- [Edit Form Object Properties on page 394](#)
- [Arrange and Adjust Objects on the Form Theme on page 402](#)

Add Controls to the Form Theme

The same data fields and mini-grids that can be shown in a data entry grid can be added to a form theme. In addition, labels, images, and borders can be added to improve the design of the form theme. Labels can also be used to provide additional information or instruction within the form.

Tab controls allow objects on the form to be organized within tabs. Data fields, mini-grids, labels, images, borders, and even other form items can be grouped under an individual tab within a tab control. Form items can only be added to a tab from the **Controls and Fields** pane, which included separate panes for Controls and Fields.

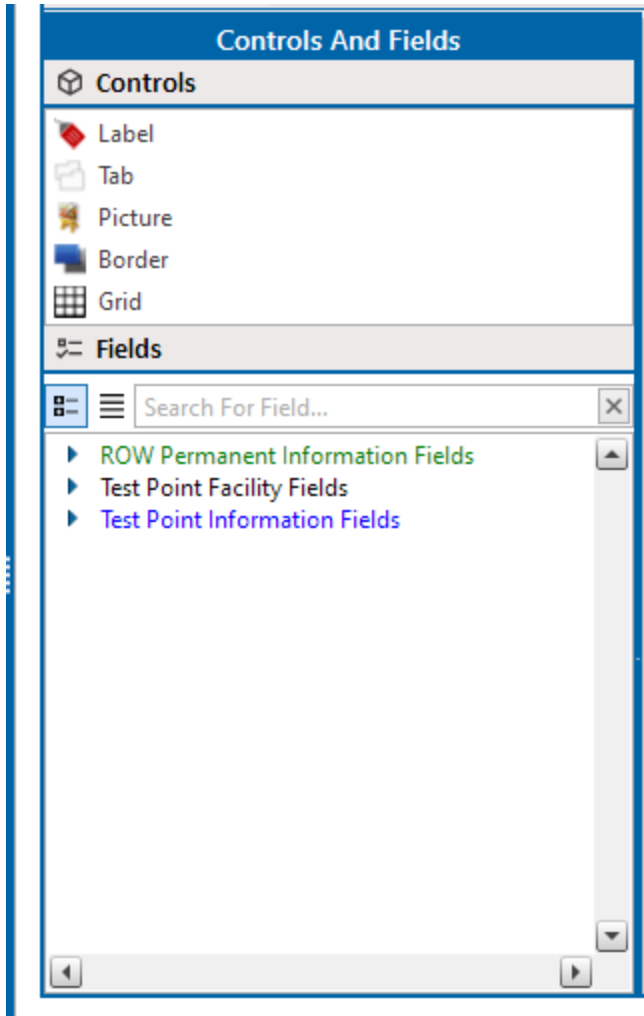


Figure 5-157. Controls and Fields Pane

Items added to the form are called controls and are found within this pane.

You add items to the form in the staging area between the **Controls and Fields** pane and the **Alignment and Properties** pane.

The following items can be added to the form:

- **Data Entry Fields.** To add a data entry field to the form theme, find the desired field in the **Fields** pane.

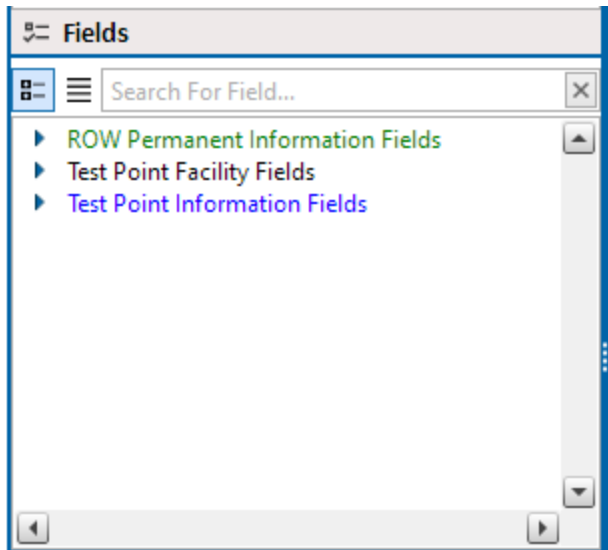


Figure 5-158. Fields Pane

Click to select the field and drag it to the form theme staging area. A data entry field is added to the form theme. The colors, border and fill, font, caption visibility, width, and alignment of the field can be edited in the *Properties* pane.

- **Images Fields.** To add an images field, such as *Facility Information Images*, find the desired field in the **Fields** pane. Click to select the field and drag it to the form theme. An images field is added to the form theme. The colors, borders, font, and caption visibility of the field can be edited in the *Properties* pane
- **Mini-Grid Controls.** To add a mini-grid to the form theme, click to select the **Grid** control and drag it to the form theme. A mini-grid is added to the form theme. Select the mini-grid from the **Grid Source** drop-down in the *Properties* pane. The mini-grid's border can also be edited in the *Properties* pane.
- **Label, Picture, and Border Controls.** To add a text label, picture, or border to the form theme, click to select the desired control and drag it to the form theme.

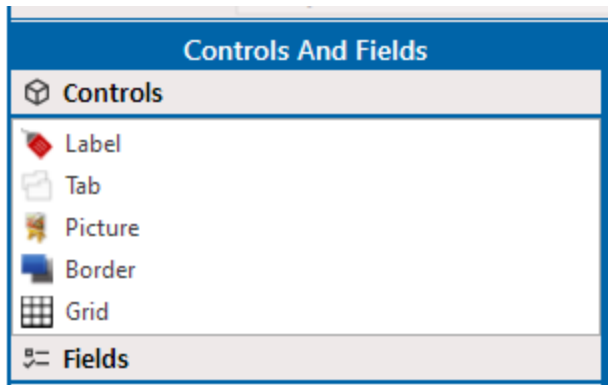


Figure 5-159. Controls Pane

Depending on the control added, various properties can be edited in the *Properties* pane. A label's color, border, alignment, caption text, and font style can be edited; a picture's source file can be identified and its size determined; and a border control's color, padding, and border can be set.

- **Tab Controls.** Tab controls allow form objects to be grouped into one or many tabs, as well as allowing more objects to be added to the form theme without increasing the form's size. One tab control can have multiple tabs, each of which contain fields, grids, and other controls. To add a tab control to the form theme, click to select the **Tab** control and drag it to the form theme. The tab control is added, consisting of a single tab. Once added to the form theme, edit the tab control in the *Properties* pane to add more tabs, change the tab names, or alter the look of the tabs.

Fields and other controls can only be added to a tab directly from the **Controls** and **Fields** panes. Once in a tab, a field or control cannot be moved outside of its current tab.

Form objects are added to the control unlocked and ready for editing, resizing, and rearranging.

Configure Form Theme Properties

A form theme's name, size, and background color can be changed using the *Forms* editor. To change any of these properties, click on an empty spot on the form theme. The properties pane updates to show the theme's properties.

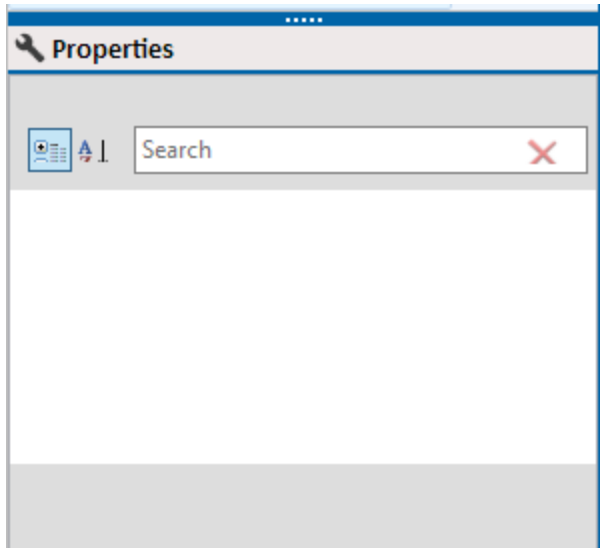


Figure 5-160. Form Theme Properties

You can do any of the following within the **Properties** pane for the theme's properties:

1. To view properties of the theme, click in an empty spot in the workspace area. The **Properties** pane displays properties for the form theme.

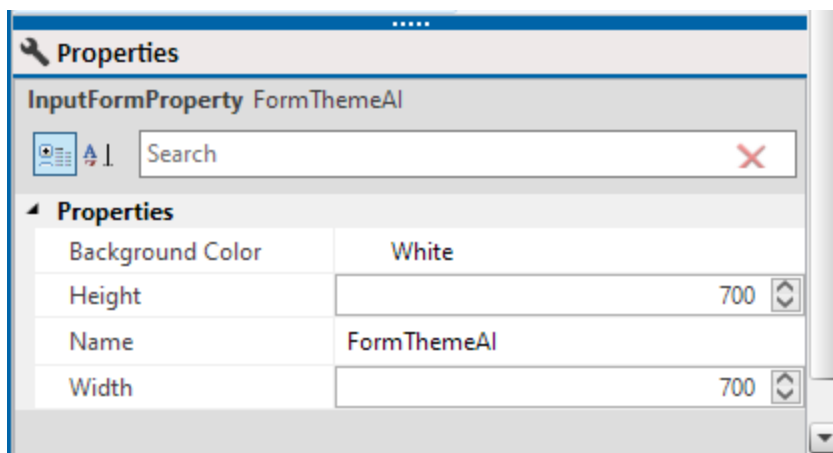


Figure 5-161. Form Theme Properties

2. To change the background color of the form theme, select the **Background Color** drop-down. A grid of available and standard colors displays. Select a color from the grid or click **Advanced** to switch to the custom color selector and create a custom color from the color palate, enter a hexadecimal value in the field provided or use the RGBA sliders to modify the RGBA values.



Figure 5-162. Advance Background Color Selection

3. To change the size of the form theme itself, enter a value in the **Height** and/or **Width** fields or click the up and down arrows to increment the values.
4. To change the name of the form theme, enter a new name for the form theme in the **Name** field.

Lock or Unlock a Form Object

Form objects can be locked to disable future editing or unlocked to change the size or location of the object.

In the forms workspace, click the  icon inside the object to lock or unlock a form object.

Unlocked form objects are outlined in green.

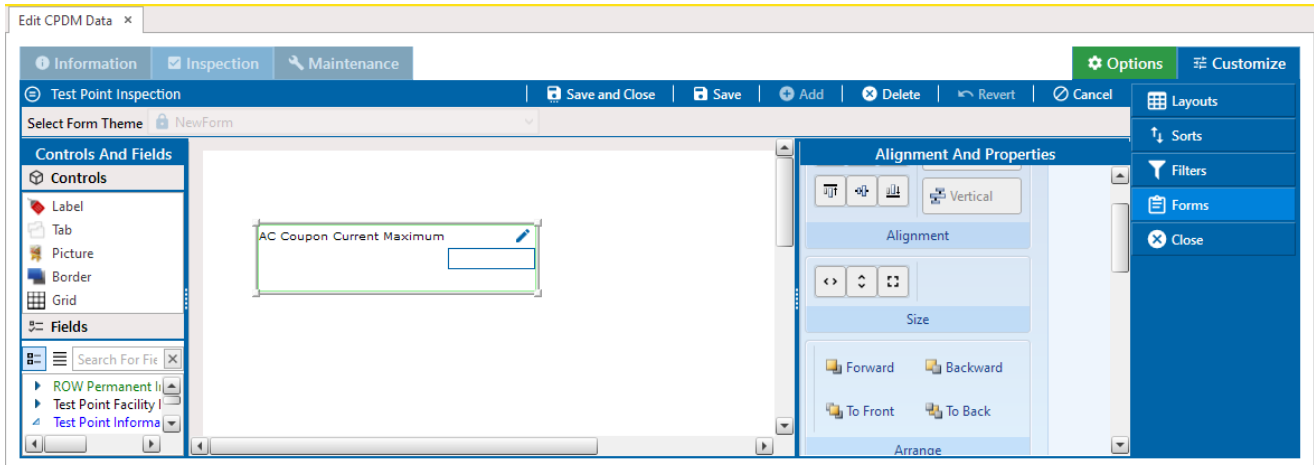


Figure 5-163. Unlocked Form Object

Locked form objects are outlined in red.

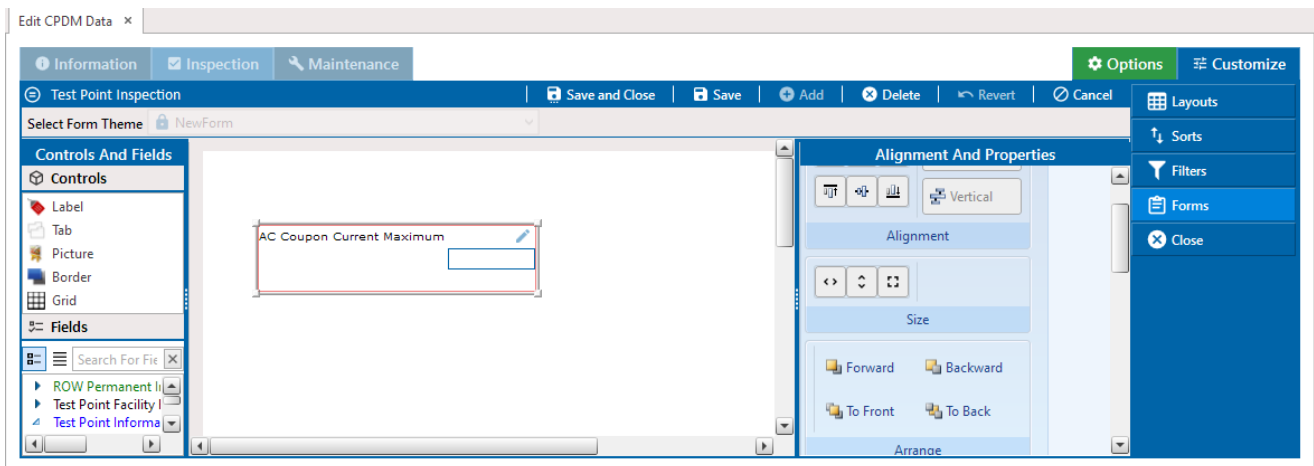


Figure 5-164. Locked Form Object

Edit Form Object Properties

Once a form object, including the controls and fields listed in the **Controls and Fields** pane, is added to the form, its properties can be set in the associated **Properties** pane. These properties can include options to change the text content and style, the border and fill of the object and/or the text field, the source of a grid or image, and the tab details. Depending on the control, some properties may not be available.

To edit a form object's properties after it has been added to the workspace, select the form object and use the **Properties** pane to modify the available properties.

Label properties determine the text that should appear in the form object, the horizontal alignment, background color, border color and thickness, and font properties.

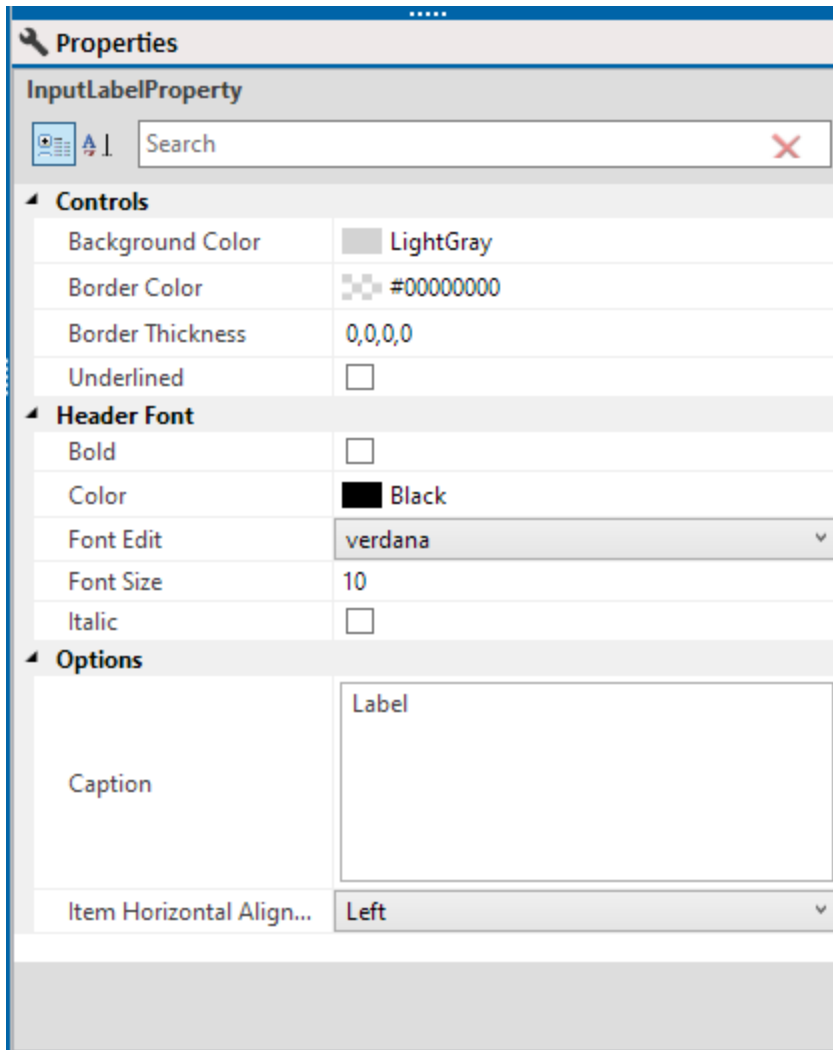


Figure 5-165. Label Control Properties

- **Controls** – select background color, border color, border thickness, and whether or not the label text is underlined.
- **Header Font** – select from the various font options.
- **Options** – enter the label name in the **Caption** text field. You can also select how the label will display within the field from the **Item Horizontal Align** drop-down list.

Tab properties allow you to add, remove, and rename tabs in a tab control, as well as change the overall look of the tabs.

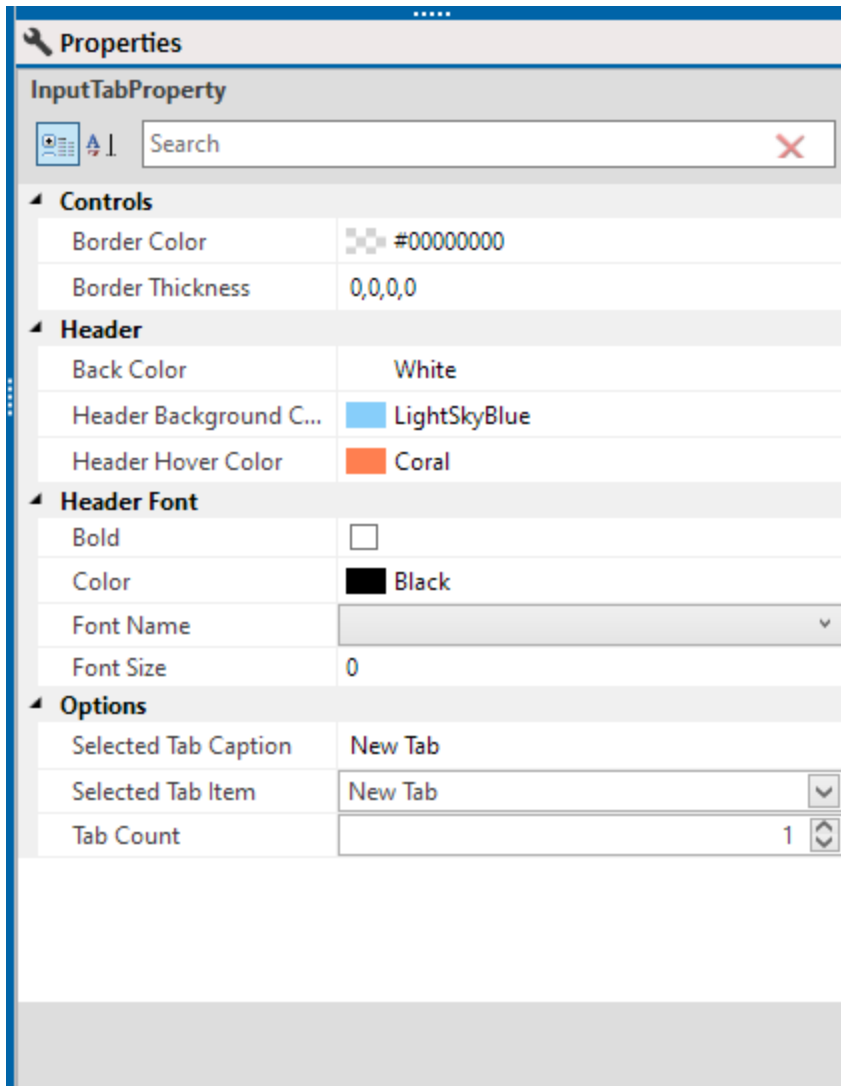


Figure 5-166. Tab Control Properties

- **Controls** – select border color and thickness.
- **Header Font** – select background color, header background color, and header hover color (the color the object will be when a mouse hovers over it).
- **Header Font** – select to bold the header, select the font color, font type and size.
- **Options** – to select a tab for editing, select the name from the **Selected Tab Item** drop-down or click the tab's name to select the tab and rename it **Selected Tab Caption** field. Select the number of tabs in the tab control, enter the desired number of tabs in the **Tab Count** field or click the up and down arrows to increment the count. The tab control adds or removes tabs as necessary to match the number of tabs in the Tab Count field.

Picture properties modify the display of an image in the picture control. Images smaller than 10MB can be loaded into the image control. For optimal performance, however, images larger than 200KB should not be used.

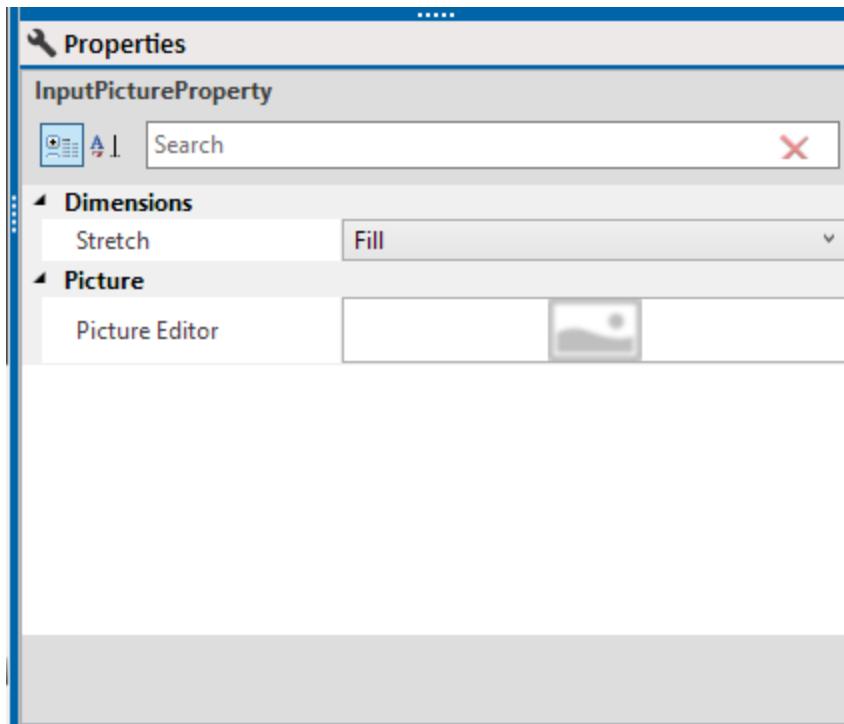


Figure 5-167. Picture Control Properties

- **Dimensions** – select how the image will fill the space from the **Stretch** drop-down list. Options include:
 - **None**: The image is not re-sized within the control.
 - **Fill**: The image is re-sized to fill the control.
 - **Uniform**: The image is re-sized to fit within the control's edges while maintaining its original aspect ratio.
 - **UniformToFill**: The image is re-sized to fill the control while maintaining its original aspect ratio. If necessary, the image is clipped to fit within the control's edges.
- **Picture** – fill the control with an image by hovering your mouse over the picture placeholder in the **Picture Editor** field. The source menu displays.

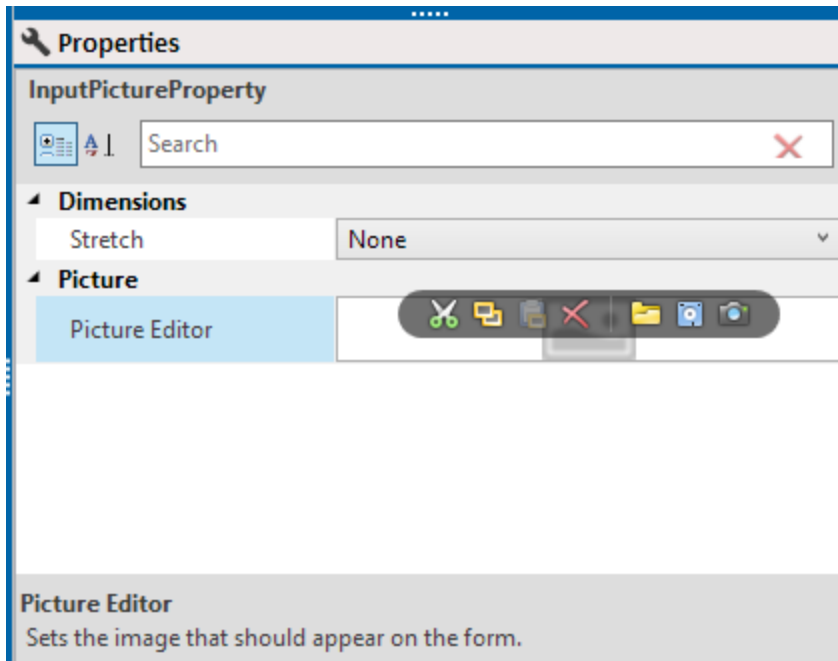








Figure 5-168. Source Menu

- To load an image file into the picture control, click  and navigate to the desired image file. Click to select the image file and click **OK**.
- To paste a copied image into the picture control, click . The contents of the clipboard are pasted into the picture control.
- To clear the image from the picture control, click . The current image is removed from the picture control.
- To copy the image for use in other picture controls or to paste in other applications, click . The image is copied to the clipboard.
- To copy the image and clear it from the picture control, click . The image is copied to the clipboard and cleared from the control.
- To save the image to file, click  and navigate to the desired save location. Enter a name for the image file in the field provided, select a file type from the drop-down, and click **Save**. The picture is saved as an image file.

Border properties alter the look of the entire form object's border and background.

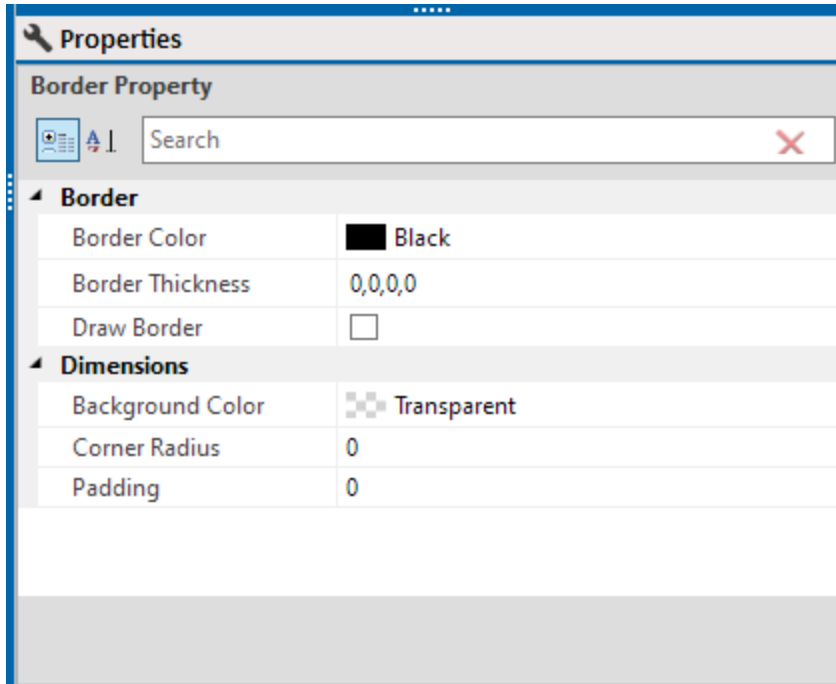


Figure 5-169. Border Control Properties

- **Border** – select border color and thickness. Select the **Draw Border** check box to add a border.
- **Dimensions** – select background color. Select how round a border's corner is in the **Corner Radius** field. To create a more rounded corner, enter a higher value in the field. To create a square corner, enter **0** in the field. To control the amount of space between the form object's contents and the border, enter a value in the **Padding** field.

Grid properties dictate the display of the mini-grid data.

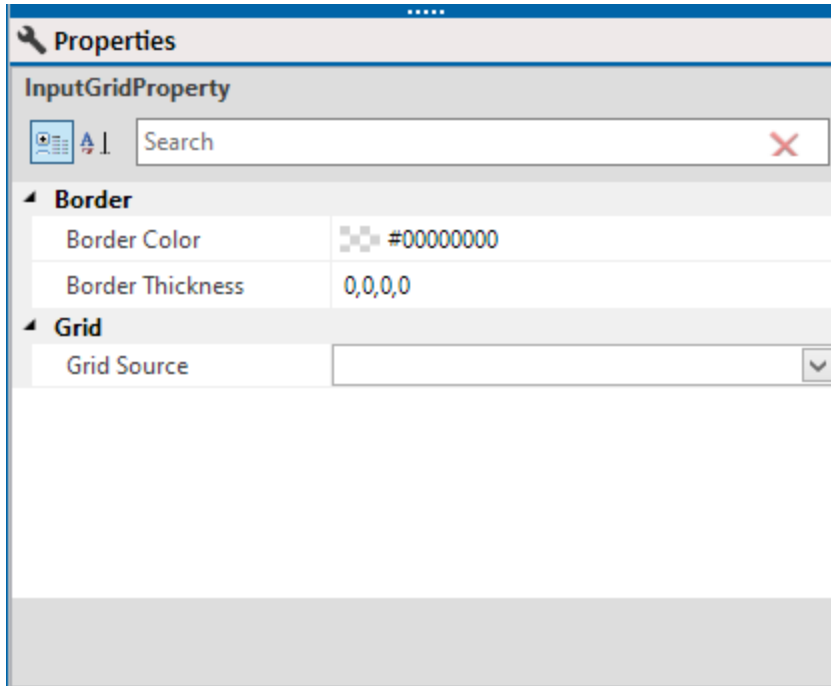


Figure 5-170. Grid Control Properties

- **Border** – select border color and thickness.
- **Grid** – select a mini-grid from the **Grid Source** drop-down list to determine which mini-grid data appears in the control.

Text Field properties – modify the look of the input text field or text box.

InputControlProperty	
Search	
Orientation	
Item Orientation	Horizontal
List Orientation	Vertical
Use Editor Width	<input type="checkbox"/>
Width of Editor	0
Tab Control	
Background Color	#00000000
Border Brush	#00000000
Border Color	#00000000
Border Thickness	0,0,0,0
Border Thickness	0,0,0,0
Tab Header Font	
Bold	<input type="checkbox"/>
Color	Black
Font Name	Verdana
Font Size	10
Tab Options	
Show Caption	<input checked="" type="checkbox"/>

Figure 5-171. Field Properties

- **Orientation** – select **Item Orientation** and **List Orientation** from the drop-down list fields. To resize the text field a specific size independent of the size of the form object, select the **Use Editor Width** check box. The text field will size to the width specified in the **Width of Editor** property and align to the right side of the form object. To set the width of the text field, enter a value in the **Width of Editor** field or use the up and down arrows to increment the value. The **Use Editor Width** property must be enabled for the width to change.
- **Tab Control** – select colors for the background, border brush, and border. For the **Border Thickness**:
 - To set a simple border of uniform thickness around the entire text field, enter a single number.

- To set a border whose thickness on the top and bottom are the same and the left and right are the same, enter the left/right thickness followed by a comma and the top/right thickness.
- To set a border whose thickness varies on each side of the text field, enter each border's thickness followed by a comma in the following order: right, top, left, bottom.
- **Tab Header Font** – select options for the font weight, color, family, and size.
- **Tab Option** – select **Show Caption** to show the caption for the field.

Arrange and Adjust Objects on the Form Theme

Form objects can be repositioned on the form theme to a general location using the mouse or to a precise location using the keyboard or alignment buttons. However, existing objects on the theme cannot be moved into or out of a tab container. When a tab container is moved, the objects within the tab container move with the tab container.

Form object can also be aligned, re-sized, or have a set tab order using the **Alignment** pane.

Objects must be selected on the form theme before rearranging or adjusting. You can do any of the following to select an object:

- To select a single form object, click to select the form object.
- To select multiple form objects, click to select a form object, then press the shift key and click to select additional form objects.
- To select a group of form objects located near each other, click in an empty spot on the form theme and drag to create a selection box around the form objects. Release the mouse to select the objects within the selection box.

Move Objects Manually

Form objects can be manually moved to a general location using the mouse or to a precise location using the keyboard. Select one or more form objects and do one of the following:

- Click and drag the form object(s) to the desired location.
- Press the **left**, **right**, **up**, or **down** arrow keys on the keyboard to move the form object(s) incrementally to the left, right, up, or down.

Align, Resize, Arrange, and Set Tab or for Objects with Alignment Pane

Form objects can be repositioned so that the objects' edges or center points are aligned. When form objects are aligned, they are repositioned according to the location of the first selected object.

Use the **Alignment** pane to align, size, arrange, or set tab order for a selected object.

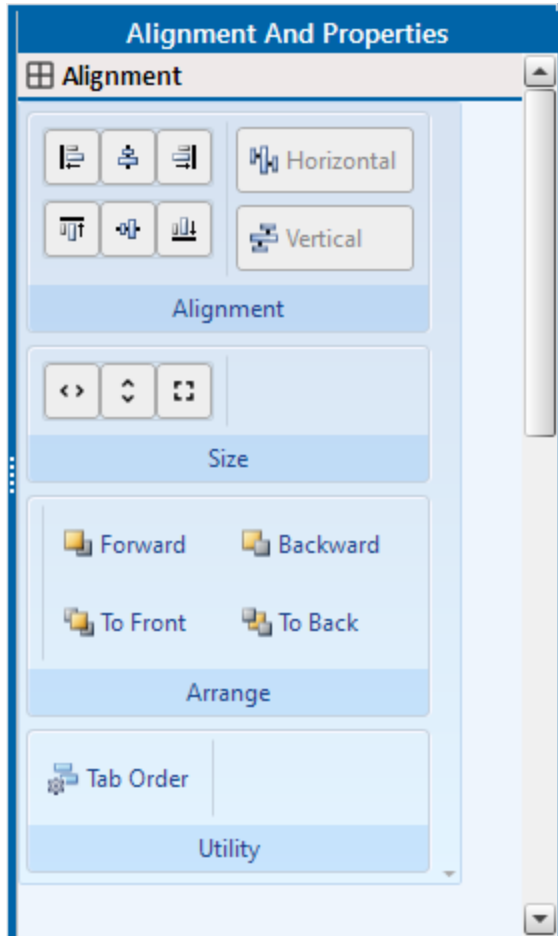






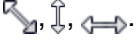





Figure 5-172. Forms Alignment Pane

Alignment – align horizontally or vertically:

- **Horizontal** – select multiple form objects and click , , or  to align the objects according to the first selected object's left edge, horizontal center, or right edge.
- **Vertical** – select multiple form objects and click , , or  to align the objects according to the first selected object's top edge, vertical center, or bottom edge.
- Form objects can be repositioned so that there is an equal amount of space vertically or horizontally between the selected objects. The top-most and bottom-most form objects stay in place while all other form objects are distributed between those two form objects. Select multiple form objects and click **Horizontal** or **Vertical** to distribute the form objects horizontally or vertically on the form theme.

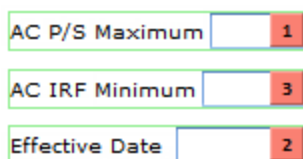
Size – you can manually re-sized a form object to a general size and shape using the mouse, to a precise size using the keyboard, or to match the size of the form object(s) to other form objects using buttons. Select one or more form objects and do one of the following:

- Hover the mouse over a corner or edge of the form object until the cursor changes to . Click and drag the corner or edge until the form object(s) reach the desired size or shape.
- Press the **Shift** key and the **left**, **right**, **up**, or **down** arrow keys on the keyboard at the same time to move the left, right, up, or down edges of the selected form object(s) incrementally to the left, right, up, or down. This increases the form object(s) size incrementally.
- Press the **Shift** key, **Ctrl** key, and the **left**, **right**, **up**, or **down** arrow keys on the keyboard at the same time to move the left, right, up, or down edges of the selected form object(s) incrementally to the right, left, down, or up. This decreases the form object(s) size incrementally.
- Click , , or  in the **Alignment** pane to resize all selected form object(s) to match the width, height, or full size of the first selected object's width, height, or full size.

Arrange – use the options in the **Arrange** section of the **Alignment** pane to select how the object relate to other objects.

- **Forward** – brings object forward one layer.
- **Backward** – moves object back one layer.
- **To Front** – puts object in front of all other objects.
- **To Back** – puts object behind all other objects.

Tab Order – when using a form, you can press the **tab** key on the keyboard to move between fields, mini-grids, and tab controls. The tab order determines which form object is next when tabbing between form objects. To set the tab order for the form objects, click **Tab Order** in the **Alignment** pane. The tab order number that was previously determined for the form objects displays on the right side of the fields in a red box.



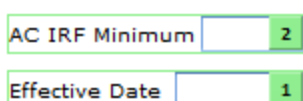
AC P/S Maximum 1

AC IRF Minimum 3

Effective Date 2

Figure 5-173. Form Objects' Previously Determined Tab Order

To change the tab order, click the form objects' tab order number in the order that you want the tabbing to occur. The tab order number box changes to green to indicate that a field has a new tab order number and the selected form object is assigned the next number in the tab order series.

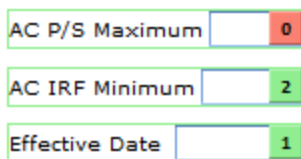


AC IRF Minimum 2

Effective Date 1

Figure 5-174. Forms Objects' New Tab Order

Tab order numbers that were previously determined may reset to 0 when new tab order numbers are set.










The image shows three form fields stacked vertically. The first field is labeled 'AC P/S Maximum' and has a red tab order number '0' on the right. The second field is labeled 'AC IRF Minimum' and has a green tab order number '2' on the right. The third field is labeled 'Effective Date' and has a green tab order number '1' on the right.

Figure 5-175. Forms Objects' New and Reset Tab Order

Manage a Form Theme

From within the *Forms* window, you can manage your form themes as you work with them or after creating them.

- To save the form theme, click  **Save**. All changes made to the form themes are saved.
- To save the form theme and close the *Forms* editor, click  **Save and Close**. All changes made to the form themes are saved and the *Forms* editor is closed.
- To undo the most recent change, click  **Cancel**.
- To remove the currently selected form theme, click  **Delete** and then  **Yes** in the *Confirm Delete* window. The currently selected form theme is removed from PCS.

To close the *Forms* editor, click  **Close** (under  **Forms**). If there are unsaved changes to a form theme in the *Forms* editor, a *Save Changes* window displays. Click **Yes** to save all changes in the form themes, **No** to close without saving changes, or **Cancel** to return to the *Forms* editor.

Use a Form Theme

Complete the following steps to apply the form theme in a data entry module:

1. Click **Options** to open the *Options* window.

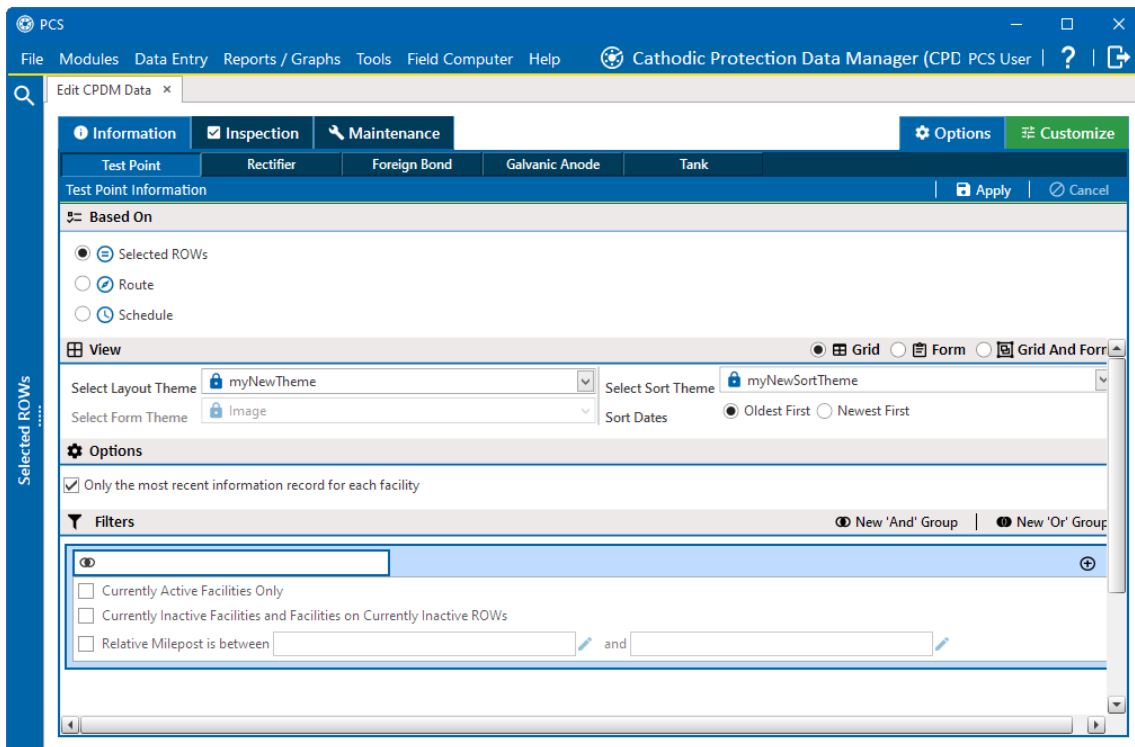


Figure 5-176. Options Window

2. In the **View** pane, click **Form** or **Grid And Form** radio button.
3. Select a theme from the **Select Form Theme** drop-down list.
4. Click **Apply** to apply changes and close the *Options* window.

Survey Folder Maintenance

Facility and continuous survey folders can be managed in the *Survey Folder Maintenance* window, which can be access through the **Data Entry** main menu.

NOTE: The information in this section or sections is/are intended for users with SysAdmin security permissions, unless noted otherwise.

This chapter includes the following topics:

- [Facility Survey Folders on page 407](#) – includes details on how to add, delete, or use a facility survey folder. The information in this section applies to all modules **except** the Indirect Survey Manager (ISM) module.
- [Continuous Survey Folders on page 413](#) – includes details on how to add, delete, or use a continuous survey folder. The information in this section **only** applies to the Indirect Survey Manager (ISM) module.
- [Themes and Filter Groups for Continuous Survey Folders on page 421](#) – includes details on how to add themes and filter groups for use with the continuous survey folder.

Facility Survey Folders

A facility survey folder is a group of inspection readings in a facility survey. PCS uses facility survey folders to organize and track facility survey data. Facility survey folders are used throughout PCS, including data entry grids, reports, Bridge, and Field Computer. You can also use a facility survey folder as an optional filter in a grid or report to easily retrieve a specific set of inspection records.

Names of facility survey folders typically follow regulatory requirements for surveying pipeline segments and facilities. For example, when you create an annual survey folder labeled **2019 Annual Survey**, you can then assign inspection readings to the facility survey folder throughout the year as they are completed. Names of facility survey folders are editable allowing you to name a survey folder using a naming convention that best suits your business needs.

Continue with the following topics for information about how to add, delete, and manage a facility survey folder:

- [Add a Facility Survey Folder](#)
- [Edit a Facility Survey Folder on page 410](#)

- [Delete a Facility Survey Folder on page 411](#)
- [Use a Facility Survey Folder on page 412](#)

Add a Facility Survey Folder

A facility survey folder is typically added in PCS before entering inspection readings in a data entry grid or importing inspection readings using [Bridge](#) or [Field Computer](#).

You must enter a survey folder name, select a survey start date, and then select a survey frequency to add a new survey folder. Based on this information, PCS automatically calculates the survey end date.

If no survey folders exist when adding a new survey folder, PCS names the survey folder using the current year, for example **2020 Annual Survey**. When other survey folders do exist, PCS increments the year by one. For example, if the latest annual survey folder is **2019 Annual Survey**, PCS names the next new survey folder **2020 Annual Survey**. Survey folder names are editable to allow you to name a survey folder based on your company's standards.

Complete the following steps to add a facility survey folder:

1. Click **Data Entry > Facility Survey Folder Maintenance** to open the *Survey Folder Maintenance* window.

Survey Name	Start Date	End Date	Survey Frequency
1995 Annual Survey	1/1/1995	12/31/1995	12 Months
1996 Annual Survey	1/1/1996	12/31/1996	12 Months
1997 Annual Survey	1/1/1997	12/31/1997	12 Months
1998 Annual Survey	1/1/1998	12/31/1998	12 Months
1999 Annual Survey	1/1/1999	12/31/1999	12 Months
2000 Annual Survey	1/1/2000	12/31/2000	12 Months
2001 Annual Survey	1/1/2001	12/31/2001	12 Months
2002 Annual Survey	1/1/2002	12/31/2002	12 Months
2003 Annual Survey	1/1/2003	12/31/2003	12 Months
2004 Annual Survey	1/1/2004	12/31/2004	12 Months

Figure 6-1. Survey Folder Maintenance

2. Click  **Add** to add a row in the grid. The new row is highlighted.

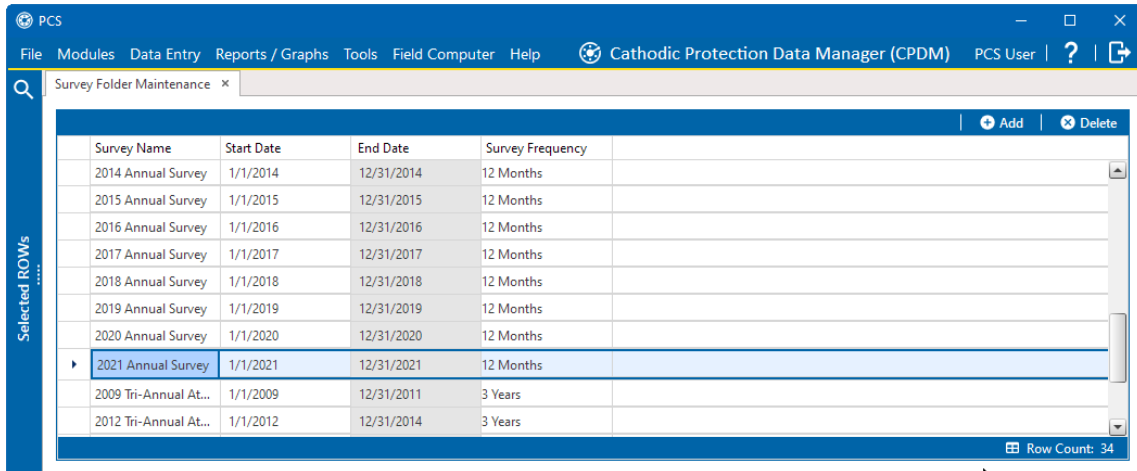


Figure 6-2. New Survey Folder

3. To rename the newly added survey folder, type a name in the **Survey Name** field.
4. Click in the **Start Date** field and enter a start date. Or, click the down arrow in the field to choose a date using a calendar.

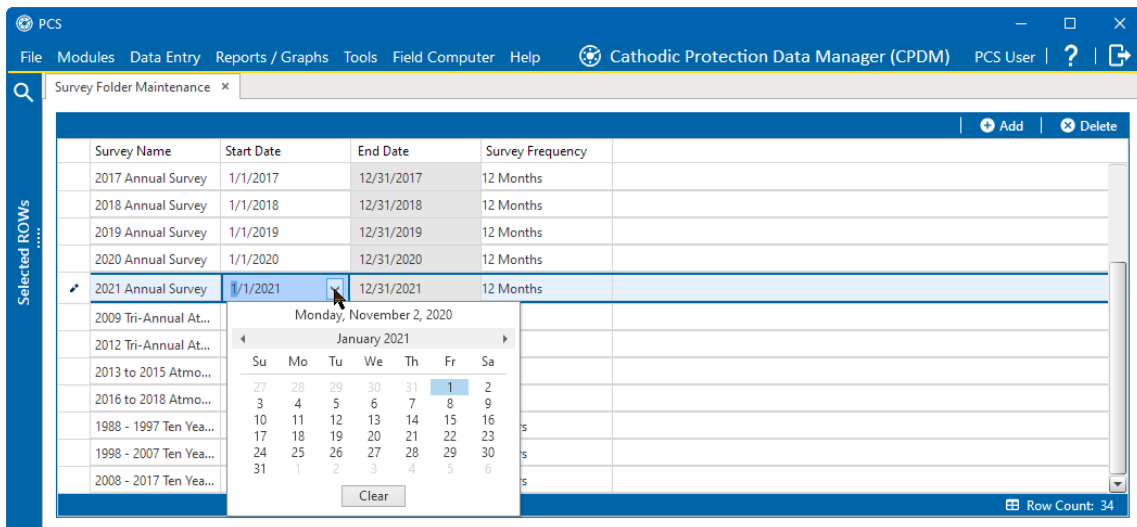


Figure 6-3. Start Date Calendar

5. Click in the **Survey Frequency** field and select a survey frequency from the drop-down list.

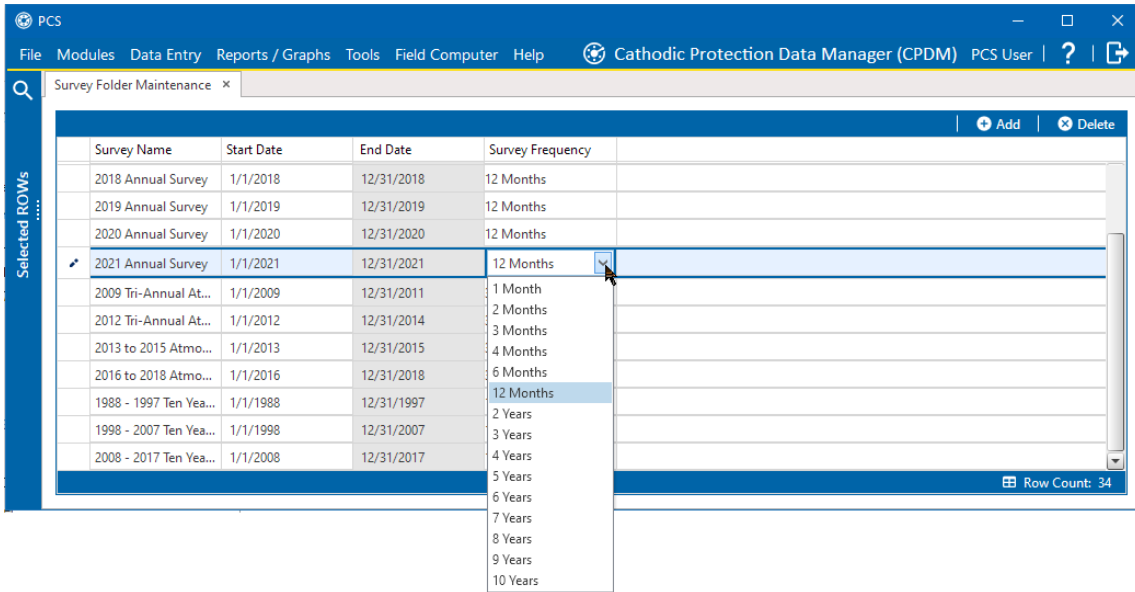


Figure 6-4. Survey Frequency Drop-down List

The new survey folder is now available for use in data entry grids, reports, Bridge, Field Computer, and as an optional filter selection. For more information, see [Use a Facility Survey Folder on page 412](#).

Edit a Facility Survey Folder

Complete the following steps to edit a facility survey folder:

1. Click **Data Entry > Facility Survey Folder Maintenance** to open the *Survey Folder Maintenance* window.

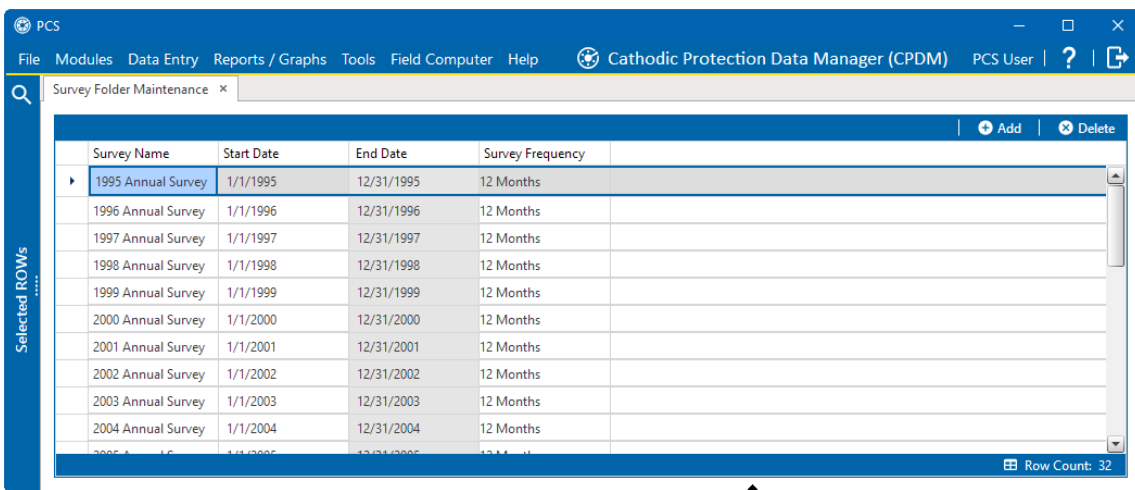



Figure 6-5. Survey Folder Maintenance

- Click the survey folder row to highlight it and display an  icon.

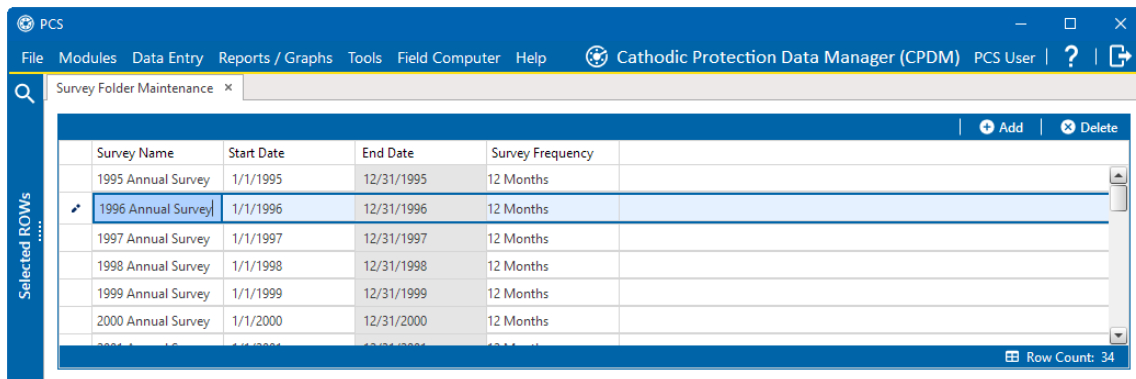



Figure 6-6. Edit Survey Folder

- Click  icon next to the Survey Name to edit **Survey Name**, **Start Date**, or **Survey Frequency** fields. The changes are automatically saved.

Delete a Facility Survey Folder

Deleting a survey folder removes all references to the survey folder throughout PCS. For example, when facility inspection records have been assigned to a survey folder you plan to delete, PCS removes references to the survey folder for each inspection record assigned to the survey folder. Inspection records are not deleted however, only references to the survey folder are deleted.

Deleting a survey folder typically occurs when you want to clean up data that is no longer needed or when a survey folder has been created accidentally. A message displays listing all facility records assigned to the survey folder allowing you to either cancel the operation or delete the survey folder.

Complete the following steps to delete a facility survey folder:

- Click **Data Entry > Facility Survey Folder Maintenance** to open the *Survey Folder Maintenance* window.

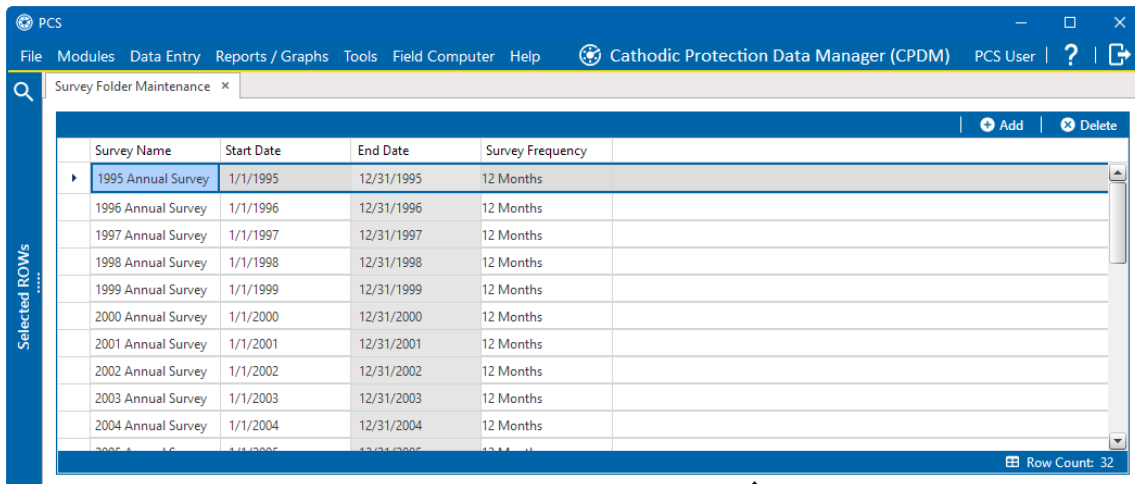


Figure 6-7. Survey Folder Maintenance

2. Select a survey folder in the grid, then click **Delete**.
3. In the *Delete* message window, click **Yes** to delete the survey folder or **No** to cancel the operation.

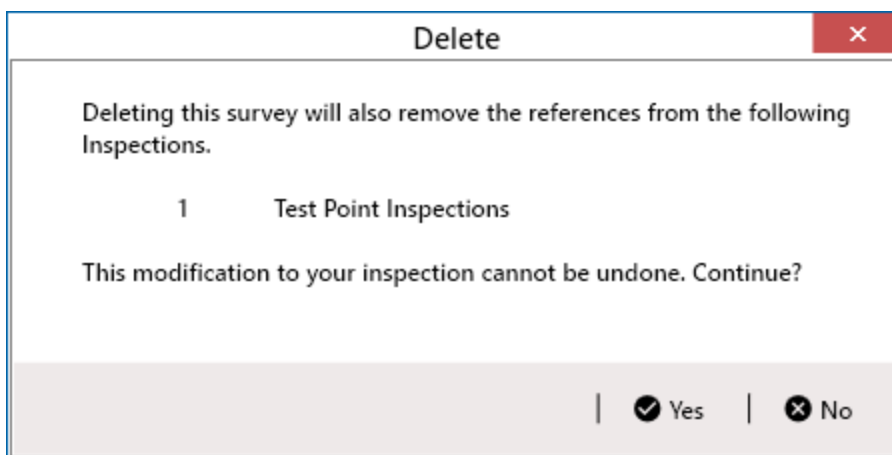


Figure 6-8. Delete Message Window

The survey folder and associated survey readings are permanently deleted from PCS.

Use a Facility Survey Folder

You can assign inspection readings to a survey folder in any of the following areas of PCS:

- **Inspection data entry grid.** Assign an inspection record to a survey folder using the **Survey** field in the *Inspection* data entry grid. Refer to [Data Entry Grids and Forms](#) for more information about the *Inspection* grid.

- **Filter option in the Inspection data entry grid.** To view a set of inspection records for a particular survey in the *Inspection* data entry grid, select a survey folder option in the **Filters** group box of the *Customize Options* window. Refer to [Data Entry Grids and Forms](#) for more information about the *Inspection* grid.
- **Bridge import file.** Use the options in the **Add Data Item** group box to assign inspection readings to an annual and/or periodic survey folder. PCS assigns inspections to the appropriate survey folder based on the survey inspection date. Refer to [Bridge](#) for more information about using the Bridge.
- **Receiving survey files from the Allegro.** Use the **Options** group box in the *Field Computer Receive Data* window to assign inspection readings to a survey folder. Choosing **Automatic Assignment** allows PCS to assign inspections to the appropriate survey folder based on the survey inspection date. Refer to [Field Computer](#) for more information about receiving survey files from an CartoPac or other mobile device.
- **Filter option in Reports.** To view a set of inspection records for a particular survey in a report, select a survey folder option in the **Filters** group box of the *Options* window. Refer to [Set Options](#) for more information about the *Options* window or [Reports and Graphs](#) for more information about reports.

Continuous Survey Folders

A continuous survey folder is a container for a group of survey readings associated with a continuous survey, such as survey readings in a close interval (CI) survey or other type of above ground indirect survey. Continuous survey folders are used throughout PCS when working with a data entry grid, report, or graph in the Indirect Survey Manager (ISM) module. They allow PCS to organize and track continuous survey readings.

Information in this section explains how to use the most common features of *Survey Folder Maintenance*. Topics include those in the following list.

For information about other features, see [Themes and Filter Groups for Continuous Survey Folders on page 421](#).

- [Add a Continuous Survey Folder](#)
- [Delete a Continuous Survey Folder on page 418](#)
- [Use a Continuous Survey Folder on page 420](#)

Add a Continuous Survey Folder

A continuous survey folder must first be added in *Survey Folder Maintenance* before working with survey readings in an ISM data grid, report, or graph. Adding a continuous survey folder includes the following tasks:

- Select the type of continuous survey, such as CIS, AC CIS, DCVG, ACVG, ACCA, Soil Resistivity, or ILI.
- Provide the survey start date and survey name. These property settings allow you to identify the correct survey folder when adding survey readings or working with reports and graphs in ISM.
- As an option, provide the name of the surveyor and/or the vendor performing the survey.

Complete the following steps to add a continuous survey folder:

1. Click **Modules > Indirect Survey Manager (ISM)** to open the ISM module.
2. Click **Data Entry > Continuous Survey Folder Maintenance** to open the *Survey Folder Maintenance* window. The window that opens is dependent on the type of continuous survey selected from the top row of tabs (CIS, AC CIS, DCVG, ACVG, ACCA, Soil Resistivity, or ILI). The example below has **CIS** selected.

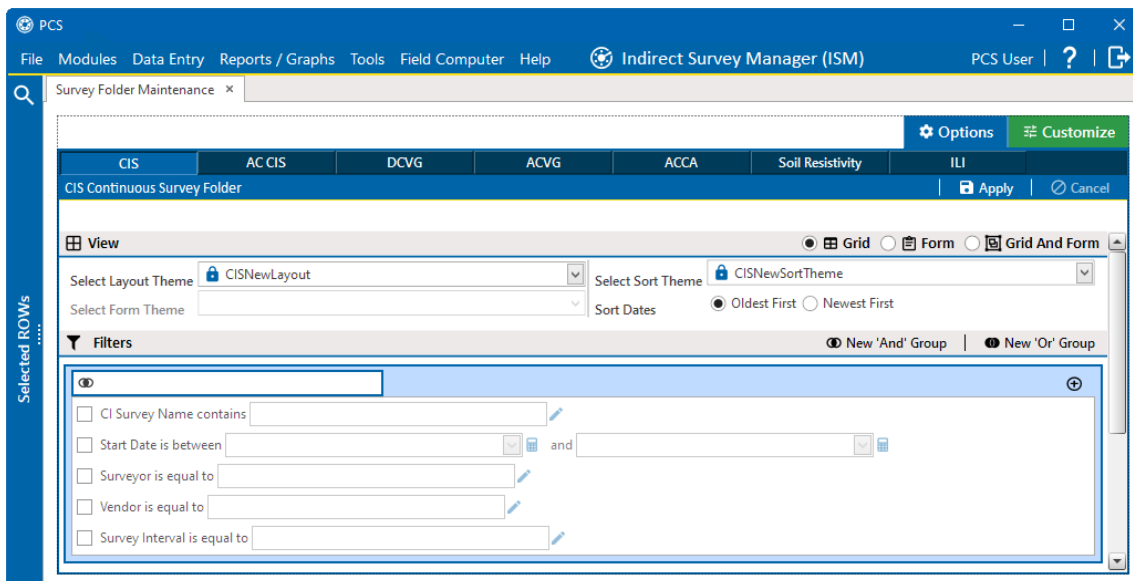


Figure 6-9. CIS Continuous Survey Folder Window

3. Click one of the tabs to select the type of continuous survey that you want to add a survey folder. For example, clicking the **CIS** tab adds a survey folder for close interval survey readings.
4. Select a Layout Theme and/or Sort Theme and click **Apply**.

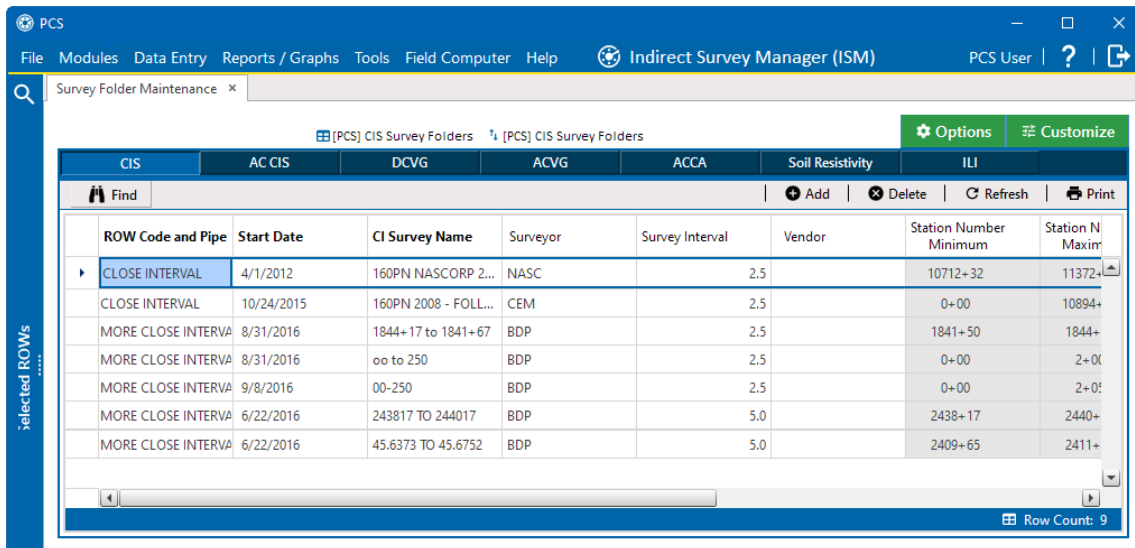


Figure 6-10. CIS Continuous Survey Folders

5. Click **Add** to open the *Add Record* window.
6. Select the pipeline segment that you want to add a continuous survey folder.

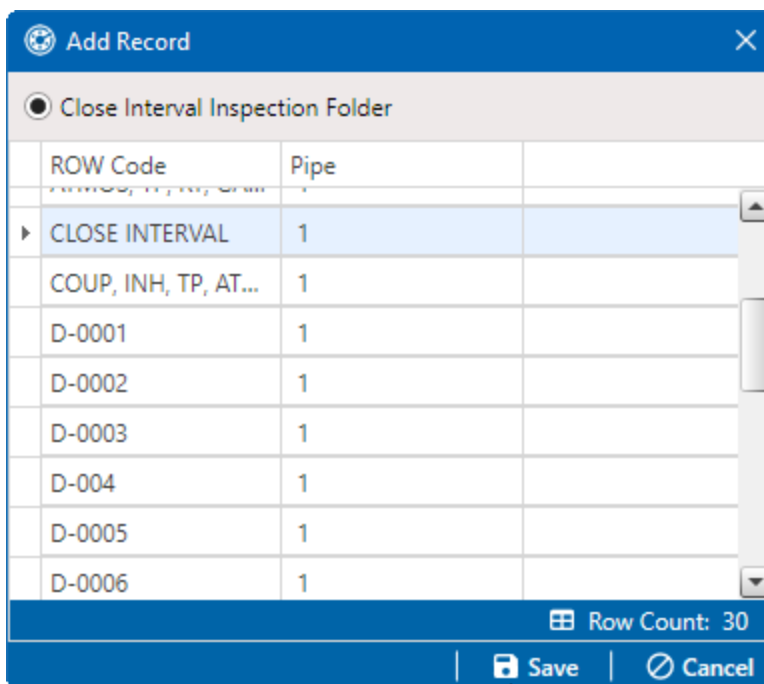
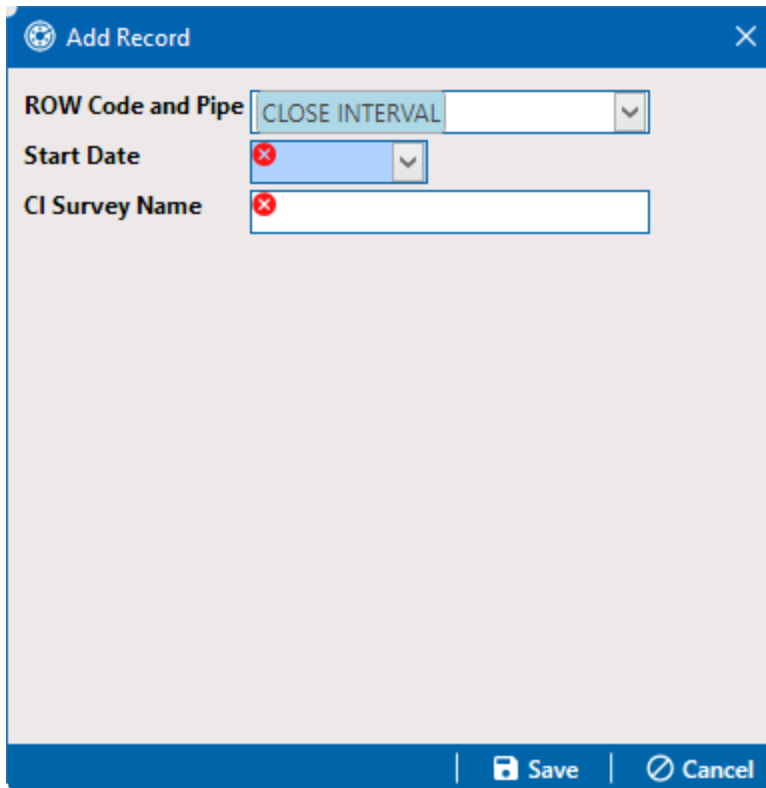


Figure 6-11. Add Record Window

7. Click **Save**. A new *Add Record* window open to display required fields for data entry. Required fields are identified with the ***** icon.



The screenshot shows a dialog box titled "Add Record" with a blue header bar containing a refresh icon and a close button. The dialog contains three input fields:

- ROW Code and Pipe:** A dropdown menu with "CLOSE INTERVAL" selected.
- Start Date:** A date picker icon with a red "X" error indicator.
- CI Survey Name:** A text input field with a red "X" error indicator.

At the bottom of the dialog, there are two buttons: "Save" (with a floppy disk icon) and "Cancel" (with a circle and slash icon).

Figure 6-12. Add Record

8. Type a survey start date in the **Start Date** field using the format MM/DD/YYYY to indicate the month, day, and year. Or click the down arrow in the field and select a date using the calendar.
9. Type a name for the survey folder in the **CI Survey Name** field. The field accepts up to 50 alphanumeric characters.

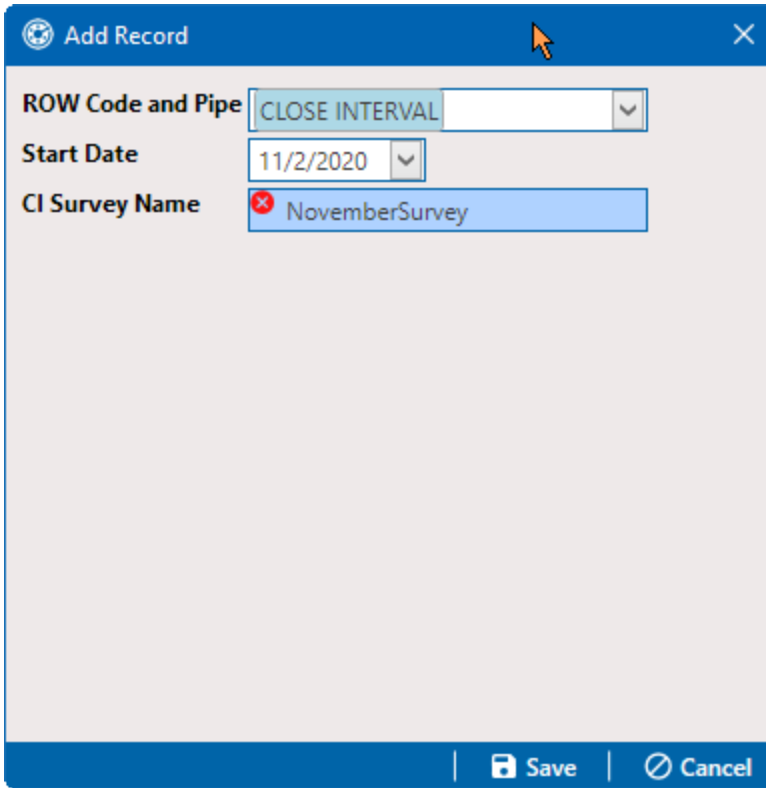


Figure 6-13. New CI Survey Folder

- Click **Save** to close the *Add Record* window. The new row of records in the grid for the new continuous survey folder is added to the grid.

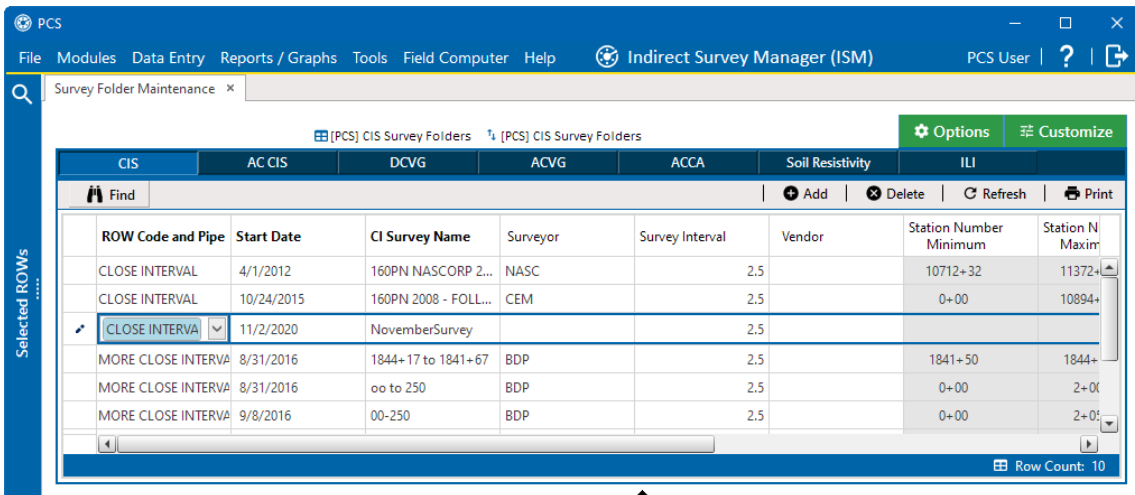



Figure 6-14. New Continuous Survey Folder in Grid

11. Provide other information about the survey folder as needed. For example, type the surveyor's name in the **Surveyor** field, the survey interval in the **Survey Interval** field, and the name of the company performing the survey in the **Vendor** field.
12. Click  **Refresh** to update the grid.

The survey folder is now available for selection when working with survey readings in Edit ISM Data (**Data Entry > Edit ISM Data**), reports, and graphs.

Delete a Continuous Survey Folder

Deleting a continuous survey folder in *Survey Folder Maintenance* also deletes survey readings associated with the survey folder.

Deleting a continuous survey folder typically occurs when you want to clean up data that is no longer needed or when a survey folder has been created accidentally. A message displays listing all facility records assigned to the survey folder allowing you to either cancel the operation or delete the survey folder.

Complete the following steps to delete a continuous survey folder:

1. Click **Modules > Indirect Survey Manager (ISM)** to open the ISM module.
2. Click **Data Entry > Continuous Survey Folder Maintenance** to open the *Continuous Survey Folder* window. The window that opens is dependent on the type of continuous survey selected from the top row of tabs (CIS, AC CIS, DCVG, ACVG, ACCA, Soil Resistivity, or ILI). The example below has **CIS** selected.

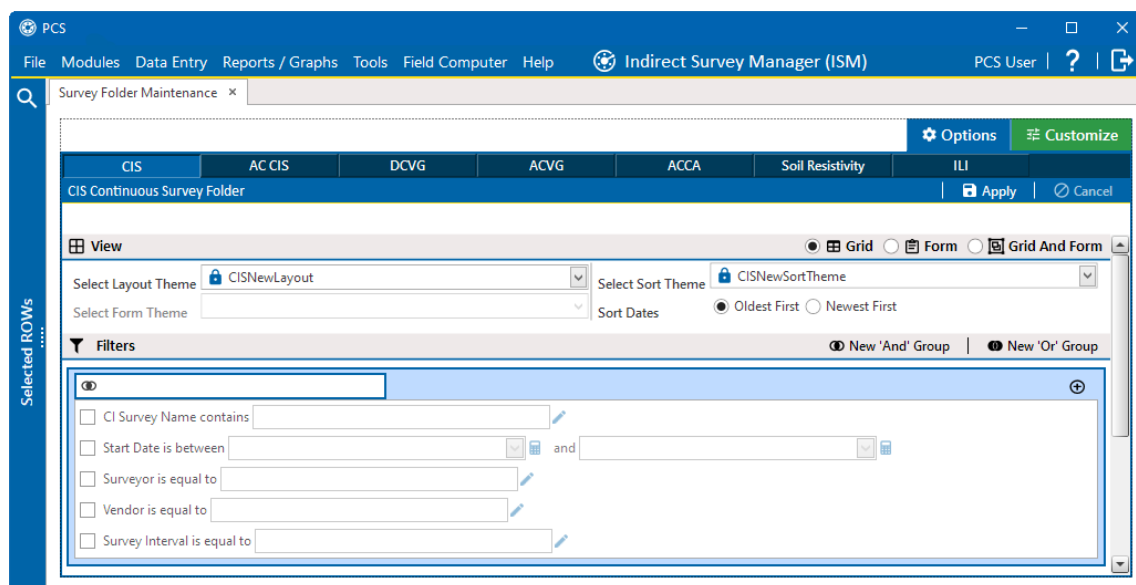


Figure 6-15. CIS Continuous Survey Folder Window

- Click one of the tabs to select the type of continuous survey that you want to add a survey folder. For example, clicking the **CIS** tab adds a survey folder for close interval survey readings.
- Select a Layout Theme and/or Sort Theme and click **Apply**.

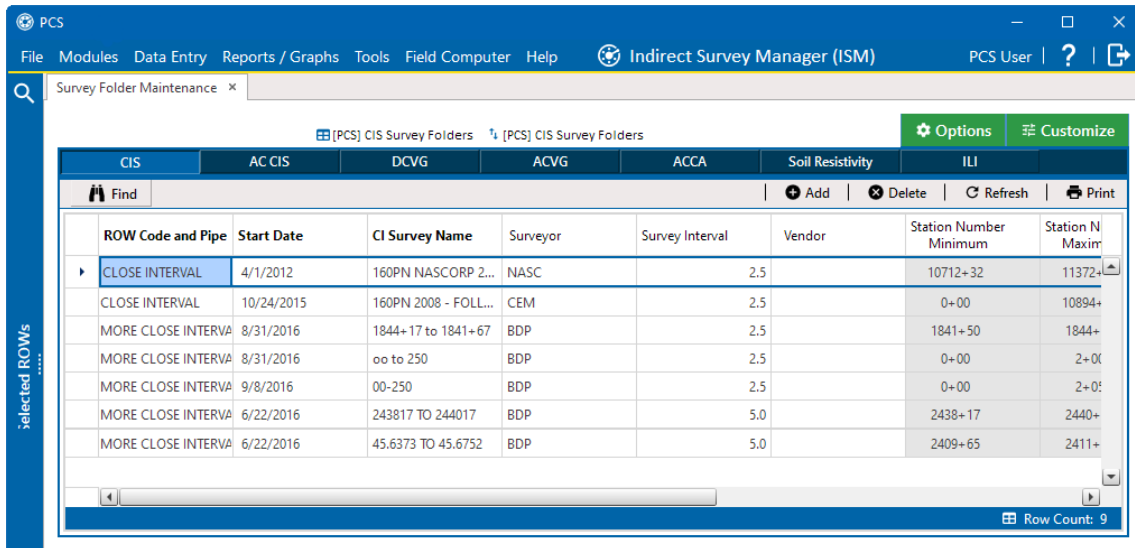


Figure 6-16. CIS Continuous Survey Folders

- Select a pipeline segment in the grid that includes the continuous survey folder you want to delete.

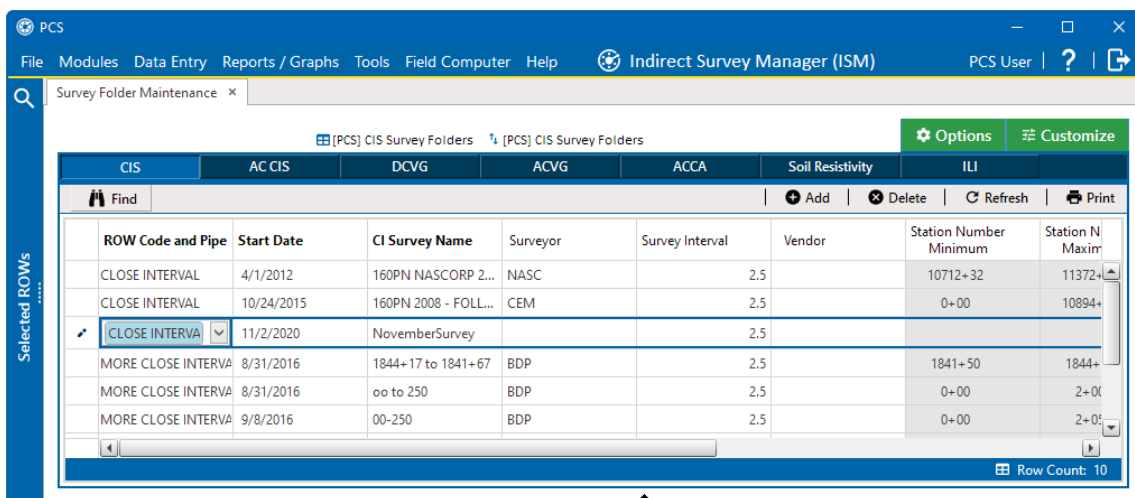


Figure 6-17. Survey Folder Maintenance

- Click **Delete**.
- In the *Delete Record* message window, click **Delete**.

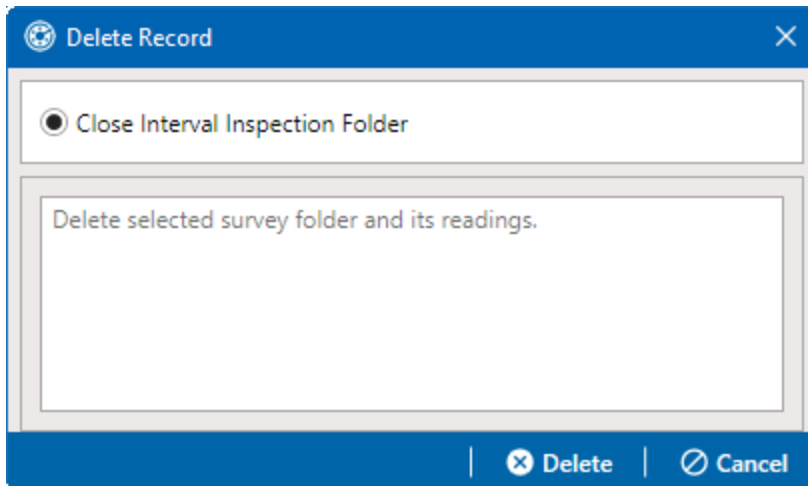


Figure 6-18. Delete Record

8. In the *Delete* message window, click **Yes** to delete the survey folder or **No** to cancel the operation.

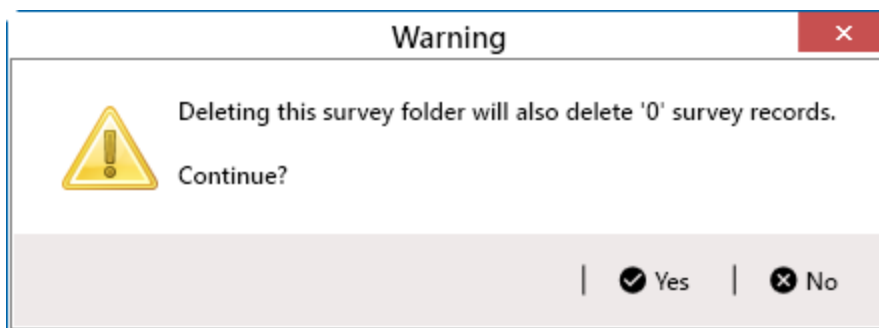


Figure 6-19. Warning Message

The survey folder and associated survey readings are permanently deleted from PCS.

Use a Continuous Survey Folder


You can use a continuous survey folder in any of the following areas of the Indirect Survey Manager module:

- **Data entry grid.** Add survey readings in a continuous survey folder associated with a pipeline segment using Edit ISM Data (**Data Entry > Edit ISM Data**). Refer to [Data Entry Grids and Forms](#) for more information.
- **Filter option in Criteria Report.** View survey readings based on a survey folder selected in *Options* when working with a columnar Criteria Report. Refer to [Reports and Graphs](#) for more information about reports.

- **Filter option in PCS Inspections Graph.** View a graph of survey readings based on a survey folder selected in **Survey Selections** when working with a PCS Inspections Graph. Refer to [Reports and Graphs](#) for more information about graphs.
- **Receiving survey files from the Allegro.** Use the **Options** group box in the *Field Computer Receive Data* window to assign survey readings to a continuous survey folder associated with a pipeline segment. Refer to [Field Computer](#) for more information about receiving files from a mobile device.

Themes and Filter Groups for Continuous Survey Folders

A theme is a group of named settings saved for later use, such as grid layout or sorting themes. Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS software installation. PCS installed themes are public themes available to all PCS users. These themes are identified with a globe icon and PCS in brackets, such as  **[PCS] CIS Survey Folders**.

NOTE: Only public themes for layouts, sorts, and reports are available for selection. If you would like to use a private theme, your company's system administrator must make your private theme a public one.

A filter group is a named set of one or more filters that affect the data output in the *Survey Folder Maintenance* grid. PCS provides two types of filter groups you can define. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude in the *Survey Folder Maintenance* grid. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. When you apply a filter group to the grid, PCS processes filters in descending order beginning with the filter at the top of the group.

The following topics describe how to add a layout or sort theme in the *Survey Folder Maintenance* grid.

- [Add a Continuous Survey Layout Theme on page 422](#)
- [Add a Continuous Survey Folders Sort Theme on page 426](#)
- [Add and Edit an AND Filter Group for Continuous Survey Folders on page 431](#)
- [Add or Edit an OR Filter Group for Continuous Survey Folders on page 435](#)
- [Apply or Remove a Filter Group for Continuous Survey Folders on page 440](#)

Add a Continuous Survey Layout Theme

A layout theme is a group of fields in a grid layout. Adding a new layout themes allows you to choose which fields you want to include in the grid layout. You can then save the layout as a theme for later use.

This topic covers how to create a layout theme for continuous survey folders within the Indirect Survey Manager (ISM) module.

Layout themes are created from the *Survey Folder Maintenance* window that can be accessed from the **Data Entry** main menu.

NOTE: Only public themes for layouts, sorts, and reports are available for selection. If you would like to use a private theme, your company's system administrator must make your private theme a public one.

Complete the following steps to add a layout theme from the *Survey Folder Maintenance* window:

1. Click **Modules > Indirect Survey Manager (ISM)** to open the ISM module.
2. Click **Data Entry > Continuous Survey Folder Maintenance** to open the *Continuous Survey Folder* window. The window that opens is dependent on the type of continuous survey selected from the top row of tabs (CIS, AC CIS, DCVG, ACVG, ACCA, Soil Resistivity, or ILI). The example below has **CIS** selected.

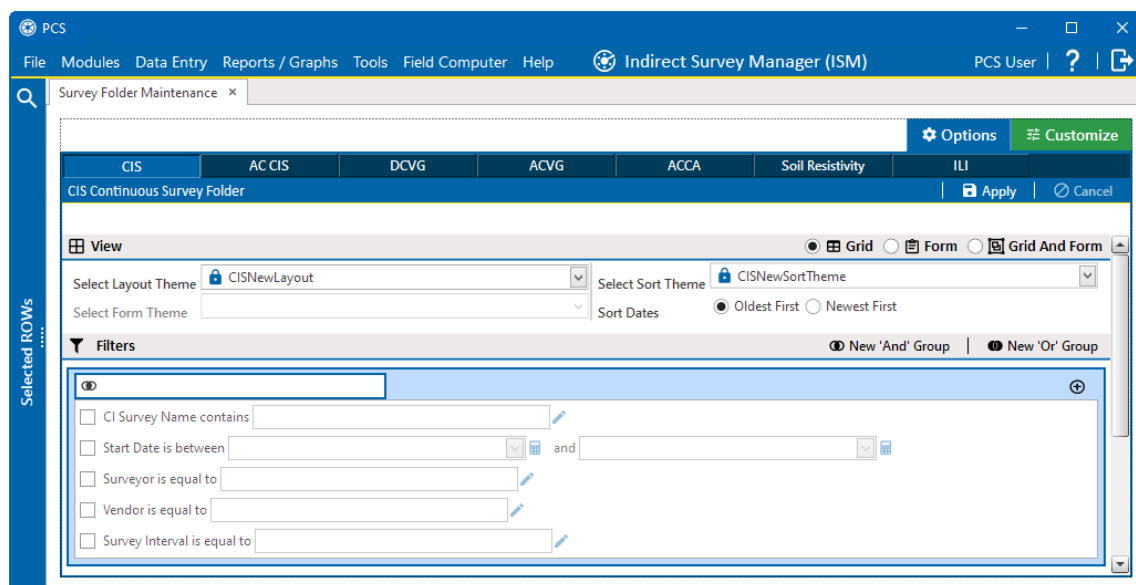



Figure 6-20. CIS Continuous Survey Folder Window

3. Click one of the tabs to select the type of continuous survey that you want to add a survey folder. For example, clicking the **CIS** tab adds a survey folder for close interval survey readings.

- Click the  **Customize** tab to open the *Customize* window; ensure **Layouts** is selected from the right-hand menu bar.

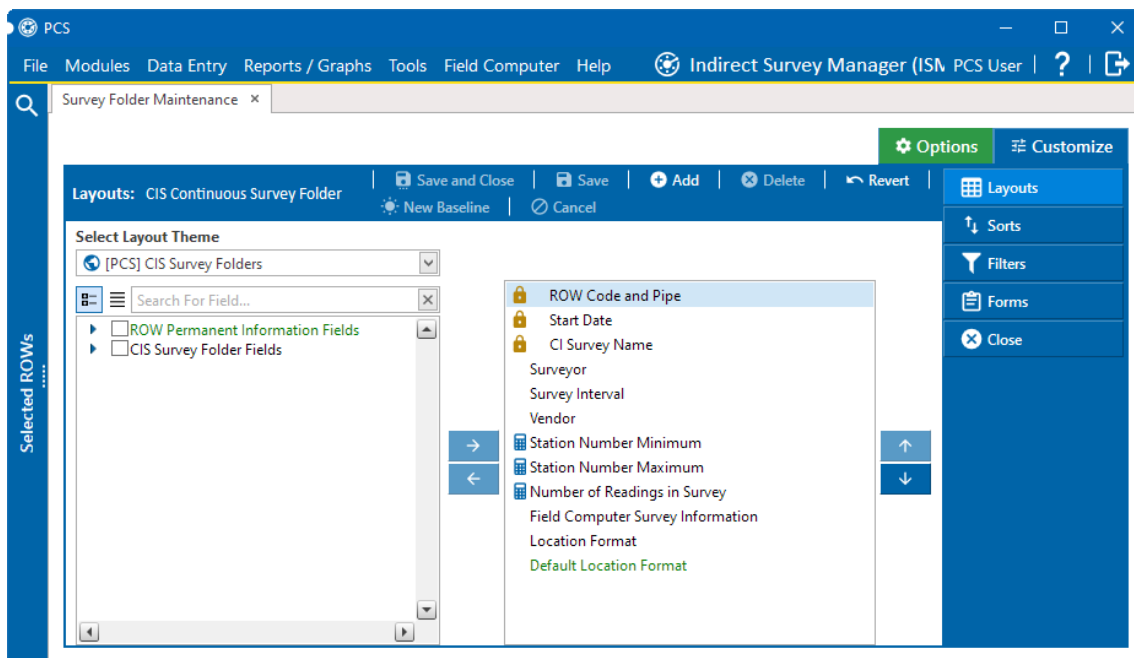


Figure 6-21. Continuous Survey Folder Customize Window

- Click  **Add** to open the *New Layout Theme* window.

The screenshot shows a 'New Layout Theme' dialog box. It features a title bar with a globe icon and a close button. The main area is divided into several sections: 'Enter Theme Name:' with a text input field containing a red 'x' icon; 'Public' (unchecked) and 'Copy Content' (checked) checkboxes; 'Copy Fields From Theme:' with a dropdown menu showing '[PCS] CIS Survey Folders'; and 'Fields in the Selected Theme:' with a list box containing: ROW Code and Pipe, Start Date, CI Survey Name, Surveyor, Survey Interval, Vendor, Station Number Minimum, Station Number Maximum, Number of Readings in Survey, Field Computer Survey Information, Location Format, and Default Location Format. At the bottom are 'OK' and 'Cancel' buttons.

6. Type a name for the layout theme in the **Enter Theme Name** field.
Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
7. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a private theme. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
8. If you want to copy the content of the selected theme shown in the **Copy Field From Theme** field, select the **Copy Content** check box. Select a different theme if desired.
9. Click **OK** to save changes and return to the *Layouts* window with the new layout selected.

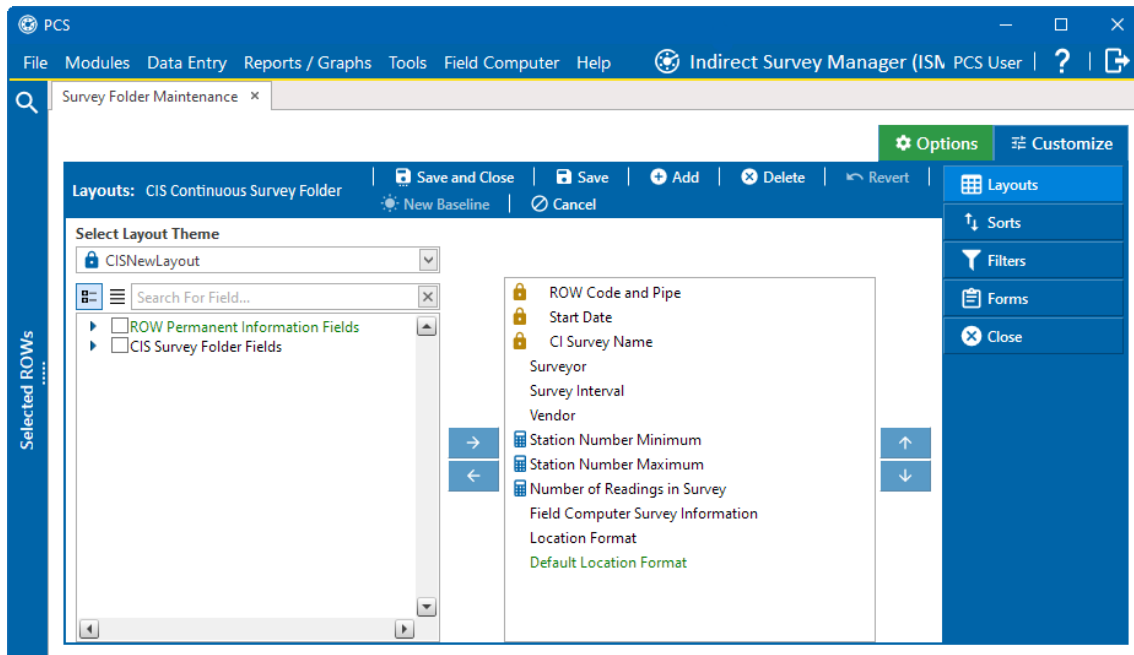










Figure 6-22. Layouts

10. Complete the following steps in the *Layouts* page to add and remove fields in the new layout theme as needed:
 - a. Click the toggle arrow  for a field category in the left pane of the window to view a list of fields available for selection.
 - b. Double-click a field listed in the left pane to move it to the right pane, or select it and then click the  button to move it. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* window.

NOTE: The  button becomes active after selecting a field and clicking in the check box.

- c. To remove a field in the layout theme, double-click a field listed in the right pane to move it to the left pane, or select it and then click the  button to move it. Repeat this step as needed.

NOTE: Fields with a  icon are required and cannot be removed from the theme.

11. To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the  or  buttons.
12. Click  **Save** to save changes.

13. To apply the new layout theme to the data entry grid:
 - a. Click the **Options** tab.

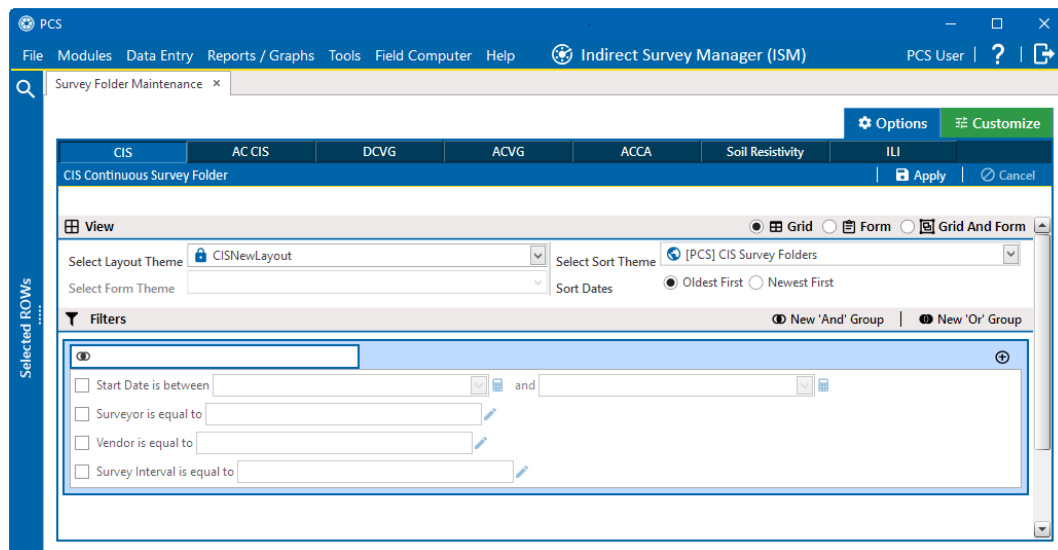


Figure 6-23. New Layout Theme in Options Window

- b. If the new layout is not shown in the **Select Layout Theme** field, select it from the drop-down list.
- c. Select a method for sorting survey folders in the data entry grid based on the survey date in the **Start Date** field. Select either Click **Oldest First** or **Newest First** to sort survey folders with the oldest or newest survey **Start Date** first.
- d. Click **Apply** to save changes and return to the data entry grid.

Add a Continuous Survey Folders Sort Theme

A sort theme determines how PCS sorts records in a data entry grid. Adding a sort theme allows you to choose which field(s) to sort records by and if records sort alphanumerically in ascending or descending order.

This topic covers how to create a sort theme for continuous survey folders within the Indirect Survey Manager (ISM) module.

Complete the following steps to add a sort theme for a continuous survey in *Survey Folder Maintenance*:

1. Click **Modules > Indirect Survey Manager (ISM)** to open the ISM module.
2. Click **Data Entry > Continuous Survey Folder Maintenance** to open the *Continuous Survey Folder* window. The window that opens is dependent on the type of continuous survey selected from the top row of tabs (CIS, AC CIS, DCVG, ACVG, ACCA, Soil Resistivity, or ILI). The example below has **CIS** selected.

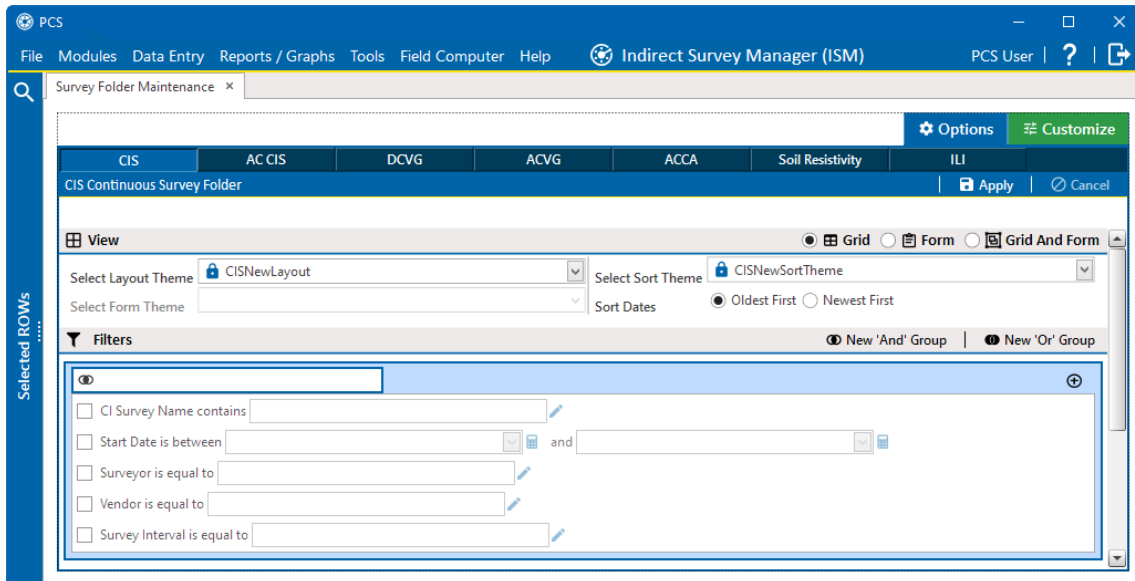


Figure 6-24. CIS Continuous Survey Folder Window

3. Click one of the tabs to select the type of continuous survey that you want to add a survey folder. For example, clicking the **CIS** tab adds a survey folder for close interval survey readings.
4. Click the **Customize** tab then the **Sorts** button to open the *Sorts* window.

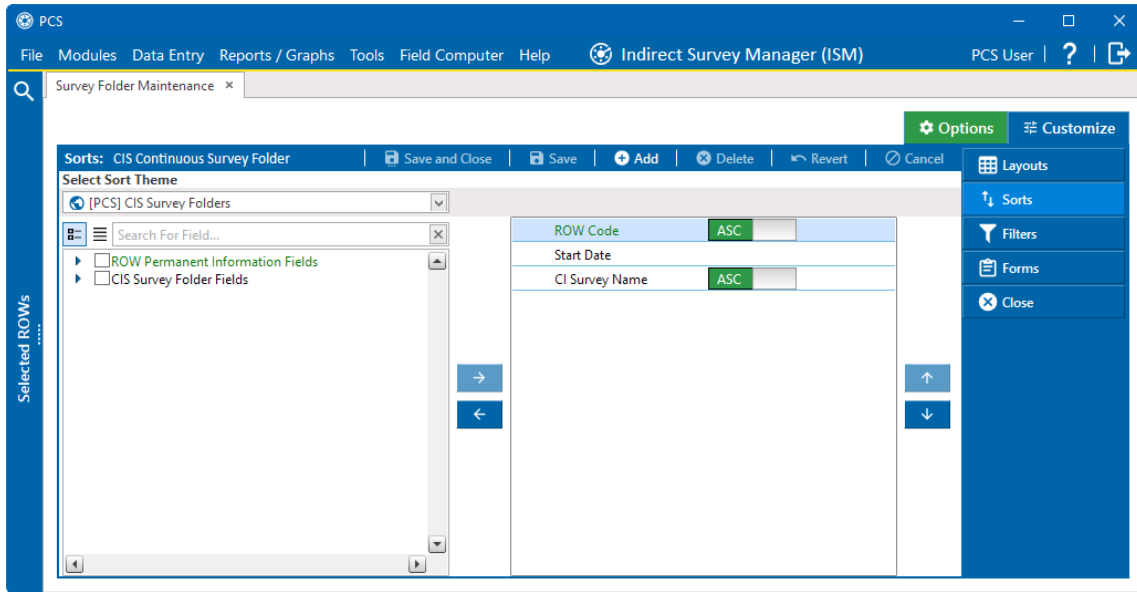

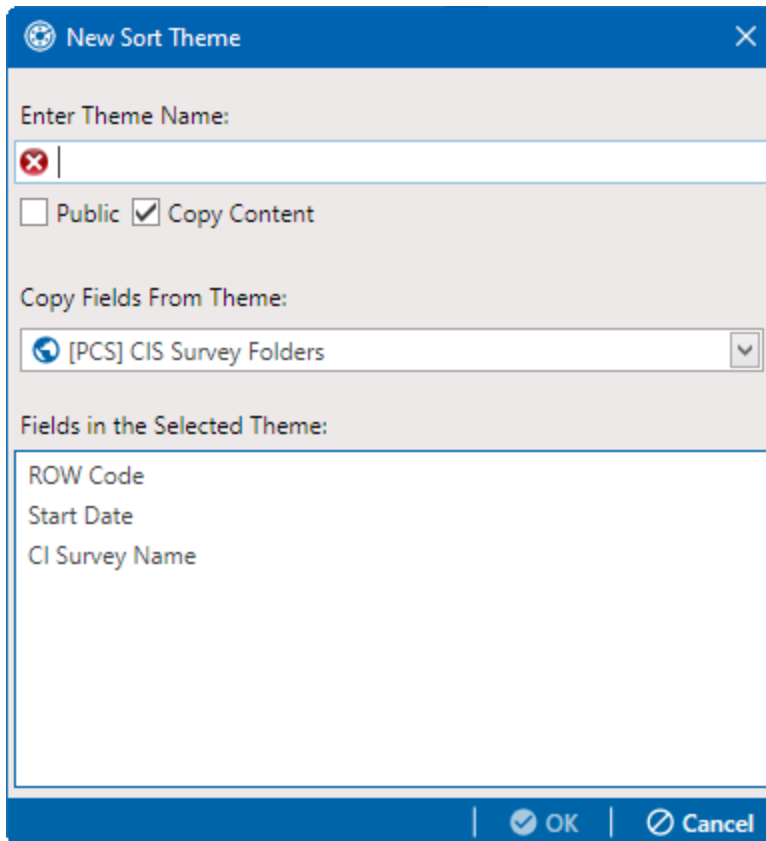


Figure 6-25. Continuous Survey Folder Sorts Window

5. Click  **Add** to open the *New Sort Layout* window.



The screenshot shows a dialog box titled "New Sort Theme". It features a text input field for "Enter Theme Name" with a red "x" icon on the left. Below this are two checkboxes: "Public" (unchecked) and "Copy Content" (checked). A dropdown menu labeled "Copy Fields From Theme:" is set to "[PCS] CIS Survey Folders". A list box labeled "Fields in the Selected Theme:" contains the following items: "ROW Code", "Start Date", and "CI Survey Name". At the bottom of the dialog are "OK" and "Cancel" buttons.

Figure 6-26. New Sort Theme

6. Type a name for the sort theme in the field **Enter Theme Name**.
7. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a private theme. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
8. If you want to copy the content of the selected theme shown in the **Copy Field From Theme** field, select the **Copy Content** check box. Select a different theme if desired.
9. Click **OK** to save changes and return to the *Sorts* window with the new layout selected.

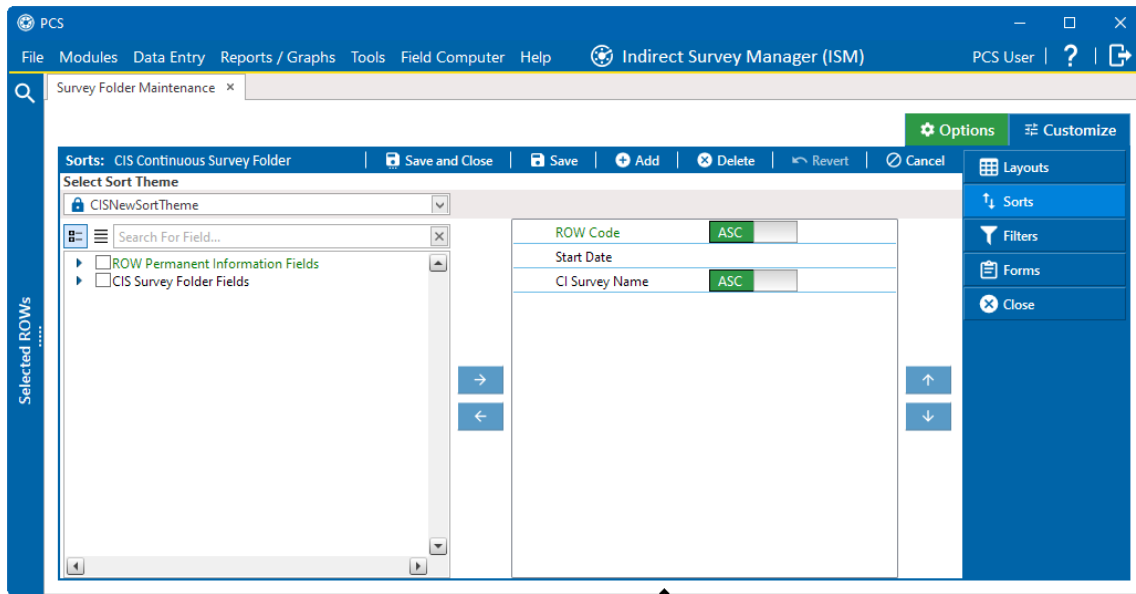






Figure 6-27. Sort Window with New Sort Theme



10. Complete the following steps in the *Sorts* window to add and remove fields in the new sorting theme as needed:




- a. Click the toggle arrow  for a field category in the left pane of the window to view a list of fields available for selection.
- b. Double-click a field listed in the left pane to move it to the right pane, or select it and then click the  button to move it. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* window.

NOTE: The  button becomes active after selecting a field and clicking in the check box.

- c. To remove a field in the layout theme, double-click a field listed in the right pane to move it to the left pane, or select it and then click the  button to move it. Repeat this step as needed.

NOTE: Fields with a  icon are required and cannot be removed from the theme.

11. Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select . To sort in descending order, click the toggle button to select .

12. To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the  or  buttons.
13. Click  **Save** to save changes.
14. To apply the new sort theme to the data entry grid:
 - a. Click the **Options** tab.

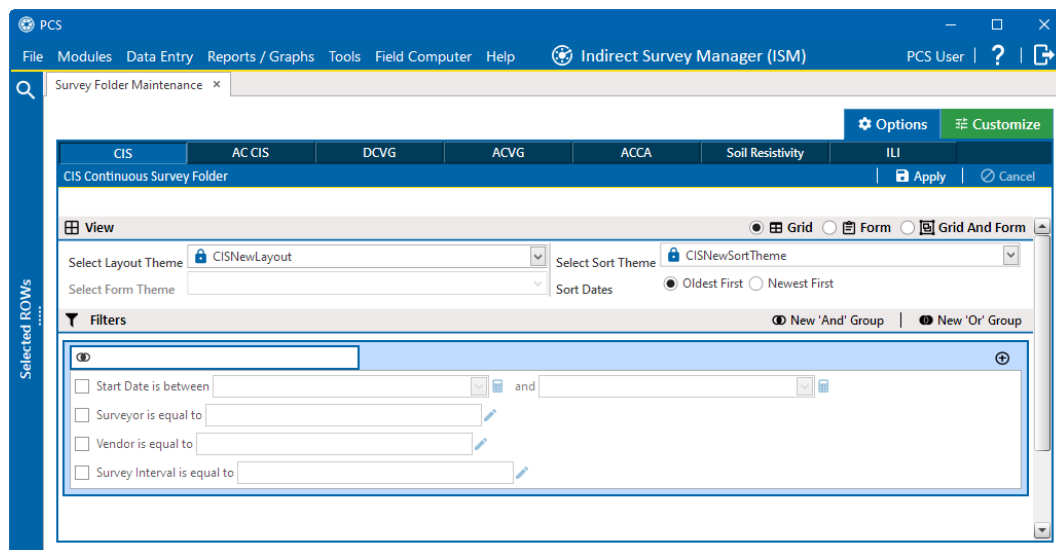



Figure 6-28. Options Window with New Sort Theme

- b. If the new layout is not shown in the **Select Sort Theme** field, select it from the drop-down list.
- c. Click  **Apply** to save and apply changes and then return to the data entry grid.

Add and Edit an AND Filter Group for Continuous Survey Folders

An AND filter group is a named set of one or more filters that affect the data output in the *Survey Folder Maintenance* grid. Adding an AND filter group produces a subset of records that meet all filter conditions. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps create or edit an AND filter group for use on the *Survey Folder Maintenance* window for a continuous survey folder:

1. Click **Modules > Indirect Survey Manager (ISM)** to open the ISM module.
2. Click **Data Entry > Continuous Survey Folder Maintenance** to open the *Continuous Survey Folder* window. The window that opens is dependent on the type of continuous survey selected from the top row of tabs (CIS, AC CIS, DCVG, ACVG, ACCA, Soil Resistivity, or ILI). The example below has **CIS** selected.

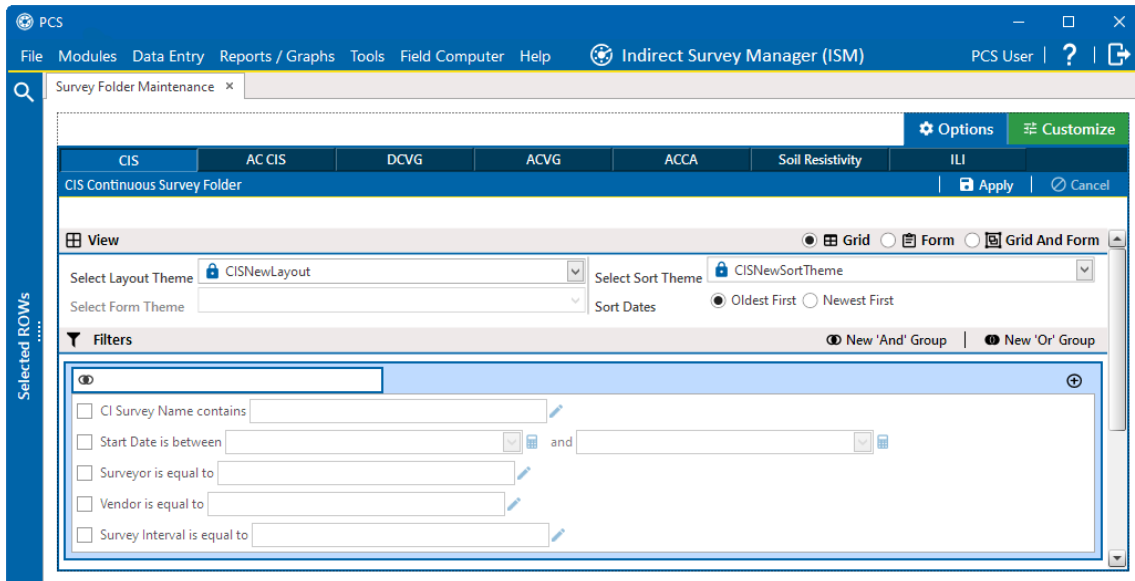


Figure 6-29. CIS Continuous Survey Folder Window

3. Click one of the tabs to select the type of continuous survey that you want to add a survey folder. For example, clicking the **CIS** tab adds a survey folder for close interval survey readings.
4. Click the **Customize** tab and then **Filters** tab to open the *Filters* window.

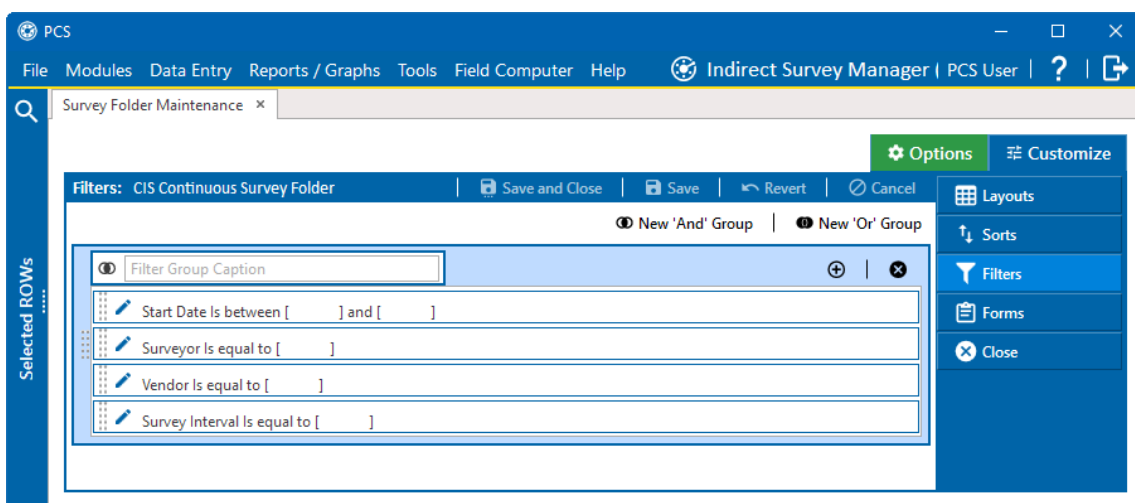


Figure 6-30. Continuous Survey Folder Filters Window

- To add a new 'And' filter group, click **New 'And' Group** to open the filter properties group box.

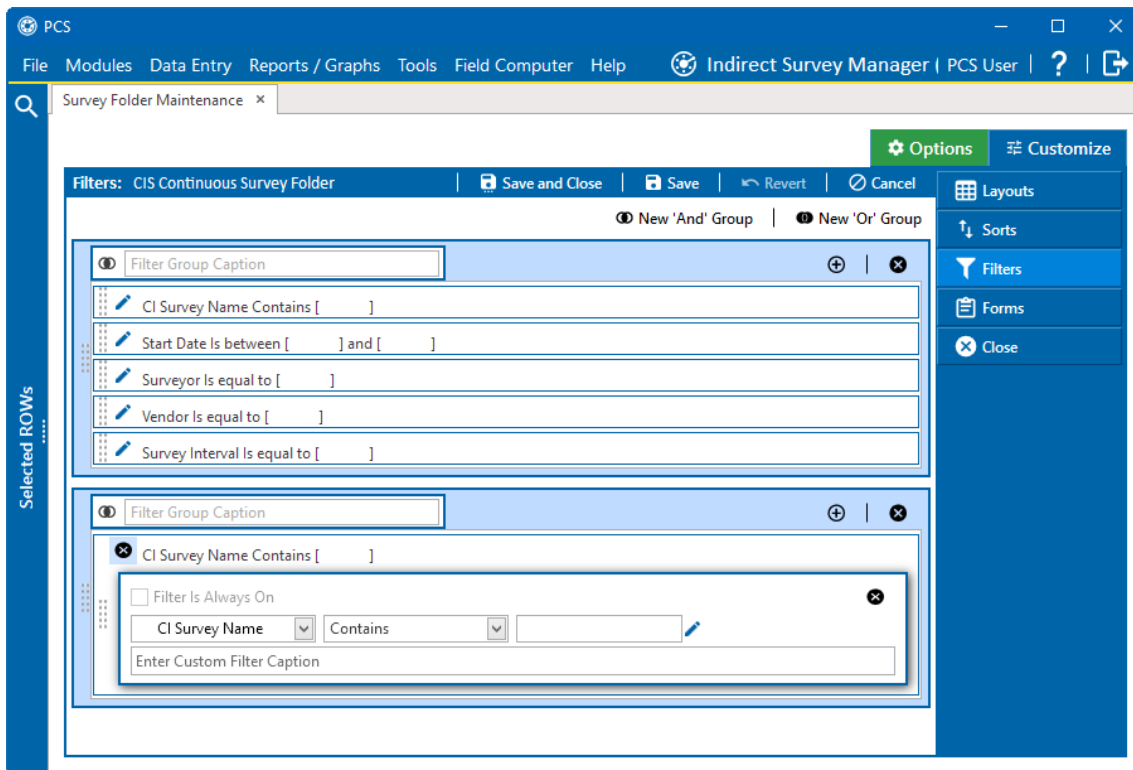


Figure 6-31. New 'And' Group Filter

- Type a name for the filter group in the **Filter Group Caption** field.
- If you want the filter to always remain on, select the **Filter is Always On** check box.

NOTE: It is recommended that you add filters in the order in which you would like them used.

- Use filter selection fields to set up filter criteria for the new filter. Select a PCS field, operator, and one or more filter conditions. Filter conditions are based on the PCS field selected. The line above the filter selection updates to show how the filter is defined. For example, shown below is a filter based on **CI Survey Name**. The field and conditions are also shown in the space above the box.

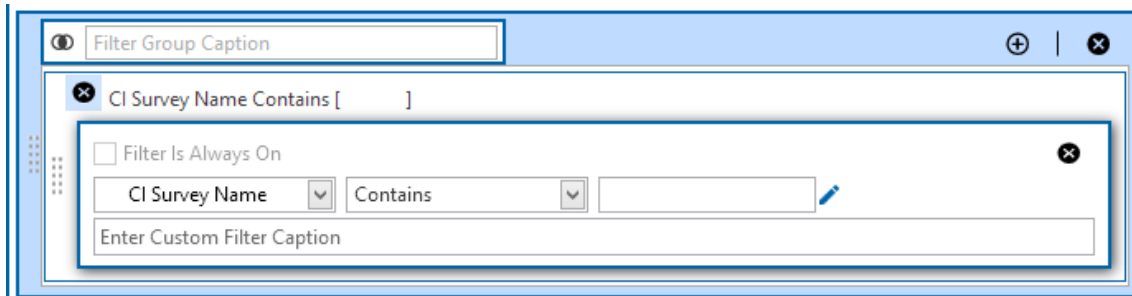


Figure 6-32. 'And' Filter Operators

The line above the box will update as you add or change conditions.

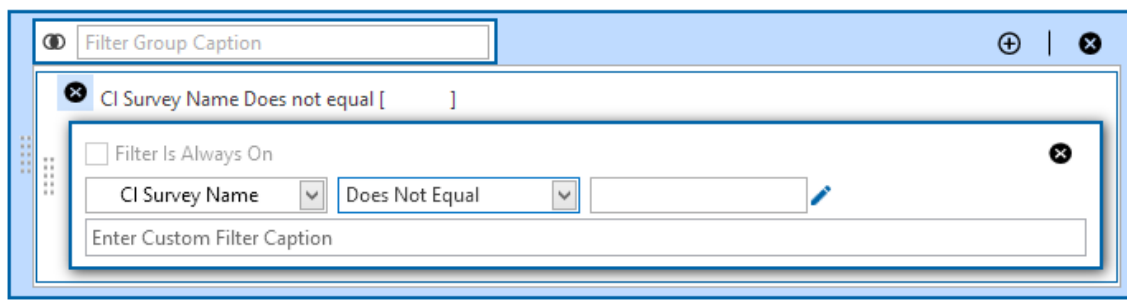


Figure 6-33. 'And' Filter With Conditions

9. If desired, type a name for the filter in the **Enter Custom Filter Caption** field. The line above the filter box will update with this name.

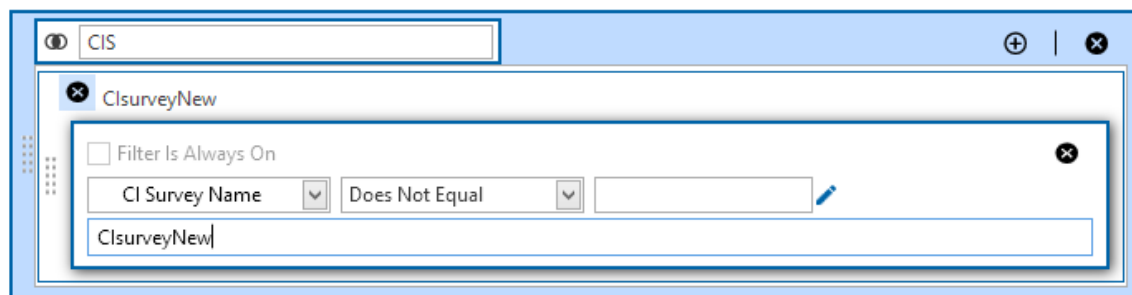


Figure 6-34. Custom Filter Caption Name Update

10. For fields that include a date, click the down arrow in the start date field to open a calendar and select a date. You can also type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year. Repeat this step for the end date field.
11. To set a date range using dynamic start and end dates, click the 📅 icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the 📅 icon opens and closes dynamic date property fields.

12. To close a filter box, click the  icon in the upper left corner.

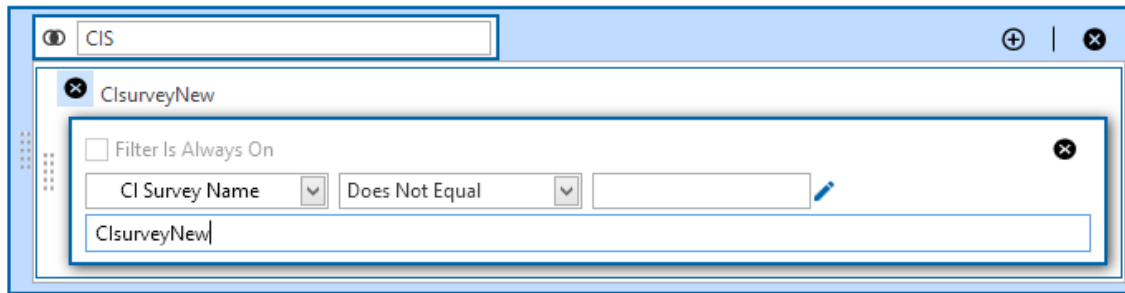




Figure 6-35. Close a Filter Box

13. To delete a filter, click the  icon on the right side of the filter box.
14. If additional filters are needed within the filter group, click  to add a new filter box and repeat these steps.

NOTE: It is recommended that you add filters in the order in which you would like them used.

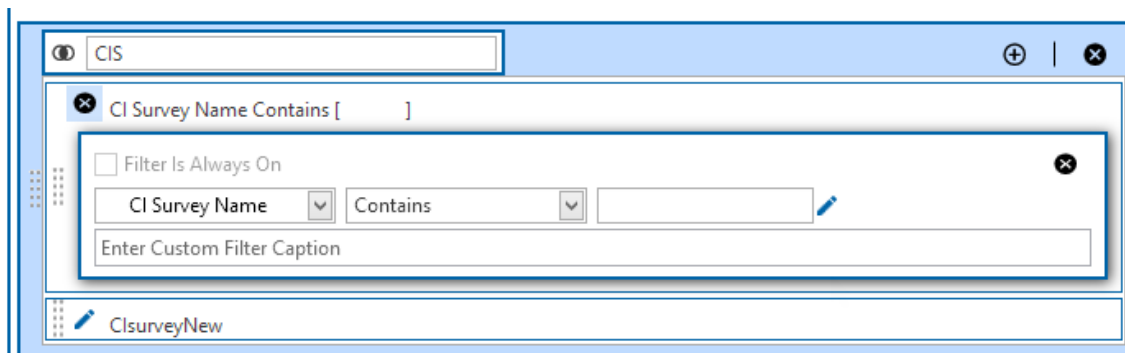





Figure 6-36. Edit Icon with New Filter Group

15. Click the  icon for a filter to open that filter's property settings and change settings as needed.
16. Click  **Save** to save the filter(s). Add or edit filters as desired.
17. When finished, click  **Save and Close** to save filter(s) and close the window.
18. Refer to [Apply or Remove a Filter Group for Pipeline Records](#) for more information on how to apply a filter group to a data grid.

Add or Edit an OR Filter Group for Continuous Survey Folders

An OR filter group is a named set of one or more filters that affect the data output in the *Survey Folder Maintenance* grid. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes filters in a filter group in descending order beginning with the filter at the top

of the filter group.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to create or edit an OR filter group for use on the *Survey Folder Maintenance* window for a continuous survey folder:

1. Click **Modules > Indirect Survey Manager (ISM)** to open the ISM module.
2. Click **Data Entry > Continuous Survey Folder Maintenance** to open the *Continuous Survey Folder* window. The window that opens is dependent on the type of continuous survey selected from the top row of tabs (CIS, AC CIS, DCVG, ACVG, ACCA, Soil Resistivity, or ILI). The example below has **CIS** selected.

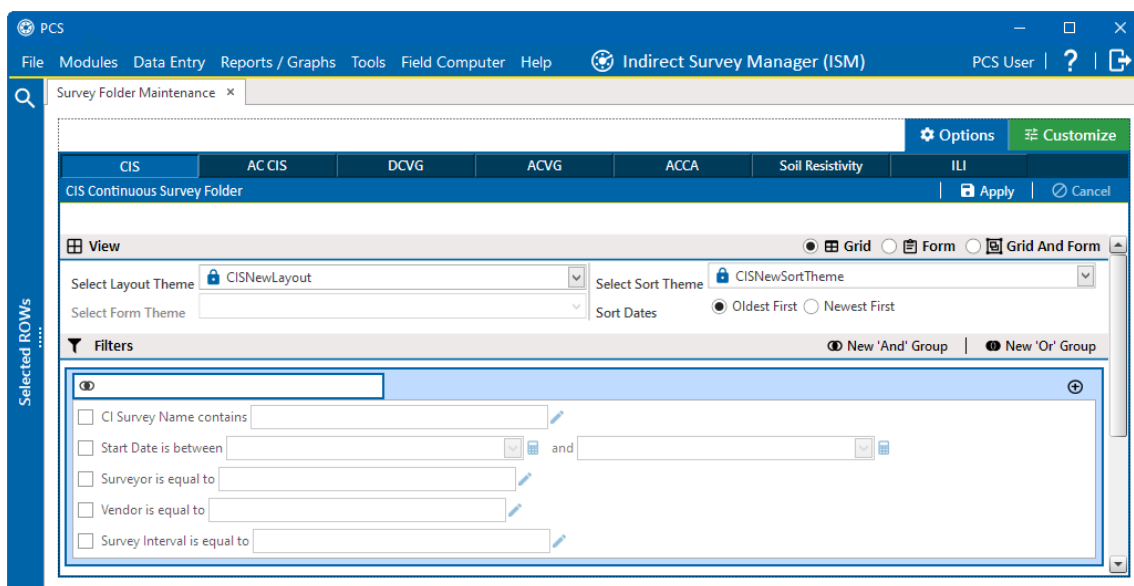


Figure 6-37. CIS Continuous Survey Folder Window

3. Click one of the tabs to select the type of continuous survey that you want to add a survey folder. For example, clicking the **CIS** tab adds a survey folder for close interval survey readings.
4. Click the **Customize** tab and then the **Filters** tab to open the *Filters* window.

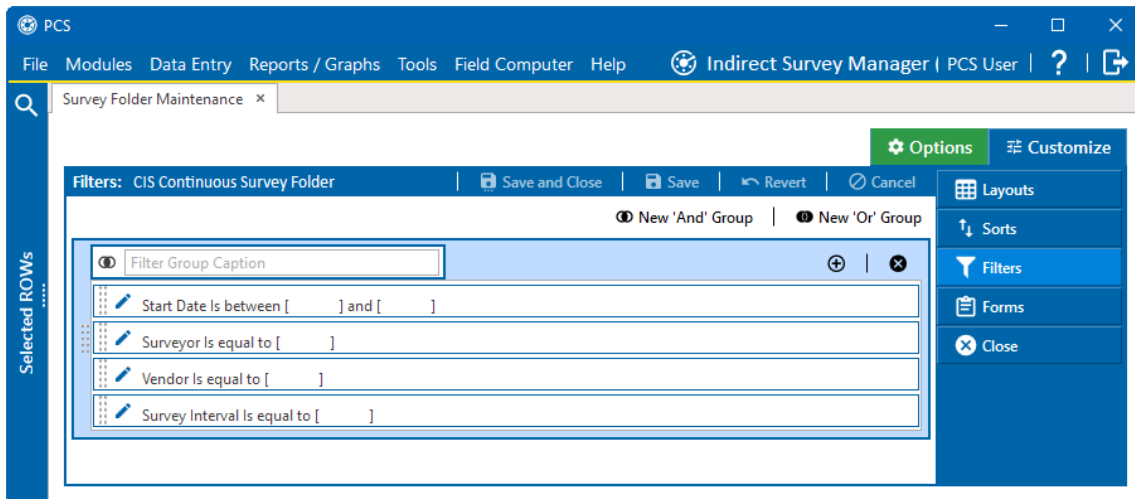


Figure 6-38. Continuous Survey Folder Filters Window

- To add a new 'Or' filter group, click **New 'Or' Group** to open the filter properties group box.

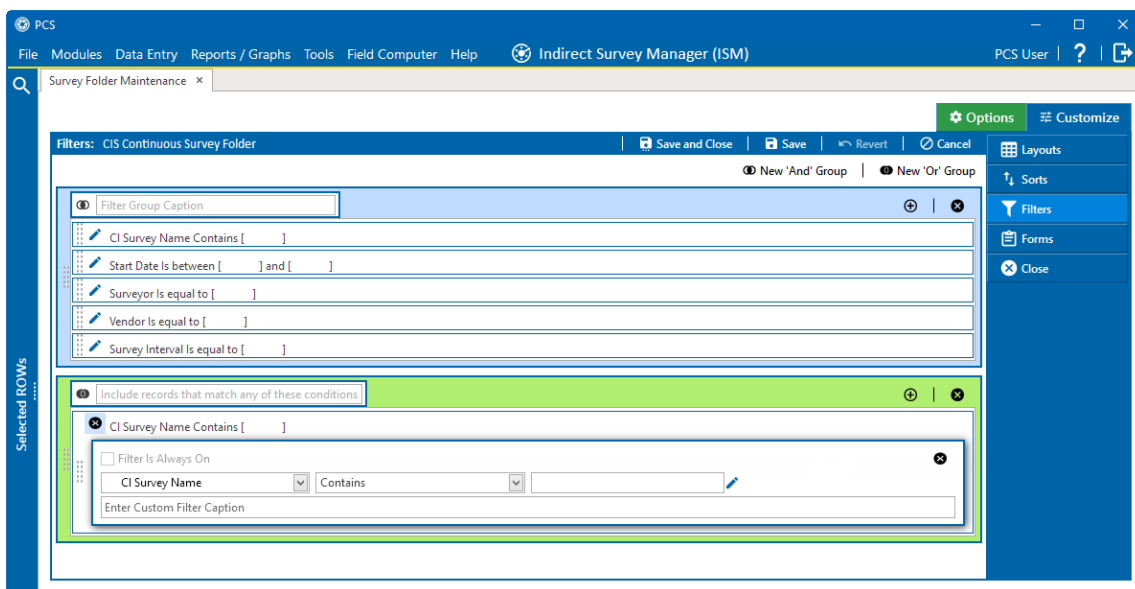


Figure 6-39. Filters

- If you want the filter to always remain on, select the **Filter is Always On** check box. It is recommended that you add filters in the order in which you would like them used.
- Use filter selection fields to set up filter criteria for the new filter. Select a PCS field, operator, and one or more filter conditions. Filter conditions are based on the PCS field selected. The line above the filter selection updates to show how the filter is defined. For example, shown below is a filter based on **CI Survey Name**. The field and conditions are also shown in the space above the box.

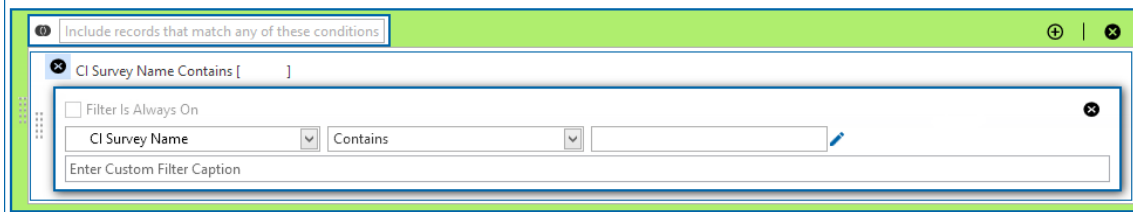


Figure 6-40. 'Or' Filter Operators

The line above the box will update as you add or change conditions, for example, changing the first condition from **Contains** to **Is Greater Than Or Equal To**.

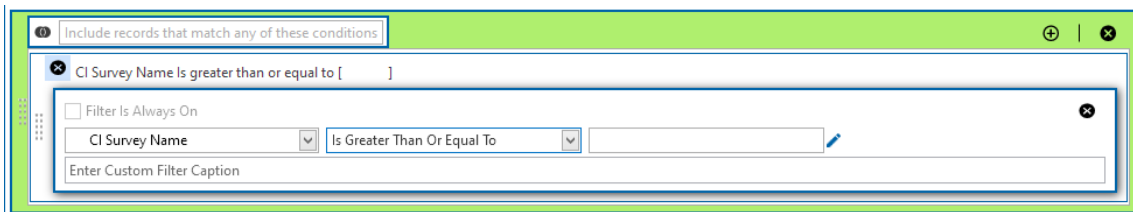



Figure 6-41. 'Or' Filter With Conditions

8. If needed, click the  icon next to an operator field to remove any text that you entered and re-enter values.
9. If desired, type a name for the filter in the **Enter Custom Filter Caption** field. The line above the filter box will update with this name.

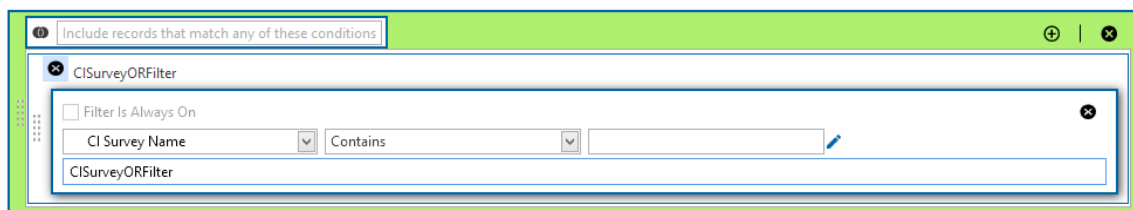



Figure 6-42. Or Filter Group Caption Name

10. A field that includes an  icon in the operator line (for example, **Start Date**) indicates that a dynamic value can be set.

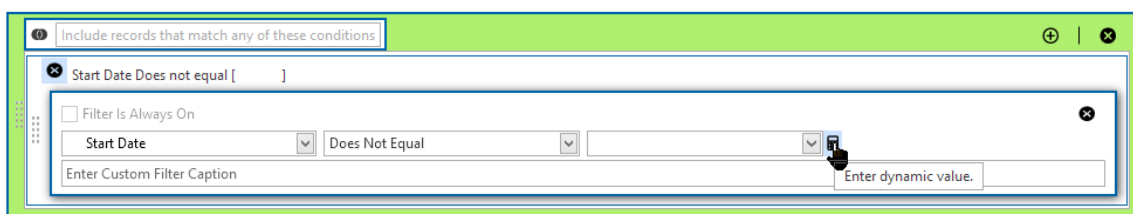




Figure 6-43. Field Operators with Dynamic Values Option

Click the  icon to open dynamic property fields and enter values as needed. Click the  to remove entered values and clear the fields.

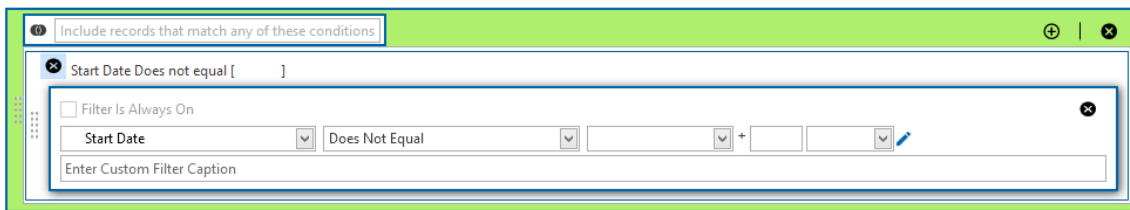





Figure 6-44. Dynamic Field Operators

11. Click  **Save** to save the filter.
12. To re-open the filter box, click the  icon.
13. To close a filter box, click the  icon in the upper left corner.

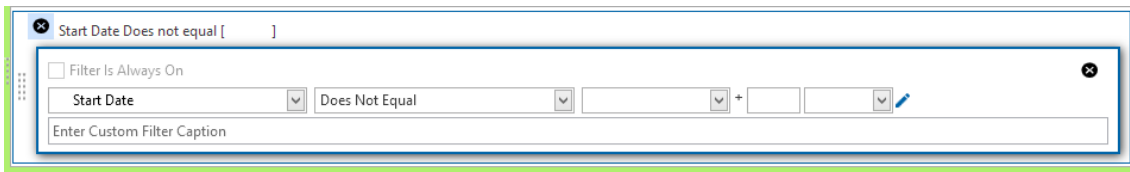




Figure 6-45. Close a Filter Box

14. To delete a filter, click the  icon on the right side of the filter box.
15. If additional filters are needed within the filter group, click  to add a new filter box and repeat these steps.

NOTE: It is recommended that you add filters in the order in which you would like them used.

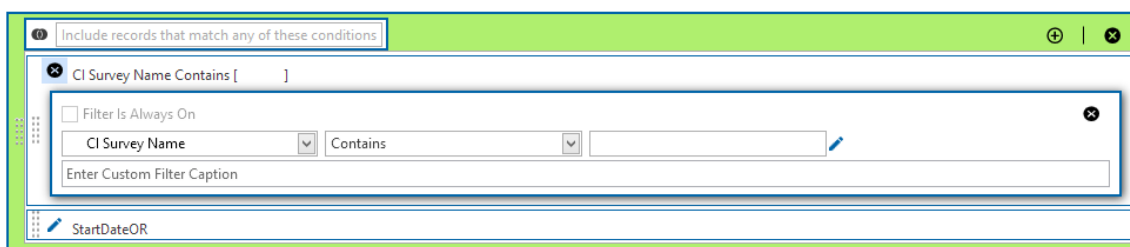





Figure 6-46. Adding a New Filter Box

16. Click the  icon for a filter to open that filter's property settings and change settings as needed.
17. Click  **Save** to save the filter(s). Add or edit filters as desired.

18. When finished, click  **Save and Close** to save filter(s) and close the window.
19. Refer to [Apply or Remove a Filter Group for Pipeline Records](#) for more information on how to apply a filter group to a data grid.

Apply or Remove a Filter Group for Continuous Survey Folders

After creating an AND or an OR filter group, the filter can be applied to or removed from the *Survey Folder Maintenance* grid using the *Options* window.

Refer to [Add and Edit an AND Filter Group for Continuous Survey Folders](#) and [Add or Edit an OR Filter Group for Continuous Survey Folders](#) for information on how to create filter groups.

Complete the following steps to apply or remove one or more filters to the *Survey Folder Maintenance* grid:

1. Click **Modules > Indirect Survey Manager (ISM)** to open the ISM module.
2. Click **Data Entry > Continuous Survey Folder Maintenance** to open the *Continuous Survey Folder* window. The window that opens is dependent on the type of continuous survey selected from the top row of tabs (CIS, AC CIS, DCVG, ACVG, ACCA, Soil Resistivity, or ILI). The example below has **CIS** selected.

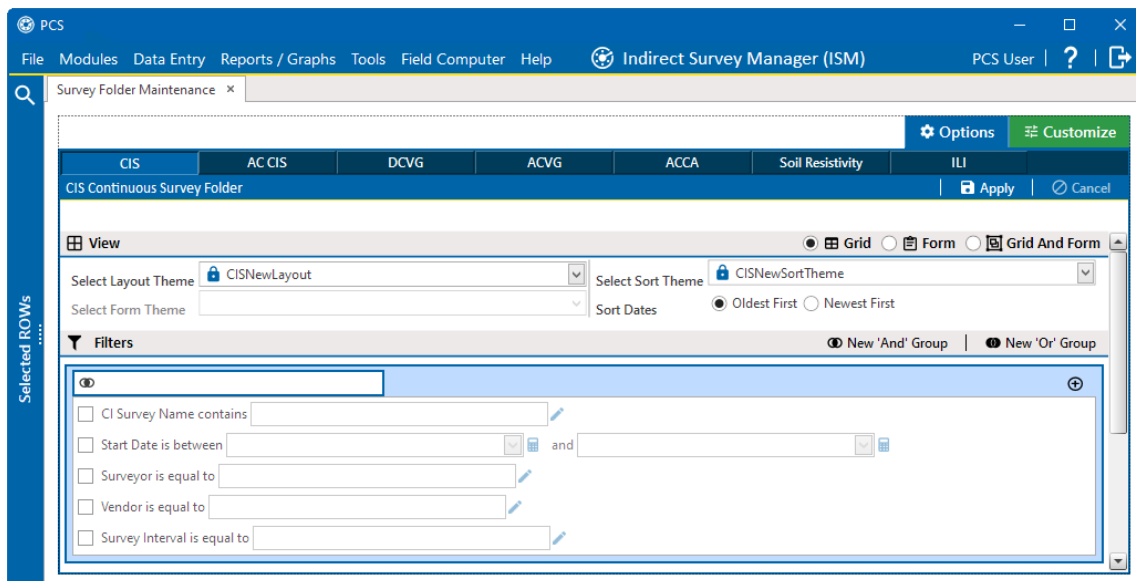


Figure 6-47. CIS Continuous Survey Folder Window

3. Ensure that the **Options** tab is selected. The filters will display in the *Filters* pane.

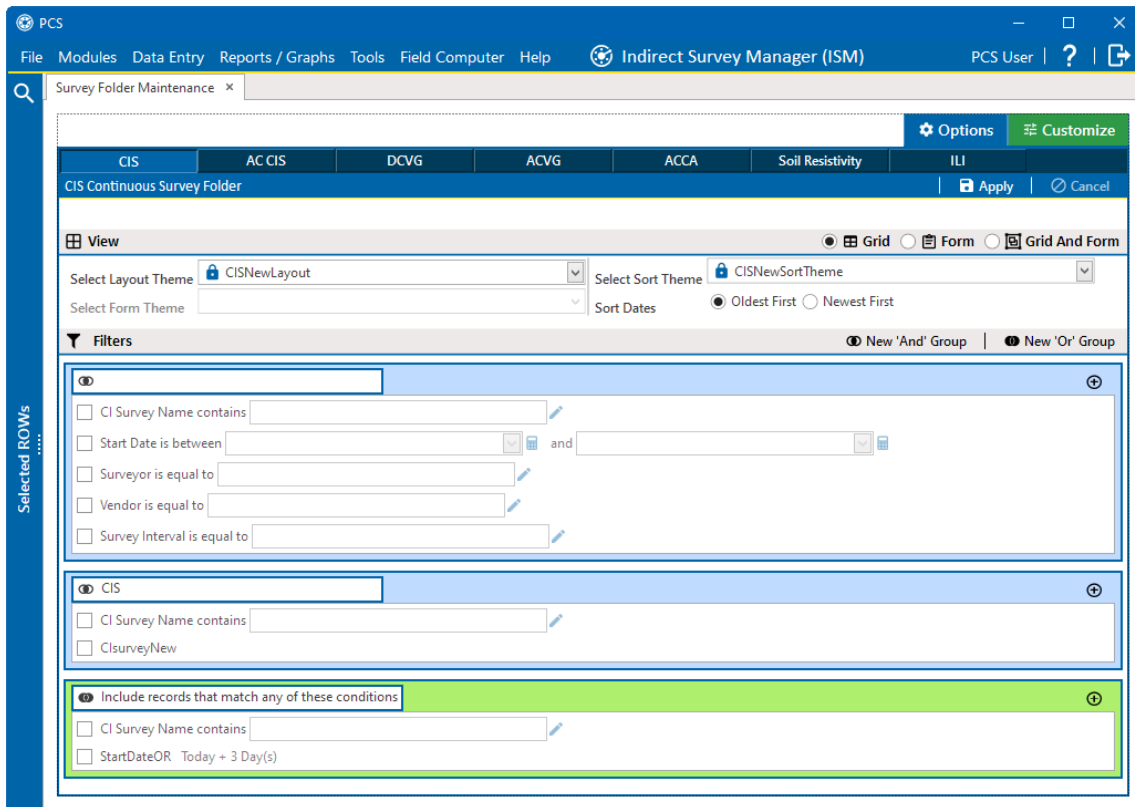




Figure 6-48. Options Window - New Filters in Filters Pane

4. Click the check box for each filter you want to apply.
5. Click  **Apply** to save changes and return to the data entry grid.
6. To remove a filter that has been applied, open the *Options* window and de-select any filter you no longer want to apply. Then click  **Apply** to save changes and return to the data entry grid.

Routes

A route is a user-created list of facilities for inspection. You can include facilities for one or more facility types in the same route, such as test points, valves, and atmospheric. The main advantage in a route is the ability to arrange facilities in a particular order that is more suitable in a survey. For example, you can arrange facilities in survey order instead of numerically by ROW Code and milepost number.

Routes are used in several areas of PCS. You can view inspection records in a grid based on a route, transfer a survey to the field computer or other mobile device based on a route, and generate reports based on a route.

Most PCS users can work with routes.

This chapter includes the following topics:

- [Create a Route on page 442](#)
- [Routes Quick Start on page 446](#)
- [Change the Order of Facilities on page 450](#)
- [Prepare a Route for an Averaged Reading Survey on page 452](#)
- [Prepare a Route for Inspection GPS Fields on page 469](#)
- [Work with Themes and Filter Groups on page 484](#)
- [Print, Export, or Email a Route on page 504](#)
- [Export and Import a Route on page 508](#)
- [Use a Route in PCS on page 509](#)

Create a Route

The following information explains how to create a route with a list of facilities for inspection. Facilities for inspection are based on the pipeline segment(s) you select in the *Select ROWs* window. These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to create a route:

1. Click **Data Entry > Define Routes**.
2. Click **+** Add. the *Add New Route* window opens.

NOTE: If this is the first route to be created, the window will automatically open.

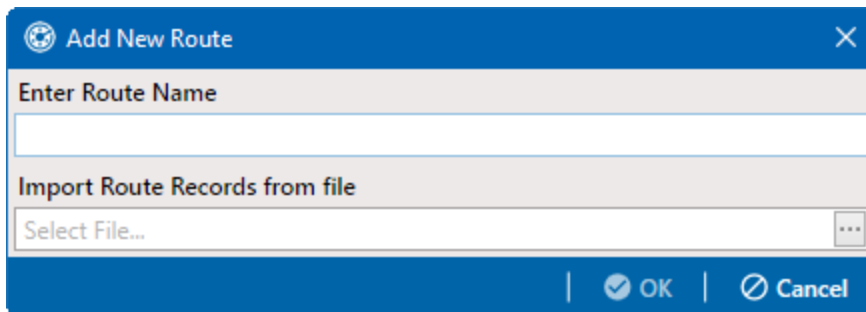


Figure 7-1. Add New Route

3. Type a name for the new route in the **Enter Route Name** field.
4. If necessary, click the ellipsis button in the **Import Route Records from file** field to select a file to import records into the route. Select the file and click **Open**.
5. Click **OK** in the *Add New Route* window..
6. Select the facility type(s) you want to work with using the method described in either of the following sets of steps:
 - a. To select a facility type, click the facility type option button and then click the down arrow and select a facility type in the list, such as **[PCS] Rectifier Survey**.

Facility Types

[PCS] All Facility Types

Ad Hoc Theme

CPDM

Test Point

Rectifier

Foreign Bond

Galvanic Anode

Tank

VM

Valve

ACM

Atmospheric

ICM

Coupon

Samples

Probe

Inhibitor Injector

LSM

Leak Survey

CMA

Facility1

Figure 7-2. Facility Type Theme Option

- b. To select multiple facility types, click **Ad Hoc Theme** radio button and then select one or more facility types in the CPDM, VM, ACM, ICM, LSM, or CMA sections.

An Ad Hoc Theme only applies to the current session and is not saved. A facility type is selected when a check mark appears inside the check box. To clear the check mark, click the check box again.

Facility Types

[PCS] All Facility Types

Ad Hoc Theme

Select All Clear All

CPDM

- Test Point
- Rectifier
- Foreign Bond
- Galvanic Anode
- Tank

VM

- Valve

ACM

- Atmospheric

ICM

- Coupon
- Samples
- Probe
- Inhibitor Injector

LSM


- Leak Survey

CMA

- Facility1

Figure 7-3. Ad Hoc Theme Option

7. Select which facilities to include in the route in the *Facilities Available* grid:
 - a. To include all facilities, click **+** Add All and then click **Yes** when the *Add All* message opens.

- b. To only include facilities you select, select individual facilities in the *Facilities Available* grid. Or double-click each facility.
8. Click  **Save** to save changes. The route is saved, and the grid is updated.

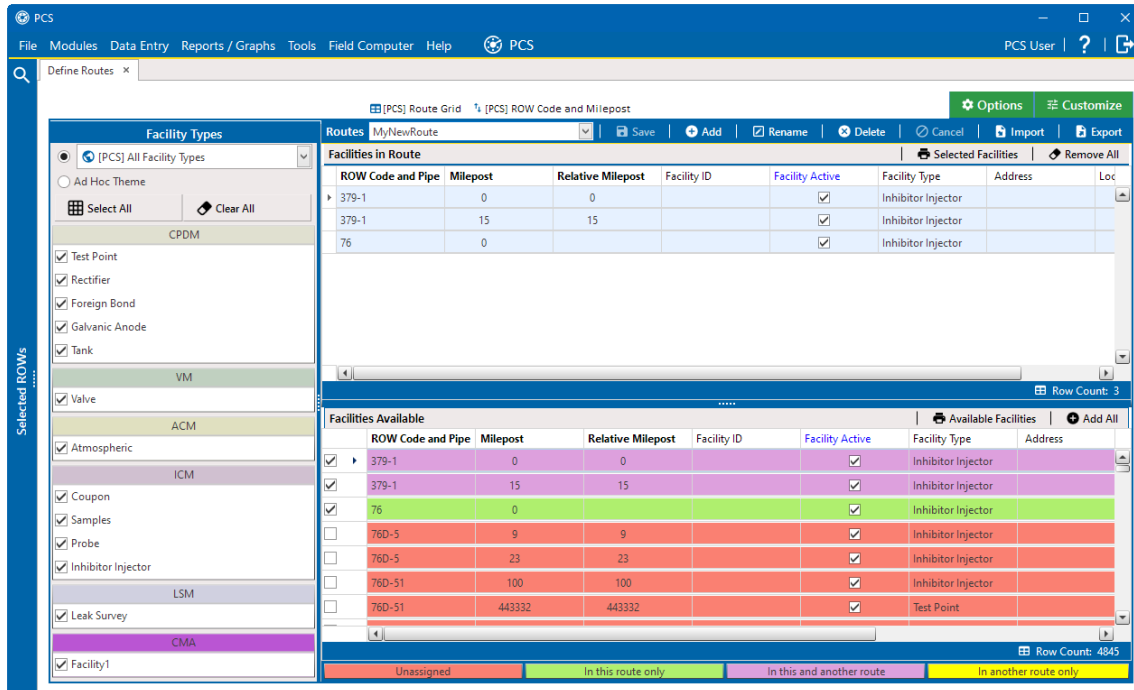


Figure 7-4. Define Routes

Routes Quick Start

Information in this section assumes one or more routes have previously been created. If no routes exist, review [Create a Route on page 442](#).

The following procedure explains how to display and set properties in a route. Property settings include selection of a layout and sort theme. Both of these themes determine how PCS displays facility records in a route.

As an option, you can also set up one or more filter groups that apply only to the current session. A filter group filters data in a route by including or excluding certain facility records. It allows you to work with a subset of facility records for the currently selected ROW based on filter selection criteria.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to display and set properties for a route:

1. Click **Data Entry > Define Routes** to open the *Define Routes* window.

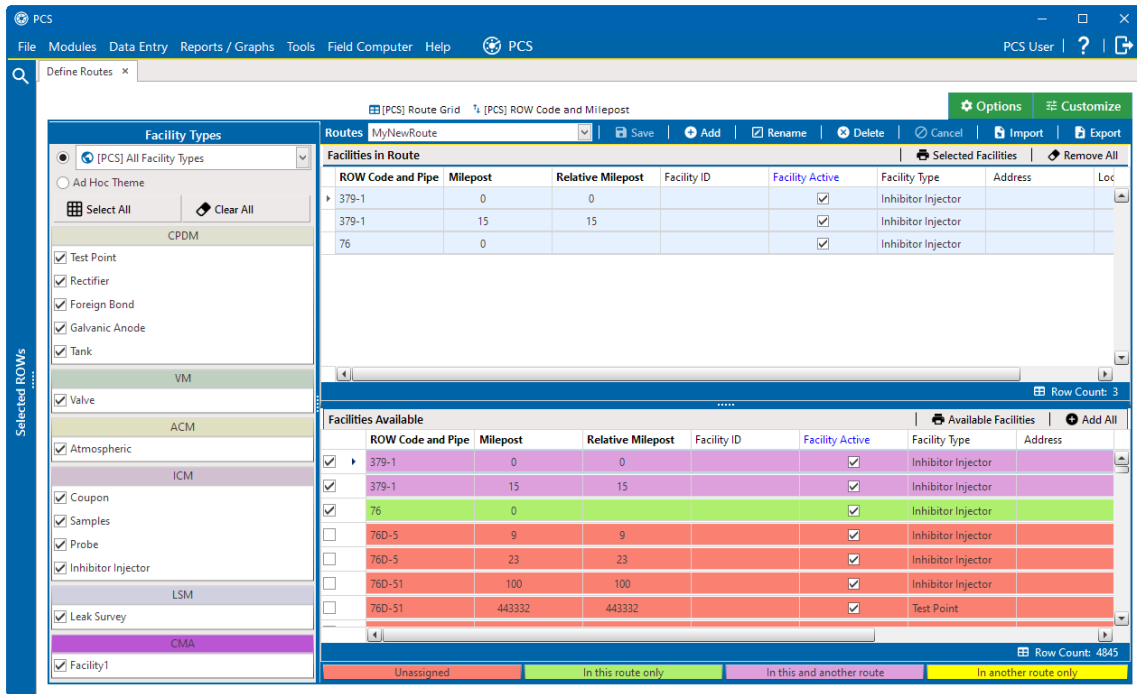


Figure 7-5. Define Routes Window

2. Select a route from the **Routes** drop-down list.

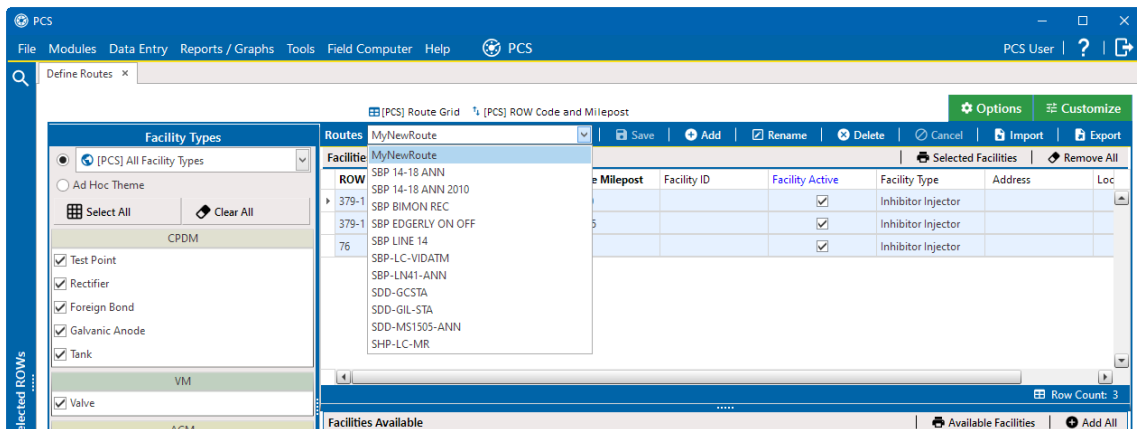


Figure 7-6. Define Routes Selection List

3. Click the **Options** tab to open the *Options* window.

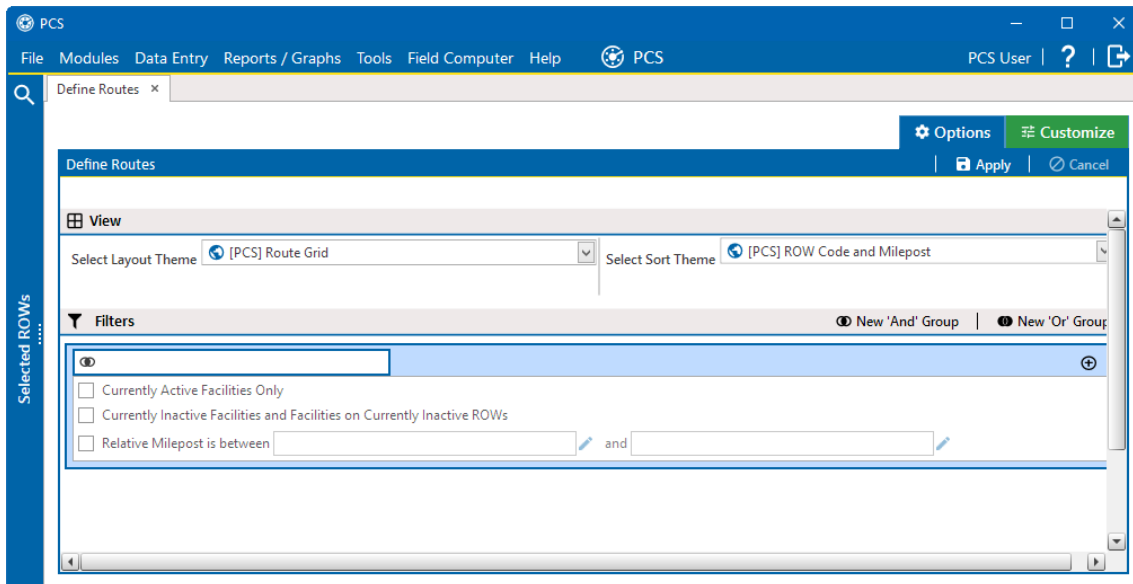


Figure 7-7. Define Routes Options

4. select a layout theme from the **Select Layout Theme** drop-down list and a sort theme from the **Select Sort Theme** drop-down list.
5. If you want to filter records in the grid and route, complete the following steps. Filter settings in the *Define Routes Options* window apply only to the current session and are not saved. See [Work with Themes and Filter Groups on page 484](#) for information about saving filter settings in a theme.
 - a. To apply a predefined filter, select one or more options in the **Filters** pane and then click **Apply**.
A check mark inside a check box indicates a selection. To clear a selection, click the check box again to remove the check mark.
 - b. To add a new filter to an existing filter group, click the \oplus icon within a field group and then use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.

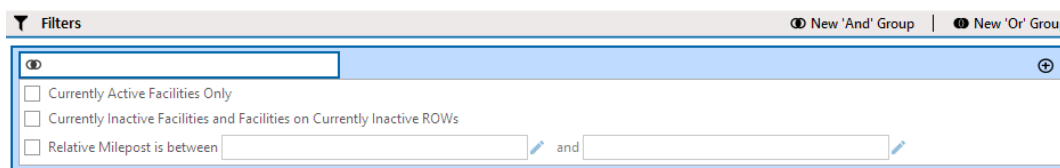


Figure 7-8. Filter Group

- c. To create a new filter, first decide if you need to add an AND filter group or an OR filter group. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.
- i. To create a new And group, click **New 'And' Group** to open the filter properties group box.

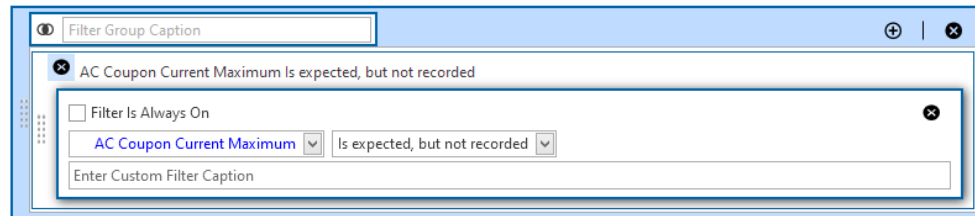


Figure 7-9. And Group Filters

- ii. To create a new Or group, click **New 'Or' Group** to open the filter properties group box.

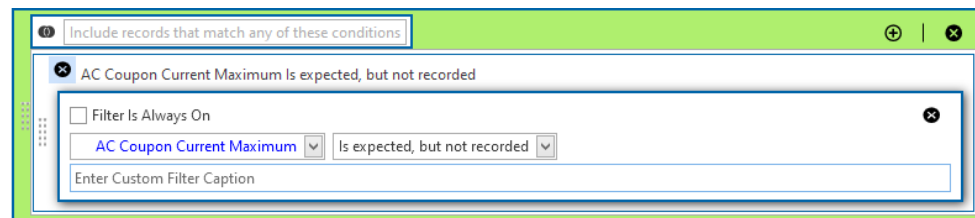








Figure 7-10. Or Group Filters

- iii. Type a name for the filter group in the **Filter Group Caption** field.
- iv. Select the **Filter Is Always On** option to keep the filter on.
- v. Use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
1. When adding a date filter, set a date range using a calendar or dynamic dates in one of the following ways:
 - Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.
 - To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the  calculator icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
2. Type a name for the filter in the **Enter Custom Filter Caption** field.
 3. If additional filters are needed within the filter group, click  and repeat these steps.
 - vi. If necessary, click the  edit icon for a filter to open that filter's property settings and change settings as needed.
 - vii. Click  **Save** to save the filter group.
 - viii. Click  **Save and Close** when finished saving all filter groups.
 6. Click  **Apply** to save and apply changes. PCS closes the options page and returns to the *Define Routes* window.

Change the Order of Facilities

The order of facilities shown in the *Facilities in Route* grid identifies the facility order used in a route. You can easily change the order of facilities by dragging and dropping one or more grid rows to a different location in the grid. Changing the order allows you to arrange facilities based on particular criteria, such as arranging facilities in the order a survey is taken.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to change the order of facilities in a route:

- Click **Data Entry > Define Routes**. Select a route from the **Routes** drop-down list.

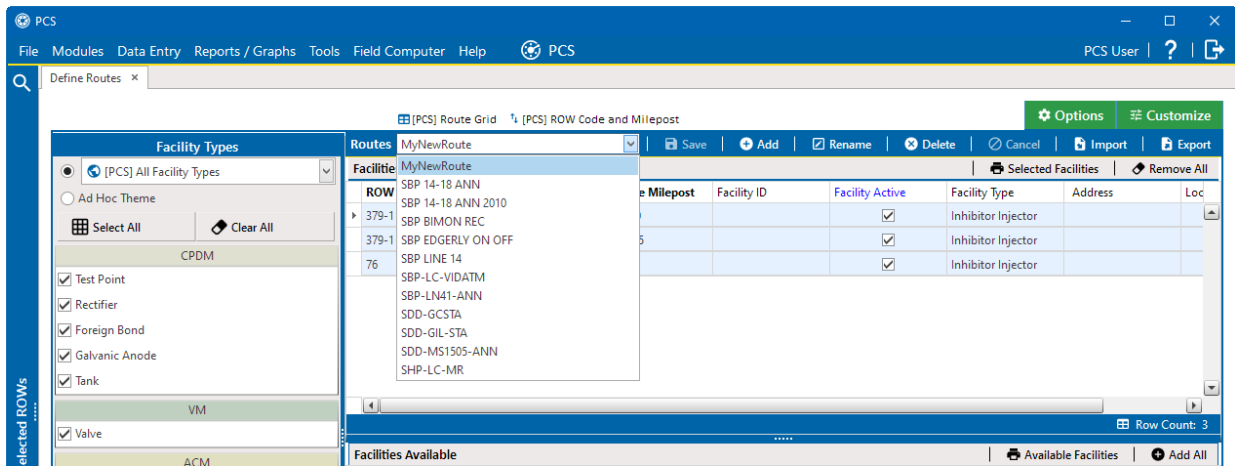


Figure 7-11. Defined Routes

- Arrange the order of facilities listed in the *Facilities in Route* grid as needed using any of the following methods:

- To move a single grid row, select the row, then drag and drop the row in a different location in the grid. Click **Save** to save changes.

A message displays when moving selected grid rows to confirm the new location in the grid.

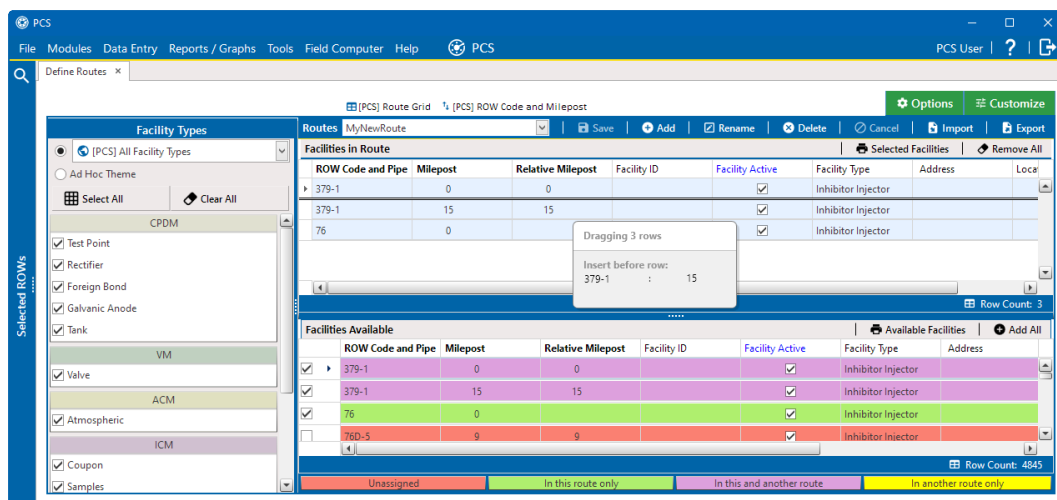



Figure 7-12. Arranging the Order of Facilities

- To move a group of consecutive grid rows, click the first row, press and hold the **Shift** key, then click the last row. Drag and drop selected rows in a different location in the grid. Click **Save** to save changes.

- c. To move a group of non-consecutive grid rows, press and hold the **Ctrl** key, then click each row you want to select. Drag and drop selected rows in a different location in the grid. Click  **Save** to save changes.

Prepare a Route for an Averaged Reading Survey

This topic only applies to the CPDM module.

You can prepare and send a survey to a field computer or mobile device based on a route with facilities in an averaged reading survey. Facilities for inspection are also set up with timed reading fields in the *Test Point Information* and *Inspection* data entry grid.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Refer to the following topics for more information on preparing a route for an averaged reading survey:

- [Add Timed Reading Fields in the Information Grid](#)
- [Add Timed Reading Fields in the Inspection Grid on page 456](#)
- [Edit a Route for an Averaged Reading Survey on page 458](#)
- [Send a Survey Based on a Route with Facilities on page 460](#)

Refer to the following Allegro or mobile device user guides for more information on using these devices:

- [Allegro QX Support Site](#).
- [CartoPac Cathodic Protection Support Site](#) for the Allegro AX and Mesa 3.

Add Timed Reading Fields in the Information Grid

Timed reading fields are added in the *Test Point Information* data entry grid to allow data entry of inspection readings in the *Test Point Inspection* data entry grid for an averaged reading survey. Information in this section explains how to add timed reading fields in a layout theme and then apply the theme to the *Information* data entry grid.

Complete the following steps to add timed reading fields in the *Information* grid:

1. Click **Data Entry > Edit CPDM Data**.
2. Click the **Information** tab and then the **Test Point** tab to open the *Test Point Information* data entry grid.

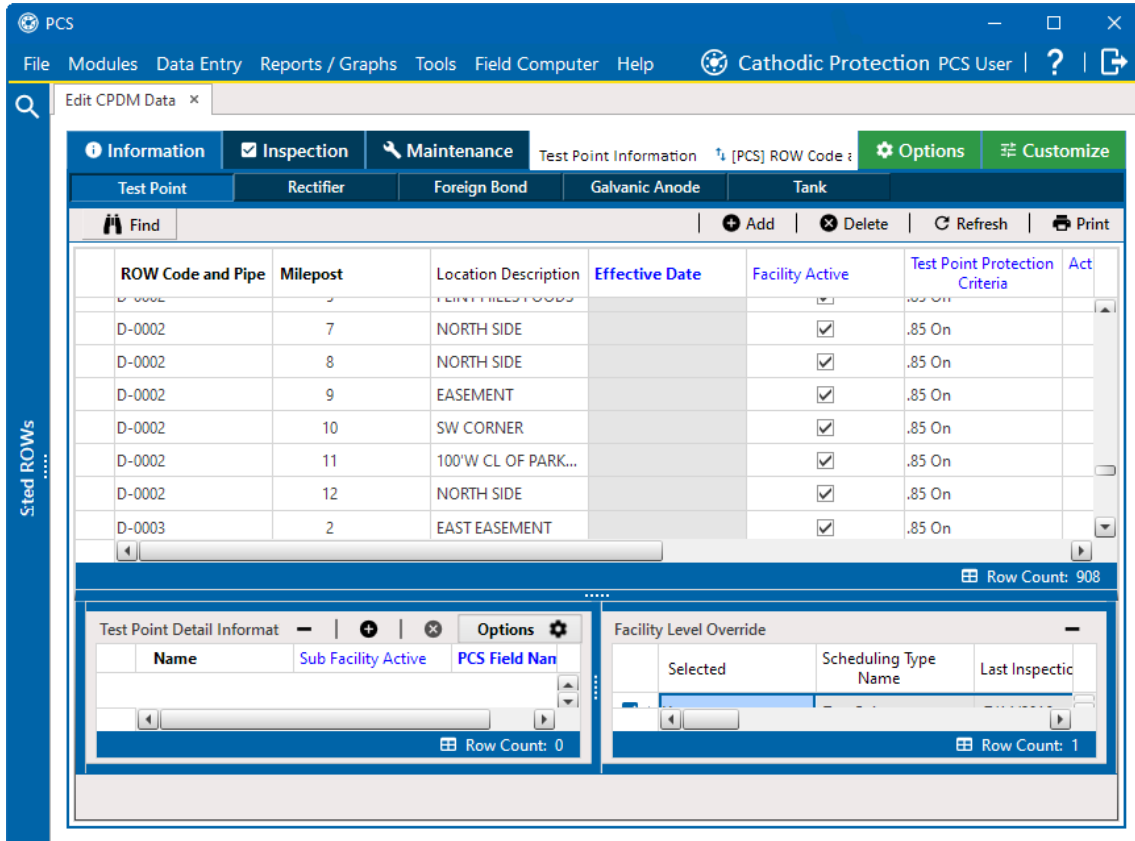


Figure 7-13. Test Point Information Data Entry Grid

3. Click the **Customize** tab to open the *Layouts* window.

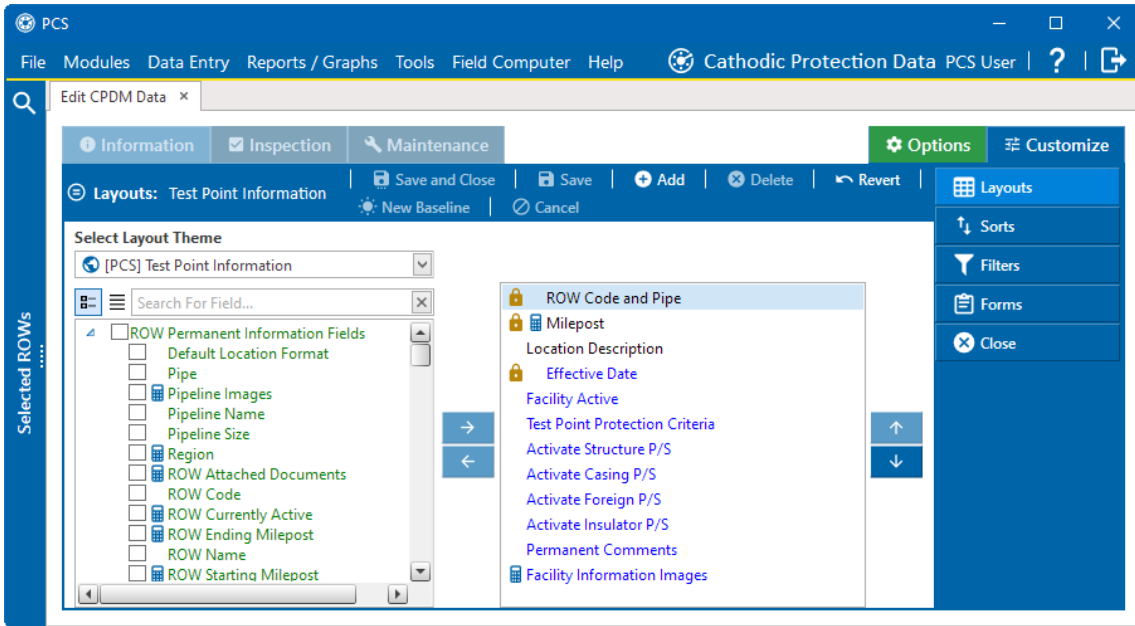


Figure 7-14. Layouts

4. Select a data entry grid layout theme from the **Select Layout Theme** drop-down list.
5. Click ▶ **Test Point Information Fields** in the left pane of the window to expand the list of fields available for selection.

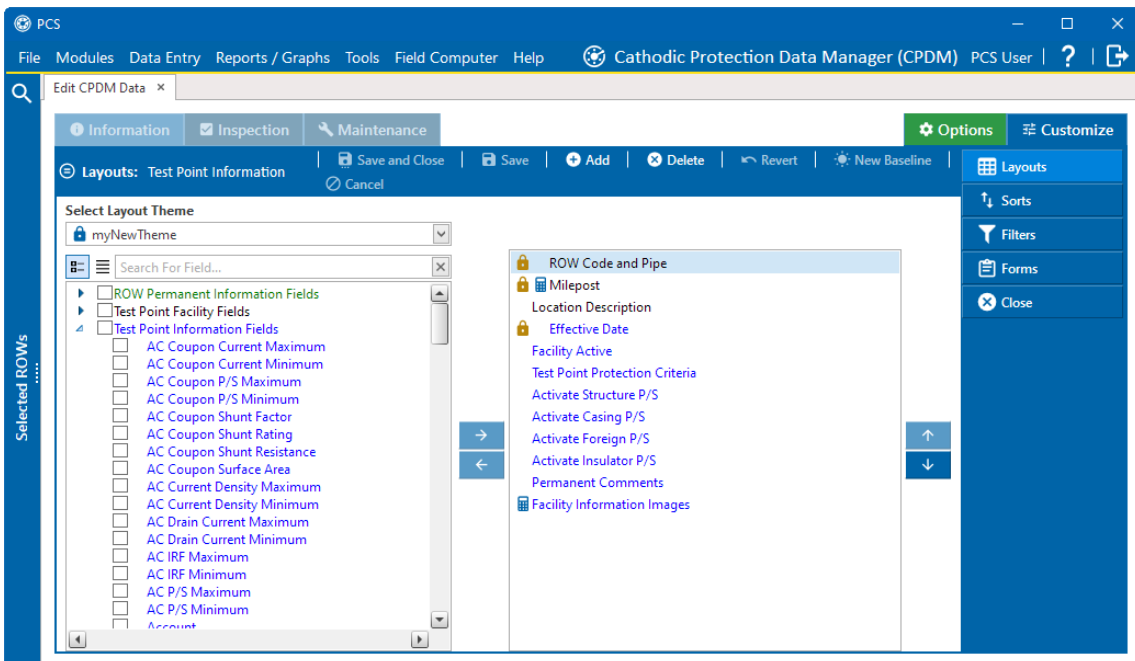




Figure 7-15. Test Point Information Fields

6. Add the following list of timed reading fields in the layout theme. To add fields, double-click each timed reading field listed in the left pane of the *Layouts* window to move fields to the right pane. Add other fields as required. The data entry grid layout theme includes all fields listed in the right pane of the *Layouts* window.
 - Activate Average P/S
 - Activate Max P/S
 - Activate Min P/S
 - Activate P/S Sample Time
7. Click  **Save and Close**. The *Options* window displays.
8. In the *Options* window, select the layout theme with timed readings from the **Select Layout Theme** drop-down list to apply the layout theme to the data entry grid.
9. Click  **Apply** to save and apply changes. PCS closes the options page and returns to the *Test Point Information* data entry grid.
10. In each column labeled with an "Activate" timed reading field, click the check box associated with the facility you plan to record timed readings in a field computer or mobile device.

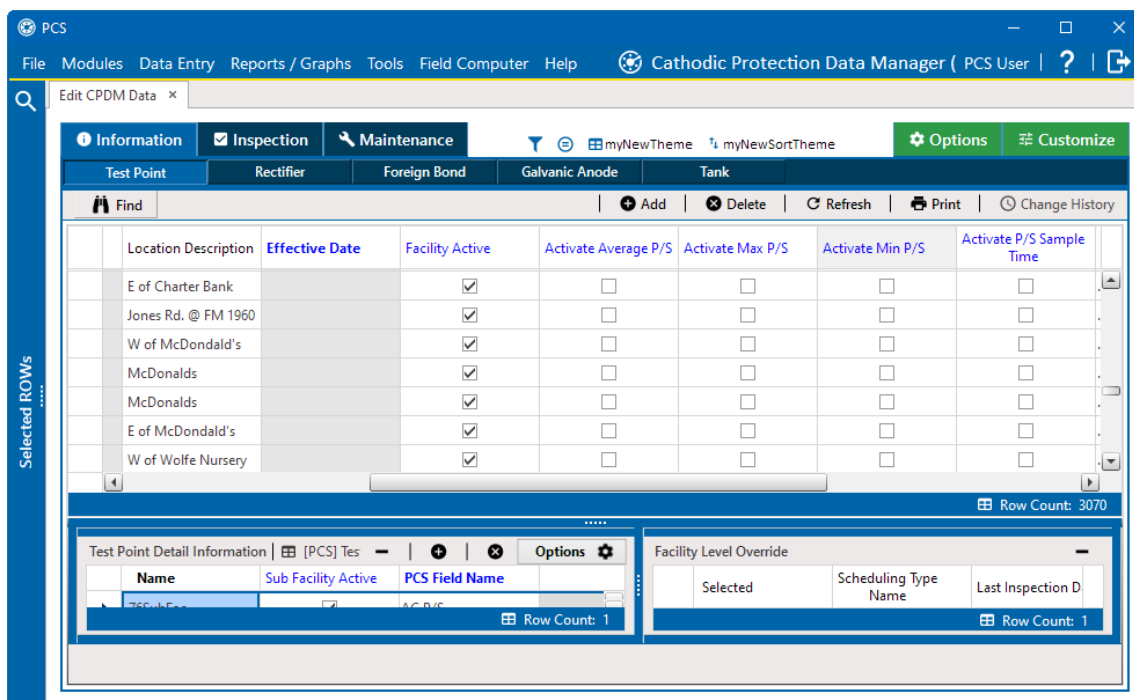


Figure 7-16. Test Point Information Data Entry Grid

Add Timed Reading Fields in the Inspection Grid

Complete the following steps to add timed reading fields in a layout theme and then apply the theme to the *Test Point Inspection* data entry grid:

1. Click **Data Entry > Edit CPDM Data**.
2. Click the **Inspection** tab and then the **Test Point** tab to open the *Test Point Information* grid.

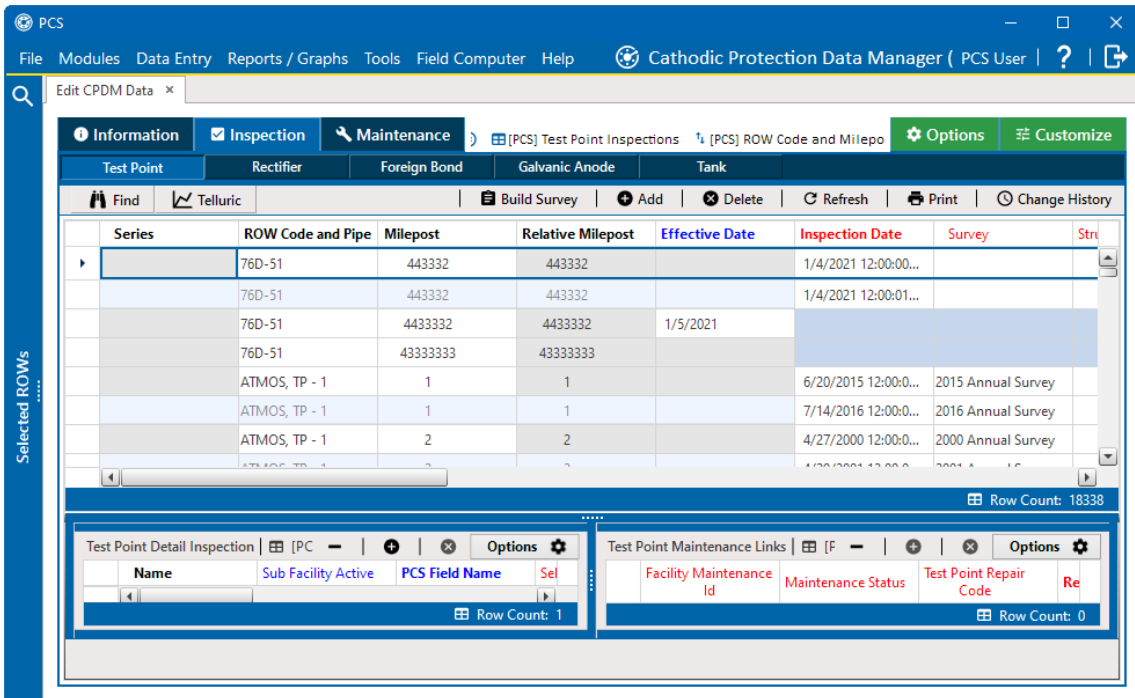


Figure 7-17. Test Point Information Data Entry Grid

3. Click the **Customize** tab to open the *Layouts* window.

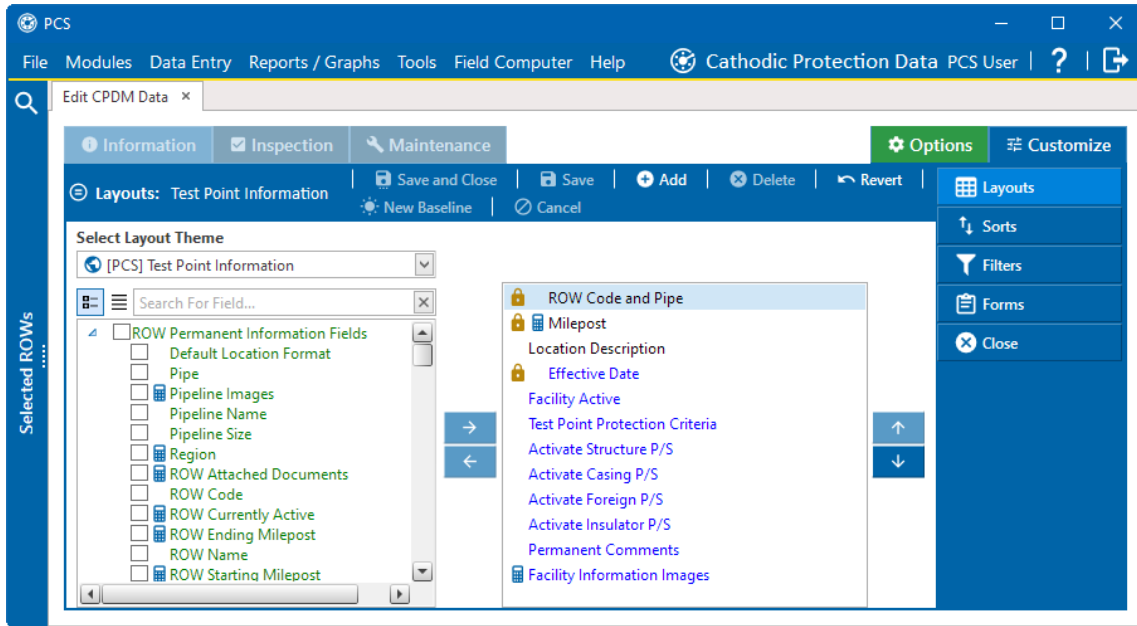


Figure 7-18. Layouts

4. Select a layout theme from the **Select Layout Theme** drop-down list.
5. Click ► **Test Point Inspection Fields** in the left pane of the window to expand the list of fields available for selection.

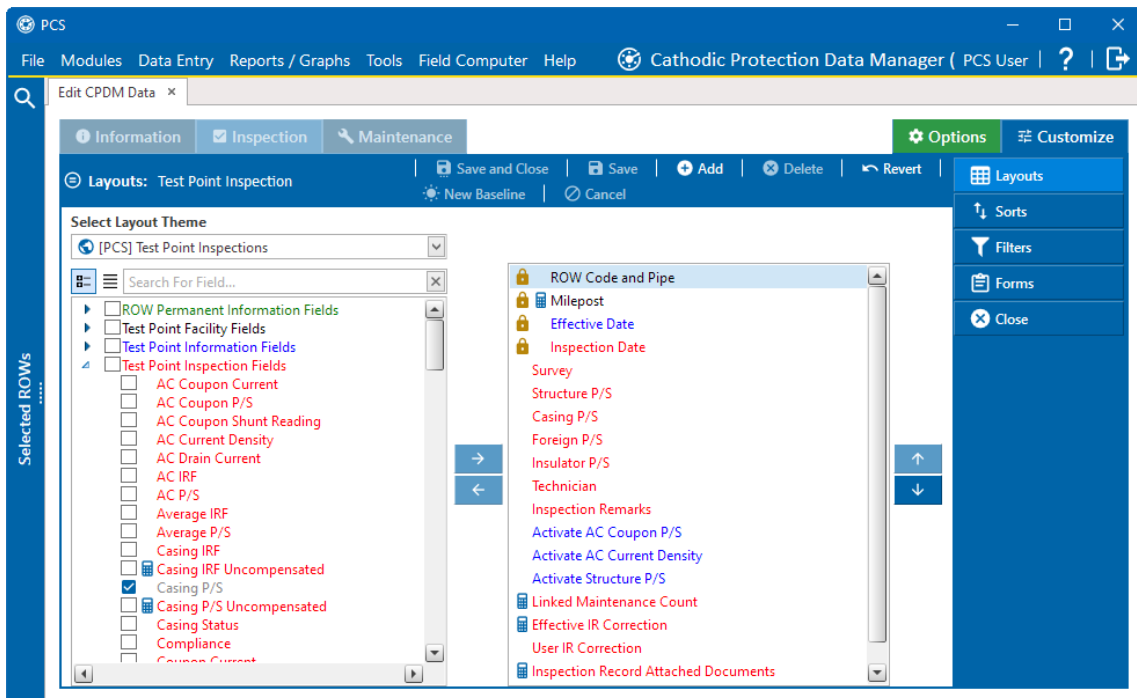




Figure 7-19. Test Point Inspections Fields Expanded

6. Add the following list of timed reading fields in the layout theme. To add a field, double-click a timed reading field listed in the left pane to move the field to the right pane. Add other fields as required. The layout theme includes all fields listed in the right pane of the *Layouts* page.
 - Average P/S
 - Max P/S
 - Min P/S
 - P/S Sample Time
7. Click  **Save and Close**.

Edit a Route for an Averaged Reading Survey

Complete the following steps to set up a route with facilities for inspection in an averaged reading survey:

1. Click **Data Entry > Define Routes**.
2. Select a route from the **Routes** drop-down list.
3. Select  **[PCS] Test Point Survey** from the **Facility Types** drop-down list or select **Ad Hoc Theme** and then the **Test Point** check box.

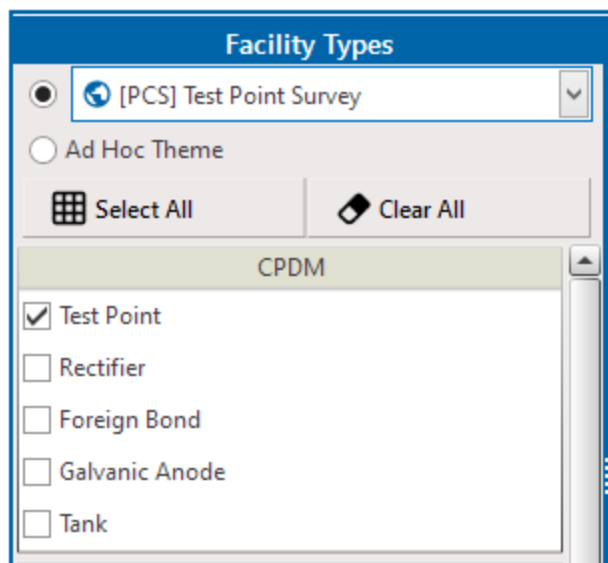


Figure 7-20. Select Timed Reading Theme

4. In the *Facilities Available* grid, select which facilities to include in the route. To include all facilities, click **+** Add All and then **Yes** in the *Add All* message. To only include facilities you select, click the check box for each facility in the *Facilities Available* grid (or double-click each facility).

Selected facilities display in the *Facilities in Route* grid.


	ROW Code and Pipe	Milepost	Relative Milepost	Facility ID	Facility Active	Facility Type	Address
<input checked="" type="checkbox"/>	379-1	0	0		<input checked="" type="checkbox"/>	Inhibitor Injector	
<input checked="" type="checkbox"/>	379-1	15	15		<input checked="" type="checkbox"/>	Inhibitor Injector	
<input checked="" type="checkbox"/>	76	0			<input checked="" type="checkbox"/>	Inhibitor Injector	
<input type="checkbox"/>	76D-51	443332	443332		<input checked="" type="checkbox"/>	Test Point	
<input type="checkbox"/>	76D-51	443332	443332		<input checked="" type="checkbox"/>	Test Point	

Figure 7-21. Facilities Available Grid

5. In the *Facilities in Route* grid, arrange the survey order of facilities listed as needed using any of the following methods:
 - a. To move a single grid row, select the row, then drag and drop the row in a different location in the grid. A message displays when moving selected grid rows to confirm the new location in the grid.

ROW Code and Pipe	Milepost	Relative Milepost	Facility ID	Facility Active	Facility Type	Address
379-1	0	0		<input checked="" type="checkbox"/>	Inhibitor Injector	
379-1	15	15		<input checked="" type="checkbox"/>	Inhibitor Injector	
76	0			<input checked="" type="checkbox"/>	Inhibitor Injector	

Figure 7-22. Arranging the Order of Facilities

- b. To move a group of consecutive grid rows, click the first row, press and hold the **Shift** key, then click the last row. Drag and drop selected rows in a different location in the grid.
 - c. To move a group of non-consecutive grid rows, press and hold the **Ctrl** key, then click each row you want to select. Drag and drop selected rows in a different location in the grid.
6. Click  **Save** to save changes.

Send a Survey Based on a Route with Facilities

Information in this section explains how to send a survey to the Allegro based on a route with facilities in an averaged reading survey. The process includes adding a theme with prompts for timed reading fields. Prompts are data entry fields in an Allegro survey file that require survey data, such as an inspection reading at each facility location. These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to send a survey to the field computer or mobile device:

1. Verify the field computer or mobile device is connected to your computer. If needed, refer to the device's user guide for information about how to connect the device.
2. Click **Field Computer > Send** to open the *Field Computer Send* window.

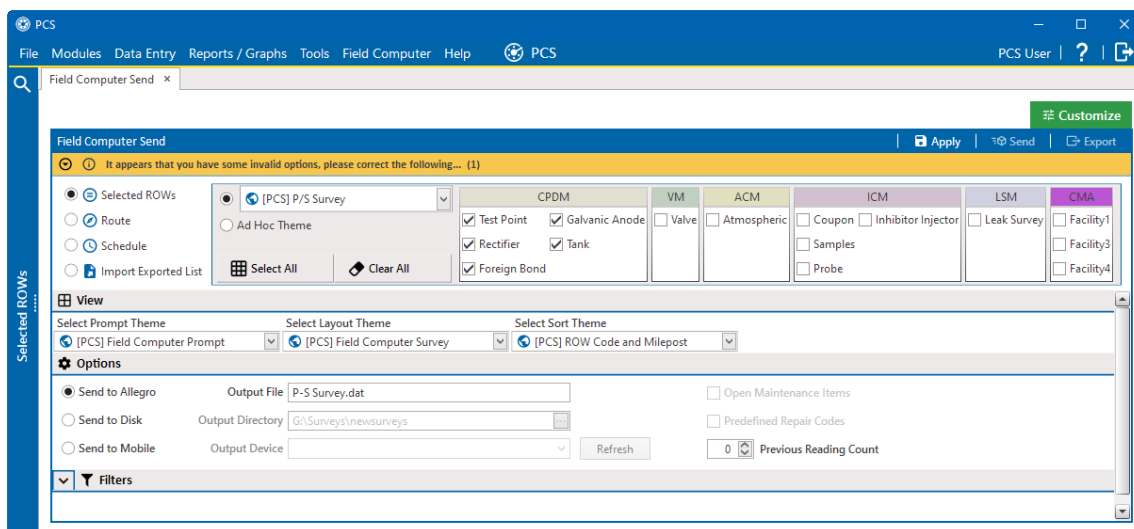


Figure 7-23. Field Computer Send

3. Click the **Customize** tab and then the **Prompts** tab to open the *Prompts* window.

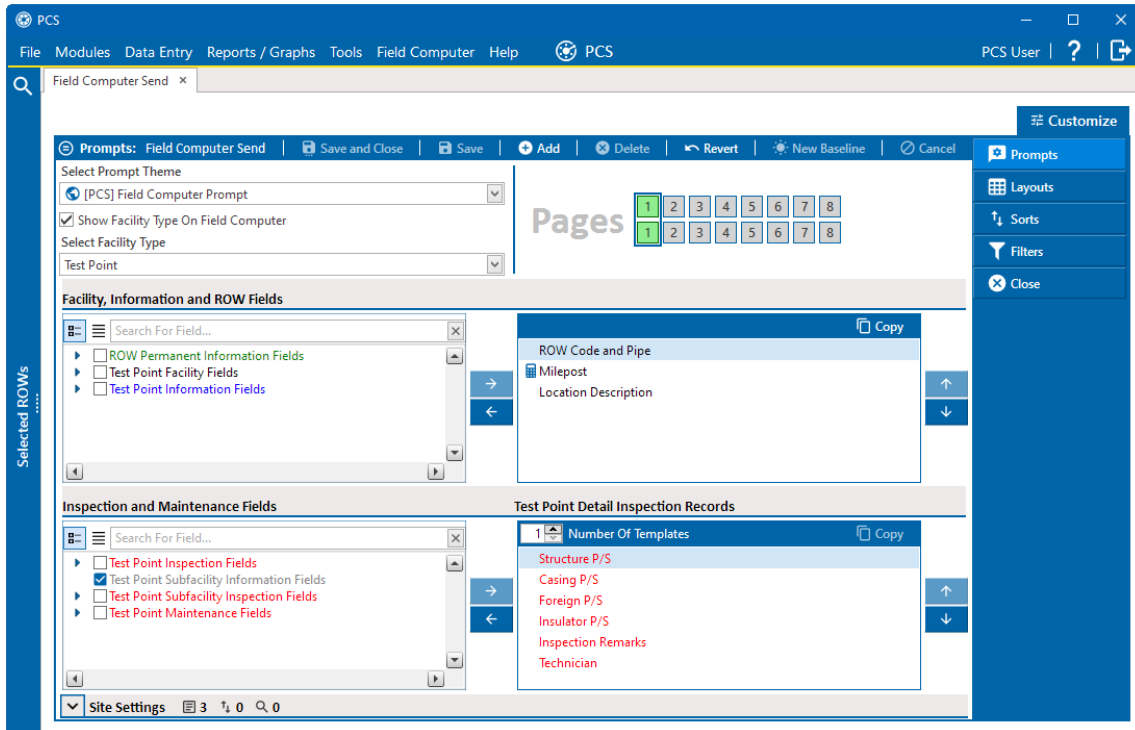




Figure 7-24. Prompts

4. Click  **Add** to open the *New Prompt* window. Required fields are identified with the  icon and must be completed to continue.

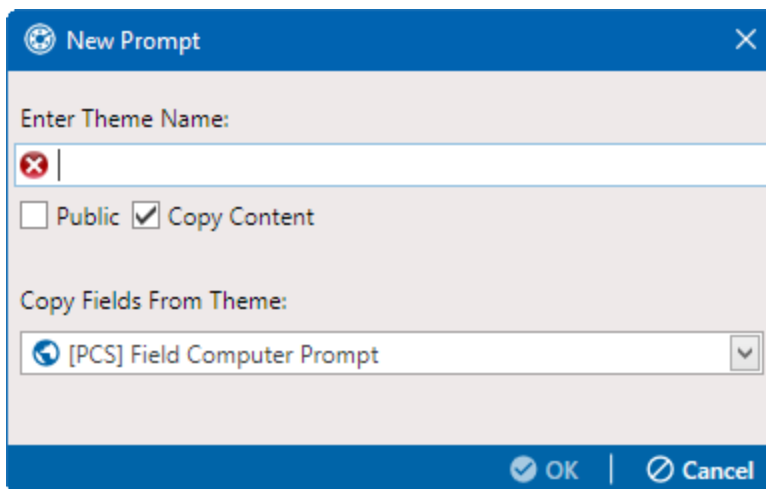


Figure 7-25. New Prompt

5. Type a name for the theme in the **Enter Theme Name** field.

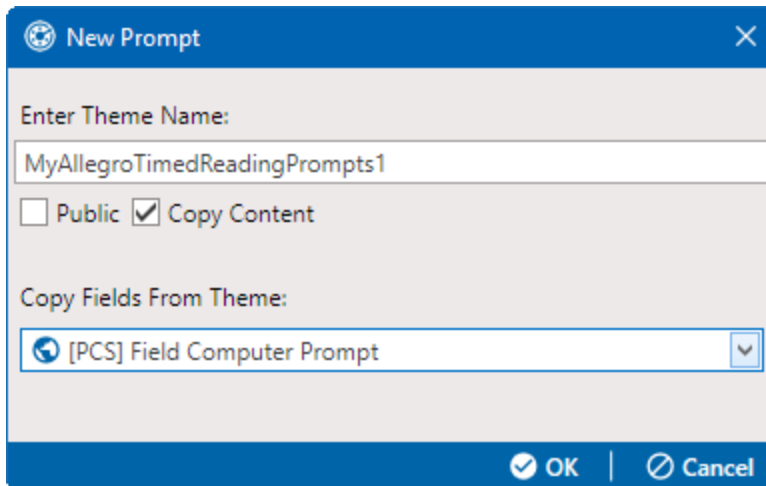


Figure 7-26. New Prompt

6. If you want to create a public theme, select the **Public** check box. When the check box is empty, the theme saves as a private theme.
7. If you want to copy fields from an existing theme, select the **Copy Content** check box and then select a theme from the **Copy Fields From Theme** drop-down list. If you do not want to copy fields from an existing prompt theme, clear the check mark inside the **Copy Content** check box.
8. Click **OK** to save changes and return to the *Prompts* window.
9. Verify the name of the new theme displays in the **Select Prompt Theme** field. If not, select the theme in the selection list.
10. Select **Test Point** from the **Select Facility Type** drop-down list.

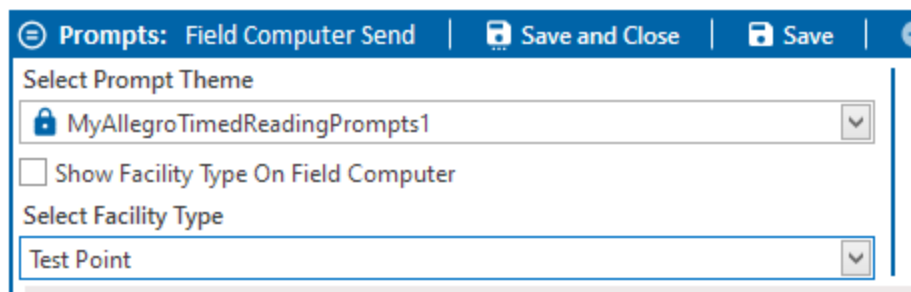


Figure 7-27. Timed Reading Theme and Test Point Facility Selected

11. Add fields from the *Facility, Information and ROW Fields* pane's left pane to the right pane.
 - a. Click to view the list of fields in an un-expanded view. Click the to expand individual lists.

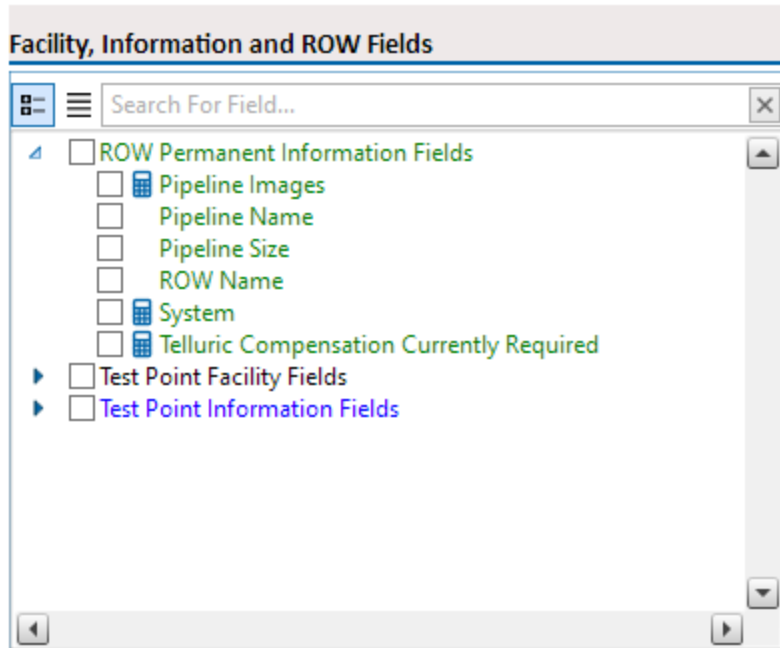


Figure 7-28. Expand One Set of Fields

- b. Click ≡ to view all the list of fields in an expanded view.

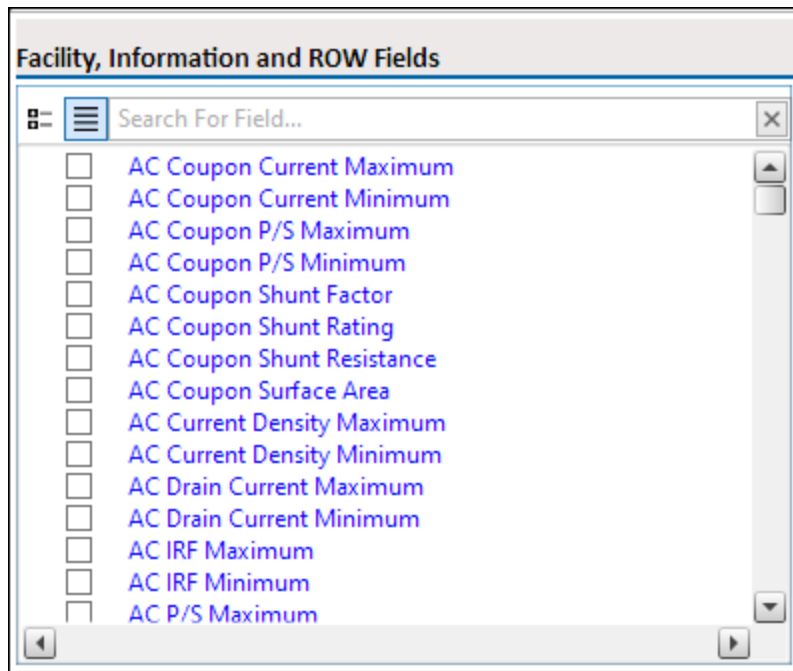







Figure 7-29. All Fields Expanded

- c. Select fields and then click the  button to move it to the right pane. You can also double-click the field to move it. To move it back to the left pane, click the  button.
 - d. To rearrange the order of the fields in the left pane, use the  and  buttons. You can also click and drag field names to move them.
- All fields listed in the right pane are included in the prompt theme.
12. Add the following timed reading prompts from the *Inspection and Maintenance Fields* left pane to the right:
 - Average P/S
 - Max P/S
 - Min P/S
 - P/S Sample Time
 13. Complete the following steps to add site string prompts that help identify one facility from another when using the field computer or mobile device. Site string prompts are included with each facility and can be viewed in the device's *Site List* window.
 - a. Click  **Site Settings** (below the *Inspection and Maintenance Fields* pane) to view a list of fields available for selection.

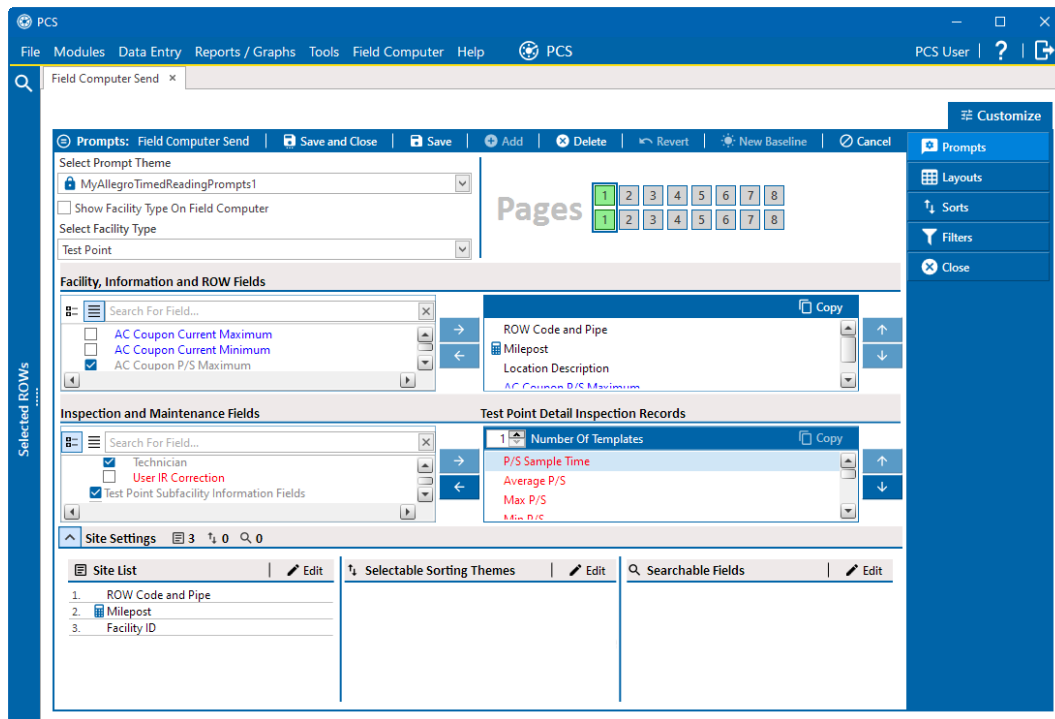


Figure 7-30. Site Settings Fields

- b. Double-click one or more fields in the selection list to move fields to the right pane.
14. If you want to add another page of prompts, click a page number in the *Pages* pane and add fields from *Facility, Information and ROW Fields* and *Inspection and Maintenance Fields* panes.

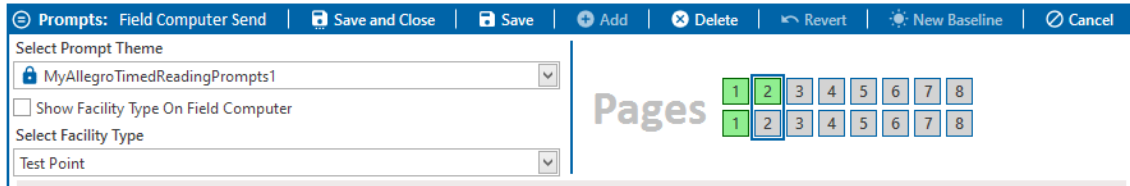



Figure 7-31. Pages Selection

To make a copy of the first page, click the  **Copy** in either left side pane to copy Page 1 to a new page. The following image shows Page 2 with a copy of Page 1's Facility, Information and ROW Fields included.

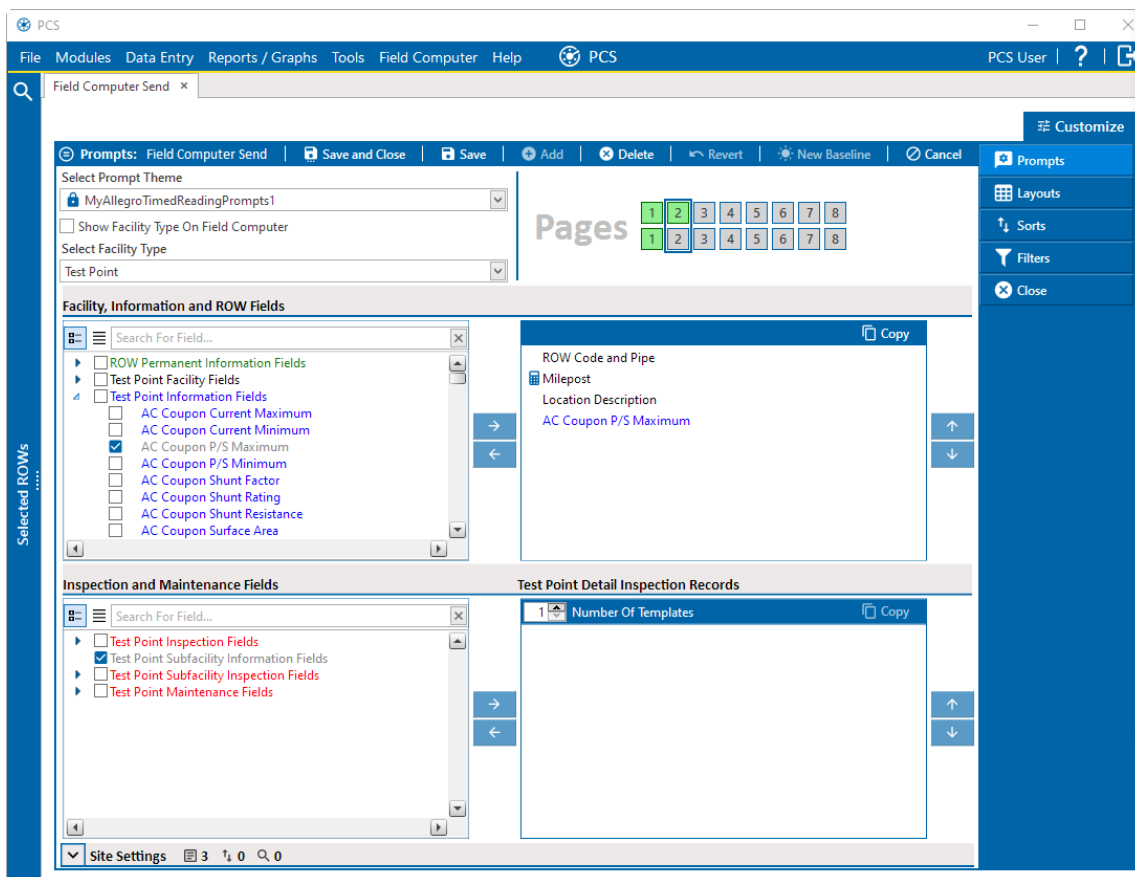




Figure 7-32. Creating Page 2 From Page 1

15. Repeat as needed.
16. Click  **Save and Close** to save changes and return to the *Field Computer Send* window.
17. Click the **Route** option and select a route in the selection box. Then click  **Apply** to update the grid.

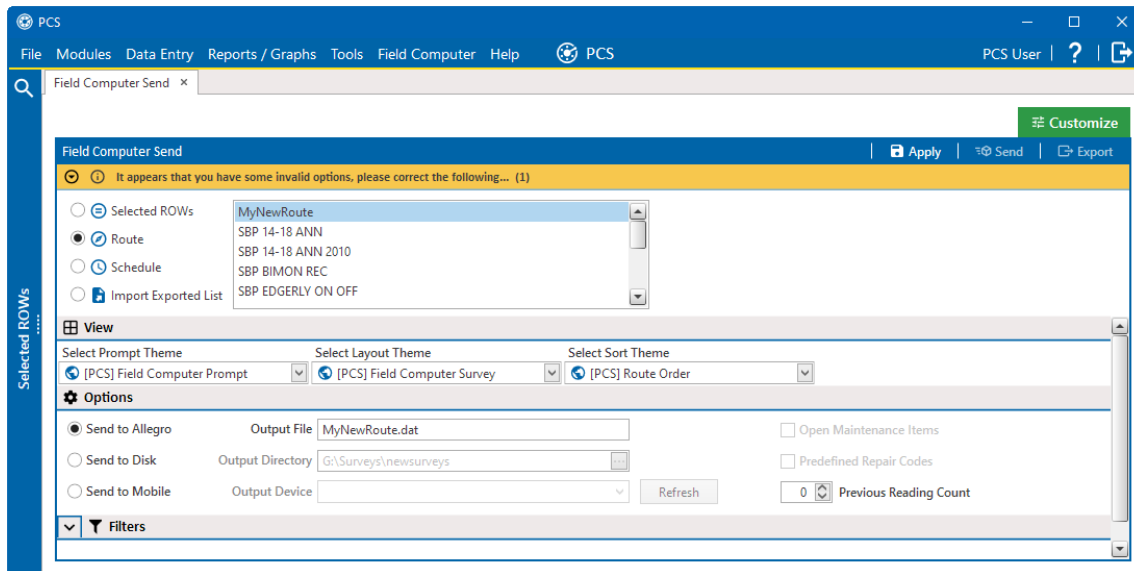



Figure 7-33. Field Computer Send - Route

18. Select a theme with timed reading fields from the **Select Prompt** drop-down list.
19. Select a layout theme from the **Select Layout Theme** drop-down list.
20. Select a sort theme from the **Select Sort Theme** drop-down list.
21. Select the **Send to Allegro** (for Allegro MX or QX) or **Send to Mobile** (for Allegro AX, Mesa 3, or other mobile device) radio button in *Options* pane, depending on the device you are using.
22. If you selected the **Send to Allegro** options, and you want to rename the survey file, type a name in the **Output File** field. Be sure to include the `.dat` file extension.
23. If you selected the **Send to Mobile** options, select the device from the **Output Device** drop-down list.
24. If the **Open Maintenance Items** check box is available for selection, click the check box if you want to include open maintenance records in the survey file.

When the selected prompt theme includes maintenance prompts, the **Open Maintenance Items** check box is available for selection. It is disabled and unavailable for selection when maintenance prompts are not included in the currently selected prompt theme.

25. If you want to filter records in the grid and in the route sent to the Allegro, click the  in the *Filters* pane to open it.

Filter settings in *Field Computer Send* apply only to the current session and are not saved. See [Work with Themes and Filter Groups on page 484](#) for information about saving filter settings in a theme.

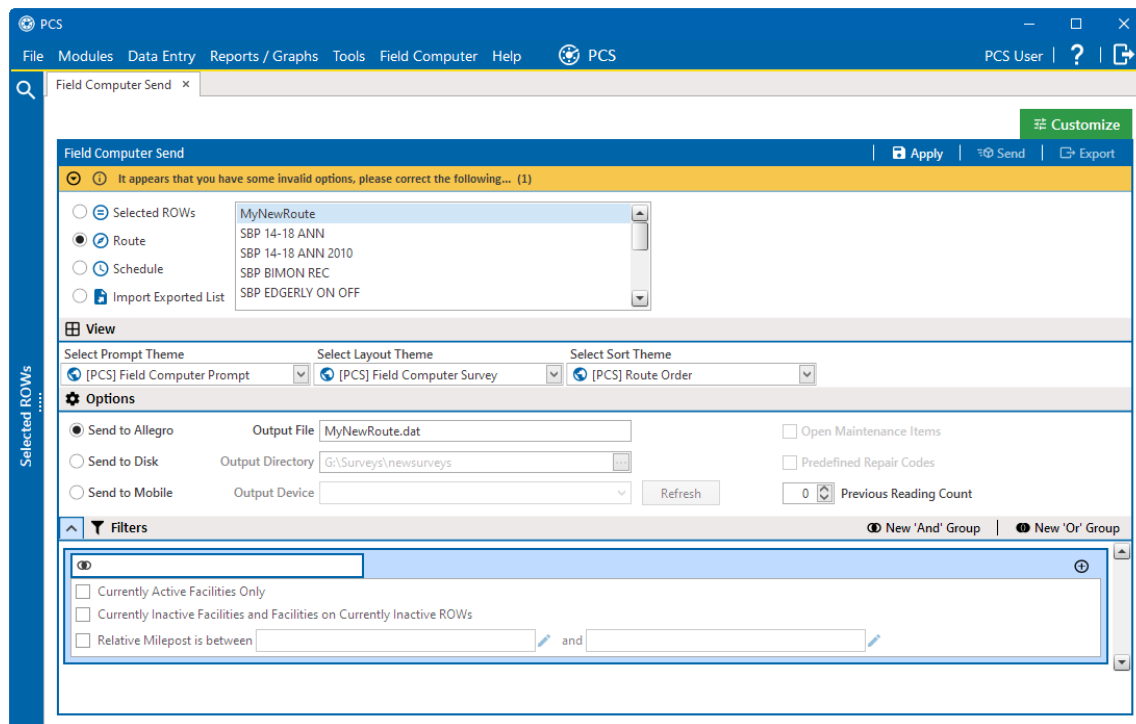




Figure 7-34. Filters

- To apply a predefined filter, click the check box of one or more options in *Filters* and then click  **Apply**. For example, click **Currently Active Facilities Only** to only include active facilities.
- To add a new filter to an existing filter group, click the  icon within a field group and then use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
- To create a new filter, first decide if you need to add an AND filter group or an OR filter group. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

- i. To create a new And group, click **New 'And' Group** to open the filter properties group box.

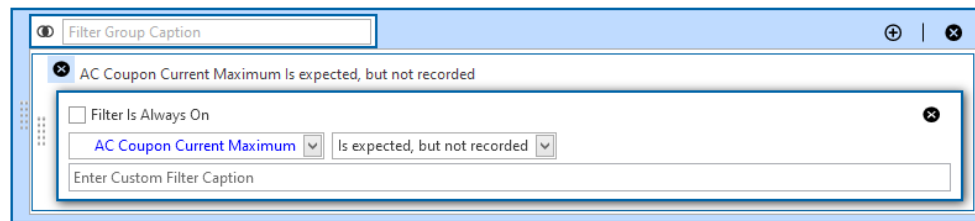


Figure 7-35. And Group Filters

- ii. To create a new Or group, click **New 'Or' Group** to open the filter properties group box.

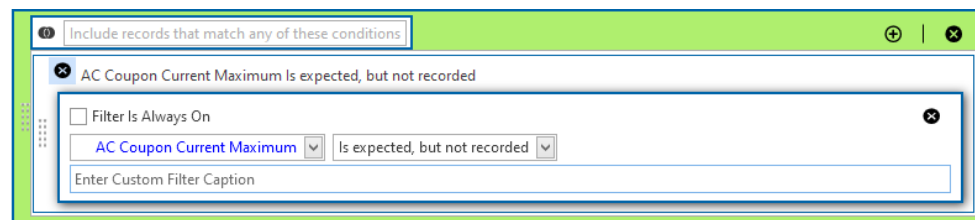








Figure 7-36. Or Group Filters

- iii. Type a name for the filter group in the **Filter Group Caption** field.
- iv. Select the **Filter Is Always On** option to keep the filter on.
- v. Use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
1. When adding a date filter, set a date range using a calendar or dynamic dates in one of the following ways:
 - Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.
 - To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - To set a date range using dynamic start and end dates, click the  calculator icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

2. Type a name for the filter in the **Enter Custom Filter Caption** field.
3. If additional filters are needed within the filter group, click ⊕ and repeat these steps.
 - vi. If necessary, click the ✎ edit icon for a filter to open that filter's property settings and change settings as needed.
 - vii. Click  **Save** to save the filter group.
 - viii. Click  **Save and Close** when finished saving all filter groups.
26. Click  **Apply** to update the grid.
27. Click  **Send** to send the survey file to the mobile device.
28. When a message displays confirming the send process is complete, click  **OK** to close the message. PCS sends the survey file to the *PSData* folder on the mobile device.

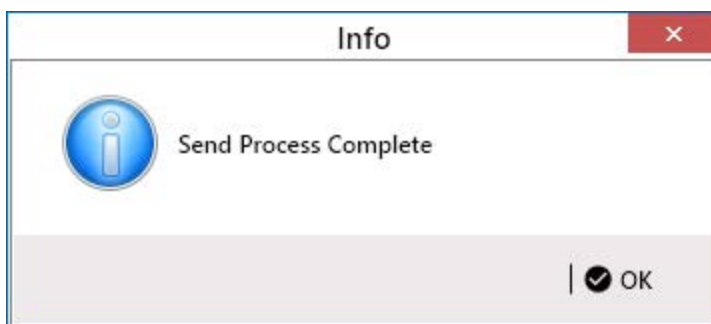


Figure 7-37. Send Process Complete

Prepare a Route for Inspection GPS Fields

This section explains how to prepare and send a survey to the Allegro based on a route with inspection GPS fields. Facilities for inspection are also set up in the *Inspection* data entry grid with inspection GPS fields.

Including inspection GPS fields in a survey allows you to capture GPS location data for each facility inspection reading. These fields also allow you to verify inspection readings are taken at the correct location.

Information in this section applies to all PCS modules. Examples are based on the CPDM module.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

- [Add Inspection GPS Fields in the Inspection Grid on page 470](#)
- [Edit a Route with Facilities for Inspection on page 472](#)
- [Send a Survey Based on a Route with GPS Fields on page 474](#)

Add Inspection GPS Fields in the Inspection Grid

The procedure in this section explains how to add inspection GPS fields in a layout theme and then apply the theme to an *Inspection* data entry grid. The procedure uses the *Test Point Inspection* data entry grid as an example.

Complete the following steps to add inspection GPS fields in the *Inspection* grid:

1. Open the *Inspection* data entry grid for a facility type. For example, click **Data Entry > Edit CPDM Data**, click the **Inspection** tab, and then click the **Test Point** tab to open the *Test Point Inspection* data entry grid.

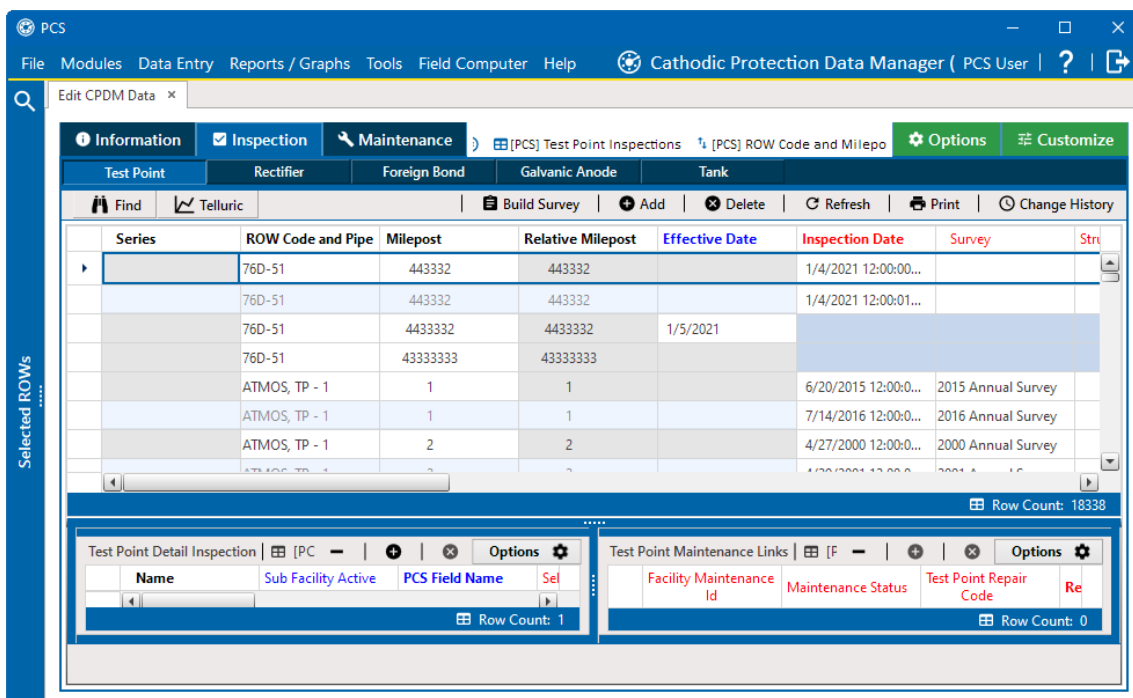


Figure 7-38. Test Point Inspection Data Entry Grid

2. Click the **Customize** tab to view the *Layouts* window.

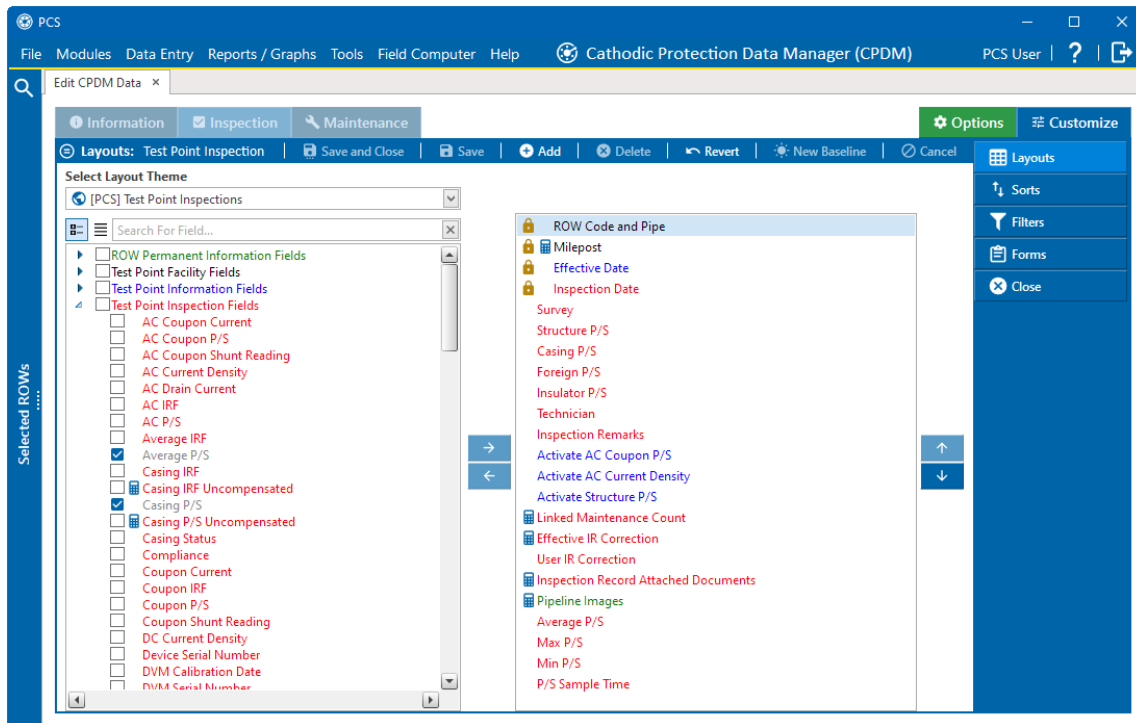



Figure 7-39. Edit CPDM Data Test Point Inspection Layouts

3. Select a data entry grid layout theme from the **Select Layout Theme** drop-down list.
4. Click the ▶ next to the Inspection fields category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **Test Point Inspection Fields**.
5. Add the following inspection GPS fields in the layout theme. To add a field, double-click a inspection GPS field in the left pane to move the field to the right pane. Add other fields as required. The layout theme includes all fields listed in the right pane.
 - Inspection Elevation
 - Inspection GPS Accuracy
 - Inspection GPS Difference
 - Inspection Latitude
 - Inspection Longitude
6. Click  **Save**.
7. Click the **Options** tab to open the *Options* window.

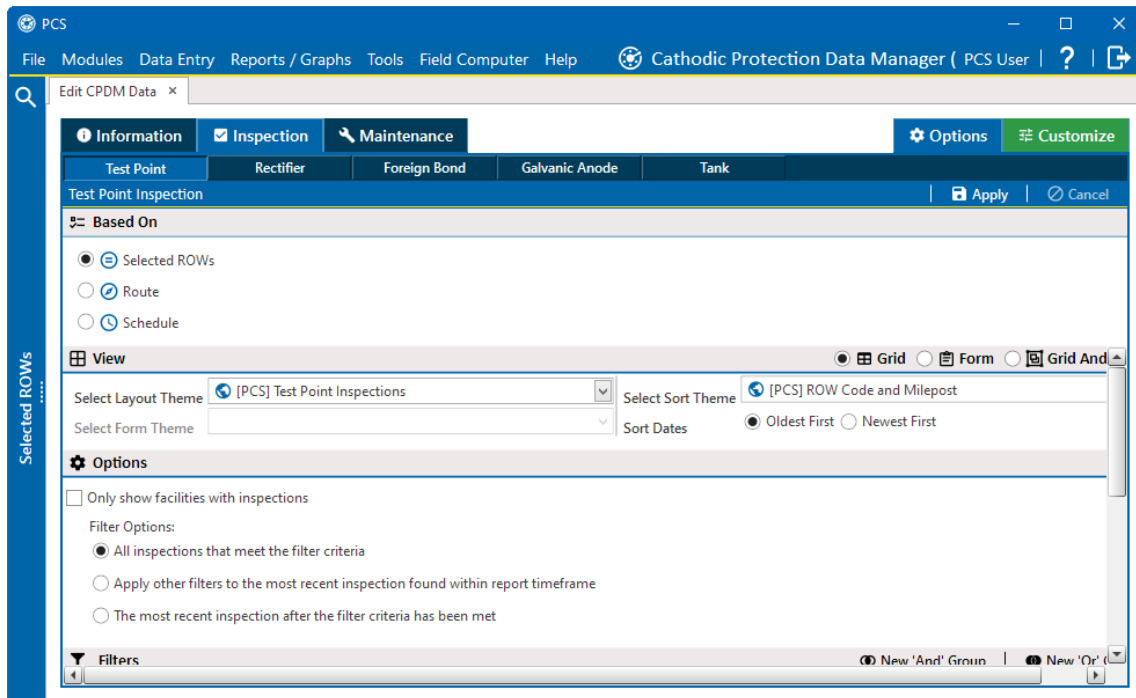



Figure 7-40. Options

8. Select the theme with inspection GPS fields from the **Select Layout Theme** drop-down list to apply the layout theme to the data entry grid.
9. Click  **Apply**.
PCS saves and applies changes, then closes the options page and returns to the *Test Point Inspection* data entry grid.

Edit a Route with Facilities for Inspection

Complete the following steps to set up a route with facilities for inspection that include inspection GPS fields:

1. Click **Data Entry > Define Routes**.

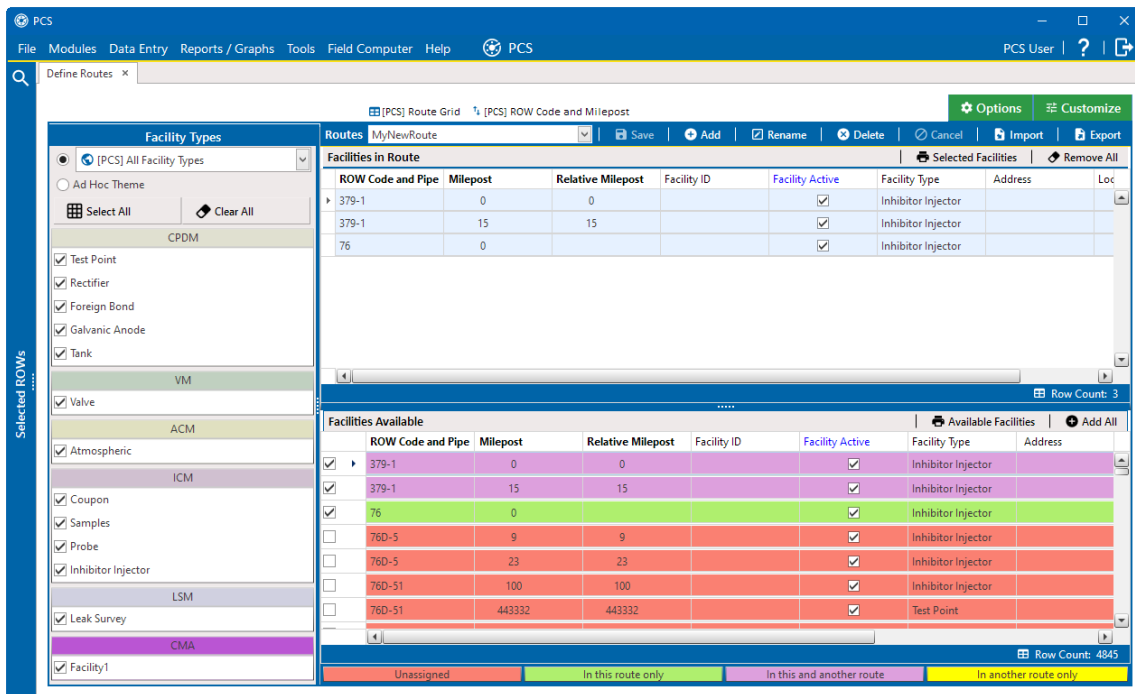


Figure 7-41. Define Routes Window

2. Select a route from the **Routes** drop-down list.
3. Select a facility type theme from the **Facility Types** drop-down list or select **Ad Hoc Theme** and then click the check box for one or more facility types.
4. Select which facilities to include in the route. To include all facilities, click **+ Add All** in the *Facilities Available* grid.
 To only include facilities you select, click the check box for each facility in the *Facilities Available* grid. Or double-click each facility.
 Selected facilities display in the *Facilities in Route* grid.
5. Arrange the survey order of facilities listed in the *Facilities in Route* grid as needed using any of the following methods:
 - a. To move a single grid row, select the row, then drag and drop it in a different location in the grid. A message displays when moving selected grid rows to confirm the new location in the grid.

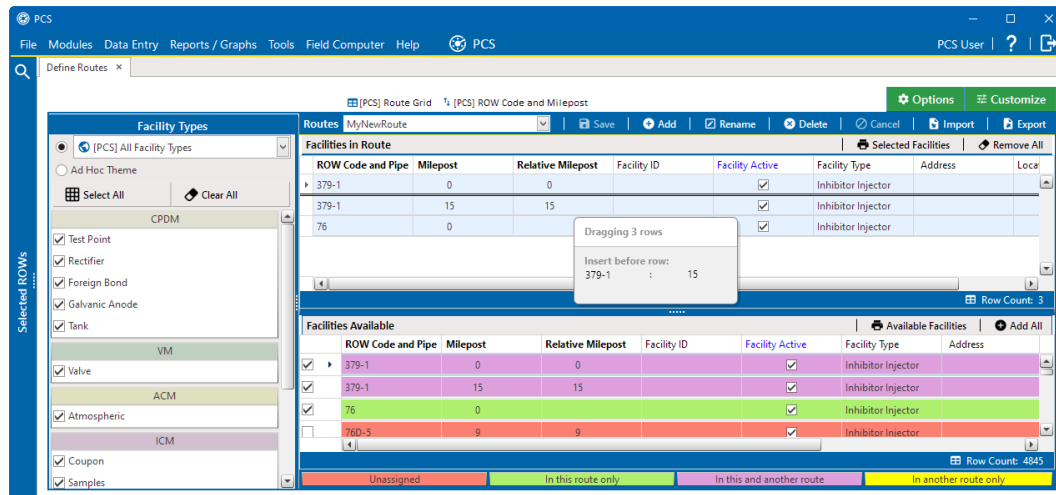



Figure 7-42. Arranging the Order of Facilities

- b. To move a group of consecutive grid rows, click the first row, press and hold the **Shift** key, then click the last row. Drag and drop selected rows in a different location in the grid.
 - c. To move a group of non-consecutive grid rows, press and hold the **Ctrl** key, then click each row you want to select. Drag and drop selected rows in a different location in the grid.
6. Click  **Save** to save changes.

Send a Survey Based on a Route with GPS Fields

Information in this section explains how to send a survey to the Allegro based on a route with facilities that include inspection GPS fields. The process includes adding a prompts theme with prompts for inspection GPS fields. Prompts are data entry fields in an Allegro survey file that require survey data, such as GPS data for each facility inspection reading. These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to send a survey to the field computer or mobile device based on a route:

1. Verify the field computer or mobile device is connected to your computer. If needed, refer to the device's user guide for information about how to connect the device.
2. Click **Field Computer > Send** to open the *Field Computer Send* window.

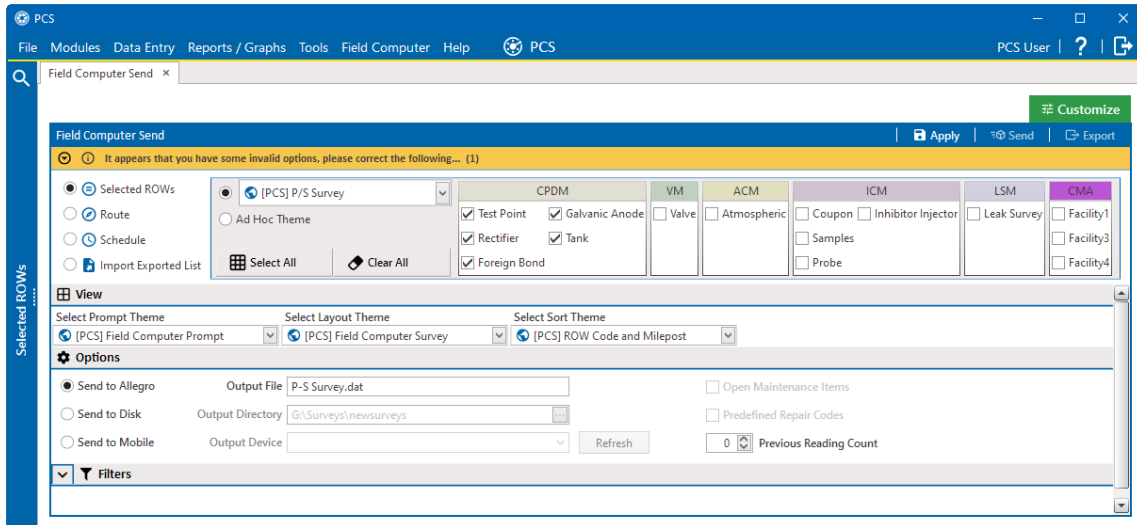


Figure 7-43. Field Computer Send

3. Click the **Customize** tab and then the **Prompts** tab to open the *Prompts* window.

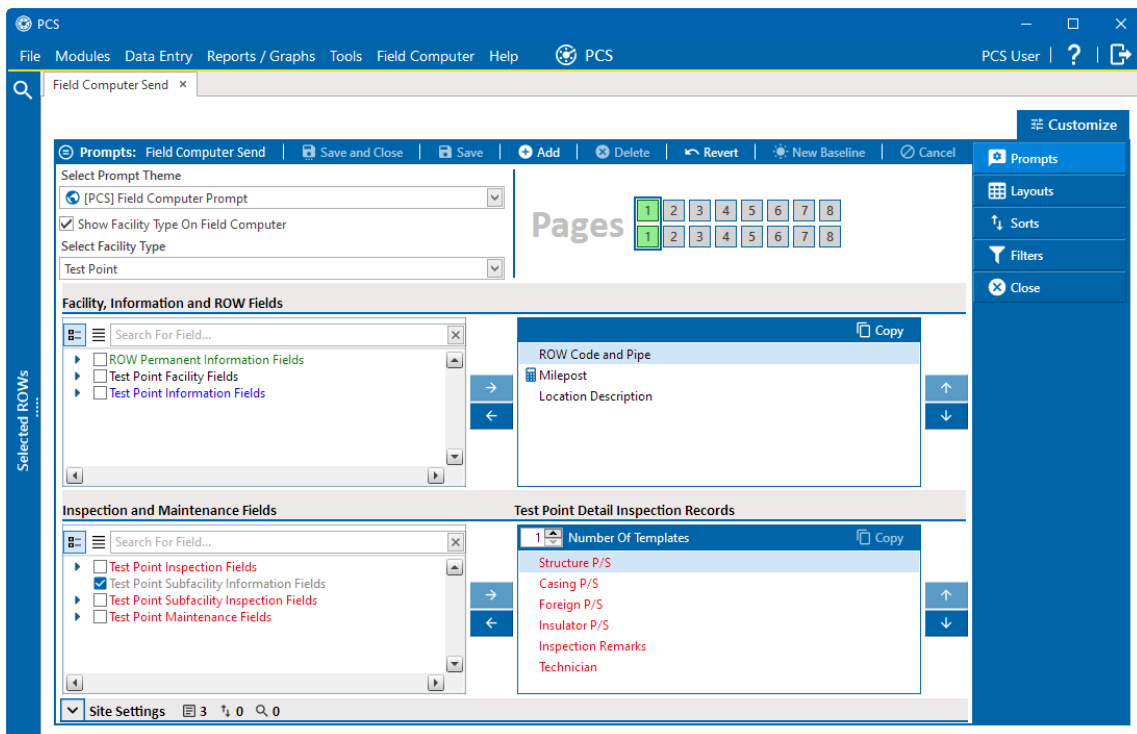



Figure 7-44. Prompts

4. Click **Add** to open the *New Prompt* window. Required fields are identified with the  icon and must be completed to continue.

The screenshot shows a dialog box titled "New Prompt". It has a blue header bar with a globe icon and a close button. Below the header, there is a text input field labeled "Enter Theme Name:" which is currently empty. To the right of the input field is a small red 'x' icon. Below the input field are two checkboxes: "Public" (unchecked) and "Copy Content" (checked). Below these checkboxes is another section labeled "Copy Fields From Theme:" with a dropdown menu. The dropdown menu is currently set to "[PCS] Field Computer Prompt". At the bottom of the dialog box, there are two buttons: "OK" (with a checkmark icon) and "Cancel" (with a close icon).



Figure 7-45. New Prompt

5. Type a name for the theme in the **Enter Theme Name** field.

This screenshot is identical to Figure 7-45, but the "Enter Theme Name:" input field now contains the text "MyGPSPrompt". All other elements, including the checkboxes and the dropdown menu, remain the same.

Figure 7-46. New Prompt

6. If you want to create a public theme, select the **Public** check box. When the check box is empty, the theme saves as a private theme.
7. If you want to copy fields from an existing theme, select the **Copy Content** check box and then select a theme from the **Copy Fields From Theme** drop-down list. If you do not want to copy fields from an existing prompt theme, clear the check mark inside the **Copy Content** check box.
8. Click **OK** to save changes and return to the *Prompts* window.
9. Verify the name of the new theme displays in the **Select Prompt Theme** field. If not, select the theme in the selection list.
10. Select a facility type from the **Select Facility Type** drop-down list.

11. Add fields from the *Facility, Information and ROW Fields* pane's left pane to the right pane.
 - a. Click  to view the list of fields in an un-expanded view. Click the  to expand individual lists.

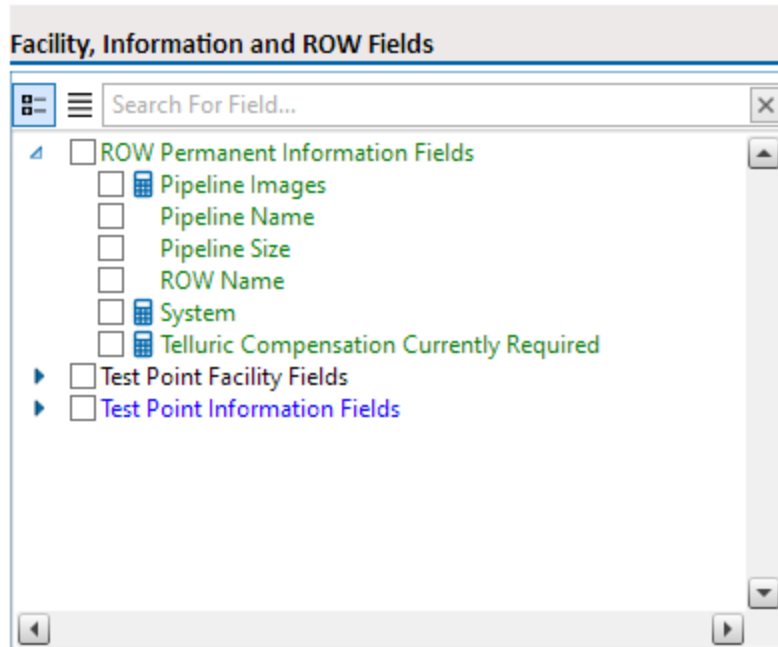



Figure 7-47. Expand One Set of Fields

- b. Click  to view all the list of fields in an expanded view.

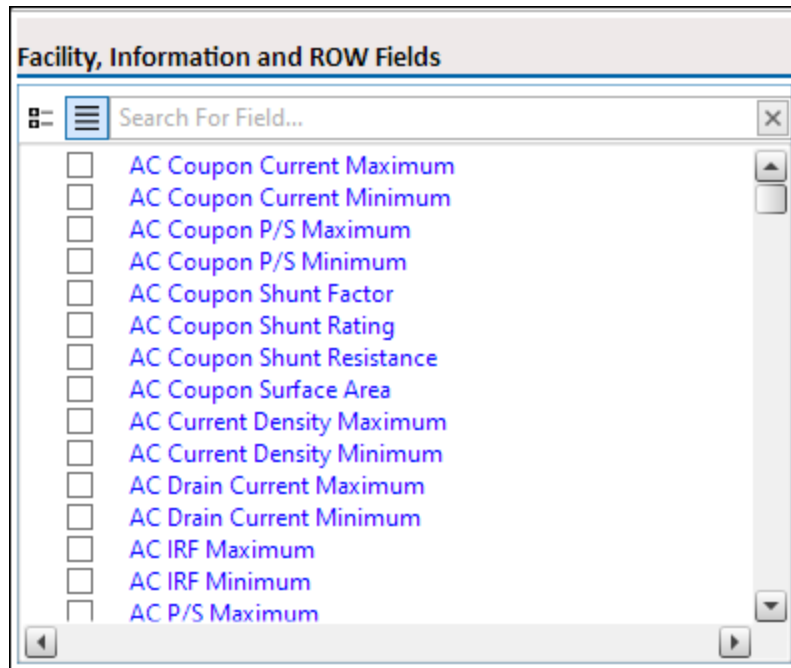







Figure 7-48. All Fields Expanded

- c. Select fields and then click the  button to move it to the right pane. You can also double-click the field to move it. To move it back to the left pane, click the  button.
 - d. To rearrange the order of the fields in the left pane, use the  and  buttons. You can also click and drag field names to move them.
 - e. All fields listed in the right pane are included in the prompt theme.
12. Add the following inspection GPS prompts from the *Inspection and Maintenance Fields* left pane to the right:
 - Inspection Elevation
 - Inspection GPS Accuracy
 - Inspection Latitude
 - Inspection Longitude
 13. Complete the following steps to add site string prompts that help identify one facility from another when using the Allegro. Site string prompts are included with each facility and can be viewed in the Allegro *Site List* window.
 - a. Click  **Site Settings** (below the *Inspection and Maintenance Fields* pane) to view a list of fields available for selection.

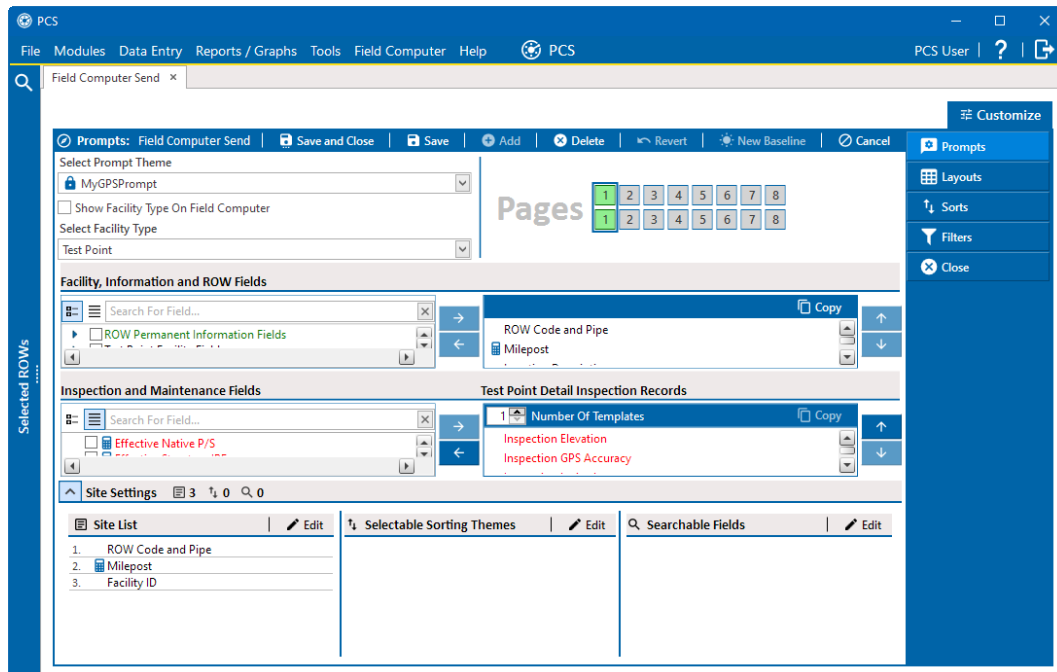


Figure 7-49. Site Settings

- b. Double-click one or more fields in the selection list to move fields to the right pane.
14. If you want to add another page of prompts, click a page number in the *Pages* pane and add fields from *Facility, Information and ROW Fields* and *Inspection and Maintenance Fields* panes.

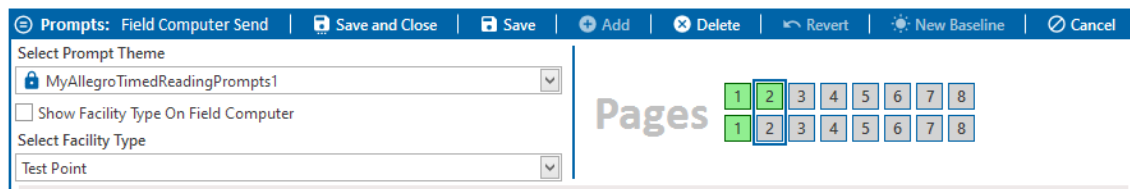



Figure 7-50. Pages Selection

To make a copy of the first page, click the  **Copy** in either left side pane to copy Page 1 to a new page. The following image shows Page 2 with a copy of Page 1's Facility, Information and ROW Fields included.

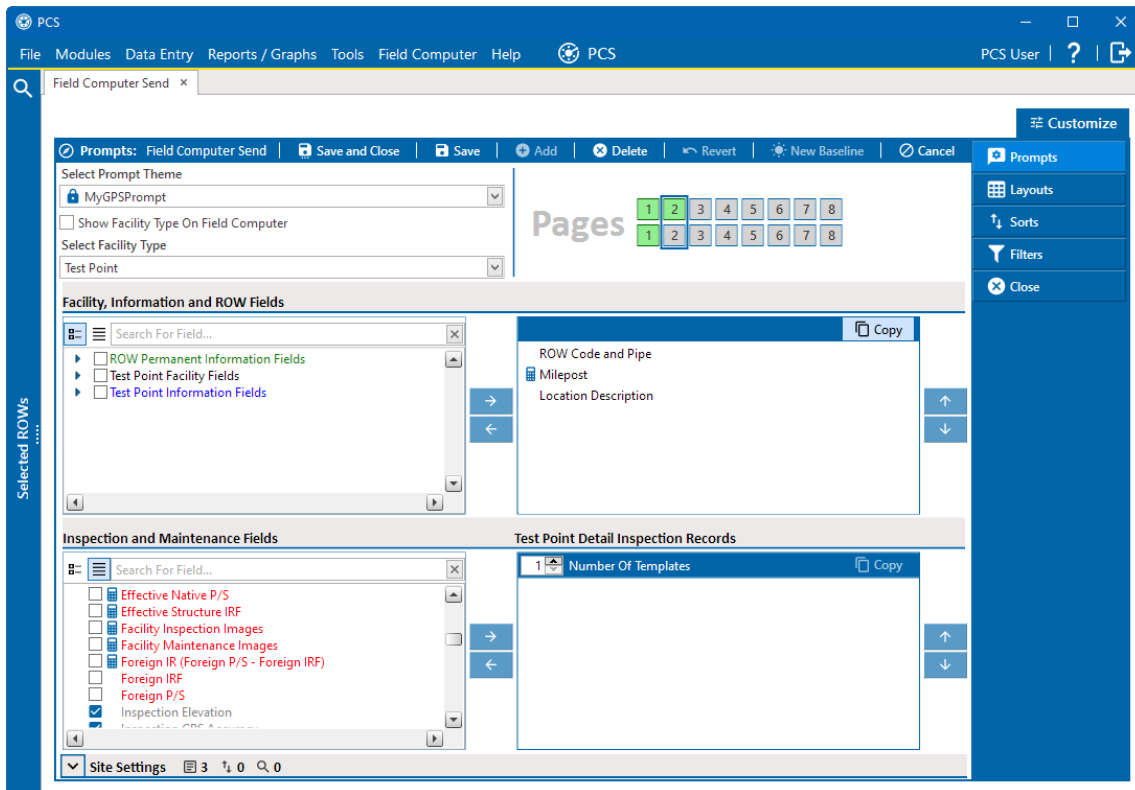




Figure 7-51. Creating Page 2 From Page 1

15. Repeat as needed.
16. Click  **Save and Close** to save changes and return to the *Field Computer Send* window.
17. Click the **Route** option and select a route in the selection box. Then click  **Apply** to update the grid.

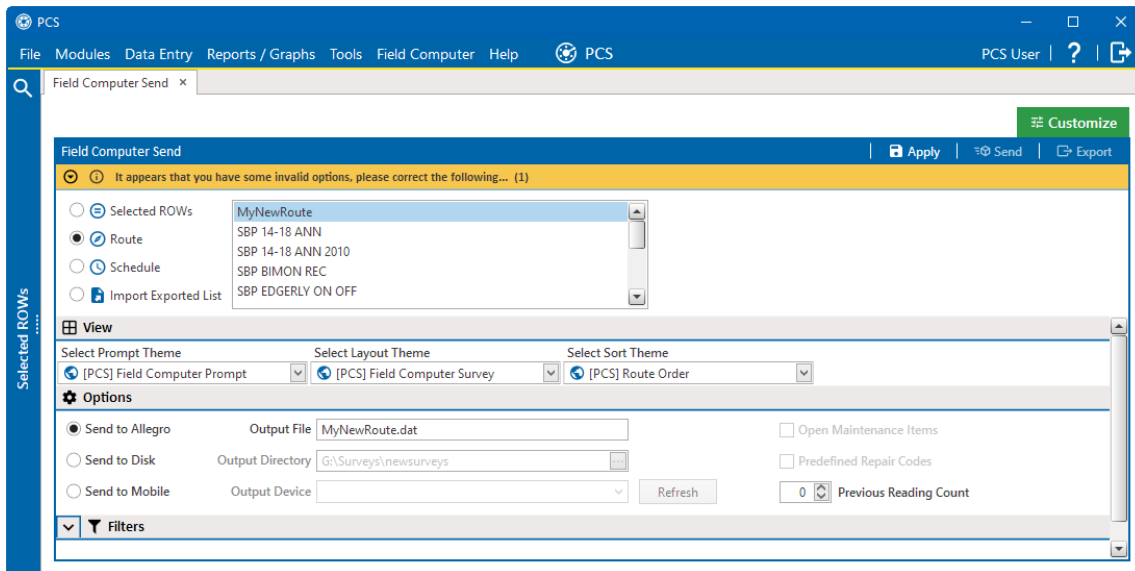



Figure 7-52. Field Computer Send - Route

18. Select a theme with GPS inspection fields from the **Select Prompt** drop-down list.
19. Select a layout theme from the **Select Layout Theme** drop-down list.
20. Select a sort theme from the **Select Sort Theme** drop-down list.
21. Select the **Send to Allegro** (for Allegro MX or QX) or **Send to Mobile** (for Allegro AX, Mesa 3, or other mobile device) radio button in *Options* pane, depending on the device you are using.
22. For either the **Send to Allegro** or **Send to Mobile** options, and you want to rename the survey file, type a name in the **Output File** field. For files being sent to an Allegro MX or QX, be sure to include the `.dat` file extension.
23. If you selected the **Send to Mobile** options, also select the device from the **Output Device** drop-down list.
24. If the **Open Maintenance Items** check box is available for selection, click the check box if you want to include open maintenance records in the survey file.
When the selected prompt theme includes maintenance prompts, the check box *Open Maintenance Items* is available for selection. It is disabled when maintenance prompts are not included in the currently selected prompt theme.
25. If you want to filter records in the grid and in the route sent to the Allegro, click the  in the *Filters* pane to open it.

Filter settings in *Field Computer Send* apply only to the current session and are not saved. Refer to [Work with Themes and Filter Groups on page 484](#) for information about saving filter settings in a theme.

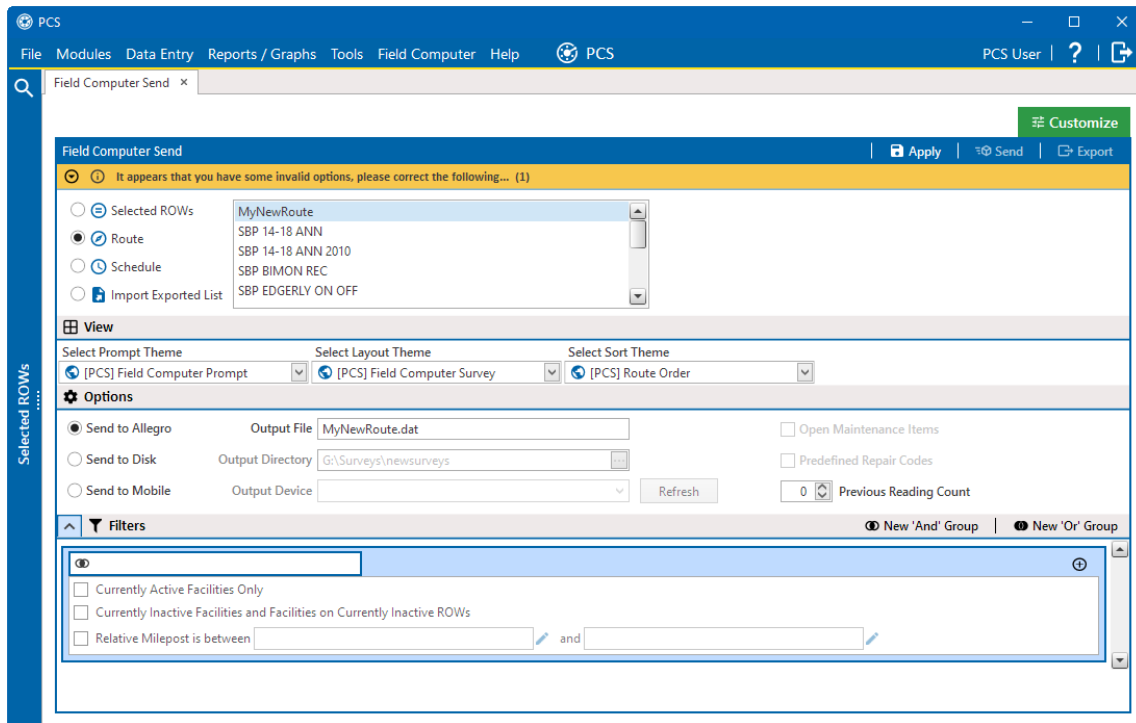


Figure 7-53. Filters

- a. To apply a predefined filter, click the check box of one or more options in *Filters* and then click **Apply**. For example, click **Currently Active Facilities Only** to only include active facilities.
- b. To add a new filter to an existing filter group, click the \oplus icon within a field group and then use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
- c. To create a new filter, first decide if you need to add an AND filter group or an OR filter group. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.
 - i. To create a new And group, click **New 'And' Group** to open the filter properties group box.

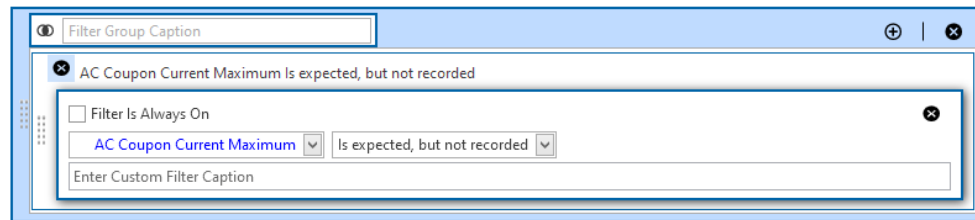


Figure 7-54. And Group Filters

- ii. To create a new Or group, click **New 'Or' Group** to open the filter properties group box.

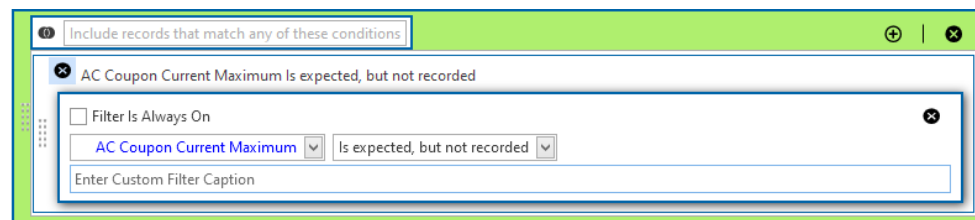








Figure 7-55. Or Group Filters

- iii. Type a name for the filter group in the **Filter Group Caption** field.
- iv. Select the **Filter Is Always On** option to keep the filter on.
- v. Use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
 1. When adding a date filter, set a date range using a calendar or dynamic dates in one of the following ways:
 - Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.
 - To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - To set a date range using dynamic start and end dates, click the  calculator icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
 2. Type a name for the filter in the **Enter Custom Filter Caption** field.

3. If additional filters are needed within the filter group, click ⊕ and repeat these steps.
 - vi. If necessary, click the ✎ edit icon for a filter to open that filter's property settings and change settings as needed.
 - vii. Click  **Save** to save the filter group.
 - viii. Click  **Save and Close** when finished saving all filter groups.
26. Click  **Apply** to update the grid.
27. Click  **Send** to send the survey file to the mobile device.
28. When a message displays confirming the send process is complete, click  **OK** to close the message. PCS sends the survey file to the **PSData** folder on the mobile device.

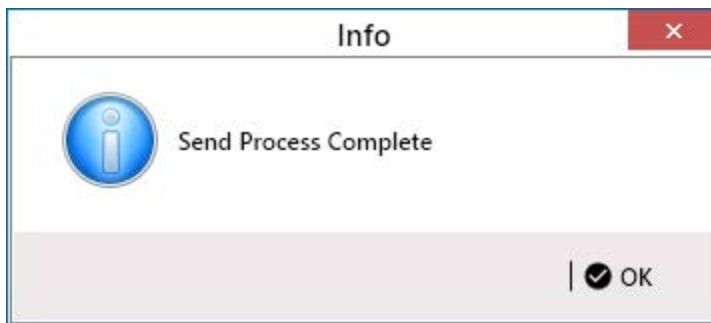



Figure 7-56. Send Process Complete

Work with Themes and Filter Groups

A theme is a group of named settings saved for later use, such as a grid layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS software installation. PCS installed themes are public themes available to all PCS users. These themes are identified with a globe icon and PCS in brackets [PCS], such as  [PCS] **Route Grid**.

NOTE: Only public themes for layouts, sorts, and reports are available for selection. If you would like to use a private theme, your company's system administrator must make your private theme a public one.

A filter group is a named set of one or more filters that affect the data output in the *Define Routes* grid and subsequently the route itself. PCS provides two types of filter groups you can define. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude in the *Define Routes* grid and the route. Adding an AND filter group produces a subset of records that meet **all** filter conditions. Adding an OR filter group produces a subset of records that meet **any** filter condition. When you apply a filter group, PCS processes filters in descending order beginning with the filter at the top of the group.

The following topics describe how to add a layout theme, sort theme, and one or more optional filter groups:

- [Work with a Layout Theme](#)
- [Work with a Sort Theme on page 492](#)
- [Add, Edit, and Apply an AND or OR Filter Group on page 498](#)
- [Edit and Arrange Filters and Filter Groups on page 501](#)

Work with a Layout Theme


A layout theme is a named set of fields that are present when working in the route grid. A layout theme also determines which fields are included when printing a route.

Two types of layout themes are available for use. They include installed and addition layout themes. An installed layout theme is one that has been installed during the PCS software installation, such as **[PCS] Route Grid**. A layout theme addition is one that you create.

The following topics explain how to work with a layout theme:

- [Edit an Installed Layout Theme](#)
- [Add a Layout Theme Addition on page 487](#)
- [Edit a Layout Theme Addition on page 490](#)

Edit an Installed Layout Theme

An installed layout theme includes [PCS] in the name of the theme, such as  **[PCS] Route Grid**. A layout theme determines which fields are present when viewing or printing a route. You can edit a PCS-installed layout theme by adding or removing fields for the layout theme. If you decide you no longer want the changes, the installed layout theme can be reverted to the original format.

Complete the following steps to edit a PCS-installed layout theme:

1. Click **Data Entry > Define Routes** to open the *Define Routes* window. Select a route from the **Routes** drop-down list.

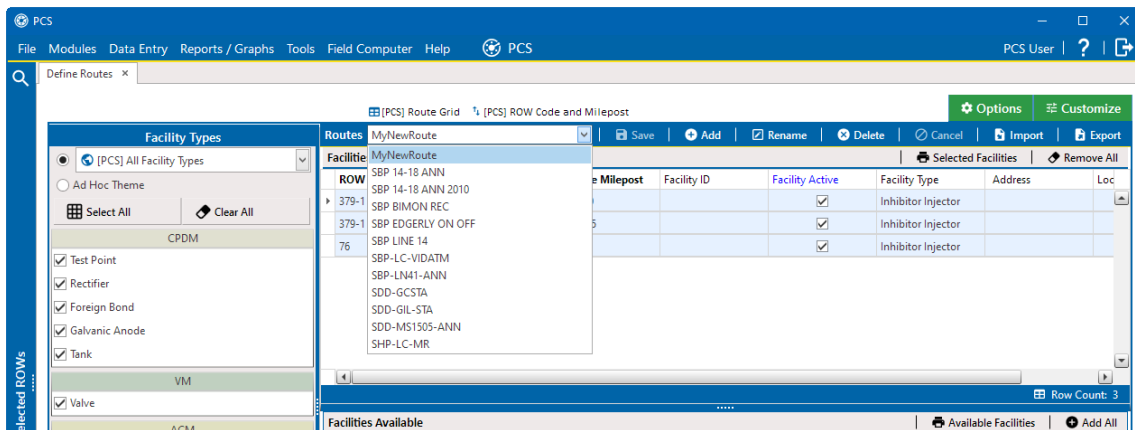


Figure 7-57. Defined Routes

2. Click the **Customize** tab to view the *Layouts* window.

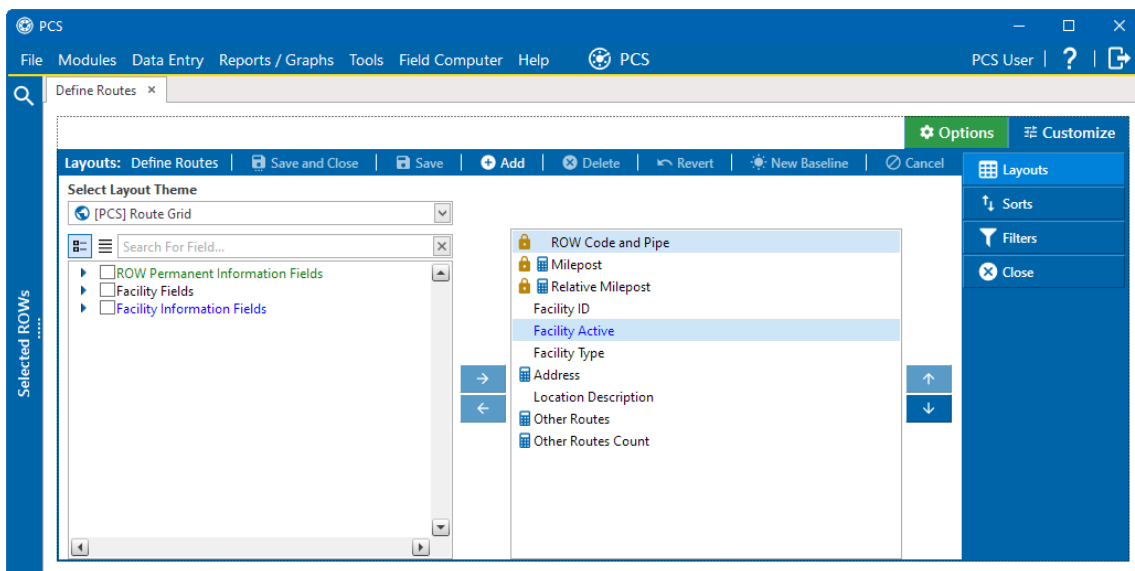









Figure 7-58. Define Routes - Layouts

3. Select a PCS-installed layout theme from the **Select Layout Theme** drop-down list. A PCS-installed layout theme includes [PCS] in the name of the theme, such as [PCS] Route Grid.
4. Click the ▶ for a field category in the left pane to view a list of fields available for selection, such as ▶ Facility Fields.

- Click the check box for each field you want to include in the theme. Then click the  button to move the selected fields to the right pane. You can also double-click a field to move it. To move it back to the left pane, click the  button.

To rearrange the order of the fields in the left pane, use the  and  buttons. You can also click and drag field names to move them.

The theme will include all fields listed in the right pane.

- Click  **Save** to save changes.
- To revert an installed theme and restore settings prior to editing, click  **Revert**, then click **Yes** in the *Confirm Revert* message.
- Click  **Save and Close** to save changes and return to the *Define Routes* window.

Add a Layout Theme Addition

Complete the following steps to add a layout theme addition:

- Click **Data Entry > Define Routes** to open the *Define Routes* window. Select a route from the **Routes** drop-down list.

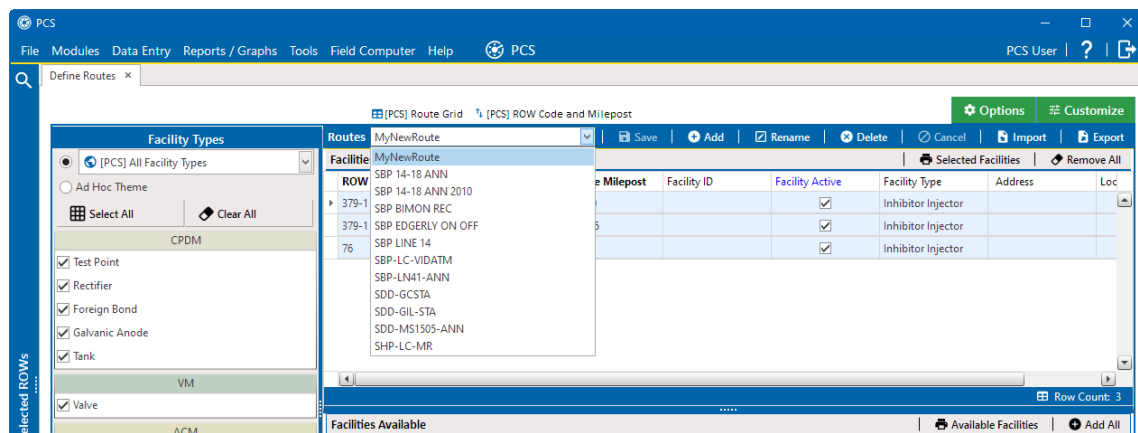


Figure 7-59. Defined Routes

- Click the **Customize** tab to view the *Layouts* window.

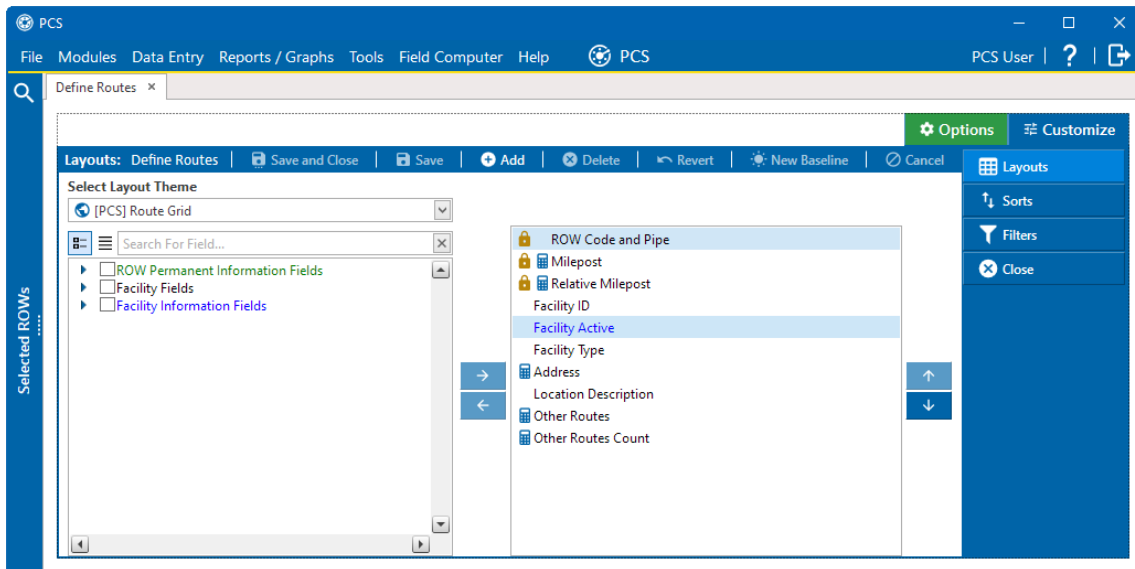


Figure 7-60. Layouts

3. Click **+** Add to open the *New Layout Theme* window.

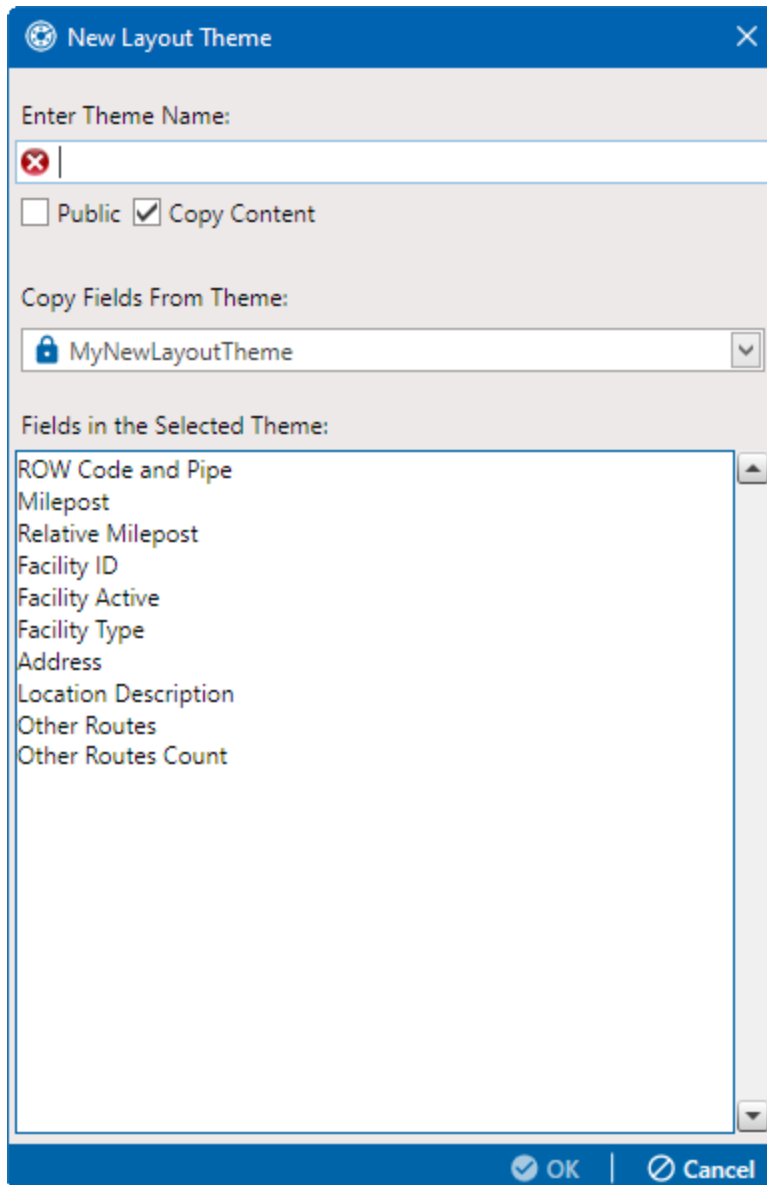






Figure 7-61. New Layout Theme

4. Type a name for the theme in the **Enter Theme Name** field.
5. Select the **Public** check box if you want the new theme available to all PCS users. When a theme is not public, it is a private theme available only to the user who creates it.
Creating public themes is a function available only to users assigned the SysAdmin user role. Private themes can be created by users assigned the User, Read Only, or SysAdmin user role. Refer to [System Security on page 935](#) for more information.
6. If you want to copy fields from another theme, select the **Copy Content** check box and then a theme from the **Copy Fields From Theme** drop-down list.

7. Click  **OK** to save changes and return to the *Layouts* page.
8. Verify the name of the new layout theme displays in the *Select Layout Theme*. If not, select the new theme from the **Select Layout Theme** drop-down list.
9. Add and remove fields in the new layout theme as required. If needed, refer to [Edit an Installed Layout Theme on page 485](#).
10. To change the order of fields listed in the right pane and subsequently in the grid, use the  and  buttons. You can also click and drag a field to a new position in the list.
11. Click  **Save and Close** to save changes and close the window.
12. To apply the new layout theme in the *Define Routes* grid, follow these steps:
 - a. Click the **Options** tab to open the *Options* window.
 - b. Select the layout theme from the **Select Layout Theme** drop-down list.

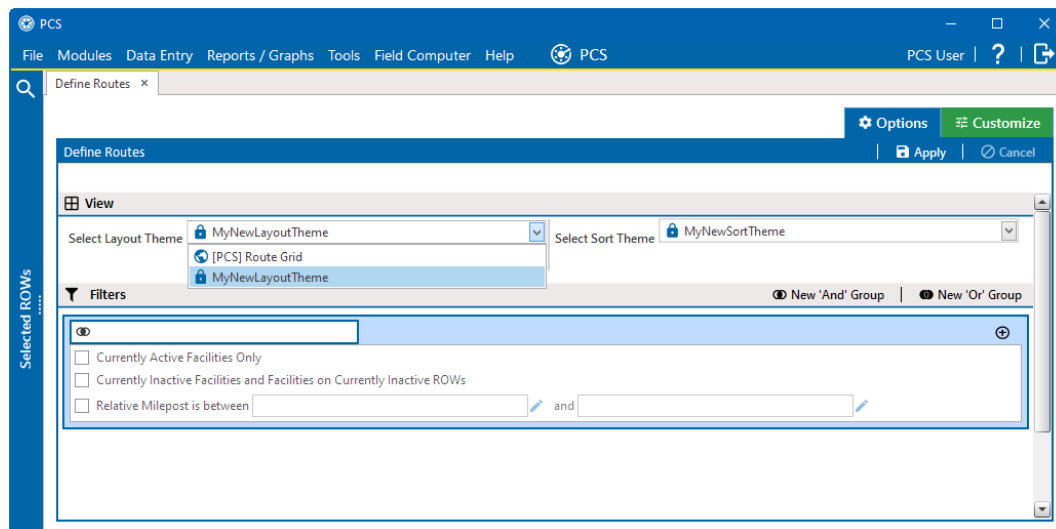




Figure 7-62. Options Drop-down List

- c. Click  **Apply** to apply changes and return to the grid in *Define Routes* window. Click  **Cancel** to close the *Options* window without saving changes.

Edit a Layout Theme Addition

A layout theme addition can be edited by adding or removing fields or creating a new baseline layout theme addition. The layout theme can also be deleted or reverted to original settings.

Complete the following steps to edit a layout theme addition:

1. Click **Data Entry > Define Routes** to open the *Define Routes* window. Select a route from the **Routes** drop-down list.

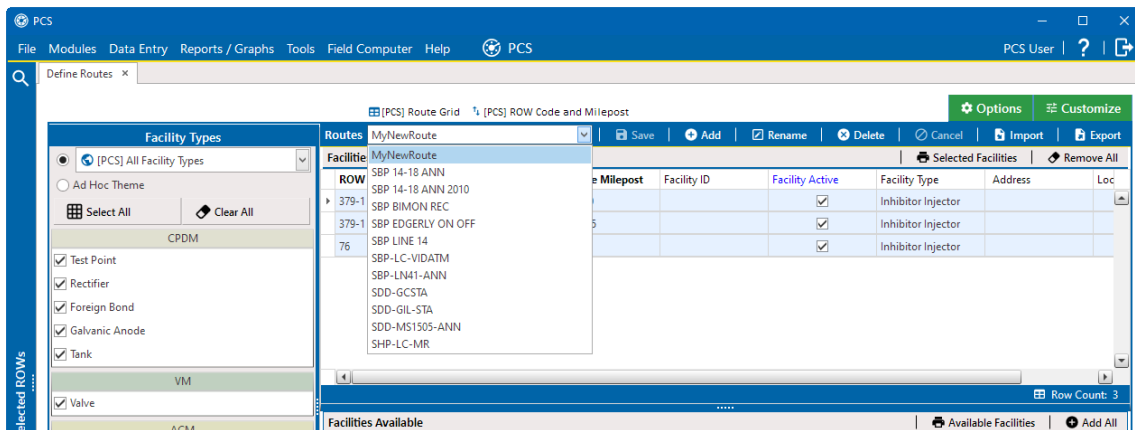


Figure 7-63. Defined Routes

2. Click the **Customize** tab to view the *Layouts* window.

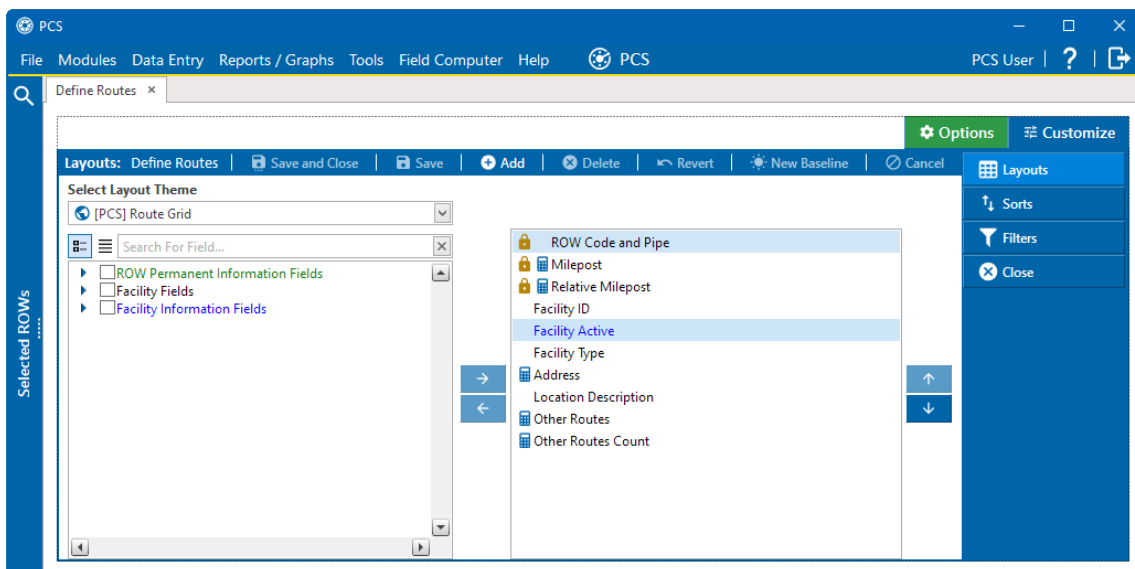





Figure 7-64. Layouts

3. Select a layout theme that you created from the **Select Layout Theme** drop-down list.
4. Add and remove fields in the layout theme as required. If needed, refer to [Edit an Installed Layout Theme on page 485](#).
5. Click **Save** to save changes.
6. To save current settings as new baseline settings, click **New Baseline**. When future changes are made and then reverted, PCS restores the theme with these baseline settings.

7. To revert a layout theme addition and restore settings prior to editing, click  **Revert**, then click **Yes** in the *Confirm Revert* message window.
8. To delete a layout theme addition, select a layout theme addition from the **Select Layout Theme** drop-down list and click  **Delete**. Click **Yes** in the *Confirm Delete* message window.
9. Click  **Save and Close** to close the *Layouts* window and return to the *Define Routes* window.

Work with a Sort Theme

A sort theme is a named set of one or more fields that indicate the sorting order of grid rows in the route grid. A sort theme also determines the sorting order when printing a route.

Two types of sort themes are available for use. They include *installed* and *addition* sort themes. An installed sort theme is one that has been installed during the PCS software installation, such as *[PCS] Address*, *[PCS] Facility ID*, and *[PCS] ROW Code and Milepost*. A sort theme addition is one that you create.

Refer to the following topics for more information on how to work with a sort theme:

- [Edit an Installed Sort Theme](#)
- [Add a Sort Theme Addition on page 494](#)
- [Edit a Sort Theme Addition on page 497](#)

Edit an Installed Sort Theme

An installed sort theme includes [PCS] in the name of the theme, such as  **[PCS] Facility ID**.

You can edit a PCS-installed sort theme by adding or removing field sort the sort theme. If you decide you no longer want the changes, the installed sort theme can be reverted to the original format.

Complete the following steps to edit a PCS-installed sort theme:

1. Click **Data Entry > Define Routes** to open the *Define Routes* window. Select a route from the **Routes** drop-down list.

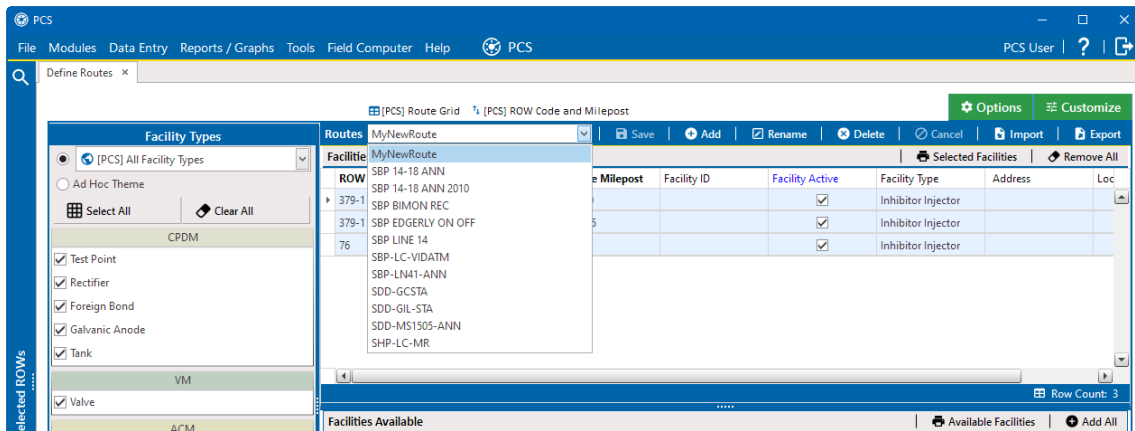


Figure 7-65. Defined Routes

2. Click the **Customize** tab and then the **Sorts** tab to open the *Sorts* window.

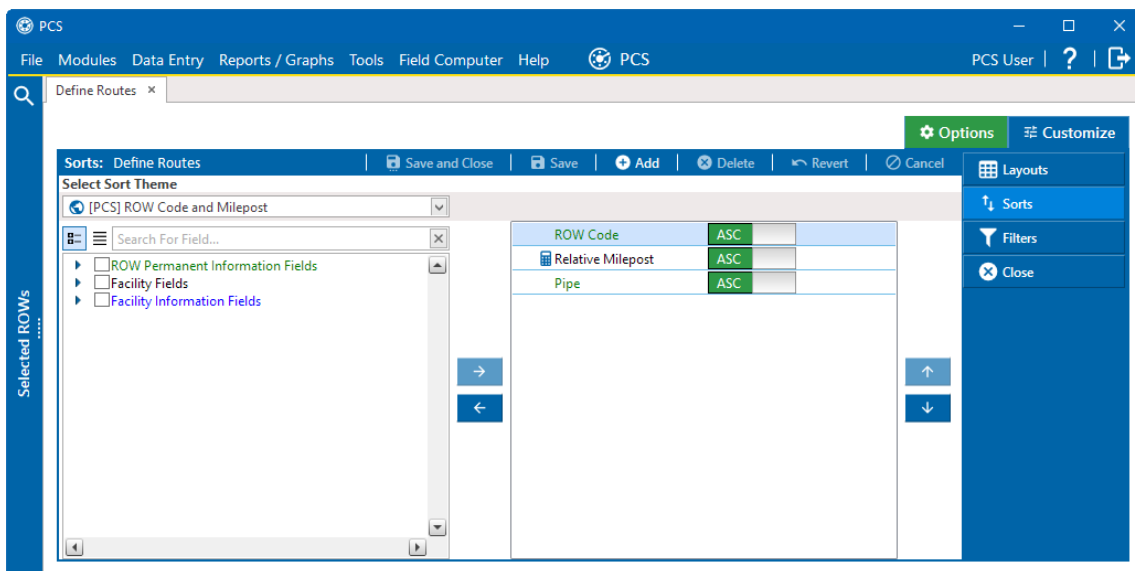









Figure 7-66. Sorts

3. Select a PCS-installed sort theme from the **Select Sort Theme** drop-down list. A PCS-installed sort theme includes [PCS] in the name of the theme, such as **[PCS] ROW Code and Milepost**.
4. Click the ▶ for a field category in the left pane to view a list of fields available for selection, such as ▶ **Facility Fields**.
5. Click the check box for each field you want to include in the theme. Then click the → button to move the selected fields to the right pane. You can also double-click a field to move it. To move it back to the left pane, click the ← button.

To rearrange the order of the fields in the left pane, use the  and  buttons. You can also click and drag field names to move them.

The theme will include all fields listed in the right pane.

6. Select a sort method for each field listed in the right pane. To sort grid rows in ascending order, click the toggle button to select . To sort in descending order, click the toggle button to select .
7. Click  **Save and Close** to save changes and close the *Sorts* window.
8. To apply the sort theme in the *Define Routes* grid, follow these steps:
 - a. Click the **Options** tab to open the *Options* window.
 - b. Select the sort theme from the **Select Sort Theme** drop-down list.
 - c. Click  **Apply** to apply changes and return to the grid in *Define Routes*.
Clicking  **Cancel** allows you to close the *Options* page without saving changes.

Add a Sort Theme Addition

Complete the following steps to add a sort theme addition:

1. Click **Data Entry > Define Routes** to open the *Define Routes* window. Select a route from the **Routes** drop-down list.

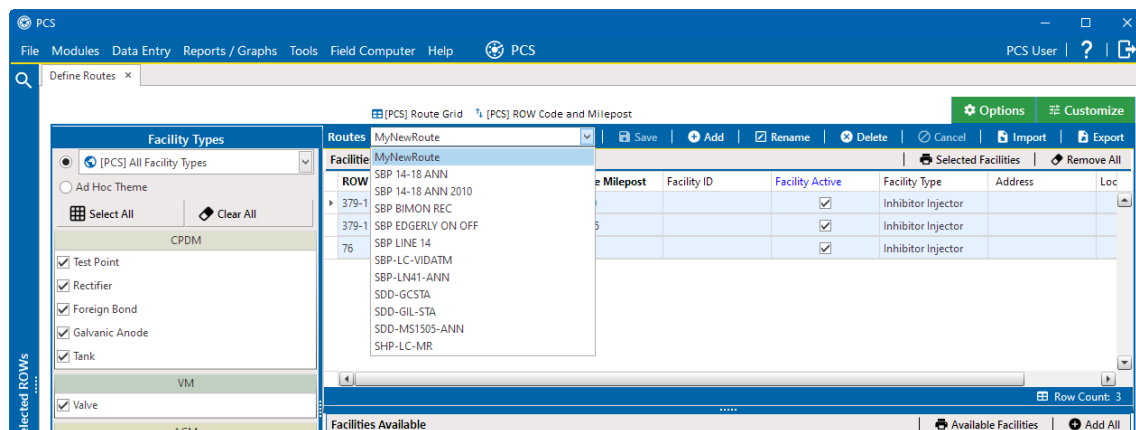


Figure 7-67. Defined Routes

2. Click the **Customize** tab to view the *Sorts* window.

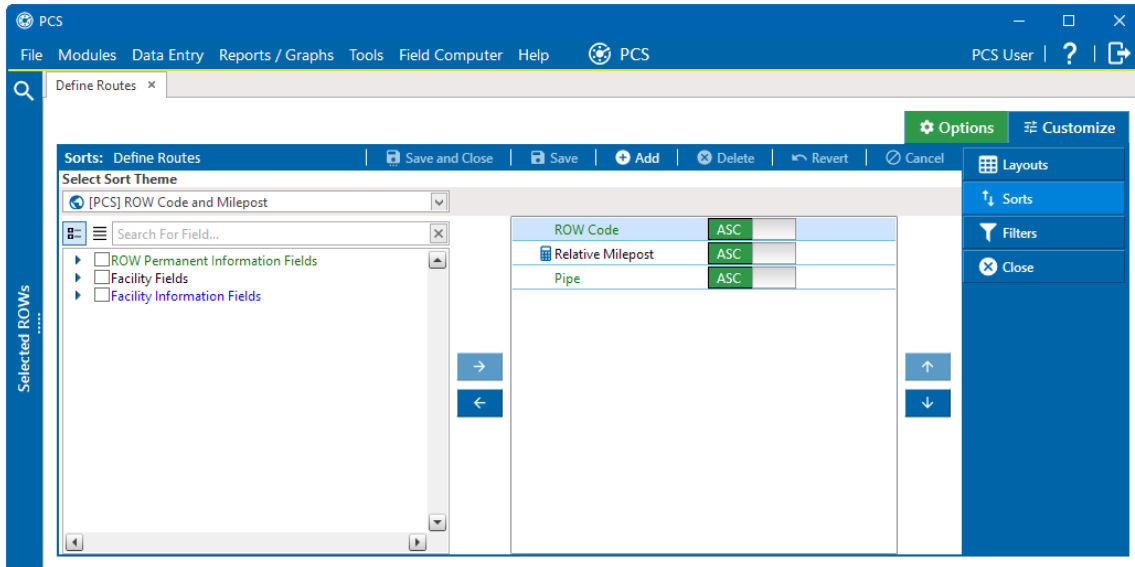


Figure 7-68. Define Routes - Sorts

3. Click **+** **Add** to open the *New Sort Theme* window.

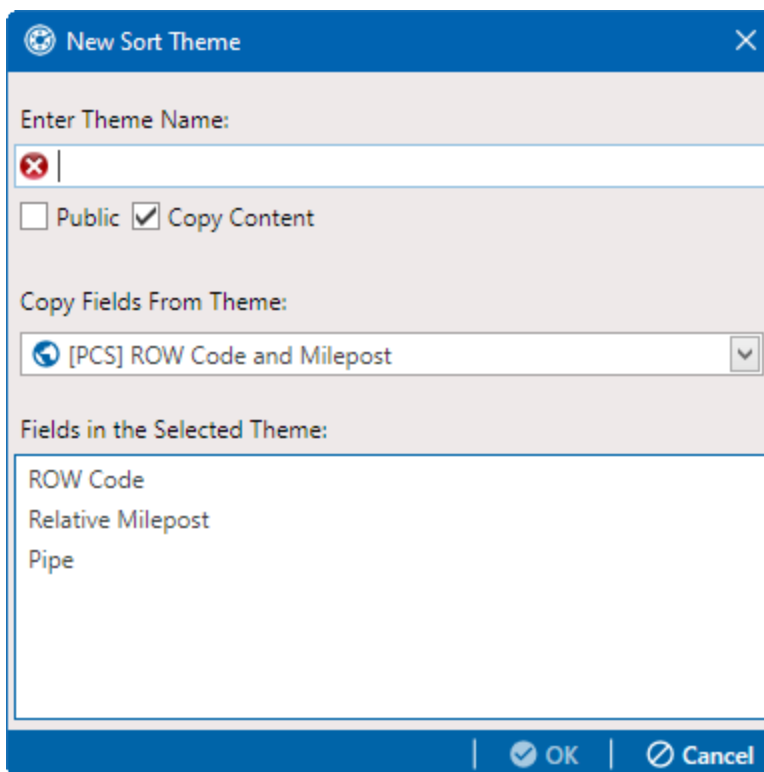







Figure 7-69. New Sort Theme

4. Type a name for the theme in the field **Enter Theme Name**.

5. Select the **Public** check box if you want the new theme available to all PCS users. When a theme is not public, it is a private theme available only to the user who creates it.
Creating public themes is a function available only to users assigned the SysAdmin user role. Private themes can be created by users assigned the User, Read Only, or SysAdmin user role. Refer to [System Security on page 935](#) for more information.
6. If you want to copy fields from another theme, select the **Copy Content** check box and then a theme from the **Copy Fields From Theme** drop-down list.
7. Click **OK** to save changes and return to the *Sorts* window.
8. Verify the name of the new sort theme displays in the field *Select Sort Theme*. If not, and select the new from the **Select Sort Theme** in the selection list.
9. Add and remove fields in the new theme as required. If needed, refer to [Edit an Installed Sort Theme on page 492](#).
10. To change the order of fields listed in the right pane and subsequently in the grid, use the  and  buttons. You can also click and drag a field to a new position in the list.
11. Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select . To sort in descending order, click the toggle button to select .
12. Click  **Save and Close** to save changes and close the window.
13. To apply the sort theme in the *Define Routes* grid, follow these steps:
 - a. Click the **Options** tab to open the *Options* window.
 - b. Select the sort theme from the **Select Sort Theme** drop-down list.

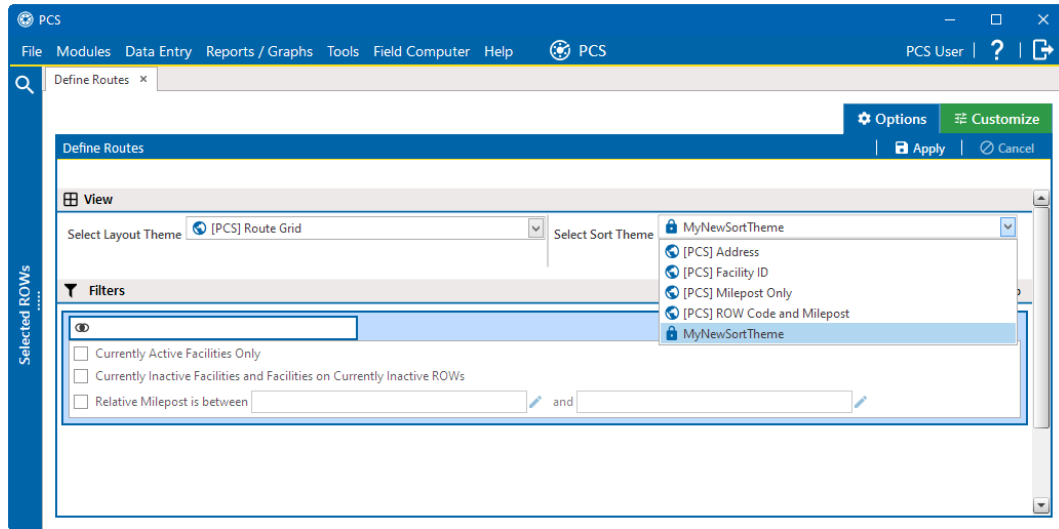




Figure 7-70. Options Drop-down List

- c. Click  **Apply** to apply changes and return to the grid in *Define Routes* window. Click  **Cancel** to close the *Options* window without saving changes.

Edit a Sort Theme Addition

A sort theme addition can be edited by adding or removing fields. The sort theme can also be deleted or reverted to original settings.

Complete the following steps to edit a sort theme addition:

1. Click **Data Entry > Define Routes** to open the *Define Routes* window. Select a route from the **Routes** drop-down list.

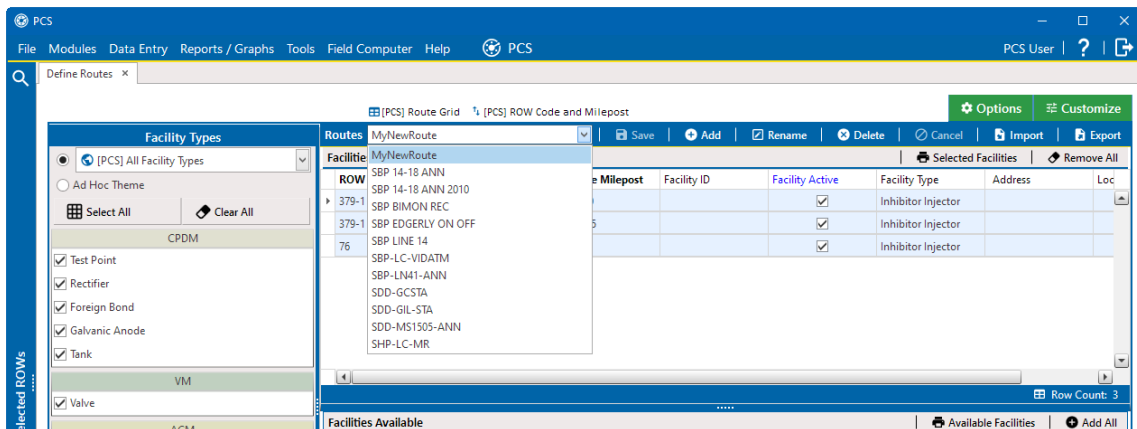


Figure 7-71. Define Routes

2. Click the **Customize** tab and then the **Sorts** tab to open the *Sorts* window.

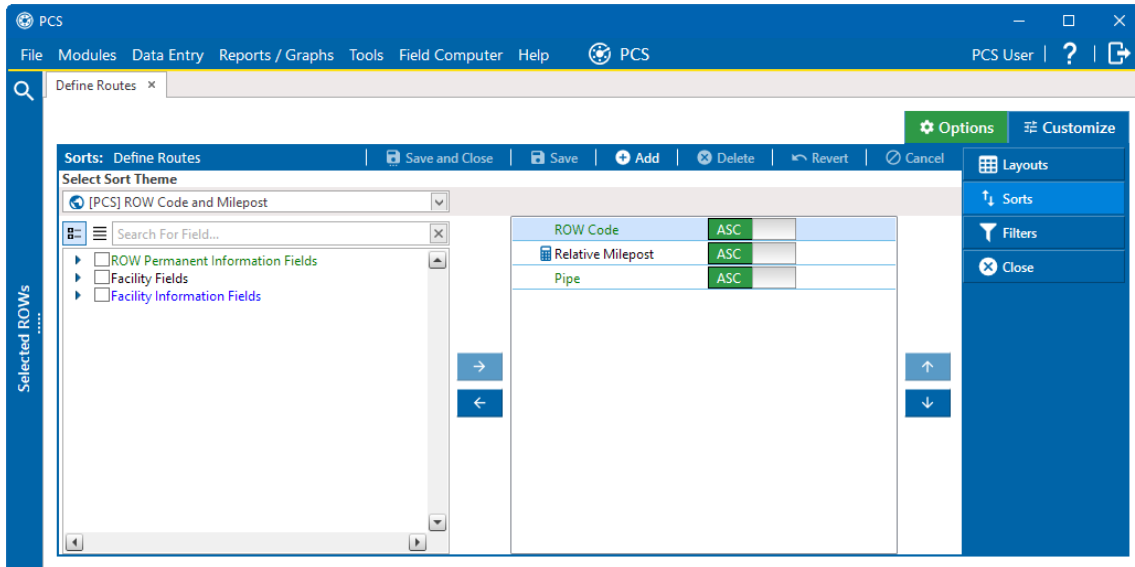






Figure 7-72. Sorts

3. Select a sort theme that you created from the **Select Sort Theme** drop-down list.
4. Add and remove fields in the sort theme as required. If needed, refer to [Edit an Installed Sort Theme on page 492](#).
5. Click  **Save** to save changes.
6. To revert a sort theme addition and restore settings prior to editing, click  **Revert**, then click **Yes** in the *Confirm Revert* message window.
7. To delete a sort theme addition, select a layout theme addition from the **Select Layout Theme** drop-down list and click  **Delete**. Click **Yes** in the *Confirm Delete* message window.
8. Click  **Save and Close** to close the *Sorts* window and return to the *Define Routes* window.

Add, Edit, and Apply an AND or OR Filter Group

The *Filters* pane consists of a set of pre-defined filters as well as on demand filters grouped together with AND or OR joins. A filter group is a named set of one or more filters that affect the data returned. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes all filters in AND filter groups together then processes all filters in OR filter groups together.

An AND filter group is a named set of one or more filters that affect the data output in a route selected in *Define Routes*. Adding an AND filter group produces a subset of records that meet *all* filter conditions. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

An OR filter group is a named set of one or more filters that affect the data output of a route selected in *Define Routes*. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to add and/or edit an AND or an OR filter group and then apply the filter for use in the *Define Routes* window:

1. Click **Data Entry > Define Routes** to open the *Define Routes* window.
2. Select a route from the **Routes** drop-down list.
3. Click the **Customize** tab and then the **Filters** tab to open the *Filters* window.

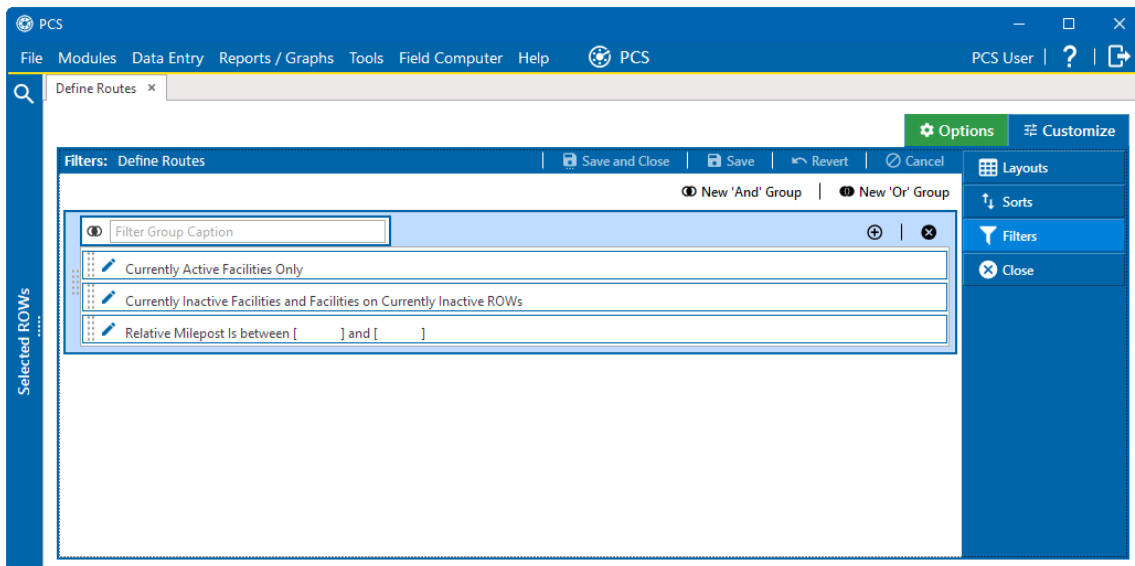


Figure 7-73. Filters Window

4. To create a new And group, click **New 'And' Group** to open the filter properties group box.

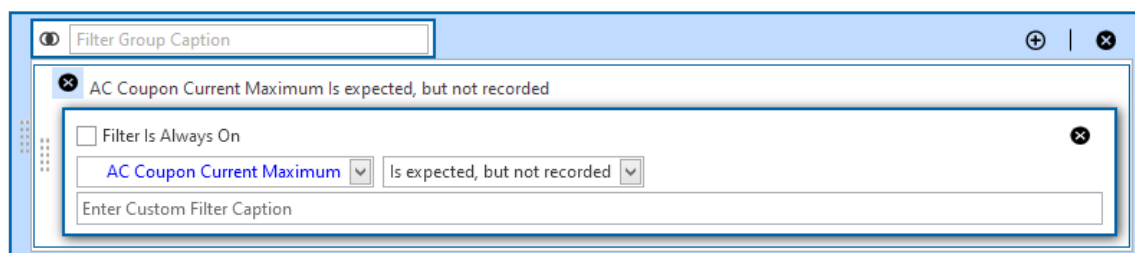


Figure 7-74. And Group Filters

- To create a new Or group, click **New 'Or' Group** to open the filter properties group box.

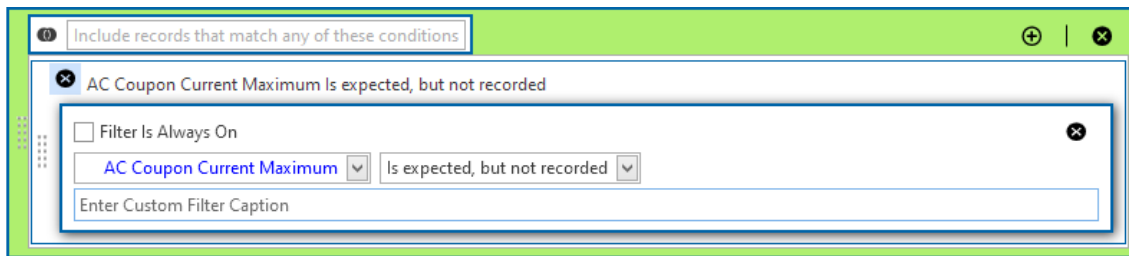







Figure 7-75. Or Group Filters

- Type a name for the filter group in the **Filter Group Caption** field.
- Select the **Filter Is Always On** option to keep the filter on.
- Use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
 - When adding a date filter, set a date range using a calendar or dynamic dates in one of the following ways:
 - Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.
 - To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - To set a date range using dynamic start and end dates, click the  calculator icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
 - Type a name for the filter in the **Enter Custom Filter Caption** field.
 - If additional filters are needed within the filter group, click  and repeat these steps.
- If necessary, click the  edit icon for a filter to open that filter's property settings and change settings as needed.
- Click  **Save** to save the filter group.
- Click  **Save and Close** when finished saving all filter groups.
- To apply one or more filters to the selected route in the *Define Routes* grid, click the **Options** tab to open the *Options* window.

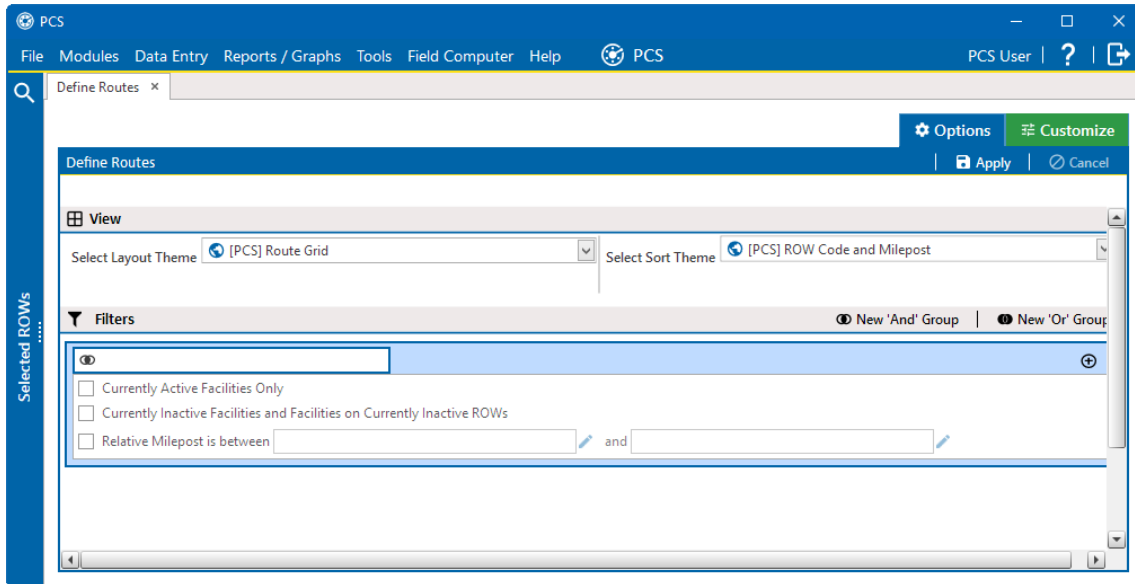



Figure 7-76. Define Routes Options Window

13. In the **Filters** pane, click the check box for each filter you want to apply. The filters that were created with the **Filter Is Always On** option will be automatically selected.
14. Click  **Apply** to save changes and return to the data entry grid.

Edit and Arrange Filters and Filter Groups

PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Filter groups are processed similarly. Information in this section explains how to edit filter property settings and how to arrange filters and filter groups.

Complete the following steps to edit and arrange filters and filter groups:

2. Click **Data Entry > Define Routes** to open the *Define Routes* window. Select a route from the **Routes** drop-down list.

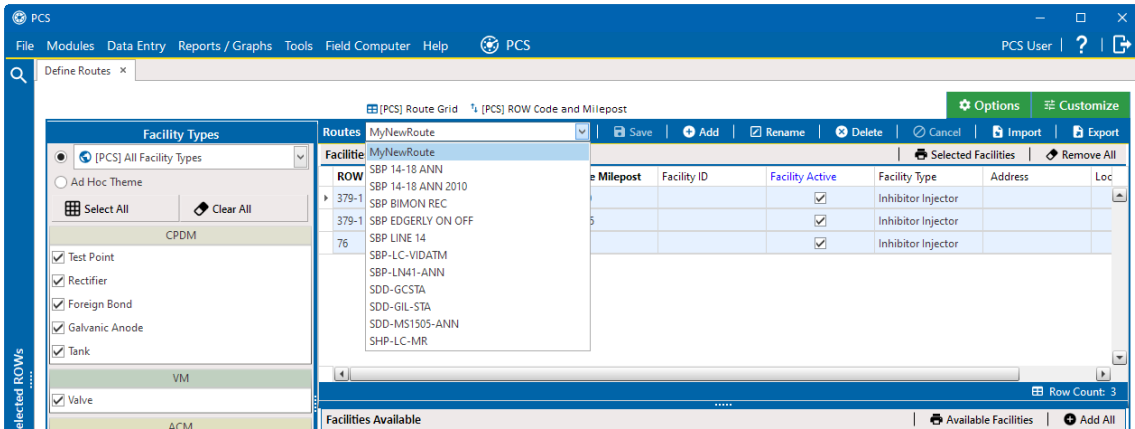


Figure 7-77. Defined Routes

3. Click the **Customize** tab and then the **Filters** tab to open the *Filters* window.

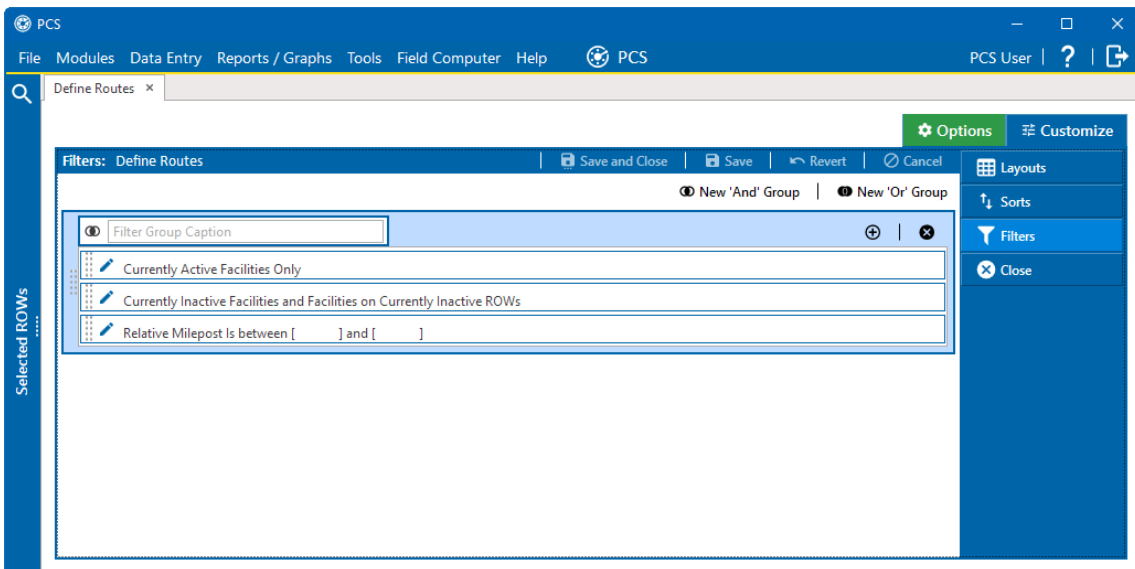


Figure 7-78. Filters Window

4. Click the edit icon  to display a filter's property settings.

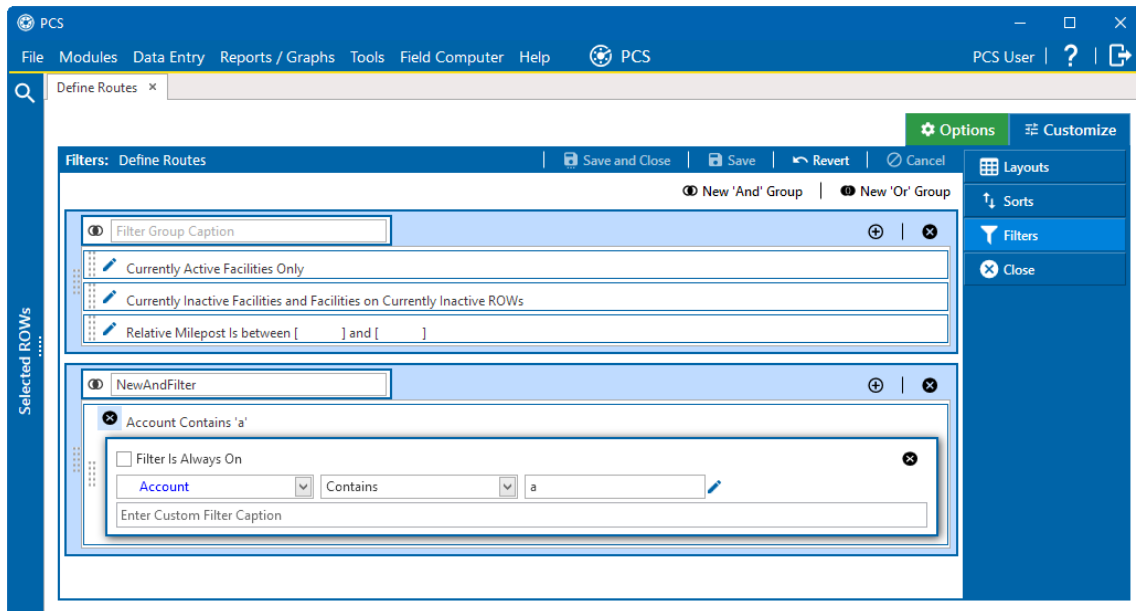







Figure 7-79. Filter Group's Settings

5. To rename a filter, type a description in the filter's name field.
6. To change filter criteria, use filter selection fields to select a PCS field, operator, and one or more filter conditions.
7. To enable a filter for all sessions of the data entry grid, click the check box **Filter is Always On** to place a check mark inside the check box. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.
8. To delete a filter in a filter group, click the filter's  delete icon. Then click  **OK** in the *Delete* message window.
9. Click  **Save** to save changes or  **Save and Close** to save changes and close the *Filters* window.
10. To apply filter changes to the selected route and the *Define Routes* grid, click **Options** tab to open the *Options* window and select (or de-select) any filter you wish to use. Click  **Apply** to save changes and return to the *Define Routes* grid.

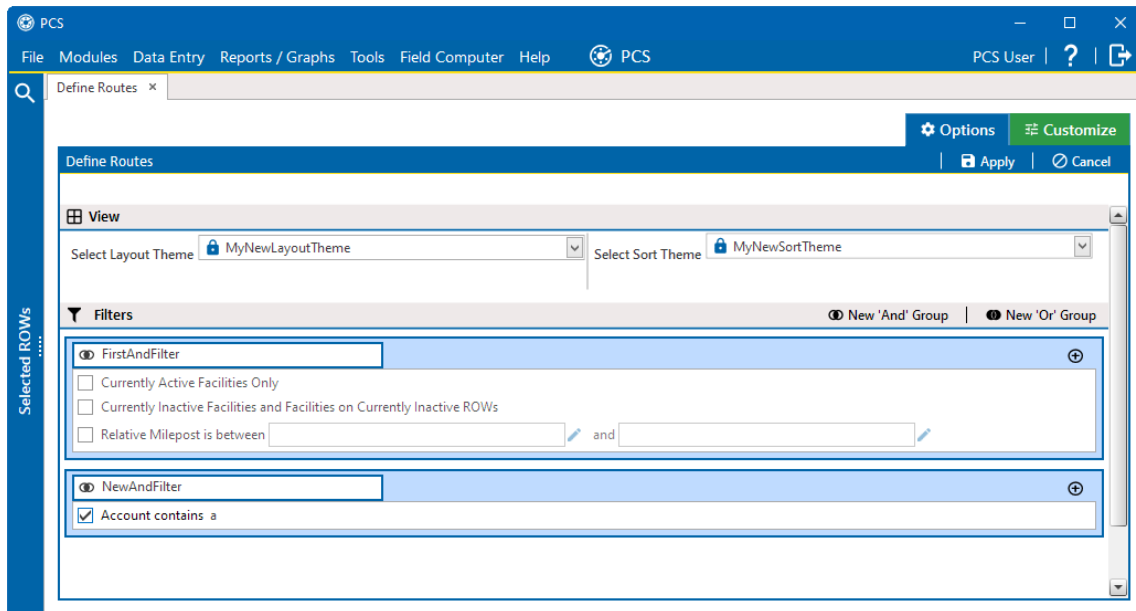


Figure 7-80. Select Filters for Use

Print, Export, or Email a Route

You can view, print, and export a route with selected or available facilities.

Selected facilities are those included in the route. These facilities are also listed in the *Facilities in Route* grid of the *Define Routes* window.

Available facilities are linked to the current ROW selection, but are *not* included in the route. Available facilities are listed in the *Facilities Available* grid of the *Define Routes* window.

Complete the following steps to preview, print, export, or send via email a route:

1. Click **Data Entry > Define Routes** to open the *Define Routes* window. Select a route from the **Routes** drop-down list.

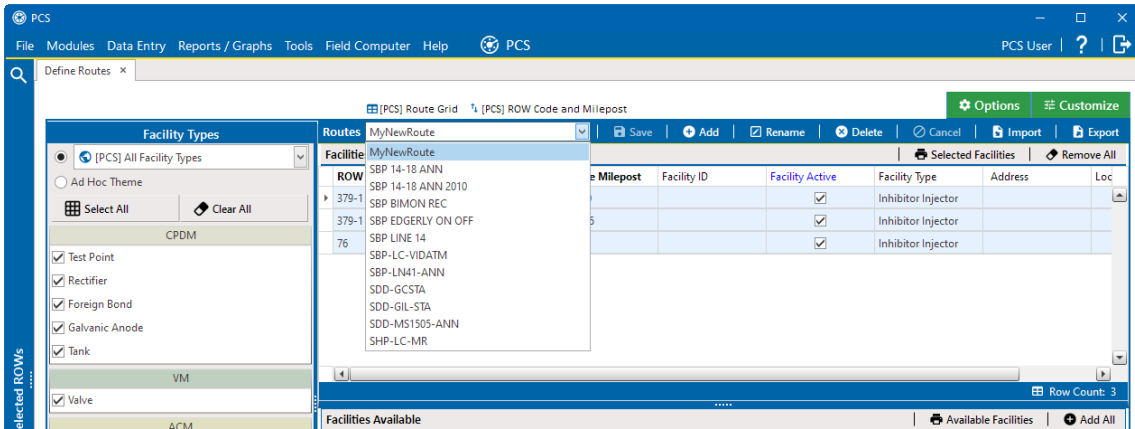


Figure 7-81. Define Routes Window

2. Selected the facilities you wish to preview from the *Facilities Available* grid.

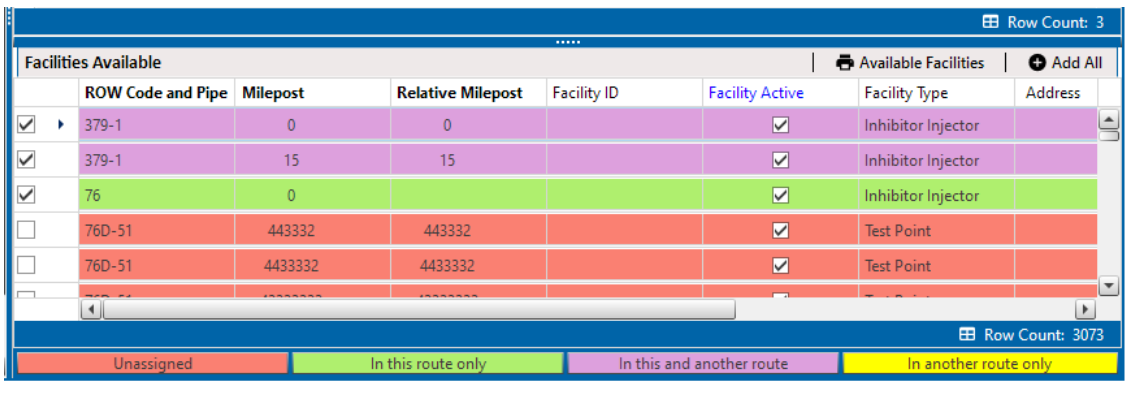


Figure 7-82. Facilities Available Grid

3. Click **Available Facilities**. A *Print Preview* window opens.

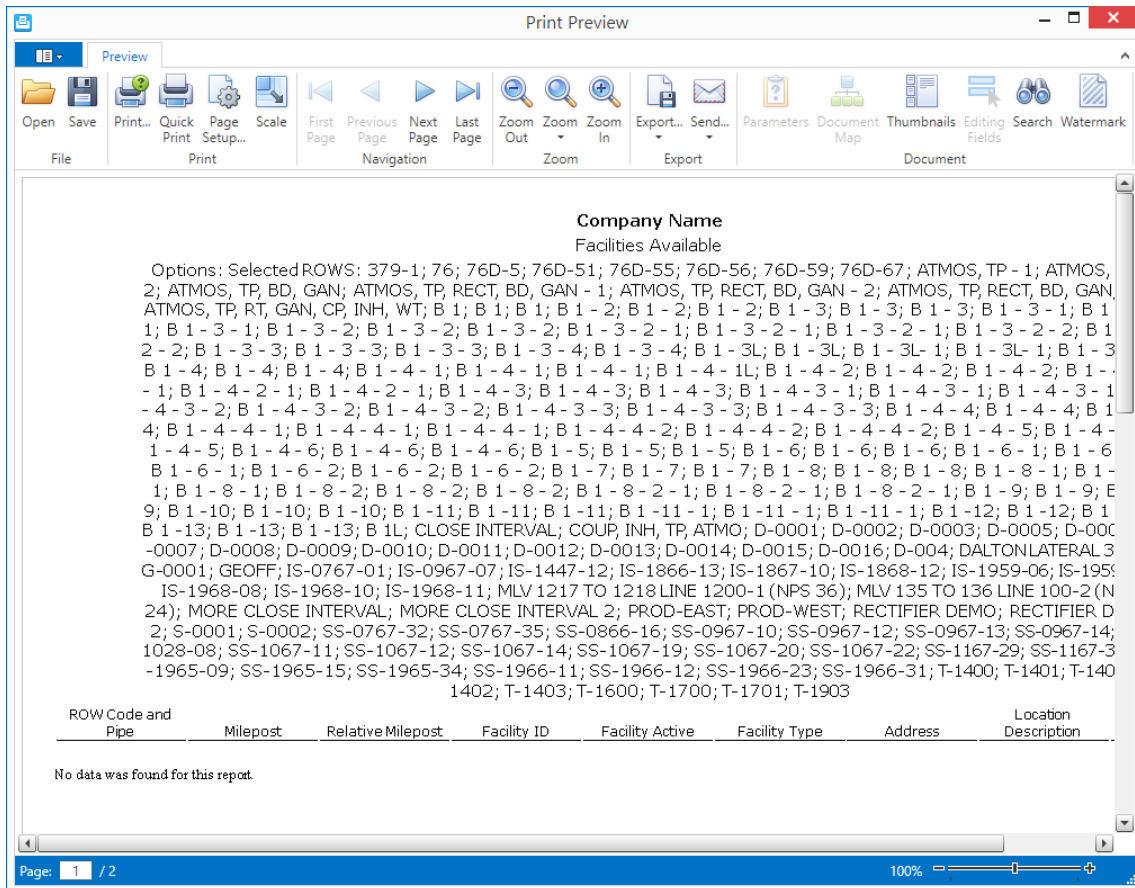





Figure 7-83. Print Preview

4. To print the report using the default Windows printer, click **Quick Print**.
5. To open a print window and select a printer to print the report, click  **Print**.
6. To export the report in a file format:
 - a. Click the down arrow in  **Export Document** and select a file format in the selection list. You can also just click the  icon to open the *Export Document* window where you can select the file type from the **Export format** drop-down list (see below).
 - b. In the *Export Document* window, if desired, select the file type from the **Export format** drop-down list. Click the ellipsis button to select a file path. Click **More Options** to see options associated with the file type selected. When finished, click **OK**.

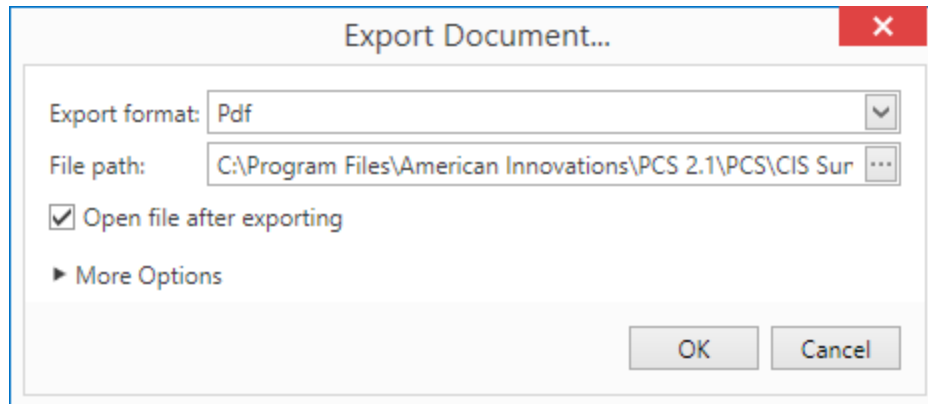


Figure 7-84. Export Document Window

7. To send the report as an attachment in an email:
 - a. Click the down arrow in **Send** and select a file format in the selection list. You can also just click the icon to open the *Send via E-Mail* window where you can select the file type from the **Export format** drop-down list (see below).

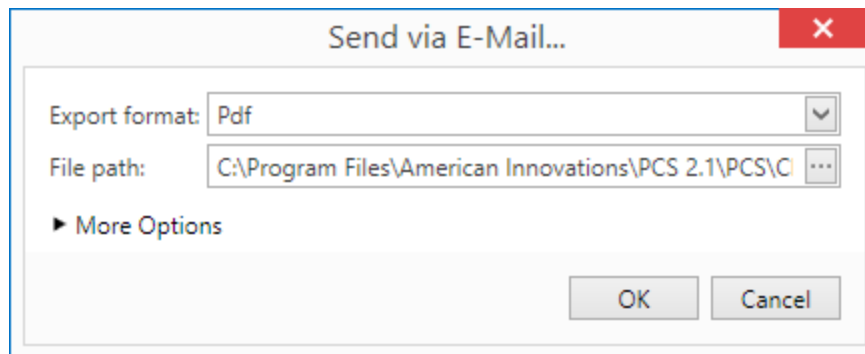


Figure 7-85. Send Via Email Window

- b. Select a file format from the **Export format** drop-down list. Click the ellipsis button to select a file path. Click **More Options** to see options associated with the file type selected. When finished, click **OK**
 - c. When an email message opens with the report as an attachment, select an email recipient and then click **Send**.
8. If you want to export the route, click the **Export Document** button and select any of the following file formats: PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, IMG, and XPS.
9. Click to close the print preview window and return to the data entry grid.

Export and Import a Route

The following information explains how to import or export a defined route in either Microsoft Excel (.xls) or CSV (.csv) format. Facilities for inspection are based on the pipeline segment(s) you select in the *Select ROWs* window.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to export and import a route:

1. Click **Data Entry > Define Routes** to open the *Define Routes* window. Select a route from the **Routes** drop-down list.

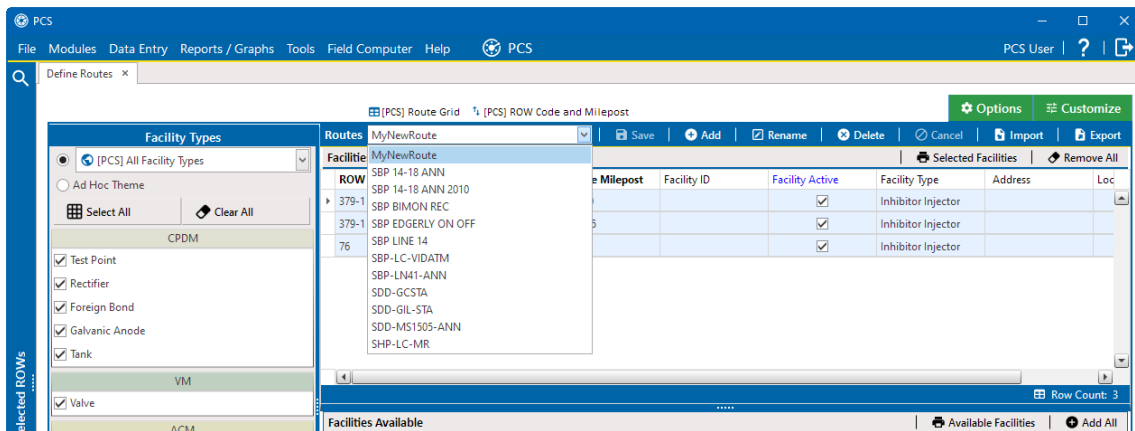


Figure 7-86. Define Routes

If you have not defined any routes, refer to [Create a Route](#) for instructions on creating a route.

2. To add a facility to the *Facilities in Route* grid, double-click the name of the facility in the *Facilities Available* grid.
3. Click **Save** to save the changes.
4. To export the route, click **Export**.
5. Click **Yes** in the *Confirm Export* window.

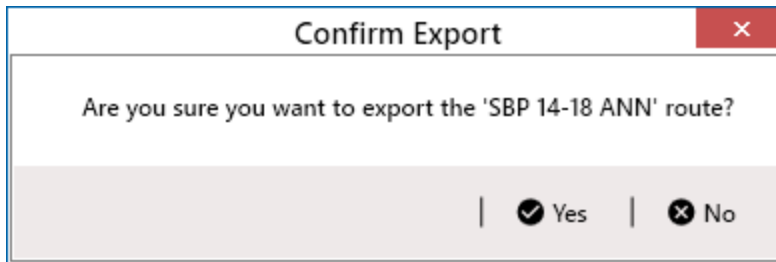


Figure 7-87. Confirm Export Window

- a. Choose an export file type. Click the down arrow in the **Save as type** field and select one of the following file types:
 - Excel files (*.xlsx)
 - Text files (*.csv)
6. When the file has been created, the *Info* window displays. Click **OK**.

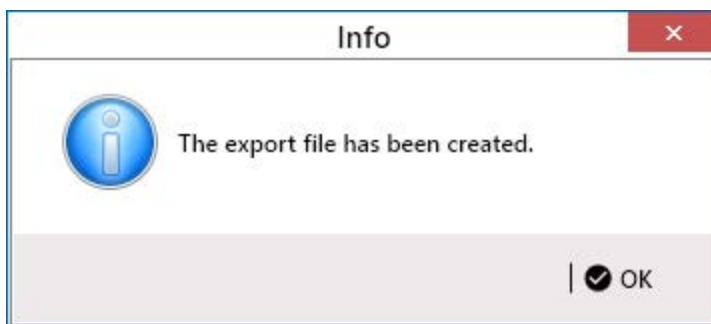



Figure 7-88. Export File Created

7. To import a saved file, select a route from the **Routes** drop-down list. This route will be replaced by the route to be imported. Click  **Import**.
8. Navigate to the file and click **Open**. The file is loaded in the *Facilities in a Route* grid, and replaces the route previously shown.

Use a Route in PCS

You can use a route in PCS to perform any of the following tasks:

- View inspection records in a grid based on a route. Refer to [View Records Based on a Schedule on page 296](#).
- Transfer a survey to a field computer or mobile device based on a route. Refer to [Field Computer on page 650](#).

Schedules

A schedule is a group of facilities to be surveyed for a specific time period, such as a month or year. The same schedule can include multiple facility types as well as facilities requiring bi-monthly, annual, and multi-year inspections, if those inspections are due in the same year. You can set up some schedules to include every facility that may be due for inspection and others to include one type of facility or survey period. PCS dynamically generates a schedule with the most current information.

A schedule is different from a route. A schedule is a list of facilities that are due to be inspected, whereas a route assigns a specific order to facility inspections. A schedule is always ordered by due date and then as an option, sorted by facility ID, address, or route order. If you plan to create a schedule in route order, routes must be defined first (**Data Entry > Define Routes**).

Scheduling allows you to create a blank survey form based on a schedule for data collection that includes prompts only for scheduled facilities. You can also transfer a survey based on a schedule to the field computer. Survey data is then transferred from the CartoPac field computer or other mobile device or entered in PCS from the survey form.

A valuable feature of scheduling is the ability to transfer a survey based on a schedule to the field computer or other mobile device. Once the survey is complete, the PCS database is easily updated by transferring inspection data from the mobile device to PCS.

Most PCS users can work with schedules.

NOTE: Scheduling properties set up in the Time Between Surveys tab will be applied system-wide. However, settings can be overridden at the facility type level in the *Facility Level Override* mini-grid of the *Information* grid for a module's data entry grid, in the ROW hierarchy pane of the Hierarchy Level Overrides tab, or in the Schedule Type Settings tab. The settings made in the *Facility Level Override* mini-grid of the *Information* grid for a module's data entry grid override the other two. Therefore, it is not recommended to make changes at the facility level.

This chapter includes the following topics:

- [Schedule Workflow](#)
- [Set Up Scheduling Criteria on page 512](#)
- [Create a Schedule on page 536](#)
- [Work with a Schedule Definition on page 542](#)
- [Use a Schedule in PCS on page 548](#)

Schedule Workflow

The process for working with a schedule includes the following tasks:

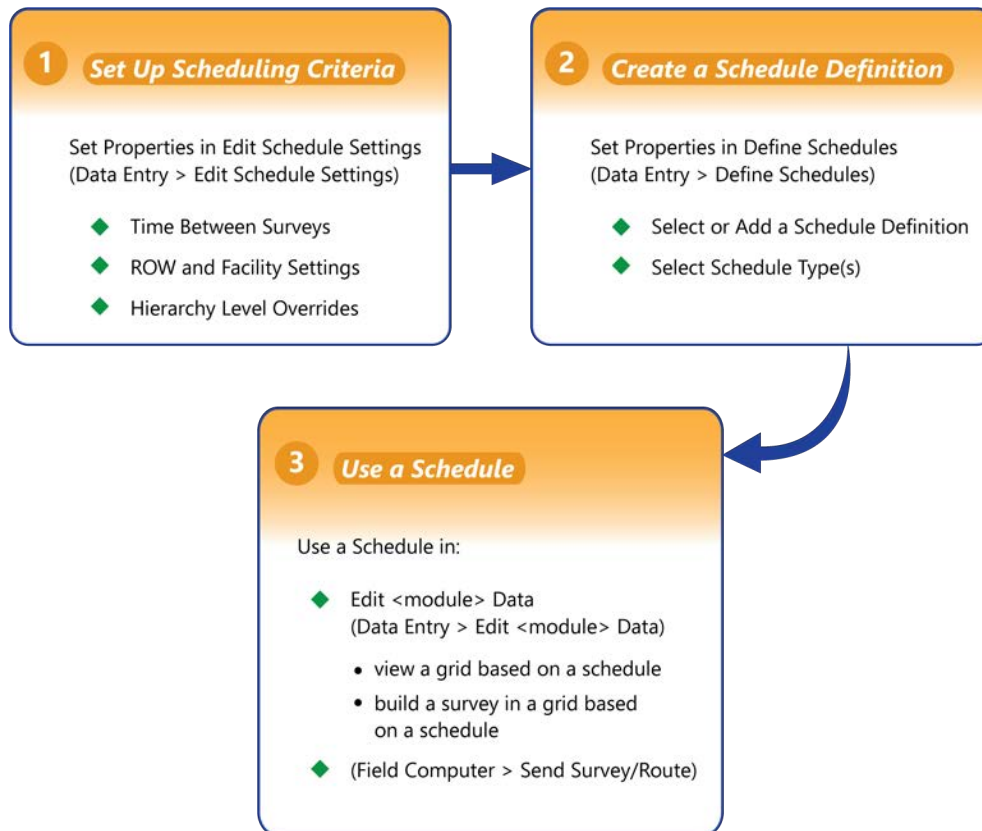


Figure 8-1. Scheduling Workflow Diagram

- Set up scheduling properties in the *Edit Schedule Settings* window (**Data Entry > Edit Schedule Settings**). Scheduling properties define the parameters PCS uses to calculate facility inspection due dates.
- Create a schedule definition with one or more schedule types in the *Define Schedules* window (**Data Entry > Define Schedules**). A schedule type identifies which facility types to include in the schedule, and as an option, to include all facility types on a ROW that are due for an inspection.
- Use a schedule to view facility records in a data grid based on a schedule, transfer a survey based on a schedule to the field computer or mobile device, and view and print a data collection form based on a schedule.

Set Up Scheduling Criteria

Setting up scheduling criteria begins with setting properties in the **Time Between Survey Settings** tab of the *Edit Schedule Settings* window. Settings are applied system-wide but can be overridden based on your company's survey policy. You can set up scheduling overrides by facility type, at the hierarchy level, or at the facility level.

Refer to the following topics for information on how to set up scheduling properties using the three tabs in the *Edit Schedule Settings* window:

- [Time Between Survey Settings](#)
- [Schedule Type Settings on page 517](#)
- [Hierarchy Level Overrides on page 529](#)

Settings that are used in the *Edit Schedule Settings* window may include a different style or format to help identify a property:

- A setting in bold text indicates an override.
- A setting inside parentheses indicates a baseline setting.
- A setting with **N/A** (not applicable) indicates the setting does not apply to the scheduling property.

Time Between Survey Settings

Time Between Survey Settings tab of the *Edit Schedule Settings* window allows you to set up scheduling properties for a survey, such as an annual, periodic, 5-year, or 10-year survey. Setting up survey scheduling properties includes identifying the survey start month and year, the grace period, the delinquent time period, and the number of inspections required in a calendar year.

PCS provides baseline settings based on government compliance regulations and industry standards. Baseline settings can be changed so that they match your company's survey policy.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to set up survey scheduling properties:



1. Click **Data Entry > Edit Schedule Settings** and then the **Time Between Survey Settings** tab.

Time Between Surveys	Target Month	Target Year	Early Survey Limit Days	Multi-Year Survey Start	Grace Period	Grace Period Unit	Required Inspections Per Calendar Year	Minimum Percent Scheduled	Include Delinquent Within Days
1 Month	January		0		5 Days		12		10
2 Months	January		5		15 Days		6		10
3 Months	January		5		15 Days		4		10
4 Months	January		5		20 Days		3		10
6 Months	January		20		1.5 Months		2		15
12 Months	January		30		3 Months		1		30
2 Years	January	1 2020,2022,...	30	2000	3 Months			50.00	30
3 Years	January	1 2021,2024,...	30	2000	3 Months			33.33	30
4 Years	January	1 2020,2024,...	30	2000	3 Months			25.00	30
5 Years	January	1 2020,2025,...	30	2000	3 Months			20.00	30
6 Years	January	1 2018,2024,...	30	2000	3 Months			16.67	30
7 Years	January	1 2021,2028,...	30	2000	3 Months			14.29	30
8 Years	January	1 2016,2024,...	30	2000	3 Months			12.50	30
9 Years	January	1 2018,2027,...	30	2000	3 Months			11.11	30
10 Years	January	1 2020,2030,...	30	2000	3 Months			10.00	30

Figure 8-2. Time Between Survey Settings Tab

2. Refer to the following table for descriptions of survey property settings and how to set up each of these.

Table 8-12. Setting Up Time Between Survey Settings

Property Name	Property Description
Time Between Survey	<p>A list of surveys indicating the number of months or years between inspections. These fields cannot be changed.</p> <p>An  or  icon displays beside the survey indicating a selection.</p>
Target Month	<p>Target Month is only used when Targets is selected as the scheduling method. Otherwise, property settings are ignored and do not need to be set up.</p> <p>Target Month refers to the first survey month. Options in the selection list are based on the Time Between Survey value.</p> <p>For example, if Time Between Surveys is 2 months and the Target Month (first survey month) is January, surveys are set at 2 month intervals beginning in January. The next survey is due in March, the next in May, and so on.</p> <p>To select a target month:</p> <ol style="list-style-type: none"> 1. For a survey listed in Time Between Surveys, click the Target Month field to display a drop-down arrow. 2. Click the down arrow and select a target month in the selection list.

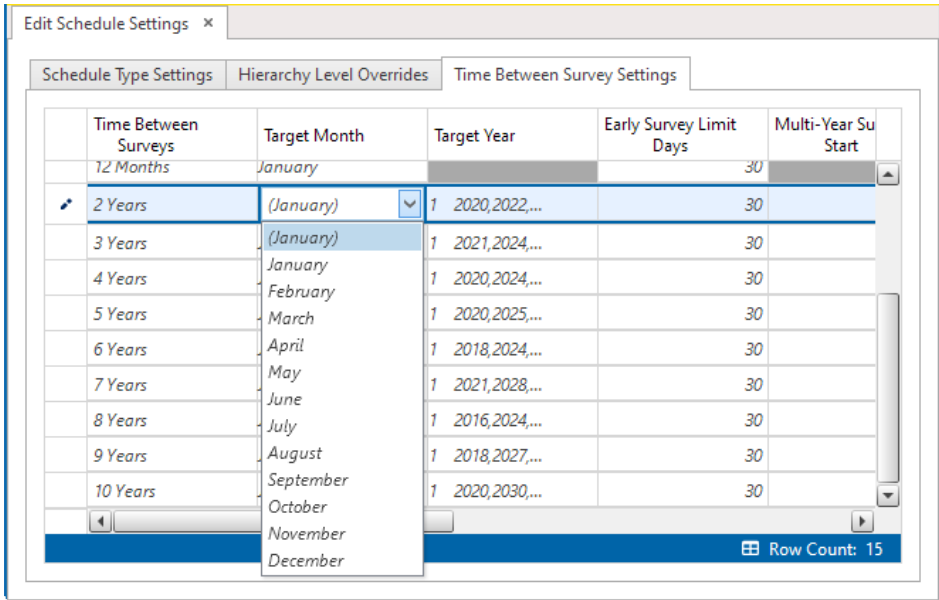


Figure 8-3. Target Month Drop-down List

Table 8-12. Setting Up Time Between Survey Settings cont'd

Property Name	Property Description
<p>Target Year</p>	<p>Target Year is only used when Targets is selected as the scheduling method. Otherwise, property settings are ignored and do not need to be set up.</p> <p>Target Year is the year within the survey period when you want the first survey to take place. This field is only used for facilities with more than 12 months between surveys. PCS calculates Target Year based on the current year and values in the fields Time Between Surveys and Multi-Year Survey Start.</p> <p>The target year selection list includes a list of valid survey years with corresponding target year dates.</p> <p>To select a target year:</p> <ol style="list-style-type: none"> 1. For a survey listed in Time Between Surveys, click the Target Year field to display a drop down arrow. 2. Click the down arrow and select a target survey year. <div data-bbox="418 955 1356 1407" data-label="Image"> <p>The screenshot shows a window titled 'Edit Schedule Settings' with three tabs: 'Schedule Type Settings', 'Hierarchy Level Overrides', and 'Time Between Survey Settings'. The 'Time Between Survey Settings' tab is active and contains a table with the following columns: 'Time Between Surveys', 'Target Month', 'Target Year', 'Early Survey Limit Days', and 'Multi-Year Survey Start'. The table lists intervals from 12 Months to 6 Years. The '2 Years' row is selected, and its 'Target Year' dropdown menu is open, showing a list of years and their corresponding start dates. At the bottom right of the window, it says 'Row Count: 15'.</p> </div>
	<p>Figure 8-4. Target Year Drop-down List</p> <p>If an appropriate survey year is not listed, type a different year in the Multi-Year Survey Start field to update items in the selection list.</p>

Table 8-12. Setting Up Time Between Survey Settings cont'd

Property Name	Property Description
<p>Grace Period and Grace Period Unit</p>	<p>A period of time in days or months an inspection can be late without incurring a compliance violation.</p> <p>To set a grace period:</p> <ol style="list-style-type: none"> 1. Enter a value in the Grace Period field. 2. Select the Grace Period Unit field. Click the down arrow and select either Days or Months in the selection list. <div data-bbox="418 688 1351 1142" style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> </div> <p style="text-align: center;">Figure 8-5. Grace Period Unit Drop-down List</p>
<p>Early Survey Limit Days</p>	<p>Early Survey Limit Days is only used when Targets is selected as the scheduling method. When the selected scheduling method is Last Survey or X years / Y%, PCS displays N/A (not applicable) indicating Early Survey Limit Days does not apply.</p> <p>Early Survey Limit Days refers to how early an inspection can occur before the actual due date and still count as an inspection for that survey period.</p> <p>To set the number of days an inspection can occur before the actual due date, enter a value in the Early Survey Limit Days field.</p>
<p>Include Delinquent Within Days</p>	<p>If a facility inspection will become delinquent within a number of days, include the facility in the schedule with those due for inspection. For example, if a facility inspection is delinquent in 5 days, include that facility in the schedule with others due for inspection.</p> <p>To set a delinquent time period in days, enter a value in the Include Delinquent Within Days field.</p>

Table 8-12. Setting Up Time Between Survey Settings cont'd

Property Name	Property Description
Required Inspections Per Calendar Year	Number of required inspections per calendar year. To set the number of required inspections, enter a value in the Required Inspections Per Calendar Year field.
Multi-Year Survey Start	Refers to the year a multi-year survey starts (starting point). PCS uses the starting year to calculate future survey dates available for selection in the Target Year selection list. To set a starting year for a multi-year survey, enter a year in the Multi-Year Survey Start field.
Minimum Percent Scheduled	Refers to a minimum percentage of facilities that must be inspected. This setting works in conjunction with the due date calculation method X years/Y% selected in the Schedule Type Settings tab. To set a minimum percentage of facilities that must be inspected, enter a value in the Minimum Percent Scheduled field. The field supports decimal formatting, such as 30.75.

Schedule Type Settings

Scheduling properties set up in the Schedule Type Settings tab of the *Edit Schedule Settings* window apply at the facility type level. Some scheduling properties inherit settings from those previously set up in the Time Between Survey Settings tab. Inherited settings changed at the facility type level override and have precedent over those in the Time Between Survey Settings tab.

Complete the following steps to set up scheduling properties at the facility type level:

1. Click **Data Entry > Edit Schedule Settings** and then the **Schedule Type Settings** tab.

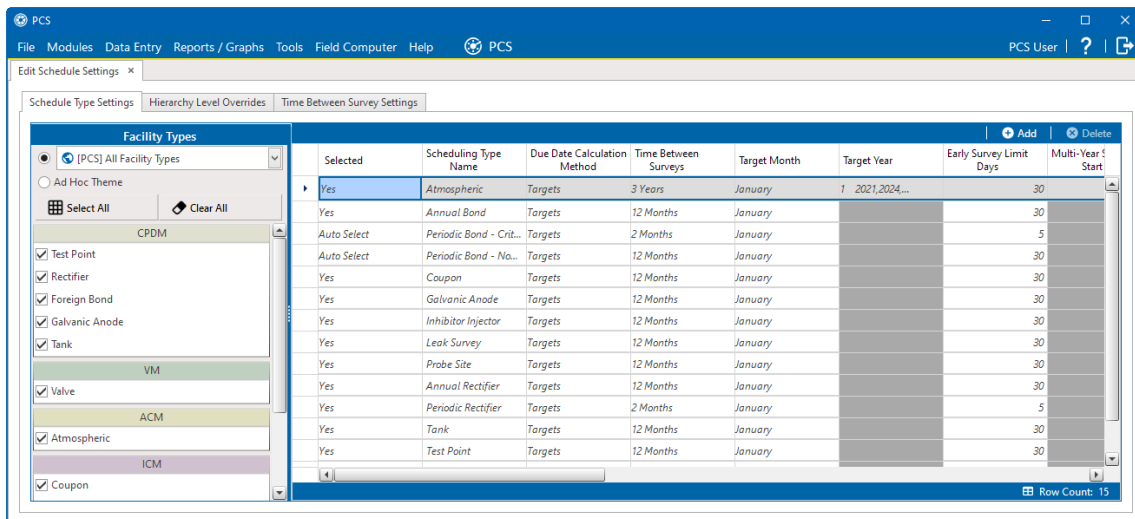


Figure 8-6. Schedule Type Settings Tab

2. Select the facility type you want to work with:
 - To select a facility type theme, select a theme from the **Facility Types** drop-down list.
 - To select multiple facility types, click the **Ad Hoc Theme** radio button and then select one or more facility types, such as **Test Point**, **Rectifier**, or **Foreign Bond**.

An Ad Hoc Theme only applies to the current session and is not saved. A facility type is selected when a check mark appears inside the check box. To clear the check mark, click the check box again.
3. Refer to the following table for a description of facility type scheduling properties and how to set up each of these.

Certain property names in the following table include an asterisk *). The asterisk identifies scheduling properties you can set at the facility type level that will override and take precedent over those in the Time Between Survey Settings tab.

Table 8-13. Schedule Type Settings

Property Name	Property Description
Selected	<p>Include or exclude schedule settings at the facility type level when generating a schedule with facilities due for inspection.</p> <p>To include or exclude schedule settings, click Selected to display a drop down arrow and select one of the following options from the drop-down list:</p> <ul style="list-style-type: none">• No: Excludes schedule settings when generating a schedule.• Yes: Includes schedule settings when generating a schedule.• Auto Select: If an Auto Select Expression has previously been created, select to include the expression with other schedule settings when generating a schedule. <p>Refer to Auto Select Expression (below) for information about how to create an expression.</p>

Table 8-13. Schedule Type Settings cont'd

Property Name	Property Description
<p>Scheduling Type Name</p>	<p>A named set of schedule settings for a facility type, such as Periodic Rectifier or Annual Rectifier.</p> <p>To add a new scheduling type:</p> <ol style="list-style-type: none"> 1. Select a Facility Types theme or set up an Ad Hoc Theme with a facility type you want to add a new scheduling type. 2. Click Add to open the <i>Add Schedule Type</i> window. <div data-bbox="414 688 1281 1869" data-label="Image"> </div> <ol style="list-style-type: none"> 3. Enter a name for the new scheduling type in the Scheduling Type Name field. 4. Set up schedule settings as required.

Table 8-13. Schedule Type Settings cont'd

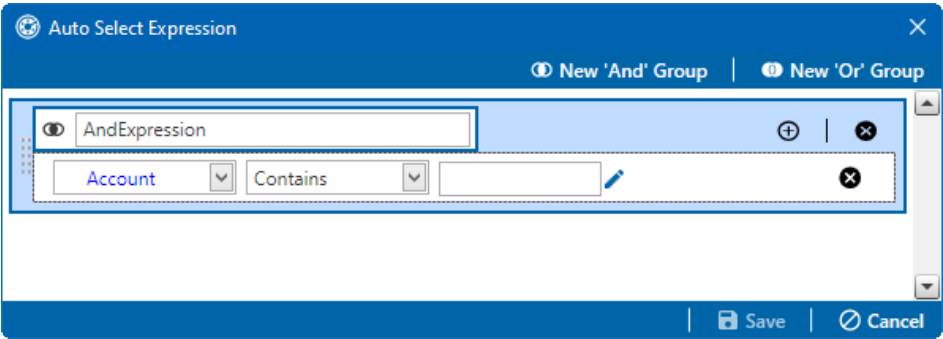
Property Name	Property Description
<p>Auto Select Expression</p>	<p>A database query set up for a scheduling type that defines the criteria for including specific facilities in a survey schedule. The expression is a combination of an operator, PCS field, condition, and user-selected criteria.</p> <p>To create an expression for a scheduling type:</p> <ol style="list-style-type: none"> In the Auto Select Expression column, click Create Expression to display an ellipsis button (...). Click the button to open the <i>Auto Select Expression</i> window. Select an expression operator by selecting either New 'And' Group or New 'Or' Group. Type a name for the expression in the Filter Group Caption field.  <p>Figure 8-8. Auto Select Expression - New And Group</p> <ol style="list-style-type: none"> Set up expression fields. To set up a field, click the down arrow and select a PCS field. Click the down arrow and select a condition, such as <i>Is equal to</i> or <i>Is missing</i>, and type a criteria in the last expression field if the field is present. This field is present based on selections in the previous two expression fields. Click + icon to add additional fields. Click Save.

Table 8-13. Schedule Type Settings cont'd

Property Name	Property Description
Scheduling Priority	<p>Facilities due for inspection are scheduled for survey at the facility type level based on the priority level of the scheduling type. Priority level is any value from 1 to 99 with 1 being the highest priority. To set a priority level at the facility type level for a scheduling type:</p> <ol style="list-style-type: none"><li data-bbox="370 541 1386 619">1. Verify Yes is set for the Only Highest Priority Due Is Scheduled scheduling property.<li data-bbox="370 646 1289 682">2. Enter a value for Scheduling Priority using any number from 1 to 99. <p>A priority level set at the facility type level can be overridden at the ROW level in the Hierarchy Level Overrides tab.</p>

Table 8-13. Schedule Type Settings cont'd

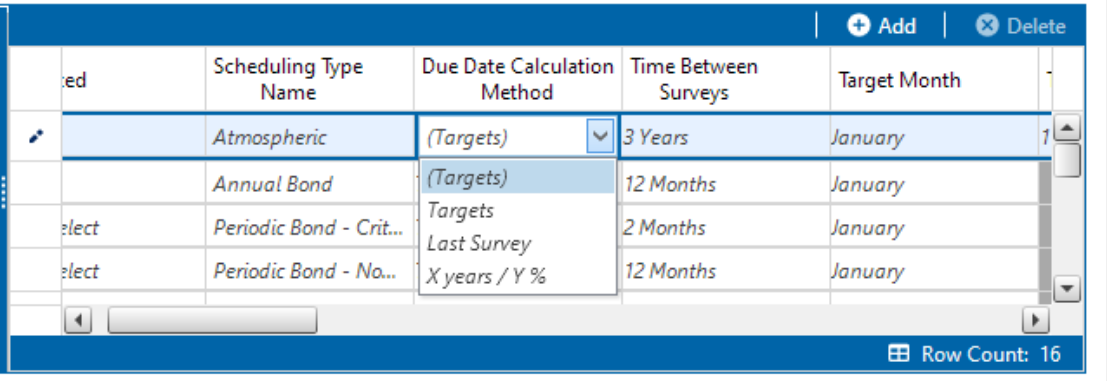
Property Name	Property Description
Due Date Calculation Method	<p>Facilities due for inspection are scheduled for survey at the facility type level based on the due date calculation method of the scheduling type.</p> <p>To set a due date calculation method for a scheduling type, click the field under Due Date Calculation Method column in a row to display a drop-down arrow and select one of the following options:</p>  <p>The screenshot shows a table with the following columns: Scheduling Type Name, Due Date Calculation Method, Time Between Surveys, and Target Month. The 'Due Date Calculation Method' column is open, showing a list of options: (Targets), Annual Bond, Periodic Bond - Crit..., and Periodic Bond - No... The 'Time Between Surveys' column shows values like 3 Years, 12 Months, 2 Months, and 12 Months. The 'Target Month' column shows 'January' for all rows. The table has a 'Row Count: 16' indicator at the bottom right.</p>

Figure 8-9. Due Date Calculation Method Drop-down List

- **Targets:** Facilities due for inspection are scheduled for survey based on the Last Inspection Date, Target Month and Target Year.
- **Last Survey:** Facilities due for inspection are scheduled for survey based on the Last Inspection Date and setting for the Time Between Surveys scheduling property.
- **X years/Y%:** Facilities due for inspection are scheduled for survey based on the Last Inspection Date and settings for the Time Between Surveys. Multi-Year Survey Start, and Minimum Percent Scheduled scheduling properties.

Table 8-13. Schedule Type Settings cont'd

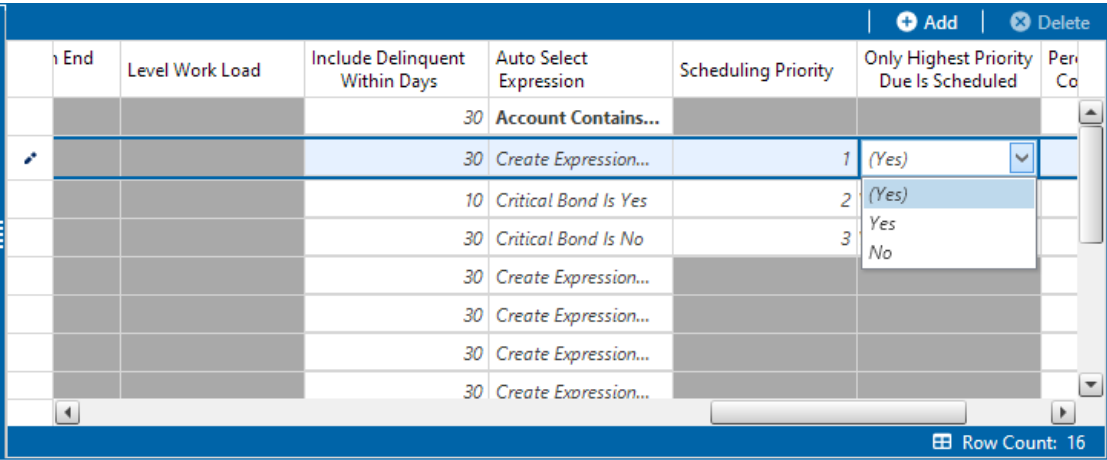
Property Name	Property Description
<p>Only Highest Priority Due Is Scheduled</p>	<p>If the scheduling type is set up with a Scheduling Priority level, include only those facilities with the highest priority level that are due for inspection in the survey schedule.</p> <p>For a scheduling type listed in the Scheduling Type Name column, click the Only Highest Priority Due Is Scheduled field to display a drop-down arrow.</p> <p>Click the down arrow and select one of the following options:</p>  <p>Figure 8-10. Only Highest Priority Due Is Schedule Drop-down List</p> <ul style="list-style-type: none"> • Yes: Only those facilities due for inspection with the highest priority level are scheduled for survey. • No: Any facility due for inspection is scheduled for survey.
<p>Percent Needed to Complete Survey</p>	<p>A value from 0 to 100 indicating the percentage of facilities that must be surveyed before the survey (annual or multi-year) is considered complete.</p> <p>To set a percentage:</p> <ul style="list-style-type: none"> • Enter a value in the Percent Needed To Complete Survey field for a scheduling type listed in <i>Scheduling Type Name</i>.

Table 8-13. Schedule Type Settings cont'd

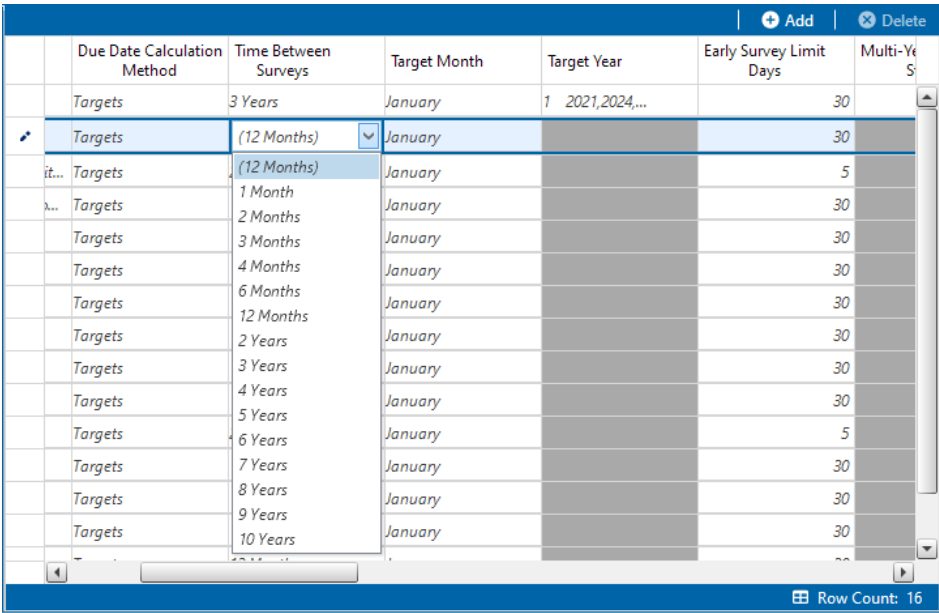
Property Name	Property Description
*Time Between Surveys	<p>Number of months or years between inspections.</p> <p>To set the time between surveys:</p> <ol style="list-style-type: none"> For a scheduling type listed in Scheduling Type Name, click the Time Between Surveys field to display a drop down arrow.  <p>The screenshot shows a table with the following columns: Due Date Calculation Method, Time Between Surveys, Target Month, Target Year, Early Survey Limit Days, and Multi-Year S. The 'Time Between Surveys' column has a dropdown menu open, showing options: (12 Months), 1 Month, 2 Months, 3 Months, 4 Months, 6 Months, 12 Months, 2 Years, 3 Years, 4 Years, 5 Years, 6 Years, 7 Years, 8 Years, 9 Years, and 10 Years. The current selection is '(12 Months)'.</p>
	<ol style="list-style-type: none"> Click the down arrow and select the number of months or years from the selection list.

Figure 8-11. Time Between Surveys Drop-down List

Table 8-13. Schedule Type Settings cont'd

Property Name	Property Description																																																																																																
<p>*Target Month</p>	<p>Used only when Targets is selected as the scheduling method. Refers to the first survey month. Options in the selection list are based on the Time Between Survey value.</p> <p>As an example, if Time Between Surveys is 2 months and the <i>Target Month</i> (first survey month) is January, surveys are set at 2 month intervals beginning in January. The next survey is due in March, the next in May, and so on.</p> <p>To set the target month:</p> <ol style="list-style-type: none"> For a scheduling type listed in Scheduling Type Name, click the Target Month field to display a drop down arrow. <div data-bbox="414 800 1347 1325" data-label="Image"> <table border="1"> <thead> <tr> <th>Due Date Calculation Method</th> <th>Time Between Surveys</th> <th>Target Month</th> <th>Target Year</th> <th>Early Survey Limit Days</th> <th>Multi-Year S</th> </tr> </thead> <tbody> <tr> <td>Targets</td> <td>3 Years</td> <td>January</td> <td>1 2021,2024,...</td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>(January) [v]</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>2 Months</td> <td>(January)</td> <td></td> <td>5</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>January</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>February</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>March</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>April</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>May</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>June</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>July</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>August</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>September</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>October</td> <td></td> <td>30</td> <td></td> </tr> <tr> <td>Targets</td> <td>2 Months</td> <td>November</td> <td></td> <td>5</td> <td></td> </tr> <tr> <td>Targets</td> <td>12 Months</td> <td>December</td> <td></td> <td>30</td> <td></td> </tr> </tbody> </table> </div> <p>Figure 8-12. Target Month Drop-down List</p> <ol style="list-style-type: none"> Click the down arrow and select a month in the selection list. 	Due Date Calculation Method	Time Between Surveys	Target Month	Target Year	Early Survey Limit Days	Multi-Year S	Targets	3 Years	January	1 2021,2024,...	30		Targets	12 Months	(January) [v]		30		Targets	2 Months	(January)		5		Targets	12 Months	January		30		Targets	12 Months	February		30		Targets	12 Months	March		30		Targets	12 Months	April		30		Targets	12 Months	May		30		Targets	12 Months	June		30		Targets	12 Months	July		30		Targets	12 Months	August		30		Targets	12 Months	September		30		Targets	12 Months	October		30		Targets	2 Months	November		5		Targets	12 Months	December		30	
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Table 8-13. Schedule Type Settings cont'd

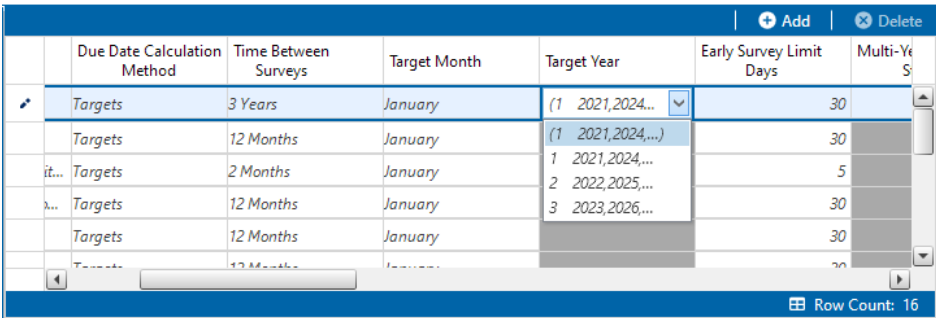
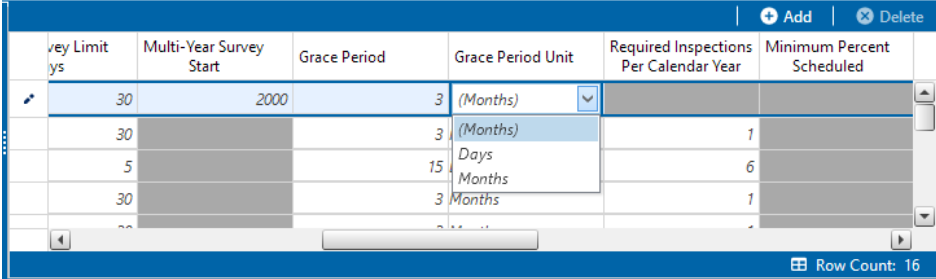
Property Name	Property Description
<p>*Target Year</p>	<p>Used only when Targets is selected as the scheduling method. Refers to the first survey year when Time Between Surveys is more than 12 months.</p> <p>To set the target year:</p> <ol style="list-style-type: none"> For a scheduling type listed in <i>Scheduling Type Name</i>, click the Target Year field to display a drop down arrow.  <p>Figure 8-13. Target Year Drop-down List</p> <ol style="list-style-type: none"> Click the down arrow and select a year in the selection list.
<p>*Grace Period and *Grace Period Unit</p>	<p>Refers to a period of time in days or months an inspection can be late without incurring a compliance violation.</p> <p>To set a grace period for a scheduling type listed in <i>Scheduling Type Name</i>:</p> <ol style="list-style-type: none"> Click the Grace Period Unit field to display a drop-down arrow.  <p>Figure 8-14. Grace Period Drop-down List</p> <ol style="list-style-type: none"> Click the drop-down arrow and select either Days or Months in the selection list.

Table 8-13. Schedule Type Settings cont'd

Property Name	Property Description
*Early Survey Limit Days	<p>Refers to how early an inspection can occur before the actual due date and still count as an inspection for the survey period.</p> <p>To set an early survey limit for a scheduling type listed in Scheduling Type Name:</p> <ul style="list-style-type: none"> Type the number of days in the Early Survey Limit Days field.
*Include Delinquent Within Days	<p>If an inspection will become delinquent within a number of days, include the facility in the schedule with facilities due for inspection.</p> <p>To set a delinquent time period in days for a scheduling type listed in Scheduling Type Name:</p> <ul style="list-style-type: none"> Type the number of days in the Include Delinquent Within Days field.
* Required Inspections Per Calendar Year	<p>Number of required inspections per calendar year.</p> <p>To set the number of required inspections for a scheduling type listed in Scheduling Type Name:</p> <ul style="list-style-type: none"> Type a value in the Required Inspections Per Calendar Year field.
*Multi-Year Survey Start	<p>Refers to the year a multi-year survey starts. PCS uses the starting year to calculate future survey dates available for selection in the Target Year selection list.</p> <p>To set the starting year of a multi-year survey for a scheduling type listed in Scheduling Type Name:</p> <ul style="list-style-type: none"> Type a year in the Multi-Year Survey Start field.
* Minimum Percent Scheduled	<p>Refers to a minimum percentage of facilities that must be inspected in a multi-year survey. This setting works in conjunction with the X years/Y% due date calculation method .</p> <p>To set a minimum percentage of facilities that must be inspected for a scheduling type listed in Scheduling Type Name:</p> <ul style="list-style-type: none"> Type a value in the Minimum Percent Scheduled field. The field supports decimal formatting, such as 30.75.

Table 8-13. Schedule Type Settings cont'd

Property Name	Property Description
*Survey Season Start Month	<p>Refers to the starting month in the survey season for a multi-year survey.</p> <p>To set the starting month in the survey season for a scheduling type listed in Scheduling Type Name:</p> <ol style="list-style-type: none"> 1. Click the Survey Season Start Month field to display a drop down arrow. 2. Click the drop down arrow and select a starting month in the selection list.
*Survey Season End Month	<p>Refers to the ending month in the survey season for a multi-year survey.</p> <p>To set the ending month in the survey season for a scheduling type listed in Scheduling Type Name:</p> <ol style="list-style-type: none"> 1. Click the Survey Season End Month field to display a drop down arrow. 2. Click the drop down arrow and select an ending month in the selection list.
Level Work Load	<p>Refers to PCS balancing the work load for facilities that are due for inspection in a multi-year survey. The property setting applies at the facility type level.</p> <p>To enable this scheduling option, click the Level Work Load check box for a scheduling type listed in Scheduling Type Name.</p> <p>To disable the option, clear the check mark by clicking the check box again.</p>
Hide	<p>Refers to hiding a scheduling type in the <i>Facility Level Override</i> mini-grid of the data entry grid. Hiding the mini-grid prevents scheduling changes at the facility level when working with the data entry grid based on a schedule.</p> <p>To enable this scheduling option, click the Hide check box for a scheduling type listed in Scheduling Type Name.</p> <p>To disable the option, clear the check mark by clicking the check box again.</p>

Hierarchy Level Overrides

Scheduling properties set up in the Hierarchy Level Overrides tab of the *Edit Schedule Settings* window apply at the ROW (pipeline) level. Some scheduling properties inherit settings from those previously set up in the Time Between Survey Settings tab and ROW and Facility Settings. Inherited settings changed at the ROW level override and have precedent over those in the Time Between Survey Settings tab and ROW and Facility Settings.

Complete the following steps to set up scheduling properties at the ROW level:

1. Click **Data Entry > Edit Schedule Settings** and then the **Hierarchy Level Overrides** tab.

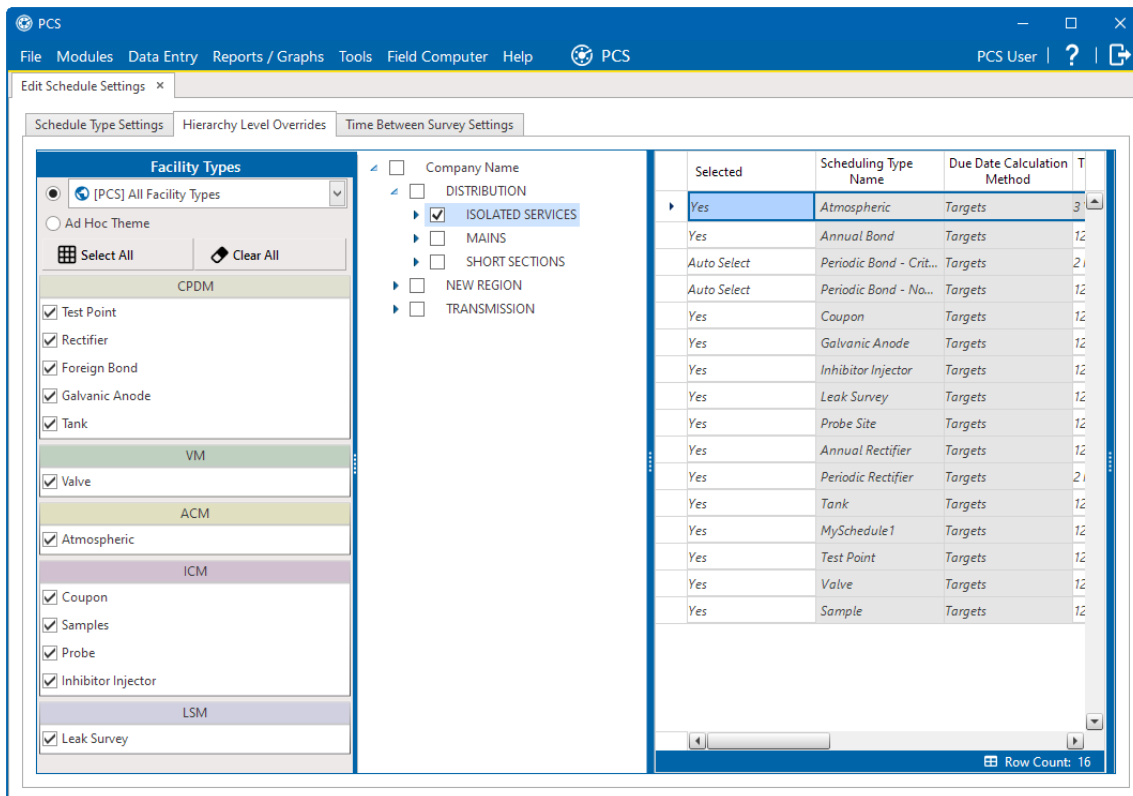


Figure 8-15. Hierarchy Level Overrides

2. Select the facility type you want to work with:
 - To select a facility type theme, select a theme from the **Facility Types** drop-down list.
 - To select multiple facility types, click the **Ad Hoc Theme** radio button and then select one or more facility types, such as **Test Point**, **Rectifier**, or **Foreign Bond**.
An Ad Hoc Theme only applies to the current session and is not saved. A facility type is selected when a check mark appears inside the check box. To clear the check mark, click the check box again.
3. Select the ROW(s) you want to work with by clicking the check box for each ROW in the middle pane of the Hierarchy Level Overrides tab.

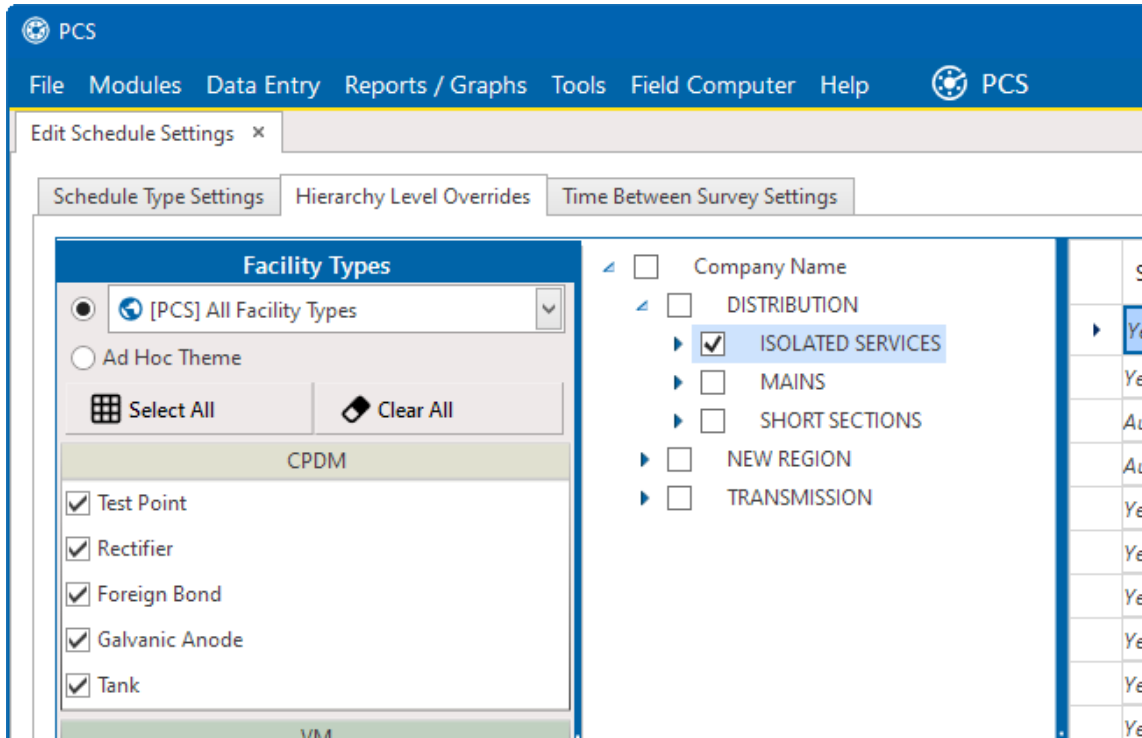


Figure 8-16. ROW Selection(s)

4. Refer to the following table for a description of scheduling properties that apply at the ROW level and how to set up each of these.

Certain property names in the following table include an asterisk (*). The asterisk identifies scheduling properties you can set at the ROW level that will override and take precedent over those in ROW and Facility Settings and Time Between Survey Settings tab.

Table 8-14. Hierarchy Level Overrides

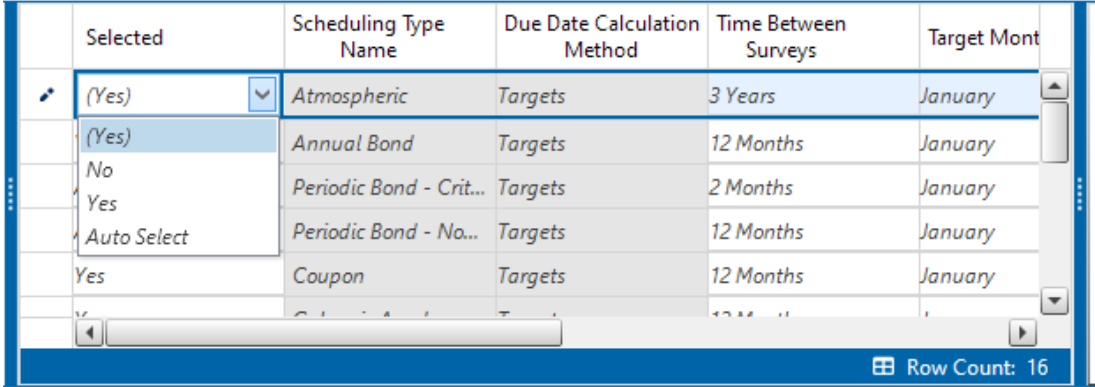
Property Name	Property Description
<p>Selected</p>	<p>Include or exclude schedule settings at the ROW level when generating a schedule with facilities due for inspection.</p> <p>To include or exclude schedule settings, click Selected to display a drop-down arrow and select one of the following options in the drop-down list:</p>  <p>Figure 8-17. Selected Drop-down List</p> <ul style="list-style-type: none"> • No: Excludes schedule settings when generating a schedule. • Yes: Includes schedule settings when generating a schedule. • Auto Select: If an Auto Select Expression has previously been created in the Schedule Type Settings tab, select to include the expression with other schedule settings when generating a schedule. <p>For information about how to create an expression, refer to Schedule Type Settings.</p>
<p>Scheduling Type Name</p>	<p>A named set of schedule settings for a facility type created in the Schedule Type Settings tab.</p> <p>For information about how to create a Scheduling Type Name, refer to Schedule Type Settings.</p>
<p>Due Date Calculation Method</p>	<p>Shows the property setting inherited from Due Date Calculation Method column in the Schedule Type Settings tab.</p>

Table 8-14. Hierarchy Level Overrides cont'd

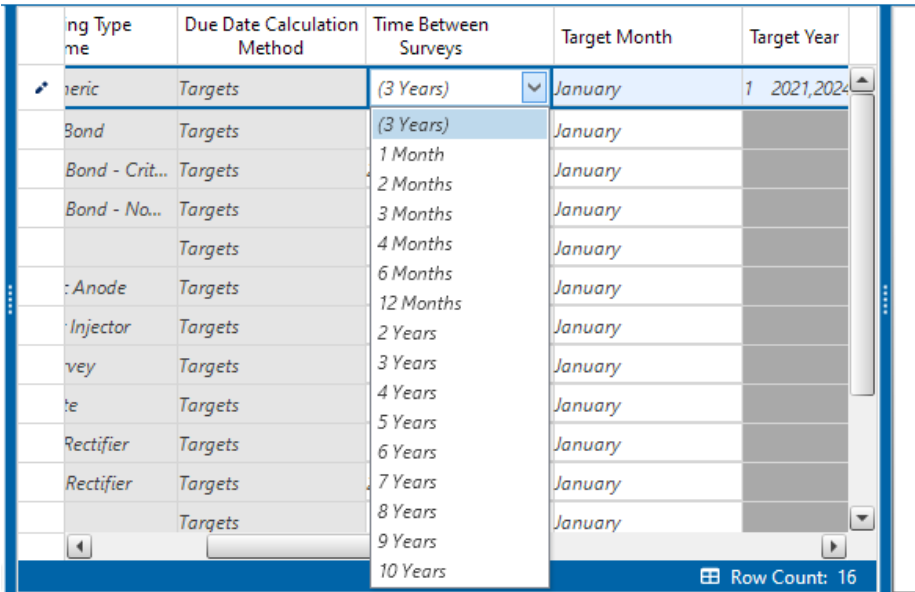
Property Name	Property Description
<p>*Time Between Surveys</p>	<p>Number of months or years between inspections.</p> <p>To set the time between surveys:</p> <ol style="list-style-type: none"> 1. For a scheduling type listed in Scheduling Type Name, click the Time Between Surveys field to display a drop-down arrow. 2. Click the down arrow and select the number of months or years in the selection list.  <p>Figure 8-18. Time Between Surveys Unit Drop-down List</p>

Table 8-14. Hierarchy Level Overrides cont'd

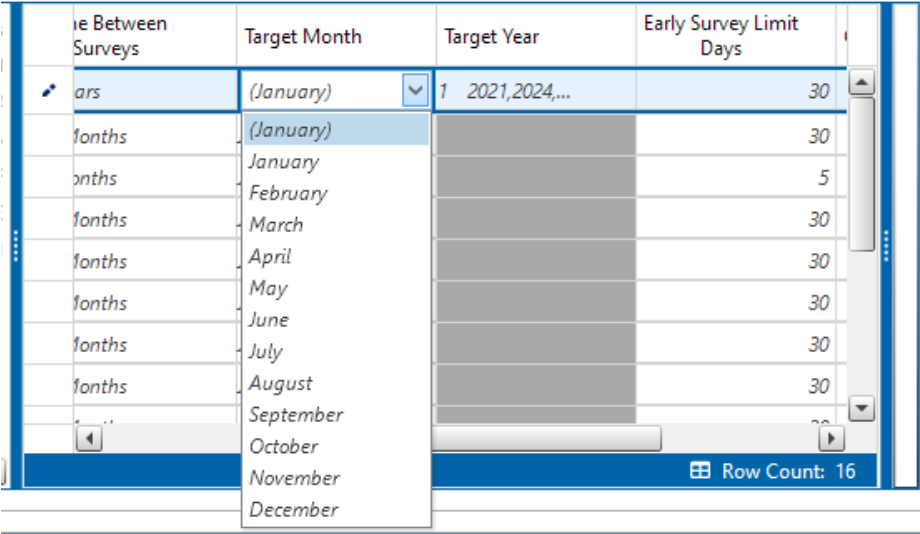
Property Name	Property Description
<p>*Target Month</p>	<p>Refers to the first survey month. Options in the selection list are based on the Time Between Survey value.</p> <p>As an example, if Time Between Surveys is 2 months, and the Target Month (first survey month) is January, surveys are set at 2-month intervals beginning in January. The next survey is due in March, the next in May, and so on.</p> <p>To set the target month:</p> <ol style="list-style-type: none"> 1. For a scheduling type listed in Scheduling Type Name, click the Target Month field to display a drop-down arrow. 2. Click the down arrow, and select a month in the selection list. 

Figure 8-19. Target Month Drop-down List

Table 8-14. Hierarchy Level Overrides cont'd

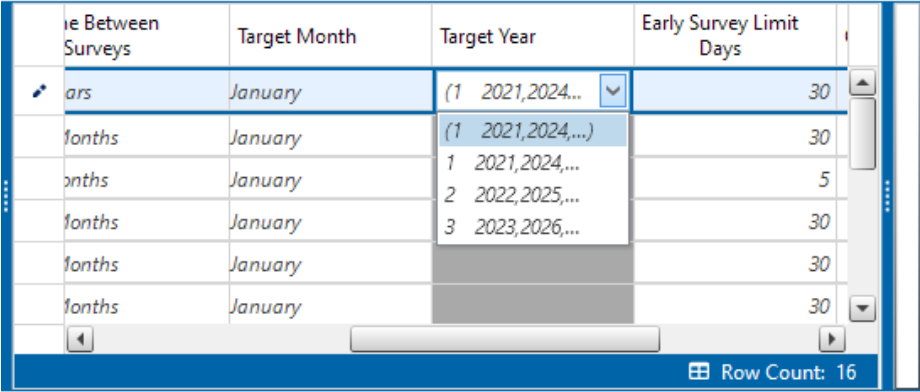
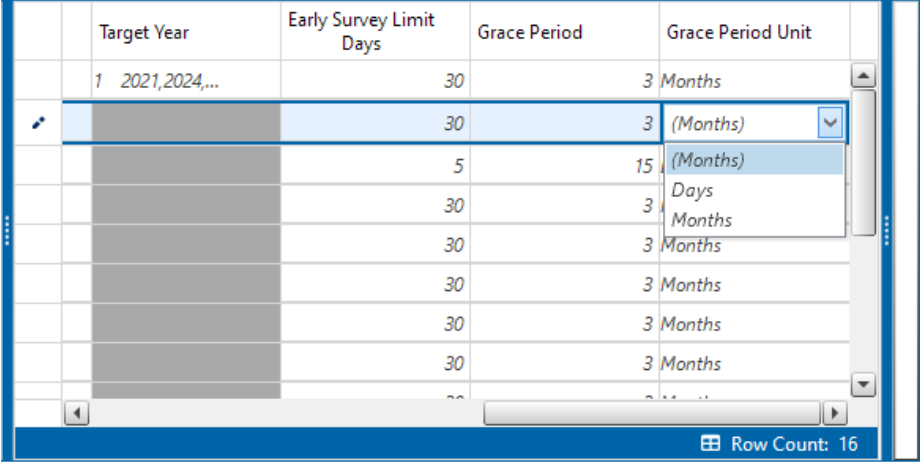
Property Name	Property Description
<p>*Target Year</p>	<p>Refers to the first survey year when Time Between Surveys is more than 12 months.</p> <p>To set the target year:</p> <ol style="list-style-type: none"> 1. For a scheduling type listed in Scheduling Type Name, click the Target Year field to display a drop down arrow. 2. Click the down arrow and select a year in the selection list.  <p>Figure 8-20. Target Year Drop-down List</p>

Table 8-14. Hierarchy Level Overrides cont'd

Property Name	Property Description
<p>*Grace Period / *Grace Period Unit</p>	<p>Refers to a period of time in days or months an inspection can be late without incurring a compliance violation.</p> <p>To set a grace period for a scheduling type listed in Scheduling Type Name:</p> <ol style="list-style-type: none"> 1. Type a value in the Grace Period field. 2. Click the Grace Period Unit field to display a drop down arrow. Click the drop-down arrow and select either Days or Months in the selection list.  <p style="text-align: center;">Figure 8-21. Grace Period Unit Drop-down List</p>
<p>*Early Survey Limit Days</p>	<p>Refers to how early an inspection can occur before the actual due date and still count as an inspection for the survey period.</p> <p>To set an early survey limit for a scheduling type listed in Scheduling Type Name, enter the number of days in the Early Survey Limit Days field.</p>

Create a Schedule

Schedules can be created based on a scheduling method. Scheduling methods include Targets, Last Survey, and X years/Y%. The scheduling method in conjunction with other schedule settings determines when facilities are due for inspection.

Refer to the following topics for information on how to create a schedule based on a scheduling method:

- [Create a Schedule Based on Targets](#)
- [Create a Schedule Based on Last Survey on page 538](#)
- [Create a Schedule Based on X years/Y% on page 540](#)

Create a Schedule Based on Targets

If you want to schedule facilities for survey using a recurring time period, such as every January of each year, create a schedule based on the Targets scheduling method. With this method, facilities due for inspection are scheduled for survey based on the Last Inspection Date, Target Month, and Target Year.

Complete the following steps to create a schedule based on the Targets scheduling method:

1. Click **Data Entry > Edit Schedule Settings** and then the **Time Between Survey Settings** tab.

Time Between Surveys	Target Month	Target Year	Early Survey Limit Days	Multi-Year Survey Start	Grace Period	Grace Period Unit	Required Inspections Per Calendar Year	Minimum Percent Scheduled	Include Delinquent Within Days
1 Month	January		0			5 Days	12		10
2 Months	January		5			15 Days	6		10
3 Months	January		5			15 Days	4		10
4 Months	January		5			20 Days	3		10
6 Months	January		20			1.5 Months	2		15
12 Months	January		30			3 Months	1		30
2 Years	January	1 2020,2022,...	30	2000		3 Months		50.00	30
3 Years	January	1 2021,2024,...	30	2000		3 Months		33.33	30
4 Years	January	1 2020,2024,...	30	2000		3 Months		25.00	30
5 Years	January	1 2020,2025,...	30	2000		3 Months		20.00	30
6 Years	January	1 2018,2024,...	30	2000		3 Months		16.67	30
7 Years	January	1 2021,2028,...	30	2000		3 Months		14.29	30
8 Years	January	1 2016,2024,...	30	2000		3 Months		12.50	30
9 Years	January	1 2018,2027,...	30	2000		3 Months		11.11	30
10 Years	January	1 2020,2030,...	30	2000		3 Months		10.00	30

Figure 8-22. Time Between Survey Settings Tab

2. Set up all related scheduling properties for a survey selected in the Time Between Surveys tab. Scheduling properties marked with **N/A** (not applicable) are not required, such as Target Year for a survey with Time Between Surveys of 12 months or less. If needed, refer to [Time Between Survey Settings](#) for field descriptions.

Scheduling properties set up in the Time Between Surveys tab will be applied system-wide. However, settings can be overridden at the facility type level in the *Facility Level Override* mini-grid of the *Information* grid for a module's data entry grid, in the ROW hierarchy pane of the Hierarchy Level Overrides tab, or in the Schedule Type Settings tab. The settings made in the *Facility Level Override* mini-grid of the *Information* grid for a module's data entry grid override the other two. Therefore, it is not recommended to make changes at the facility level.

3. To select the Targets due date method:
 - a. Click the **Schedule Type Settings** tab.
 - b. Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an *Ad Hoc Theme*.
 - c. For a scheduling type listed in *Scheduling Type Name*, click the field **Due Date Calculation Method** to display a drop down arrow. Click the arrow and select **Targets** in the selection list.
 - d. Set up remaining scheduling properties as required. Scheduling properties inherit values from those in the *Time Between Survey Settings* tab and can be overridden at the facility type level as needed. Property settings marked *N/A* (not applicable) are not required. Refer to [Schedule Type Settings](#) for field descriptions.

4. If you want to override one or more scheduling properties at the ROW level, complete the following steps:
 - a. Click the **Hierarchy Level Overrides** tab.
 - b. Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an *Ad Hoc Theme*.
 - c. Select the ROW(s) you want to set up a survey schedule. Select one or more ROWs (pipeline segments) listed in the middle pane of the window.
 - d. For a scheduling type listed in **Scheduling Type Name**, set up scheduling properties as required. Scheduling properties inherit values from those in the *Schedule Type Settings* tab and can be overridden at the ROW level as needed. Refer to [Hierarchy Level Overrides](#) for field descriptions.

The schedule is now set up with the Targets scheduling method.

[Create a Schedule Based on Last Survey](#)

If you want to schedule facilities for survey based on the last time facilities were inspected, create a schedule based on the Last Survey scheduling method. With this method, facilities due for inspection are scheduled for survey based on Last Inspection Date and settings for the Time Between Surveys scheduling property.

Complete the following steps to create a schedule based on the Last Survey scheduling method:

1. Click **Data Entry > Edit Schedule Settings** and then the **Time Between Survey Settings** tab.

Time Between Surveys	Target Month	Target Year	Early Survey Limit Days	Multi-Year Survey Start	Grace Period	Grace Period Unit	Required Inspections Per Calendar Year	Minimum Percent Scheduled	Include Delinquent Within Days
1 Month	January		0			5 Days	12		10
2 Months	January		5			15 Days	6		10
3 Months	January		5			15 Days	4		10
4 Months	January		5			20 Days	3		10
6 Months	January		20			1.5 Months	2		15
12 Months	January		30			3 Months	1		30
2 Years	January	1 2020,2022,...	30	2000		3 Months		50.00	30
3 Years	January	1 2021,2024,...	30	2000		3 Months		33.33	30
4 Years	January	1 2020,2024,...	30	2000		3 Months		25.00	30
5 Years	January	1 2020,2025,...	30	2000		3 Months		20.00	30
6 Years	January	1 2018,2024,...	30	2000		3 Months		16.67	30
7 Years	January	1 2021,2028,...	30	2000		3 Months		14.29	30
8 Years	January	1 2016,2024,...	30	2000		3 Months		12.50	30
9 Years	January	1 2018,2027,...	30	2000		3 Months		11.11	30
10 Years	January	1 2020,2030,...	30	2000		3 Months		10.00	30

Figure 8-23. Time Between Survey Settings Tab

2. Set up all related scheduling properties for a survey selected in the **Time Between Surveys** tab. Scheduling properties marked with **N/A** (not applicable) are not required, such as Target Year for a survey with Time Between Surveys of 12 months or less. If needed, refer to [Time Between Survey Settings](#) for field descriptions.

Scheduling properties set up in the Time Between Surveys tab will be applied system-wide. However, settings can be overridden at the facility type level in the *Facility Level Override* mini-grid of the *Information* grid for a module's data entry grid, in the ROW hierarchy pane of the Hierarchy Level Overrides tab, or in the Schedule Type Settings tab. The settings made in the *Facility Level Override* mini-grid of the *Information* grid for a module's data entry grid override the other two. Therefore, it is not recommended to make changes at the facility level.

3. To select the Last Survey due date method:
 - a. Click the **Schedule Type Settings** tab.
 - b. Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an Ad Hoc Theme.
 - c. For a scheduling type listed in **Scheduling Type Name**, click the **Due Date Calculation Method** field to display a drop down arrow. Click the arrow and select **Last Survey** in the selection list.
 - d. Set up remaining scheduling properties as required. Scheduling properties inherit values from those in the Time Between Survey Settings tab and can be overridden at the facility type level as needed. Property settings marked **N/A** (not applicable) are not required. Refer to [Schedule Type Settings](#) for field descriptions.

4. If you want to override one or more scheduling properties at the ROW level, complete the following steps:
 - a. Click the **Hierarchy Level Overrides** tab.
 - b. Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an Ad Hoc Theme.
 - c. Select the ROW(s) you want to set up a survey schedule. Select one or more ROWs (pipeline segments) listed in the middle pane of the window.
 - d. For a scheduling type listed in **Scheduling Type Name**, set up scheduling properties as required. Scheduling properties inherit values from those in the Schedule Type Settings tab and can be overridden at the ROW level as needed. Refer to [Hierarchy Level Overrides](#) for field descriptions.

The schedule is now set up with the Last Survey scheduling method.

Create a Schedule Based on X years/Y%

If facilities require inspection based on a multi-year cycle, use the *X years/Y%* scheduling method. With this method, facilities due for inspection are scheduled for survey based on the *Last Inspection Date* and settings for the scheduling properties *Time Between Surveys*, *Multi-Year Survey Start*, and *Minimum Percent Scheduled*.

Complete the following steps to create a schedule for a multi-year survey based on the *X years/Y%* method:

1. Click **Data Entry > Edit Schedule Settings** and then the **Time Between Survey Settings** tab.

Time Between Surveys	Target Month	Target Year	Early Survey Limit Days	Multi-Year Survey Start	Grace Period	Grace Period Unit	Required Inspections Per Calendar Year	Minimum Percent Scheduled	Include Delinquent Within Days
1 Month	January		0		5 Days		12		10
2 Months	January		5		15 Days		6		10
3 Months	January		5		15 Days		4		10
4 Months	January		5		20 Days		3		10
6 Months	January		20		1.5 Months		2		15
12 Months	January		30		3 Months		1		30
2 Years	January	1 2020,2022,...	30	2000	3 Months			50.00	30
3 Years	January	1 2021,2024,...	30	2000	3 Months			33.33	30
4 Years	January	1 2020,2024,...	30	2000	3 Months			25.00	30
5 Years	January	1 2020,2025,...	30	2000	3 Months			20.00	30
6 Years	January	1 2018,2024,...	30	2000	3 Months			16.67	30
7 Years	January	1 2021,2028,...	30	2000	3 Months			14.29	30
8 Years	January	1 2016,2024,...	30	2000	3 Months			12.50	30
9 Years	January	1 2018,2027,...	30	2000	3 Months			11.11	30
10 Years	January	1 2020,2030,...	30	2000	3 Months			10.00	30

Figure 8-24. Time Between Survey Settings Tab

2. Set up all related scheduling properties for a survey selected in the **Time Between Surveys** tab. Scheduling properties marked with **N/A** (not applicable) are not required, such as Required Inspections Per Calendar Year for a survey with Time Between Surveys of 2 years or more. If needed, refer to [Time Between Survey Settings](#) for field descriptions.

Scheduling properties set up in the Time Between Surveys tab will be applied system-wide. However, settings can be overridden at the facility type level in the *Facility Level Override* mini-grid of the *Information* grid for a module's data entry grid, in the ROW hierarchy pane of the Hierarchy Level Overrides tab, or in the Schedule Type Settings tab. The settings made in the *Facility Level Override* mini-grid of the *Information* grid for a module's data entry grid override the other two. Therefore, it is not recommended to make changes at the facility level.

3. To select the X years/Y% due date method:
 - a. Click the **Schedule Type Settings** tab.
 - b. Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an Ad Hoc Theme.
 - c. For a scheduling type listed in **Scheduling Type Name**, click the **Due Date Calculation Method** field to display a drop down arrow. Click the arrow and select **X years/Y%** in the selection list.
 - d. Set up remaining scheduling properties as required. Scheduling properties inherit values from those in the Time Between Survey Settings tab and can be overridden at the facility type level as needed. Property settings marked **N/A** (not applicable) are not required. Refer to [Schedule Type Settings](#) for field descriptions.
4. If you want to override one or more scheduling properties at the ROW level, complete the following steps:
 - a. Click the **Hierarchy Level Overrides** tab.
 - b. Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an Ad Hoc Theme.
 - c. Select the ROW(s) you want to set up a survey schedule. Select one or more ROWs (pipeline segments) listed in the middle pane of the window.
 - d. For a scheduling type listed in **Scheduling Type Name**, set up scheduling properties as required. Scheduling properties inherit values from those in the Schedule Type Settings tab and can be overridden at the ROW level as needed. Refer to [Hierarchy Level Overrides](#) for field descriptions.

The schedule is now set up with the X years/Y% scheduling method.

Work with a Schedule Definition

A schedule definition is a named set of one or more scheduling types to be included in a schedule. For example, a schedule definition can include test point, rectifier, and bond scheduling types - each with different scheduling properties set up in the *Edit Schedule Settings* window.

Refer to [Schedule Type Settings on page 517](#) for a description of fields.

A schedule definition is used when performing any of the following tasks in PCS:

- viewing facilities in a data entry grid based on a schedule
- building a survey in a data entry grid based on a schedule
- transferring a survey that is based on a schedule to the field computer or mobile device
- printing a data collection form that is based on a schedule for manually recording survey data

Two types of schedule definitions are available for use. They include installed and addition schedule definitions. An installed schedule definition is one that has been installed during the PCS software installation. An addition schedule definition is one that you create.

Refer to the following topics for information on how to work with a schedule definition:

- [Edit an Installed Schedule Definition](#)
- [Add a Schedule Definition Addition on page 544](#)
- [Edit a Schedule Definition Addition on page 547](#)

Edit an Installed Schedule Definition

An installed schedule definition includes [PCS] in the title of the schedule definition name, such as **[PCS] Installed Schedule Definition**.

The procedure in this section explains how to complete the following tasks to edit an installed schedule definition:

- add a schedule type
- remove a schedule type
- revert an installed schedule definition

Complete the following steps to edit an installed schedule definition:

1. Click **Data Entry > Define Schedules** to open the *Define Schedules* window.

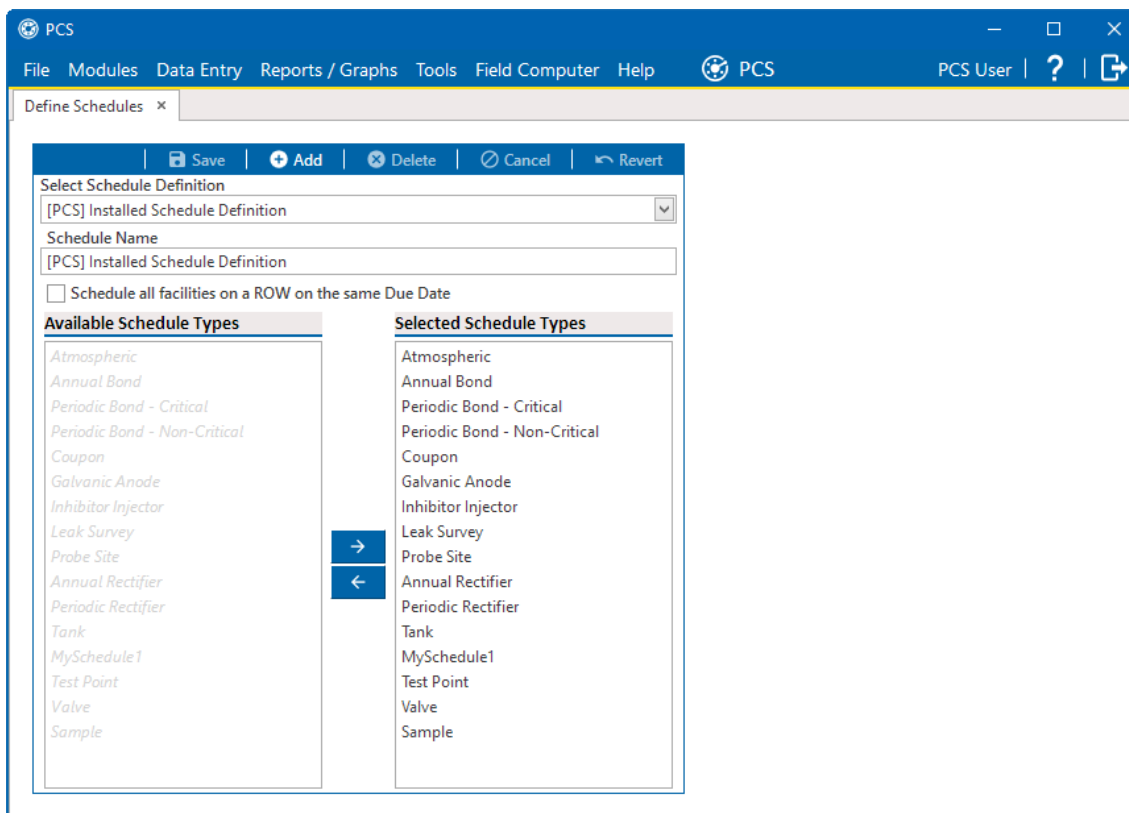








Figure 8-25. Define Schedules

2. Select an installed schedule definition from the **Select Schedule Definition** drop-down list, such as **[PCS] Installed Schedule Definition**.
3. To add one or more schedule types to an installed schedule definition:
 - a. Select an available schedule type listed in the *Available Schedule Types* pane. To select multiple schedule types, press the **Ctrl** key on the computer keyboard while selecting each schedule type.
 - b. Click the  button to move the schedule type(s) to the *Selected Schedule Types* pane. You can also double-click the schedule name to move it from pane to pane.
 - c. Click  **Save**.
4. To remove one or more schedule types from an installed schedule definition:
 - a. Select a schedule type listed in the *Selected Schedule Types* pane. To select multiple schedule types, press the **Ctrl** key on the computer keyboard while selecting each schedule type.

- b. Click the  button to move the schedule type to the *Available Schedule Types* pane. You can also double-click the schedule name to move it from pane to pane.
 - c. Click  **Save**.
5. OPTIONAL: After saving changes to an installed schedule definition, and before closing the window, click  **Revert** to revert the schedule definition to installed values. Click  **Yes** when the *Revert* message displays.

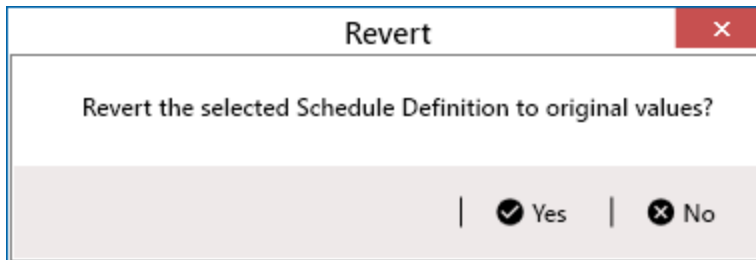


Figure 8-26. Revert Schedule Definition Message

Add a Schedule Definition Addition

Complete the following steps to add a schedule definition addition:

1. Click **Data Entry > Define Schedules** to open the *Define Schedules* window.

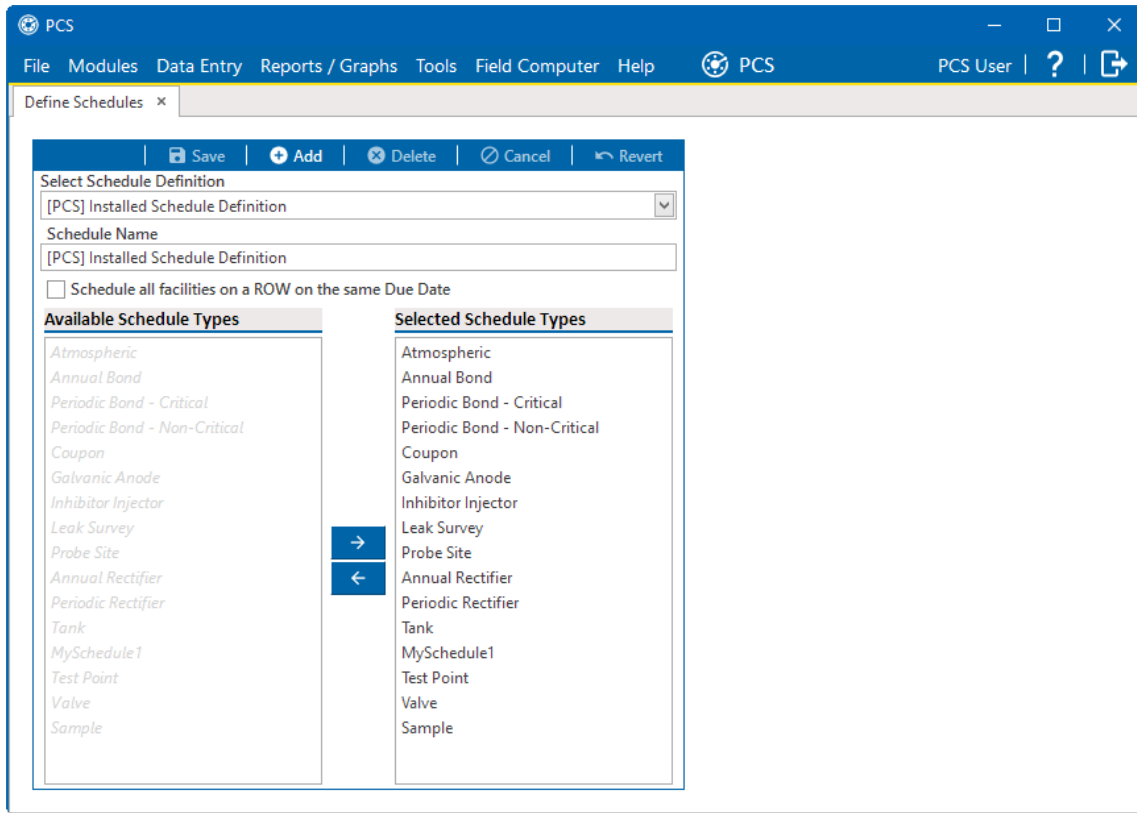


Figure 8-27. Define Schedules

2. Click **Add**.

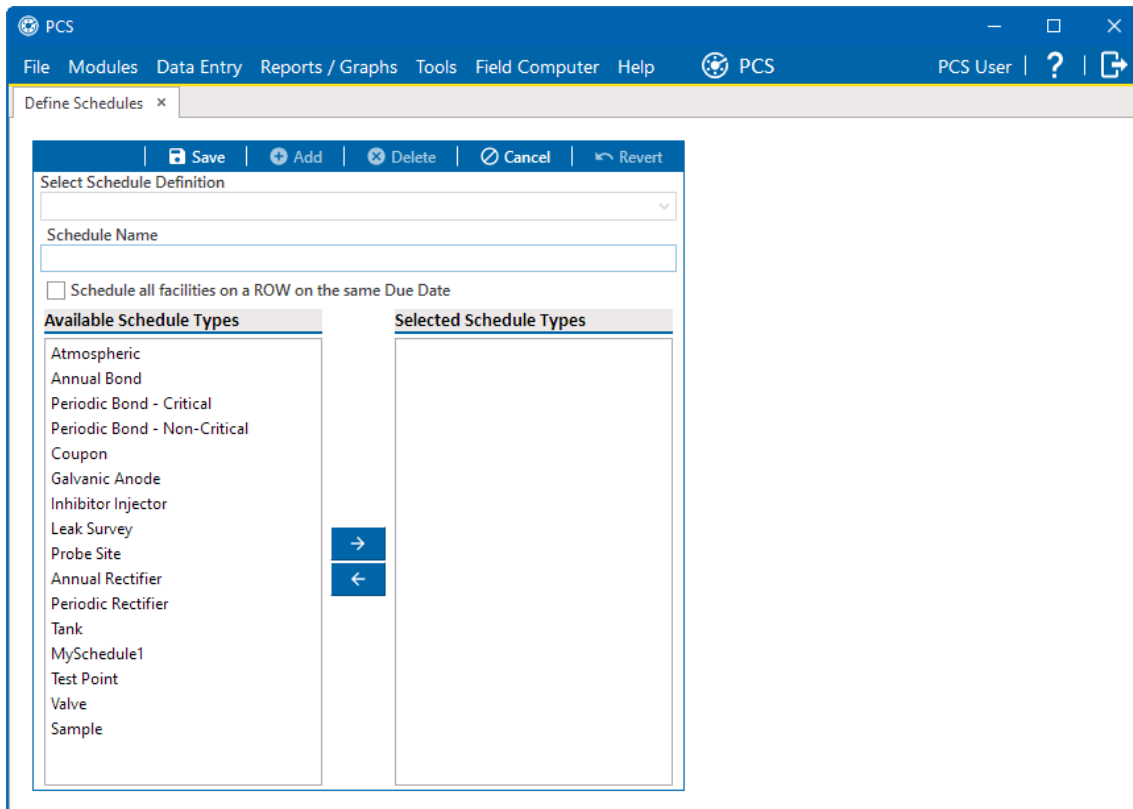





Figure 8-28. Add Schedule Definition

3. Enter a name for the addition in the **Schedule Name** field. The field supports up to 120 characters including spaces.
4. Select a schedule type listed in the *Available Schedule Types* pane, such as *Periodic Bond-Critical*. To select multiple schedule types, press the **Ctrl** key on the computer keyboard while selecting each schedule type.
5. Select the **Schedule all facilities on a ROW on the same Due Date** check box to enable this option.
6. Select an available schedule type listed in the *Available Schedule Types* pane. To select multiple schedule types, press the **Ctrl** key on the computer keyboard while selecting each schedule type.
7. Click the  button to move the schedule type(s) to the *Selected Schedule Types* pane. You can also double-click the schedule name to move it from pane to pane.
8. To remove a schedule type from the *Selected Schedule Types* pane, select the schedule type and click the  button to move the schedule type back to the *Available Schedule Types* pane. You can also double-click the schedule name to move it from pane to pane.

- Click  **Save**. The addition is now available in the *Select Schedule Definition* selection list.

Edit a Schedule Definition Addition

The following procedure explains how to delete, rename, or edit a schedule definition addition.

Complete the following steps to edit a schedule definition addition:

- Click **Data Entry > Define Schedules** to open the *Define Schedules* window.

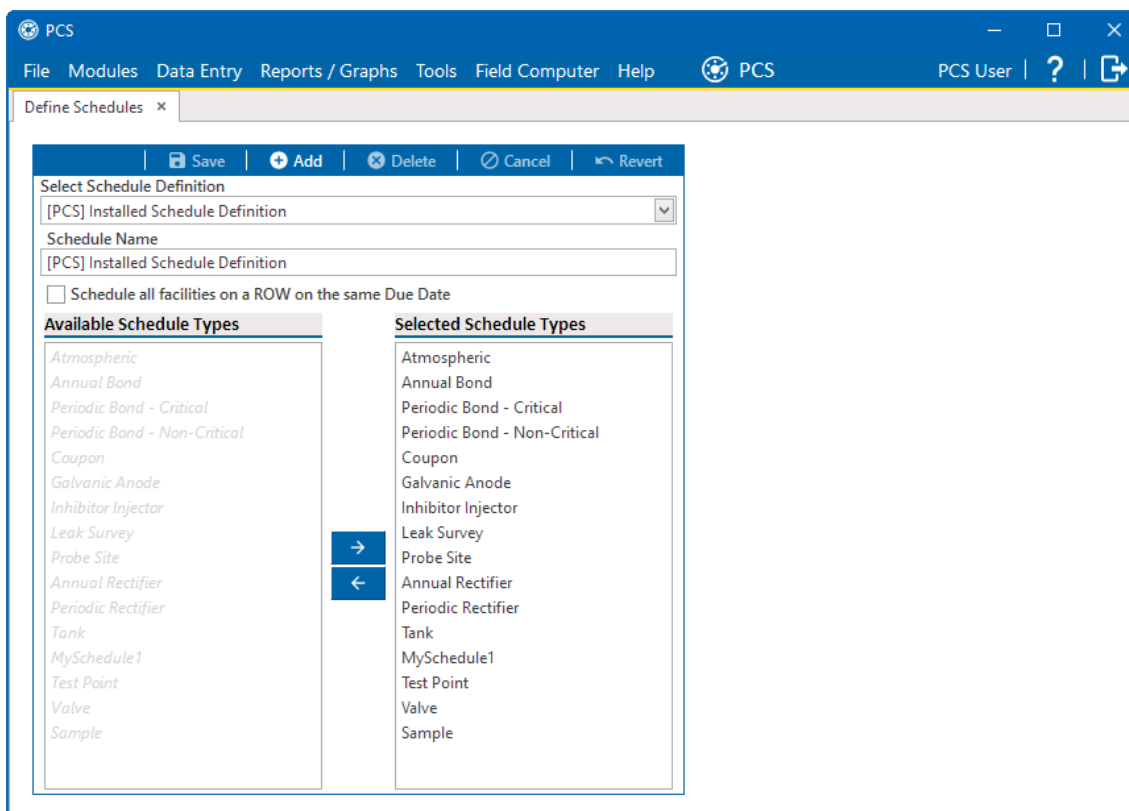







Figure 8-29. Define Schedules

- Select an addition schedule from the **Select Schedule Definition** drop-down list.
- If you want to rename an addition, type a new name in the *Schedule Name* field and then click  **Save**.
- To add one or more schedule types to the addition, select an available schedule type listed in the *Available Schedule Types* pane and click the  button to move it to the *Selected Schedule Types* pane. You can also double-click the schedule name to move it from pane to pane.

5. To remove one or more schedule types from the addition, select an schedule type listed in the *Selected Schedule Types* pane and click the  button to move it to the *Available Schedule Types* pane. You can also double-click the schedule name to move it from pane to pane.
6. To delete the addition, click  **Delete**, and then click  **Yes** in the *Delete* message window.

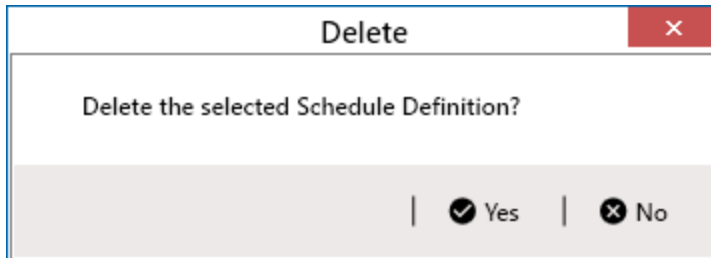


Figure 8-30. Delete Message

Use a Schedule in PCS

After setting up scheduling criteria in *Edit Schedule Settings* window and creating a schedule definition in *Define Schedules* window, you can use a schedule in any of the following ways:

- View records in a grid based on a schedule. Refer to [View Records Based on a Schedule on page 296](#).
- Build a survey in an inspection grid based on a schedule. Refer to [Build a Survey in the Inspection Grid Based on Schedule on page 344](#).
- Transfer a survey to the Allegro field computer based on a schedule. Refer to [Field Computer on page 650](#).
- Print a Data Collection Report based on a schedule. Refer to [Reports and Graphs on page 746](#).

Bridge

Bridge is an optional add-on feature that allows you to transfer data between PCS and an external system, such as a GIS (geographic information system) or work management system. If you have an account on Bullhorn Web, you can transfer facility survey data to PCS, such as rectifier, bond, or test point inspection readings.

If your company purchased the optional Bridge add-on or you plan to transfer data from Bullhorn Web in PCS, running Bridge for the first time requires you to enter a Bridge activation key. If you are unable to locate your Bridge activation key, contact Technical Support for assistance at support@aiworldwide.com. For more information, refer to [Activate Bridge Import for Operation on page 2](#).

This chapter includes the following topics:

- [The Bridge Transition File](#)
- [Use a Facility Key in Bridge](#)
- [Add a Basic Bridge Definition](#)
- [Add a Bridge Import Definition for a Stationary Survey File](#)
- [Add a Bullhorn Bridge Definition](#)
- [Export a Bridge Definition](#)
- [Import a Bridge Definition](#)
- [Import Pipeline Series](#)
- [Run the Bridge](#)
- [Run a Bullhorn Bridge](#)
- [View Bridge Job Status and Log](#)

Refer to the Knowledge Base article [Why and How do I Export to Table?](#) for more information on creating an Export definition.

The Bridge Transition File

Bridge uses a transition file to import and export data. The import file is in a format that both Bridge and the external system can read and write. File formats supported by Bridge include those in the following list:

- Excel Spreadsheet 2007 or higher (.xlsx)
- ASCII, comma-delimited (.txt or .csv)
- Extensible Markup Language (.xml)

Use a Facility Key in Bridge

Bridge provides the option of associating a facility key in PCS with an external system ID when setting up a Bridge import definition. The facility key allows you to map (or link) existing facilities in PCS with an external system. It is used to update existing facilities' facility IDs, mileposts, ROWs, or primary ROW links for multi-linked facilities (such as rectifiers). You can also use a facility key to import sub-facility information or inspection records or facility inspection or maintenance records.

A facility key can be a user-defined field set up in PCS and must be unique for each facility. The external system ID is typically a unique identifier generated by an external system, such as a GIS or work management system. Importing records using a facility key will update an existing facility, but will only create a new facility if one does not yet exist in PCS. The facility key is used in place of the PCS **ROW Code** or **Milepost** field when setting up the Bridge import definition. If the **ROW Code** or **Milepost** associated with a facility key differs between the external data and the existing PCS data, the ROW Code or Milepost associated values will be updated to match the imported data.

Complete the following steps to add a facility key for an external system IDs:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.
2. Open the **Facility Surveys** folder and then the **Common to All Facilities** folder in the selection tree. Then click **ROW and Pipeline** to display related fields in the grid.

NOTE: Click the **Properties** header bar to collapse the *Properties* pane to expand the view of the grid. Click the bar again to expand the *Properties* pane.

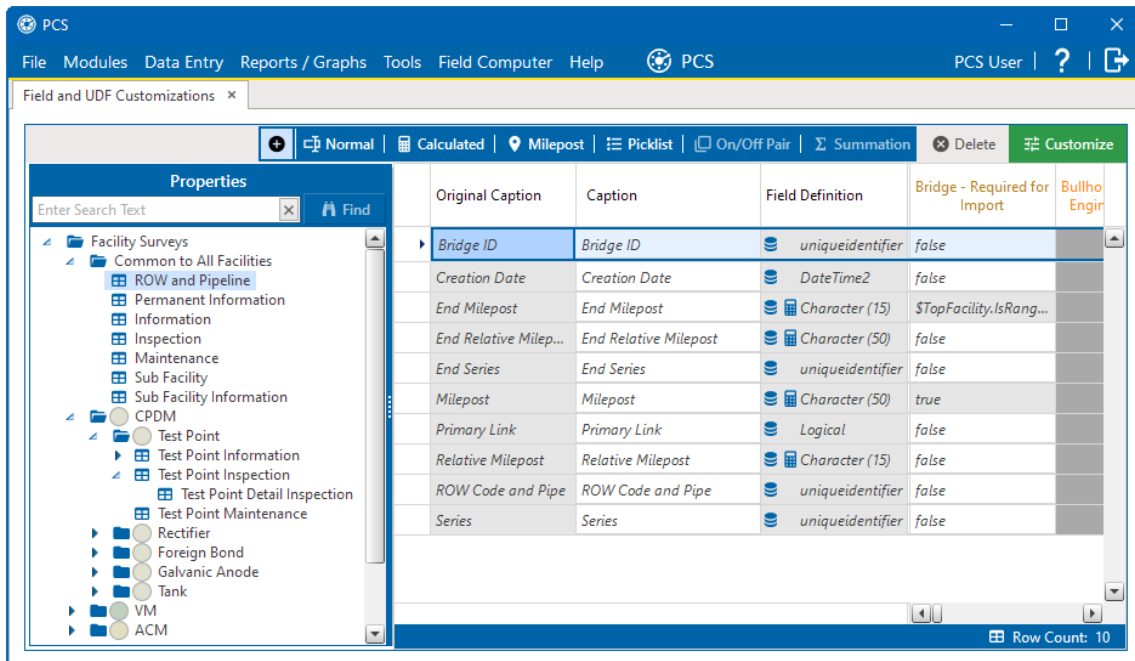



Figure 9-1. Field and UDF Customizations - ROW and Pipeline Table

3. Click  **Normal** in the toolbar to open the *Add Normal Field* window.

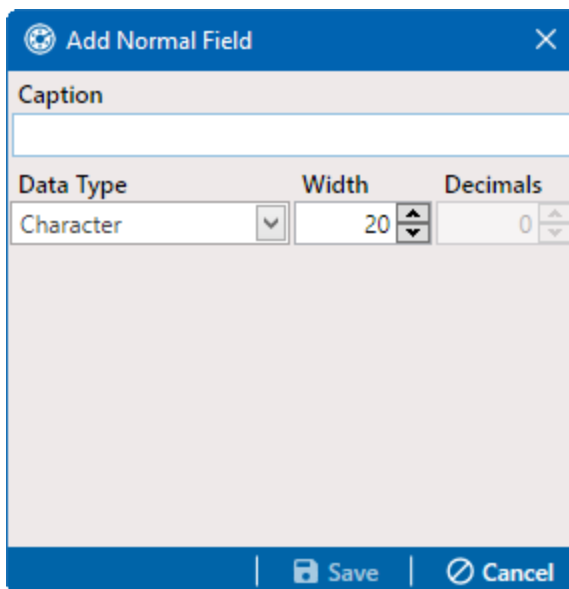



Figure 9-2. Add Normal Field - Character Type

4. Type a unique name for the UDF in the **Caption** field, such as `MyFacilityKey` to help identify this UDF.
5. Click  **Save** to save changes and close the window.

The UDF is now ready to be used as the Facility Key in a Bridge import or export definition file.

Add a Basic Bridge Definition

A Bridge import definition specifies the property settings and options for importing data into PCS. A Bridge export definition specifies the property settings and options for exporting data from PCS. These definitions define the data transfer options, file format and location of the import or export file, and the data to be imported or exported.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

To add a new Bridge definition, click **Tools > Bridge** to open the *Bridge* window.

Click  **Basic** to open the basic definition pane and perform the following tasks:

- [Set Basic Bridge Definition Properties](#)
- [Define Data Items for Basic Bridge Definition on page 559](#)
- [Set Filters for All or Selected Data Items on page 568](#) – this topic can be used for both Basic Bridge Definitions and Bridge Definitions for SDL survey files.
- [Preview the Bridge Import](#)

NOTE: It is recommended to click  **Save** frequently while creating the Bridge definition.

Set Basic Bridge Definition Properties

The Basic Bridge definition properties include data transfer, public option, rename file on bridge runs option, and reindex after import option.

Complete the following steps set basic Bridge properties:

1. Click **Tools > Bridge** to open the *Bridge* window.

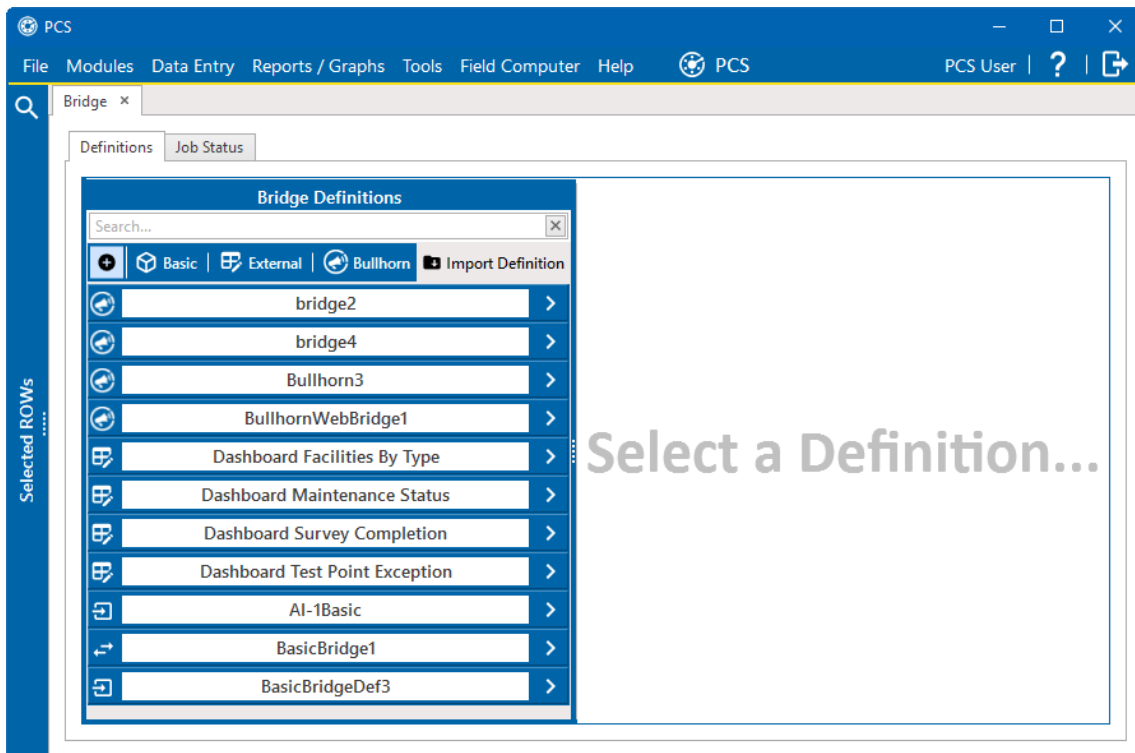



Figure 9-3. Bridge

2. Click  **Basic** to open the basic definition pane. The *Selected ROWs* and *Bridge Definitions* panes can be moved or closed.

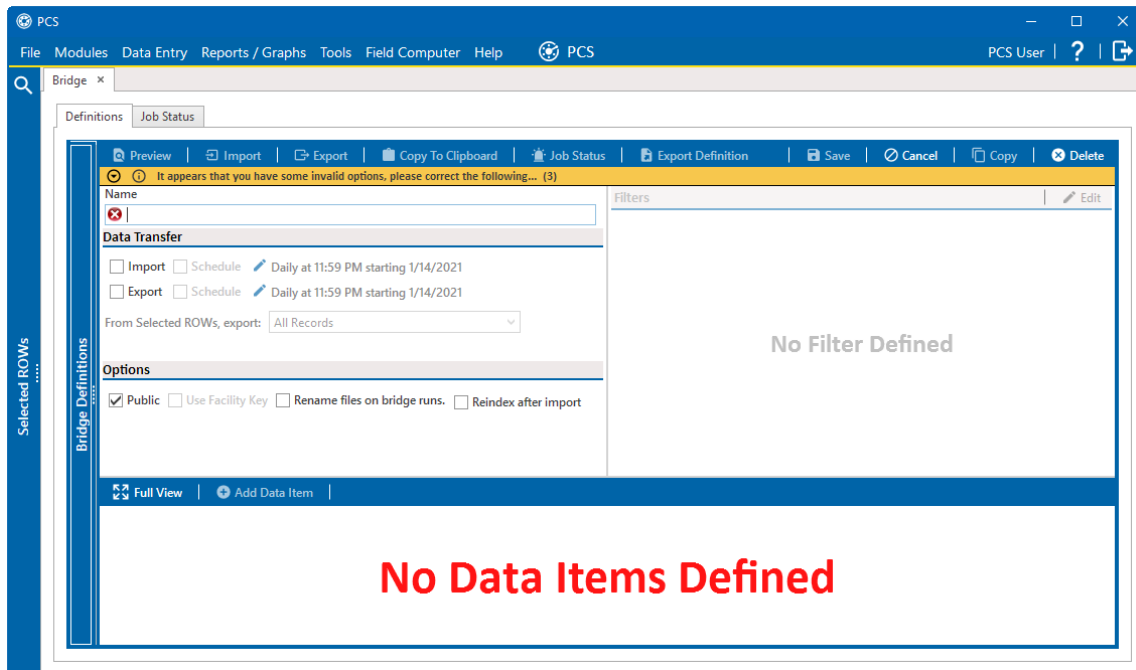


Figure 9-4. Basic Bridge Definition


3. Type a unique name for the Bridge definition in the **Name** field.
4. Click the **Import** or **Export** check box for the type of Bridge you are setting up. If both Import and Export are checked, the data items mapped and options configured for the Bridge definition will apply to both the import and export Bridge runs.
5. To set the import or export Bridge job to run automatically at a scheduled time, click the **Scheduled** check box next to the selected Bridge type. Click the  icon and complete the following steps in the *Schedule Frequency* window:

Figure 9-5. Schedule Frequency Window

- a. **Determine the Import or Export Start Date** – enter a start date in the field provided or select the drop-down next to the field and select a date from the calendar that appears. The entered date determines when the first import or export occurs.
- b. **Create a Schedule for the Imports or Exports** – decide how often Bridge imports or exports should run by selecting one of the following:
 - i. **Daily:** Select **Daily** to perform the import or export after a certain number of days has passed since the last import. Enter a number in the **Recurs every** field and a time in the **day(s) at** field.

Figure 9-6. Schedule Frequency - Daily

- ii. **Weekly:** Select **Weekly** to perform the import or export on certain days of the week. Enter a number in the field provided to determine how many weeks should pass between imports. Select the check box next to the day(s) of the week that the import should be sent.

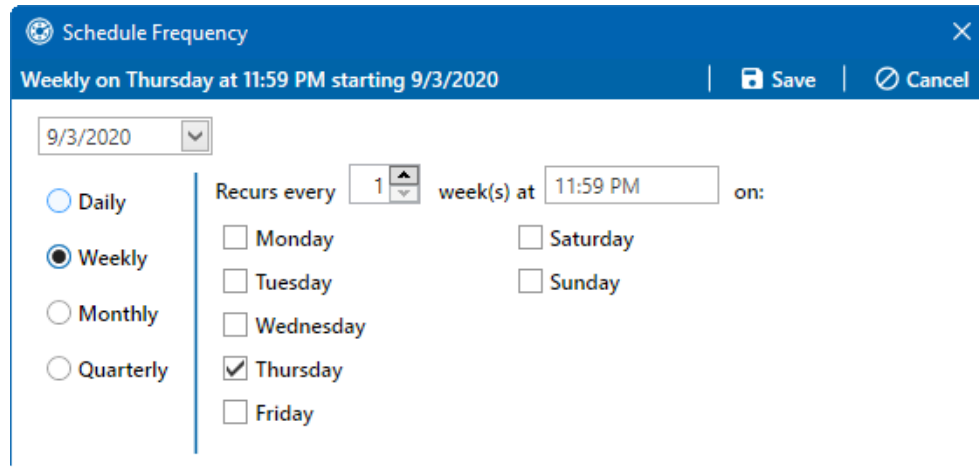


Figure 9-7. Schedule Frequency - Weekly

- iii. **Monthly:** Select **Monthly** to perform the import or export after a certain number of months has passed since the last import. You can select one of the following schedules:

1. Select the first radio button on the right to perform the import or export only one time during the month. Select the day the import will run in the **Day** field, the frequency in the **of every month(s)** field, and enter a time a time in the last text field.

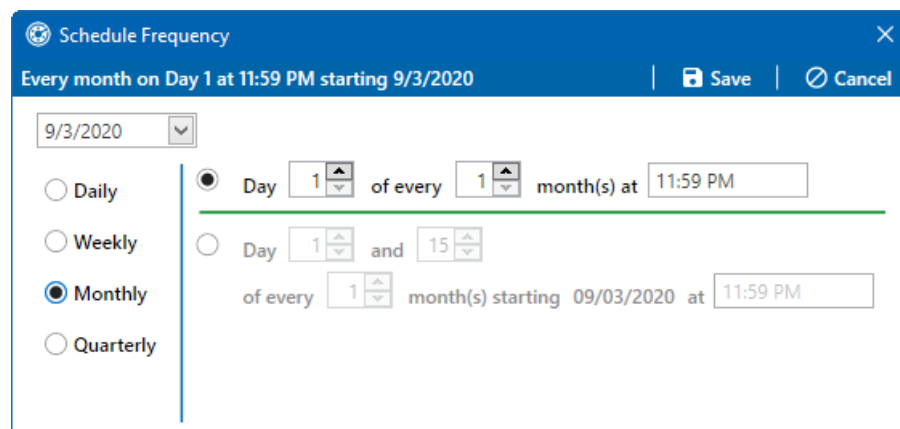


Figure 9-8. Schedule Frequency - Monthly

2. Select the second radio button on the right to perform the import or export twice during specified months. Select which days the import will run in the two **Day** fields. Select the frequency in the **of every month(s)** field and enter a time a time in the second text field.

The screenshot shows the 'Schedule Frequency' dialog box. The title bar reads 'Schedule Frequency' and the subtitle is 'Every month on Day 1 and 15 at 11:59 PM starting 9/3/2020'. There are 'Save' and 'Cancel' buttons. A dropdown menu shows '9/3/2020'. On the left, radio buttons are selected for 'Monthly'. On the right, the second radio button is selected, showing 'Day 1 and 15 of every 1 month(s) at 11:59 PM' and 'of every 1 month(s) starting 09/03/2020 at 11:59 PM'.

Figure 9-9. Schedule Frequency - Monthly with Specific Months and Time

- iv. **Quarterly:** Select **Quarterly** to run the import or export on the first day of every quarter. Enter a time in the text field.

The screenshot shows the 'Schedule Frequency' dialog box. The title bar reads 'Schedule Frequency' and the subtitle is 'First day of each Quarter at 11:59 PM starting 9/3/2020'. There are 'Save' and 'Cancel' buttons. A dropdown menu shows '9/3/2020'. On the left, radio buttons are selected for 'Quarterly'. On the right, the text reads 'Rekurs first day of every Quarter at 11:59 PM'.

Figure 9-10. Schedule Frequency - Quarterly

- c. Click **Save** to save schedule.

When scheduling a time to run Bridge, choose a time that does not impact other network services or computer resources. For example, consider a staggered time schedule instead of running Bridge at the same time as other scheduled network services.

- For Bridge exports, select which records to export from the **From Selected ROWs** drop-down list.

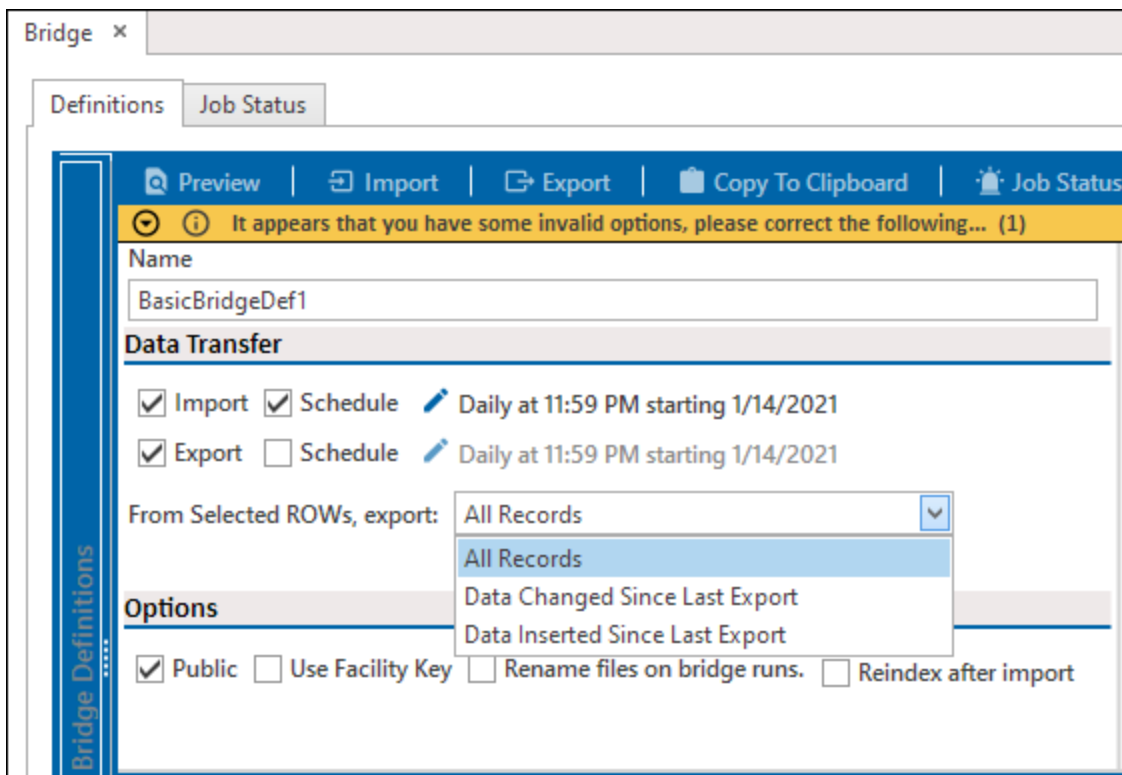


Figure 9-11. From Selected ROWs Drop-down List

When performing the Bridge export manually, the data included for the Bridge export is restricted to the data selected in *Selected ROWs*. For scheduled exports, the data included for the Bridge export comes from the entire PCS database.

- Click the **Public** check box if you want the import/export definition file available for use by all PCS users. When the check box is cleared, the definition file will be available only to the user who creates it.
- If you want to use a facility key for facilities in the import file, click the **Use Facility Key** check box. This option is not currently available for facilities in the export file. For more information about facility keys, refer to [Use a Facility Key in Bridge on page 550](#).
When facilities are not mapped to a facility key, they are mapped to the following required fields: **ROW Code**, **Milepost**, and **Facility ID**.
- If you expect to run the import/export file manually and want Bridge to rename the file, click the **Rename files on manual bridge runs** check box.
- For Bridge imports that import large amounts of data, click the **Reindex after import** check box to reindex the PCS database after the import process completes.

This prevents the system from slowing down due to index fragmentation in the PCS database. You can also reindex the database using the **Reindex Database** option in *Job Service Viewer* (**Tools > Job Service Viewer**).

11. Click  **Save** to save definition.

Define Data Items for Basic Bridge Definition

You can add data items to the Bridge definition that will be included in the import or export. Each data item added must also be configured to ensure the fields are mapped correctly, the correct data is exported, and the data is exported to the desired location.

Complete the following steps to add and configure data item(s) for import or export from PCS:

1. Open the Bridge definition for which you would like to add data items.

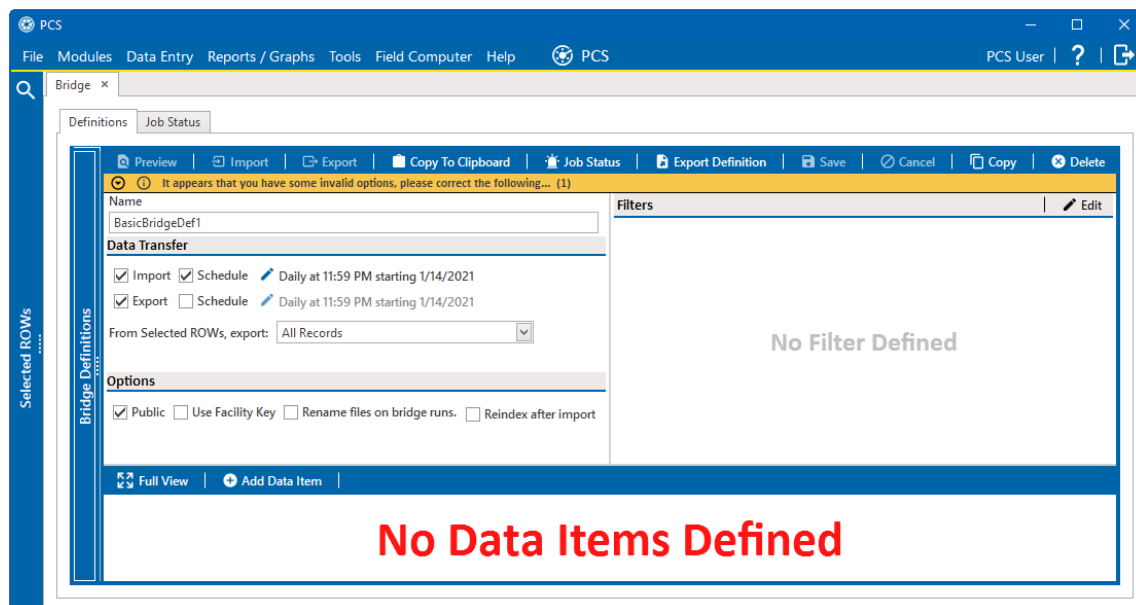



Figure 9-12. Basic Bridge Definition

2. Click  **Add Data Item** to open the *Data Items* window.

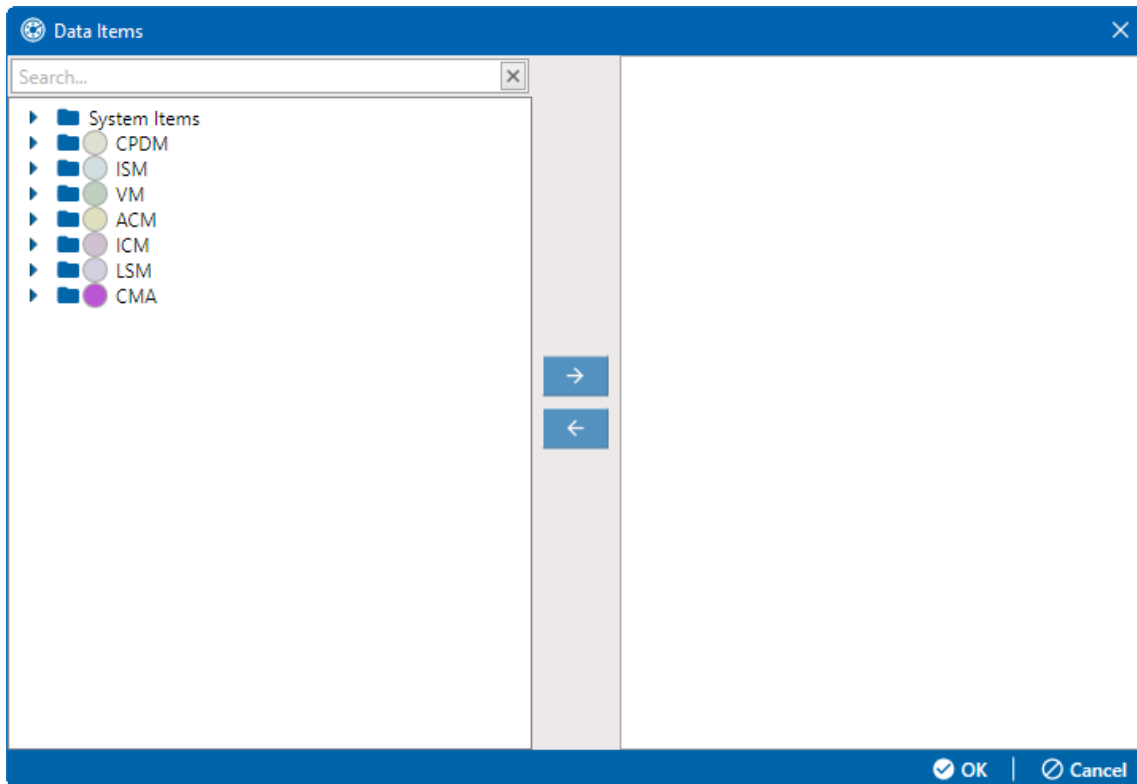


Figure 9-13. Data Items Window

3. Navigate to the folder(s) containing the data item(s) you want to import or export. Click the ▶ icon next to a top-level folder to expand it.
4. Select a data item and click the → button to move it to the right pane of the window. You can also double-click an item to move it.

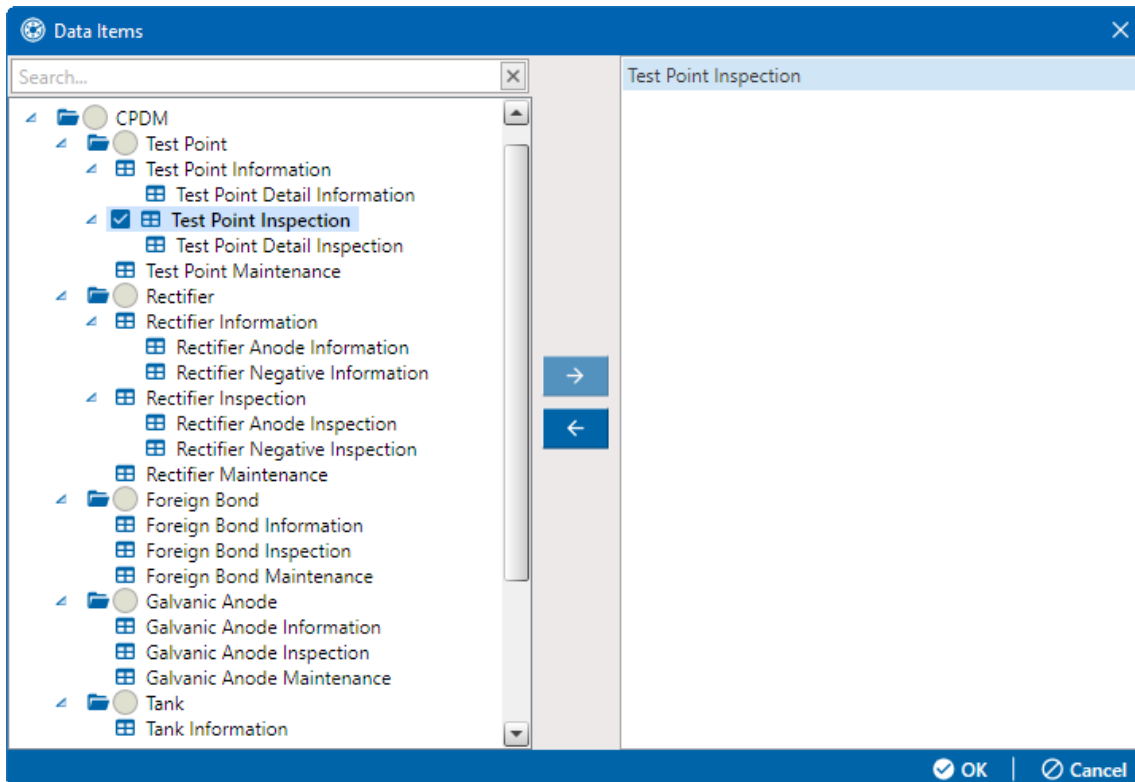






Figure 9-14. Data Items

The right pane of the *Data Items* window lists all selected data items for import or export. To remove a data item, select it and then click the  button to move it back to the left pane. You can also double-click an item to move it.

5. Repeat these steps as needed until all desired data items are listed in the right pane.
6. Click  **OK** to close the window and return to the *Bridge Definition* window. The data items are shown on the left side of the lower pane of the *Bridge Definition* window. You can click  **Full View** to view just this area. Click  **Full View** again to expand the view.

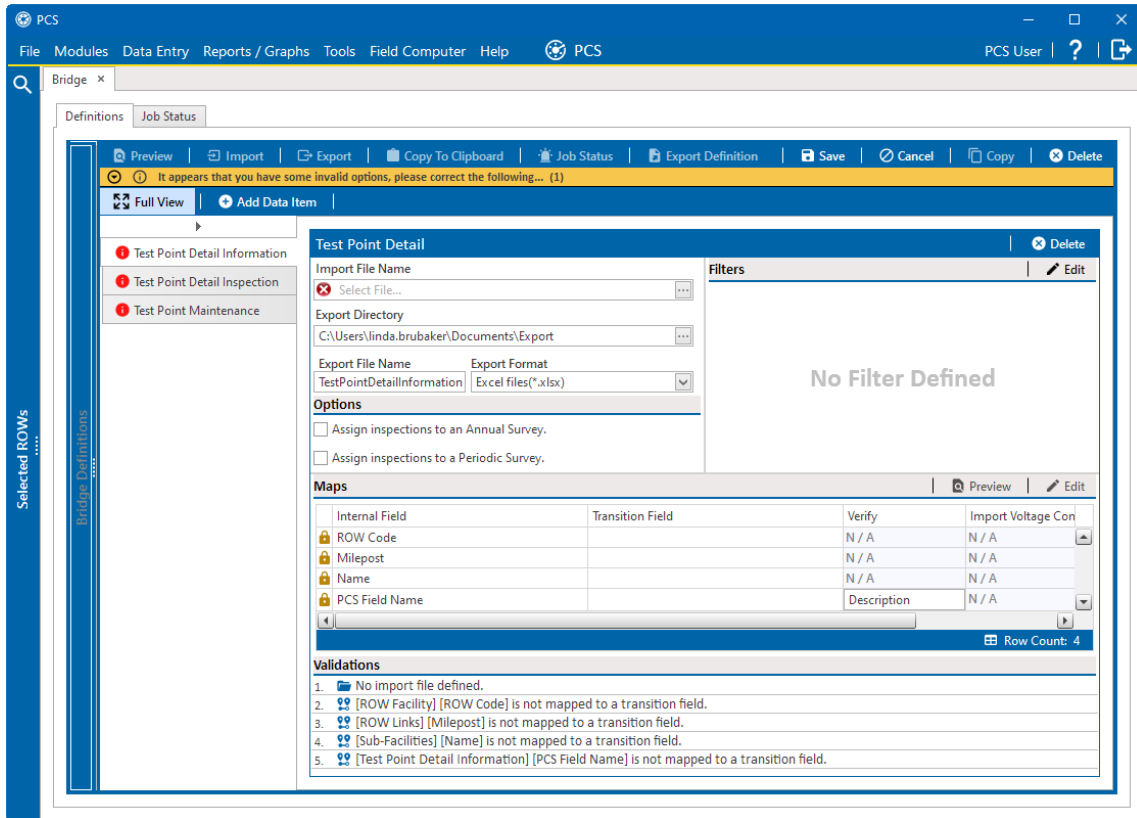


Figure 9-15. Data Items Pane

- To delete a data item, click select the data item in the left-hand list and click **Delete** in the associated *Detail* pane.

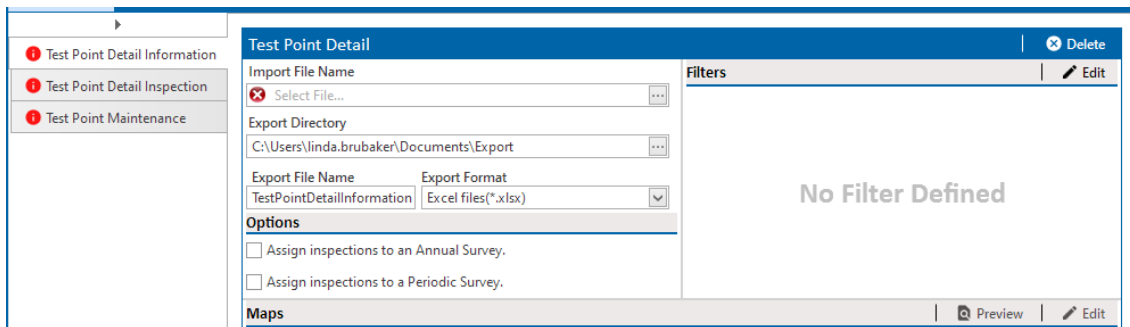


Figure 9-16. Data Item Details Pane

- To configure each data item, select the data item and complete the following steps for each one. The name of the data item will display as the header of the configuration pane:

- a. For Bridge imports, select an import file in **Import File Name** field. Click the ellipsis button ... in the **Import File Name** field to open the *Import File* window. Navigate to a folder on your computer where you want to save the export file. Then click **Open** to close the window and return to the definition window.

NOTE: If you did not select **Export** in the *Data Transfer* pane, the **Export Directory**, **Export File Name**, and **Export Format** fields will not display.

The screenshot shows a window titled "Test Point Detail" with a blue header. Below the header, there are four input fields:

- Import File Name:** A text box containing "Select File..." with a red 'X' icon on the left and an ellipsis button on the right.
- Export Directory:** A text box containing "C:\Users\linda.brubaker\Documents\Export" with an ellipsis button on the right.
- Export File Name:** A text box containing "TestPointDetailInformation".
- Export Format:** A dropdown menu showing "Excel files(*.xlsx)".

Figure 9-17. Data Item Import and Export Information

- a. For Bridge exports, select an **Export Directory**, enter an **Export File Name**, and select a **Export Format** for the export file. Options include **Excel files (*.xlsx)** and **Text files (*.txt, *.csv)**. Click the ellipsis button ... in the **Export Directory** field to open the *Browse For Folder* window. Navigate to a folder on your computer where you want to save the export file. Then click **OK** to close the window and return to the definition window.
- c. To assign inspections to an annual survey folder based on the inspection date of the record, select the **Assign inspections to an Annual Survey** check box.


The screenshot shows a window titled "Options" with a light gray header. Below the header, there are two checkboxes:

- Assign inspections to an Annual Survey.
- Assign inspections to a Periodic Survey.

Figure 9-18. Data Items Options

- d. To assign inspections to a periodic survey folder based on the inspection date of the record, select the **Assign inspections to a Periodic Survey** check box.
- e. Apply a filter to the data item. You can set up one or more filters that are applied to **only** the currently selected data item in the export definition. If the export definition is set up to run at a scheduled time, the filters will apply automatically. However, if an export definition is run manually, you will be prompted to select which filters to apply before running the

export definition.

Click  **Edit** in the *Filters* pane and define the filters that apply to the selected data item in the *Edit Filters* window. For detailed information about editing filters, refer to [Set Filters for All or Selected Data Items](#).

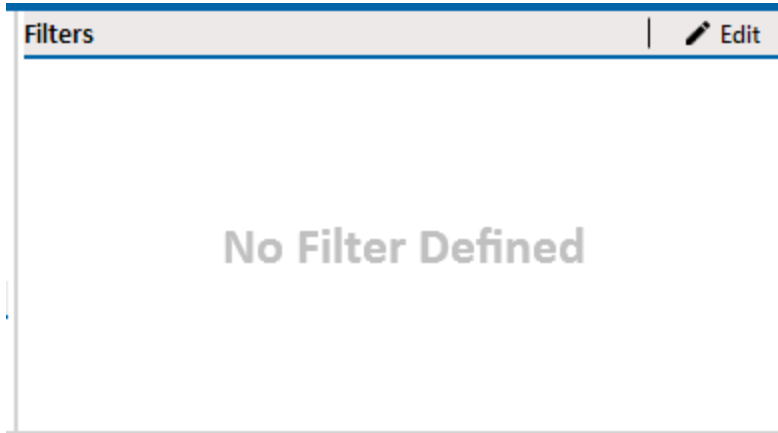


Figure 9-19. Filters Pane

f. Map PCS fields to transition field in the *Maps* pane.

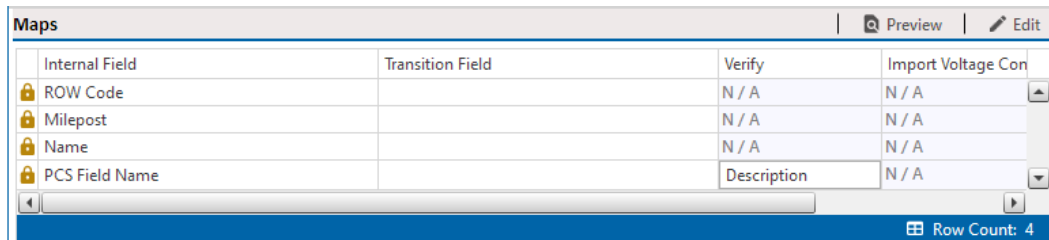



Figure 9-20. Maps Pane

i. Click  **Edit** to open a field selection window.

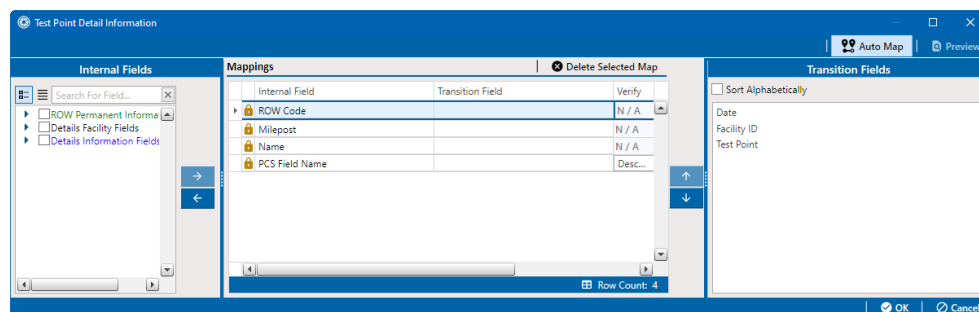

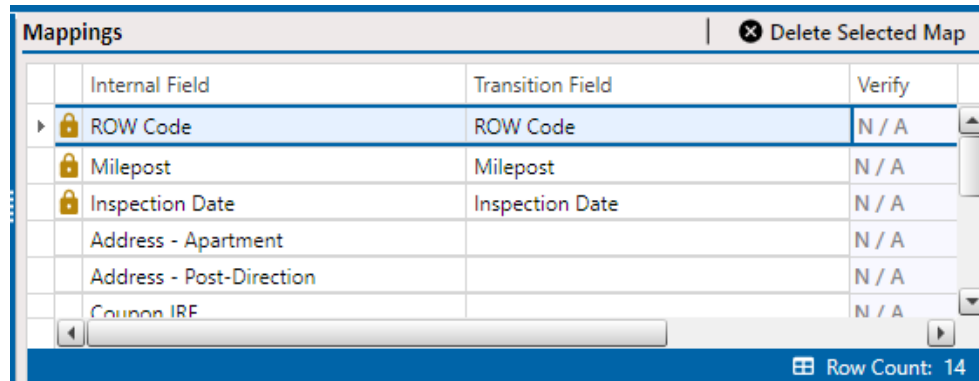


Figure 9-21. Edit Map Window

- ii. Click  **Auto Map** to allow PCS to map PCS fields with fields from the import file based on column names. The **Transition Field** cell for the mapped Internal Field will auto-populate.



Internal Field	Transition Field	Verify
ROW Code	ROW Code	N / A
Milepost	Milepost	N / A
Inspection Date	Inspection Date	N / A
Address - Apartment		N / A
Address - Post-Direction		N / A
Counon.IRF		N / A

Figure 9-22. Transition Field Mapped









- iii. If the PCS field(s) you wish to map to data in a column of the imported file or to export to a file is not listed in the *Mappings* pane, navigate to and select the PCS fields in the *Internal Fields* pane and click the  button or double-click the field(s) to move the selected fields to the *Mappings* pane.
- iv. For Bridge exports, select a row in the *Mappings* pane and type a column name in the **Transition Field** cell.
For Bridge imports, locate the corresponding column name in the *Transition Fields* pane and click the  button or double-click the field to map the selected fields.
- v. If the **Choose a conversion..** field is present in the *Mappings* pane for one or more mapped fields and you want to apply a conversion option, click the **Choose a conversion ..** field and select an option in the resulting list.
- vi. To remove a field in the *Mappings* pane, double-click the field and then click  **Yes** in the *Warning* window.



Figure 9-23. Warning Message to Delete Map


Fields with a  lock icon are required and should not be removed, such as **ROW Code**, **Milepost**, **Facility ID**, and **Inspection Date**.

- vii. Click  **Preview** to view how the data in the import file would map with the configured mappings. Click  **Close** to close the preview window.

You can also click  **Preview** from the pane of the *Definitions* window to view the *Preview Maps* window. Click  **Close** to close the window.

ROW Code	Milepost	Inspection Date
34	4456	2020-11-01T00:00:...
35	4457	2020-11-02T00:00:...
36	4457	2020-11-03T00:00:...
37	4457	2020-11-04T00:00:...
38	4457	2020-11-05T00:00:...
39	4457	2020-11-06T00:00:...
40	4457	2020-11-07T00:00:...
41	4457	2020-11-08T00:00:...
42	4457	2020-11-09T00:00:...
43	4457	2020-11-10T00:00:...
44	4457	2020-11-11T00:00:...
45	4457	2020-11-12T00:00:...
46	4457	2020-11-13T00:00:...

Figure 9-24. Preview Maps Window

- g. Click  **OK** to close the field selection window and return to the definition window.
- h. View whether the data item is valid or not in the *Validations* pane. Valid data items will have the message **<data item> is Valid** in green in this pane.

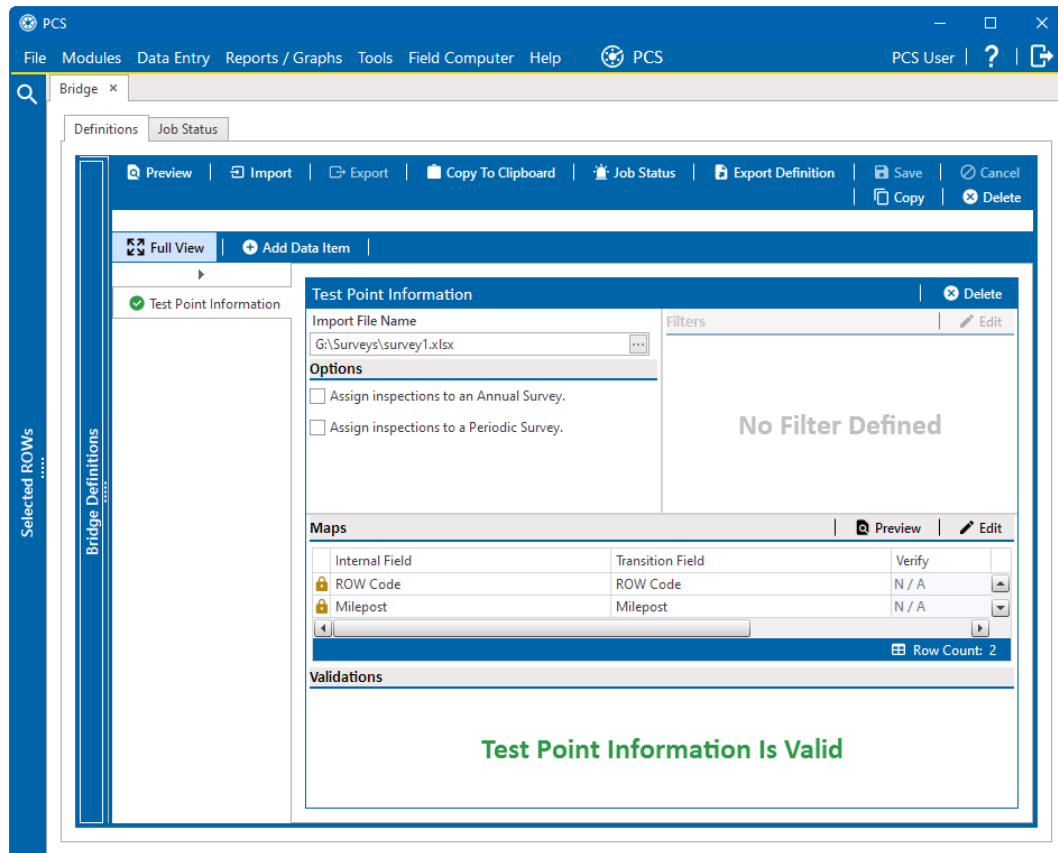


Figure 9-25. Validations for Data Items

- i. Correct any problems shown in the *Validations* pane before continuing. Examples may include the following:

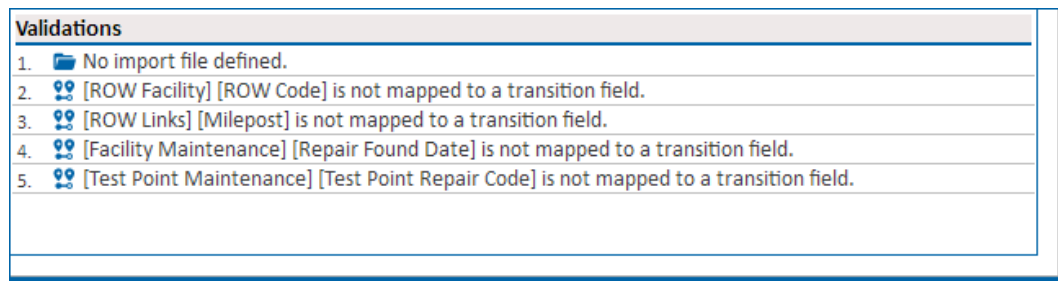



Figure 9-26. Validations Pane with Actions Required

- 9. Click  **Save** to save changes to the definition.

Set Filters for All or Selected Data Items

The *Filters* pane consists of a set of pre-defined filters as well as on demand filters grouped together with AND or OR joins. A filter group is a named set of one or more filters that affect the data returned. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes all filters in AND filter groups together then processes all filters in OR filter groups together.

If the import or export definition is set up to run at a scheduled time, the filters will apply automatically. However, if an import or export definition is run manually, you will be prompted to select which filters to apply before running the import or export definition. You can set up filters to apply to all data items or set up filters that apply to a single data item.

Complete the following steps to select all or a single data item for filters:

1. Open the Bridge definition for which you would like to add data items.

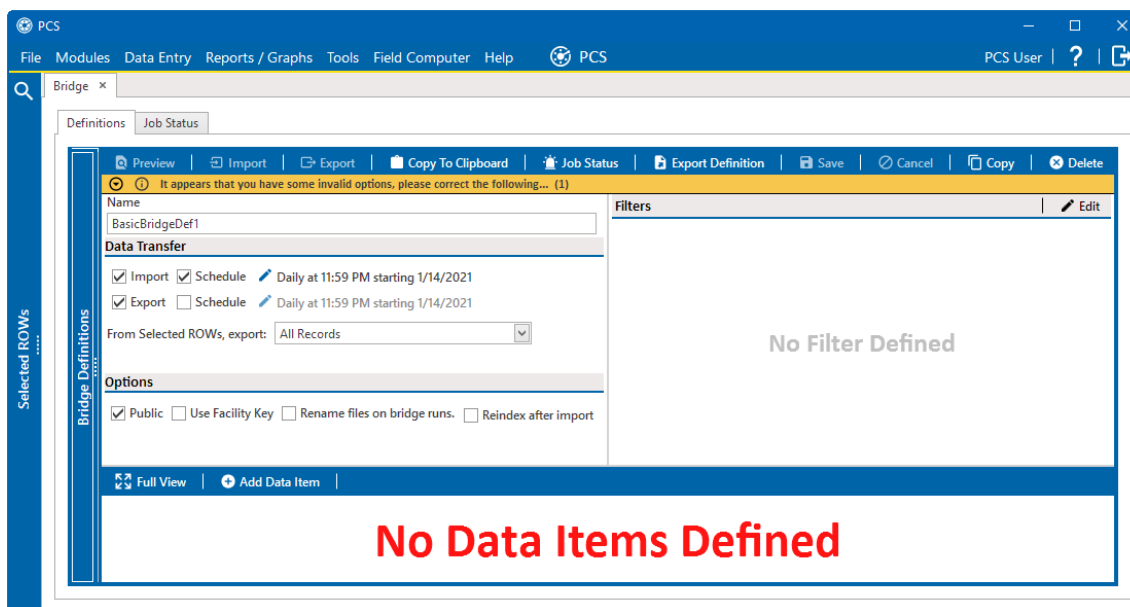



Figure 9-27. Basic Bridge Definition

2. To filter **all** data items for the basic Bridge definition, click  **Edit** in the Bridge *Filters* pane of the Bridge definition window.

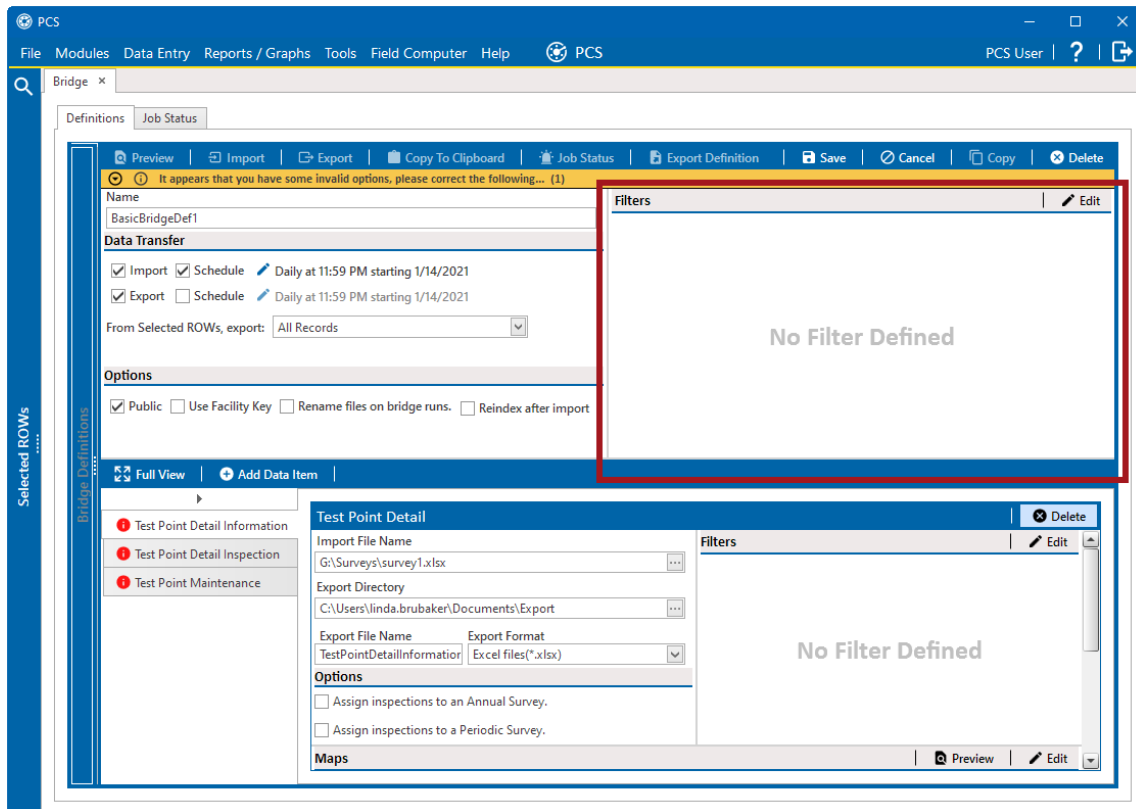



Figure 9-28. Filters for All Data Items

- To set up filters for an individual data item, select the data item and then click  **Edit** in the data item's *Filters* pane.

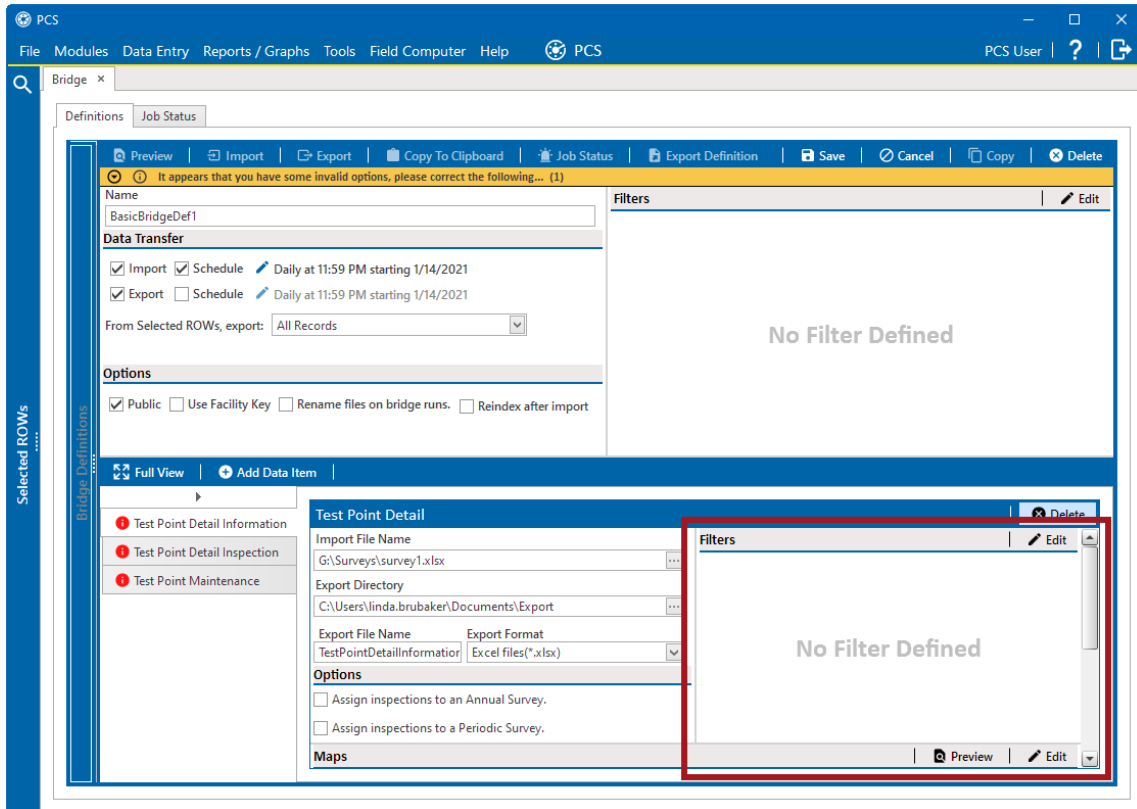


Figure 9-29. Filters for Single Data Item

For either method, the *Edit Filter* window opens.

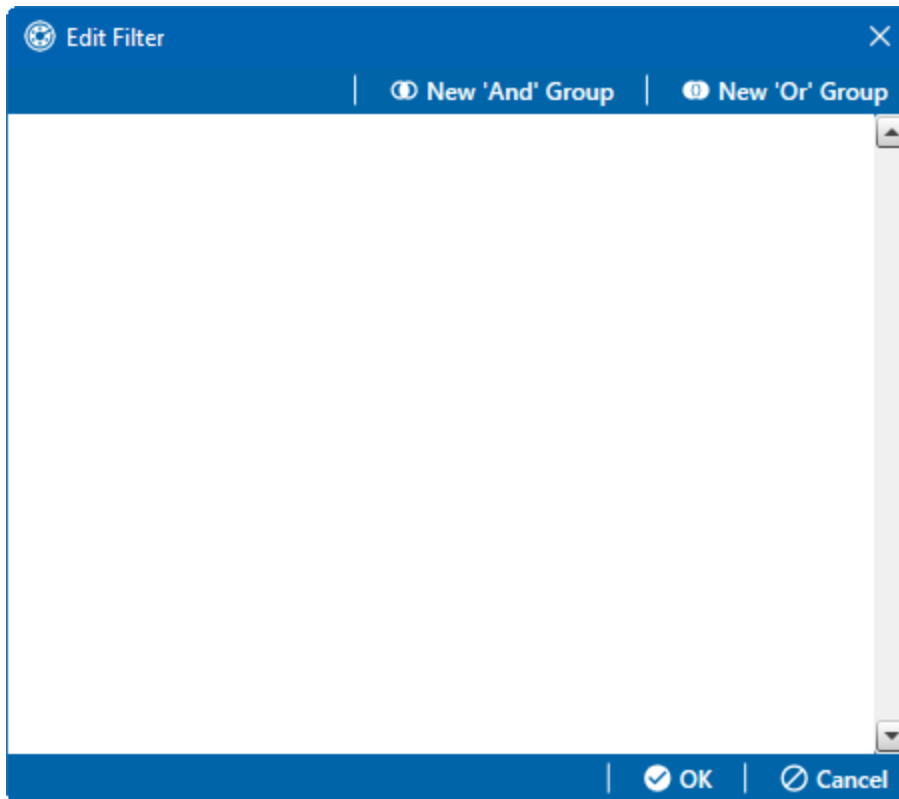


Figure 9-30. Edit Filter Window

Complete the following steps to create either an AND or an OR filter group:

1. To create a new And group, click **New 'And' Group** to open the filter properties group box.

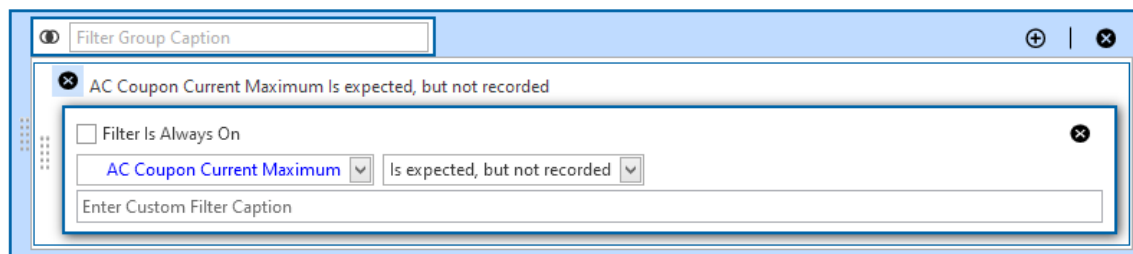


Figure 9-31. And Group Filters

2. To create a new Or group, click **New 'Or' Group** to open the filter properties group box.

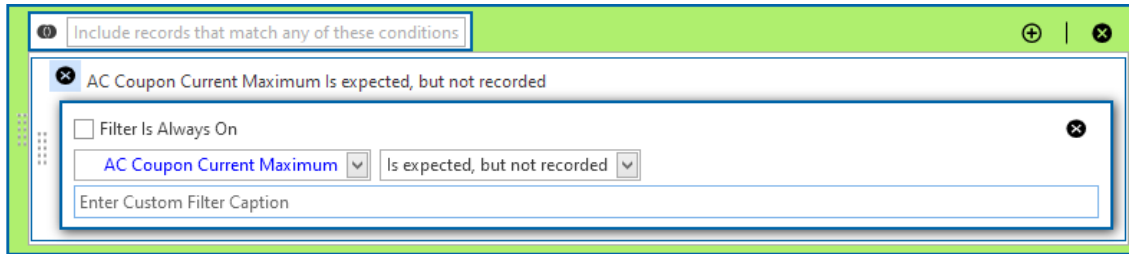








Figure 9-32. Or Group Filters

3. Type a name for the filter group in the **Filter Group Caption** field.
4. Select the **Filter Is Always On** option to keep the filter on.
5. Use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
 - a. When adding a date filter, set a date range using a calendar or dynamic dates in one of the following ways:
 - Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.
 - To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - To set a date range using dynamic start and end dates, click the  calculator icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
 - b. Type a name for the filter in the **Enter Custom Filter Caption** field.
 - c. If additional filters are needed within the filter group, click  and repeat these steps.
6. If necessary, click the  edit icon for a filter to open that filter's property settings and change settings as needed.
7. Click  **Save** to save the filter group.
8. Click  **Save and Close** when finished saving all filter groups.
10. Click  **OK** to close the *Edit Filter* window and return to the *Definitions* window.

Preview the Bridge Import

You can preview a Basic Bridge definition before importing the data into PCS. Bullhorn Bridge definitions do not have the preview function.

NOTE: All data items must be validated and all definitions complete before you can preview the import. Refer to [Define Data Items for Basic Bridge Definition](#) for more information.

Complete the following steps to preview the data from a Basic Bridge definition before importing into PCS:

1. In the Bridge *Definition* pane, click  **Preview**.

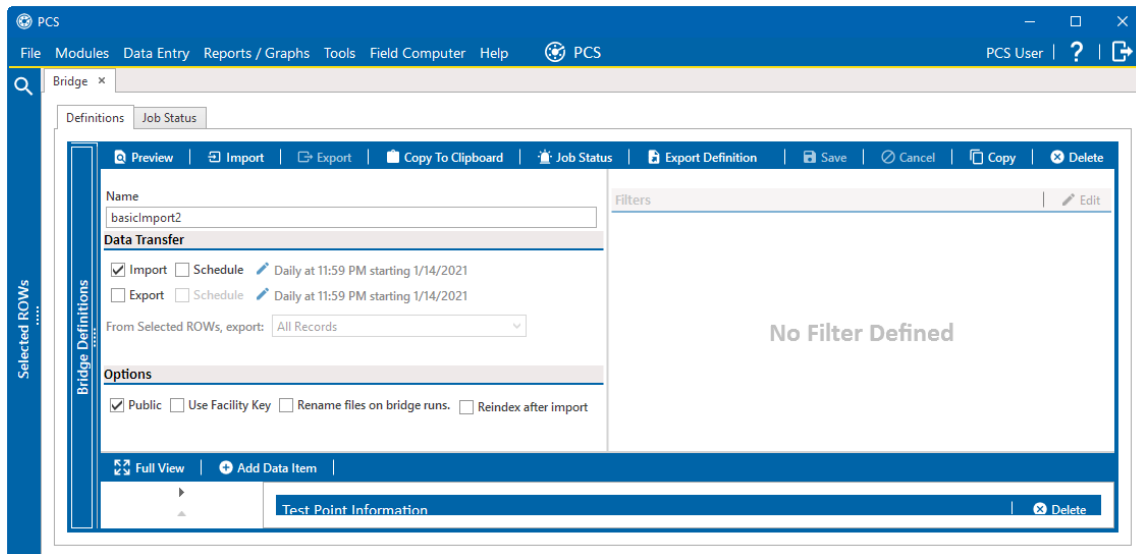


Figure 9-33. Bridge Definitions - Preview

The *Preview Status* window displays in place of the *Definition* pane with an initial status of **Queued**.

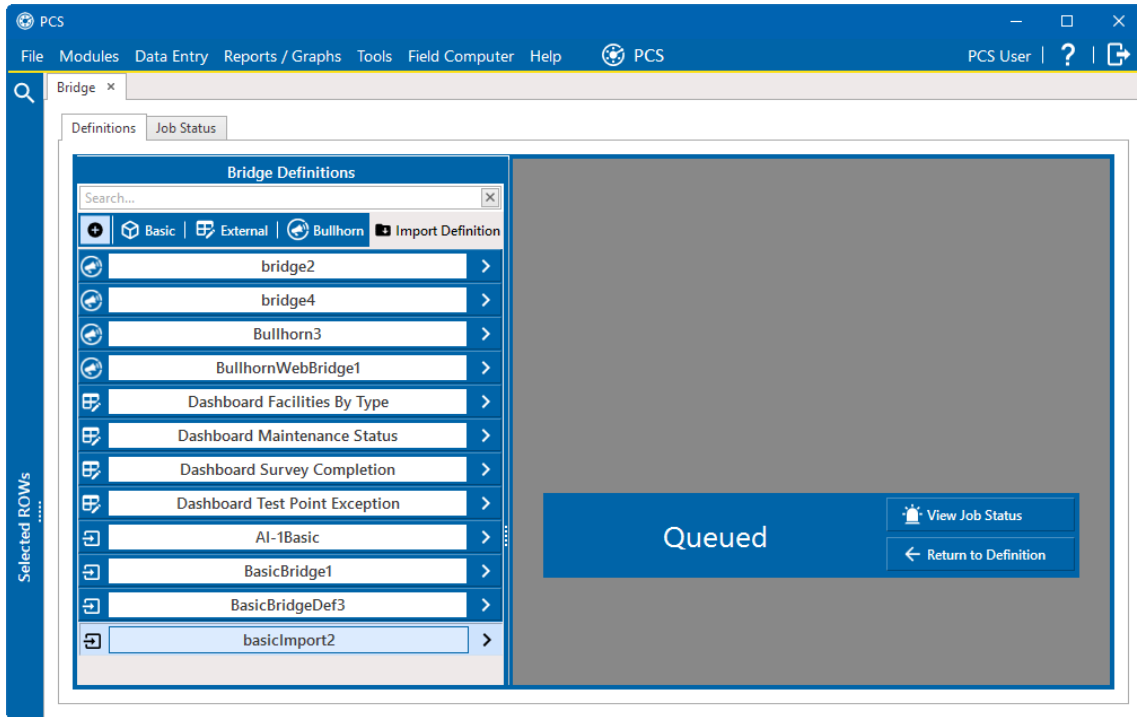


Figure 9-34. Queued Preview Status

As soon as the Bridge preview task starts, the status updates to **Running**. Once the initial analysis of the Bridge data is complete, the status updates to **Previews Available**, and the *Preview* window opens.

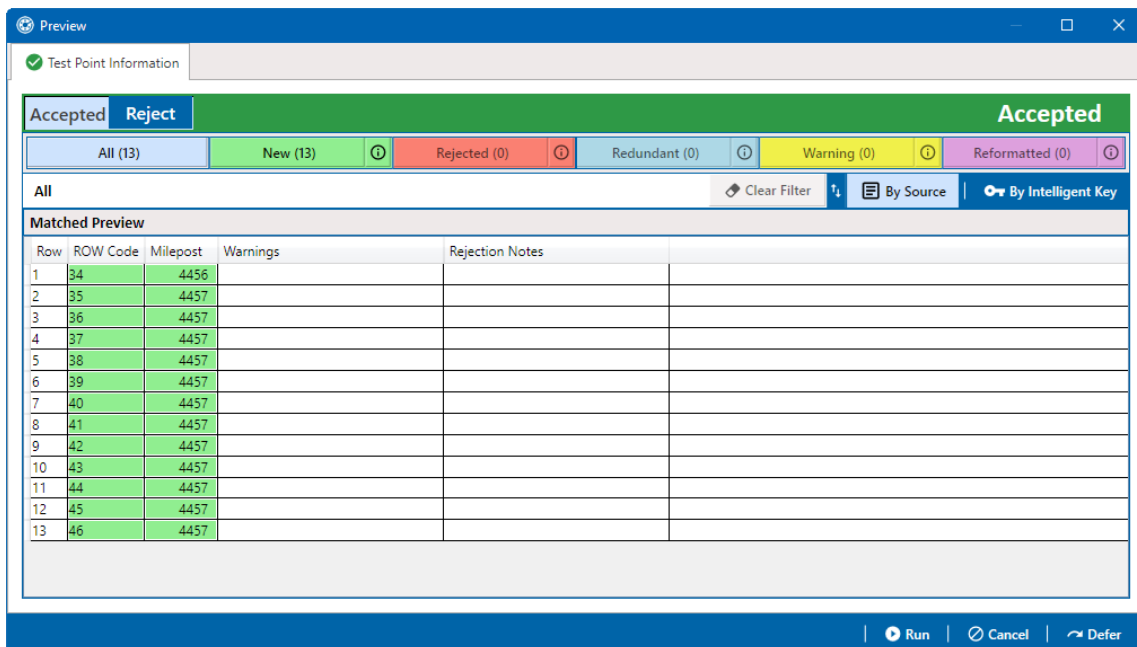


Figure 9-35. Previews Available Status


Some data in the *Preview* window is shaded in a color, to identify whether the data will import into PCS successfully or needs attention prior to import.

The following bridge preview data properties are represented by colored cells:

- **Green** – New. Indicates data that, once the bridge transition file is imported, will be entered into PCS.
- **Red** – Rejected. Indicates invalid data that, during the bridge transition file import, PCS would reject and not allow in PCS.
- **Blue** – Redundant. Indicates data that matches data already in PCS or elsewhere within the bridge transition file and therefore will not be imported.
- **Yellow** – Warning. Indicates data that has warning messages. It is recommended that you review this data to ensure that it the data displayed is the data that you want in PCS.
- **Pink** – Reformatted. Indicates the data that, during the bridge transition file import, will be reformatted to conform to PCS standards. It is recommended that you review this data to ensure that it is reformatted correctly.

2. To filter the *Preview* window to show a subset of Bridge data, click on a Bridge preview data property button, which include the following:

- **All** – shows all data rows from the bridge transition file.
- **New** – shows only data rows that contain new data that would be entered into PCS once the bridge transition file is imported.
- **Rejected** – shows only data rows that contain data that PCS would reject and not put into PCS.
- **Redundant** – shows only data rows that contain redundant data that will not be imported.
- **Warning** – shows only data rows that contain data with warning messages.
- **Reformatted** – shows only data rows that contain data that, during the bridge transition file import, will be reformatted to conform to PCS standards. It is recommended that you review reformatted data to ensure that it is reformatted correctly.

3. To filter the *Preview* window based on bridge preview data properties and data type, click the ⓘ icon next to the desired data property button. Select a data type from the *New Items* window and click  **Apply**.

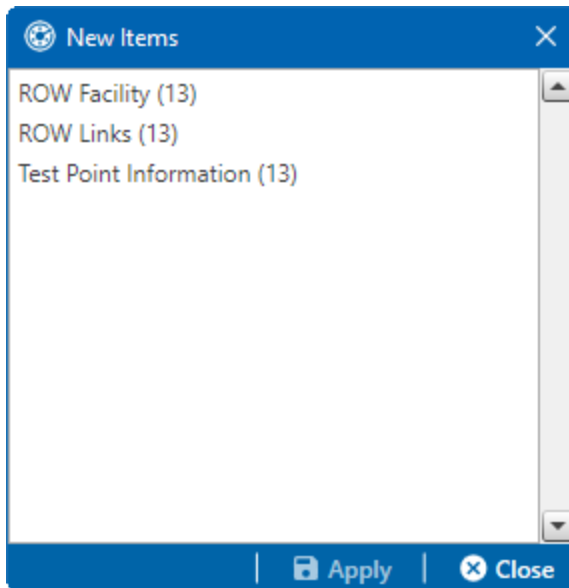


Figure 9-36. New Items Window

The *Preview* window updates to show only the data that matches the selected data property and data type.

4. To clear the filter and show all data in the *Preview* window, click **All** or **Clear Filter**.
5. To sort the data in the *Preview* window, click **By Source** or **By Intelligent Key** to sort the data according to the original sort order of the source document or according to the data's intelligent key, respectively.
6. After you have reviewed the data in the *Preview* window, you can either accept, reject, or defer the Bridge import:
 - a. To reject the data in the *Preview* window and not import any data, click **Reject** in the header bar. The header bar turns red to indicate the data will not be imported. Click **Run**.
 - b. To accept the data in the *Preview* window and import the data, click **Accept** in the header bar. The header bar turns green to indicate the data is set to be accepted. Click **Run**.
 - c. To defer the data in the *Preview* window and postpone importing the data until a later time, click **Defer** or **Cancel**. The preview will remain available for future reviews and can be accessed using the Job Status tab in the *Bridge* window.


Add a Bridge Import Definition for a Stationary Survey File

You can set up a Bridge definition for importing one or more stationary data logger (SDL) survey files. This Bridge definition specifies property settings and options for importing data in PCS, defines the data transfer options, and identifies the location of the SDL survey file(s).

IMPORTANT: Bridge Import is an optional add-on that requires an activation key for operation. Running **Bridge Import** for the first time requires you to enter your Bridge activation key. If you are unable to locate your Bridge activation key, contact Technical Support for assistance at support@aiworldwide.com. For more information, refer to [Activate Bridge Import for Operation on page 2](#).

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

To add a new Bridge definition to import an SDL file, click **Tools > Bridge** in the header bar to open the *Bridge* window.

Click  **Basic** to open the basic definition pane and then perform the following tasks:

- [Set SDL Bridge Import Properties](#)
- [Define Data Items for SDL Imports on page 582](#)
- [Set Filters for All or Selected Data Items on page 568](#) – this topic can be used for both Basic Bridge Definitions and Bridge Definitions for SDL survey files.

NOTE: It is recommended to click  **Save** frequently while creating the Bridge definition.

Set SDL Bridge Import Properties

The Basic Bridge definition properties for an SDL survey file include data transfer, public option, rename file on bridge runs option, and reindex after import option.

Complete the following steps set basic Bridge properties for an SDL survey file:

1. Click **Tools > Bridge** to open the *Bridge* window.

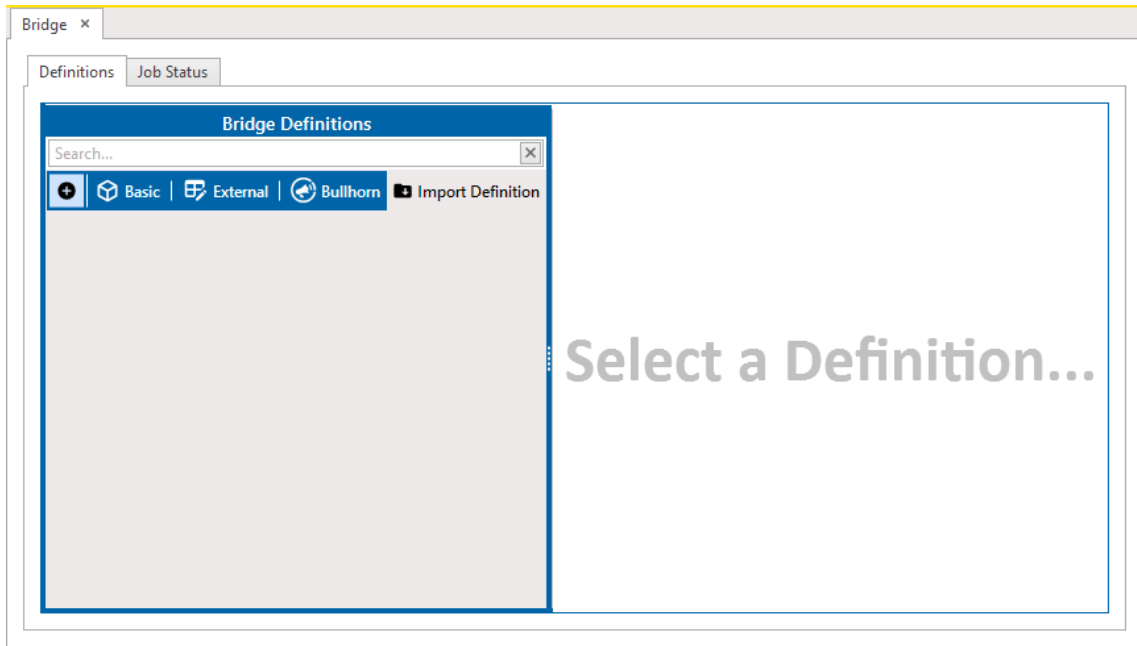


Figure 9-37. Bridge

2. Click **Basic** to open the basic definition pane. The *Selected ROWs* and *Bridge Definitions* panes can be moved or closed.

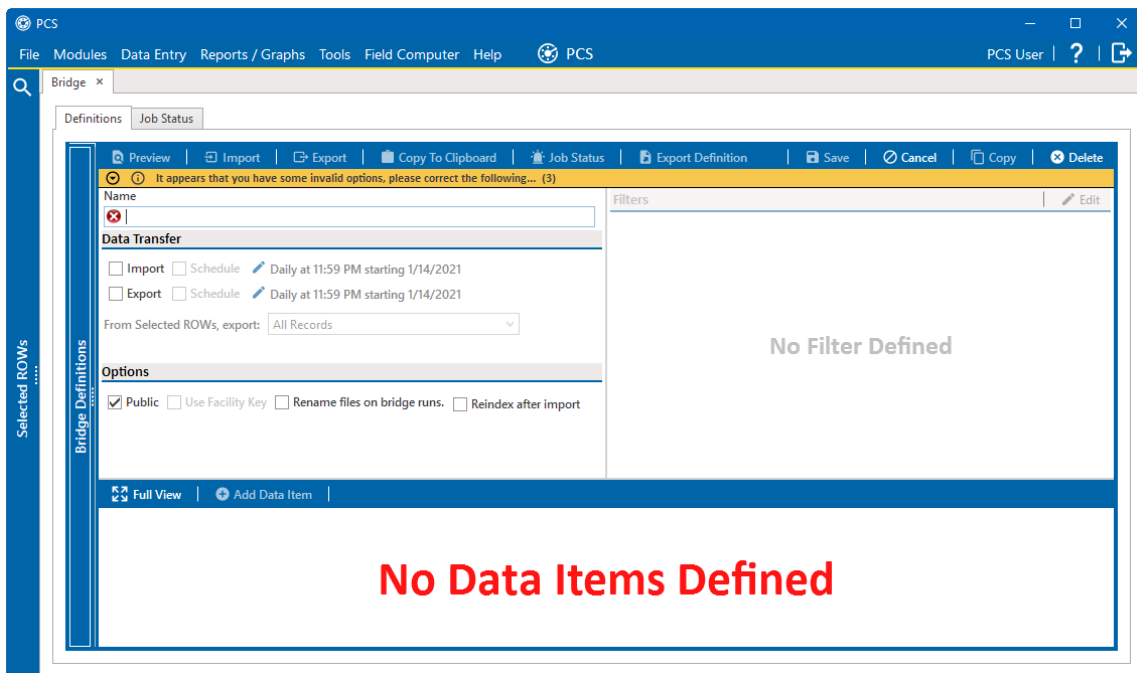

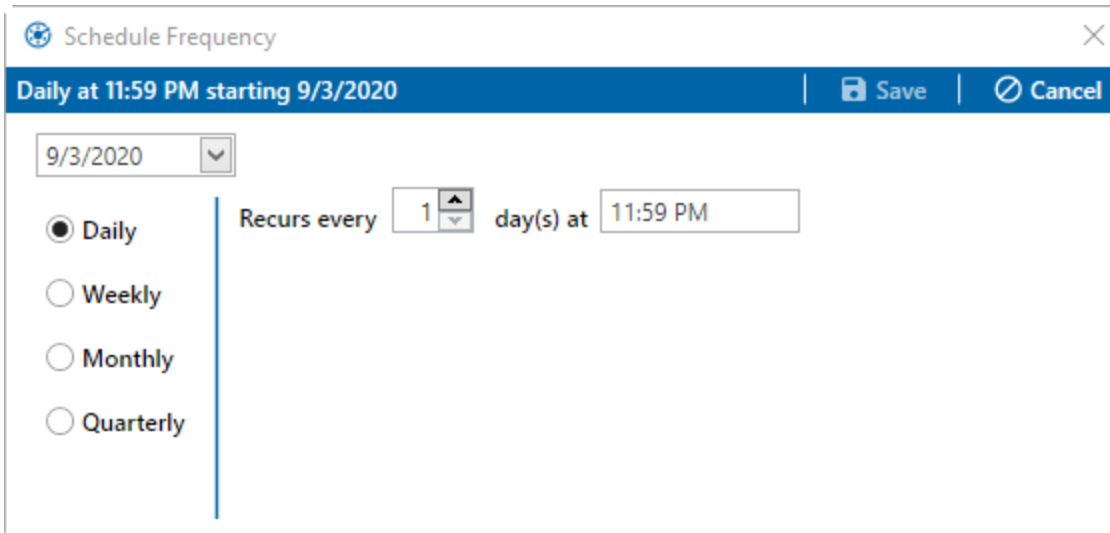


Figure 9-38. Basic Bridge Definition

3. Type a unique name for the definition in the **Name** field.
4. Click the **Import** or **Export** check box for the type of Bridge you are setting up. If both Import and Export are checked, the data items mapped and options configured for the Bridge definition will apply to both the import and export Bridge runs.
5. Since SDL imports are typically run on-demand, there is no need to set schedule properties. However, if your company has SDL imports to run on a regular basis, click the **Import** check box and click the **Scheduled** check box next to the selected Bridge type. Click the  icon and complete the following steps in the *Schedule Frequency* window:



The screenshot shows a dialog box titled "Schedule Frequency". At the top, it displays "Daily at 11:59 PM starting 9/3/2020" and has "Save" and "Cancel" buttons. Below this, there is a date field with a dropdown arrow showing "9/3/2020". To the left of the main configuration area are four radio buttons: "Daily" (selected), "Weekly", "Monthly", and "Quarterly". To the right of the radio buttons, the text "Recurs every" is followed by a spinner box containing the number "1", then "day(s) at" followed by a text box containing "11:59 PM".

Figure 9-39. Schedule Frequency Window

- a. **Determine the Import or Export Start Date** – enter a start date in the field provided or select the drop-down next to the field and select a date from the calendar that appears. The entered date determines when the first import or export occurs.
- b. **Create a Schedule for the Imports or Exports** – decide how often Bridge imports or exports should run by selecting one of the following:
 - i. **Daily**: Select **Daily** to perform the import or export after a certain number of days has passed since the last import. Enter a number in the **Recurs every** field and a time in the **day(s) at** field.

Figure 9-40. Schedule Frequency - Daily

- ii. **Weekly:** Select **Weekly** to perform the import or export on certain days of the week. Enter a number in the field provided to determine how many weeks should pass between imports. Select the check box next to the day(s) of the week that the import should be sent.

Figure 9-41. Schedule Frequency - Weekly

- iii. **Monthly:** Select **Monthly** to perform the import or export after a certain number of months has passed since the last import. You can select one of the following schedules:
 1. Select the first radio button on the right to perform the import or export only one time during the month. Select the day the import will run in the **Day** field, the frequency in the **of every month(s)** field, and enter a time a time in the

last text field.

The screenshot shows a dialog box titled "Schedule Frequency" with a close button (X) in the top right corner. Below the title bar, there is a subtitle "Every month on Day 1 at 11:59 PM starting 9/3/2020" and buttons for "Save" and "Cancel". A dropdown menu shows the start date "9/3/2020". On the left, there are radio buttons for "Daily", "Weekly", "Monthly" (which is selected), and "Quarterly". On the right, there are two radio button options. The top one is selected and reads "Day 1 of every 1 month(s) at 11:59 PM". The bottom one is unselected and reads "Day 1 and 15 of every 1 month(s) starting 09/03/2020 at 11:59 PM".

Figure 9-42. Schedule Frequency - Monthly

2. Select the second radio button on the right to perform the import or export twice during specified months. Select which days the import will run in the two **Day** fields. Select the frequency in the **of every month(s)** field and enter a time a time in the second text field.

The screenshot shows a dialog box titled "Schedule Frequency" with a close button (X) in the top right corner. Below the title bar, there is a subtitle "Every month on Day 1 and 15 at 11:59 PM starting 9/3/2020" and buttons for "Save" and "Cancel". A dropdown menu shows the start date "9/3/2020". On the left, there are radio buttons for "Daily", "Weekly", "Monthly" (which is selected), and "Quarterly". On the right, there are two radio button options. The top one is unselected and reads "Day 1 of every 1 month(s) at 11:59 PM". The bottom one is selected and reads "Day 1 and 15 of every 1 month(s) starting 09/03/2020 at 11:59 PM".

Figure 9-43. Schedule Frequency - Monthly with Specific Months and Time

- iv. **Quarterly**: Select **Quarterly** to run the import or export on the first day of every quarter. Enter a time in the text field.

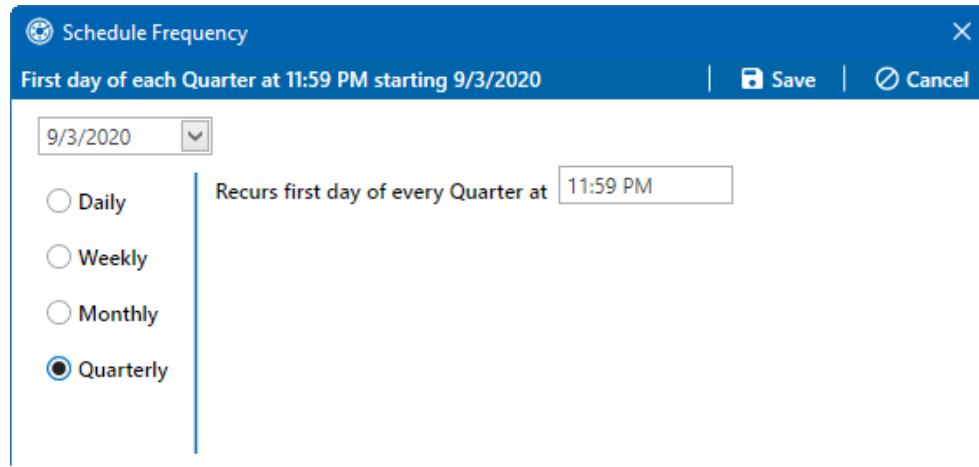




Figure 9-44. Schedule Frequency - Quarterly

When scheduling a time to run Bridge, choose a time that does not impact other network services or computer resources. For example, consider a staggered time schedule instead of running Bridge at the same time as other scheduled network services.

6. Click  **Save** to save schedule.
7. Click the **Public** check box if you want the import definition file available for use by all PCS users. When the check box is cleared, the definition file will be available only to the user who creates it.
8. Leave the **Use Facility Key** unchecked. This property does not apply to SDL imports.
9. If you want Bridge to rename the file upon manual imports, click the **Rename files on manual bridge runs** check box.
10. For Bridge imports that import large amounts of data, click the **Reindex after import** check box to reindex the PCS database after the import process completes.
This prevents the system from slowing down due to index fragmentation in the PCS database. You can also reindex the database using the **Reindex Database** option in *Job Service Viewer* (**Tools > Job Service Viewer**).
11. Click  **Save** to save definition.

Define Data Items for SDL Imports

You can add data items to the Bridge definition that will be included in the import. Each data item added must also be configured to ensure the fields are mapped correctly, the correct data is exported, and the data is exported to the desired location.

Complete the following steps to add and configure data item(s) for import or export from PCS:

1. Open the Bridge definition for which you would like to add data items.

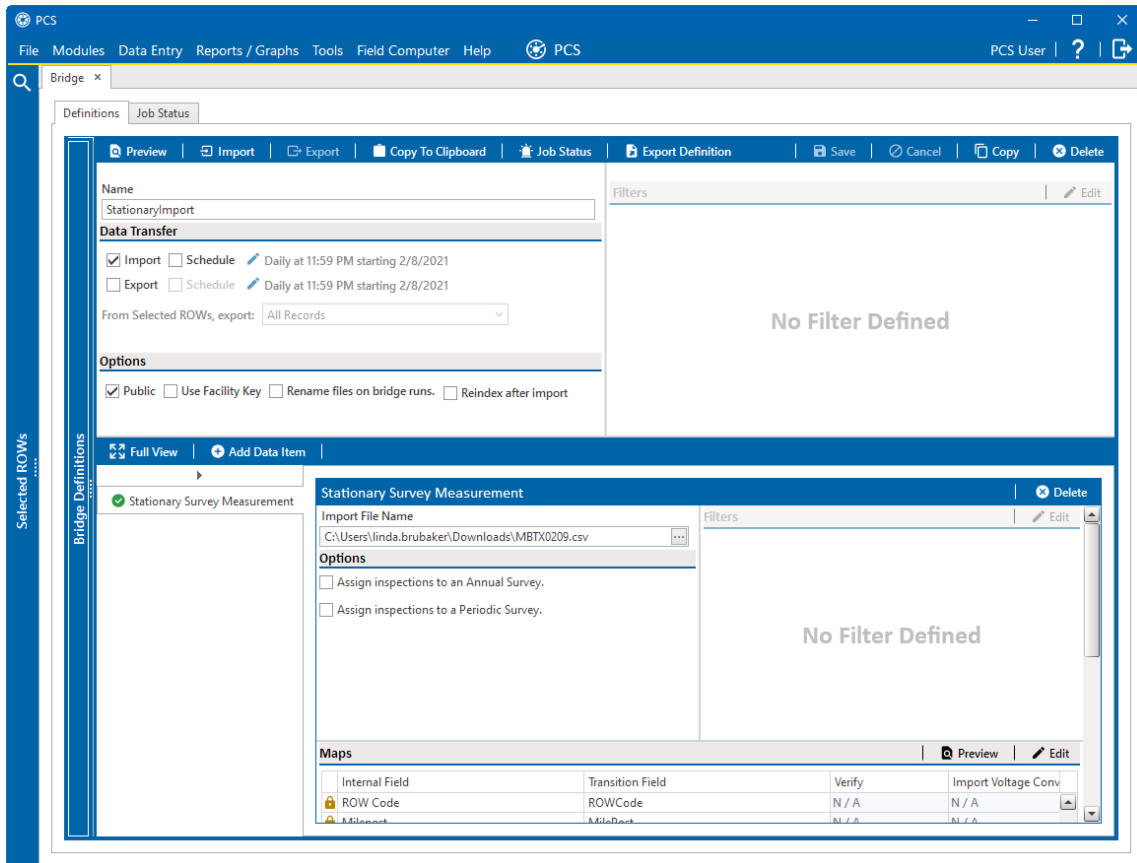



Figure 9-45. Basic Bridge Definition for Stationary Survey

2. Click  Add Data Item to open the *Data Items* window.

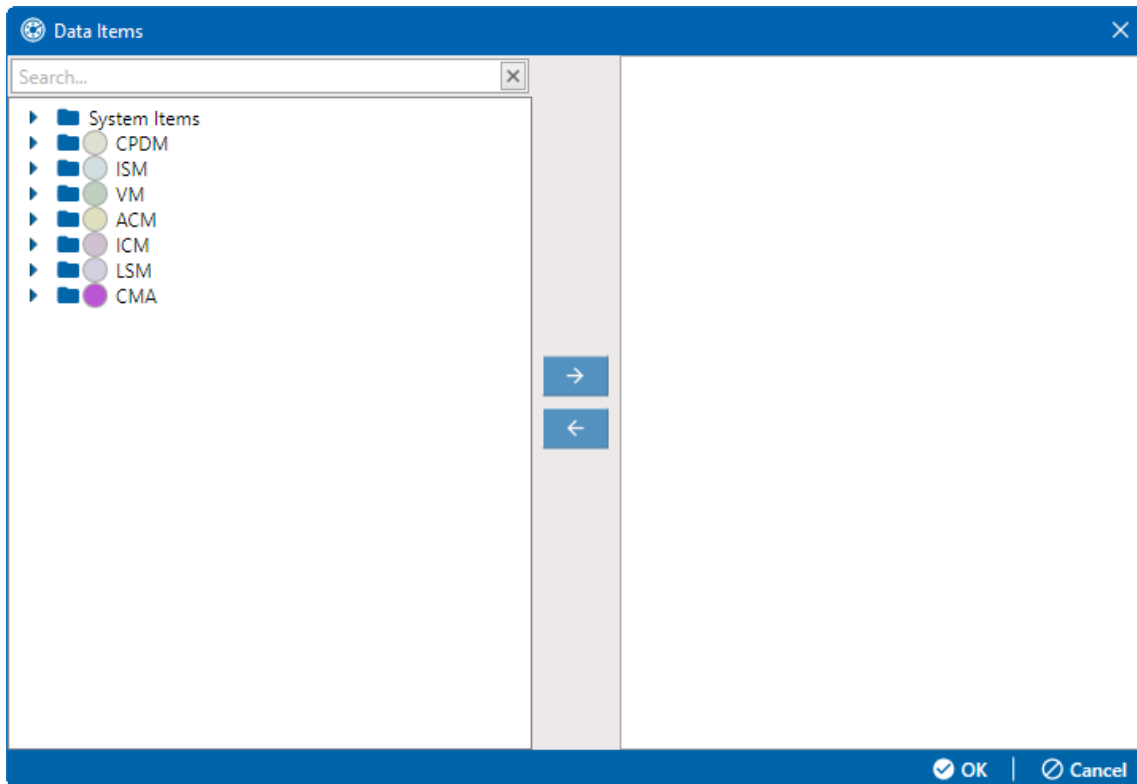


Figure 9-46. Data Items Window

3. Navigate to the folder(s) containing the **Stationary Survey Measurement**. Click the ▶ icon next to a top-level folder to expand it.
4. Select the data item and click the → button to move it to the right pane of the window. You can also double-click an item to move it.

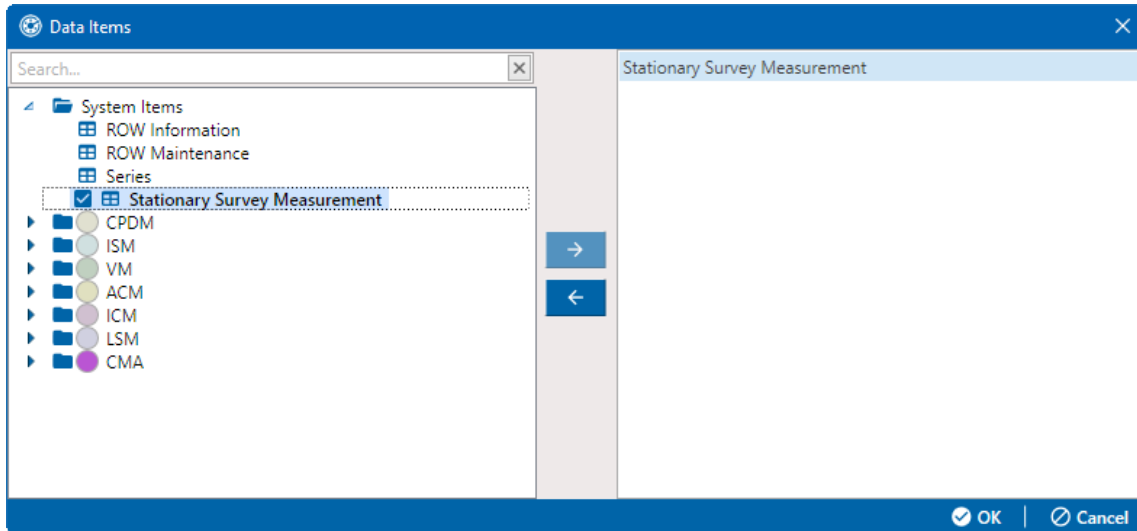


Figure 9-47. Data Items - Stationary Survey Measurement

- Click **OK** to close the window and return to the Bridge definition window. The data items are shown on the left side of the lower pane of the *Bridge Definition* window. You can click **Full View** to view just this area. Click **Full View** again to expand the view.

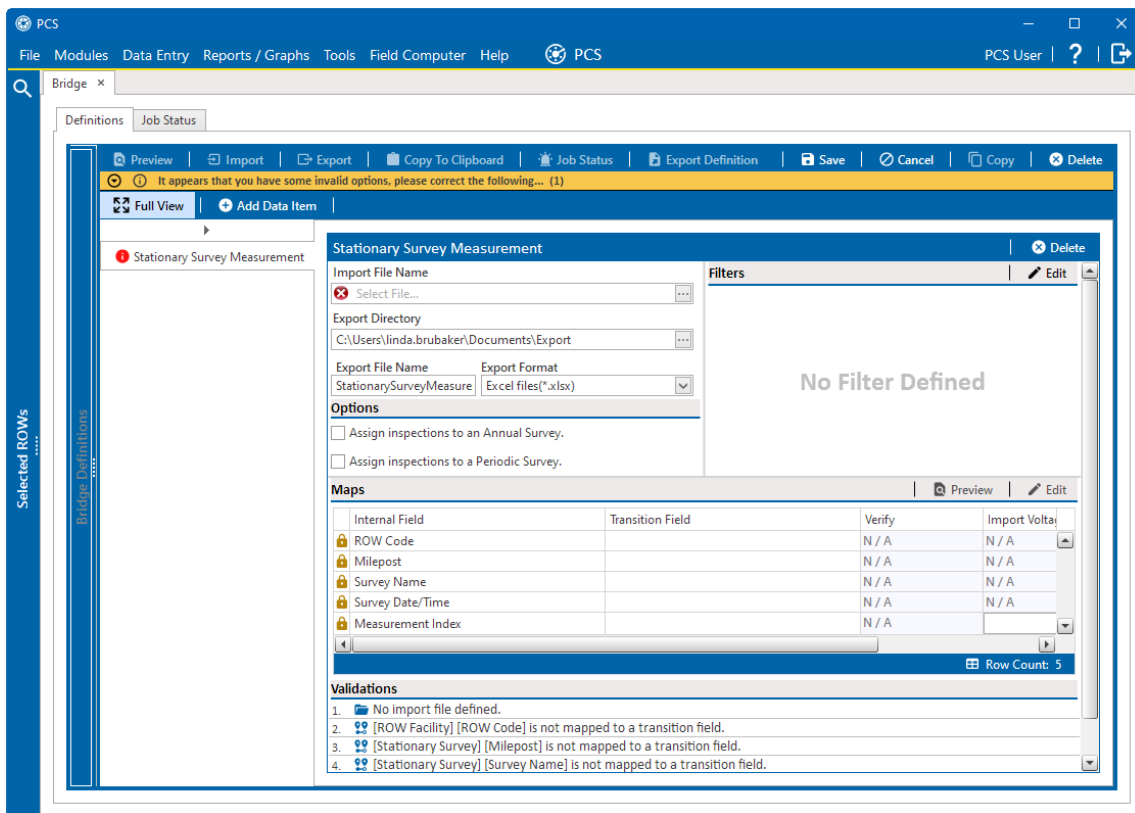


Figure 9-48. Data Items Pane

6. To assign the SDL survey to a survey folder based on the survey date, complete one or both of the following steps in the *Options* pane as required:

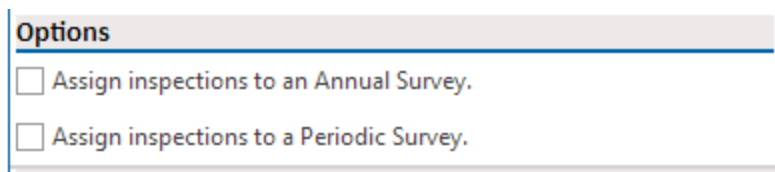


Figure 9-49. Data Items Options

- a. If you want to assign the SDL survey to an annual survey folder, select the **Assign inspections to an Annual Survey** check box.
 - b. If you want to assign the SDL Survey to a periodic survey folder, select the **Assign inspections to a Periodic Survey** check box.
7. To configure the data item added, select the data item and complete the following steps:
 - a. Click the ellipsis button ... in the **Import File Name** field to open the *Import File* window.
 - b. Navigate to a folder on your computer where you want to save the export file.
 - c. Click **Open** to close the window and return to the definition window.
8. In the *Stationary Survey(s)* window opens, select the SDL survey file.

A yellow → **Snap To Facility** button indicates the SDL survey file is matched to an unregistered milepost location. A green → **Snap To Facility** button indicates the SDL survey file has been automatically matched to a milepost location already established in PCS. A blue 🌐 **Snap To Facility** button indicates a match was not found for the pipeline segment or pipeline Series.

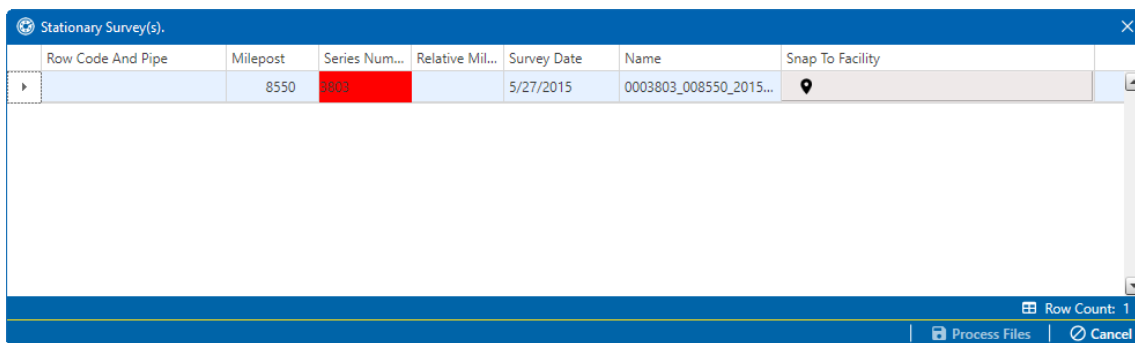


Figure 9-50. Stationary Survey(s)

9. Click the **Snap To Facility** button to open the *Snap To Facility* window.

Unregistered Milepost

Row Code And Pipe: 34

Milepost: 1450

Series Number: Series Number

Relative Milepost: 1450

Existing Facilities

Row Code And...	Milepost	Series Number	Relative Milepost
ATMOS, TP - 1	13		13
ATMOS, TP - 1	14		14
ATMOS, TP - 1	15		15
ATMOS, TP - 1	16		16

Row Count: 2770

Stationary Survey Milepost: 0.0000

OK | Cancel

Figure 9-51. Snap To Facility Window

10. When the milepost location of the SDL survey *does not* match a pipeline segment already established in PCS, it is identified as an **UnRegistered Milepost**.

When the milepost location of the SDL survey *does* match an existing pipeline segment in PCS, use the *Snap To Facility* window to match the SDL survey to a milepost location on the pipeline segment. This process ensures telluric compensation calculations are accurate.

Complete the following steps match the SDL survey to an existing milepost location:

- a. Click **Existing Facilities** to enable the grid for use.
 - b. If the pipeline segment is not selected in the **ROW** field, click the down arrow and select the pipeline segment in the selection list.
 - c. Select a milepost record in the grid and then click **OK** to snap the SDL survey to the selected milepost.
11. When the *Stationary Survey(s)* window opens, click **Process Files** to automatically map data fields in the SDL survey with data fields in PCS.

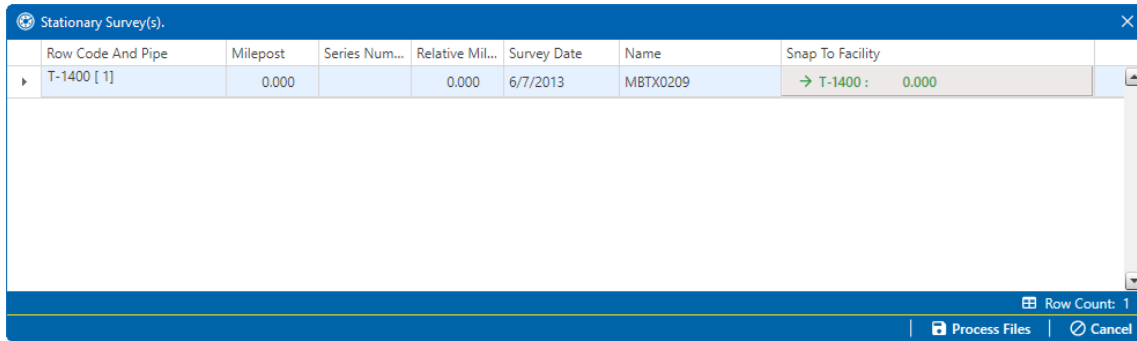


Figure 9-52. Process Files / Stationary Survey(s)

After processing files, the definition window opens. The *Maps* pane includes a list of field mappings in the columns labeled **Internal Field** (PCS) and **Transition Field** (SDL survey).

12. Map PCS fields to transition field in the *Maps* pane.

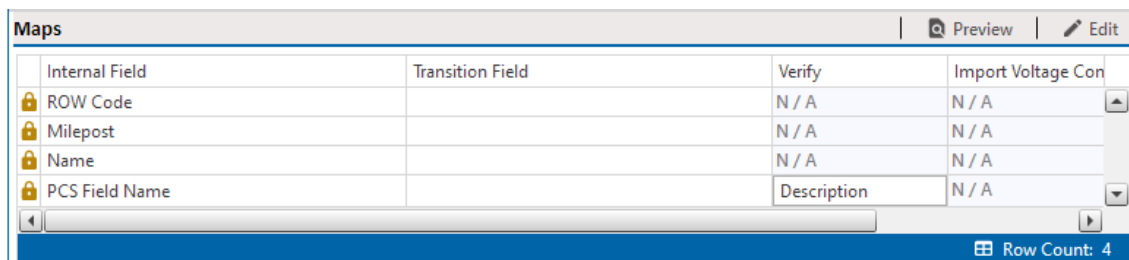


Figure 9-53. Maps Pane

- a. Click **Edit** to open a field selection window.

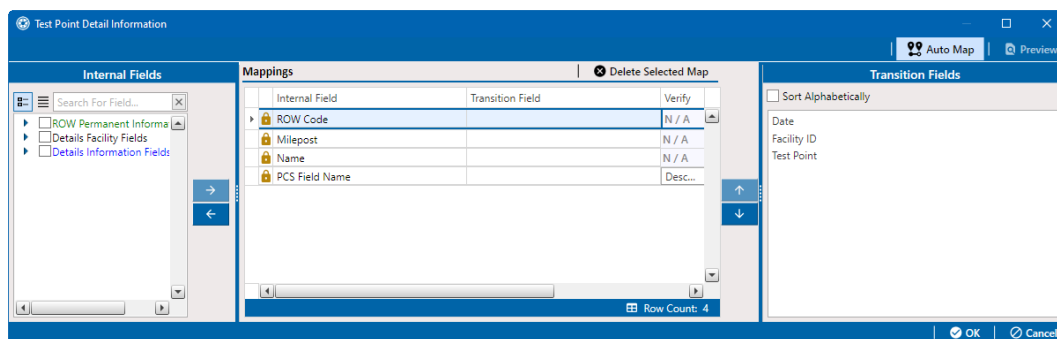




Figure 9-54. Edit Map Window

- b. Click **Auto Map** to allow PCS to map PCS fields with fields from the import file based on column names.

- c. If the PCS field(s) you wish to map to data in a column of the imported file or to export to a file is not listed in the *Mappings* pane, navigate to and select the PCS fields in the *Internal Fields* pane and click the  button or double-click the field(s) to move the selected fields to the *Mappings* pane.
- d. Select a row in the *Mappings* pane and either type a column name in the **Transition Field** cell (for Bridge exports) or locate the corresponding column name in the *Transition Field* pane and click the  button or double-click the field (for Bridge imports) to map the selected fields.
- e. If the **Choose a conversion..** field is present in the *Mappings* pane for one or more mapped fields and you want to apply a conversion option, click the **Choose a conversion ..** field and select an option in the resulting list.
- f. To remove a field in the *Mappings* pane, double-click the field and then click **Yes** in the *Warning* window.

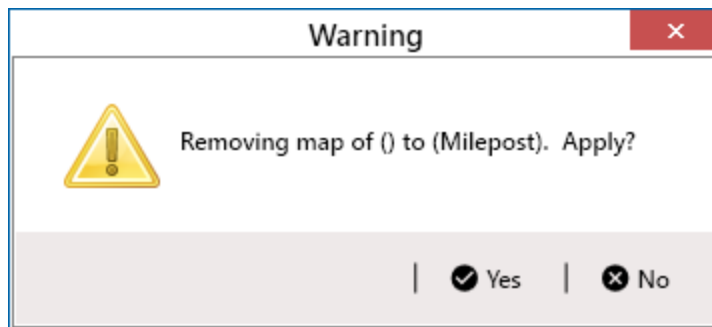







Figure 9-55. Warning Message to Delete Map

Fields with a  lock icon are required and should not be removed, such as **ROW Code**, **Milepost**, **Facility ID**, and **Inspection Date**.

- g. Click  **Preview** to view how the data in the import file would map with the configured mappings. Click  **Close** to close the preview window.
13. Apply a filter to the data item. You can set up one or more filters that are applied to **only** the currently selected data item in the import definition. If the import definition is set up to run at a scheduled time, the filters will apply automatically. However, if an import definition is run manually, you will be prompted to select which filters to apply before running the import definition.
Click  **Edit** in the *Filters* pane and define the filters that apply to the selected data item in the *Edit Filters* window. For detailed information about editing filters, refer to [Set Filters for All or Selected Data Items](#).
 14. Click  **Save** to save the definition file.

Add a Bullhorn Bridge Definition

A Bullhorn Bridge definition specifies the property settings and options for importing data into PCS from a user account on Bullhorn Web. The definition defines the bridge frequency and field mappings for PCS and data imported from Bullhorn Web. Dates imported into PCS are imported in UTC format, which may display differently in PCS than it did in Bullhorn Web.

The definition is defined by a name and a unique Key (token) that is generated from an Extract report in Bullhorn Web. Only a user with Admin privileges in Bullhorn Web can create Extracts.

Also refer to [Set Bullhorn Options](#) for information on setting options for integrating with Bullhorn Web.

After running a Bullhorn Bridge definition, PCS automatically adds the phrase *Bullhorn Import* in the **Inspection Remarks** field of the facility data entry grid.

To add a new Bridge definition, from the main menu click **Tools > Bridge** to open the *Bridge* window.

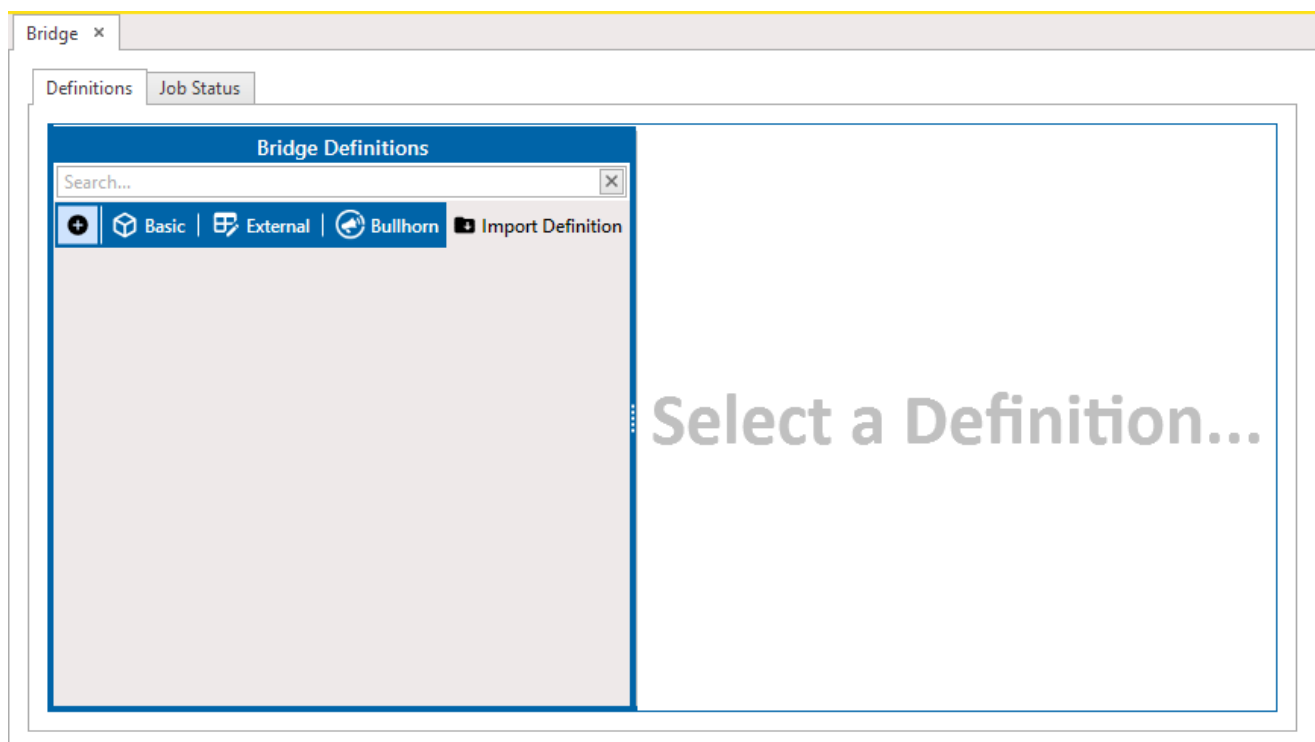



Figure 9-56. Bridge

NOTE: **External** and **Import Definition** options are not available in the Hosted environment.

Click  **Bullhorn** to open the Bullhorn definition pane. Refer to the following topics for additional information:

- [Before Creating a Bullhorn Bridge Definition on page 591](#)
 - [Set Bullhorn Bridge Properties on page 591](#)
 - [Map Bullhorn Bridge Fields on page 595](#)
 - [Update a Bullhorn Bridge Definition on page 600](#)
 - [Run a Bullhorn Bridge on page 609](#)
-

NOTE: It is recommended to click  **Save** frequently while creating the Bridge definition.

Before Creating a Bullhorn Bridge Definition

When a Bullhorn Bridge definition is created in PCS, PCS attempts to automatically map RMUs to PCS Facilities and channel data to PCS fields if the Facility ID and Engineering Units match, respectively. This auto-mapping only occurs when the Bullhorn Web Facility ID and Engineering Units fields match the corresponding Facilities and Fields in PCS. Therefore, before creating a Bullhorn Bridge definition, it is recommended that you verify all Bullhorn RMU configuration settings to match what is currently in PCS.

Complete the following best practices to help avoid issues during auto-mapping:

- Ensure that the RMU "Engineering Units" Scaled Label from Bullhorn Web matches fields currently in PCS. For example:
 - Ensure that all RMUs have a Facility ID that corresponds to a PCS Facility.
 - Ensure that all RMU channels' Engineering Units are the same for a given reading type; ensure that the Engineering Unit aligns with PCS.
- Correct or add information in Bullhorn Web that may be missing or different from what is in PCS.

Refer to [Update a Bullhorn Bridge Definition](#) for information on how to fix mis-matches after creating the Bullhorn Bridge definition.

Set Bullhorn Bridge Properties

NOTE: To create a Bullhorn Bridge definition, you must have a unique Key (token) that is generated from an Extract in Bullhorn Web. Only a user with Admin privileges in Bullhorn Web can create an Extract.

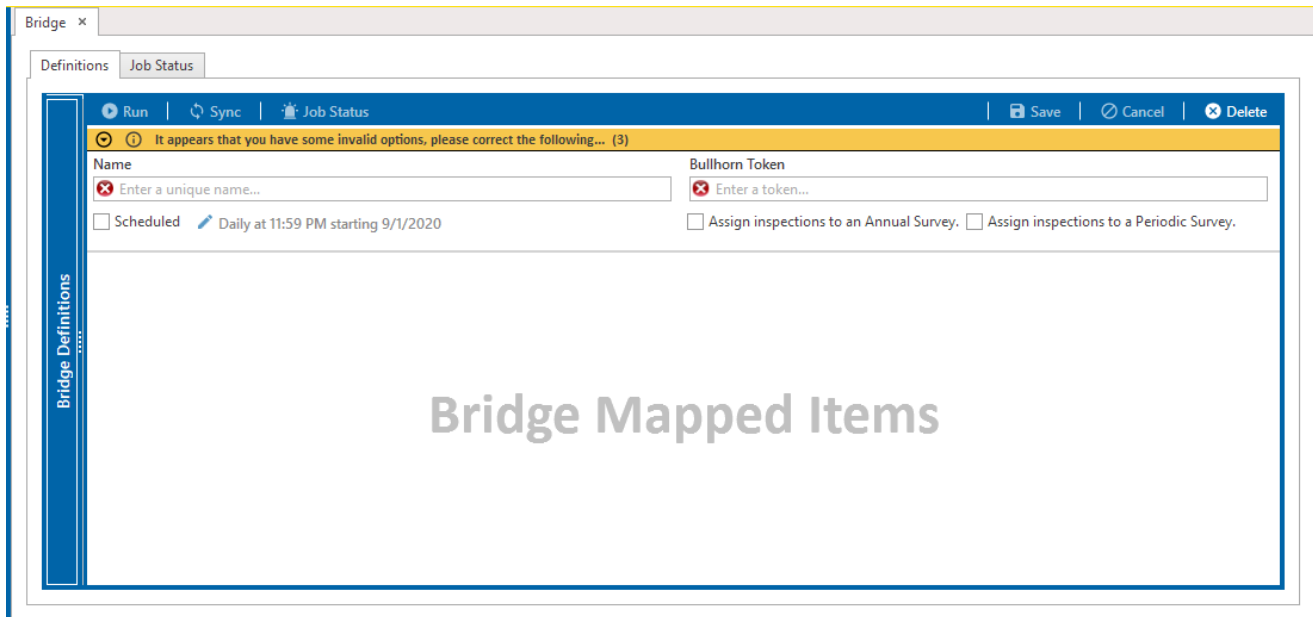


Figure 9-57. Bullhorn Bridge Definition

Complete the following steps to add a Bullhorn Bridge definition:

NOTE: It is recommended to click  **Save** frequently while creating the Bridge definition.

1. Type a unique name for the definition in the **Name** field.
2. To set the Bullhorn Bridge job to run automatically at a scheduled time, click the **Scheduled** check box. Then click the  (pencil icon) next to **Scheduled** and select one of the following schedules:
 - a. **Daily:** Select **Daily** to perform Bullhorn imports after a certain number of days has passed since the last import. Enter a number in the **Recurs every** field and a time in the **day(s) at** field.

Figure 9-58. Schedule Frequency - Daily

- b. **Weekly:** Select **Weekly** to perform Bullhorn imports on certain days of the week. Enter a number in the field provided to determine how many weeks should pass between imports. Select the check box next to the day(s) of the week that the import should be sent.

Figure 9-59. Schedule Frequency - Weekly

- c. **Monthly:** Select **Monthly** to perform Bullhorn imports after a certain number of months has passed since the last import. You can select one of the following schedules:
- i. Select the first radio button on the right to perform Bullhorn imports only one time during the month. Select the day the import will run in the **Day** field, the frequency in the **of every month(s)** field, and enter a time a time in the last text field.

The screenshot shows the 'Schedule Frequency' dialog box with the following configuration:

- Start date: 9/3/2020
- Frequency: Monthly (selected)
- Day: 1
- of every: 1 month(s)
- at: 11:59 PM

Figure 9-60. Schedule Frequency - Monthly

- ii. Select the second radio button on the right to perform imports twice during specified months. Select which days the import will run in the two **Day** fields. Select the frequency in the **of every month(s)** field and enter a time a time in the second text field.

The screenshot shows the 'Schedule Frequency' dialog box with the following configuration:

- Start date: 9/3/2020
- Frequency: Monthly (selected)
- Day: 1 and 15
- of every: 1 month(s)
- starting: 09/03/2020
- at: 11:59 PM

Figure 9-61. Schedule Frequency - Monthly with Specific Months and Time

- d. **Quarterly**: Select **Quarterly** to run Bullhorn imports on the first day of every quarter. Enter a time in the text field.

The screenshot shows a 'Schedule Frequency' dialog box. The title bar contains a globe icon, the text 'Schedule Frequency', and a close button (X). Below the title bar, the subtitle reads 'First day of each Quarter at 11:59 PM starting 9/3/2020'. To the right of the subtitle are 'Save' and 'Cancel' buttons. The main area of the dialog has a date dropdown set to '9/3/2020'. On the left, there are four radio button options: 'Daily', 'Weekly', 'Monthly', and 'Quarterly'. The 'Quarterly' option is selected. To the right of these options, the text 'Rekurs first day of every Quarter at' is followed by a time input field containing '11:59 PM'.

Figure 9-62. Schedule Frequency - Quarterly

NOTE: When scheduling a time to run Bridge, choose a time that does not impact other network services or computer resources. For example, consider a staggered time schedule instead of running Bridge at the same time as other scheduled network services.

3. Enter the unique Key that was generated from an Extract in your Bullhorn Web account in the **Bullhorn Token** field.

NOTE: You cannot run a Bullhorn Bridge Definition without this token.

4. To assign survey readings to a survey folder based on the inspection date, complete one or both of the following as required:
 - To assign inspections to an annual survey folder, click the check box **Assign inspections to an Annual Survey**.
 - To assign inspections to a periodic survey folder, click the check box **Assign inspections to a Periodic Survey**.
5. Click **Save**.
6. Continue with [Map Bullhorn Bridge Fields](#) to complete the Bullhorn Bridge Definition.

Map Bullhorn Bridge Fields

After the Bullhorn Bridge definition has been saved (refer to [Set Bullhorn Bridge Properties](#)), the Bullhorn Web data is imported into PCS, and matching fields are auto-mapped. However, there may be some records that do not map automatically. In these cases, you will need to map them manually or

update the unit configuration in Bullhorn Web and sync the changes in PCS (refer to [Update a Bullhorn Bridge Definition](#)).

NOTE: Dates imported into PCS are imported in UTC format, which may display differently in PCS than it did in Bullhorn Web.

Complete the following steps to view mis-matched records or manually map Bullhorn Web data points to PCS fields:

1. In the *Mappings* pane, click the **All** option to display all Bullhorn Web records. The following figure shows an example of records that were imported without being mapped to a PCS Facility.

ROW Code and Pipe	Milepost	Facility ID	Subfacility	Field	Do Not Map	Import Voltage Conversion	Client Unit Name	Data Point	Unit Data Point
					<input type="checkbox"/>	N / A	[ReplacedUnit]-Be...	AC	AC
					<input type="checkbox"/>	N / A	[ReplacedUnit]-Be...	Battery Status	Battery Statu
				Rectifier Output Cu...	<input type="checkbox"/>	Choose a conversion...	[ReplacedUnit]-Be...	DC_AMPS	DC_AMPS
				Rectifier Output Vo...	<input type="checkbox"/>	Choose a conversion...	[ReplacedUnit]-Be...	DC_VOLTS	DC_VOLTS
					<input type="checkbox"/>	N / A	[ReplacedUnit]-Be...	Digital	Digital
					<input type="checkbox"/>	N / A	[ReplacedUnit]-Be...	Interruption Status	Interruption
					<input type="checkbox"/>	N / A	A-1300 HWY 99 at...	AC	AC
				Negative Current F...	<input type="checkbox"/>	Choose a conversion...	A-1300 HWY 99 at...	Analog	Binger 4" N
					<input type="checkbox"/>	N / A	A-1300 HWY 99 at...	Analog	Station, Gra
					<input type="checkbox"/>	N / A	A-1300 HWY 99 at...	Battery Status	Battery Statu

Figure 9-63. Mappings pane - Expanded

Records are colored to show if they are mapped correctly. For example:

- **Green** – facility and the Bullhorn RMU are mapped correctly.
- **Red** – indicates a mismatch between Facility ID or Engineering Units.

NOTE: Rectifier Negatives will show in red even if they are mapped correctly.

- **Yellow** – warning that the record will import but may not be within the required range.

2. Select a PCS module from the drop-down that will receive imported data.

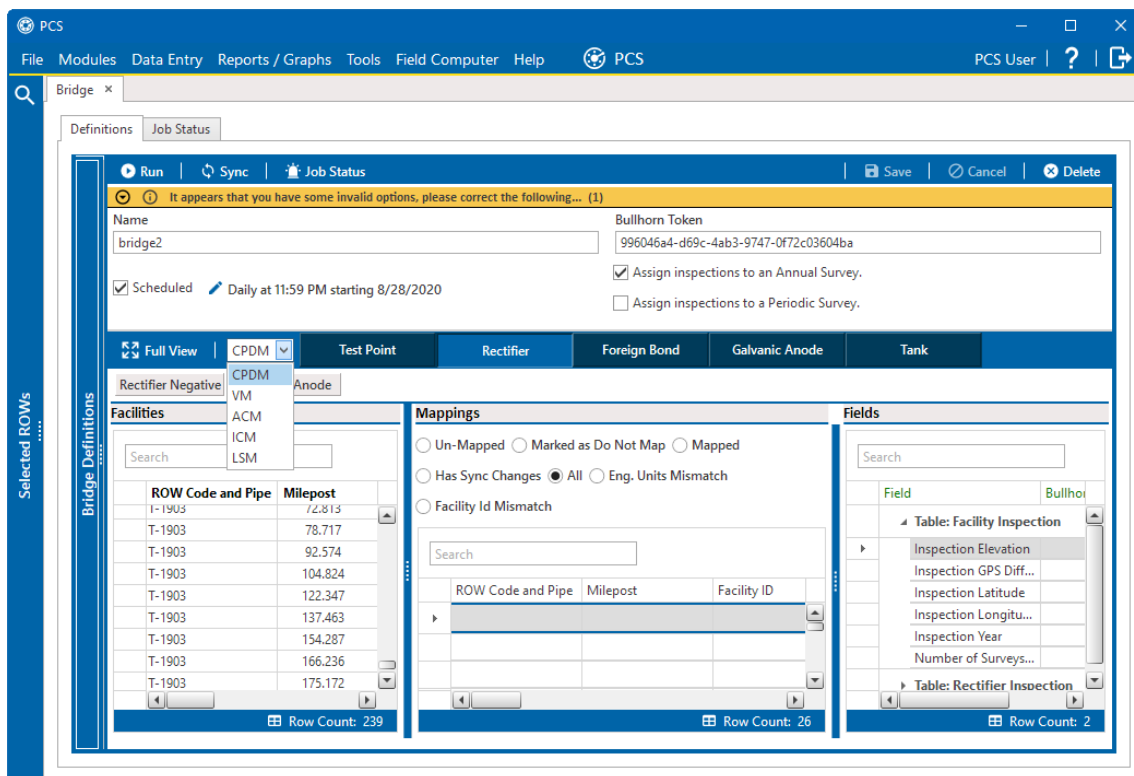




Figure 9-64. PCS Modules List

NOTE: You can click the  **Full View** button to expand the panels and hide the panel above. Click  **Full View** again to expand the window to show all panels.

3. To view only records that do not match, select either the **Facility Id Mismatch** or **Eng. Units Mismatch** radio buttons. These fields will be marked in red. Fix issues with unmapped or mismatched fields, as needed.
4. Click any of the other mapping options to filter the records that display in the *Mappings* pane based on the selected option. The options include the following:
 - a. **Un-mapped** – displays the records that do not have a mapped field.
 - b. **Marked as Do Not Map** – rows or records that have been marked as Do Not Map (see below).
 - c. **Mapped** – records that have been mapped.

- d. **Has Sync Changes** – something has changed from the last sync. For example, a new unit was installed in the field and now when syncing the import recognizes that the new unit, a Facility ID, or other field has changed.
- 5. If you do not want to map a record, click the **Do Not Map** check box for each of those Bullhorn Web data points.

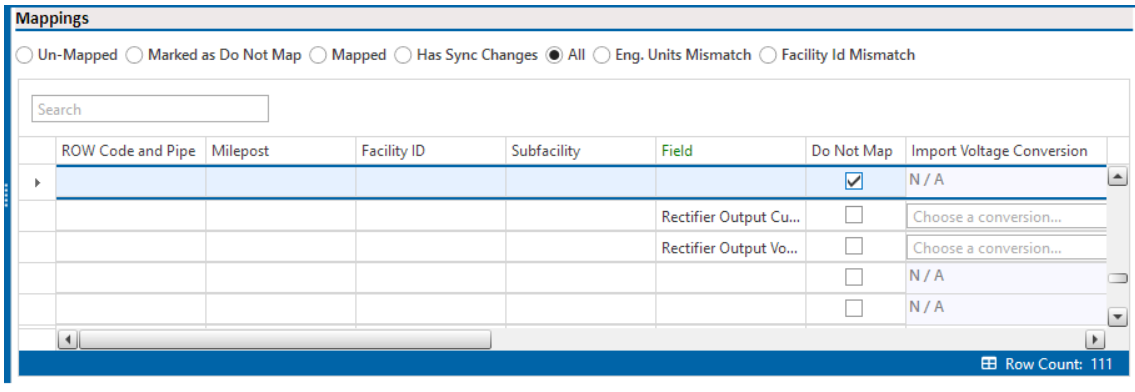


Figure 9-65. Do Not Map Check Box

- 6. You can search for a record in any of the panes using the **Search** field at the top of the pane. The search includes a "Contains" filter that looks at all fields to filter out rows that do not contain the keywords specified.
- 7. To filter based on Facility Type, select from the selection of buttons on the banner: **Test Point**, **Rectifier**, **Foreign Bond**, **Galvanic Anode**, or **Tank**. The associated records display in the *Facilities* pane.

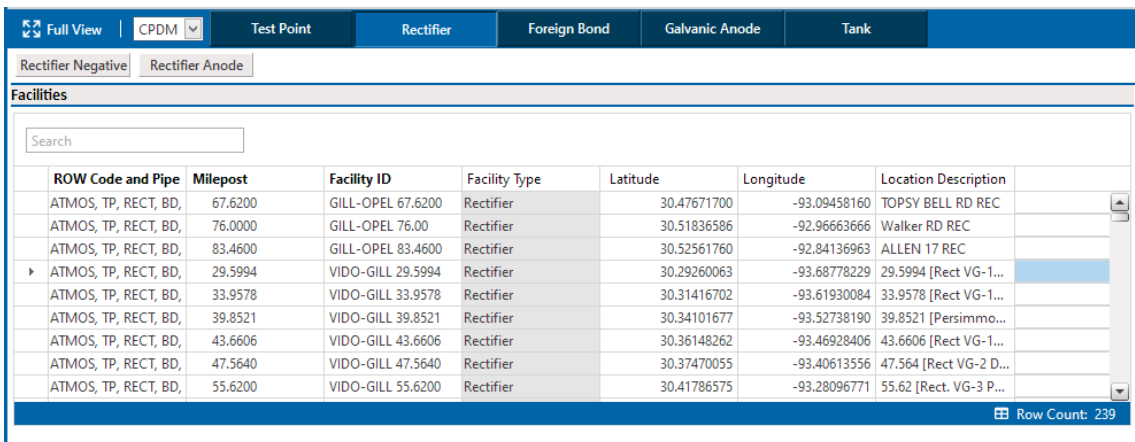


Figure 9-66. Facility Types and Records - Rectifier Example

- 8. Manually map PCS fields with a Bullhorn Web data point:

- a. Select a row in the *Mappings* pane that includes the Bullhorn Web data point and engineering units you want to map.
- b. In the *Facilities* pane, double-click on the record to map a PCS facility to the Bullhorn Web data point selected in the *Mappings* pane. The record is added to the *Mappings* pane.

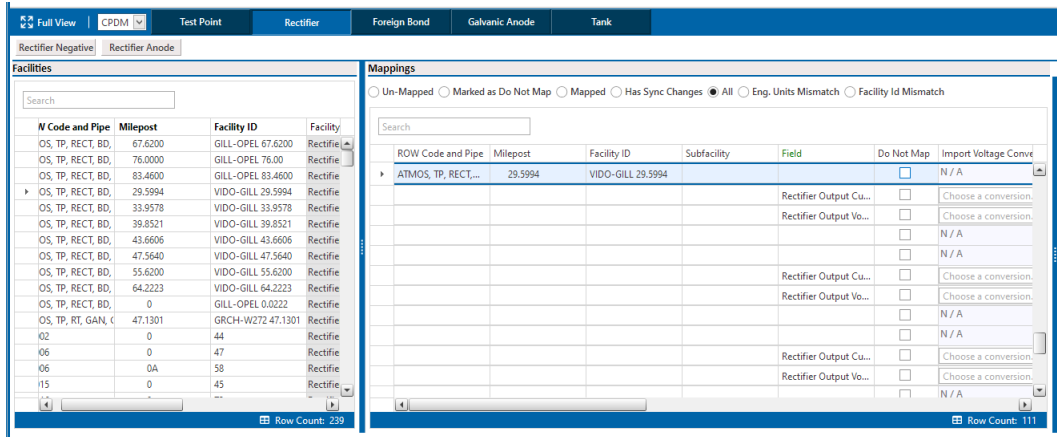


Figure 9-67. Mapping Example

- c. To unmap a facility, double-click on the a mapped field in the *Mappings* pane. When a message displays, click **Yes** to unmap the selected field, or **No** to cancel the operation.

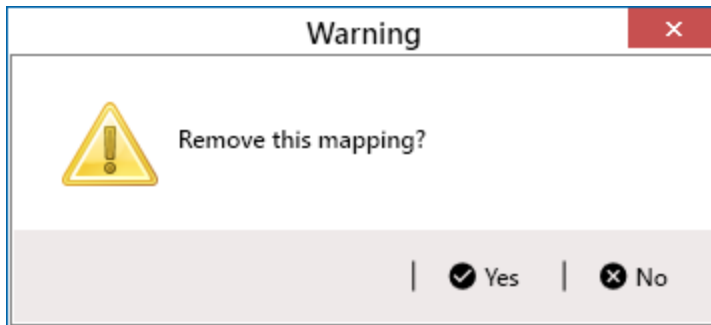


Figure 9-68. Remove This Mapping Message

- d. If needed, in the *Fields* pane, map a PCS field to the **Field** column in the *Mappings* pane. Double-click a PCS field in the *Fields* pane to move it to the **Field** column in the *Mappings* pane. The field is added to the *Mappings* pane's **Field** column.

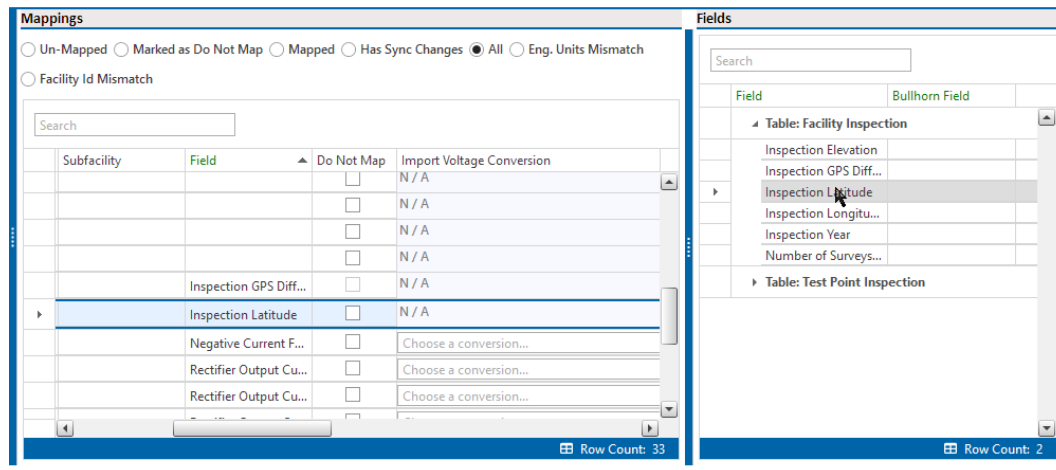


Figure 9-69. Map Fields to Mappings Field Example

e. Select another facility type as needed and map additional fields.


9. Repeat these steps as needed. When finished, click  Save.

Update a Bullhorn Bridge Definition

You may need to update the Bullhorn Bridge definition for changes to Bullhorn units or if mis-matches occur.

Refer to [Before Creating a Bullhorn Bridge Definition](#) for best practices to help avoid mis-matches.

Complete the steps outlined in each of the following scenarios, depending on why you are updating your Bullhorn Bridge definition:

- If Bullhorn units are replaced (refer to [Bullhorn Web Support - Replace a Unit](#) for more information about replacing units):
 - In Bullhorn Web: do a unit swap (Replace) so the data from the old unit is moved to the new unit.
 - In PCS: in the *Mappings* pane, double-click the mapping for that facility to remove the mapping, and click  **Sync** to automatically map unmapped items based on the Facility ID and Engineering Units and update the definition file.
 - If mismatches still appear after the Sync, edit the Bullhorn Web configurations to match PCS Facility ID and other Bullhorn fields.

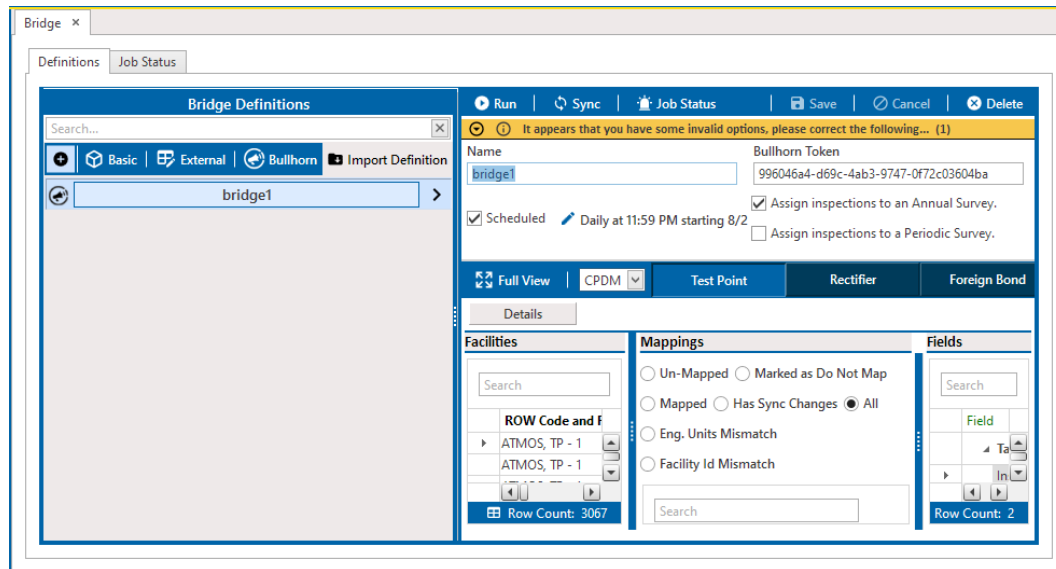





Figure 9-70. Bullhorn Bridge Definition - Updating

- If new Bullhorn units are added or existing units are removed in the unit group or if the client name changes:
 - In PCS, click the  **Sync** button to automatically map unmapped items based on the Facility ID and Engineering Units and update the definition file.
- If there are mis-matches for other reasons:
 - Double-click on each mis-matched record to unmap it.
 - Click the  **Sync** button.
 - Select the **Eng. Units Mismatch** and **Facility ID Mismatch** radio buttons to note which records have mis-matched engineering units.
 - If mis-matches remain, edit the Bullhorn Web configurations for those units to match PCS Facility ID and the other Bullhorn fields.
 - In PCS, in the *Mappings* pane, click  **Sync** to automatically map unmapped items based on the Facility ID and Engineering Units and update the definition file.

Export a Bridge Definition

Bridge definition can be exported for use by other PCS users.

Complete the following steps to export a Bridge Definition:

1. Click **Tools > Bridge** to open the *Bridge* window.

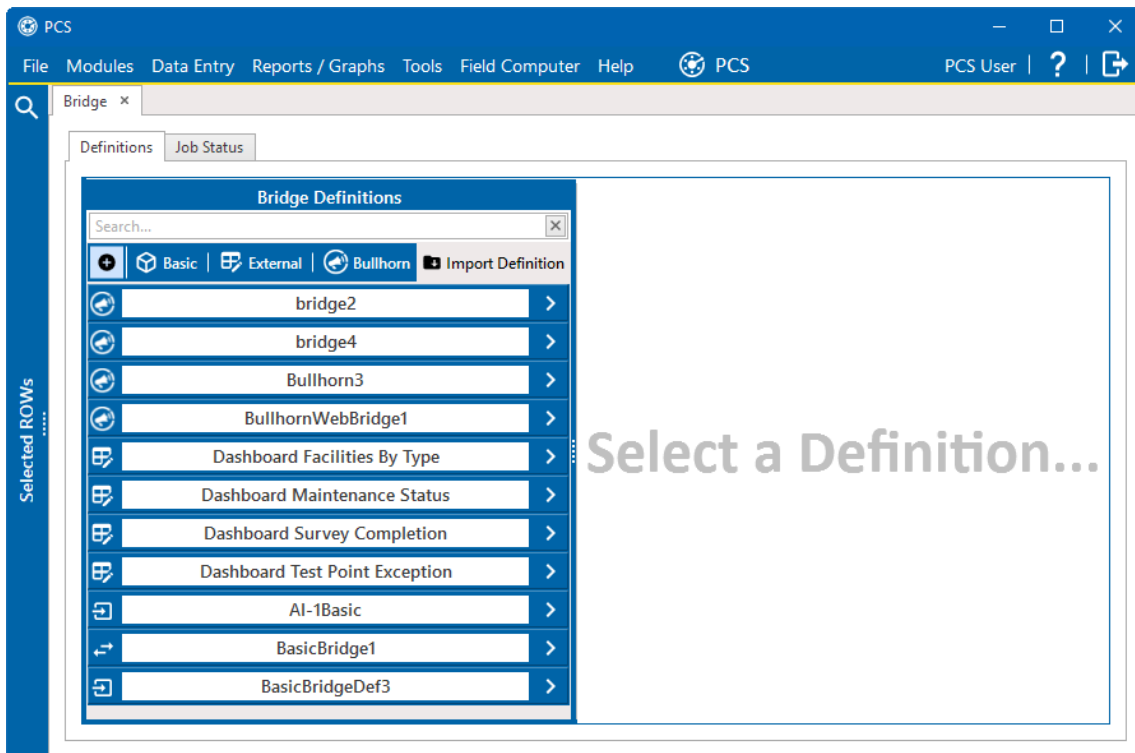


Figure 9-71. Bridge

2. Open the definition you wish to export.

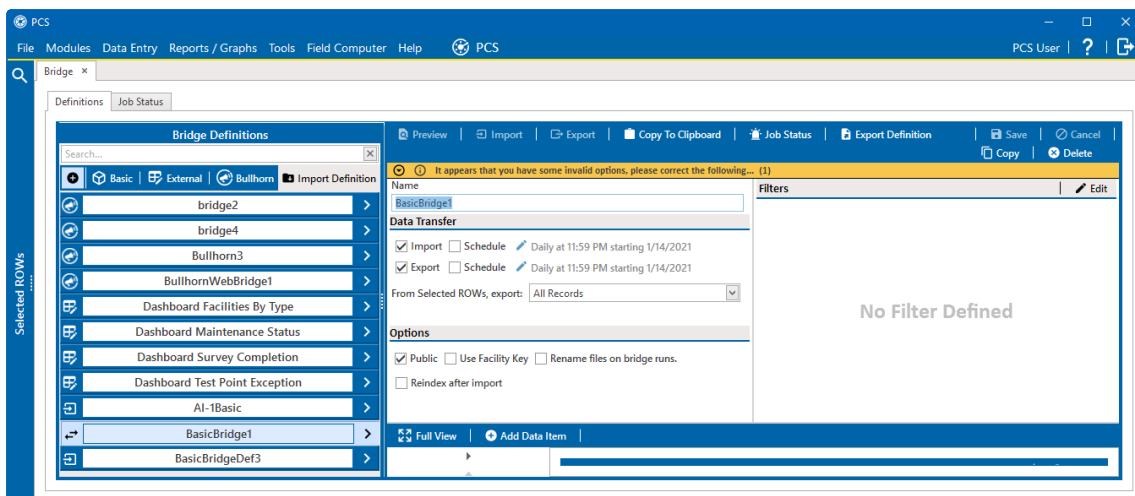


Figure 9-72. Bridge Definition

3. Click **Export Definition**.
4. Navigate the location on your computer where you would like to save the definition.

5. If desired, change the name of the definition in the File name field.
6. Click **Save**. A confirmation message displays to acknowledge the saved definition.

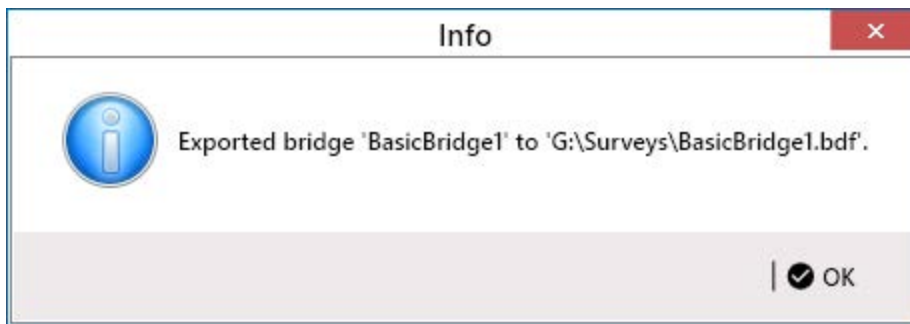


Figure 9-73. Exported Bridge Definition Confirmation

Import a Bridge Definition

Exported Bridge definitions can be imported.

Complete the following steps to import a Bridge Definition:

1. Click **Tools > Bridge** to open the *Bridge* window.

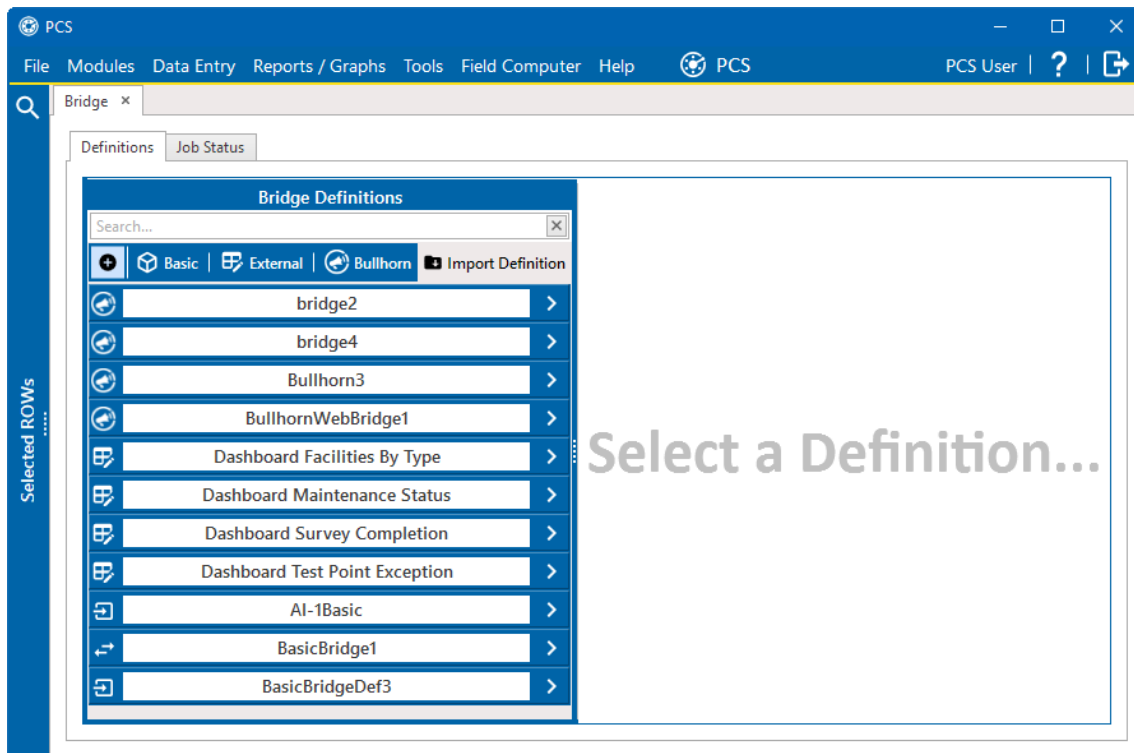


Figure 9-74. Bridge

2. Click **Import Definition**.
3. Navigate the location on your computer where the saved definition resides.
4. Click **Open**. The imported Bridge definition is added to the list of your saved Bridge definitions.


Import Pipeline Series

Use Bridge to import pipeline series in PCS. The import transition file must include fields that you can map to the following required PCS fields:

- ROW Code
- Series Number
- Start Milepost
- End Milepost

Refer to [Set Basic Bridge Definition Properties](#) for more information on creating a Basic Bridge definition.

Complete the following steps to import pipeline series:

2. Click **Tools > Bridge** to open the *Bridge* window. Then click  **Basic** to open the basic definition pane. The *Selected ROWs* and *Bridge Definitions* panes can be moved or closed.

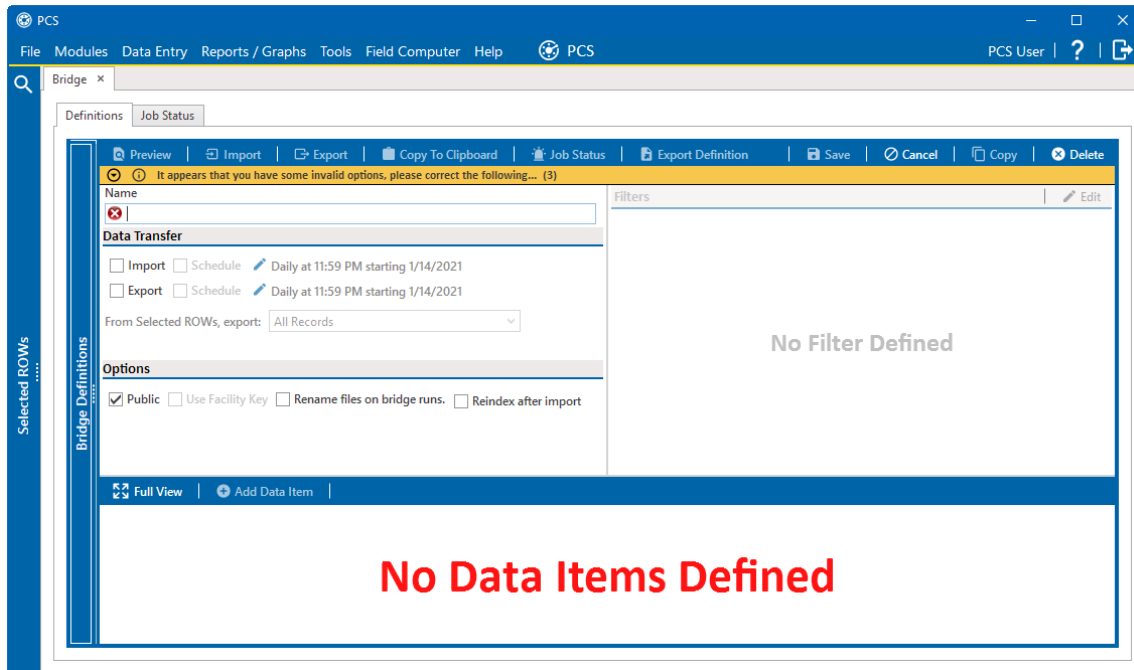









Figure 9-75. Basic Definition pane

3. Type a unique name for the Bridge definition in the **Name** field.
4. Click the **Import** check box.
5. If you want PCS to automatically run the import file at a scheduled time, click the **Scheduled** check box and then click the  icon to set up frequency, dates, and times for the schedule. Refer to [Set Basic Bridge Definition Properties](#) for additional details on schedules.
 - a. When the import file is not scheduled to run automatically, click  **Import** to run it manually.
 - b. When scheduling a time to run Bridge, choose a time that does not impact other net work services or computer resources. For example, consider a staggered time schedule instead of running Bridge at the same time as other scheduled network services.
6. Set properties in the *Options* pane:
 - a. Click the **Public** check box if you want the import definition file available for use by all PCS users. When the check box is empty, the definition file is available only to the user who creates it.

- b. Do not enable the option **Use Facility Key**. It is not required to import pipeline series. See [Use a Facility Key in Bridge on page 550](#) for more information if needed.
 - c. If you plan to run the Bridge definition manually and want Bridge to rename the file after importing data, select the **Rename files on manual bridge runs** check box.
7. Click  **Save** and then click  **Full View** to hide the *Data Transfer* and *Options* panes. Clicking **Full View** again displays these panes.
Clicking the  toggle button in the  information bar displays important information related to required property settings.
8. Click  **Add Data Item** to open the *Data Items* window and then complete the following steps:
 - a. Open the **System Items** folder and then double-click **Series** to move the data item to the right pane of the window.

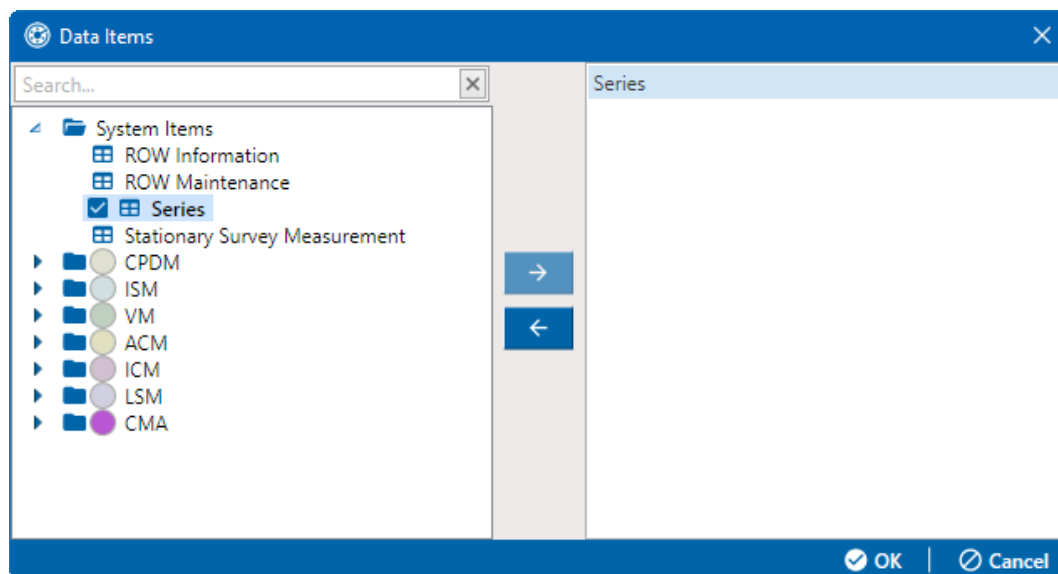






Figure 9-76. Data Items - Series

- b. Click  **OK** to close the window and return to the definition pane.
 - c. Click  **Save**.
9. Click the ellipsis button ... in the **Import File Name** field to open the *Import File* window. Navigate to the import file and then select it. Click **Open** to close the window and return to the definition pane. The path to the import transition file displays in the **Import File Name**.
10. To assign inspections to a survey folder based on the inspection date, complete one or both of the following steps in the *Options* pane as required:

- a. If you want to assign inspections to an annual survey folder, click the check box **Assign inspections to an Annual Survey**.
 - b. If you want to assign inspections to a periodic survey folder, click the check box **Assign inspections to a Periodic Survey**.
11. To map fields in PCS with fields in the import transition file, follow these steps:
- a. Click  **Edit** in the *Maps* pane to open a field mapping window.
Fields in the *Mappings* pane with  are required fields for mapping, such as **ROW Code**, **Series**, **End Milepost**, and **Start Milepost**.

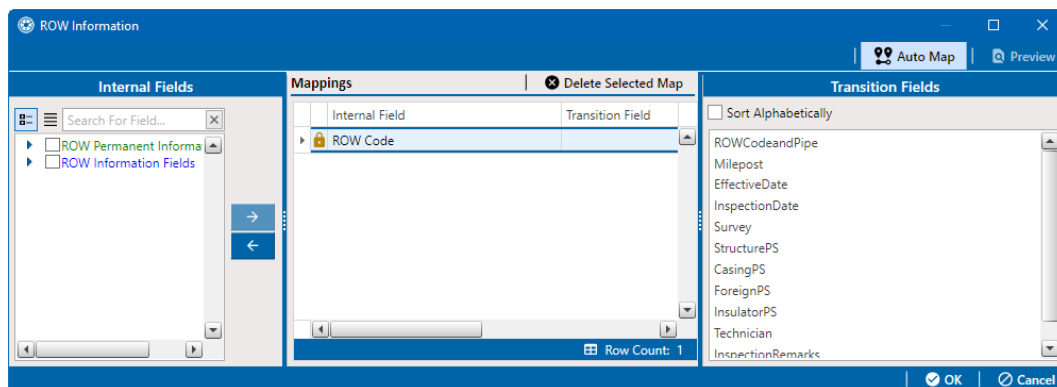













Figure 9-77. Field Mappings

- b. If you want to sort import fields listed in the *Transition Fields* pane in alphabetical order, click the check box **Sort Alphabetically**.
 - c. To map PCS fields with fields in the import transition file, follow these steps:
 - Select a PCS field in the *Mappings* pane.
 - Map the selected field to a field in the import file by double-clicking a field listed in the *Transition Fields* pane. Repeat this step for remaining fields.

When the  **Auto Map** option is enabled and the names of fields in the import transition file match those in PCS, double-clicking a PCS field in the *Mappings* pane automatically maps to an import field listed in the *Transition Fields* pane.
 - d. Click  **Preview** to view how the data in the import file would map with the configured mappings. Click  **Close** to close the preview window.
12. Click  **OK** to close the mapping window and return to the definition window.
13. Click  **Save**.
Field mappings display in the *Maps* pane.


14. To manually import the *Pipeline Series* in PCS, complete one of the following steps:
 - a. If the *Bridge Definitions* window is open for the import file, click  **Import**.
 - b. If the *Job Status* window is open, click **Run** for a selected import file listed in the window. Then click  **Refresh** to update status information.
15. To view the status of a Bridge session, click  **Job Status** in the *Definitions* window to open the *Job Status* window. Click  **Log** for a Bridge session opens the log file for the selected session.
16. To view the imported Pipeline Series, click **Data Entry > Pipeline Series**.
When the import transition file includes facility survey readings that have also been mapped in the Bridge definition, PCS imports this data in the facility Inspections grid (**Data Entry > Edit <module> Data**).

Run the Bridge

To manually import or export data from PCS, click  **Import** or  **Export**.

NOTE: Refer to [View Bridge Job Status and Log](#) for information on how to view the status and log for the definition.

If the import or export file is set up with one or more filters, complete the following steps to select which filters to apply:

1. Click the **All Data Items** tab. Click the check box for each filter you want to apply to all data items in the import or export file.
2. Click a data item tab. Click the check box for each filter you want to apply to the selected data item.
3. Click **OK** to close the *Export Filters* window and run the Bridge export file.
4. When the message Completed displays, click  **View Job Status** to open the *Job Status* window or **Return to Definition** to open the *Definitions* window.

To view the status of a Bridge session, click  **Job Status** in the *Definitions* window to open the *Job Status* window. Click the  icon in the **Log** cell for a Bridge session to open the log file for the selected session.

Run a Bullhorn Bridge

After adding a Bullhorn Bridge definition ([Add a Bullhorn Bridge Definition](#)), PCS automatically adds the phrase *Bullhorn Import* in the Inspection Remarks field of the facility *Inspection* data entry grid.

Complete the following steps to manually run the Bullhorn Bridge definition:

NOTE: Refer to [View Bridge Job Status and Log](#) for information on how to view the status and log for the definition.

1. From the main menu, click **Tools > Bridge** to open the Bridge window.

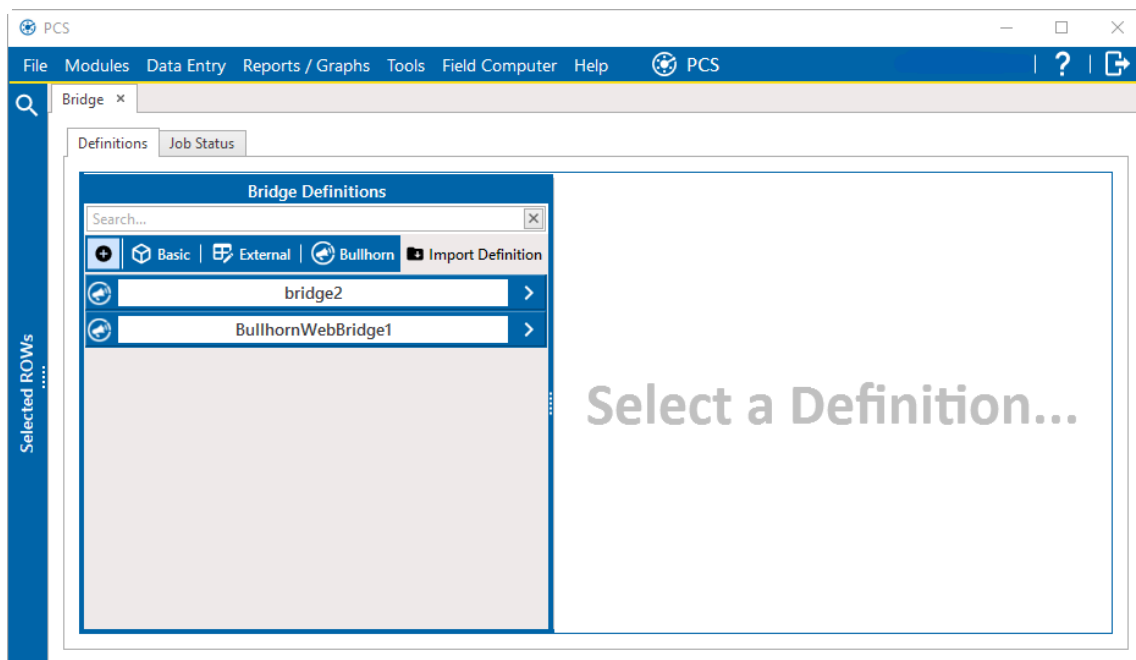


Figure 9-78. Bridge Window

NOTE: **External** and **Import Definition** options are not available in the Hosted environment.

2. Open the Bridge definition you want to run by clicking on the name.
3. Click **Run** in the *Definitions* tab window.

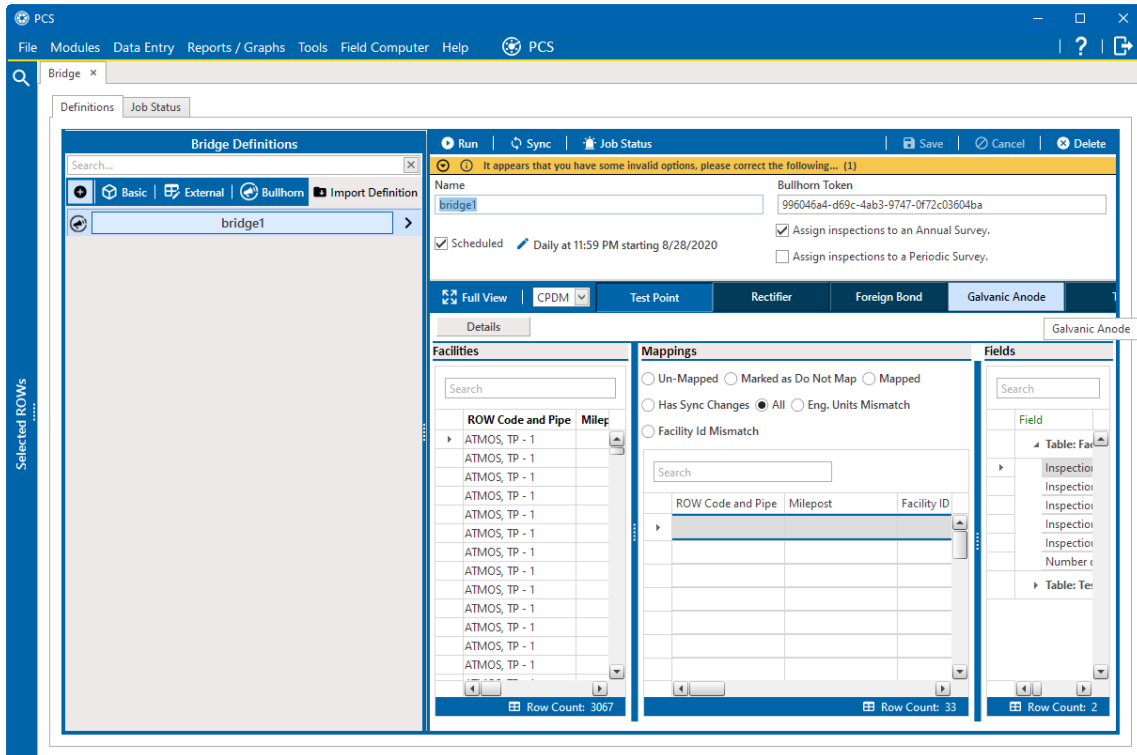


Figure 9-79. Definitions Tab Window

4. In the *Select a date range for manual run* window opens, specify a date range for the data you want to import from Bullhorn Web. Type a date in the **Start Date** and **End Date** fields or click the down arrow in these fields to select a date using a calendar.

NOTE: The days must be within 120 days of each other.

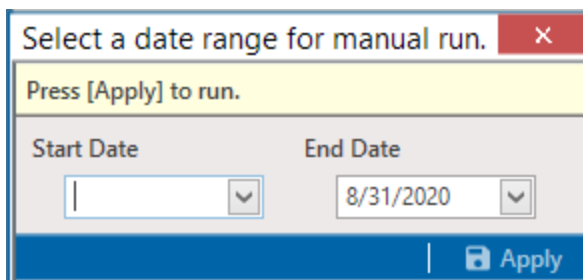


Figure 9-80. Select a Date Range Window

5. Click **Apply** to run the Bullhorn Bridge definition.
6. When **Done** displays, click **View Job Status** to open the *Job Status* window or **Return to Definition** to open the *Definitions* window.



Figure 9-81. Done Window

PCS adds the phrase **Bullhorn Import** in the Inspection Remarks field of the facility *Inspection* data entry grid.

View Bridge Job Status and Log

Complete the following steps to view the job status and log for all types of Bridge definitions:

1. Click **Tools > Bridge** to open the *Bridge* window.

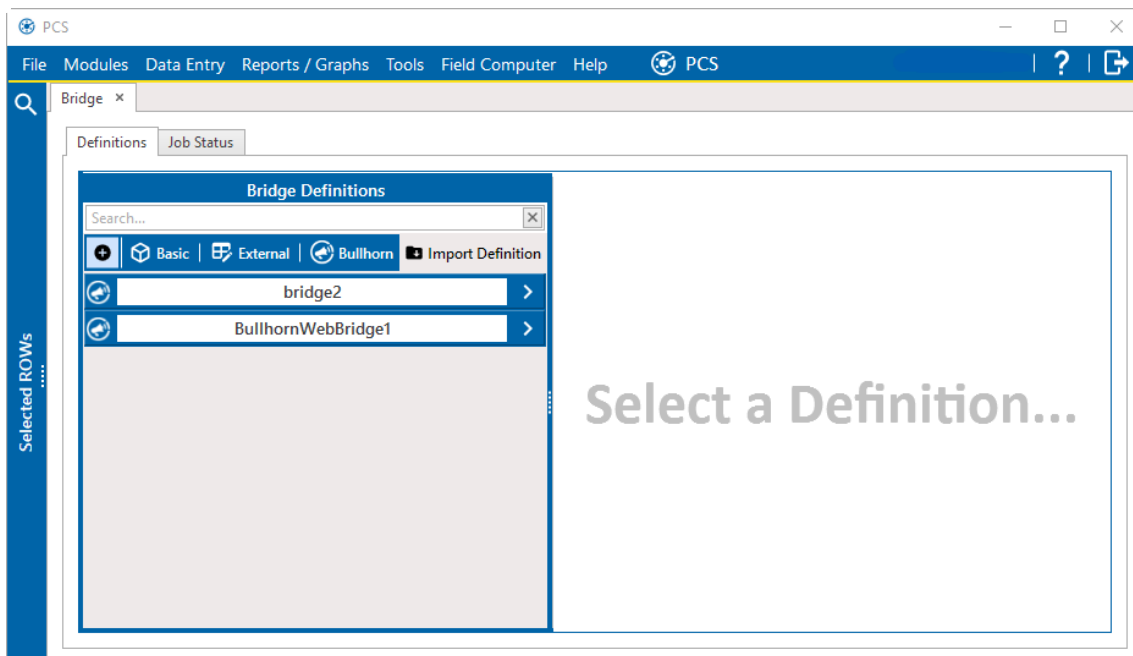


Figure 9-82. Select Definition

2. Click the **Job Status** tab to open the job status window.

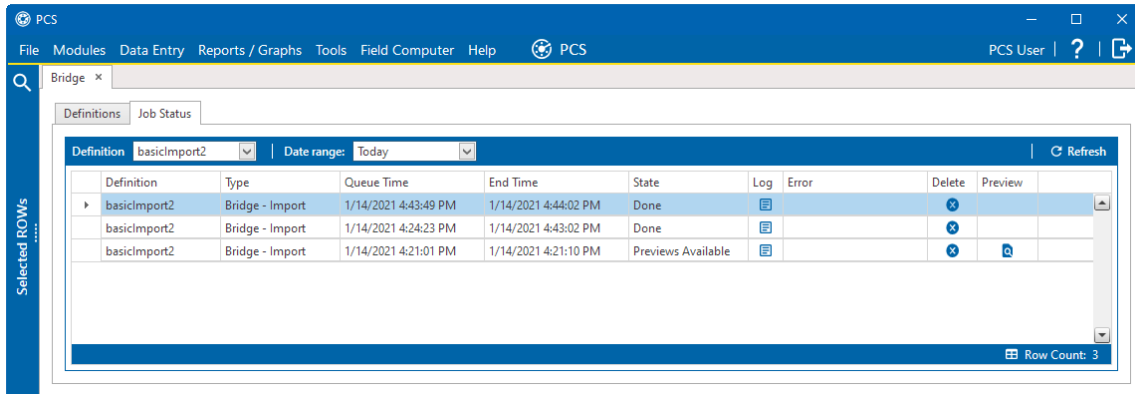


Figure 9-83. Job Status Window

3. Select a Definition from the **Definition** drop-down list and/or a date range from the **Date range** drop-down list.

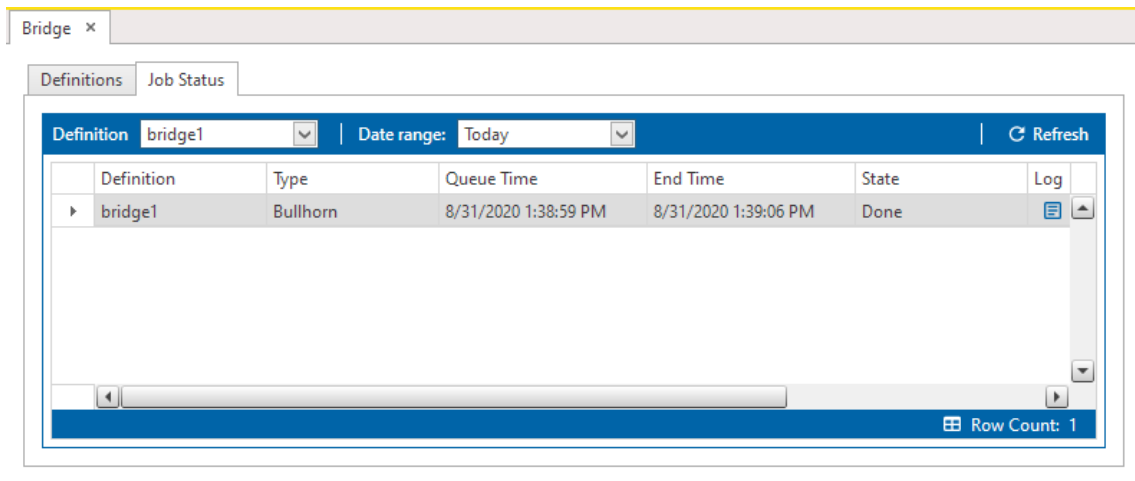


Figure 9-84. Job Status Window

4. Click the [Log] icon in the **Log** cell for a selected definition to open a window with detailed information.

You can also view historic jobs from the **Tools > Job Service Viewer** menu.

The screenshot shows a window titled "DCP02" with a table and a summary log below it.

Definition	Type	Queue Time	Validation Time	End Time	State
DCP02	Bullhorn	2/13/2019 1:26:33 PM		2/13/2019 1:39:41 PM	Done

Row Count: 1

Summary

```

[1:39:09 PM] Processing row 1 of 78.
[1:39:09 PM] Saving processed data.
> Step completed in 3.267s. Memory usage: 275.1MB.
RUNNING JOB STEP: Committing at 1:39:12 PM
[1:39:12 PM] Saving data to the database.
[1:39:12 PM] Merging RightOfWay
[1:39:14 PM] Completed in 1.6s. 0 inserts, 24 updates, 0 images.
[1:39:14 PM] Merging Facility
[1:39:14 PM] Completed in 0.1s. 0 inserts, 78 updates, 0 images.
[1:39:14 PM] Merging FacilityInspection
[1:39:39 PM] Completed in 25.1s. 58 inserts, 20 updates, 0 images.
[1:39:39 PM] Merging RectifierInspection
[1:39:40 PM] Completed in 0.9s. 58 inserts, 20 updates, 0 images.
[1:39:40 PM] Merging Pipeline
[1:39:40 PM] Completed in 0.2s. 0 inserts, 24 updates, 0 images.
[1:39:40 PM] Merging PipelineInformation
[1:39:40 PM] Completed in 0.0s. 0 inserts, 24 updates, 0 images.
[1:39:40 PM] Merging Hierarchy
[1:39:40 PM] Completed in 0.1s. 0 inserts, 24 updates, 0 images.
[1:39:40 PM] Merging Series
[1:39:40 PM] Completed in 0.0s. 0 inserts, 0 updates, 0 images.
[1:39:40 PM] Merging FacilityInformation
[1:39:40 PM] Completed in 0.4s. 0 inserts, 78 updates, 0 images.
[1:39:40 PM] Merging Facility_Pipeline
[1:39:41 PM] Completed in 0.1s. 0 inserts, 78 updates, 0 images.
Row: 69 - A value of -0.08 in 'Rectifier Output Current Found' is outside the defined range of 0.00 to 100.00.
[1:39:41 PM] Run ended on step CommittingSucceeded at 1:39:41 PM after 38.372s.
    
```

Figure 9-85. Job Summary Log

Job Service Viewer

When you need to know which job is currently running, which jobs are in the queue waiting to run, or a history of jobs that have run, use *Job Service Viewer* to view details for each of these scenarios.

This chapter includes the following topics:

- [About Job Service Viewer on page 614](#)
- [View Current and Past Jobs on page 618](#)
- [Restart PCS Job Service on page 619](#)

NOTE: For information about activating a Bridge license using *Job Service Viewer*, see [Activate Bridge Import for Operation on page 2](#). For information about *Reindex Database*, see [Database Management on page 867](#).

About Job Service Viewer

Information in this section explains how to view job status information for the following types of PCS jobs.

NOTE: For information about activating the optional Bridge add-on, refer to [Activate Bridge Import for Operation on page 2](#). See [Database Management on page 867](#) for information about *Reindex Database*.

Job Service Viewer provides status information for the type of jobs in the following list. Status information identifies which job is currently running, which jobs are waiting in the queue to run, and a history of completed jobs.

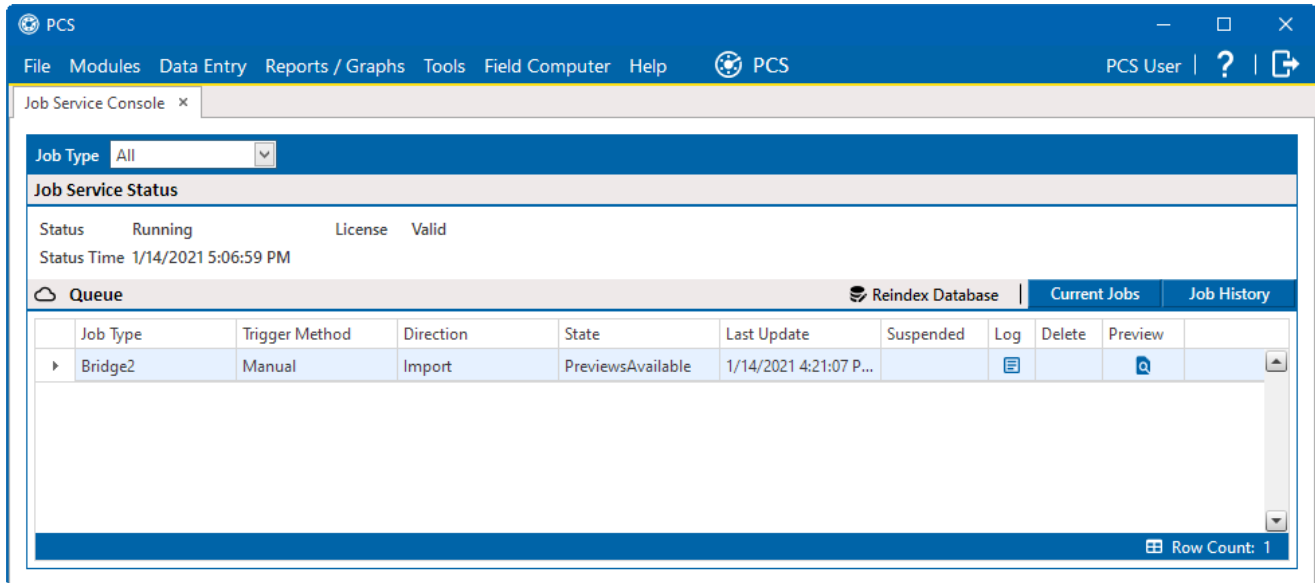







Figure 10-1. Current Jobs

- Bridge Import, Bridge Export, and Bridge Import/Export
- Email Notification
- Field Computer Receive

The *Current Jobs* grid displays by default when you first open *Job Service Viewer*. You can also display the grid by clicking the **Current Jobs** button. Use the **Job Type** field near the top of the window to filter data in the window. For example, if you only want to view Bridge job types, click the down arrow in the **Job Type** field and select **Bridge** in the selection list.

Information in the following table identifies the type of information that displays in the *Current Jobs* grid.

Table 10-15. Current Jobs Grid Field Descriptions

Field	Description
Job Type	<p>Job types include:</p> <ul style="list-style-type: none"> • Bridge: Displays for all Bridge and Field Computer Receive jobs. • EmailReports: Displays for Email Notification jobs. • ResendEmailReport: Displays when you resend an Email Notification. • Reindex Database: Displays for a <i>Reindex Database</i> job type. For important information about using this function, see Database Management on page 867.
Direction	Import displays for a Bridge import job. Export displays for a Bridge export job.
State	<p>Identifies the status of a job as:</p> <ul style="list-style-type: none"> • Running: Job currently in progress. • Waiting: Job waiting in the queue to run. • Validated: Indicates data has been validated for a manually run <i>Bridge Import</i> job. When the job begins processing, the status changes from Validated to Running.
Last Update	Job status date and time stamp.
Suspended	<p>When a job is in a Waiting or Validated state, clicking the gold Suspended  icon suspends processing of the job. Other jobs in the queue continue to process.</p> <p>Clicking the  Suspended icon displays the <i>Resume Job</i> message. Click  Yes to resume processing of the job or  No to continue suspending the job and close the message.</p> <hr/> <p>NOTE: A job with a Running, Completed, or Failed state cannot be suspended.</p>
Delete	If you want to delete a job that is in a Suspended state, click  Delete . Jobs in any other state cannot be deleted, such as Running , Waiting , Validated , Failed , or Completed .

Click the **Job History** button to display the *Job History* grid. This grid provides status information for past jobs (completed and failed jobs). Use the **Job Type** and **Date range** fields near the top of the window to filter data in the window.

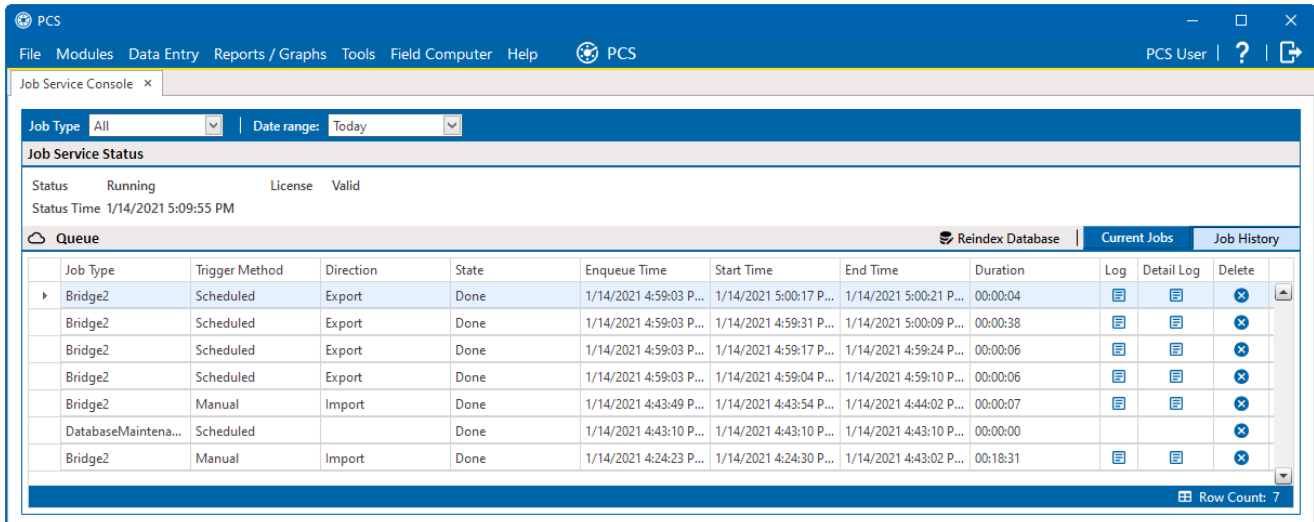


Figure 10-2. Job History

For example, if you only want to view Bridge job types for a particular date range:

1. Click the down arrow in the **Job Type** field and select Bridge in the selection list.
2. Click the down arrow in the **Date range** field and select an item in the selection list, such as *All*, *Today*, or *Last 72 hours*.

For a description of the various fields in the *Job History* grid, see the table below.

Table 10-16. Job History Grid Field Descriptions

Field	Description
Job Type	<p>Job types include:</p> <ul style="list-style-type: none"> • Bridge: Displays for all Bridge and Field Computer Receive jobs. • EmailReports: Displays for Email Notification jobs. • ResendEmailReport: Displays when you resend an Email Notification. • Reindex Database: Displays for a Reindex Database job type. For important information about using this function, see Database Management on page 867.
Direction	Import displays for a Bridge import job. Export displays for a Bridge export job.

Table 10-16. Job History Grid Field Descriptions cont'd

Field	Description
State	Identifies the status of a job as: <ul style="list-style-type: none"> • Completed: Jobs that have run successfully are labeled Completed. • Failed: Jobs that have not run successfully are labeled Failed.
Enqueue Time	Date and time stamp showing when a job was placed in the queue to run.
Start Time	Date and time stamp showing when a job began running.
End Time	Date and time stamp showing when a job finished running.
Duration	Time stamp showing the total amount of time a job was processed.
Log	Log with job summary information.
Detail Log	Log with job summary and status information. You can also re-send an Email Notification report to one or more email recipients by clicking the ReSend check box.
Delete	If you want to delete an entry in the <i>Job History</i> grid, select an entry and then click Delete . The grid also supports multiple selections by pressing either the Shift or Ctrl key on the computer keyboard while selecting multiple entries.

View Current and Past Jobs

Complete the following steps to view current and past jobs:

1. Click **Tools > Job Service Viewer** to open the *Job Service Console*.

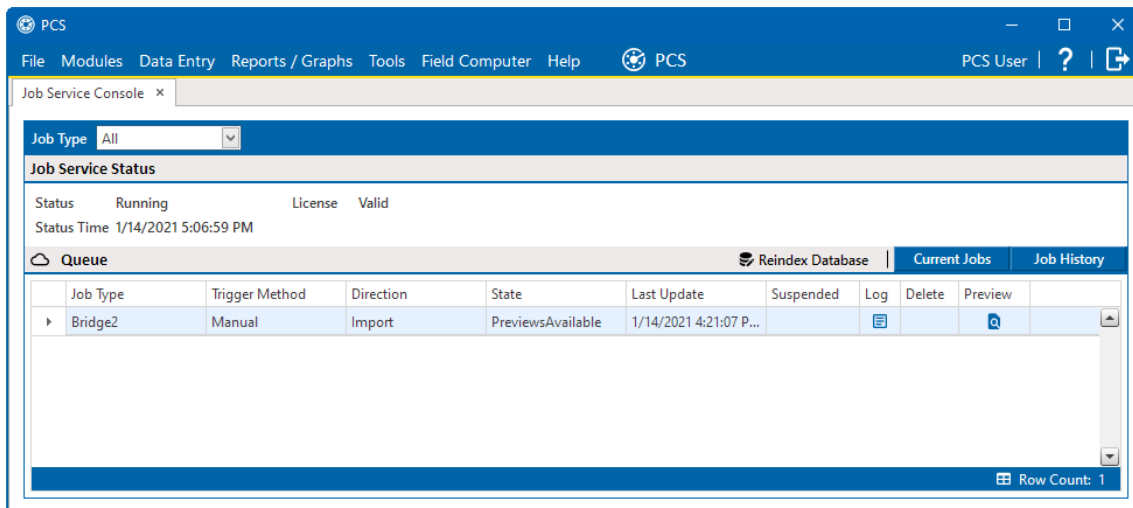



Figure 10-3. Current Jobs

2. To view jobs that are currently running and in the queue, click **Current Jobs**.
3. To view a list of all past jobs that have previously run, click **Job History**. If you want to view additional information about a job listed in the *Job History* grid, click the  icon for that job.
4. If you want to filter the data view in the console to only view a particular job type, click the down arrow in the **Job Type** field and select an option in the list, such as **Email Reports** or **Field Computer**.

Restart PCS Job Service

PCS Job Service monitors the job queue and initiates jobs as they become available.

If the message **Not Running** displays in the **Status** field of the *Job Service Console*, you will need to restart the PCS Job Service.

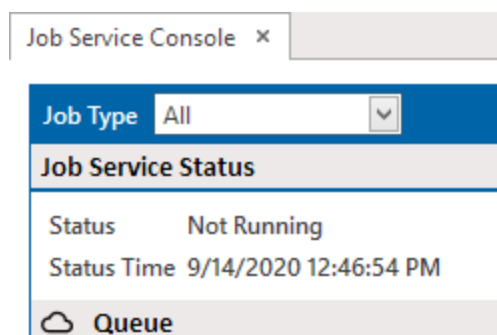




Figure 10-4. Job Service Status

Complete the following steps to verify connection settings are correct and restart the PCS Job Service:

1. If the PCS database and PCS Job Service are installed on the same computer, start PCS Connection Manager and verify connection settings specify the correct server and database as follows (if not, refer to the next step):
 - a. Verify the server name is correct in the **Server** field and the database name is correct in the **Database** field. If either is incorrect, click  **Select** in the **Server** field to select the correct server or click  **Select** in the **Database** field to select the correct database.

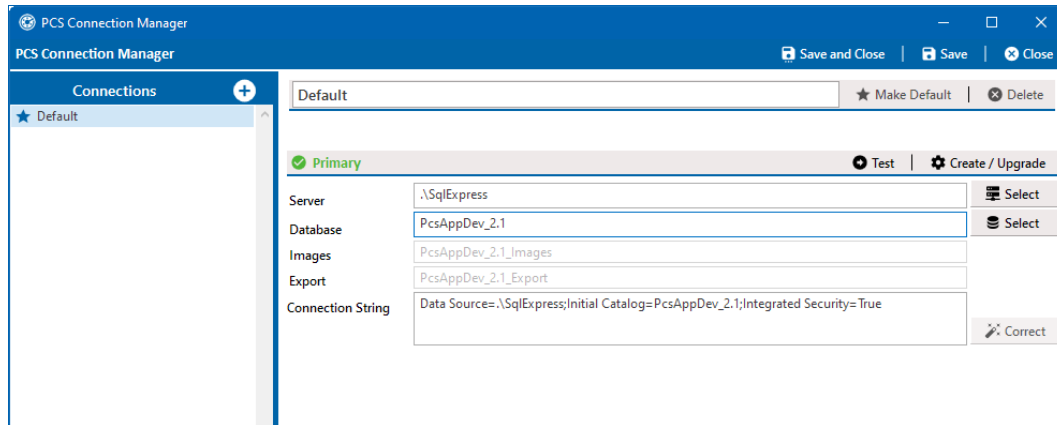






Figure 10-5. PCS Connection Manager

- b. Verify the **Connection String** field includes the correct server and database name.
 - c. Click  **Save** and then click  **Test** to verify connection settings. When connection settings are correct, the message **Connection successful** displays.
If connection settings are incorrect, contact your company's Database Administrator or IT Administrator for the name of the correct server and database. The information will then need to be set in PCS Connection Manager using the steps in this procedure.
 - d. Click  **OK** to close the message.
 - e. Click  **Close** to exit PCS Connection Manager.
 - f. Skip the following step and continue with the last step to restart the service.
2. If the PCS database and PCS Job Service are installed on two different network servers, complete the following steps to set up a user account to log on as a service. The user account must be a member of the Axis_Users group and have access to the central database server and PCS database.
 - a. Click the Windows **Start** button and enter `Computer Management`. Select the shortcut to open the *Computer Management* console.

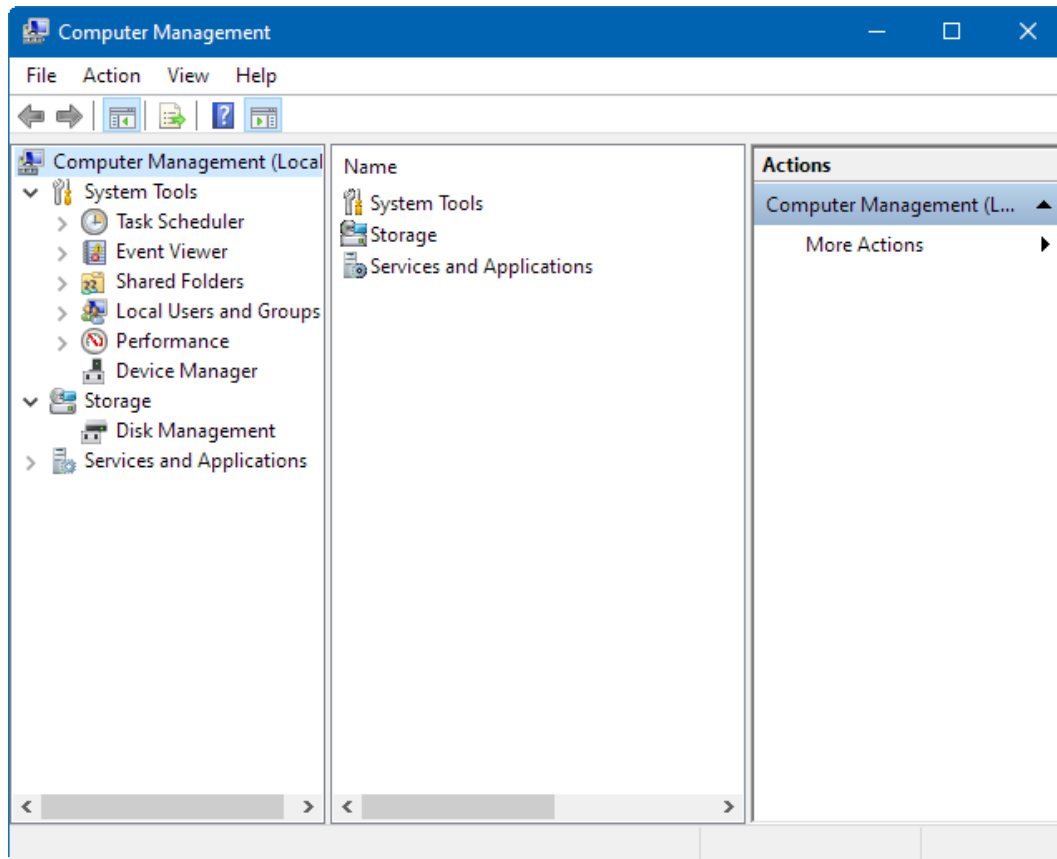


Figure 10-6. Computer Management Window

- b. Expand **Services and Applications** in the left pane of the console and then click **Services** to display a list of services in the middle pane. Search for **PCS Job Service v#**

NOTE: The PCS Job Service shown will reflect your current version of PCS.

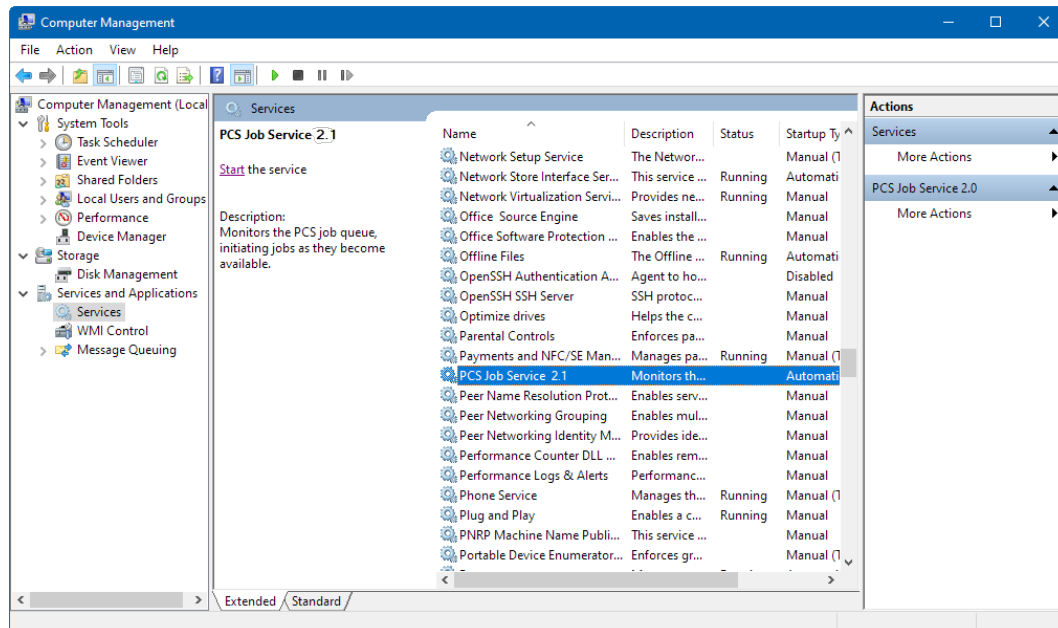


Figure 10-7. Computer Management Console

- c. Right-click **PCS Job Service** and select **Properties** in the shortcut menu to open the *Properties* window.

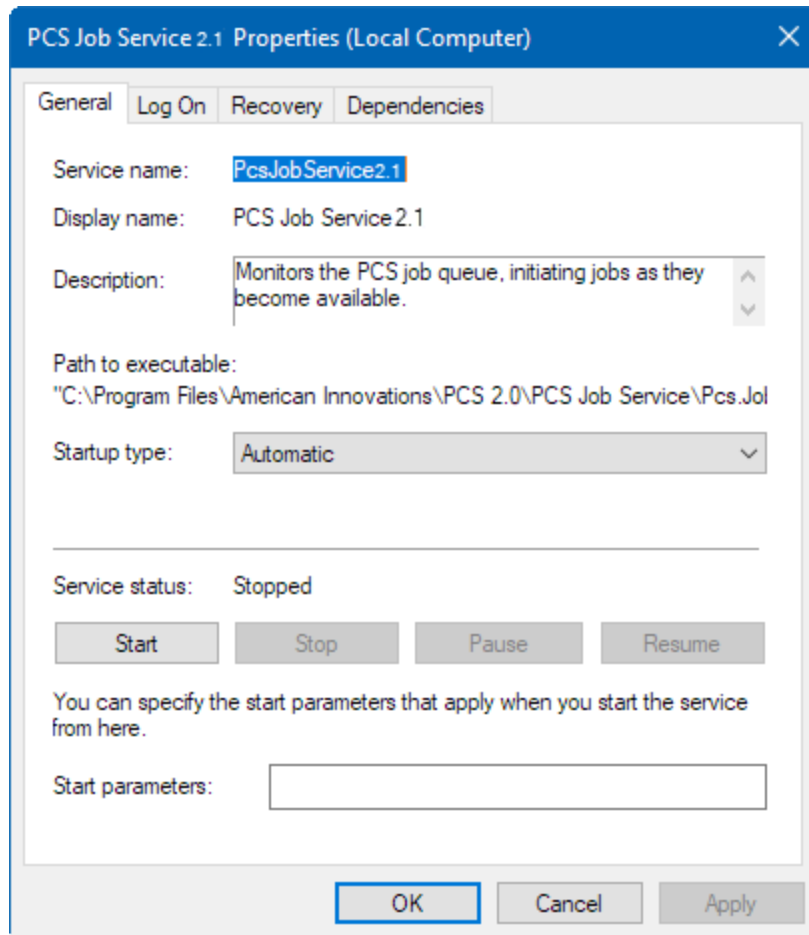


Figure 10-8. PCS Job Services Properties Window

- d. Click the **Log On** tab and select the **This account** option. To set up a user account to log on as a service, type the user name and password in the appropriate fields. You can also view a list of appropriate user accounts by clicking **Browse > Advanced > Find Now**.

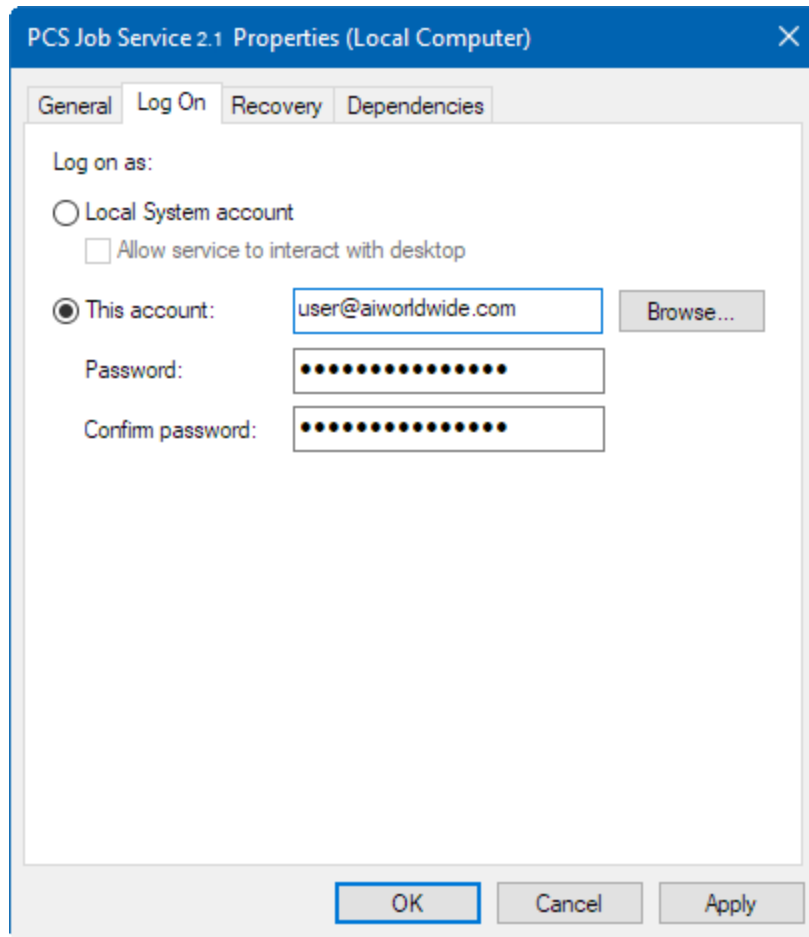


Figure 10-9. PCS Job Service Properties - Log On Tab

- e. Click **Apply** and then **OK** to close the *Properties* window and return to the *Computer Management* console.
3. Complete the following steps in the *Computer Management* console to restart the PCS Job Service:
 - a. Click the Windows **Start** button and enter `Computer Management`. Select the shortcut to open the *Computer Management* console.

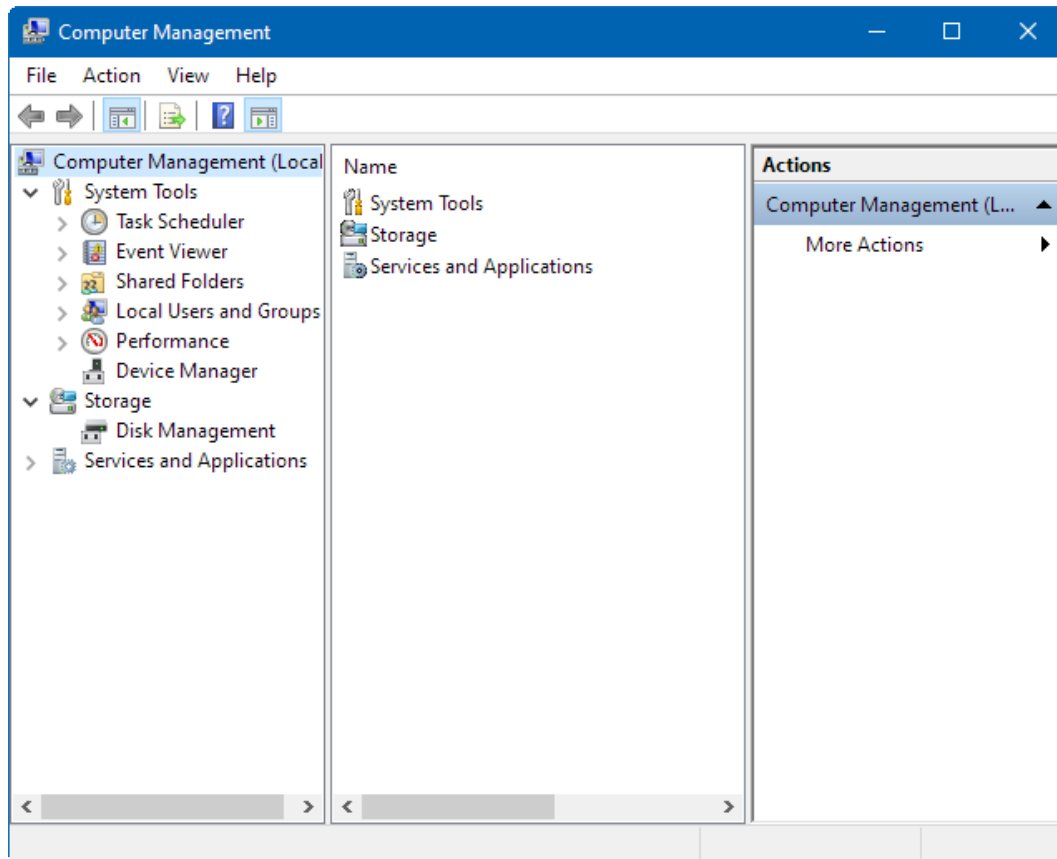


Figure 10-10. Computer Management Window

- b. Expand **Services and Applications** in the left pane of the console and then click **Services** to display a list of services in the middle pane. Search for **PCS Job Service v#**.

NOTE: The PCS Job Service shown will reflect your current version of PCS.

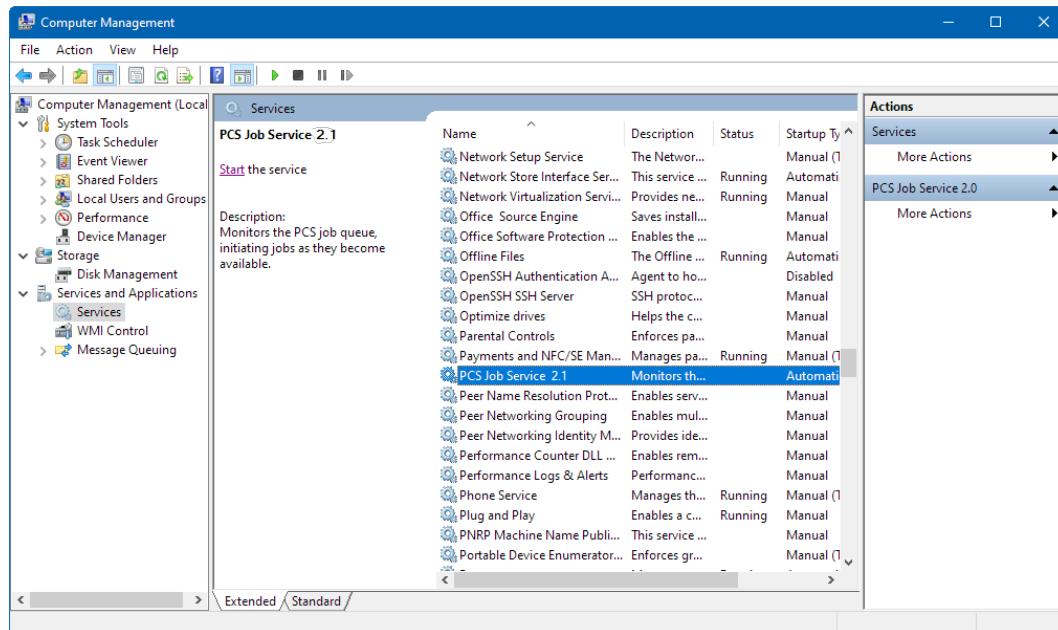


Figure 10-11. Computer Management Console

- c. Click **Start the Service**.
- d. Close the *Computer Management* console.
- e. In PCS, verify the message **Running** displays in the **Status** field of the *Job Service Console*.

If the PCS Job Service does not start, contact AI Technical Support using the contact information in [Technical Support on page 10](#).

Email Notification

A PCS Admin can use Email Notification to email reports to specific people at regular intervals. Both PCS users and non-PCS users can be recipients of the email notifications, and the notification's report can be sent to multiple email addresses for an individual recipient. PDF reports are generated according to the email report's schedule and emailed to assigned recipients.

Email reports are configured based on any existing PCS report, though any further modifications to the email report will not impact the original PCS report. The data in each emailed report may vary based on the hierarchy that the recipient has access to in PCS, the hierarchy the recipient is set up to receive in emails, and the hierarchy and filters set up in the email notification.

NOTE: Email notifications can only be configured by PCS Admins.

PDF reports that contain a large amount of data may exceed the email size limit your company's email server allows. To help monitor this, you can configure PCS to not send emails that are larger than a specified file size. For instructions setting up PCS to send emails and restrict emails larger than a specific size, refer to [Configure PCS to Send Emails](#).

To open the *Email Notification* window, click **Tools > Email Notification** from the main header.

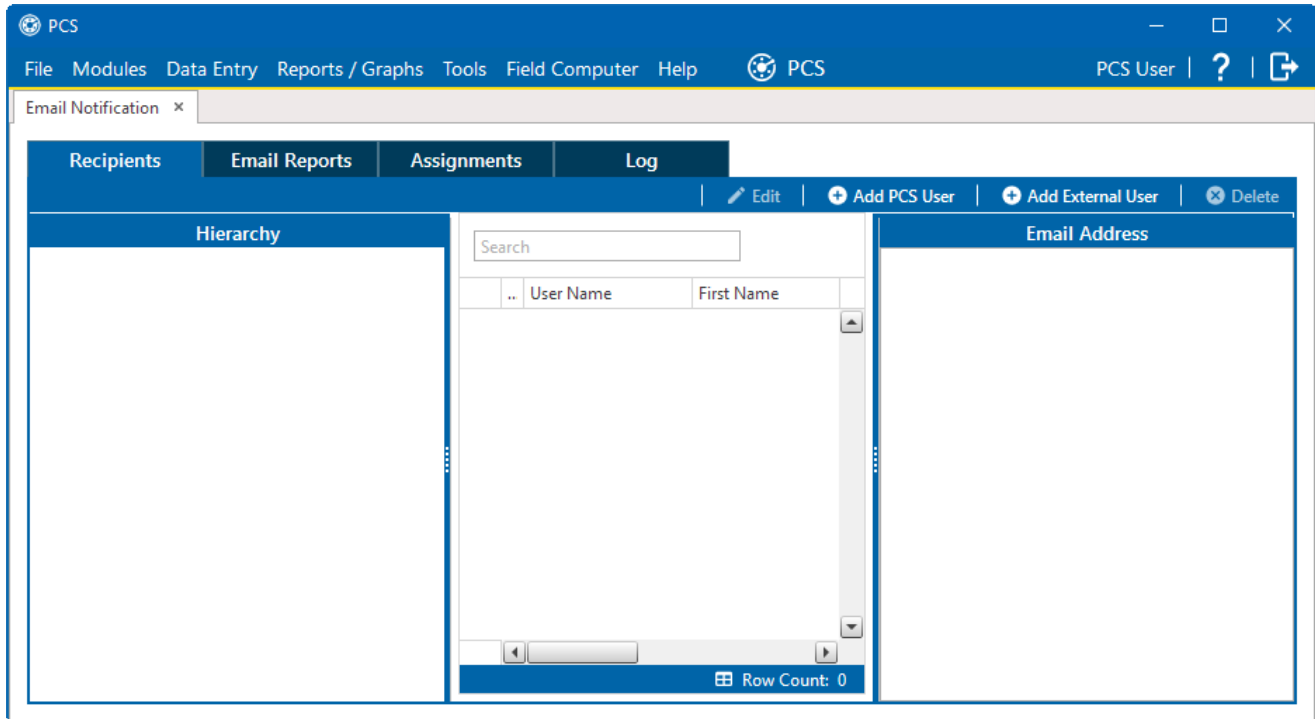


Figure 11-1. Email Notification

Refer to the following topics for detailed instructions setting up email notifications:

- [Manage Email Recipients on page 629](#)
- [Create and Manage Email Reports on page 635](#)
- [Manage Email Assignments on page 644](#)
- [Review Emailed Notifications on page 646](#)

When setting up email notifications, it is recommended that you limit the amount of data in a report to ensure that reports are successfully sent through the email server. This can be done by restricting a user's email reports to a limited hierarchy or by setting up a restrictive email report hierarchy and filter options.

Configure PCS to Send Emails

Before you can send email notifications, PCS must be configured to send emails. To set up PCS for emails, go to the **Email Notification** tab in the *Options* window (**Tools > Options**).

Configure the Simple Mail Transfer Protocol (SMTP) settings for your company's email server, enable or disable email notifications, and define email notification defaults, log retention policy, and size limitations. For detailed instructions on configuring PCS for emails, refer to [Set Email Notification Options on page 30](#)

Manage Email Recipients

The Recipients tab in the *Email Notification* window lists all PCS and non-PCS users that can receive email notifications. You must add these users as a potential email recipients prior to assigning recipients to an email notification. When adding users to the list of recipients, you can define the hierarchy the recipient's emailed reports will be limited to. Any data that an email notification may contain would be further limited by the recipient's hierarchy defined in the *Recipients* tab.

To manage email recipients, click on the **Recipients** tab in *Email Notification*.

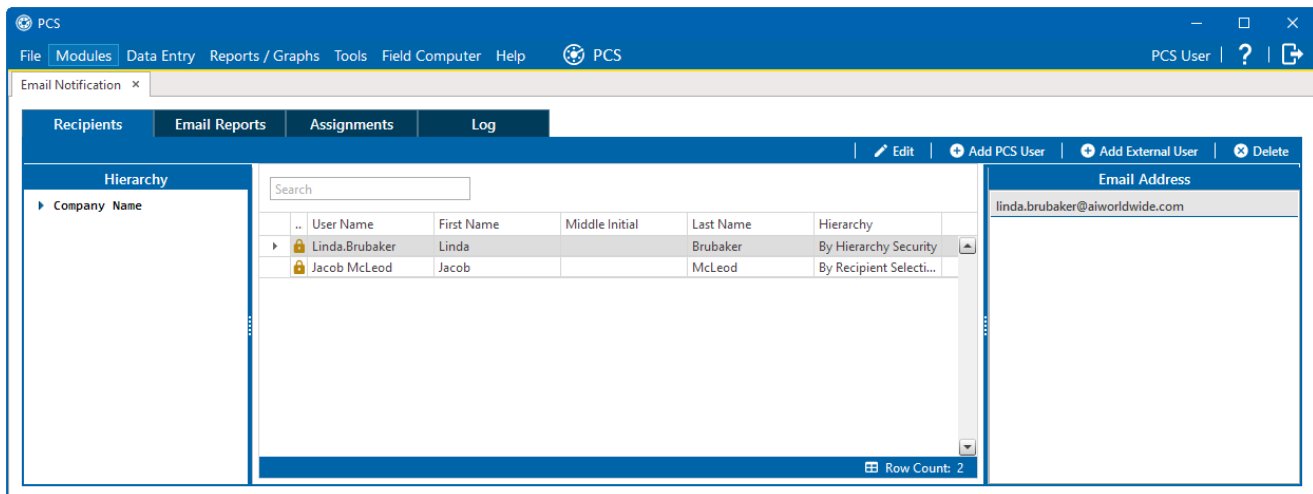


Figure 11-2. Email Notification Recipients Tab

You can complete any of the following actions regarding emails:

- [Add an Email Recipient](#)
- [Edit an Email Recipient](#)
- [Remove an Email Recipient](#)

Add an Email Recipient

To add an email recipient, access the **Recipients** tab of the *Email Notification* window and perform the following steps:

1. To add a recipient that exists in *User Management*, click **+ Add PCS User**. The Recipients tab updates to show a list of PCS users add as recipients or show options to create a new external user as a recipient.

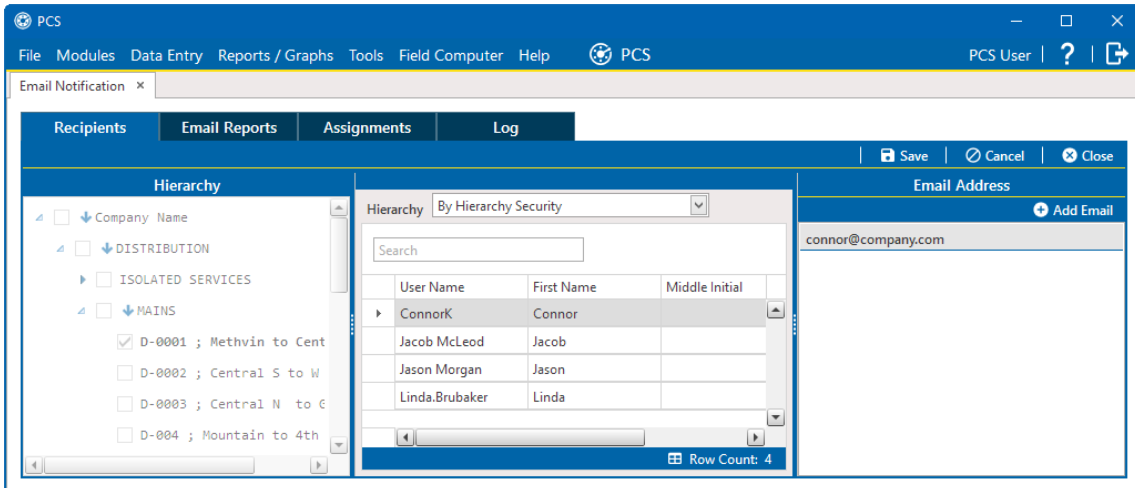



Figure 11-3. Add PCS User

2. Click  **Add External User** to add a recipient that does not use PCS. The Recipients tab updates to show options to create a new external user as a recipient.

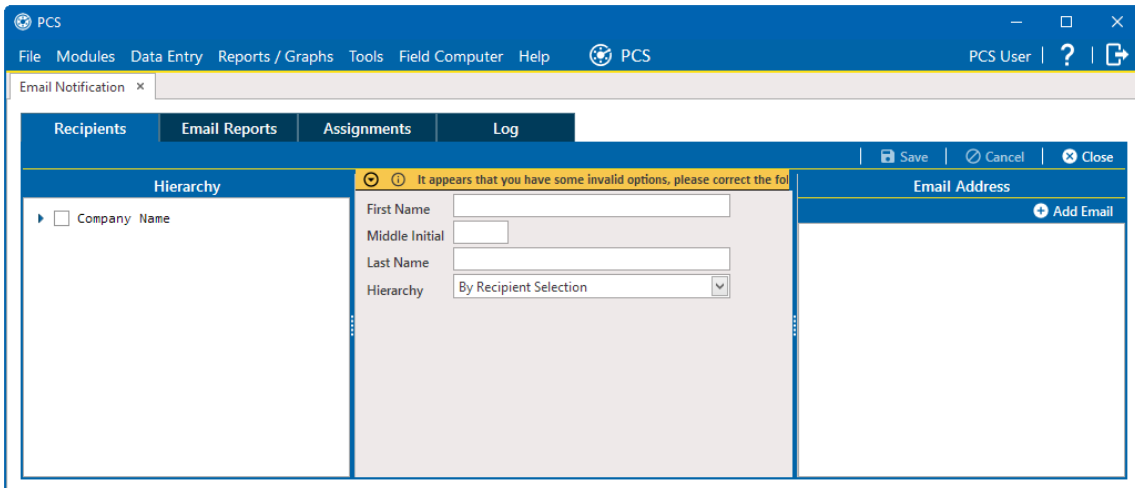


Figure 11-4. Add External User Email

3. Define the user by completing one of the following options:

- **PCS User** – select a user from the list.

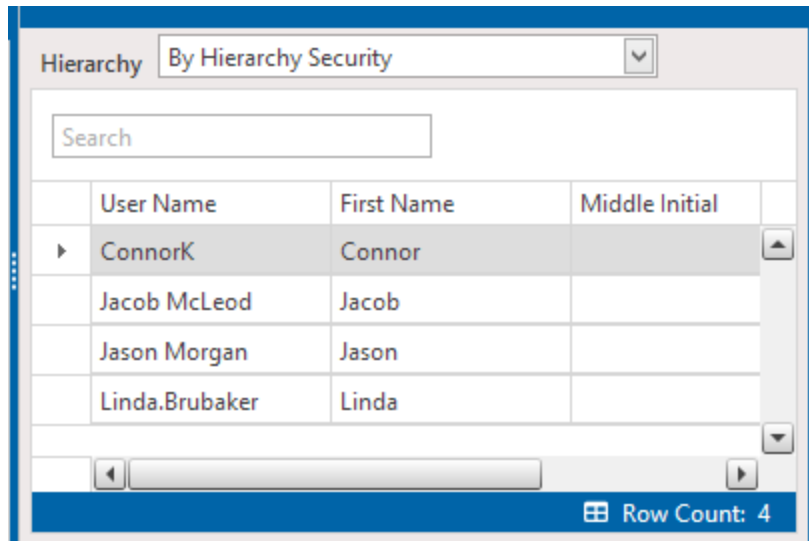


Figure 11-5. PCS Users

- **External User** – enter a **First Name**, **Middle Initial**, and **Last Name** in the fields provided.

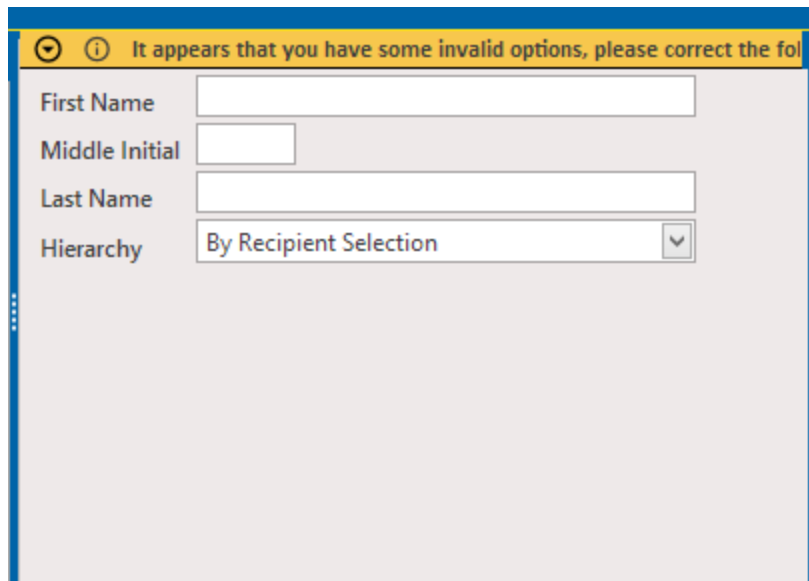


Figure 11-6. External Users Information

4. Define the hierarchy for the user's email notifications by selecting a **Hierarchy** option from the drop-down and, if available, select the desired ROWs' check boxes in the *Hierarchy* pane. Any hierarchy defined for a recipient will be used to determine which ROWs are allowed to be included in any email reports to the user.

The following options are available:

- **By Recipient Security** – allows you to define the hierarchy for the recipient's email reports. Select the check boxes next to the desired ROWs in the *Hierarchy* pane to assign pipeline segments to the recipient's report hierarchy.

If a user's hierarchy has been limited with Hierarchy Security in *User Management*, the hierarchy defined in *Email Notification* will not overwrite the user's hierarchy; instead, the hierarchy in *Email Notification* is used to further restrict the data that is sent to the user in email reports.

- **By Hierarchy Security** – uses the hierarchy defined for the user in *User Management* to determine the ROWs to be included in an email report sent to the user. *By Hierarchy Security* will only be available in the drop-down if *Hierarchy Selection* is enabled in *Options*.




Add email addresses to the user as needed. Email notifications assigned to the user are sent to each email address listed for the user. Each user must have at least one email address. For each email address you need to add, click  **Add Email** and enter the email address in the field provided. Click  **OK** to save and close the window.




Figure 11-7. Add Email Address Window

5. Click  **Save** to save the new recipient. The user can now be assigned to receive email notifications.

Edit an Email Recipient

To edit an email recipient, access the **Recipients** tab of the *Email Notification* window and perform the following steps:

1. Select a recipient in the list and click  **Edit**.

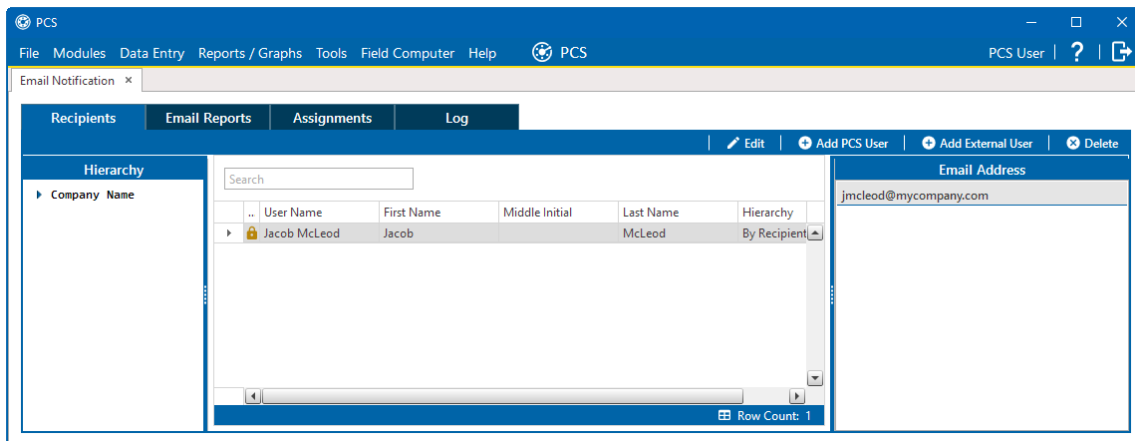


Figure 11-8. Email Recipients

2. If available, modify the user's **First Name**, **Middle Initial**, and **Last Name** in the fields provided. These fields will only be available for edits for external users. PCS users' name can only be modified in *User Management*.

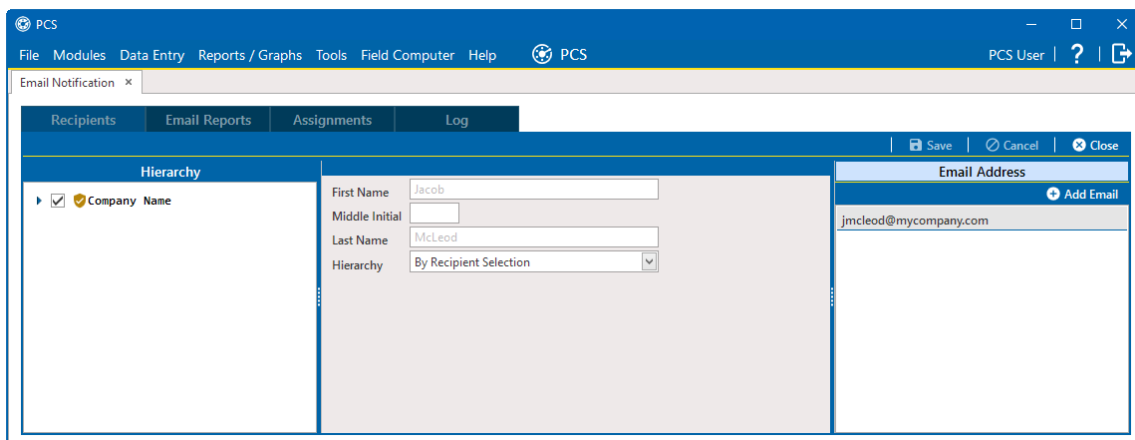





Figure 11-9. Edit Email Recipient Information

3. Add or remove the user's email addresses as needed. Email notifications assigned to the user are sent to each email address listed for the user. Each user must have at least one email address. Perform the following as necessary:
 - To add an email address, click  **Add Email** and enter the email address in the field provided. Click  **OK**.

- To remove an email address, click  next to the email address to be removed. Email addresses that were defined for a PCS user in *User Management* cannot be removed in *Email Notification*.

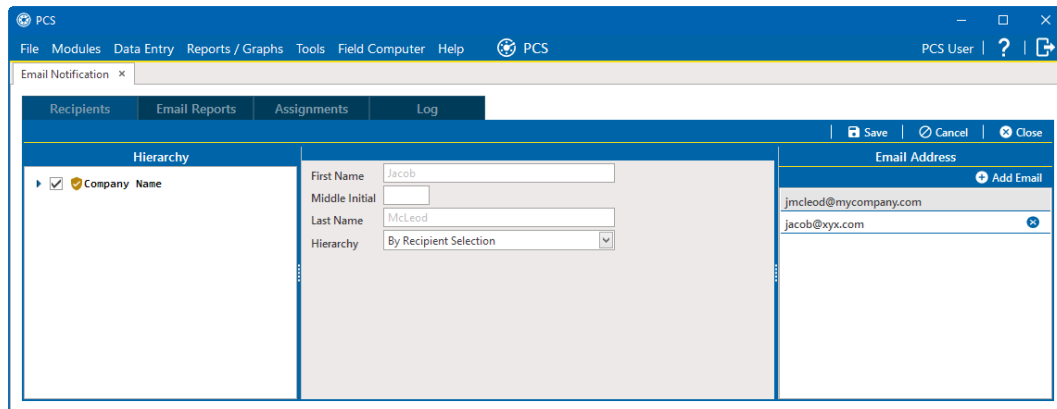



Figure 11-10. Remove an Email Address for a Recipient

- If necessary, modify the hierarchy for the user's email notifications by selecting a **Hierarchy** option from the drop-down. Refer to [Add an Email Recipient](#) for more information.
- Click  **Save** to save the changes to the recipient.

Remove an Email Recipient

To remove an email recipient, access the **Recipients** tab of the *Email Notification* window. Select the user from the list, and click  **Delete**.

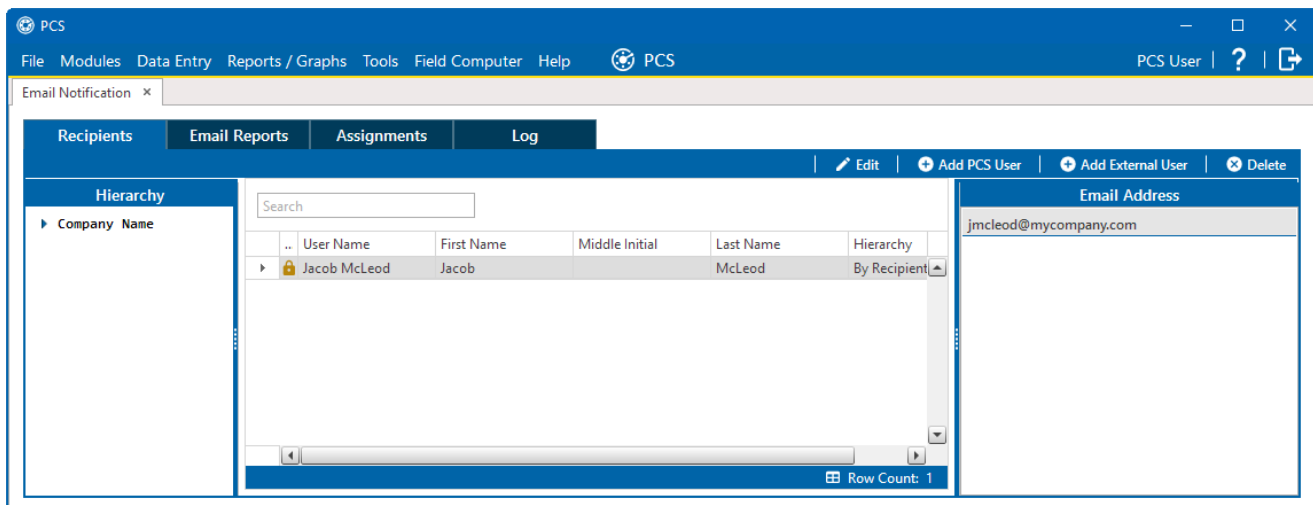


Figure 11-11. Email Recipients

Click **Yes** in the *Confirm Delete* window to remove the user as a potential email recipient and delete any existing assignments for that user.

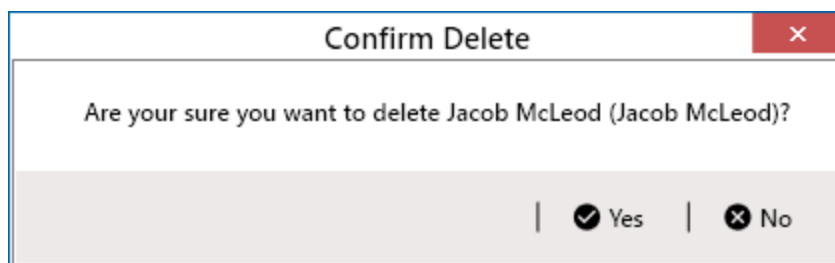


Figure 11-12. Confirm Delete Window

Removing a PCS user from the list of email recipients will not affect the user in *User Management*.

Create and Manage Email Reports

Email Reports determine an email notification's delivery settings and report contents. The time and frequency of the email notifications, the start date, and even the subject line of the emails can be defined, along with the type of report that is sent and the filters applied to the report.

An email report can include any columnar report available in the **Reports/Graph** menu. Custom columnar reports must also be set up with the public property setting. Graph reports are not currently supported in the *Email Notification* window. Email reports are set up independently of email recipients. This allows you to assign the same email report to more than one recipient.

Refer to the following topics for information on creating and managing email reports:

- [Create an Email Report](#)
- [Configure or Edit an Email Report](#)
- [Edit an Email Report](#)
- [Send an Email Report to All Recipients](#)
- [Reset the Last Run Date for Email Report Data](#)

Create an Email Report

To create an email report, access the **Email Reports** tab of the *Email Notification* window and perform the following steps:

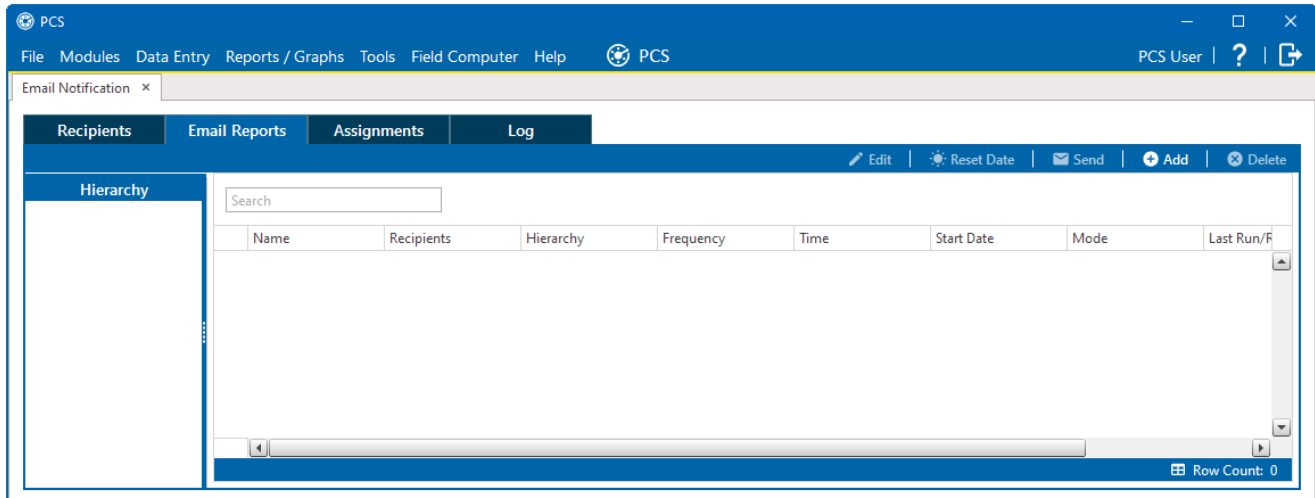


Figure 11-13. Email Reports Tab

1. Click **Add** to create a new email report. The *Add Associated Report* window opens.

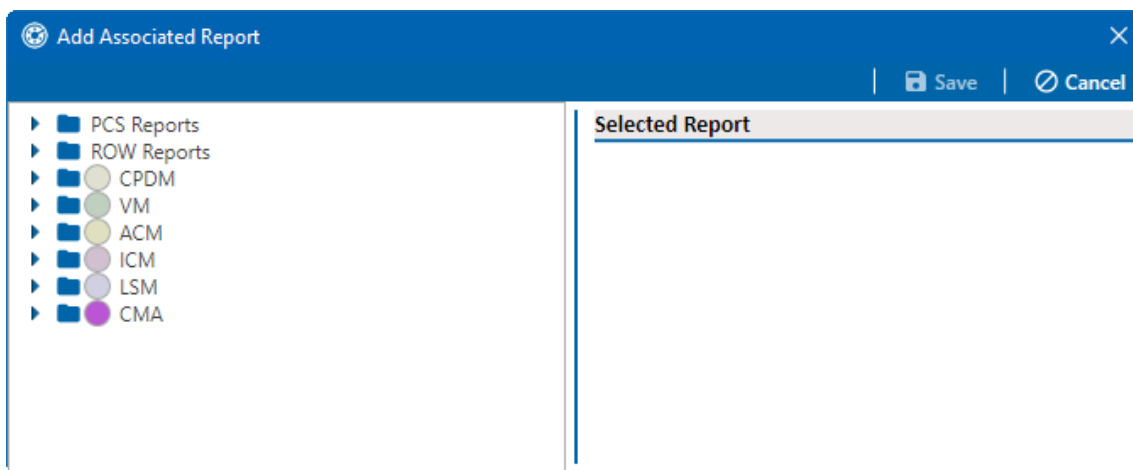


Figure 11-14. Add Associated Report Window

2. Select a report to serve as a base your new email report from in the list of reports in the left pane. Changes made to the new email report do not affect the original report and changes made in the future to the original report will not affect the email report.
The email report name will be used as the subject line for created emails and the identifier for the report creation job in the Email Notification Log and the Job Service Viewer.
3. Click **Save**. A new email report is created based on the selected report and is available for editing in the **Email Reports** tab.
4. Refer to [Edit an Email Report](#) to set properties of the report.

Configure or Edit an Email Report

After creating a new email report, set the properties for it. After saving the report, the report can be editing using the instructions in this topic.

After you create a new email report, the options for the report display in the **Email Reports** tab of the *Email Notification* window.

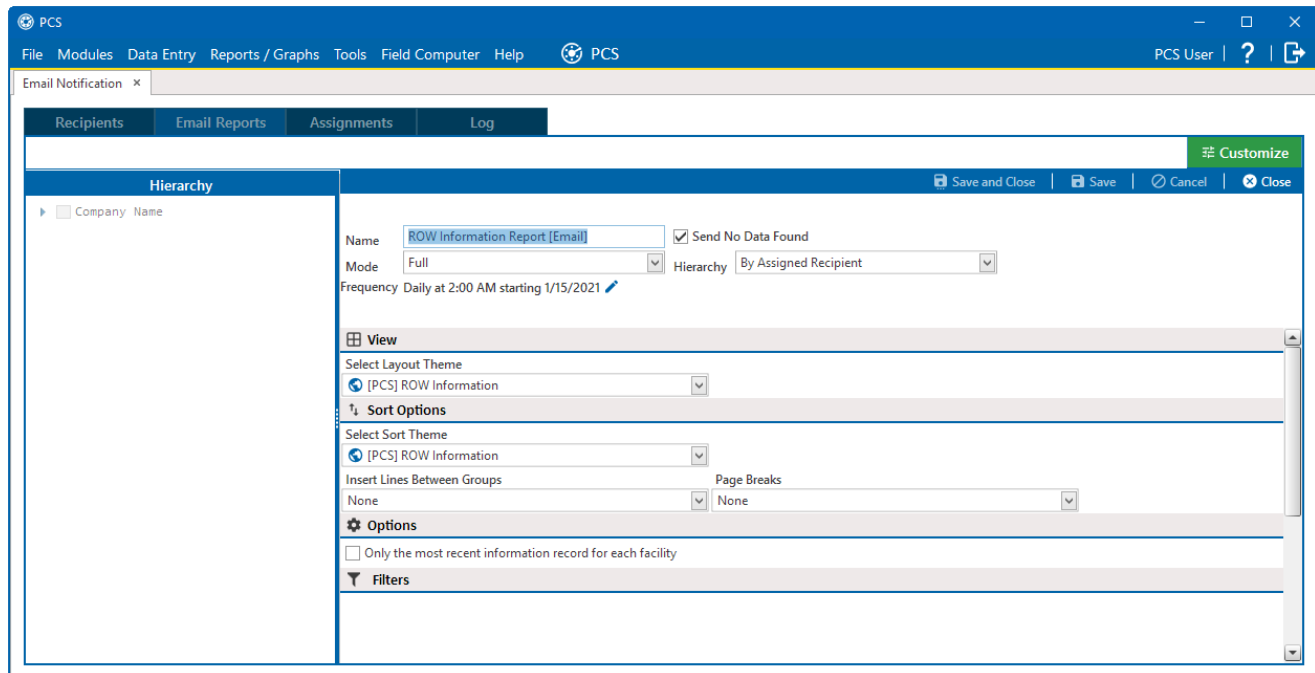



Figure 11-15. Email Report Options

Complete the following steps to configure or edit an email report:

1. Enter a new name for the email report in the **Name** field, if desired. The email report name will be used as the subject line for created emails and the identifier for the report creation job in the Email Notification Log and the Job Service Viewer.
2. **Decide How to Handle Empty Reports** – select the **Send No Data Found** check box to send the email reports even when the reports contain no data. Click to clear the **Send No Data Found** check box to prevent email reports from being sent when the report contains no data.
3. Select one of the following options from the **Mode** drop-down list to select how much data to include in the report:
 - Select **Full** to include all unchanged, new, and updated data in the emailed report.
 - Select **Incremental** to only include data that has changed as a result of changes to intelligent key data. Data in an incremental report would include changes to calculated or derived fields.

- Select **Data Changed Since Last Run** to include only data that has changed since the last report was run.
 - Select **Data Inserted Since Last Run** to include only data that has been added to PCS since the last report was run.
4. Select an option from the **Hierarchy** drop-down list to determine the pipeline segments to include in the report:
- Select **By Assigned Recipient** to only include data in the report for those pipeline segments the email recipient has access to, as defined for the recipient in the **Recipients** tab of the *Email Notification* window. If Hierarchical Security is turned on in *Options*, the data in the report is further limited by the pipeline segments defined for the recipient in *User Management*.
 - Select **By Email Report Selection** to only include data in the report for the pipeline segments assigned to the email report. To assign pipeline segments to the report, select the check box next to the desired pipeline segment in the in the *Hierarchy* pane.
- If **Hierarchical Security** is turned on in *Options*, the data in the report is further limited by the pipeline segments defined for the recipient in *User Management*.
5. Click the  next to **Frequency** to set up a schedule.

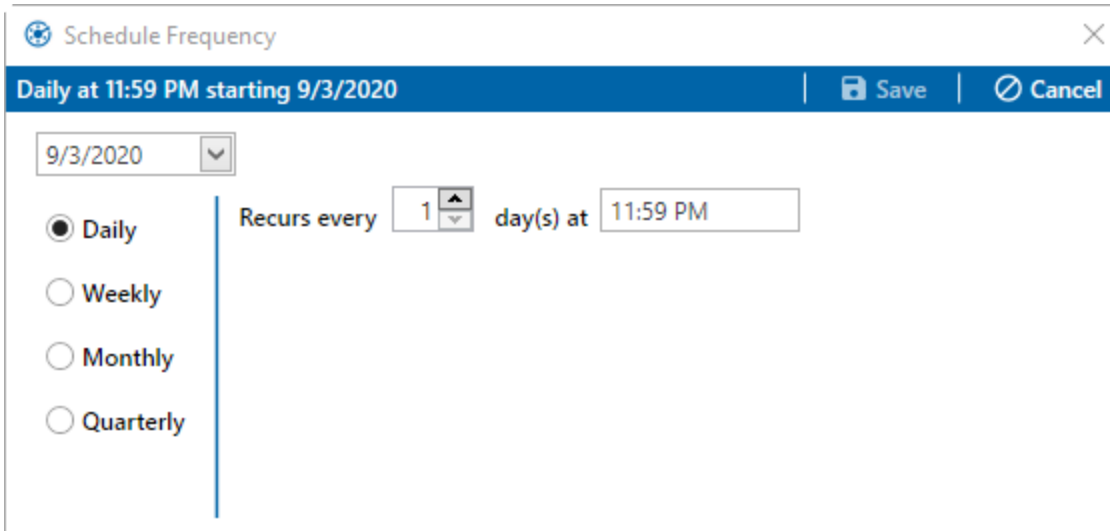


Figure 11-16. Schedule Frequency Window

- a. Decide how often the report should run by selecting one of the following:
- Daily**: Select **Daily** to run the report after a certain number of days has passed since the report. Enter a number in the **Recurs every** field and a time in the **day(s) at** field.

- ii. **Weekly:** Select **Weekly** to run the report on certain days of the week. Enter a number in the field provided to determine how many weeks should pass between imports. Select the check box next to the day(s) of the week that the report should be sent.

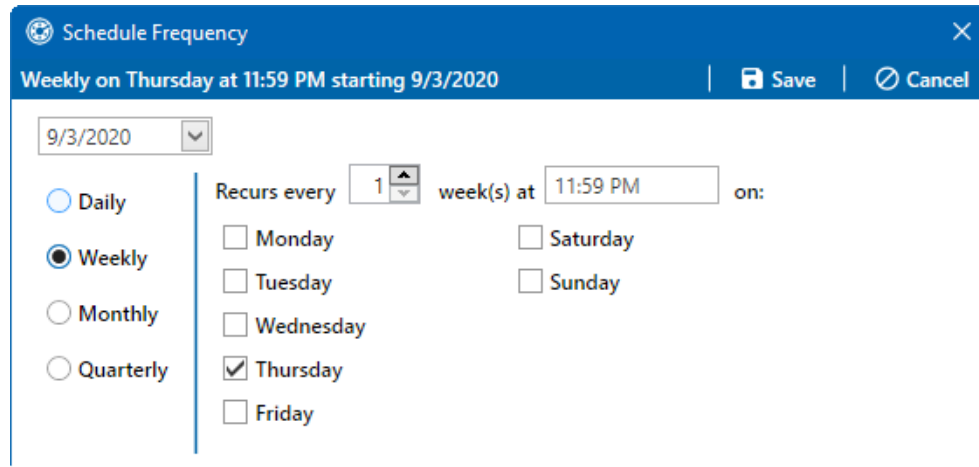


Figure 11-17. Schedule Frequency - Weekly

- iii. **Monthly:** Select **Monthly** to run the report after a certain number of months has passed since the last run. You can select one of the following schedules:
 1. Select the first radio button on the right to run the report only one time during the month. Select the day the report will run in the **Day** field, the frequency in the **of every month(s)** field, and enter a time a time in the last text field.

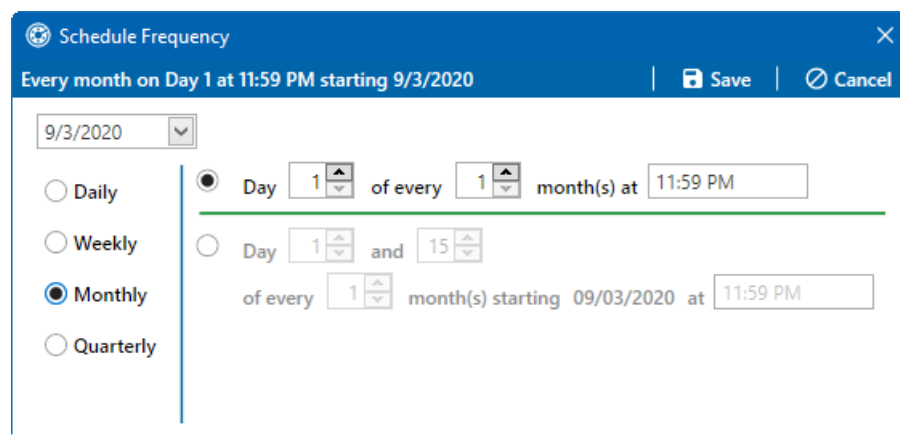


Figure 11-18. Schedule Frequency - Monthly

2. Select the second radio button on the right to run the report twice during specified months. Select which days the report will run in the two **Day** fields. Select the frequency in the **of every month(s)** field and enter a time a time in the second text field.

The screenshot shows the 'Schedule Frequency' dialog box. The title bar reads 'Schedule Frequency' and the subtitle is 'Every month on Day 1 and 15 at 11:59 PM starting 9/3/2020'. There are 'Save' and 'Cancel' buttons. A dropdown menu shows '9/3/2020'. On the left, radio buttons are selected for 'Monthly'. On the right, the second radio button is selected, showing 'Day 1 and 15 of every 1 month(s) at 11:59 PM' and 'of every 1 month(s) starting 09/03/2020 at 11:59 PM'.

Figure 11-19. Schedule Frequency - Monthly with Specific Months and Time

- iv. **Quarterly:** Select **Quarterly** to run the report on the first day of every quarter. Enter a time in the text field.



The screenshot shows the 'Schedule Frequency' dialog box. The title bar reads 'Schedule Frequency' and the subtitle is 'First day of each Quarter at 11:59 PM starting 9/3/2020'. There are 'Save' and 'Cancel' buttons. A dropdown menu shows '9/3/2020'. On the left, radio buttons are selected for 'Quarterly'. On the right, the text reads 'Rekurs first day of every Quarter at 11:59 PM'.

Figure 11-20. Schedule Frequency - Quarterly

- i. Click **Save** to save schedule.

6. Select **View** and **Sort Options**.

7. Add filters, if necessary. Refer to [Add, Edit, and Apply an AND or Or Filter Group](#) for more information.

8. Click  **Save** to save all changes to the email report. Click  **Save and Close** to return to the list of configured email reports. In order to send an email report to email recipients, a recipient must be assigned to the report. Refer to [Manage Email Assignments](#) for more information.

Edit an Email Report

After saving an email report, the report can be edited from the **Email Reports** tab of the *Email Notification* window.

The changes made to the new email report do not affect the original report, and changes made in the future to the original report will not affect the email report.

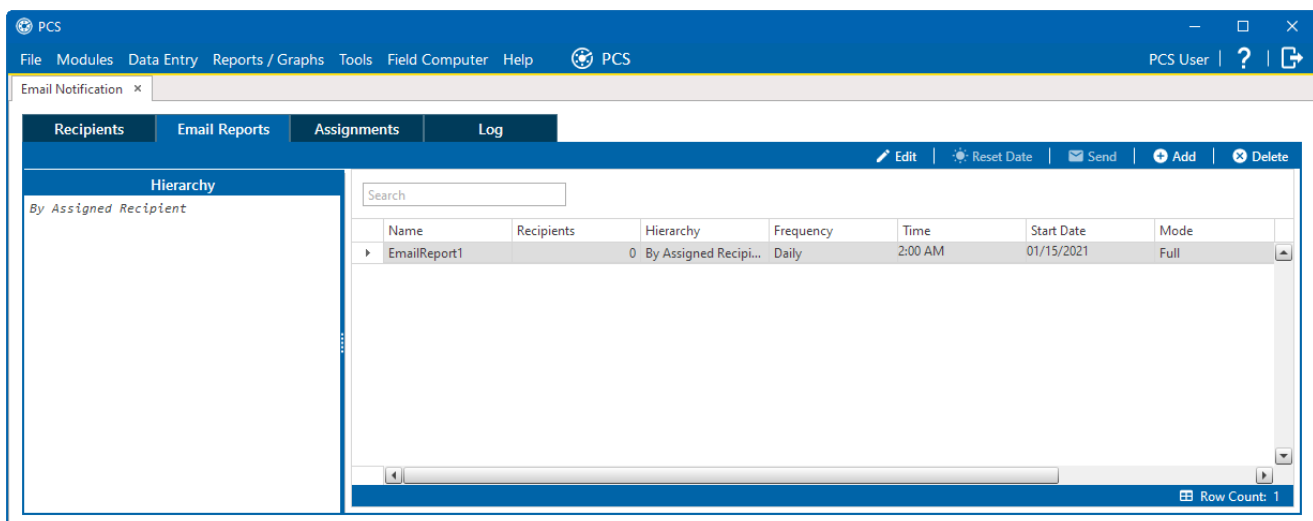



Figure 11-21. Email Reports

Complete the following steps to edit an email report:

1. Select the report from the **Email Report** grid and click  **Edit**. The options for the report display.

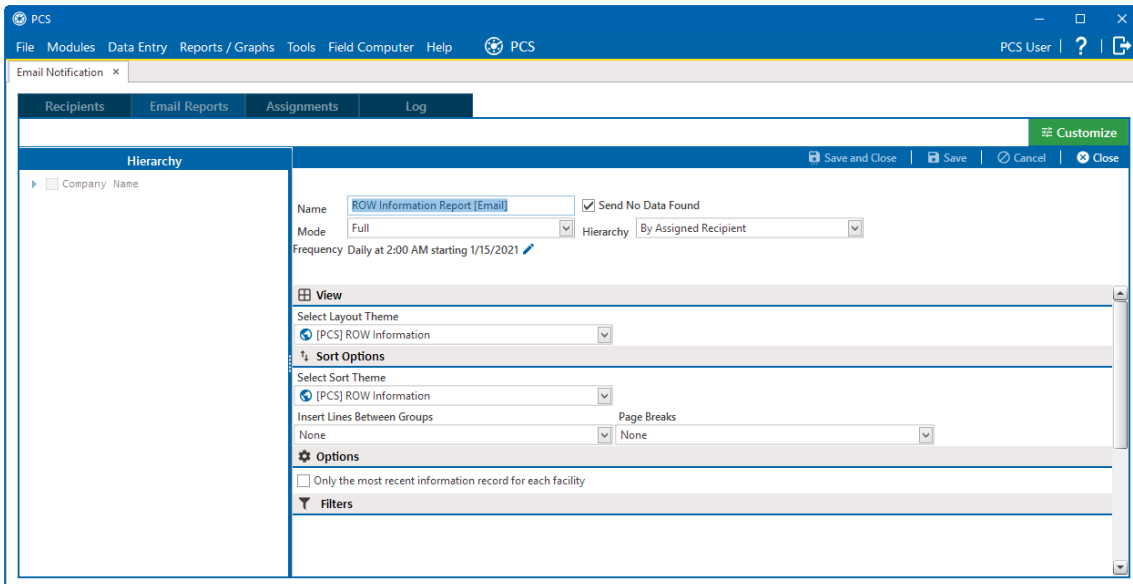




Figure 11-22. Email Report Options

2. Edit fields and options as needed. Refer to [Configure or Edit an Email Report](#) if needed.
3. Click  **Save** to save all changes to the email report. Click  **Save and Close** to return to the list of configured email reports. In order to send an email report to email recipients, a recipient must be assigned to the report. Refer to [Manage Email Assignments on page 644](#) for more information.

Send an Email Report to All Recipients

If an email report has one or more recipients, the report can be sent to all recipients on demand. If an email report is sent manually, the last run/reset date updates to the current time.

To send an email report manually, access the **Email Reports** tab of the *Email Notification* window.

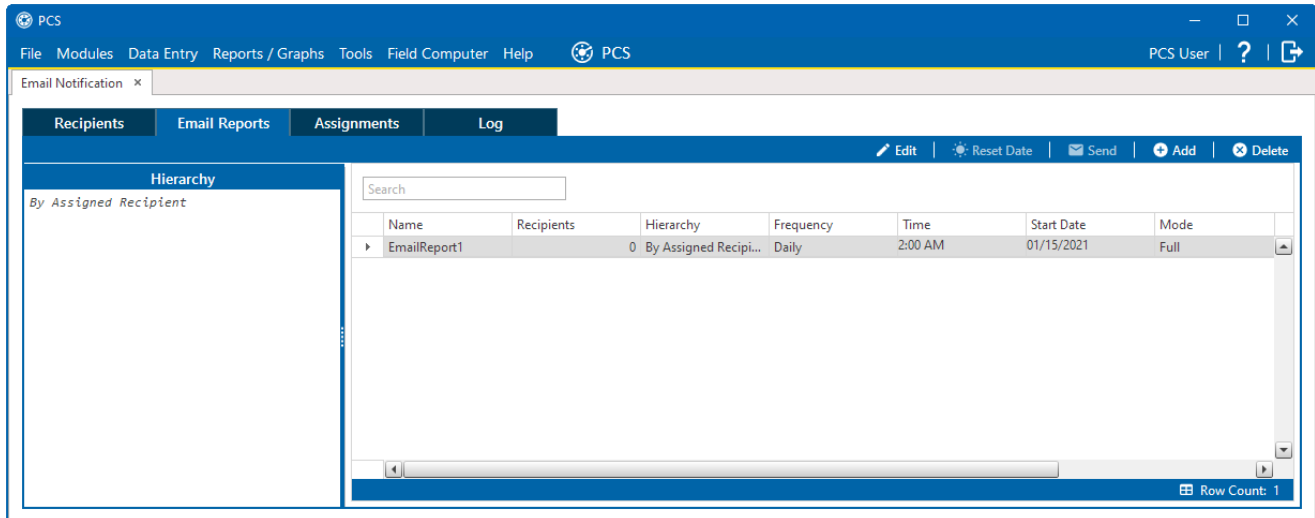


Figure 11-23. Email Reports

Select the email report from the list and click **Send**. Click **Yes** to confirm sending the email and click **OK** when prompted. The job to create the report to send to the recipients is added to the *Job Service Viewer's* job queue.

Reset the Last Run Date for Email Report Data

If desired, you can reset the last run/incremental date for a selected email report. If an email report's last run/incremental date is reset, the data included in the next run of the report includes the data changed between the next run time and the time the reset button was pressed. Resetting the last run date is helpful when a large amount of data was inserted into PCS, such as through a large bridge import, and you don't want the report to contain the imported data.

To reset the last run/incremental date, access the **Email Reports** tab of the *Email Notification* window.

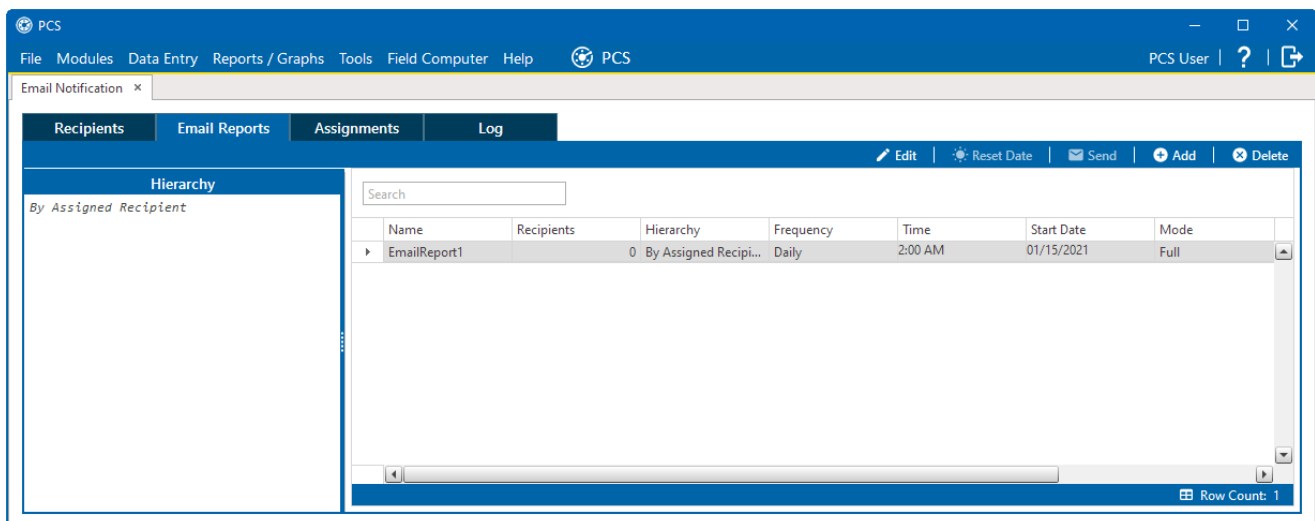


Figure 11-24. Email Reports

Select the email report from the list and click **Reset Date**. A job is added to the *Job Service Viewer's* job queue to set the current time as the new baseline for the report's data.

Manage Email Assignments

In order for a report to be sent to PCS users or external email addresses, the user must be identified as an email recipient in the **Recipients** tab of the *Email Notifications* window and then assigned to the report in the **Assignments** tab. Once a recipient is assigned to an email report, you can preview the report that will be sent to the user, change the hierarchy for an individual recipients' report, and remove a recipient from a report.

Add or Remove a Recipient to a Report

To assign or remove recipients to a report or to preview the report that will be sent, access the **Assignments** tab of the *Email Notifications* window.

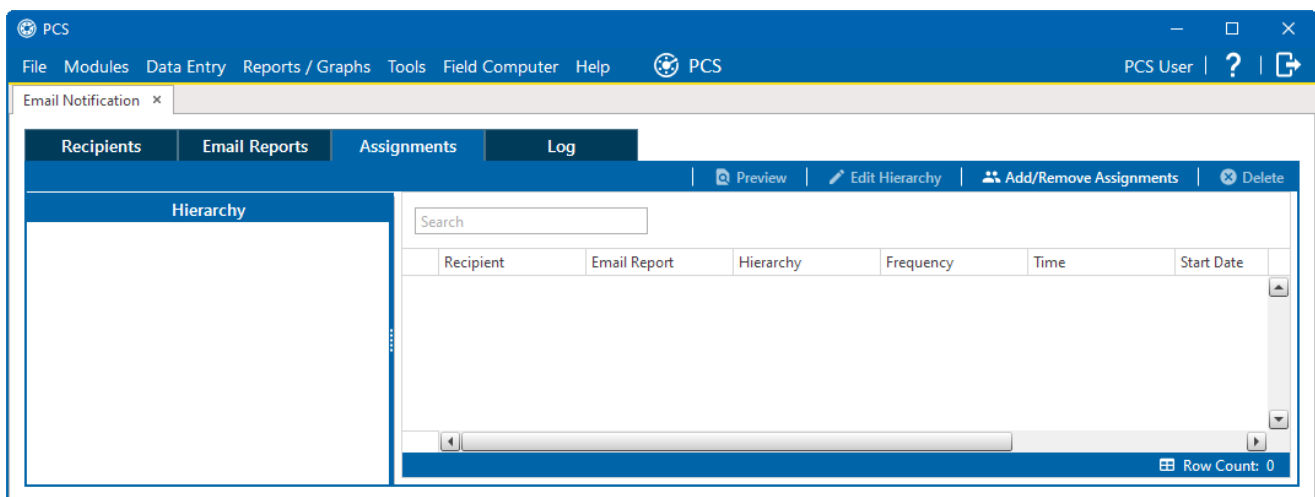


Figure 11-25. Assignments Tab

Complete the following steps to assign or remove recipients to a report or preview the report:

1. Click  **Add/Remove Assignments**.

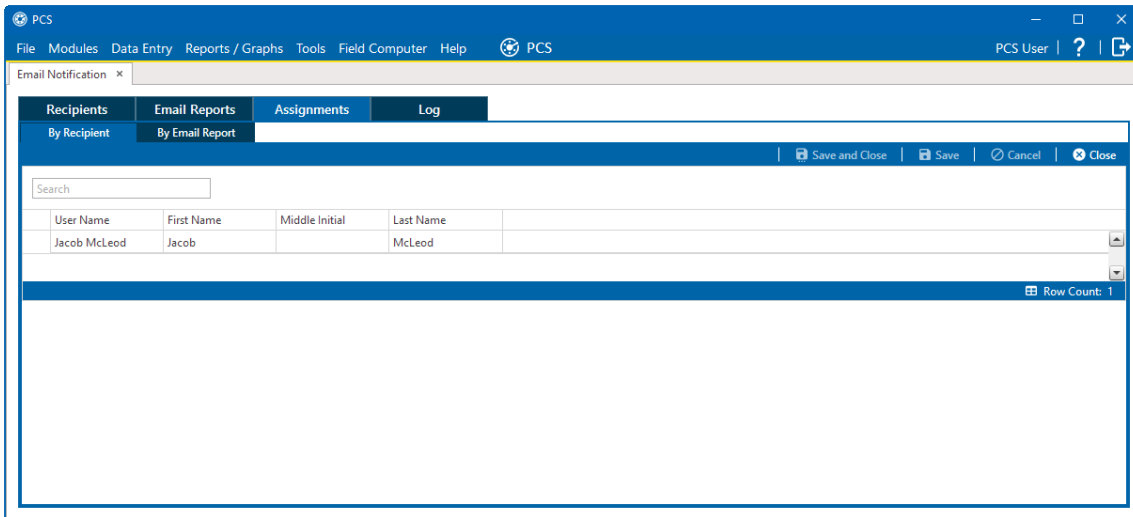



Figure 11-26. Assign Report By Recipient

2. To assign or remove a single recipient to one or more reports, click **By Recipient**. Select an email recipient in the grid and then click the  button or double-click each desired report in the *Available Email Reports* pane to move the report(s) to the *Assignments* pane. Repeat this step as needed for other recipients listed in the grid.

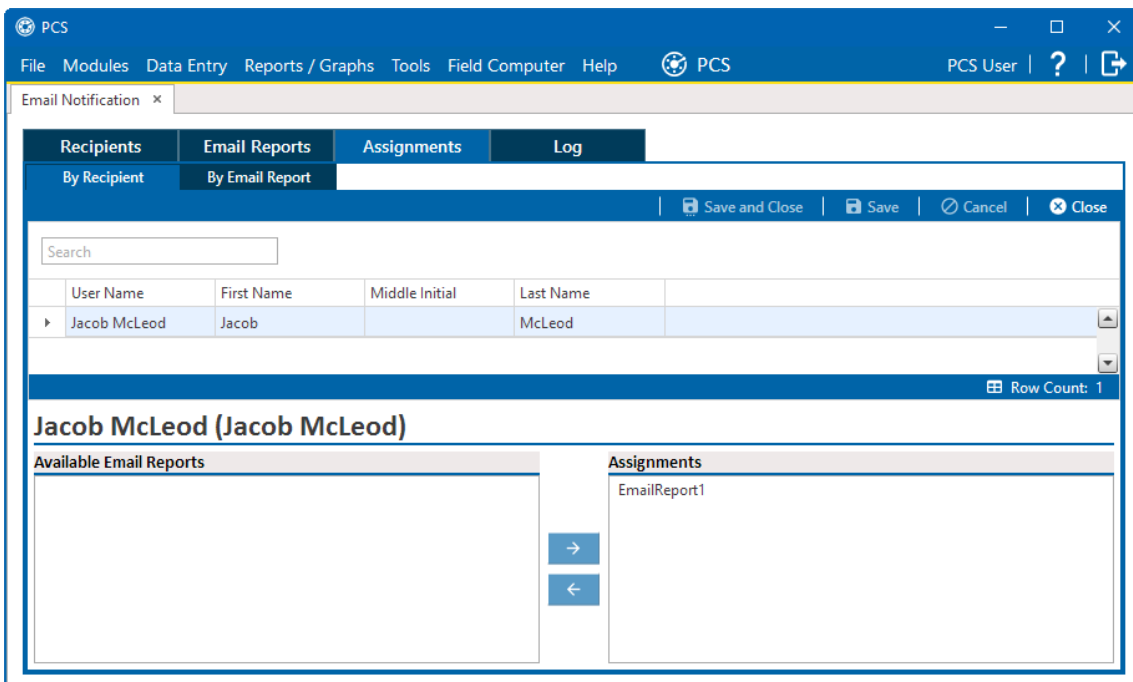




Figure 11-27. Available Reports and Assignment Panes

- a. To remove a report assigned to a recipient, move the report out of the *Assignments* pane by selecting it and clicking the  button or double-clicking the name.
3. To assign or remove one or more recipients to a single report, click **By Email Report**. Select an email report in the grid and then click the  button or double-click each desired recipient user name in the *Available Recipients* pane to move the user(s) to the *Assignments* pane. Repeat this step as needed for other email reports listed in the grid.

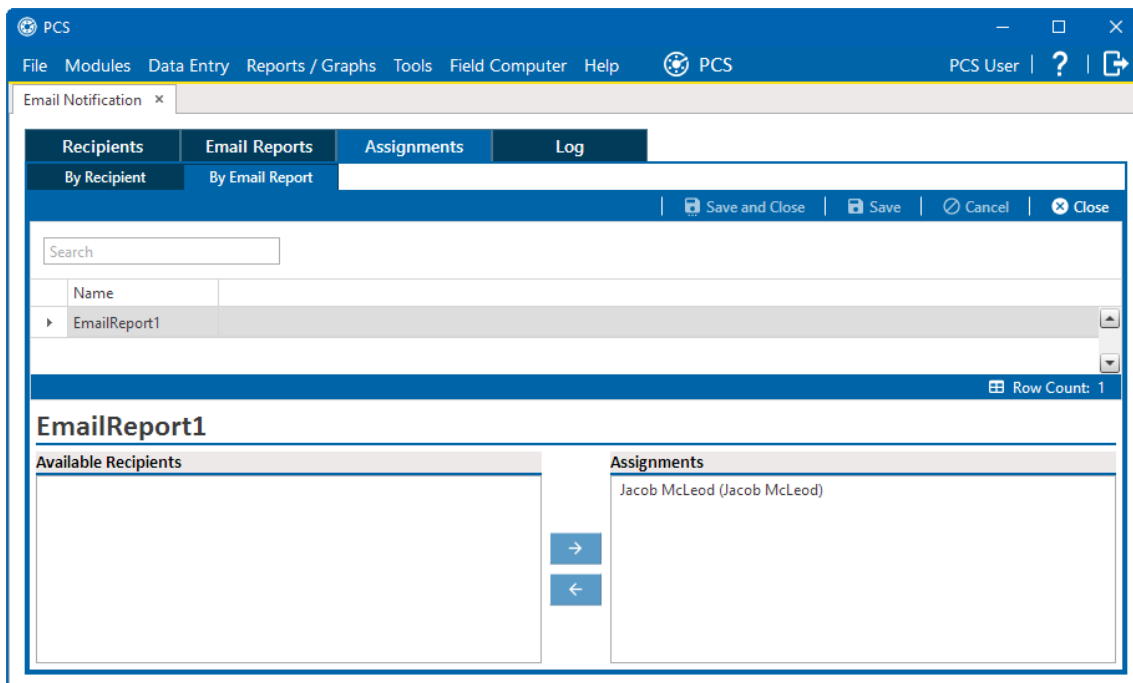





Figure 11-28. Assign by Email Report

- a. To remove a report assigned to a recipient, move the report out of the *Assignments* pane by selecting it and clicking the  button or double-clicking the name.
4. Click  **Save** to save changes and continue or  **Save and Close** to close the window and return to the **Assignments** tab window.

Review Emailed Notifications

The *Email Notification* log is an activity log that identifies PCS reports sent to email recipients. It includes a transmission date, whether or not email reports transmitted successfully, and set up information such as Frequency and Mode settings in the **Email Reports** tab of the *Email Notification* window.

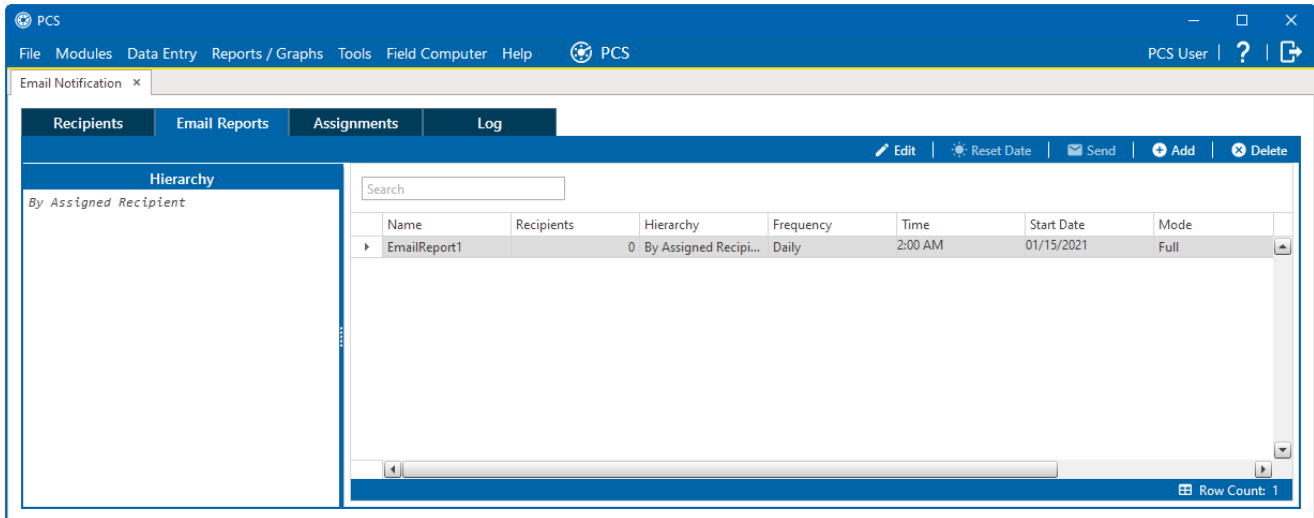


Figure 11-29. Email Reports Tab

To open the *Email Notification* log and review emailed notifications, click the **Log** tab.

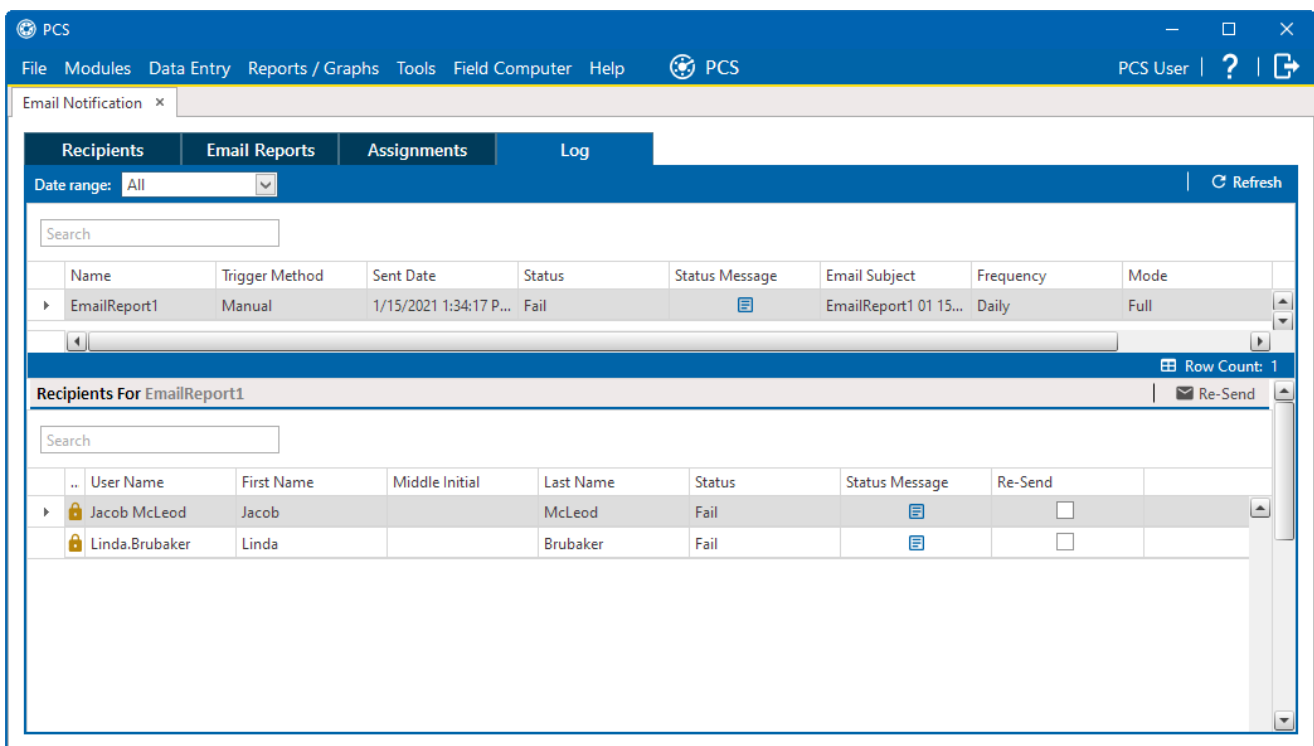


Figure 11-30. Log Tab

Click the **Date range** drop-down and select a time range to narrow the list of emailed reports to those sent during a specific period of time.

View the Sent Reports

To view a copy of a report sent to an email recipient:

1. In the *Email Notification* window, click **Log** tab.

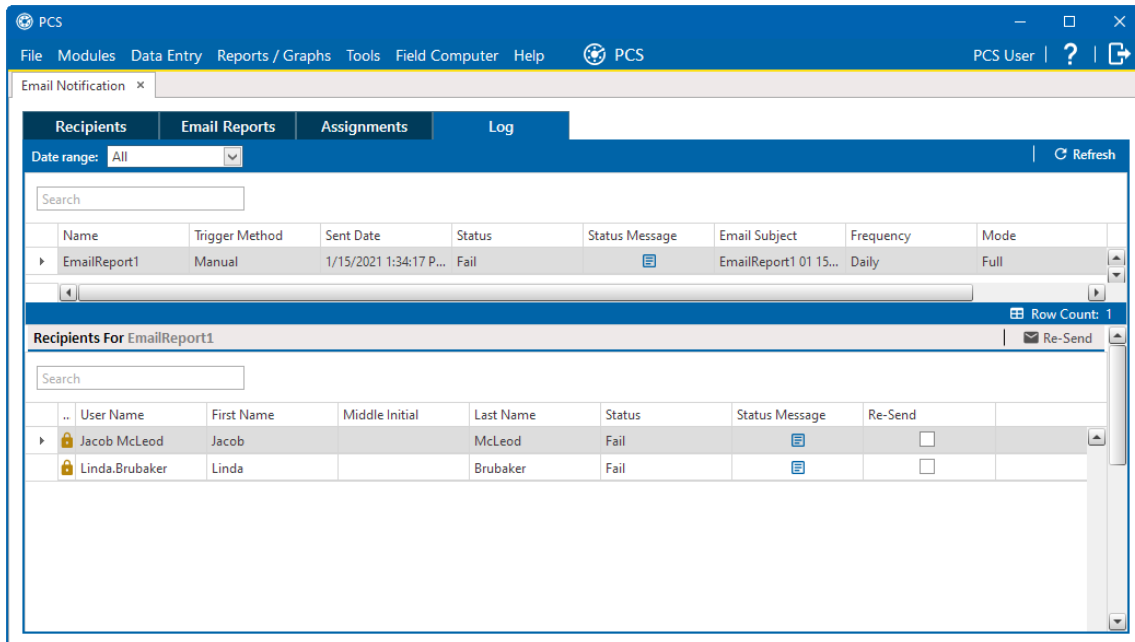


Figure 11-31. Log Tab

2. Click **Refresh** if you don't see the report in the *Recipients For* pane.
3. Select a report in the list and then select an email recipient in the *Recipients For* pane. Information related to your selections display in the *Details For* pane below the *Recipients For* pane.

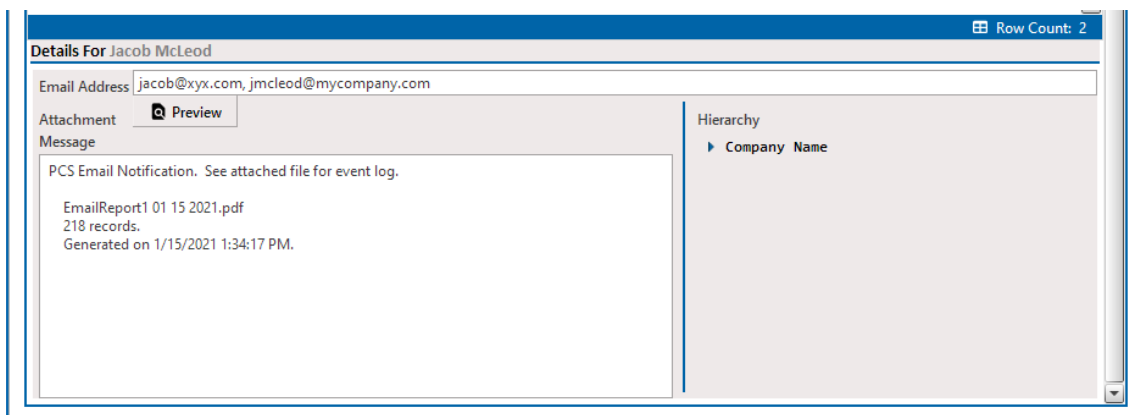


Figure 11-32. Details For Pane

4. Click **Preview** to open a copy of the selected report in Adobe Reader.

Re-send Email Notifications

Access the **Log** tab of the *Email Notifications* and complete the following steps to re-send a report to an email recipient:

1. Select a report in the list and then select an email recipient in the *Recipients For* pane.

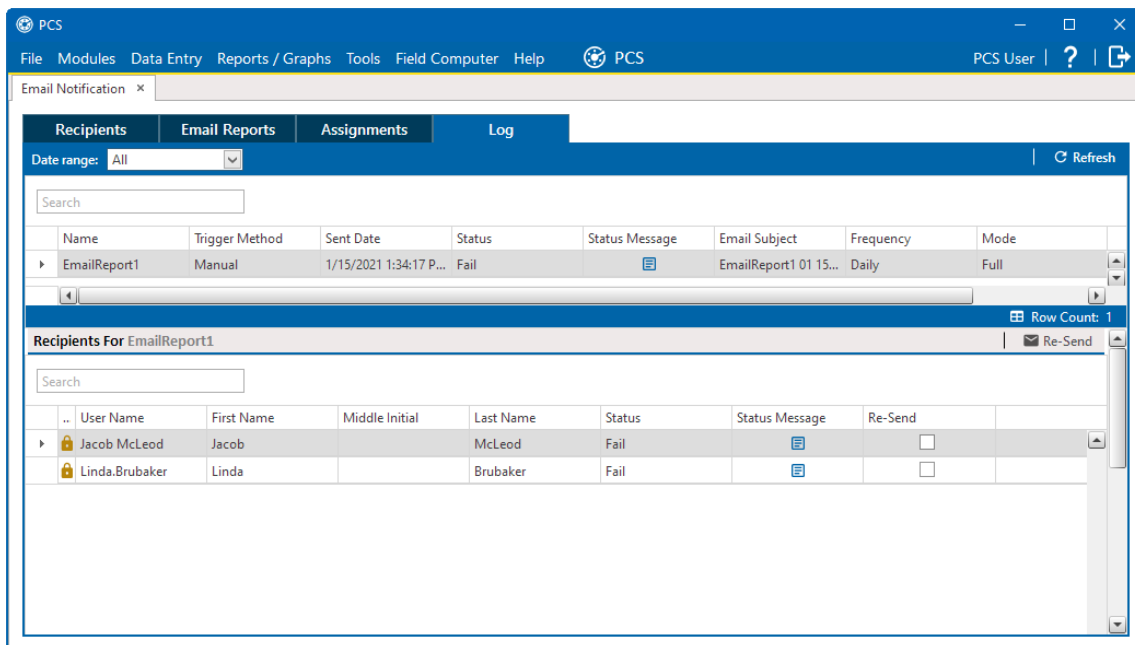


Figure 11-33. Log Tab

2. Click the **Re-Send** check box for the selected recipient to place a check mark inside the check box.
3. Click **Re-Send**. The report is sent as a PDF attachment in an email to the recipient.
4. Click **Refresh** to update the information displaying in the window.

Field Computer

PCS can send and receive survey files from a computer, mobile device, or field computer. Those survey files can then be sent back to PCS for integration into your database.

NOTE: The information in this section or sections is/are intended for users with SysAdmin security permissions, unless noted otherwise.

This chapter includes the following topics:

- [Send and Receive Files](#)
- [Work with Themes and Filter Groups on page 666](#)
- [View the Field Computer Log on page 690](#)

Send and Receive Files

The procedures listed below explain how to send and receive survey files to and from your computer, a mobile device, or a field computer. The process for sending a survey file to a field computer or mobile device requires selection of a prompt, layout, and sorting method themes. If themes have not previously been set up in PCS, begin with the section [Work with Themes and Filter Groups on page 666](#) and then continue with any of the following procedures for sending or receiving a survey file.

If you want to allow the user to add a new facility record while using the field computer or mobile device, the PCS user who will send surveys to the field computer or mobile device must be set up with the **Can Create New Facilities On The Allegro** option enabled. For more information about setting up a PCS user account, refer to [User Management on page 162](#).

This chapter includes the following topics:

- [Send a Facility Survey on page 651](#)
- [Receive a Facility Survey on page 658](#)
- [Receive an Indirect Survey on page 662](#)

Send a Facility Survey

You can send a facility survey to the Allegro field computer, mobile device, or a folder on your computer. The survey file includes facilities for inspection based on selected pipeline segments in the *Select ROWs* window.

The facility survey can be based on any of the following:

- **Selected ROWs** – the survey file includes facilities for inspection based on selected pipeline segments in the *Select ROWs* window.
- **Route** – the facilities included in the survey are those that are included in a custom Route. Note that all facilities are included in the survey that pertain to a route regardless of what ROWs are selected in the hierarchy. A route needs to be created in *Define Routes* window (**Data Entry>Define Routes**) before it can be used to send a facility survey. Refer to [Routes](#) for additional information.
- **Schedule** – the survey file includes facilities based on a defined schedule.
- **Import Exported List** – based on a survey file that was previously exported and then altered by a third party software.

Use the following procedure when you plan to take inspection readings using the Periodic Survey software on the Allegro or mobile device, or if you plan to use the survey file with a third party application.

Complete the following steps to send a facility survey:

1. If you intend to send the survey file to a field computer or mobile device, verify the device is connected to your computer. Refer to the device's user guide for information about how to connect to the device.
2. Click **Field Computer > Send** to open the *Field Computer Send* window.

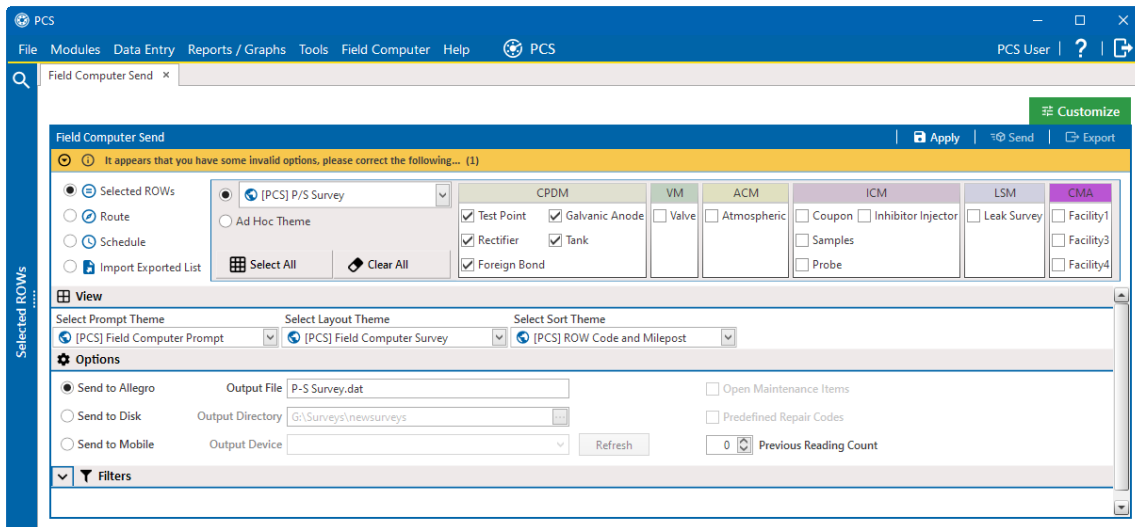




Figure 12-1. Field Computer Send

3. Select which option the survey file will be based on: **Selected ROWs**, **Route**, **Schedule**, or **Import Exported List**.

NOTE: Click the  toggle button in the  information bar to view important information related to required settings.

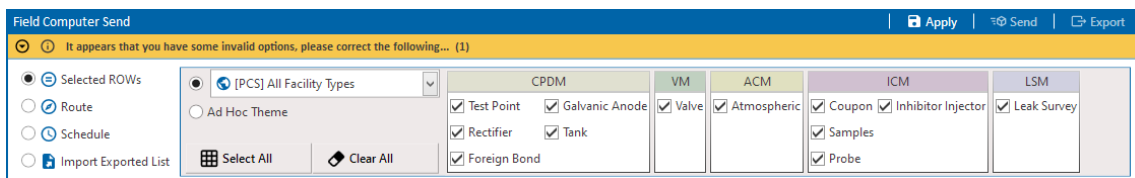


Figure 12-2. Based on Options

- a. For **Selected ROWs**, select either a facility type theme from the drop-down list or select/deselect the facility types you want from the group panes on the right.

NOTE: **Ad Hoc Theme** is automatically selected when you select or deselect individual facility types.

NOTE: Only public facility type themes are available for selection from the drop-down lists. If you would like to use a private theme, your company's system administrator must make your private theme a public one.

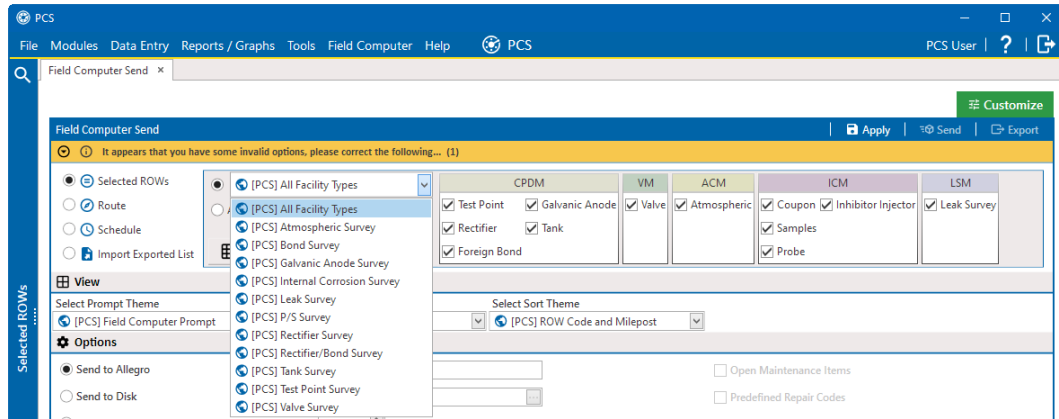


Figure 12-3. Facility Type Drop-down List

If using **Ad Hoc Theme**, click the check box for each facility type you want to view in the grid, or click the **Select All** button to select all facility types.

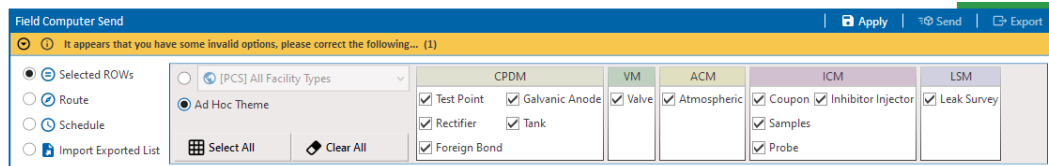


Figure 12-4. Ad Hoc Theme Radio Button

NOTE: An **Ad Hoc Theme** only applies to the current session and is not saved. A facility type is selected when a check mark appears inside the check box. To clear the check mark, click the check box again.

- b. For **Route**, select a Route from the drop-down list. If you don't see the desired route, make sure you have at least one ROW Code selected that has facilities contained in the route.

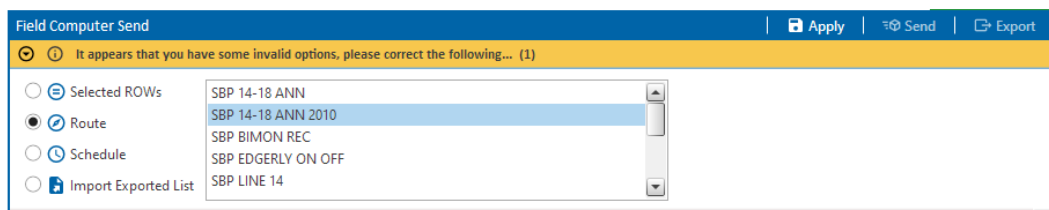


Figure 12-5. Field Computer Send - Route

- c. For **Schedule**, select a schedule definition from the drop-down list.

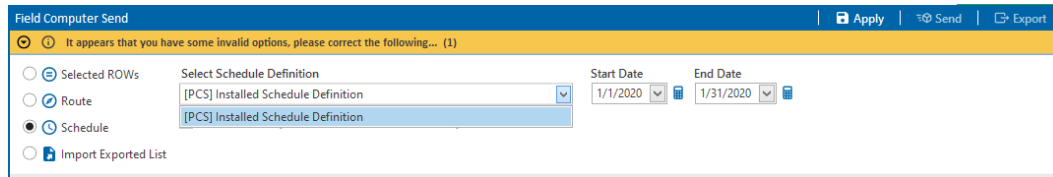




Figure 12-6. Field Computer Send - Schedule

- i. Select **Start Date** and **End Date** using the format MM/DD/YYYY to indicate the month, day, and year.
 1. For a dynamic date range, click the  icon to expand the fields. Select a **Start Date** from the drop-down list, enter an offset value in the second field, and select the time period from the third field's drop-down list. Click the  to close. If desired, repeat for the **End Date**.

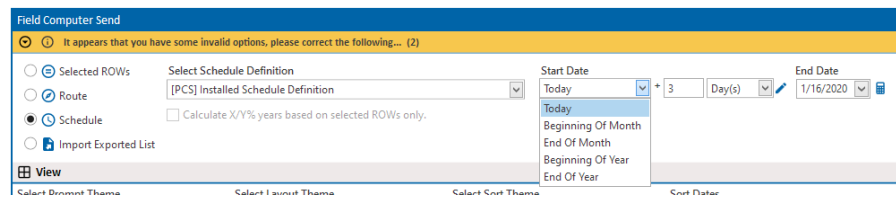


Figure 12-7. Dynamic Dates Start Date Drop-down

- d. For **Import Exported List**, click the ... icon in the **Import Exported List** field to display the *Open* window. Navigate to the altered survey file and select it. Click **Open** to close the window and return to the *Field Computer Send* window.
4. To include historical readings for each selected facility, enter the number of readings to include in the **Previous Reading Count** field. To not include any historical readings, enter 0. The maximum amount of readings that can be entered here is defined in Options. Refer to [Set Field Computer Options on page 33](#) for more information about the maximum number of readings. These readings are stored in a .hst file that is included in the .dat file.

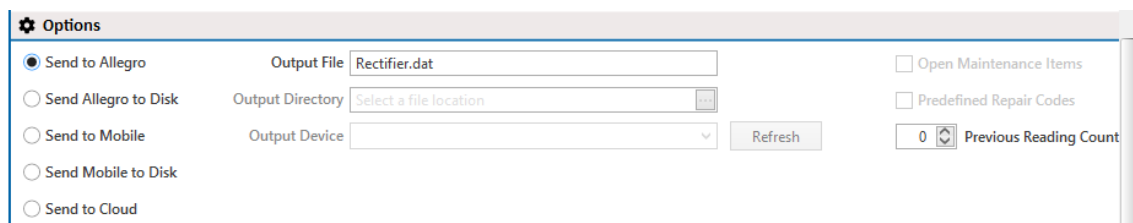



Figure 12-8. Previous Reading Count

- 5. If the **Predefined Repair Codes** check box is available for selection, click the check box to pre-populate a repair code in the maintenance repair code field.

This option is only available when the repair code for the facility is a picklist (refer to [Edit a Standard or Dynamic Picklist](#)), and the facility repair code prompt is included in the currently selected prompt theme.

6. Click  **Apply** to update the grid.
7. In the *View* pane, select a prompt, layout, and sorting theme:

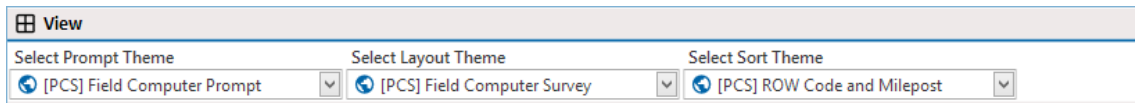


Figure 12-9. View Pane

NOTE: For **Import Exported List**, only the **Select Prompt Theme** field is available.

- a. Click the down arrow in **Select Prompt Theme** and select a prompt theme in the selection list.
- b. Click the down arrow in **Select Layout Theme** and select a layout theme in the selection list.
- c. If available, click the down arrow in **Select Sort Theme** and select a sorting theme in the selection list. The Select Sort Theme option may not be available if Selectable Sorting themes were pre-selected as part of the Prompt.
- d. For **Scheduled** option, also select a **Sort Dates** option - **Oldest First** or **Newest First**.

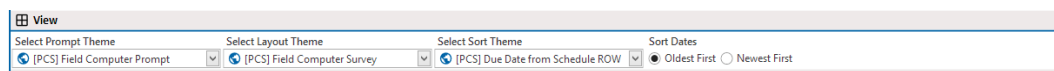


Figure 12-10. Scheduled Option Sort Dates

8. In the *Options* pane, complete the following selections:

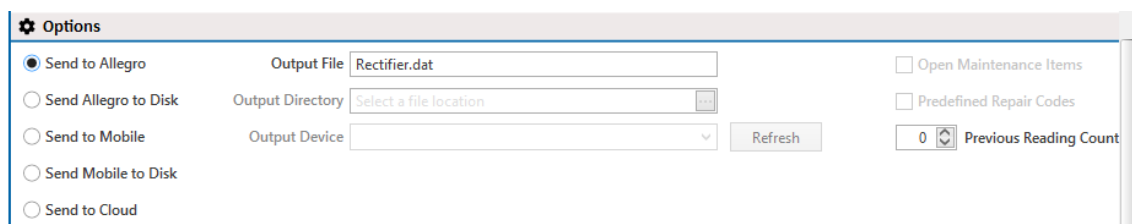


Figure 12-11. Options Pane

- a. Type a name in the **Output File** field if you want to rename the file.
- b. Select one of the options for where to send the file:

- **Send to Allegro** - for sending facility survey data directly to Allegro QX field computers.
- **Send Allegro to Disk** - for file-based transfers of facility survey data to Allegro QX field computers.
- **Send to Mobile** - for sending facility survey data directly to Mesa 3 and Allegro AX field computers running the CartoPacCathodic Protection app.
- **Send Mobile to Disk** - for file-based transfers of facility survey data to Mesa 3 and Allegro AX field computers running the CartoPacCathodic Protection app.

NOTE: CartoPacCathodic Protection file formats can be exported directly without use of a transformation tool.

- **Send to Cloud** - for sending facility surveys to PCS Survey Manager using PCS Wirelessly Sync. Existing configurations and customizations can be used when sending survey data to the cloud.

NOTE: The **Send to Cloud** option will not appear if no token is configured in the *Integration* pane under **Options**. Refer to [Set Integration Options](#) for details.

- c. To include historical readings for each selected facility, type the number of readings to include in the **Number of Previous Readings** field. The maximum amount of readings that can be entered here is defined in Options. Refer to [Set Field Computer Options on page 33](#) for more information about the maximum number of readings. These readings are stored in a `.hst` file.
- d. If the **Predefined Repair Codes** check box is available for selection, click the check box to pre-populate a repair code in the maintenance repair code field. This option is only available when the repair code for the facility is a picklist (refer to [Edit a Standard or Dynamic Picklist](#)), and the facility repair code prompt is included in the currently selected prompt theme.
- e. For the **Send to Allegro Disk** and **Send to Mobile Disk** options, enter the output directory location in the **Output Directory** field or search for the directory using the **... ellipses** button to locate the directory.
- f. For **Send to Mobile** options (for mobile devices such as the Allegro AX or Mesa 3), select an **Output Device** from the drop-down list.

Refer to the following Allegro or mobile device user guides for more information on using these devices:

- [Allegro QX Support Site](#).
- [CartoPac Cathodic Protection Support Site](#) for the Allegro AX and Mesa 3.

9. **OPTIONAL:** If you want to work with a subset of facility records that meet certain filter conditions, complete the following steps:

a. Click **Filters** to open the *Filters* pane.

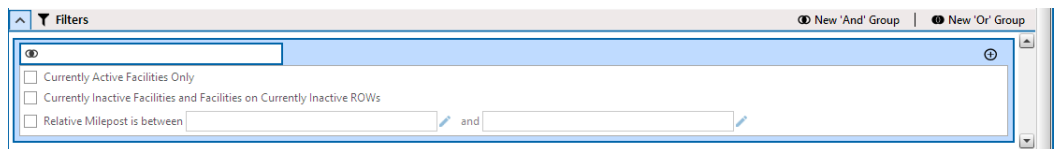


Figure 12-12. Filters Pane

b. Click **+** (add) to open the filter properties group box.

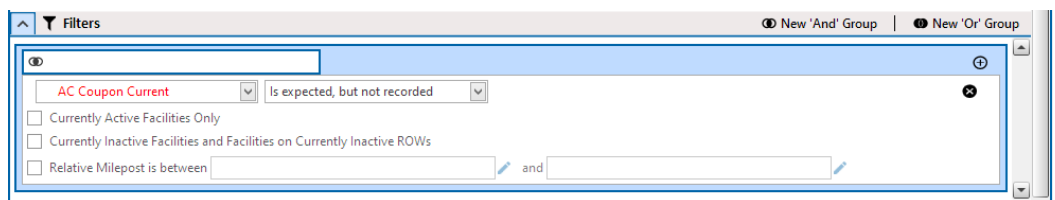



Figure 12-13. Filter Criteria

- Select a PCS field, operator, and filter condition(s) using filter selection fields.
- To add additional filters, click **+** to add another row of filter selection fields. Select a PCS field, operator, and filter condition(s) to set up filter criteria.
- Repeat as needed.
- You can also add 'And' and 'Or' filters to the list of filter. Refer to [Work with Themes and Filter Groups](#) for more details about these types of filters.
- When finished, click **Filters** to close the *Filters* pane.

NOTE: The filters are used only for the current session. If you close and return to this window, the filters will not be set. To save any filter settings, you will need to customize the setup in the *Customize* window.

10. Click **Apply** to update the grid.

11. Click  **Send**. Based on your selection earlier, the survey file is sent to the specified location. If the **Send to Cloud** option is selected, a progress window is displayed.

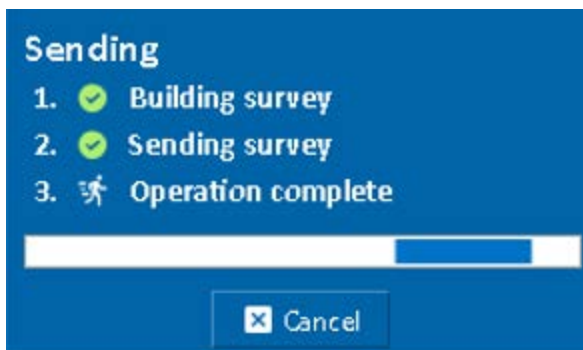



Figure 12-14. Send to Cloud Progress Window

12. When a message displays confirming the send process is complete, click  **OK** to close the message.

If you selected to send the survey file to a field computer or mobile device, PCS sends the survey file to the `PSData` folder on the device.

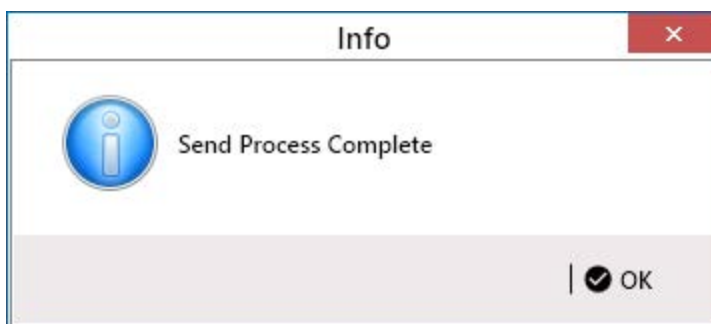


Figure 12-15. Send Process Complete

IMPORTANT: Facility survey data sent to the cloud must be imported into PCS Survey Manager. Refer to [Import Facility Survey Data](#) for details.

Receive a Facility Survey

Facility data can include periodic surveys or other types of facility data.

Complete the following steps to receive facility data into PCS from a field computer, a storage location on your computer, or a mobile device:

1. If receiving data directly from a field computer or mobile device, verify the device is connected to your computer. If needed, refer to the device's user guide for information about how to connect the device.

Refer to the following Allegro or mobile device user guides for more information on using these devices:

- [Allegro QX Support Site](#).
- [CartoPac Cathodic Protection Support Site](#) for the Allegro AX and Mesa 3.

2. Click **Field Computer > Receive** to open the *Field Computer Receive Data* window.

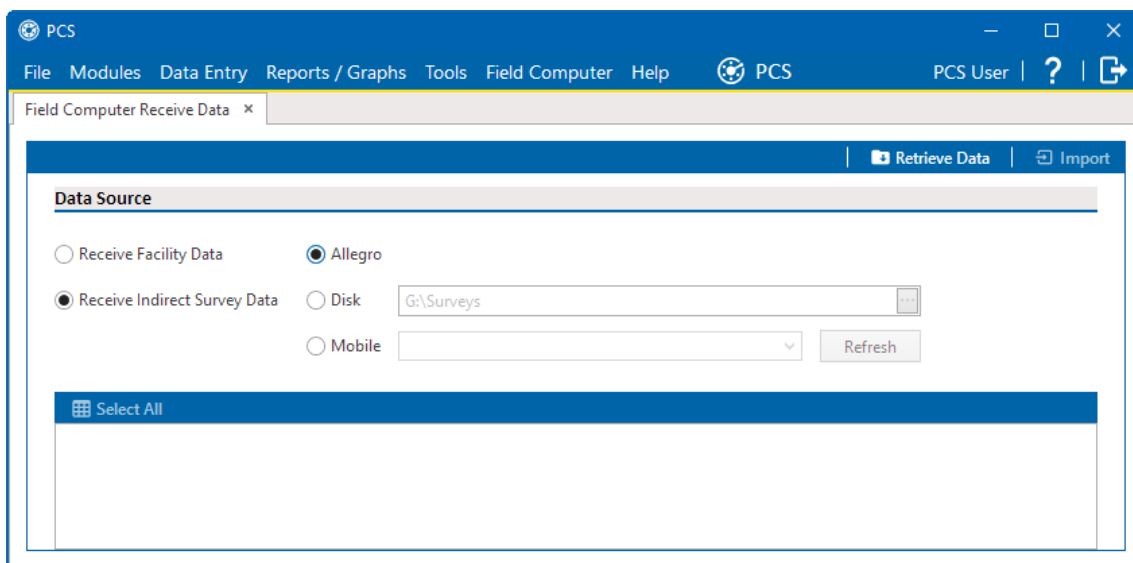



Figure 12-16. Field Computer Receive

3. Click **Receive Facility Data** radio button.
4. Identify the location of the survey data by doing one of the following:
 - To receive data directly from a connected field computer, click the **Allegro** option.
 - To receive data that has been saved to a file on your computer, click the **Disk** option. Click the **Choose Folder** ellipsis and navigate to and select the folder containing the (.dat or .dva) files. Click **OK**. The field updates to list the path to the selected folder.
 - To receive data from a mobile device, such as the Allegro AX or Mesa 3, click **Mobile** and select your device from the drop-down field. If the device does not display, click **Refresh**. Refer to the [CartoPac Cathodic Protection Support Site](#) for more information about connecting the Allegro AX or Mesa 3 to your computer.

5. To receive data that has been saved to a file on your computer, click the **Disk** option. Click the **Choose Folder** ellipsis and navigate to and select the folder containing the field computer (.dat or .dva) files. Click **OK**. The **Choose Folder** field updates to list the path to the selected folder.
6. Click  **Retrieve Data** to view a list of periodic survey files available for selection.

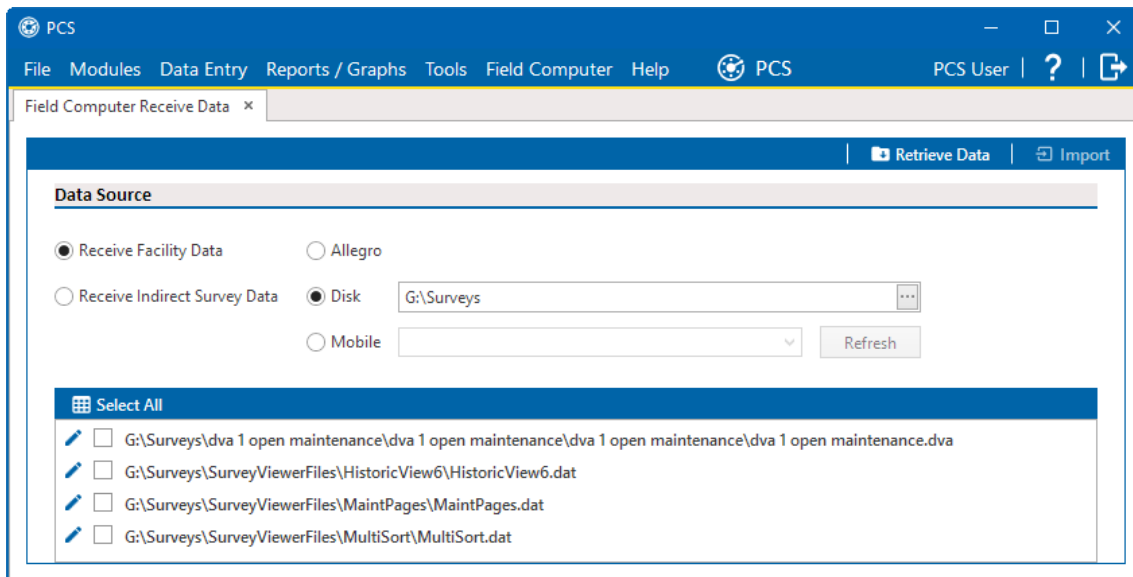



Figure 12-17. Files Available from Retrieval

7. Select the survey files you want to transfer. Click the check box for one or more survey files in the list of files available for selection.
8. Click the  for a selected survey file to view the following options for assigning survey data to a PCS survey folder:

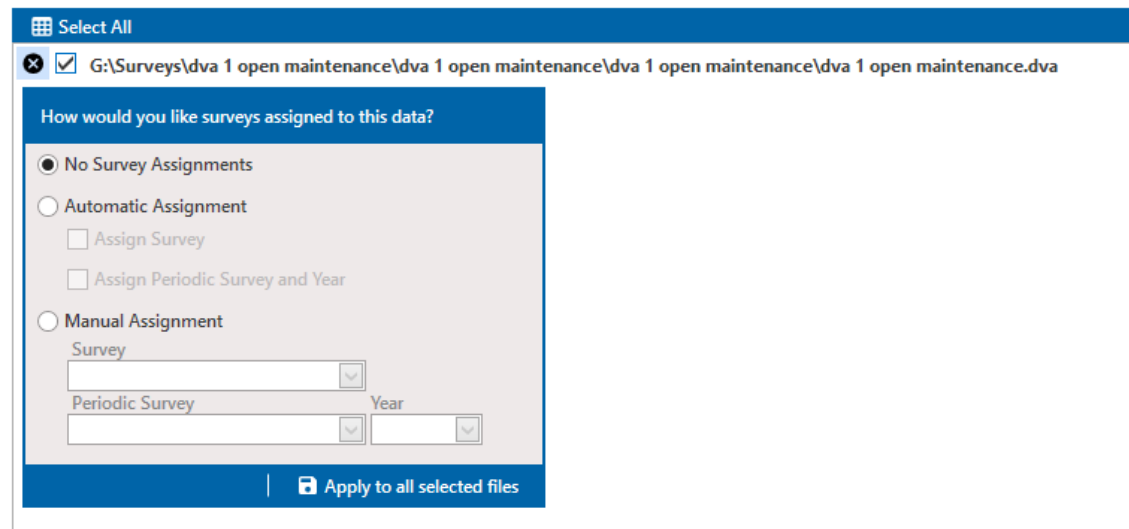



Figure 12-18. Survey Assignment

- a. Select **No Survey Assignments** if you do not want to assign survey data to a survey folder.
- b. Select **Automatic Assignment** and then select one of the following options to have PCS automatically assign survey data to a survey folder:
 - i. **Assign Survey**: Select this option if you want PCS to automatically assign survey data to an annual or multi-year survey folder based on the inspection date of the retrieved survey data.
 - ii. **Assign Periodic Survey and Year**: Select this option if you want PCS to automatically assign survey data to a periodic survey folder based on the inspection date of the retrieved survey data.
- c. Select **Manual Assignment** and then select one of the following options to manually select a survey folder for assigning field computer survey data:
 - **Survey**: Select this option to choose an annual or multi-year survey folder for assigning field computer survey data. Click the down arrow in the **Survey** field and select a survey in the selection list.
 - **Periodic Survey, Year**: Select this option to choose a periodic survey folder and the survey year for assigning the retrieved survey data. Click the down arrow in the **Periodic Survey** field and select a periodic survey folder in the selection list. Then click the down arrow in the **Year** field and select the survey year.
- d. Click **Apply to all selected files** to apply the selected survey folder option to all selected

survey files.

- e. If necessary, select another file or files and set assignment options for those.

9. Click  **Import** to import selected survey file(s) into PCS.

The *Field Computer Receive Status* window displays showing the status of the import process.

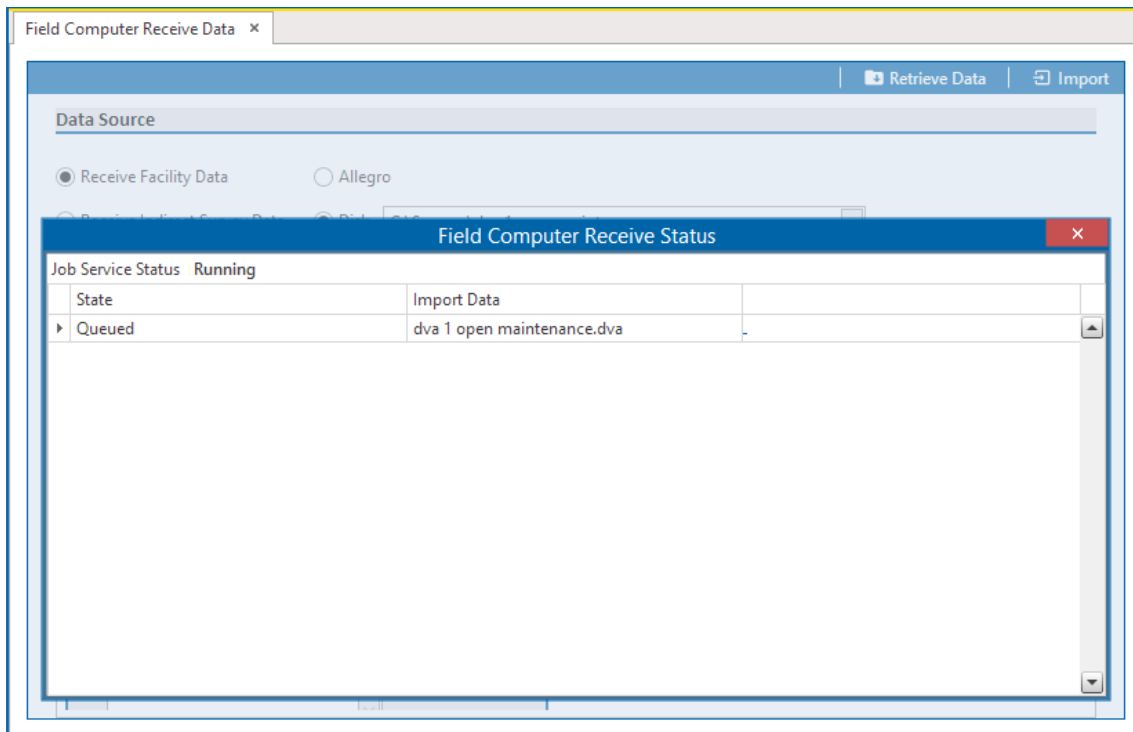


Figure 12-19. Field Computer Receive Status

NOTE: If you are using the optional Telluric Compensation feature in PCS, inspection readings for subfacilities received from the Allegro field computer display in the **Uncompensated On** and **Uncompensated Off** fields of the *Test Point Detail Inspection* mini-grid. For more information, refer to [View Test Point Inspections Eligible for Compensation on page 715](#).

Receive an Indirect Survey

IMPORTANT: For data to transfer properly, the name of the pipeline entered in the **Segment** field of the Allegro or mobile device close interval survey file must match the **ROW Code** in PCS. The survey name entered in the **Run** field of the close interval survey file is used to create a survey folder in PCS (*Data Entry > Survey Folder Maintenance*). Refer to the [Allegro User Guide](#) or the [CartoPac Cathodic Protection User Guide](#) for more information about setting properties in a close interval survey file.

Indirect survey data can include close interval surveys.

Complete the following steps to receive an indirect survey file into PCS from a storage location on your computer, a field computer, or a mobile device:

1. If receiving data directly from a field computer or mobile device, verify the device is connected to your computer. If needed, refer to the device's user guide for information about how to connect the device.
2. Click **Field Computer > Receive** to open the *Field Computer Receive Data* window.

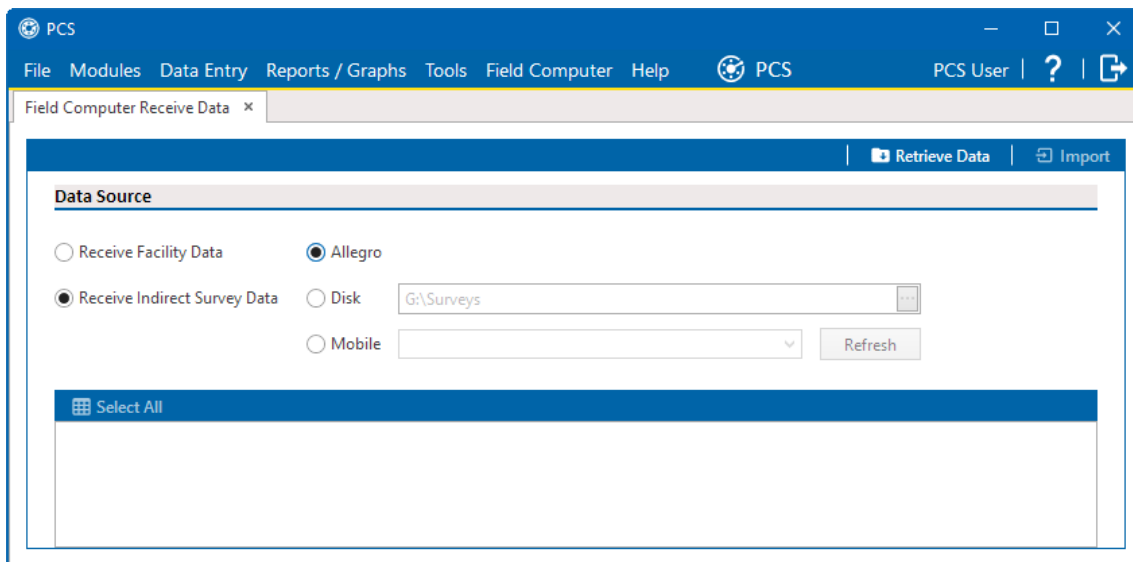


Figure 12-20. Field Computer Receive

3. Click **Receive Indirect Survey Data** radio button.
4. Identify the location of the survey data by doing one of the following:
 - To receive data directly from a connected field computer, click the **Allegro** option.
 - To receive data that has been saved to a file on your computer, click the **Disk** option. Click the **Choose Folder** ellipsis and navigate to and select the folder containing the (.dat or .dva) files. Click **OK**. The field updates to list the path to the selected folder.
 - To receive data from a mobile device, such as the Allegro AX or Mesa 3, click **Mobile** and select your device from the drop-down field. If the device does not display, click **Refresh**.
5. Click **Retrieve Data** to view a list of periodic survey files available for selection.
6. Select the survey files you want to transfer. Click the check box for one or more survey files in the list of files available for selection.
7. Click **Import** to import selected survey file(s) into PCS.

The *Field Computer Receive Status* window displays showing the status of the import process.

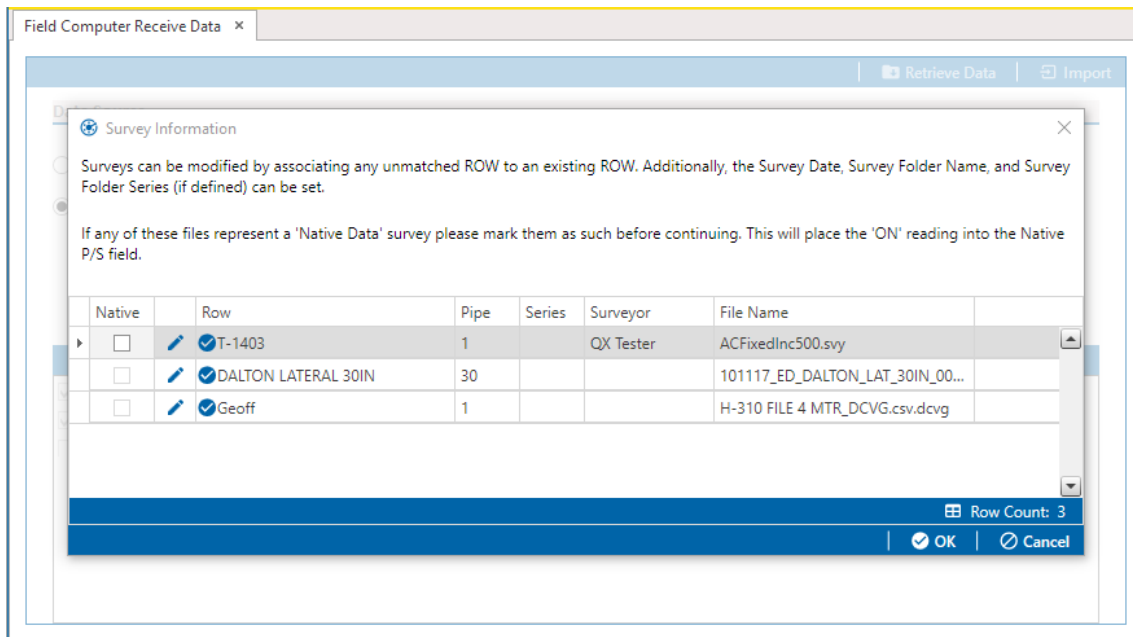


Figure 12-21. Field Computer Receive Status

8. If you are using pipeline Series – to associate one or more existing pipeline Series with the survey, complete the following steps (skip this step if you are not using pipeline Series):

- a. Click the  next to the **Row** name to open the *Edit Survey Information* window.

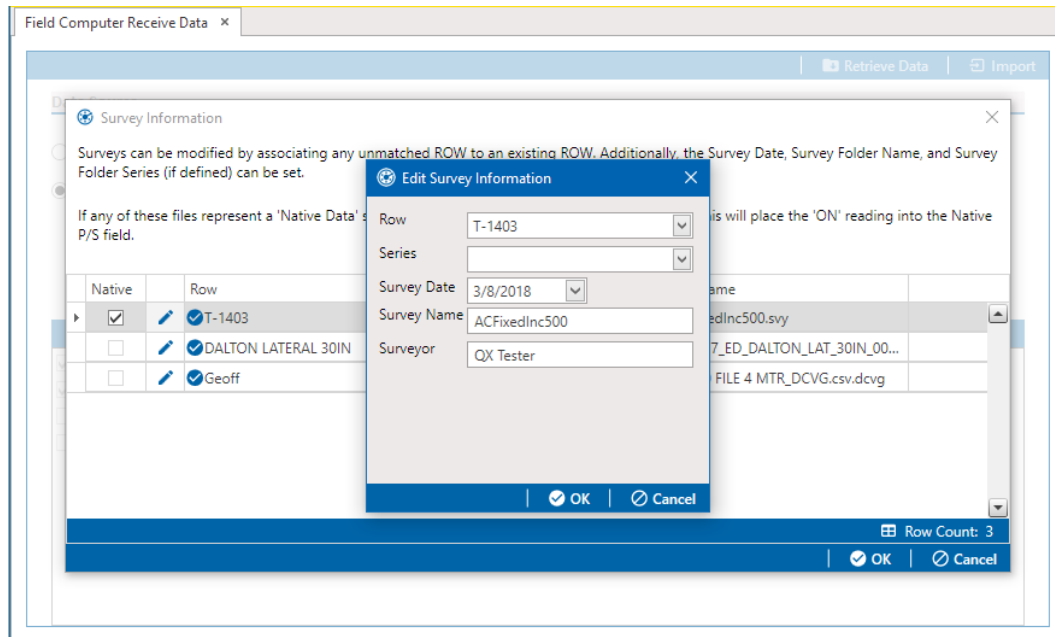




Figure 12-22. Edit Survey Information

- b. Click the **Row** field and select a pipeline segment in the selection list that you want to associate with the survey.
- c. Click the **Series** field and select a pipeline Series in the selection list that you want to associate with the survey.
- d. If you want to change the date the survey was taken, click the down arrow in the **Survey Date** field and choose a survey date using a calendar. You can also type a survey date in the field using the format MM/DD/YYYY to indicate the month, day, and year.
- e. If you want to change the name of the survey file, type a survey name in the **Survey Name** field.
- f. If you want to add or change the name of the person who took the survey, type a name in the **Surveyor** field.
- g. Click .
9. Click  OK to open the *Field Computer Receive Status* window.

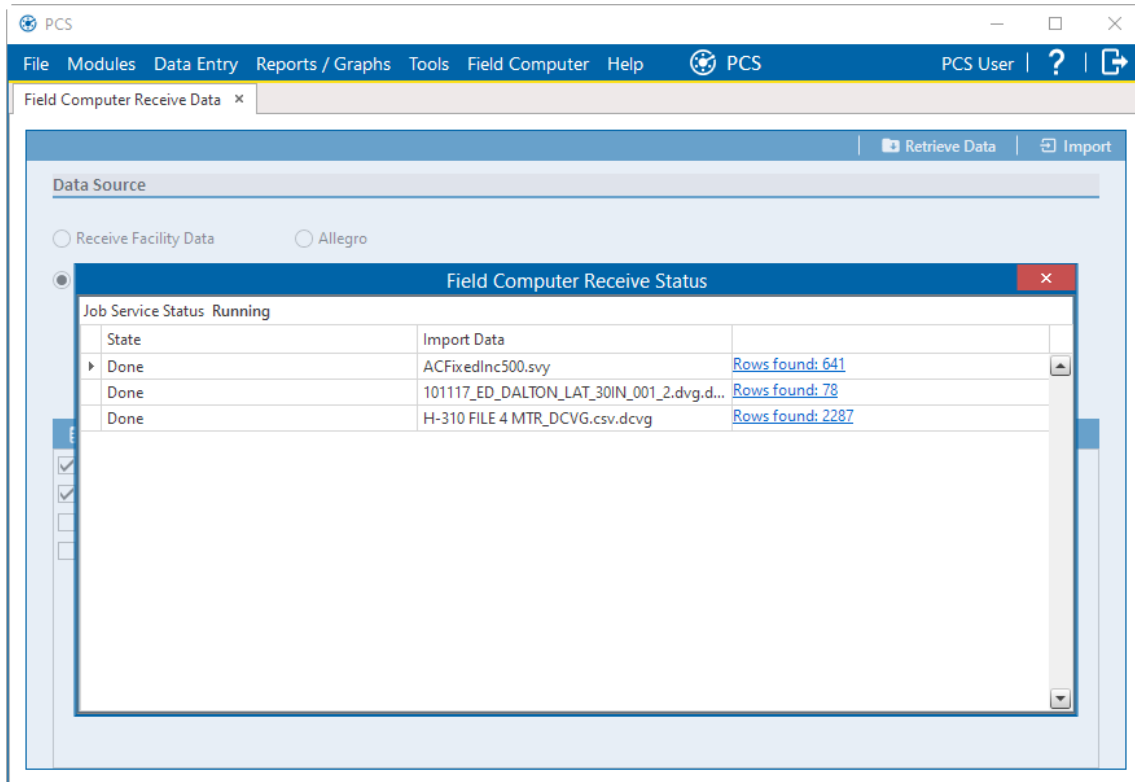



Figure 12-23. Field Computer Receive Status Window

- Click  to close the window.

NOTE: If you are using the optional Telluric Compensation feature in PCS, close interval survey inspection readings received from the Allegro field computer display in the **CIS Structure P/S Uncompensated** and **CIS Structure IRF Uncompensated** fields. For more information, refer to [View CI Inspections Eligible for Compensation](#).

Work with Themes and Filter Groups

A theme is a group of named settings saved for later use, such as a grid layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS software installation. PCS installed themes are public themes available to all PCS users. These themes are identified with a globe icon and PCS in brackets [PCS], such as  [PCS] Facility ID.

NOTE: Only public themes for layouts, sorts, and reports are available for selection. If you would like to use a private theme, your company's system administrator must make your private theme a public one.

A filter group is a named set of one or more filters that affect the data output in the grid of *Field Computer Send* grid and subsequently the file sent to the Allegro. PCS provides two types of filter groups you can define. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude. Adding an AND filter group produces a subset of records that meet *all* filter conditions. Adding an OR filter group produces a subset of records that meet *any* filter condition. When you apply a filter group, PCS processes filters in descending order beginning with the filter at the top of the group.

The following sections describe how to add a layout theme, sort theme, and one or more optional filter groups. Topics include those in the following list:

- [Add a Layout Theme](#)
- [Manage a Prompt Theme on page 674](#)
- [Adding a Sort Theme on page 683](#)
- [Add or Edit an AND or Or Filter Group on page 686](#)
- [Edit and Arrange Filters and Filter Groups on page 688](#)

Add a Layout Theme

A layout theme is a group of fields in a grid layout. Adding a new layout theme allows you to choose which fields you want to include in the grid and then save the layout as a theme for later use. The following procedure applies to the grid layout in *Field Computer Send*.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Click **Field Computer > Send** to open the *Field Computer Send* window.

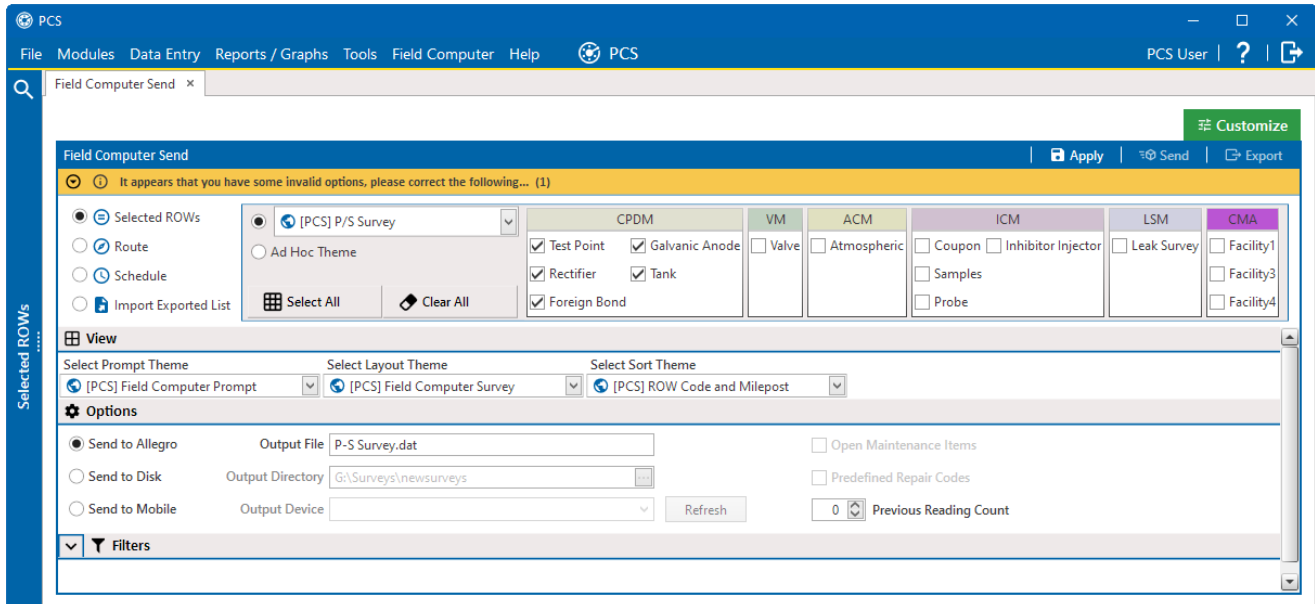


Figure 12-24. Field Computer Send

Complete the following steps to create a new layout theme:

1. Choose one of the following options for displaying facility records in the grid:
 - **Based on Selected ROWs** – to view facility records based on pipeline segment(s) selected in the *Select ROWs* window:

- a. Click the **Selected ROWs** option.

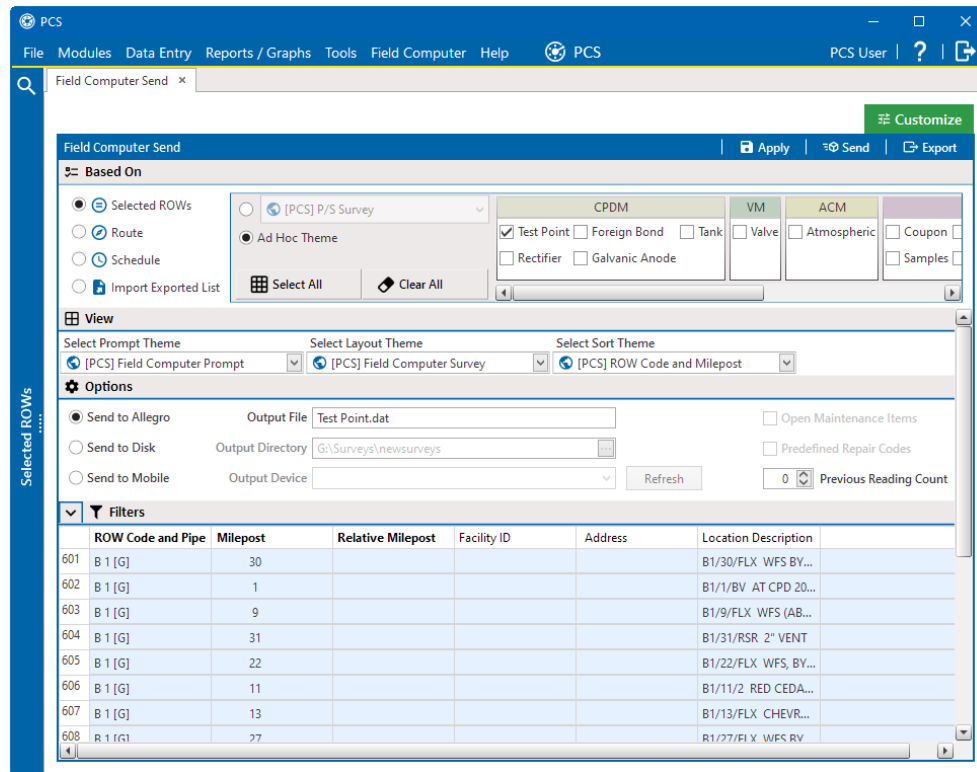


Figure 12-25. Field Computer Send Based on Selected ROWs

- b. Choose one or more facility types using one of the following options:
- Select a facility type theme in the drop-down list, such as **[PCS] Rectifier Survey**.
 - Click **Ad Hoc Theme** and then click the check box for each facility type you want to view in the grid.
 - Click **Select All** to view all facility types in the grid.
- c. Click **Apply** to update the grid.
- **Based on a Route** – To view facility records based on a route, complete the following steps:
 - a. Click the **Route** option and then select a route in the selection box.
 - b. Click **Apply**.

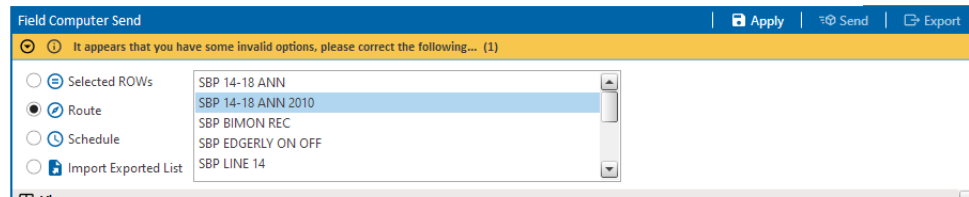


Figure 12-26. Field Computer Send Based on Route

- **Based on a Schedule** –To view facility records based on a schedule, complete the following steps:
 - a. Click the **Schedule** option. Then click the down arrow in the **Select Schedule Definition** field, and choose a schedule definition in the selection list.

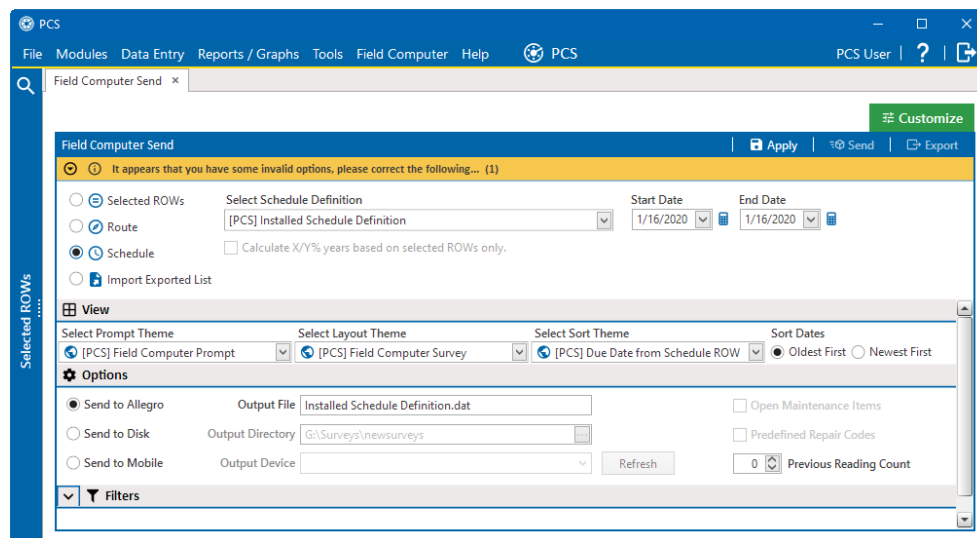


Figure 12-27. Field Computer Send Based on Schedule

- b. Complete one of the following steps to either enter a schedule date range to set a schedule date range using dynamic dates:
 - Type a start date in the **Start Date** field and an end date in the **End Date** field.
 - To set a schedule date range using dynamic start and end dates:
 - i. Click the **Start Date** to open dynamic start date fields. Set properties in these fields in the following manner:
 1. Click the down arrow in the **Start Date** field and select one of the following options: *Today*, *Beginning Of Month*, *End Of Month*, *Beginning of Year*, or *End Of Year*.

- a. Click the **Import Exported List** option.

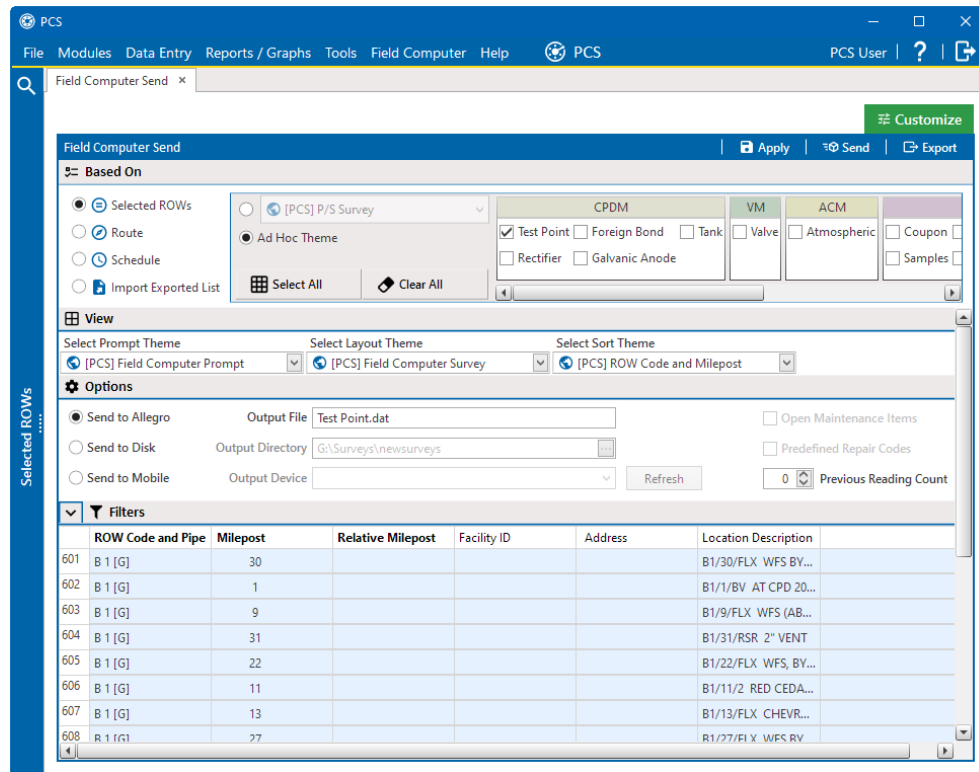


Figure 12-28. Field Computer Send Based on Exported List

- b. Click the ... icon in the field to display the *Open* window. Navigate to the file and select it. Click **Open** to close the window and return to the *Field Computer Send* window.
 - c. Click **Apply** to update the grid.
2. Click the **Customize** tab then the **Add** icon to open the *New Layout Theme* window.

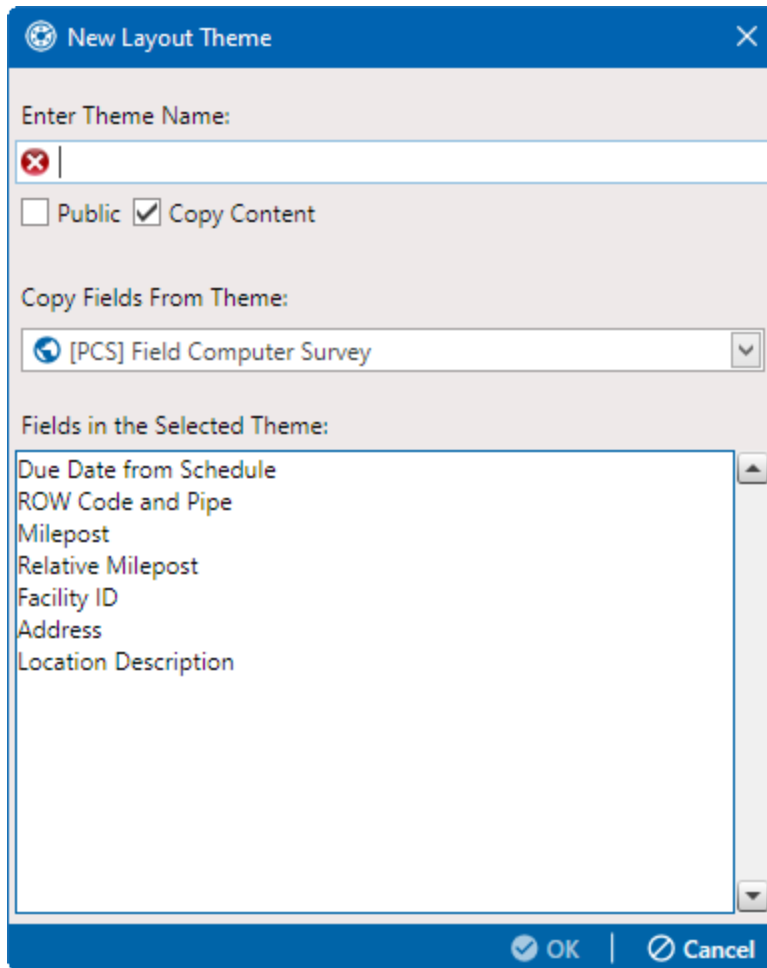








Figure 12-29. New Layout Theme

3. Type a name for the layout theme in the **Enter Theme Name** field. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a private theme.
4. If you want to copy fields from another theme to the new layout theme, select the **Copy Content** check box. Then select a theme from the **Copy Fields From Theme** drop-down list.
5. Click **OK** to save changes and return to the *Layouts* window.
6. Verify the name of the new layout theme displays in the **Select Layout Theme** field. If not, select the new theme from the **Select Layout Theme** drop-down list.
7. Complete the following steps to add and remove fields in the new layout theme as needed:
 - a. Click the toggle arrow **▶** for a field category in the left pane of the window to view a list of fields available for selection. For example, click **▶ All Fields**.

- b. Check the check box for the field and click  or double-click the field.
 - c. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* window.
 - d. To remove a field in the layout theme, select the field and click  or double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.
8. To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the  or  button.
 9. Click  **Save and Close** to return to the *Field Computer Send* window.
 10. To apply the new layout theme to the grid, click the **Options** tab to open the *Options* window (if not open) and select the layout theme from the **Select Layout Theme** drop-down list. Click  **Apply** to update the grid.

Manage a Prompt Theme

A prompt theme is a named arrangement of fields that provide information and prompt the user for survey data when performing a survey using the Allegro. Prompt themes are created for specific based on modes; a prompt theme for a *Field Computer Send* based on *Selected ROWs* will not be available for a *Field Computer Send* based on a *Route*.

Adding a prompt theme allows you to choose which fields and prompts to include in the survey file sent to the Allegro. The same prompt theme can include multiple facility types, such as test points, rectifiers, bonds, valves, and so on. Each facility type can also include up to eight pages of inspection and maintenance prompts and information fields.

When viewing the survey file on the Allegro, prompts display in either the top or bottom frame of the window. Information fields display in the top frame while inspection and maintenance prompts display in the bottom frame. See the *Allegro User Guide* for more information about working with a survey file on the Allegro.

Refer to the following topics for more information:

- [Open the Prompts Editor](#)
- [Add a New Prompts Theme on page 676](#)
- [Edit a Prompts Theme on page 677](#)
- [Use the Prompt Theme on page 683](#)

Open the Prompts Editor

The *Prompts* editor allows you to create a new prompt theme or edit an existing theme for the currently selected *Based On* mode. Once in edit mode, prompt pages can be configured for each facility type, and site settings (such as searchable fields, selectable sorting themes, and site lists) can be defined.

With one or more pipeline segments selected in the *Selected Rows* pane, complete the following steps to access the *Prompts* editor:

1. Click **Field Computer** > **Send** to open the *Field Computer Send* window.

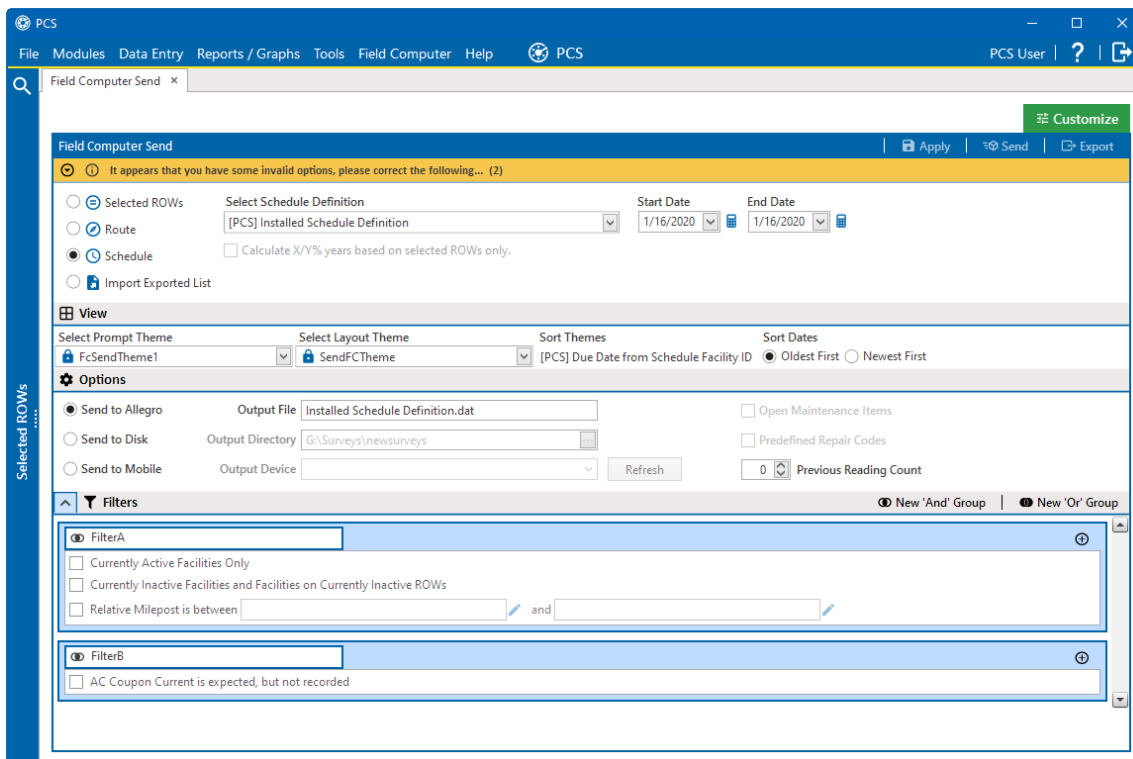


Figure 12-30. Field Computer Send Window

2. Select the radio dial for the based on mode that you are creating a prompt for - Selected ROWs, Route, Schedule, or Import Exported List.
3. Click the **Customize** tab and then the **Prompts** tab to open the *Prompts* editor for the selected based on mode.

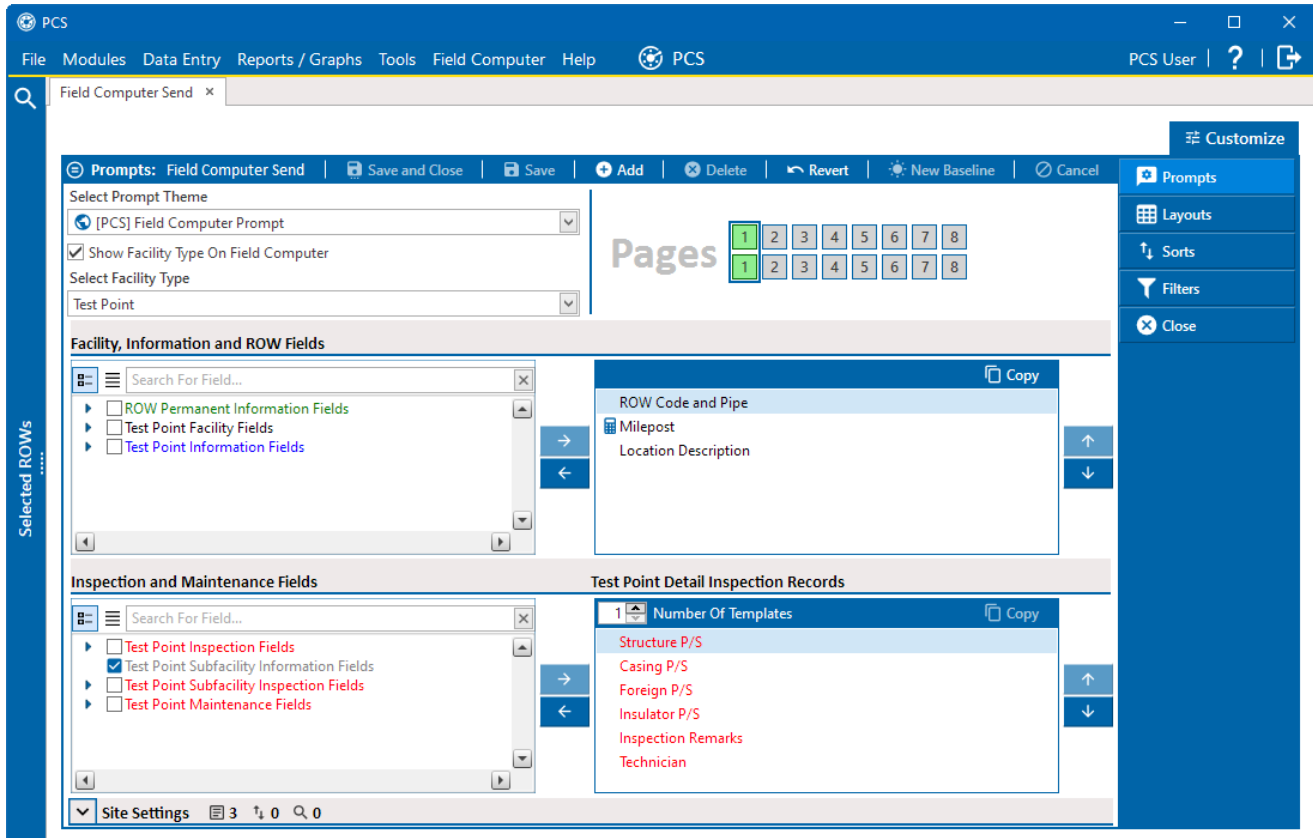


Figure 12-31. Field Computer Send Prompts



The *Prompts* editor shows existing prompt themes for the current Based On mode. From this screen, you can edit a theme or create a new one. Once a prompt theme is saved, it can be used in the *Field Computer Send* window.

Refer to the following topics for more information:

- [Add a New Prompts Theme on page 676](#)
- [Edit a Prompts Theme on page 677](#)
- [Manage the Prompts Theme](#)
- [Use the Prompt Theme on page 683](#)

Add a New Prompts Theme

Follow these steps to add a prompt theme from within the *Prompts* editor of the *Field Computer Send* *Customize* window:

1. Click  **Add** to open the *New Prompt* window. Fields marked with  are required.

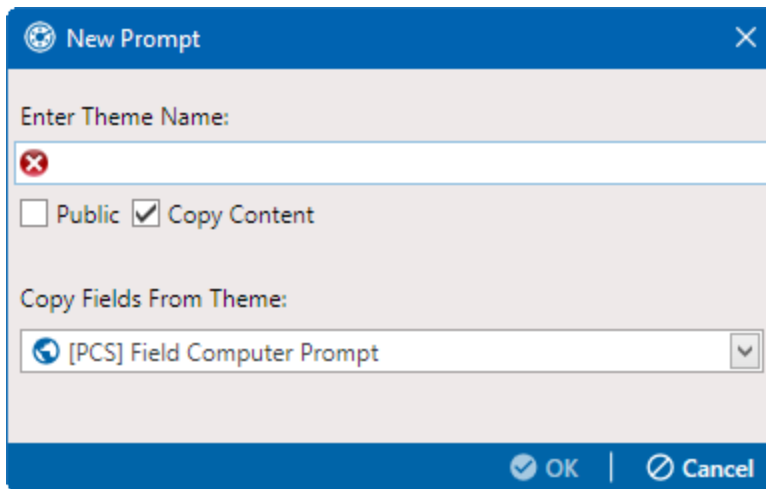



Figure 12-32. New Prompt Window

2. Enter a name for the prompt theme in the **Enter Theme Name** field.
3. To create a public theme, click to select the **Public** check box. To create a private theme, leave the **Public** check box deselected.
4. If you want to copy fields from an existing prompt theme, select the **Copy Content** check box. Then select a theme from the **Copy Fields From Theme** drop-down list.
If you do not want to copy fields from an existing prompt theme, click to deselect the **Copy Content** check box.
5. Click  **OK** to create a prompt theme return to the *Prompts* page to edit the prompt theme.

Edit a Prompts Theme

A prompt theme can contain prompt templates for multiple facility types. Each facility type's prompt template can contain up to eight pages of inspection and maintenance prompts and information fields. Test point prompt template pages can also have test point detail inspection templates. The following site settings can also be defined for the prompt theme: searchable fields, selectable sorting themes, and site lists.

To edit a prompt theme, select a prompt theme from the **Select Prompt** drop-down list. Complete the following steps to edit the selected prompt theme:

- Add and edit facility type prompt templates. Refer to [Manage Facility Type Prompt Templates](#) for detailed instructions.
- Add searchable fields, selectable sorting themes, and site lists. Refer to [Configure Site Settings](#) for detailed instructions.

Once you are finished editing the prompt theme, you can save and close the theme or, if desired, revert your changes to the theme or delete the theme. Refer to [Manage the Prompts Theme](#) for more information.

Manage Facility Type Prompt Templates


Each facility type's prompt template can contain up to eight pages of inspection and maintenance prompts and information fields. Test point prompt template pages can also have test point detail inspection templates.

For each facility type's prompt template you need to edit, select the desired facility type from the **Select Facility Type** drop-down list. The prompt template for the selected facility type is loaded in the *Prompts* editor. From here you can [Create Prompt Template Pages](#) and [Edit Prompt Template Pages](#).

Create Prompt Template Pages


Multiple pages can be created for a prompt template, with each page edited to contain different inspection and maintenance prompts and information fields. The information fields will appear above the horizontal line on the Allegro, while inspection and maintenance prompts will appear below the horizontal line. Information fields and maintenance prompts can exist on multiple pages, but inspection prompts can only exist on a single prompt page.





To add a new blank page of prompts, identify a page in the *Pages* pane that has not been defined by finding the first pair of information and inspection/maintenance numbered circles that are both gray. Click one of the identified gray numbered circles to load a blank page ready for editing.


To add a new page of prompts that contains the same information fields or maintenance prompts as the currently selected prompt page, click  **Copy** in the right pane of the *Facility, Information and ROW Fields* section or, if the button is available, in the right pane of the *Inspection and Maintenance Fields* section. A new page is created and with the fields from the selected section copied to the new page.

Edit Prompt Template Pages




To configure a prompt template page, click on a green numbered circle in the *Pages* pane that corresponds to the page you wish to configure and do any of the following to add, remove, or reorder fields and prompts from the page:

- **Add information fields** – locate each field you wish to include in the left pane of the *Facility, Information and ROW Fields* section and either double-click the field(s) or select the field(s) and click . The field(s) move to the right pane and are included on this page in the prompt theme.


- **Remove information fields** – locate each field you wish to remove in the right pane of the *Facility, Information and ROW Fields* section and either double-click the field(s) or select the field(s) and click . The field(s) move to the left pane and are no longer included on this page in the prompt theme.
- **Rearrange configured information fields** – select a field in the right pane of the *Facility, Information and ROW Fields* section and either drag the field up or down to the desired position or click the  or  buttons.
- **Add inspection and maintenance prompts** – locate each field you wish to include in the left pane of the *Inspection and Maintenance Fields* section and either double-click the field(s) or select the field(s) and click . The field(s) move to the right pane and are included on this page as a prompt in the prompt theme. If using more than one maintenance page, be sure there are the same number of repair codes to match the number of maintenance pages.
- **Add test point detail inspection templates** – determine how many test point detail inspection templates are needed and which test point subfacility inspection prompts should be added to the templates. Test point detail inspection templates allow an Allegro user to create test point subfacility records that, once imported into PCS, will be visible in the *Test Point Detail Inspection* pane of the *Edit <Module> Data* grid. Each test point detail inspection template on the Allegro or mobile device will consist of the selected *Test Point Subfacility Inspection* prompts, a *Name* prompt, and a *PCS Field Name* drop-down list. Refer to [Link Multiple Subfacilities to a Parent Test Point Facility on page 282](#) for more information about parent facilities and test point detail subfacilities. Also refer to the mobile device's user guide for more information about creating new facilities.

To define the test point detail inspection templates, enter the number of templates that will be included in the current test point's prompt page in the **Number of Templates** field in the right pane of the *Inspection and Maintenance Fields* section. Then locate the *Test Point Subfacility Inspection Fields* you wish to include in the left pane of the *Inspection and Maintenance Fields* section and either double-click the field(s) or select the field(s) and click . The field(s) move to the right pane and are included as prompts in the test point detail inspection templates.

Both of the fields in an exported subfacility's parent facility On/Off pair must be included in the prompt definition if both a *Test Point Subfacility Inspection* prompt and one of the fields in the subfacility's parent facility On/Off pair is also included in the prompt definition.

- **Remove inspection and maintenance prompts** – locate each prompt you wish to remove in the right pane of the *Inspection and Maintenance Fields* section and either double-click the prompt (s) or select the prompt(s) and click . The prompt(s) move to the left pane and are no longer included on this page in the prompt theme.
- **Rearrange configured inspection or maintenance field prompts** – select a prompt in the right pane of the *Inspection and Maintenance Fields* section and either drag the prompt to the desired position or click the  or  buttons.

Configure Site Settings

Click  **Site Settings** to access site settings options, such as searchable fields, selectable sorting themes, and site list.

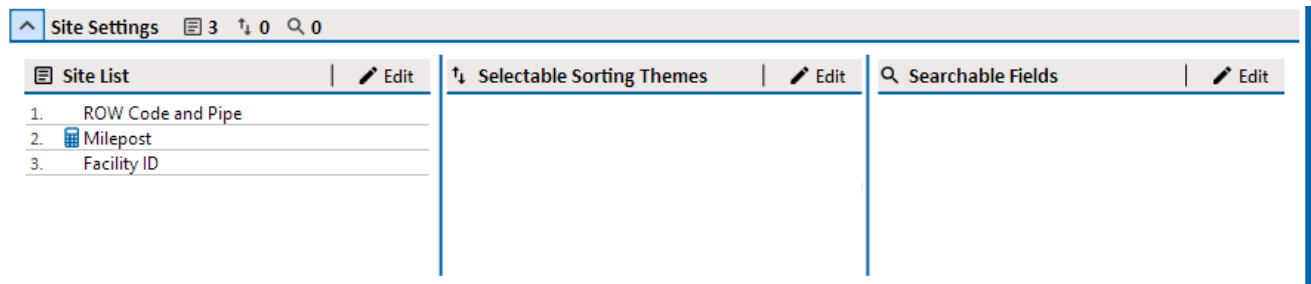



Figure 12-33. Site Settings Pane

Complete the following steps to add site list prompts that help identify one facility from another when using the Allegro. Site list prompts are included with each facility and can be viewed in the Allegro or mobile device's *Site List* window.

1. In the *Site List* pane, click  **Edit** to view a list of fields available for selection in a *Select Site String* window.

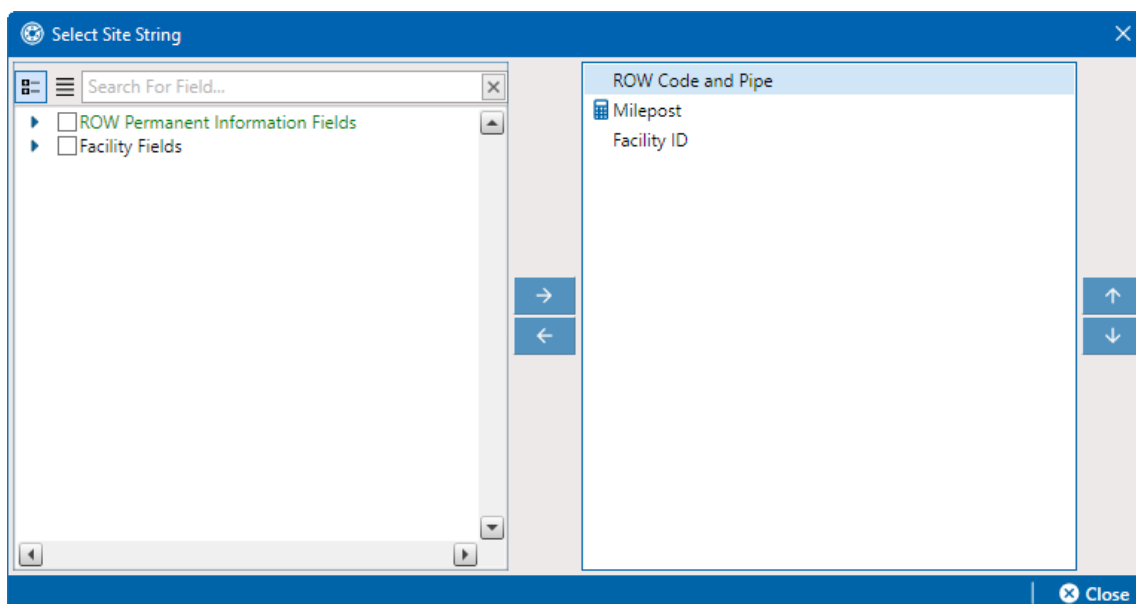








Figure 12-34. Select Site Strings Window

2. Locate and select each field you wish to use in the site list in the left pane and click the  button or double-click the field. The fields move to the right pane and are included in the prompt theme as part of the site list.

3. To remove a field from the left pane, select the field and then click the  button or double-click the field.
4. To rearrange fields, use the  and  buttons to move fields up or down.
5. Click  **Close** to return to the *Prompts* screen.

Add Selectable Sorting Themes

Multiple sorting themes can be sent to the Allegro or mobile device with this prompt. When multiple sorting themes are included with a prompt, the Allegro user will be able to change the sort order of the sites to one of the included sorting themes while using the field computer. If no sorting themes are selected in the prompt definition, the PCS user will be able to select a single sorting theme when sending data to the Allegro. Complete the following steps to add multiple selectable sorting themes to the prompt.

1. In the *Selectable Sorting Themes* pane, click  **Edit** to view a list of sort themes available for selection in a *Select Site Sort Themes* window.

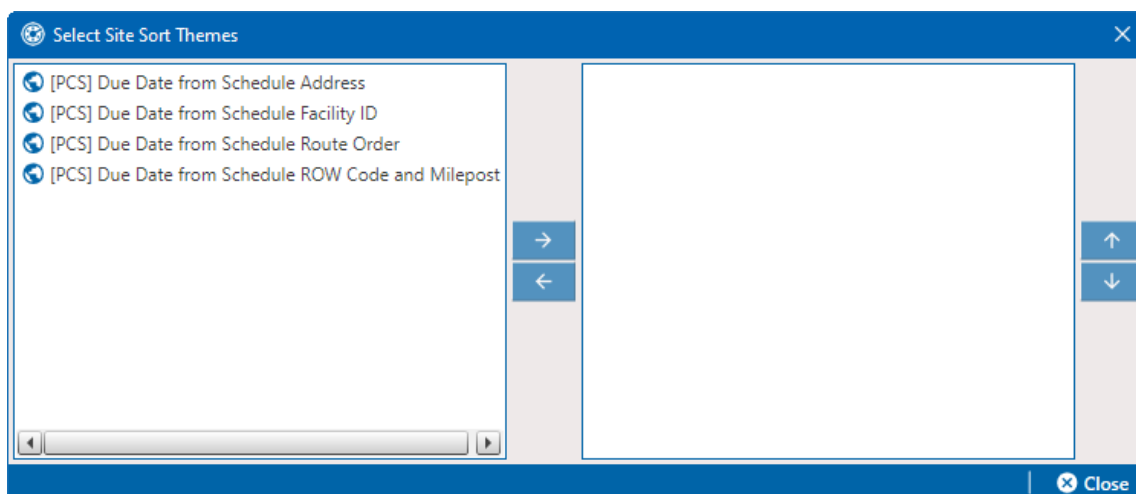








Figure 12-35. Select Site Sort Theme Window

2. Locate and select each field you wish to use in the site list in the left pane and click the  button or double-click the field. The fields move to the right pane and are included in the prompt theme as part of the site list.
3. To remove a field from the left pane, select the field and then click the  button or double-click the field.
4. To rearrange fields, use the  and  buttons to move fields up or down.
5. Click  **Close** to return to the *Prompts* screen.

Add Searchable Fields

Complete the following steps to add searchable fields that allow an Allegro user to search for a survey based on values in searchable fields while using the field computer.

1. In the *Searchable Fields* pane, click  **Edit** to view a list of sort themes available for selection in a *Select Site Searches* window.

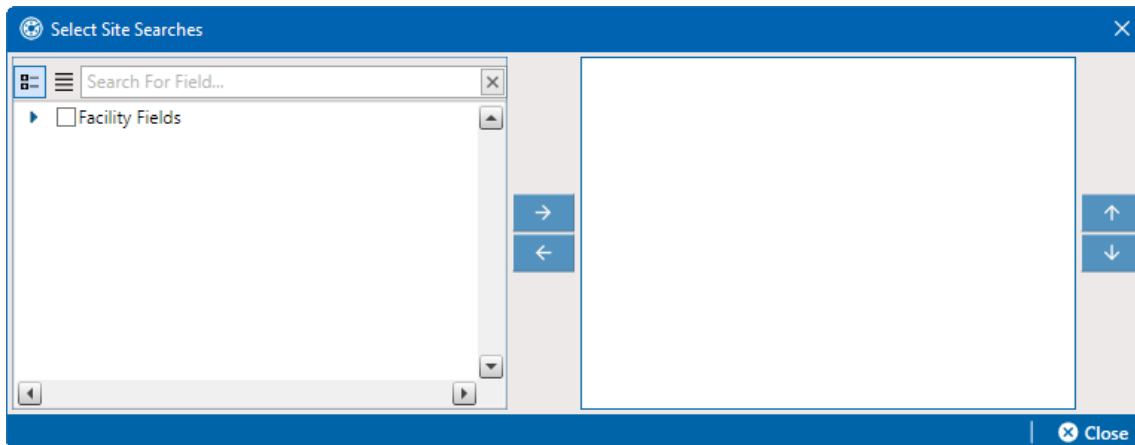













Figure 12-36. Select Site Searches Window


2. Locate and select each field you wish to use in the site list in the left pane and click the  button or double-click the field. The fields move to the right pane and are included in the prompt theme as part of the site list.
3. To remove a field from the left pane, select the field and then click the  button or double-click the field.
4. To rearrange fields, use the  and  buttons to move fields up or down.
5. Click  **Close** to return to the *Prompts* screen.

Manage Prompt Theme

1. Click  **Save** in the *Customize Prompts* window to save changes or
2. To undo all recent changes, click  **Cancel**. All prompt themes are reverted to their latest saved state.
3. To remove the currently selected prompt theme, click  **Delete** and  **Yes** in the *Confirm Delete* window. The currently selected prompt theme is removed from PCS.
4. To close the *Prompts* editor and save the prompt, click  **Save and Close**.

- To close the *Prompts* editor without saving, click  **Close**. If there are unsaved changes to a prompt theme in the *Prompts* editor, a *Save Changes* window displays. Click **Yes** to save all changes in the prompt themes, **No** to close without saving changes, or **Cancel** to return to the *Prompts* editor.

Use the Prompt Theme

To apply the new prompt theme in the *Field Computer Send* screen, select the prompt theme from the **Select Prompt** drop-down list. Then click  **Apply** to update the *Filters* grid.

Adding a Sort Theme

A sorting theme determines how PCS sorts grid records in the *Field Computer Send* window. Adding a sorting theme allows you to choose which field(s) to sort data by and if data sorts alphanumerically in ascending or descending order.

Complete the following steps to add a sorting theme:

- Click **Field Computer > Send** to open the *Field Computer Send* window.

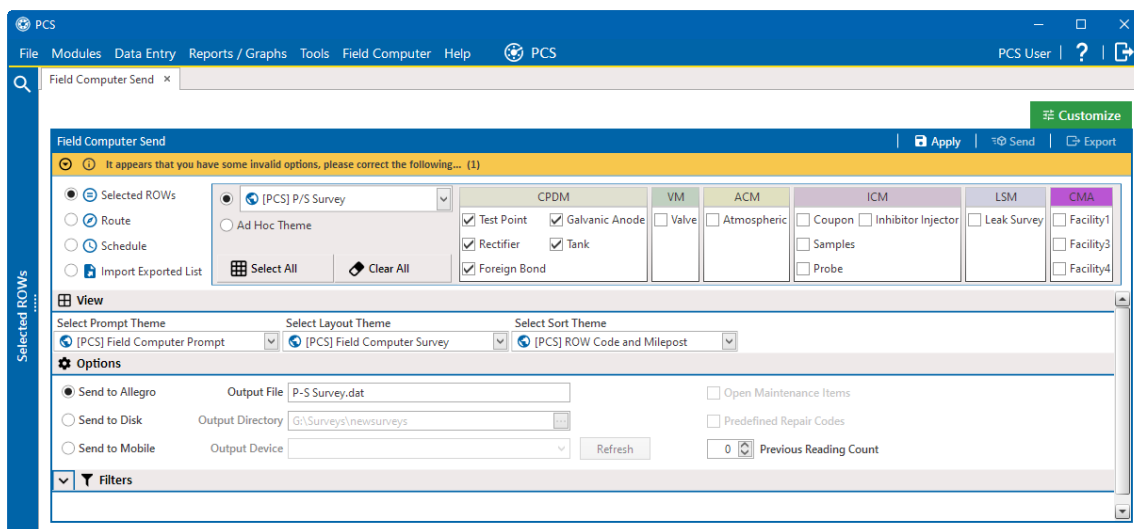



Figure 12-37. Field Computer Send

- Choose a mode for displaying records in the grid by selecting the option **Select ROWs**, **Route**, or **Schedule**. Then click  **Apply** to update the grid.
- Click the **Customize** tab and then the **Sorts** tab.

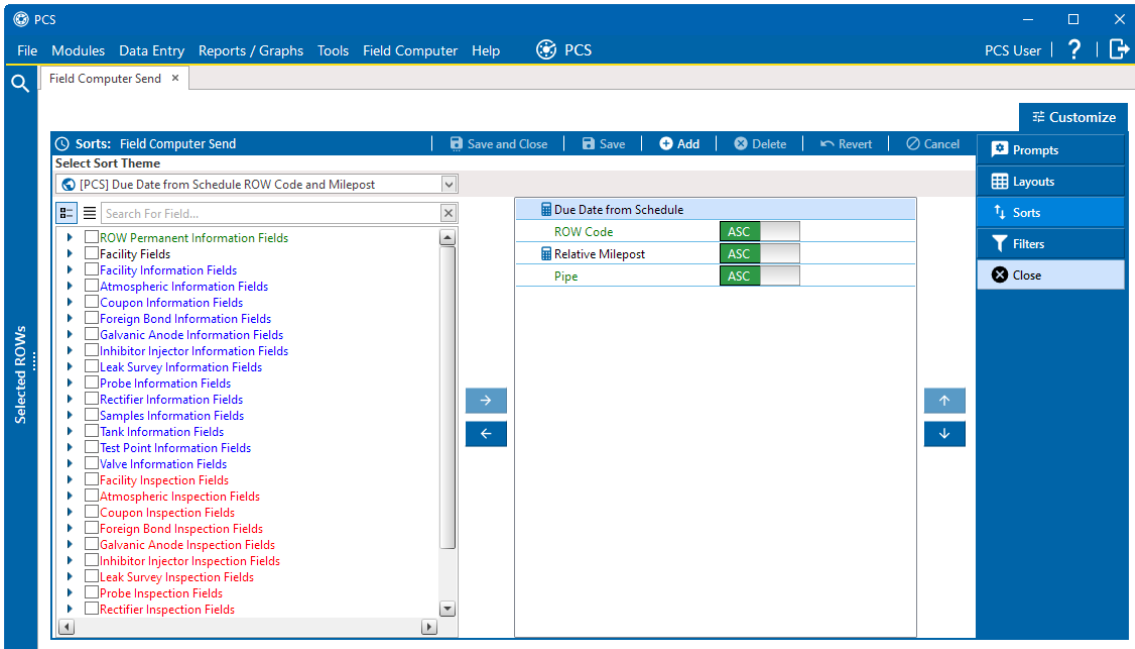


Figure 12-38. Sorts Window














4. Click the  Add to open the *New Sort Theme* window.

Figure 12-39. New Sort Theme

5. Type a name for the sorting theme in the field **Enter Theme Name**. Fields marked with  are required.
6. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the sorting theme saves as a private theme.
7. If you want to copy fields from another theme to the new layout theme, select the **Copy Content** check box. Then select a theme from the **Copy Fields From Theme** drop-down list.
8. Click  **OK** to save changes and return to the *Sorts* page.
9. Complete the following steps to add and remove fields in the new sorting theme:
 - a. Click the toggle arrow  for a field category in the left pane of the window to view a list of fields available for selection. For example, click  **All Fields**.
 - b. Check the check box for the field and click  or double-click the field.
 - c. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* window.

- d. To remove a field in the layout theme, select the field and click  or double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.
10. To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the  or  button.
11. Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select . To sort in descending order, click the toggle button to select .
12. Click  **Save and Close** to return to the *Field Computer Send* window.
13. To apply the new layout theme to the grid, click the **Options** tab to open the *Options* window (if not open) and select the layout theme from the **Select Sort Theme** drop-down list. Click  **Apply** to update the grid.


Add or Edit an AND or Or Filter Group

You can add an AND filter group to restrict the data returned in the grid of *Field Computer Send* so it only contains a subset of records that meet all filter conditions. The filter group applied will also subsequently affect the data included in the file sent to the field computer or mobile device.

An OR filter group is a named set of one or more filters that affect the data output in the grid of *Field Computer Send* and subsequently the file sent to the field computer. Adding an OR filter group produces a subset of records that meet *any* filter condition. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to add and/or edit an AND or an OR filter group for use in the *Field Computer Send* window:

1. Click **Field Computer > Send** to open the *Field Computer Send* window.
2. Choose a mode for displaying records in the grid by selecting the option **Select ROWs, Route, or Schedule**.
3. Click  **Apply** to update the grid.
4. Click the **Customize** tab and then the **Filters** tab to open the *Filters* window.
5. To create a new And group, click **New 'And' Group** to open the filter properties group box.

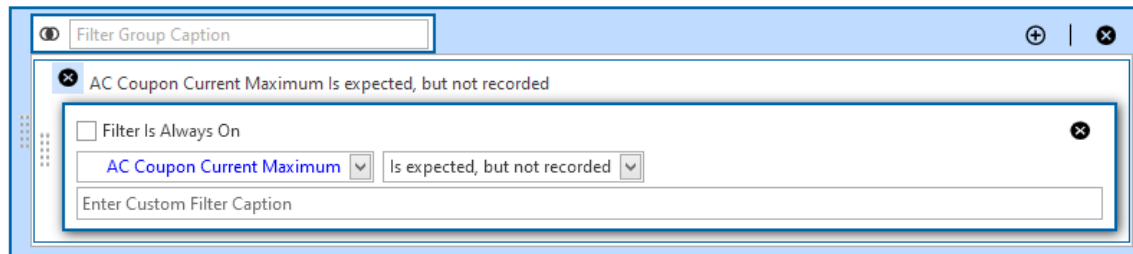


Figure 12-40. And Group Filters

6. To create a new Or group, click **New 'Or' Group** to open the filter properties group box.

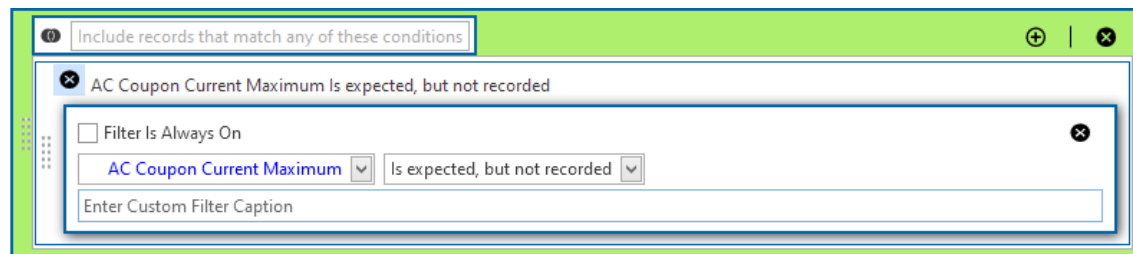







Figure 12-41. Or Group Filters

7. Type a name for the filter group in the **Filter Group Caption** field.
8. Select the **Filter Is Always On** option to keep the filter on.
9. Use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
 - a. When adding a date filter, set a date range using a calendar or dynamic dates in one of the following ways:
 - Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.
 - To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - To set a date range using dynamic start and end dates, click the  calculator icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
 - b. Type a name for the filter in the **Enter Custom Filter Caption** field.
 - c. If additional filters are needed within the filter group, click  and repeat these steps.

10. If necessary, click the  edit icon for a filter to open that filter's property settings and change settings as needed.
11. Click  **Save** to save the filter group.
12. Click  **Save and Close** when finished saving all filter groups.

Edit and Arrange Filters and Filter Groups

PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Filter groups are processed similarly. Information in this section explains how to edit filter property settings and how to arrange filters and filter groups.

Complete the following steps to edit and arrange filters and filter groups:

1. Click **Field Computer > Send** to open the *Field Computer Send* window.

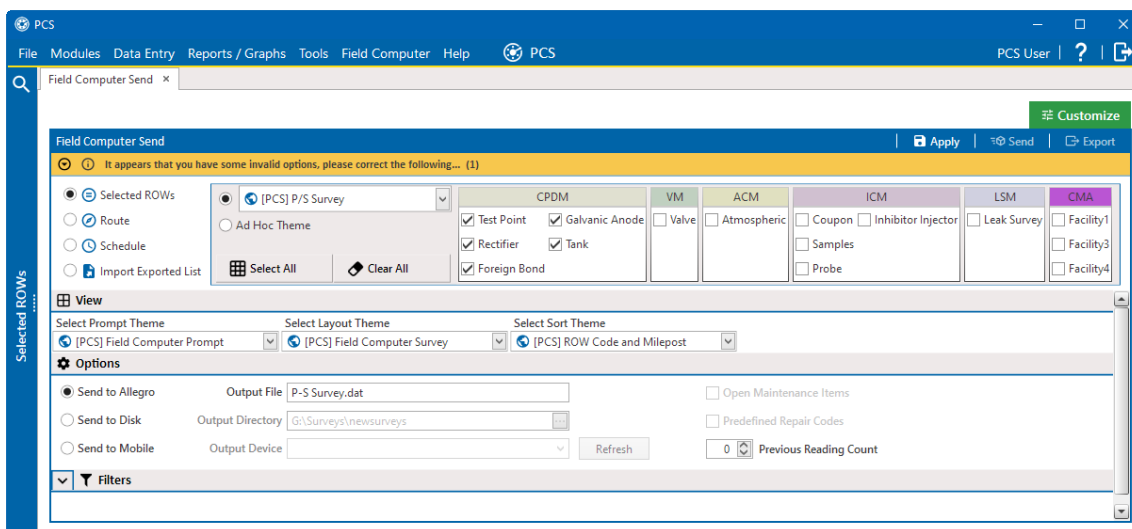



Figure 12-42. Field Computer Send

2. Choose a mode for displaying records in the grid by selecting either the **Select ROWs**, **Route**, **Schedule**, or **Import Exported List** option. Then click  **Apply** to update the grid.
3. Click the **Customize** tab, then the **Filters** tab to open the *Filters* page.

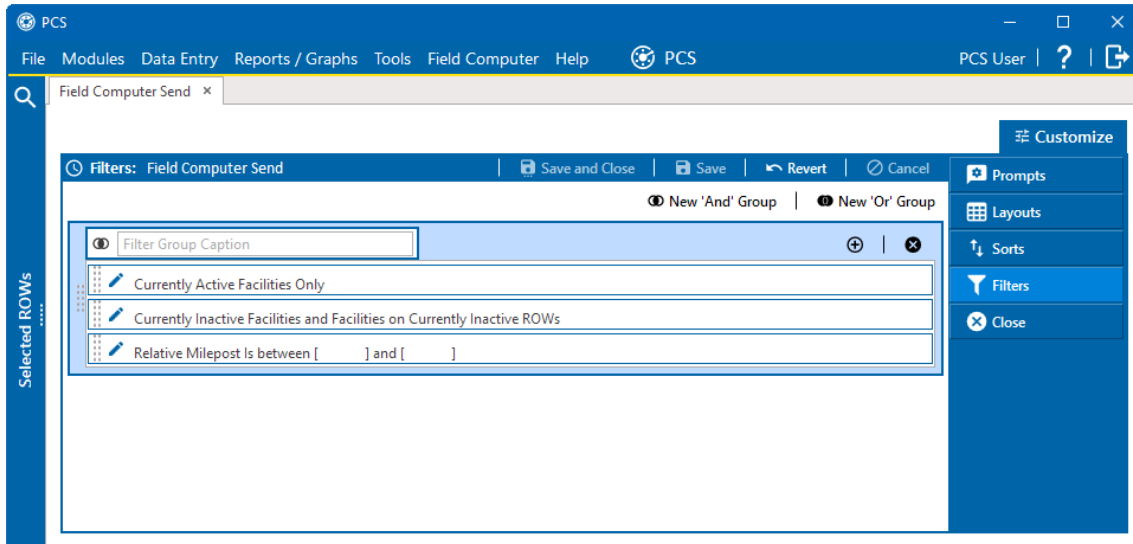






Figure 12-43. Edit Filters

4. Click the  icon to display a filter's property settings.
5. To rename a filter, type a description in the filter's name field.
6. To change filter criteria, use filter selection fields to select a PCS field, operator, and one or more filter conditions.
7. To enable a filter for all sessions of the data entry grid, click the check box **Filter is Always On** to place a check mark inside the check box. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.
8. To delete a filter in a filter group, click the filter's  icon. Then click  **OK** in the *Delete* message window.
9. Click the close button to close the filter's property settings group box.
10. Click  **Save and Close** to close the filters page and return to the grid in *Field Computer Send*.
11. To apply filter changes to the grid in *Field Computer Send* and subsequently in the file sent to the Allegro or mobile device, follow these steps:

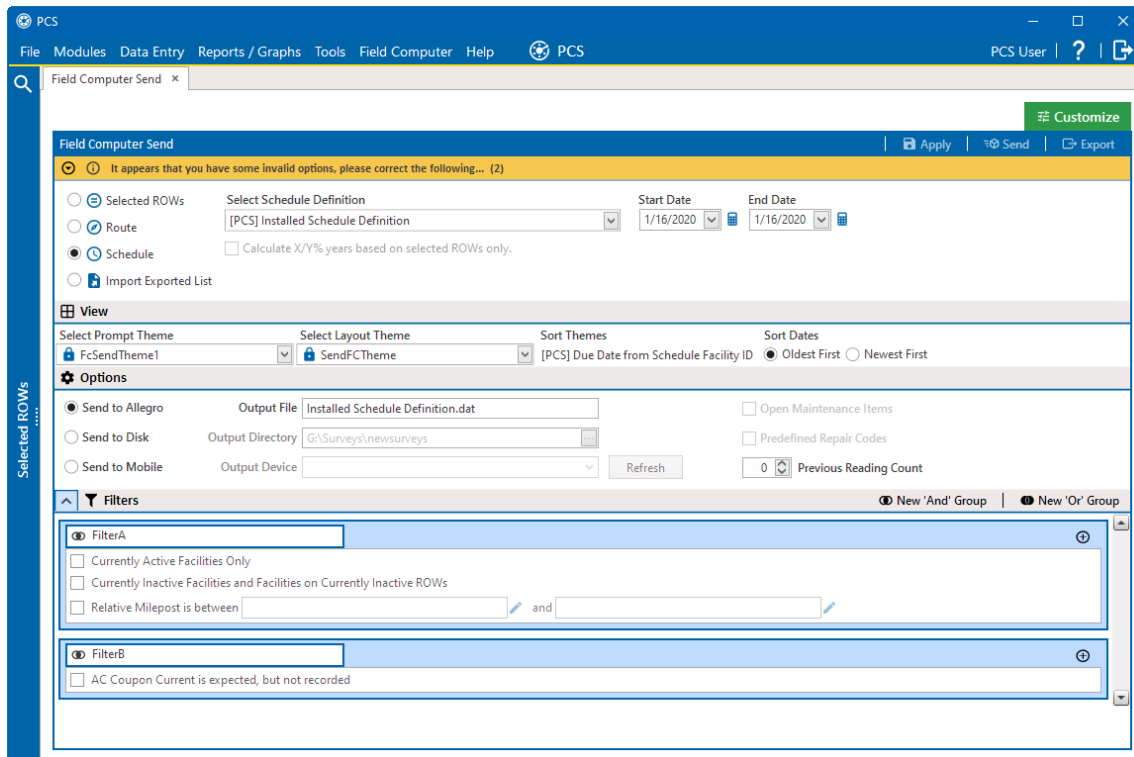





Figure 12-44. Filters

- a. Click the  **Filters** icon to open the *Filters* pane if it is not open.
- b. Click one or more check boxes in *Filters* and then click  **Apply**. For example, click **Currently Active Facilities Only** to only include active facilities in the grid and in the file sent to the Allegro.
- c. Click the  **Filters** icon to close the *Filters* pane.

View the Field Computer Log

The Field Computer log includes a *Send Log* and *Receive Log*. The *Send Log* lists the facility records sent to the Allegro with the date and time records were processed. Likewise, the *Receive Log* identifies facility records received in PCS from the field computer or mobile device, as well as the date and time they were received. Only those facility records updated by the field computer or mobile device are processed and included in the *Receive Log*.

You can use information in the *Field Computer Log* to:

- verify which facility records have been sent and received
- compare both logs to verify all facilities that were inspected contain survey data

- troubleshoot issues if a problem occurs during data transfer

Complete the following steps to view the *Field Computer Log*:

1. Click **Field Computer > Log** to open the *Field Computer Log* window.
2. Click the **Receive Log** tab to view facility records received in PCS from a field computer, mobile device, or disk.

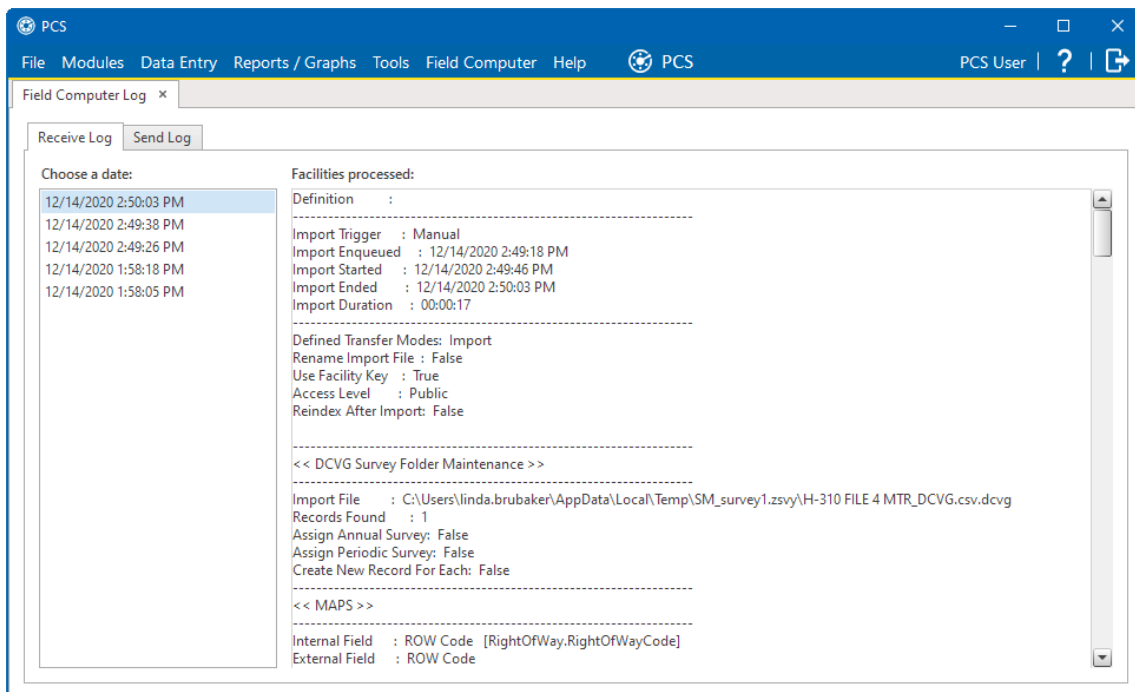


Figure 12-45. Field Computer Log / Receive Log

3. Click the **Send Log** tab to view facility records sent to a field computer or mobile device.

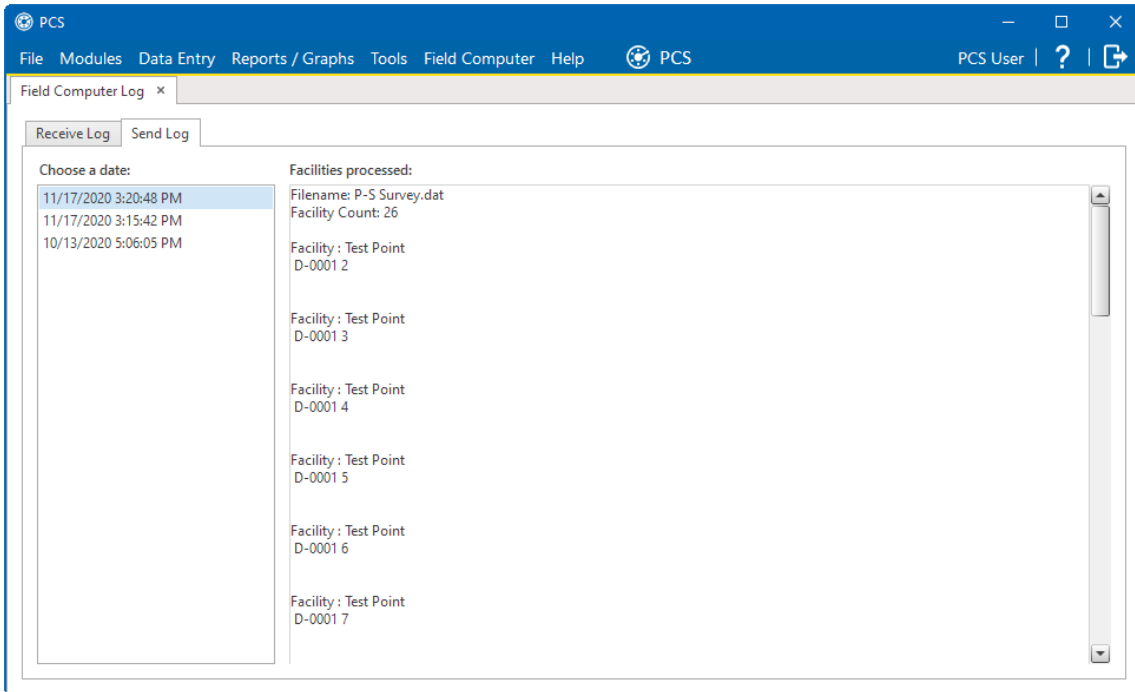


Figure 12-46. Field Computer Log / Send Log

Telluric Compensation

After importing stationary data logger (SDL) files and field computer or mobile device survey files in PCS, use the information in this chapter to prepare survey files and run telluric compensation.

- [PCS Telluric Compensation Set Up on page 693](#)
- [PCS Telluric Compensation Workflow, page 1](#)
- [Stationary Survey Maintenance on page 695](#)
- [Run Telluric Compensation on page 714](#)

IMPORTANT: *Bridge Import* is an optional add-on that requires an activation key for operation. Running *Bridge Import* for the first time requires you to enter your Bridge activation key. If you are unable to locate your Bridge activation key, contact Technical Support for assistance at support@aiworldwide.com. For more information, refer to [Activate Bridge Import for Operation on page 2](#).

PCS Telluric Compensation Set Up

The following tasks should be done when configuring PCS for Telluric Compensation capabilities:

- Activate Telluric Compensation feature in PCS. Refer to [Activate Telluric Compensation on page 4](#) for more information.
- View or edit default system setting for telluric threshold. Refer to [Set Criteria Options on page 23](#) for more information.
- Add a layout theme for the *Information* data grid in the *Edit ROW Detail* window that includes the **Telluric Compensation Currently Required** field, which will enable the field for each pipeline segment requiring telluric compensation. Refer to [Themes and Filter Groups for Pipeline Records on page 219](#).
- Add a prompt theme that includes **Test Point Detail Inspection** fields to be used with the Allegro or mobile device in an annual or periodic survey. Refer to [Manage a Prompt Theme on page 674](#) in the *Field Computer* chapter for more information.
- Add a Bridge Import Definition for importing stationary data logger (SDL) survey files. Refer to [Add a Bridge Import Definition for a Stationary Survey File on page 577](#) for more information.

- Using Bridge Import to import data in PCS requires a Bridge activation key. Refer to [Activate Bridge Import for Operation on page 2](#) for more information.

PCS Telluric Compensation Workflow

The figure below identifies the process for working with telluric compensation in PCS.

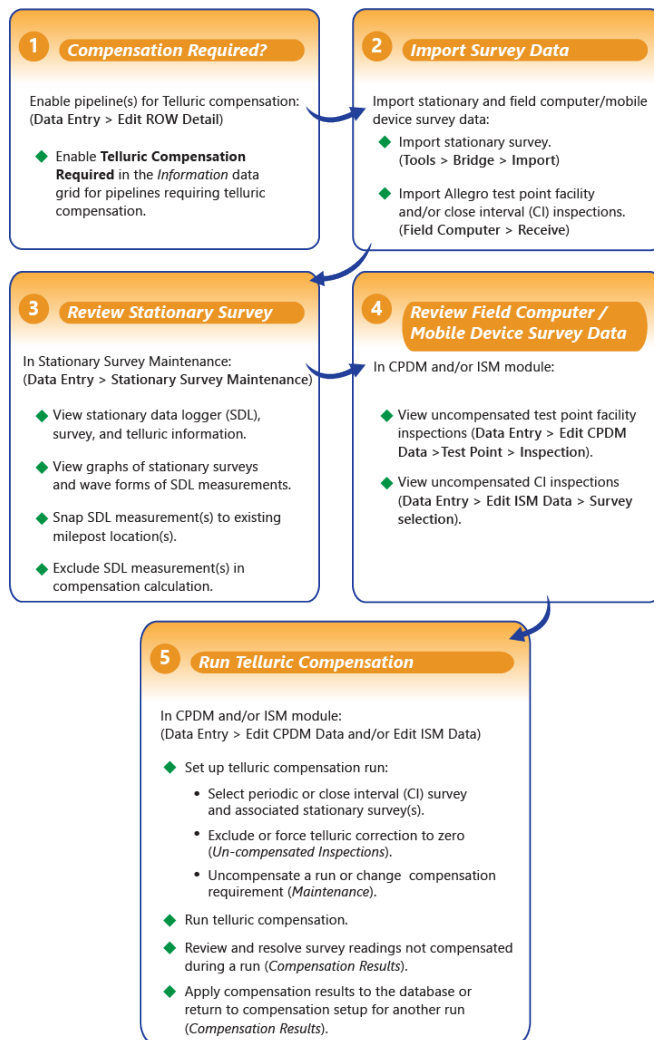


Figure 13-1. PCSTelluric Compensation Workflow

Refer to the following topics to perform the tasks described in the Telluric Compensation Workflow:

- To enable pipeline(s) for Telluric Compensation, add a layout theme for the *Information* data grid in the *Edit ROW Detail* window that includes the **Telluric Compensation Required** field. Then enable this field for each pipeline segment requiring telluric compensation. Refer to [Themes and Filter Groups for Pipeline Records on page 219](#) for more information.

- To evaluate and modify imported SDL survey files (upstream/downstream data set pairs), refer to [Stationary Survey Maintenance on page 695](#).
- To review Allegro or mobile device survey data, evaluate and modify uncompensated test point inspections using CPDM and/or ISM. Refer to [Telluric Compensation in CPDM on page 715](#) and [Telluric Compensation in ISM on page 725](#).
- To run compensation in CPDM and/or ISM for test points with telluric effects, refer to [Telluric Compensation in CPDM on page 715](#) and [Telluric Compensation in ISM on page 725](#).

Stationary Survey Maintenance

Stationary Survey Maintenance allows you to determine if telluric current effects are present on a pipeline segment. After importing stationary surveys in PCS, use *Stationary Survey Maintenance* to view and edit stationary survey files.

You can complete the following tasks in the *Stationary Survey Maintenance* window:

- [View a Stationary Survey on page 695](#)
- [Delete a Stationary Survey on page 700](#)
- [View Telluric Summary Information on page 702](#)
- [View a Stationary Survey Graph on page 704](#)
- [View Compensation Runs on page 707](#)
- [View a Survey Record Waveform on page 708](#)
- [Match a Stationary Survey to an Existing Milepost Location on page 710](#)
- [Exclude Survey Records in a Stationary Survey on page 712](#)

NOTE: A stationary survey includes a pair of survey files provided by two stationary data loggers (SDLs). One SDL provides a survey file with upstream voltage measurements while the other SDL provides a survey file with downstream voltage measurements.

View a Stationary Survey

The *Stationary Survey Maintenance* window displays a list of imported stationary surveys and associated survey records. *Stationary Survey Maintenance* is available for use when working with either the CPDM module (**Modules > Cathodic Protection Data Manager (CPDM)**) or ISM module (**Modules > Indirect Survey Manager (ISM)**).

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to open *Stationary Survey Maintenance* and view imported stationary surveys:

1. Click **Data Entry > Stationary Survey Maintenance**.

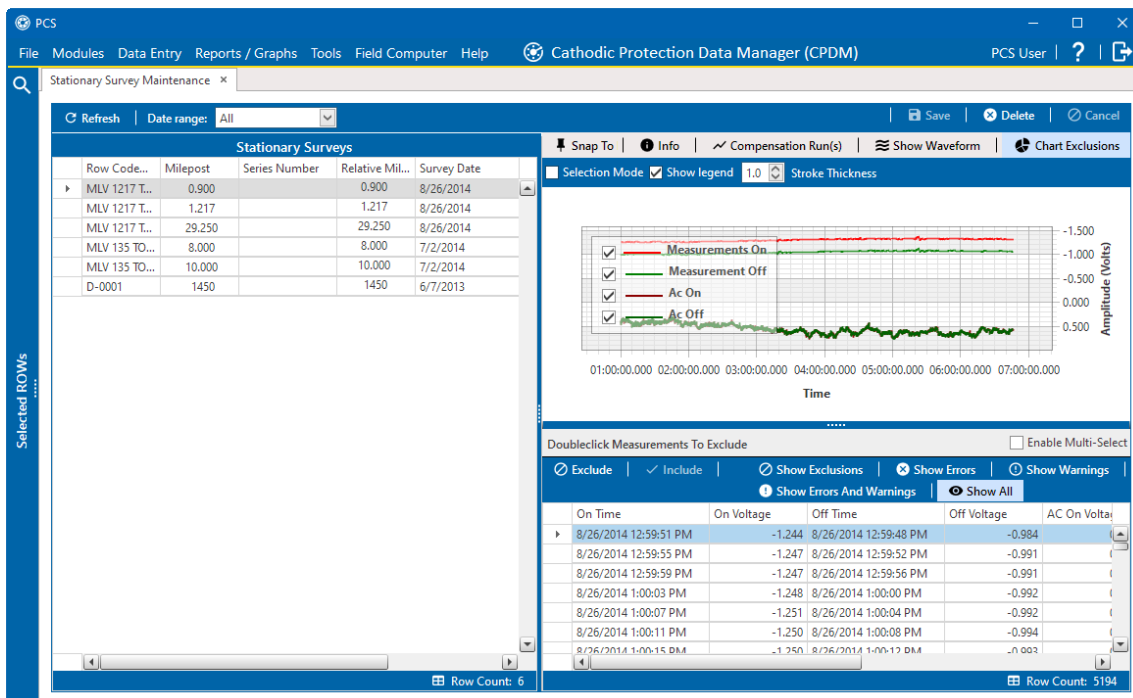


Figure 13-2. Stationary Survey Maintenance

2. If you want to filter the data view to view stationary surveys only for a particular time period, date range, or all stationary surveys, click the down arrow in the **Date range** field and select an option in the selection list. Then click **Refresh**.

Survey records with a problem are identified with an error or warning icon in the survey records grid. A survey record with an error must be resolved prior to running telluric compensation. A survey record with a warning does not require resolution, however problems may occur during telluric compensation.

Conditions resulting in an error icon include: missing ON and/or OFF voltage measurement; missing survey date and time. A warning icon is present when the same voltage measurement is used for both the ON and OFF reading.

Table 13-17. Description of Stationary Survey Maintenance Window

Item	Description
Stationary Surveys	<p>A list of stationary surveys for the pipeline segment(s) currently selected in the <i>Select ROWs</i> window display in the <i>Stationary Surveys</i> grid located on the left side of the window.</p> <p>When you want to view stationary surveys for a particular time period, date range, or all stationary surveys, click the down arrow in the <i>Date range</i> field and select an option in the selection list. Then click <i>Refresh</i> to update data showing in the <i>Stationary Surveys</i> grid.</p> <p>Clicking the <i>Stationary Surveys</i> title bar collapses the pane allowing you to view more of the graph and survey records grid. Clicking the title bar again expands the pane.</p>

Table 13-17. Description of Stationary Survey Maintenance Window cont'd

Item	Description
Button/Information Bar	<p>Located above the graph is a button/information bar with the following features:</p> <p>Snap To Facility: If the currently selected stationary survey includes milepost locations that do not match milepost locations in PCS, click <i>Snap To Facility</i> to open a window and match the stationary survey to an existing milepost location already established in PCS. Using this feature ensures accurate telluric compensation calculations. For more information, refer to Match a Stationary Survey to an Existing Milepost Location on page 710.</p> <p>Stationary Survey, ROW Code, Milepost: Selecting a stationary survey displays related information above the graph. Information includes the name of the stationary survey, ROW Code (pipeline segment), and milepost (survey location).</p> <p>Info: Click this button to open the <i>Stationary Telluric Info</i> window and view a telluric summary for the stationary survey currently selected in the <i>Stationary Surveys</i> grid. Use this feature to quickly determine if telluric current effects are present. For more information, refer to View Telluric Summary Information on page 702.</p> <p>Compensation Run(s): Click this button to open the <i>Compensation Runs</i> window. Use the window to view information about a telluric compensation run for the currently selected stationary survey. Or if required, un-compensate or reverse (undo) a compensation run.</p> <p>Show Waveform: This button is available for use when the currently selected stationary survey includes one or more survey records with a waveform. Click the button to open the <i>Waveform</i> window and view a survey record in a waveform graph. Refer to View a Survey Record Waveform on page 708 for more information.</p> <p>Chart Exclusions: Click this button to show or hide excluded survey records in the graph. The default state shows excluded survey records as indicated by the highlighted button.</p>

Table 13-17. Description of Stationary Survey Maintenance Window cont'd


Item	Description
Graph	<p>Selecting a stationary survey displays associated survey measurements in a graph. Features included with the graph include those in the following list. Refer to View a Stationary Survey Graph on page 704 for more information.</p> <ul style="list-style-type: none"> • Selection Mode: Select this check box to hide or show the ON/OFF tooltips that display when hovering the mouse over a graph line. • Show Legend: Select this check box to show or hide the graph legend. • Stroke Thickness: Click the up/down arrows to adjust the thickness of the graph line. You can also type a value in this field to adjust the thickness. • Zoom In: If the <i>Selection Mode</i> check box includes a check mark, click the check box to clear the check mark. Then click and hold the mouse while dragging a selection over the graph to zoom in on the selected area of the graph. • Survey Record Selection: Click anywhere on a graph line to highlight the corresponding survey record in the list of survey records in the bottom pane. A survey record with an  arrow and a dashed selection box denotes a survey record selection.

Table 13-17. Description of Stationary Survey Maintenance Window cont'd

Item	Description
Survey Measurement Records	<p>The grid in the bottom pane of the window includes a list of all survey measurement records associated with the stationary survey currently selected in the <i>Stationary Surveys</i> pane. Features included with this grid include:</p> <p>Double-click Measurements To Exclude: Double-clicking a survey measurement record excludes it from the telluric compensation calculation. PCS identifies an excluded record with a red highlight; the exclusion date; and the name of the person who excluded the record.</p> <p>Use either of the following multi-select methods to exclude several records at one time:</p> <ul style="list-style-type: none"> • Press and hold the Ctrl key on your computer keyboard while selecting each record you want to exclude. Then click Exclude. • To multi-select records in sequential order, press and hold the Shift key, click the first record and then the last record. Click Exclude. <p>Exclude: Clicking this button excludes selected survey measurement records from the telluric compensation calculation.</p>
Survey Measurement Records	<p>Include: To include one or more survey measurement records in the telluric compensation calculation that have previously been excluded, select the excluded record(s) and then click Include.</p> <p>Filter the Data View: Click any of the following buttons to filter the data view in the survey measurement records grid:</p> <p>Show Errors: Click this button to only view records with errors.</p> <p>Show Warnings: Click this button to only view records with warnings.</p> <p>Show Errors And Warning: Click this button to view only records with errors and warnings.</p> <p>Show All: Click this button to view all records in the grid; this includes records with and without errors and warnings.</p>

Delete a Stationary Survey

You can delete a stationary survey with associated survey measurement records if it has not been used in telluric compensation.

When a stationary survey has been used in telluric compensation, the **Delete** button is disabled to prevent accidental deletion.

Complete the following steps to delete a stationary survey:

2. Click **Data Entry > Stationary Survey Maintenance** to open the *Stationary Survey Maintenance* window.

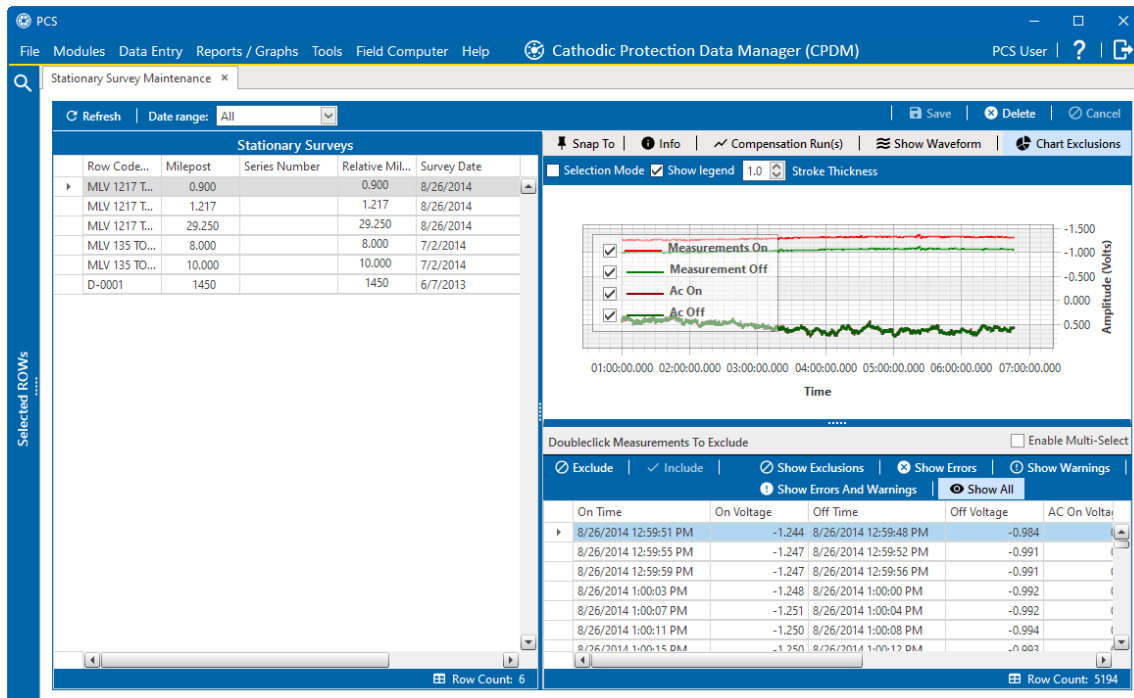


Figure 13-3. Stationary Survey Maintenance

3. Select an option from the **Date range** drop-down list to filter the data view in the *Stationary Surveys* grid.
4. Click **Refresh**.
5. Select the stationary survey in the *Stationary Surveys* grid you want to delete and then click **Delete**.
6. Click **Yes** in the *Delete Stationary Survey* message to delete the stationary survey or **No** to cancel the operation.

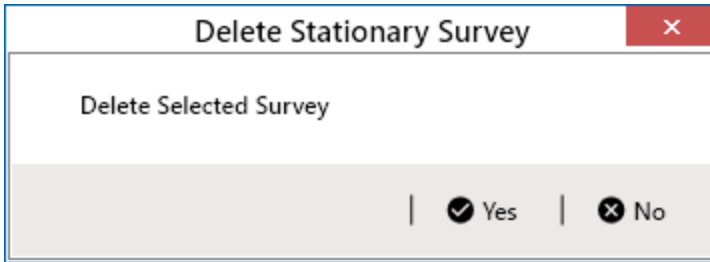


Figure 13-4. Delete Stationary Survey

View Telluric Summary Information

A telluric summary is available for each stationary survey listed in the *Stationary Survey Maintenance* window. Use this feature to quickly determine if telluric current effects are present.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to view a telluric summary for a stationary survey:

1. Click **Data Entry > Stationary Survey Maintenance** to open the *Stationary Survey Maintenance* window.

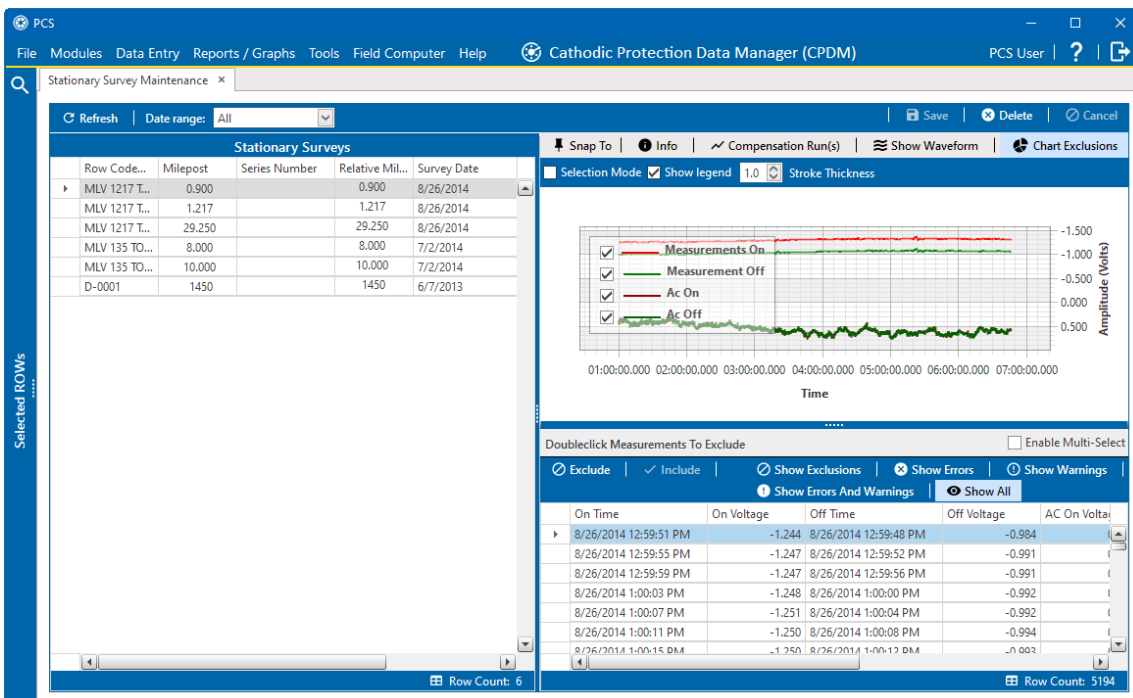




Figure 13-5. Stationary Survey Maintenance

2. Select an option from the **Date range** drop-down list to filter the data view in the *Stationary Surveys* grid.
3. Click  **Refresh**.
4. Select a stationary survey in the *Stationary Surveys* grid and then click  **Info** to open the *Stationary Telluric Info* window.

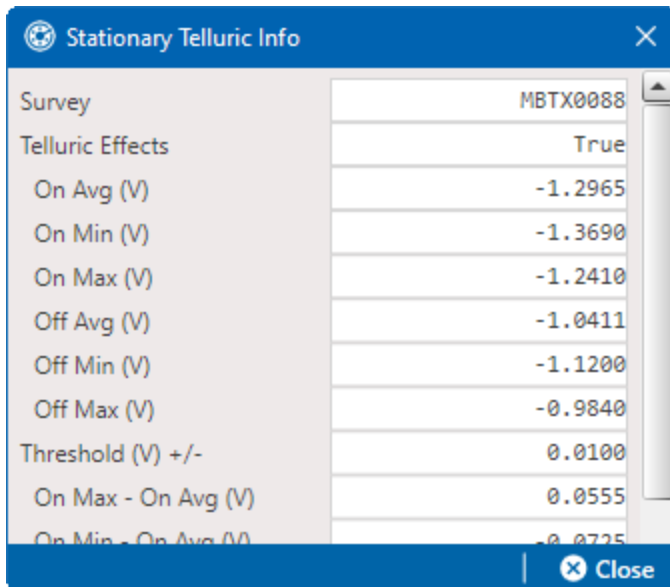


Figure 13-6. Stationary Telluric Info

Table 13-18. Stationary Telluric Info

Field Name	Description
Survey	Stationary survey file name.
Telluric Effects	Identifies if the stationary survey shows telluric effects. Result for this field is either <i>True</i> or <i>False</i> .
On Avg (V)	Average ON voltage measurement.
On Min (V)	Lowest ON voltage measurement.
On Max (V)	Highest ON voltage measurement.
Off Avg (V)	Average OFF voltage measurement.
Off Min (V)	Lowest OFF voltage measurement.
Off Max (V)	Highest OFF voltage measurement.
Threshold (V) +/-	System default telluric threshold set in system Options (<i>Tools > Options > Criteria</i>).
On Max - On Avg (V)	Highest ON voltage measurement minus the average ON voltage measurement.


Table 13-18. Stationary Telluric Info cont'd

Field Name	Description
On Min - On Avg (V)	Lowest ON voltage measurement minus the average ON voltage measurement.
Off Max - Off Avg (V)	Highest OFF voltage measurement minus the average OFF voltage measurement.
Off Min - Off Avg (V)	Lowest OFF voltage measurement minus the average OFF voltage measurement.

View a Stationary Survey Graph

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to view a graph of voltage measurements associated with a stationary survey:

1. Click **Data Entry > Stationary Survey Maintenance** to open the *Stationary Survey Maintenance* window.
2. Select an option from the **Date range** drop-down list to filter the data view in the *Stationary Surveys* grid.
3. Click  **Refresh**.
4. Select a stationary survey in the *Stationary Surveys* grid. A graph of survey measurements associated with the selected stationary survey display in the top-right pane of the window.

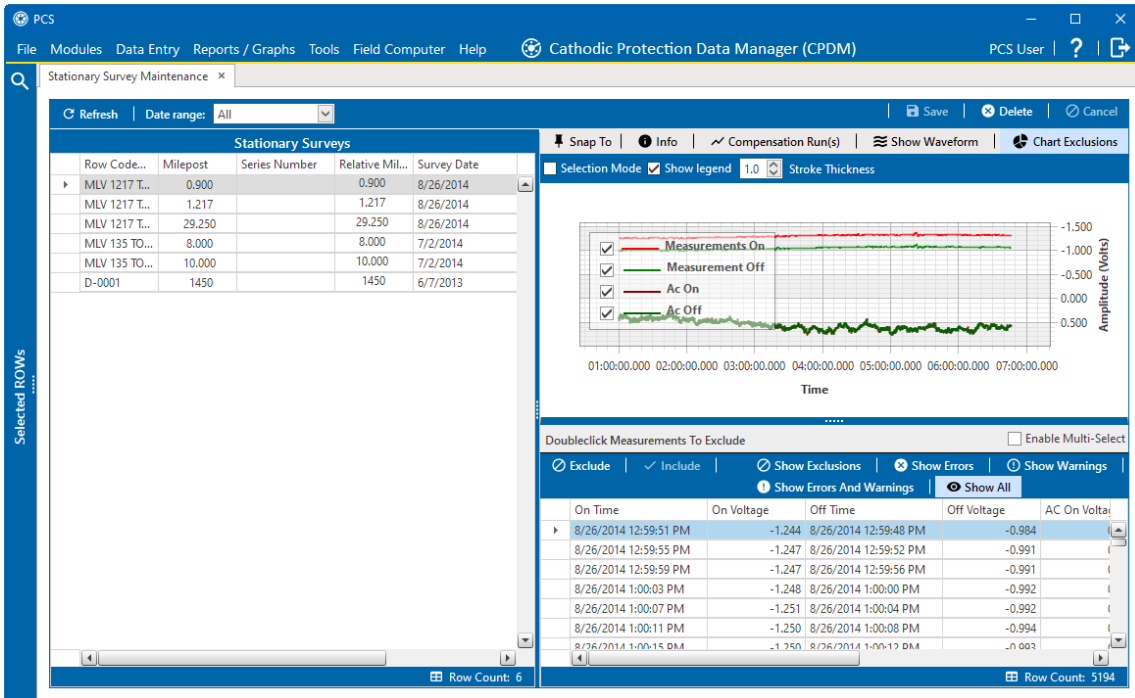


Figure 13-7. Stationary Survey Maintenance

The stationary survey graph supports the following functions:

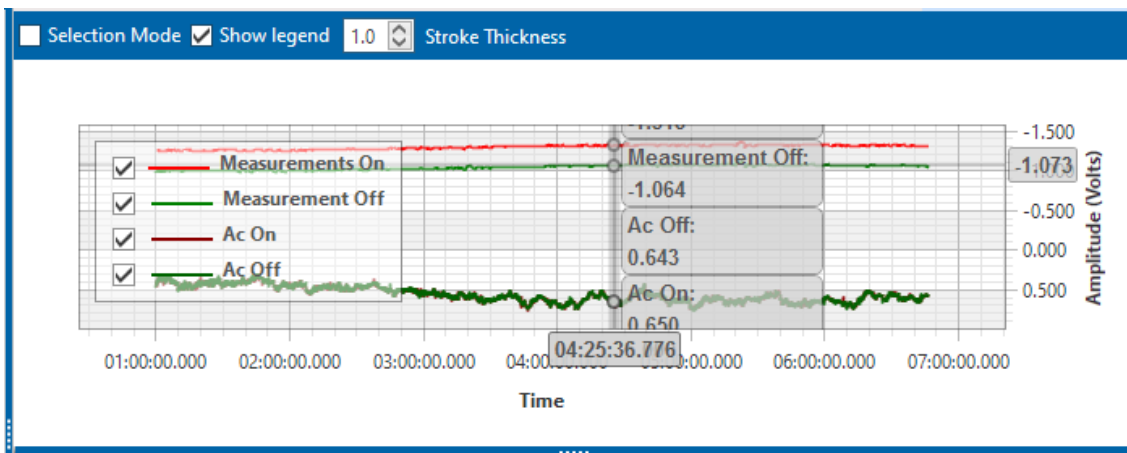


Figure 13-8. Tooltips with ON/OFF Measurements

- **Tooltips with ON/OFF Measurements:** Placing the mouse over a point in the graph displays tooltips with corresponding ON/OFF voltage measurements.
- **Selection Mode:** Select this check box to hide or show the ON/OFF tooltips that display when hovering the mouse over a point in the graph.

- **Show Legend:** Select this check box to show or hide the graph legend. You can also click one or more check boxes in the graph legend to hide or show the selected graph element.
- **Stroke Thickness:** Click the up/down arrows to adjust the thickness of the graph line. You can also type a value in this field to adjust the thickness.
- **Zoom In:** If the **Selection Mode** check box includes a check mark, click the check box to clear the check mark. Then click and hold the mouse while dragging a selection over the graph to zoom in on the selected area of the graph. Double-click anywhere inside the graph to return to normal graph view.

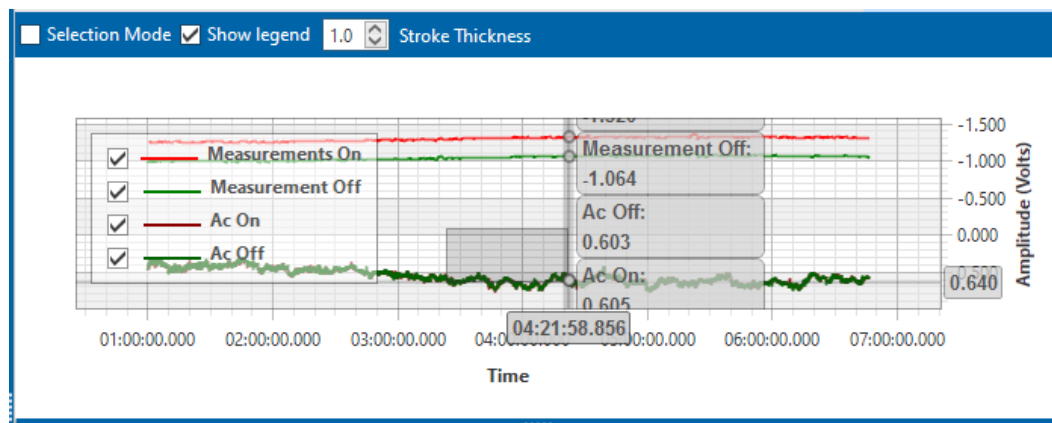


Figure 13-9. Zoom In On Graph

- **Survey Record Selection:** Click anywhere on a graph line to highlight the corresponding survey record in the survey record grid in the bottom pane. A survey record with an arrow denotes a selection in the grid. For example, the survey record with an *On Time* of 9/4/2014 2:16:11 PM is selected in the following example.

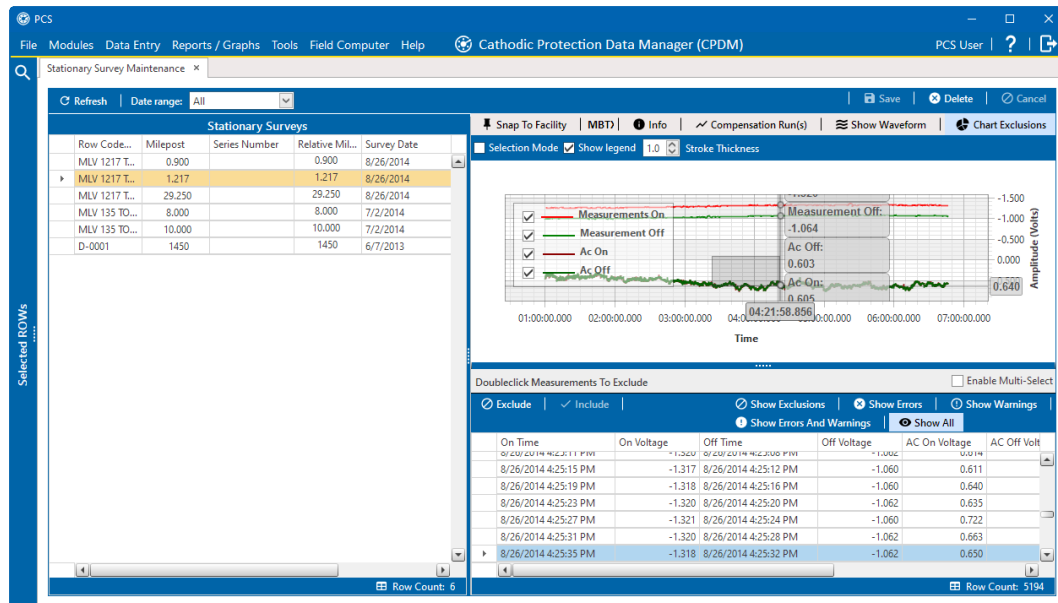


Figure 13-10. Select Survey Record in Grid

View Compensation Runs

Use the *Show Runs* link in the top grid of *Stationary Survey Maintenance* to view information about a telluric compensation run for a selected stationary survey and if required, un-compensate or reverse (undo) the compensation run.

Complete the following steps to view information or reverse a compensation run for a selected stationary survey:

1. Click **Data Entry > Stationary Survey Maintenance** to open the *Stationary Survey Maintenance* window.
2. Select an option from the **Date range** drop-down list to filter the data view in the *Stationary Surveys* grid.
3. Click **Refresh**.
4. Select a stationary survey in the *Stationary Surveys* grid and then click **Compensation Run (s)** to open the *Compensation Runs* window

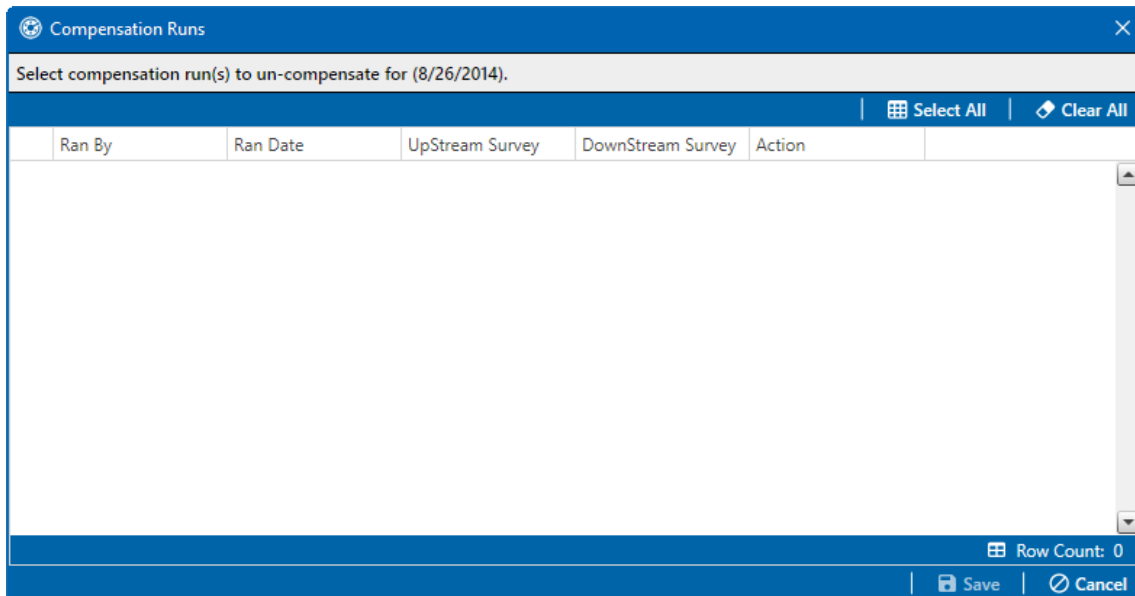




Figure 13-11. Compensation Runs



5. If you want to reverse (undo) the compensation run, click the check box associated with the compensation run you want to reverse. Then click  **Save** to reverse the selected compensation run.

View a Survey Record Waveform

When one or more survey records in a stationary survey include an associated waveform, click the  **Show Waveform** button to open the *WaveForm* window and view survey measurements in both a graph and a grid.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to view a survey record waveform:

1. Click **Data Entry > Stationary Survey Maintenance** to open the *Stationary Survey Maintenance* window.
2. Select an option from the **Date range** drop-down list to filter the data view in the *Stationary Surveys* grid.
3. Click  **Refresh**.
4. Select a stationary survey in the *Stationary Surveys* grid and then click  **Show Waveform** to open the *Waveform* window.

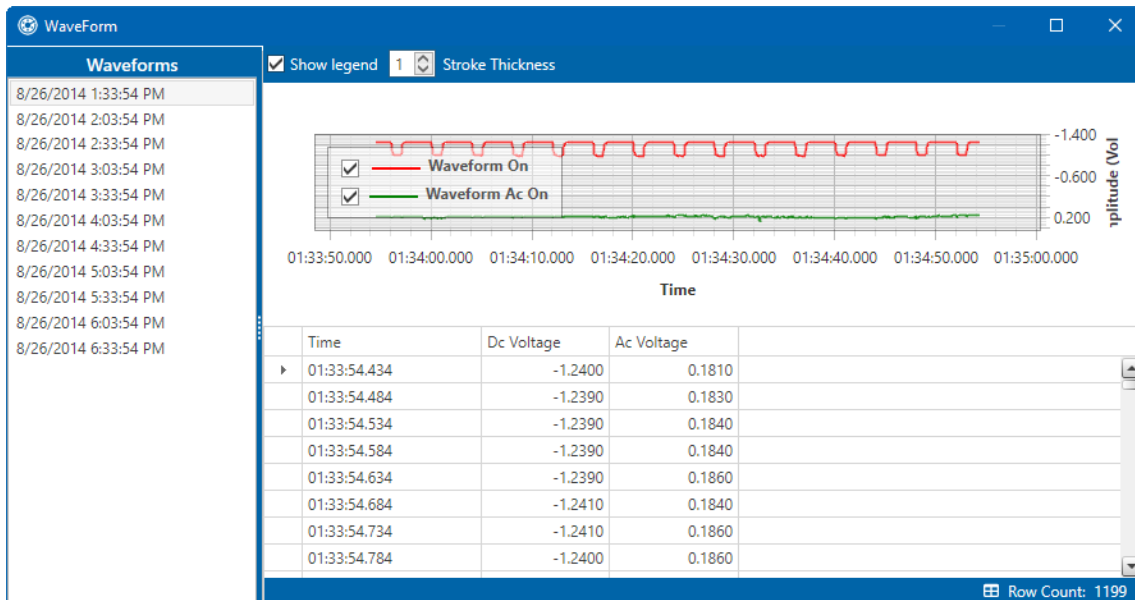


Figure 13-12. WaveForm

The waveform supports the following functions:

- **Tooltips with ON/OFF Measurements:** Placing the mouse over a point in the waveform displays tooltips with corresponding ON/OFF voltage measurements.

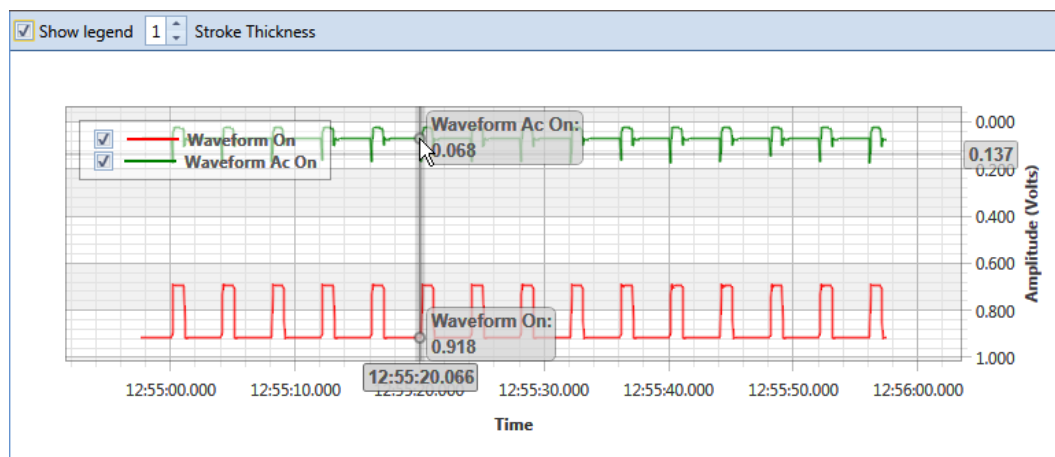


Figure 13-13. Tooltips with ON/OFF Measurements

- **Show Legend:** Select this check box to show or hide the graph legend. You can also click one or more check boxes in the graph legend to hide or show the selected graph element.
- **Stroke Thickness:** Click the up/down arrows to adjust the thickness of the graph line. You can also type a value in this field to adjust the thickness.

- **Zoom In:** Click and hold the mouse while dragging a selection over the graph to zoom in on the selected area of the graph. Double-click anywhere inside the graph to return to normal graph view.

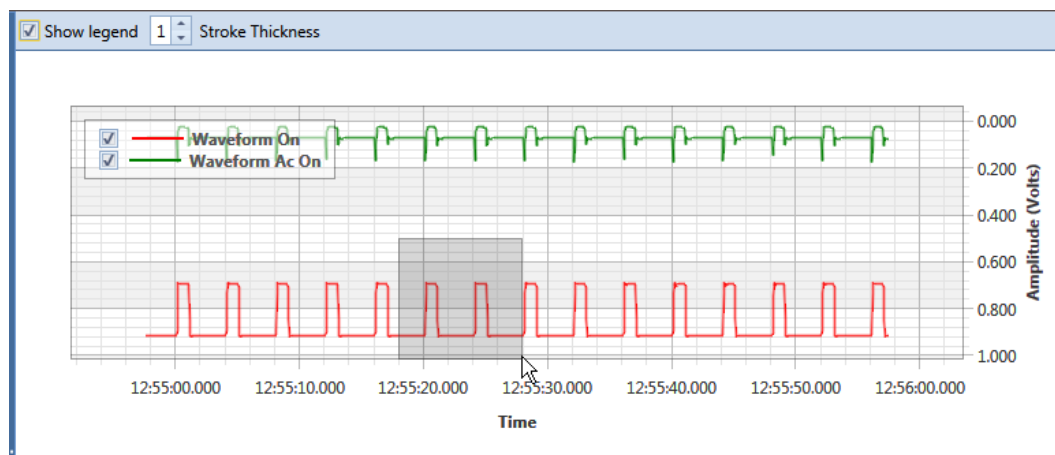





Figure 13-14. Zoom In On Graph

Match a Stationary Survey to an Existing Milepost Location

When a stationary survey includes milepost locations that do not match existing milepost locations already established in PCS, these mileposts are identified as *Unregistered Milepost*. Unregistered mileposts relate only to the associated stationary survey and are not considered as facilities in PCS.

To ensure telluric compensation calculations are accurate, use  Snap To Facility to match milepost locations in a stationary survey to existing milepost locations already established in PCS.

Complete the following steps to match milepost locations in a stationary survey to existing milepost locations in PCS:

2. Click **Data Entry > Stationary Survey Maintenance** to open the *Stationary Survey Maintenance* window.
3. Select an option from the **Date range** drop-down list to filter the data view in the *Stationary Surveys* grid.
4. Click  **Refresh**.
5. Select a stationary survey in the *Stationary Surveys* grid and then click the  **Snap To Facility** to open the *Snap To Facility* window .

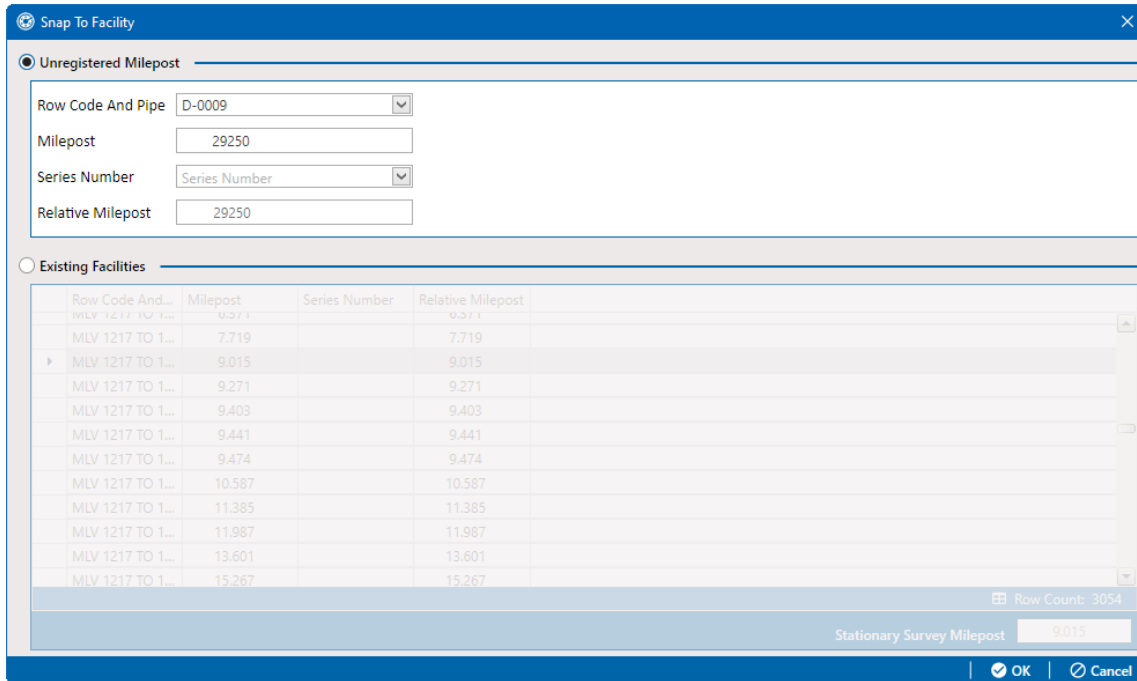


Figure 13-15. Snap To Facility

6. Click **Existing Facilities** to enable the grid for use.

PCS automatically selects the closest existing milepost location as indicated by the highlighted record labeled *LG123-A, 1.243* shown in the following figure. You can however change the selection if needed.

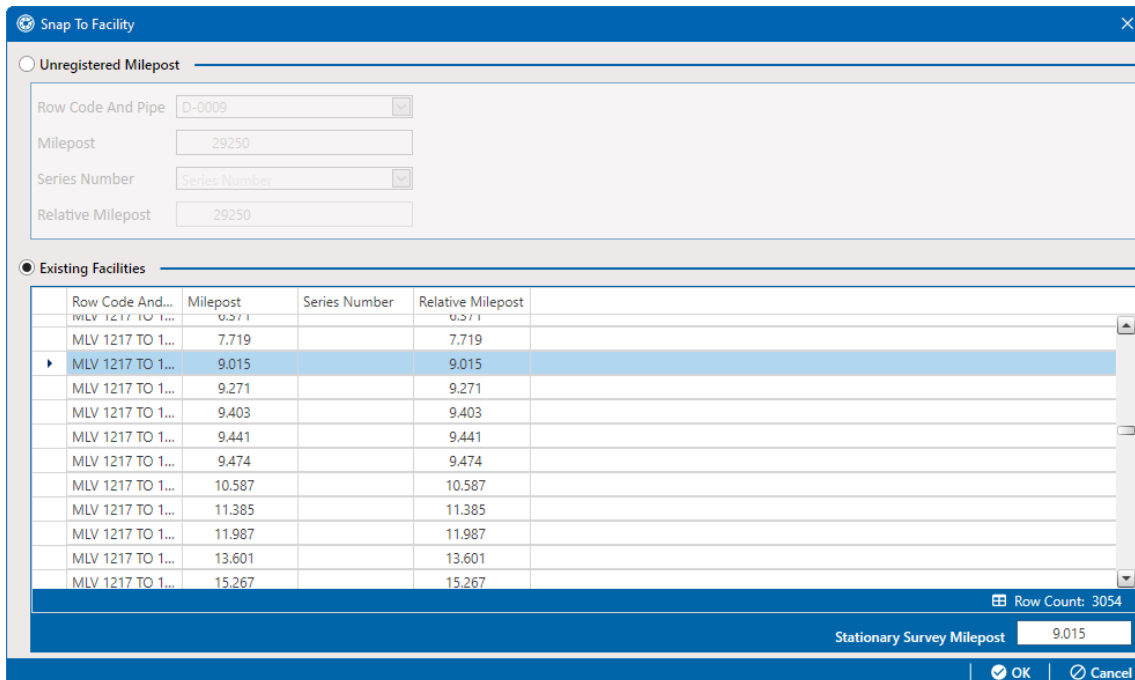




Figure 13-16. Snap To Facility

- To snap the stationary survey to an existing milepost location, select a milepost record in the grid and then click **OK**.
- When the *Snap To Facility* window closes, click **Save** in the *Stationary Survey Maintenance* window to save changes.


Exclude Survey Records in a Stationary Survey

When a stationary survey includes one or more survey records with problems, the survey records are identified with an  error or  warning icon. A survey record with one or more errors must be resolved prior to running telluric compensation. A survey record with a warning does not require resolution, however problems may occur during telluric compensation.

Information in this section explains how to exclude survey records in the compensation calculation. A stationary survey with any of the following characteristics that include an error or warning are eligible for exclusion:

- Missing ON and/or OFF voltage measurement.
- Missing survey date and time.
- Same voltage measurement for both the ON and OFF reading.

Complete the following steps to exclude one or more survey records in the compensation calculation:

2. Click **Data Entry > Stationary Survey Maintenance** to open the *Stationary Survey Maintenance* window.
3. Select an option from the **Date range** drop-down list to filter the data view in the *Stationary Surveys* grid.
4. Click  **Refresh**.
5. Select a stationary survey in the *Stationary Surveys* grid.

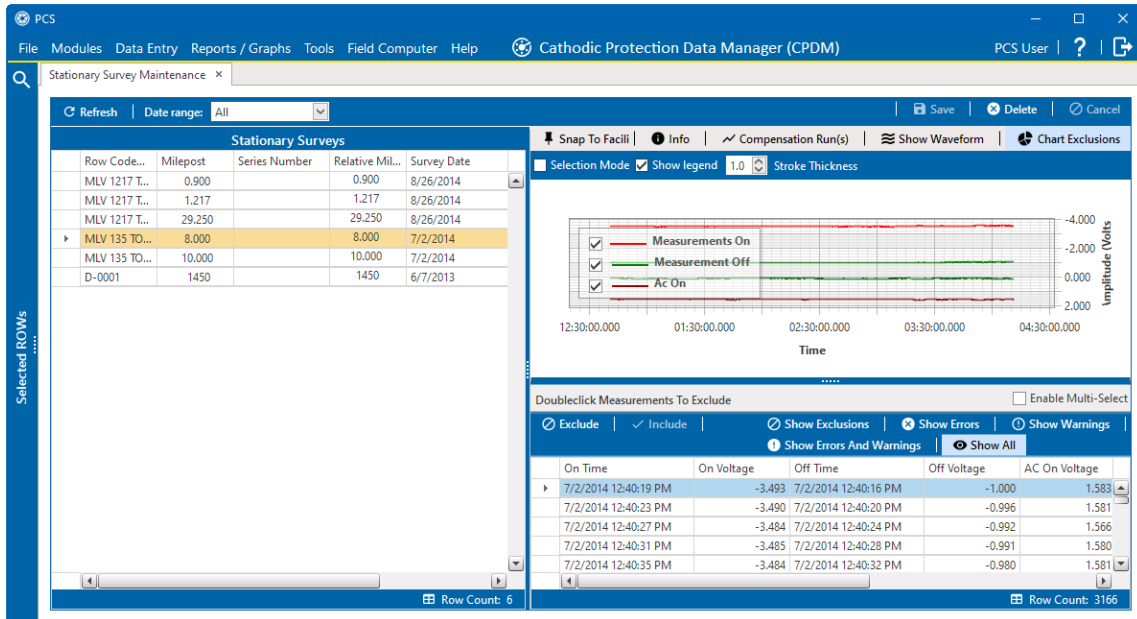


Figure 13-17. Select Stationary Survey

6. If you want to filter data in the survey record grid, complete one of the following steps:

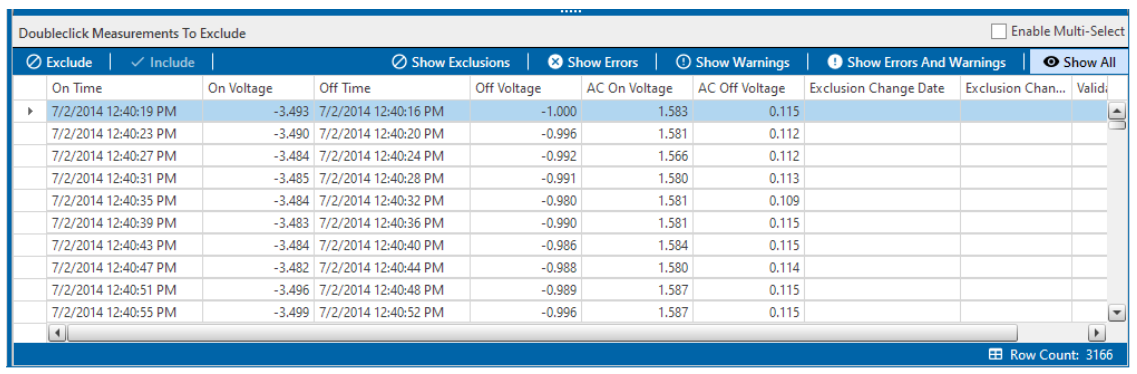









Figure 13-18. Survey Record Grid

- a. Click  **Show Exclusions** to display exclusions.
 - b. Click  **Show Errors** to only display survey records with errors.
 - c. Click  **Show Warnings** to only display survey records with warnings.
 - d. Click  **Show Errors and Warnings** to only display survey records with errors and warnings.
 - e. Click  **Show All** to display all survey records related to the selected stationary survey including those with and without errors and warnings.
7. Use any of the methods in the following list to exclude one or more survey records. PCS highlights excluded survey records in red as shown in the following figure. The fields labeled **Exclusion Change User** and **Exclusion Change Date** also identify who excluded the survey record and when it was excluded.
- Double-click the survey record.
 - Select a survey record and then right-click the mouse and choose **Exclude Selected** in the shortcut menu that opens.
 - To select multiple survey records in consecutive order, click the first survey record, press and hold the **Shift** key, then click the last survey record. Right-click the mouse and choose **Exclude Selected** in the shortcut menu.
 - To select multiple survey records in non-consecutive order, press and hold the **Ctrl** key, then click each survey record you want to exclude. Right-click the mouse and choose **Exclude Selected** in the shortcut menu.
8. To include a survey record in telluric compensation that has previously been excluded, select the excluded survey record and then click  **Include**.
9. Use the  **Chart Exclusions** to show or hide excluded survey records in the graph.

Run Telluric Compensation

After receiving Allegro or mobile device survey files in PCS and importing, evaluating, and modifying stationary data logger (SDL) survey files in *Stationary Survey Maintenance*, use the information in this section to run telluric compensation and related functionality using features available in the CPDM and ISM modules.

- [Telluric Compensation in CPDM](#)
- [Telluric Compensation in ISM on page 725](#)

Telluric Compensation in CPDM

When working with test point inspections in a periodic or annual survey that require telluric compensation, use the *Telluric* workspace in the CPDM *Test Point Inspection* grid to perform compensation and other related functions.

Test point records associated with the selected pipeline segment display in the *Test Point Inspection* grid and the *Test Point Inspection Detail* mini-grid. Test point inspections eligible for telluric compensation display in the *Telluric* workspace based on your selection of SDL survey files (upstream/downstream data set).

Refer to the following topics for more information on using Telluric Compensation in the CPDM module:

- [View Test Point Inspections Eligible for Compensation on page 715](#)
- [Change the Compensation Requirement on page 716](#)
- [Run Telluric Compensation in CPDM on page 718](#)
- [Reverse a Compensation Run for a Selected Survey Date on page 722](#)
- [Uncompensate Test Point Inspections on page 724](#)

View Test Point Inspections Eligible for Compensation

Complete the following steps to view test point inspections eligible for telluric compensation in CPDM:

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

1. Click **Data Entry > Edit CPDM Data** to open the *Edit CPDM Data* window.
2. Click **Inspection** and then the **Test Point** tab to open the *Test Point Inspection* grid. Test points eligible for compensation include voltage measurements in the **Uncompensated On** and **Uncompensated Off** fields in the *Test Point Detail Inspection* mini-grid.

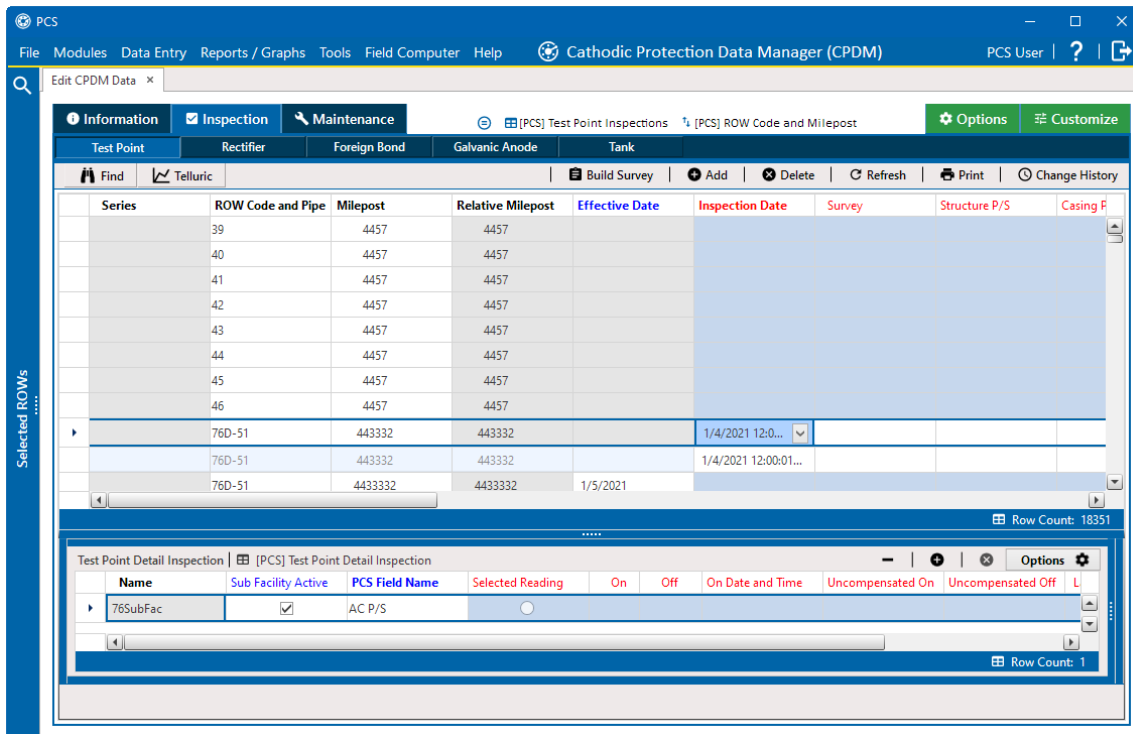


Figure 13-19. Edit CPDM Data - Uncompensated On and Off Fields

Change the Compensation Requirement

If you need to change the compensation requirement for a pipeline segment and related test point inspections, use the *Maintenance* window available in the *Telluric* workspace to apply the features labeled *Add Requirement* or *Remove Requirement* as needed.

IMPORTANT: Changing the compensation requirement must occur prior to running telluric compensation for the pipeline survey. The compensation requirement cannot be changed once telluric compensation has completed and results have been applied to the PCS database.


Complete the following steps to change the compensation requirement for a pipeline segment:

1. Open the *Telluric* workspace in CPDM module. Click **Data Entry > Edit CPDM Data > Inspection > Test Point** and then the **Telluric** tab.

NOTE: If you see the *Options* window, click  **Apply** or press **Enter**.

2. Locate the upstream and downstream SDL survey files associated with the selected pipeline segment by clicking the down arrow in the **Survey Date** field and selecting a survey date using a calendar. You can also type a survey date in the field using the format MM/DD/YYYY to indicate

the month, day, and year. Then click  **Find**.

3. Click  **Maintenance** to open the *Maintenance* window and then click the **Compensation Requirements** tab.

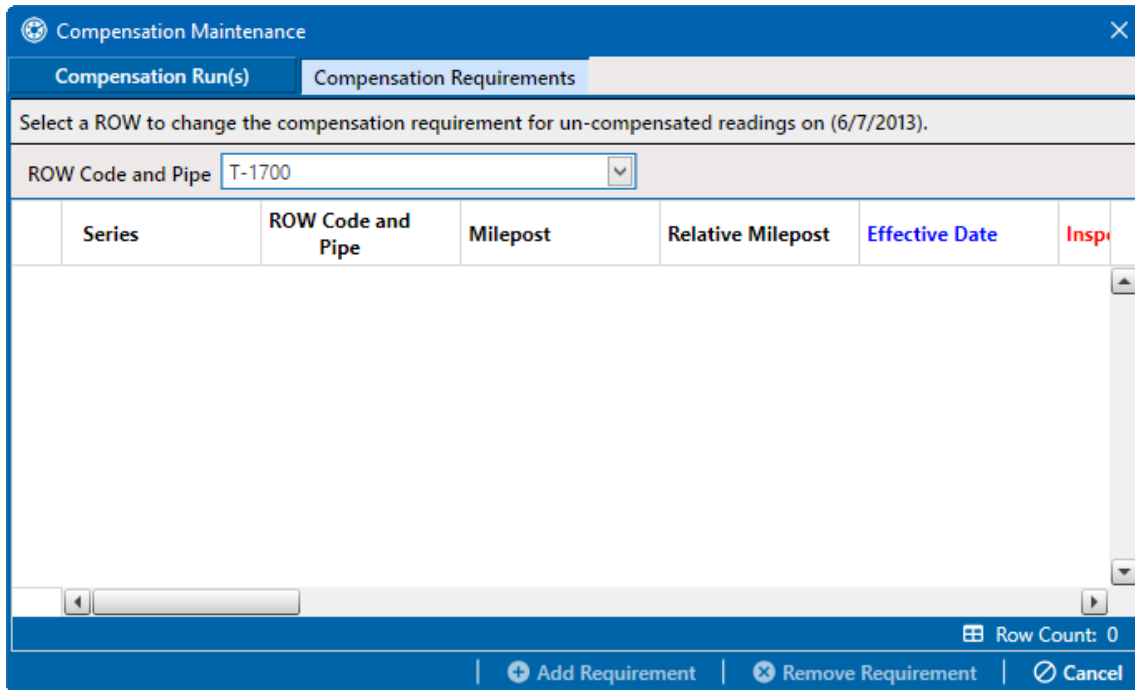





Figure 13-20. Compensation Maintenance Window - Compensation Requirements Tab

4. select a pipeline segment from the **ROW Code and Pipe** drop-down lists to view related test point inspections in the grid.

5. Complete one of the following steps:

- a. To add the compensation requirement to the selected pipeline segment, click  **Add Requirement**.
- b. To remove the compensation requirement from the selected pipeline segment, click  **Remove Requirement**.

After adding or removing the compensation requirement, PCS closes the *Maintenance* window and returns to the *Telluric* workspace.

- c. If you want to close the window without changing the current compensation requirement, click  **Cancel** to return to the *Telluric* workspace.

Run Telluric Compensation in CPDM

Running telluric compensation takes place in the *Telluric* workspace of the *Test Point Inspection* grid. After receiving field computer or mobile device survey files and importing and evaluating SDL survey files, use the information in this section to run telluric compensation for test point inspections in a periodic or annual survey that include telluric effects and require compensation.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to run telluric compensation in CPDM module:

1. Open the *Telluric* workspace in CPDM. Click **Data Entry > Edit CPDM Data > Test Point > Inspection > Telluric** tab.

NOTE: If you see the *Options* window, click  **Apply** or press **Enter**.

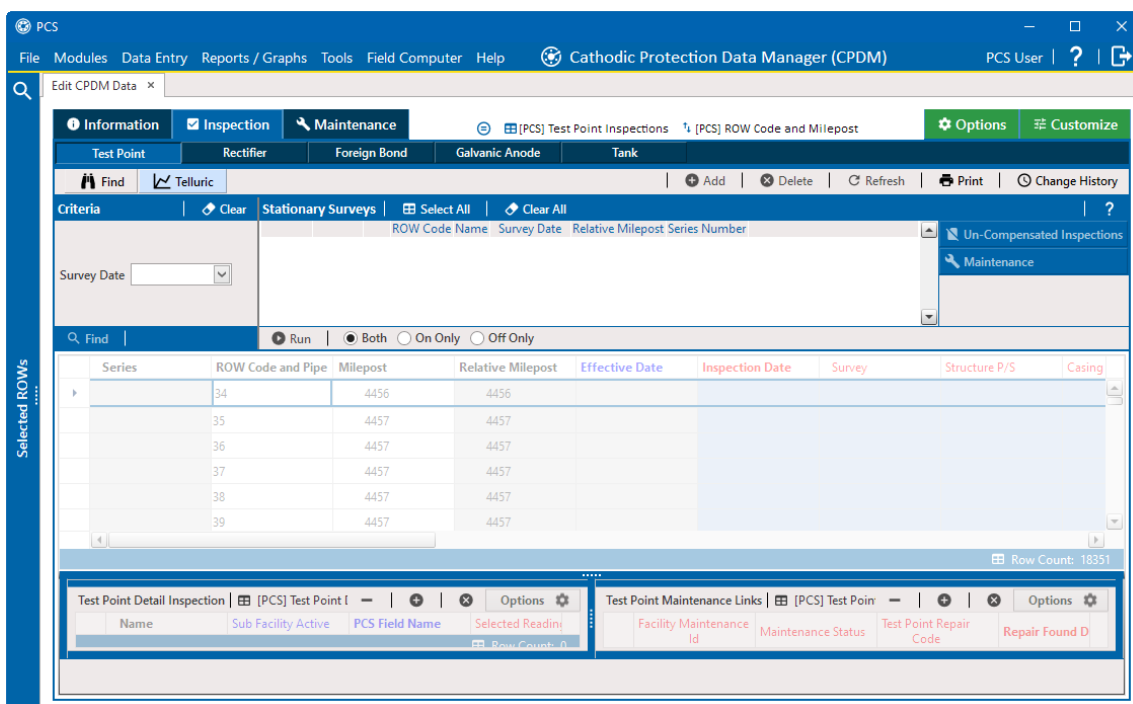



Figure 13-21. Telluric Workspace

2. Locate the upstream and downstream SDL survey files associated with the selected pipeline segment by selecting a survey date from the **Survey Date** calendar. You can also type a survey date in the field using the format MM/DD/YYYY to indicate the month, day, and year.
3. Click  **Find**.

A list of SDL survey files related to the entered survey date display in the *Stationary Surveys* group box of the *Telluric* workspace.

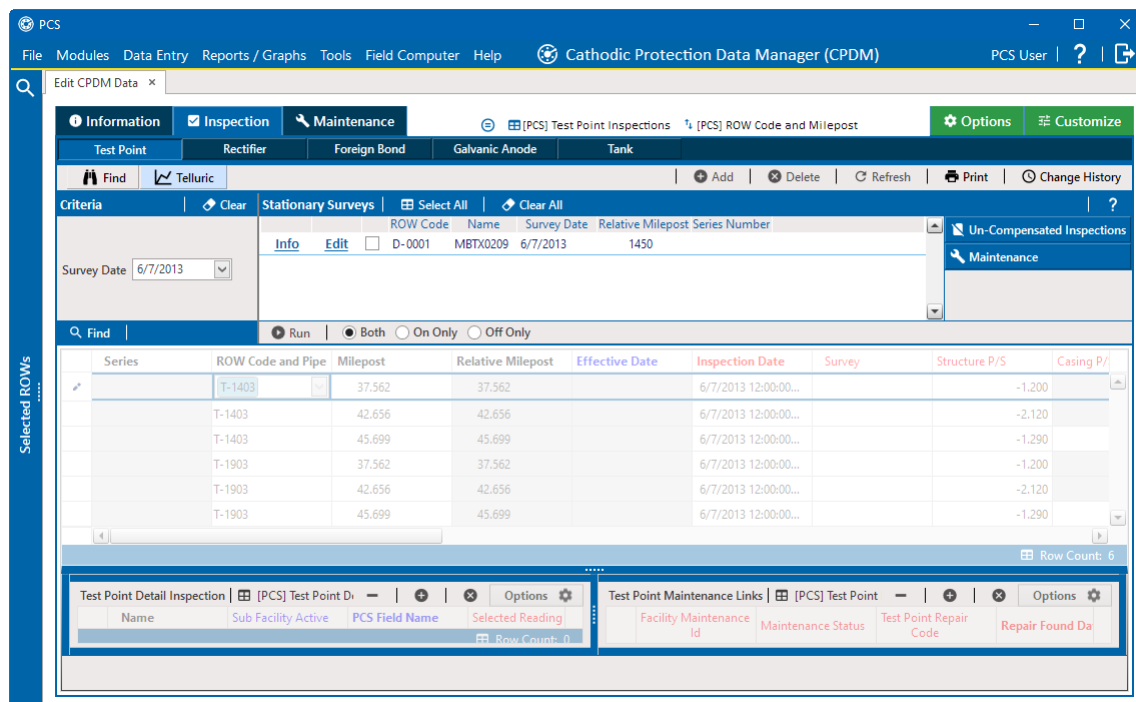


Figure 13-22. Stationary Surveys in Telluric Workspace

4. If you want to view a telluric summary of an SDL survey listed in the *Stationary Surveys* group box, click the **Info** link to open the *Stationary Telluric Info* window. For a description of this window, refer to [View Telluric Summary Information on page 702](#).
5. If you want to view voltage measurements associated with an SDL survey listed in the *Stationary Surveys* group box, click the **Edit** link to open the *Stationary Survey Maintenance* window. A description of this window is available in the section entitled [Stationary Survey Maintenance on page 695](#).
6. To run telluric compensation, follow these steps:
 - a. Select the SDL upstream/downstream data set pair to use in the compensation run. Click the check box associated with the upstream and downstream SDL survey files.
 - b. Click **Run** to begin the compensation process and open the *Compensation Results* window.

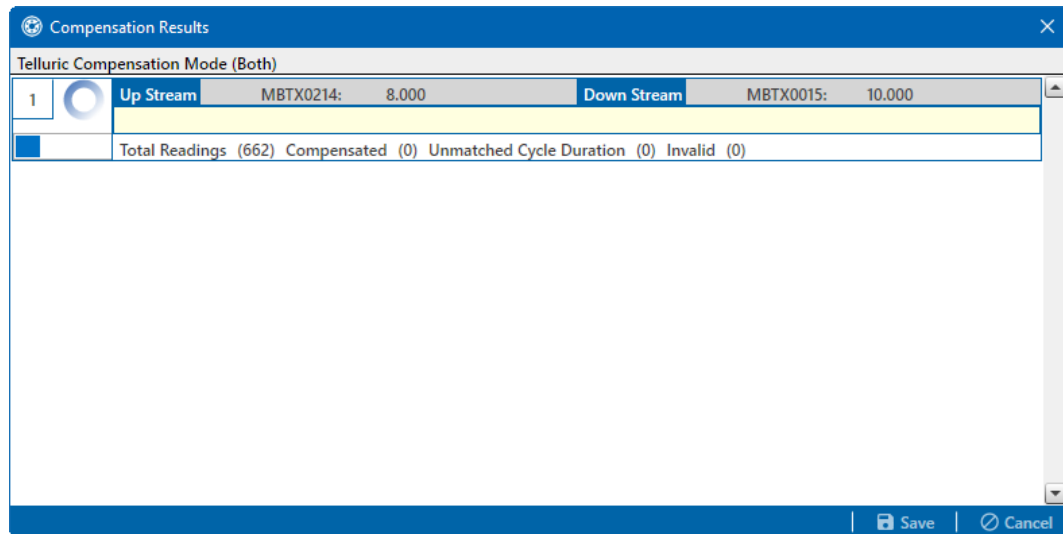




Figure 13-23. Compensation Results

- c. If an error occurs during the compensation run, a  warning icon displays in the *Compensation Results* window. A description of the error and how to resolve it also display.

In the following example, the survey measurement must be changed to zero to apply no telluric correction and successfully run compensation. Refer to [Uncompensate Test Point Inspections on page 724](#) for information about how to apply *ForceZero* and *Exclude* to survey measurements.

- d. When the compensation process completes, click  **Preview** to view a graph of compensation results.

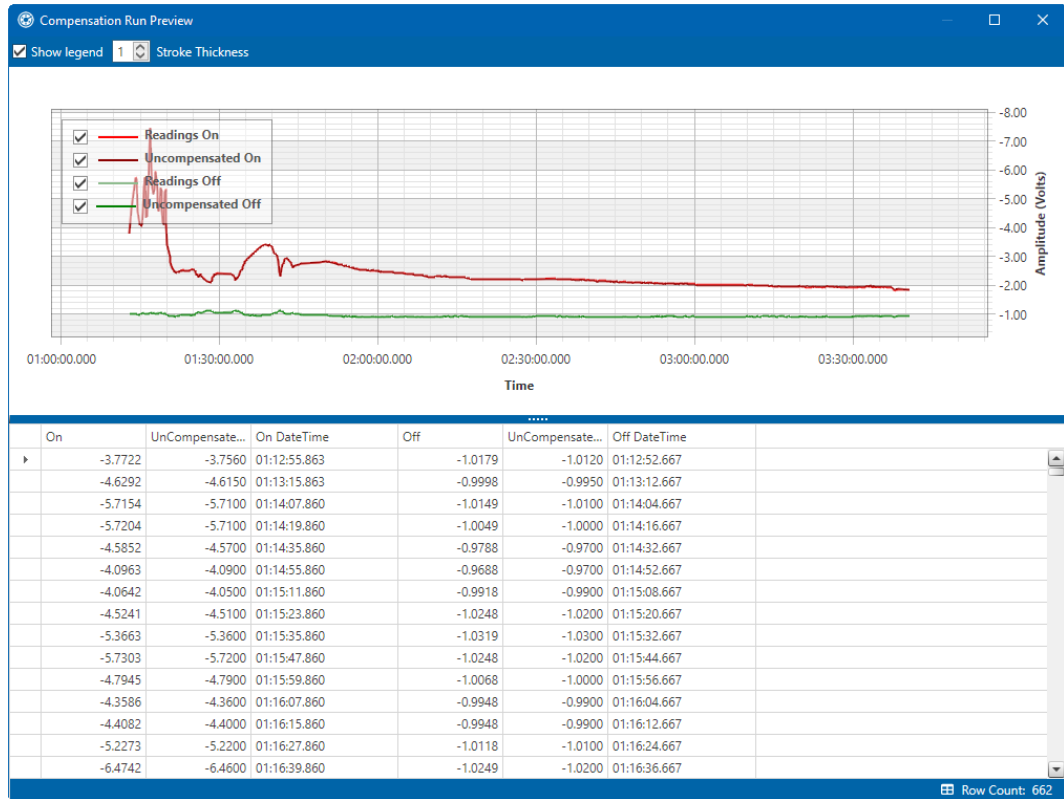


Figure 13-24. Compensation Run Preview

- e. To view more details in the graph, move your mouse over the graph.

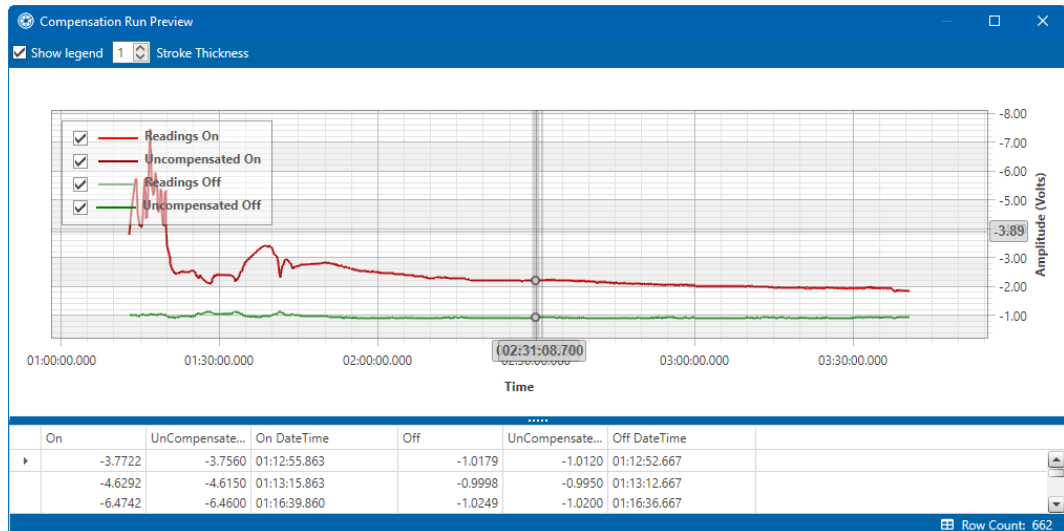





Figure 13-25. View Additional Data on Graph

- f. When you finish viewing the graph, click the close button to close the graph and return to the *Compensation Results* window.
- g. If you want to apply compensation results to the PCS database, click  **Save** in the *Compensation Results* window.
- h. Click  **Cancel** to cancel the compensation process. PCS closes the window and returns to the *Telluric* workspace. Compensation results are not applied to the PCS database.

Reverse a Compensation Run for a Selected Survey Date

If you need to reverse (undo) one or more compensation runs for a selected survey date, use the *Maintenance* window available in the *Telluric* workspace to view a list of completed compensation runs available for uncompensation. After reversing a compensation run, the *Test Point Inspection* grid and associated *Detail* mini-grid update with uncompensated test point inspection readings for the selected pipeline segment.

Complete the following steps to reverse a compensation run for a selected survey date:

1. Select the pipeline segment you want to work with in the *Select ROWs* window. Then click  **Save** to close the window.
2. Open the *Telluric* workspace in CPDM. Click **Data Entry > Edit CPDM Data > Inspection > Test Point > Telluric** tab.

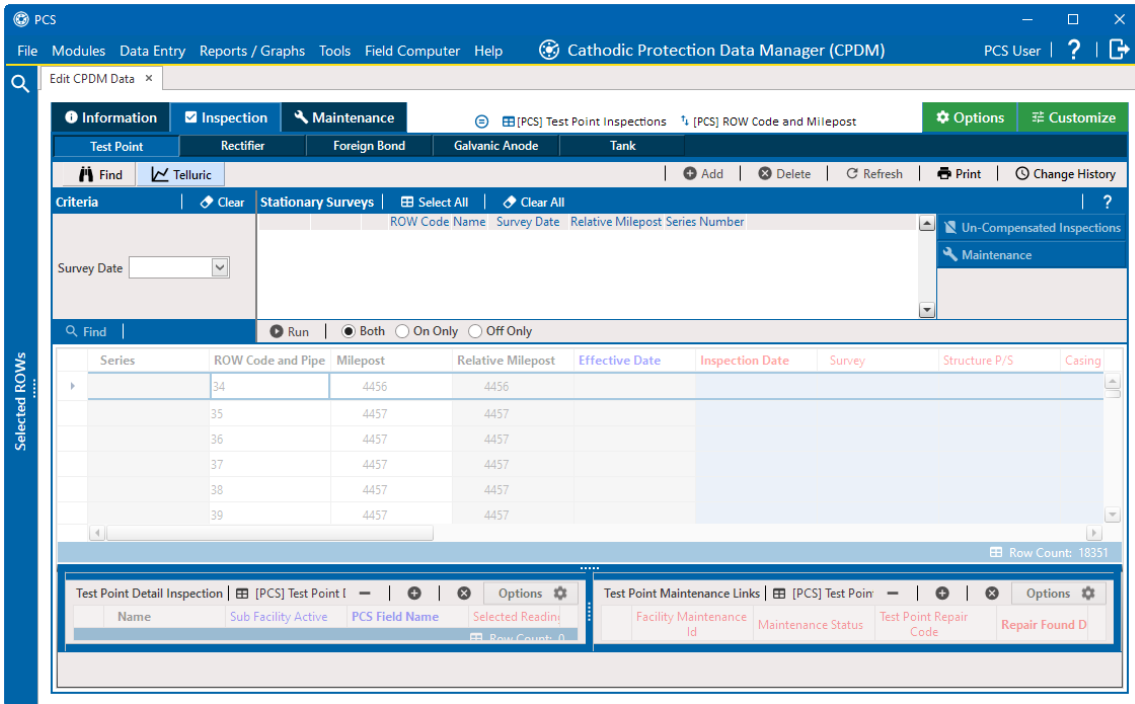


Figure 13-26. Telluric Workspace

3. Locate the upstream and downstream SDL survey files associated with the selected pipeline segment by selecting a survey date from the **Survey Date** calendar. You can also type a survey date in the field using the format MM/DD/YYYY to indicate the month, day, and year.
4. Then click **Find**. A list of SDL survey files related to the entered survey date display in the *Stationary Surveys* group box of the *Telluric* workspace.
5. Click **Maintenance** to open the *Maintenance* window.

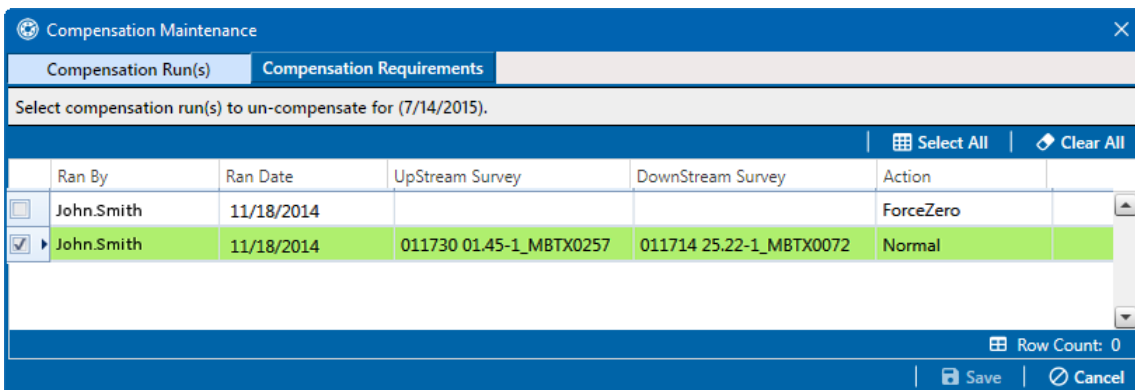




Figure 13-27. Maintenance


6. If the *Compensation Run(s)* grid is not visible, click the **Compensation Run(s)** tab to view a list of compensation runs.
7. Click the check box associated with the compensation run you want to reverse. Then click  **Save** to reverse (undo) the selected compensation run. Or click  **Cancel** to close the window without completing the action.

Uncompensate Test Point Inspections

If you want to exclude one or more test point inspections in a compensation run, or want to change the inspection reading to zero (0) for one or more test points, use the *Un-Compensated Inspections* window in the *Telluric* workspace to apply *ForceZero* or *Exclude* as needed.

ForceZero applies no telluric correction to the selected test point inspection(s). *Exclude* removes the selected test point inspection(s) from the compensation run.

Complete the following steps to uncompensate one or more test point inspections in a compensation run:

1. Select the pipeline segment you want to work with in the *Select ROWs* window. Then click  **Save** to close the window.

Open the *Telluric* workspace in CPDM. Click **Data Entry > Edit CPDM Data > Test Point > Inspection > Telluric** tab.

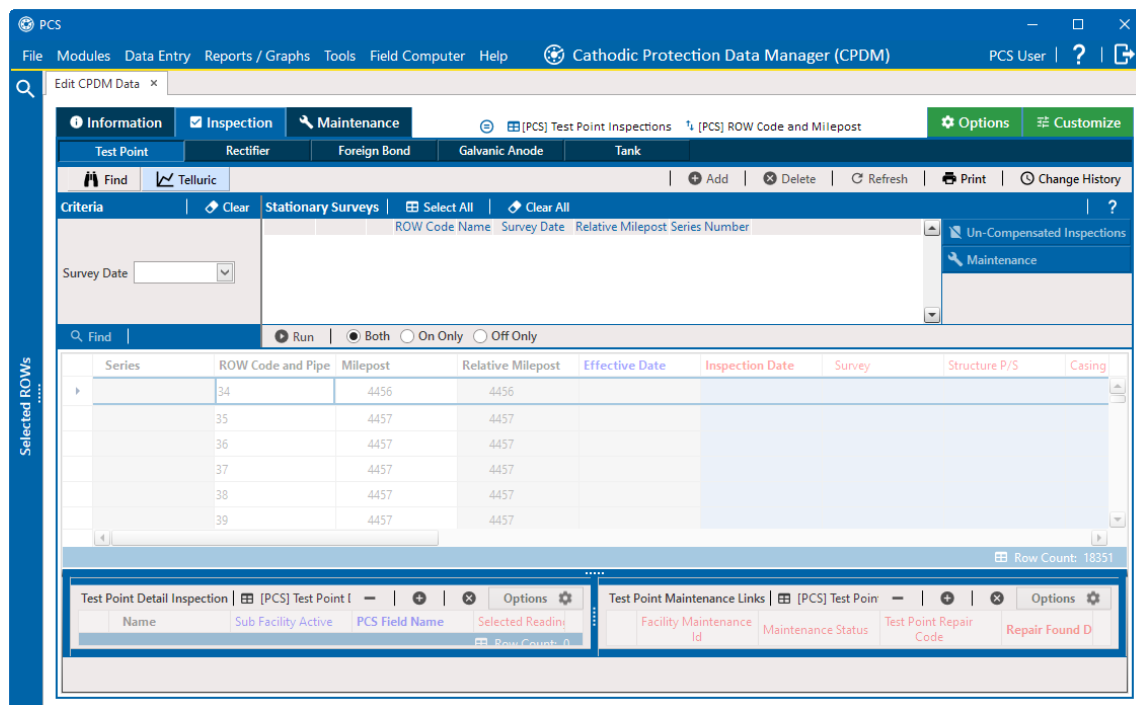




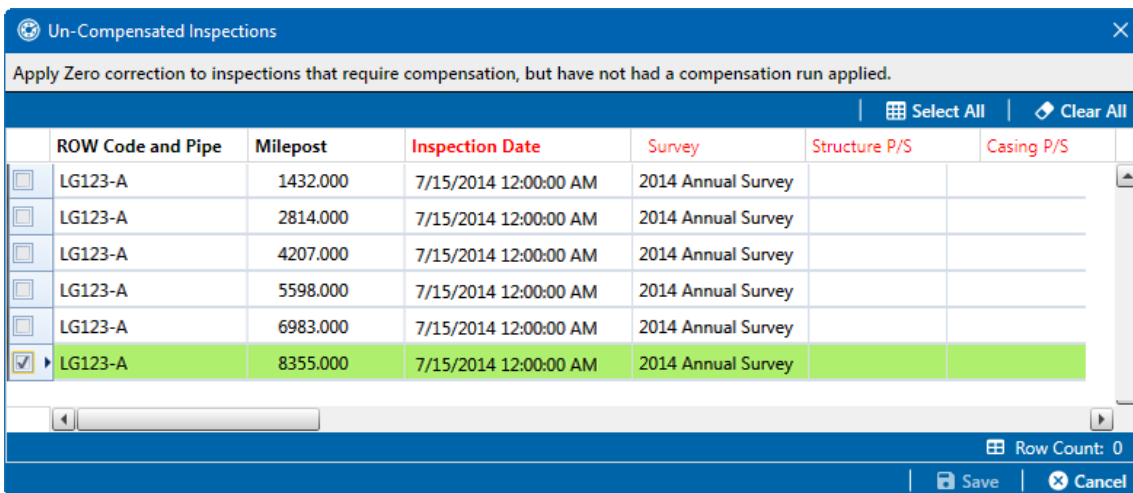


Figure 13-28. Telluric Workspace


2. Locate the upstream and downstream SDL survey files associated with the selected pipeline segment by selecting a survey date from the **Survey Date** calendar. You can also type a survey date in the field using the format MM/DD/YYYY to indicate the month, day, and year.
3. Click  **Find**.
4. Click  **Un-Compensated Inspections** to open the *Un-Compensated Inspections* window.
5. Select records you want to un-compensate either individually or click  **Select All** to select all records. To clear all selections, click  **Clear All**.



	ROW Code and Pipe	Milepost	Inspection Date	Survey	Structure P/S	Casing P/S
<input type="checkbox"/>	LG123-A	1432.000	7/15/2014 12:00:00 AM	2014 Annual Survey		
<input type="checkbox"/>	LG123-A	2814.000	7/15/2014 12:00:00 AM	2014 Annual Survey		
<input type="checkbox"/>	LG123-A	4207.000	7/15/2014 12:00:00 AM	2014 Annual Survey		
<input type="checkbox"/>	LG123-A	5598.000	7/15/2014 12:00:00 AM	2014 Annual Survey		
<input type="checkbox"/>	LG123-A	6983.000	7/15/2014 12:00:00 AM	2014 Annual Survey		
<input checked="" type="checkbox"/>	LG123-A	8355.000	7/15/2014 12:00:00 AM	2014 Annual Survey		

Figure 13-29. Uncompensated Inspections

Selected records display in green.

6. Click the check box for each test point you want to un-compensate. Click  **Save** to begin the un-compensate process or **Cancel** to close the window and return to the *Telluric* workspace.

Telluric Compensation in ISM

When working with inspections in a close interval (CI) continuous survey that require telluric compensation, use the *Telluric* workspace in *Edit ISM Data* window to perform compensation and other related functions.

After selecting a CI continuous survey to work with, inspection records associated with the selected CI survey and pipeline segment display in the data grid of *Edit ISM Data*. Inspection records eligible for telluric compensation display in the *Telluric* workspace based on your selection of SDL survey files (upstream/downstream data set) associated with the selected CI survey.

Refer to the following topics for more information on using Telluric Compensation in the ISM module:

- [View CI Inspections Eligible for Compensation on page 726](#)
- [Change the Compensation Requirement on page 727](#)
- [Run Telluric Compensation in ISM on page 729](#)
- [Reverse a Compensation Run in ISM on page 734](#)
- [Uncompensate CI Test Point Inspections on page 736](#)

NOTE: Several options are available for customizing a grid layout and sorting order, as well as applying data filters that allow you to work with a subset of CI inspection records. For information about how to apply data filters, refer to [Viewing Records in a Grid](#). Refer to [Themes and Filter Groups on page 372](#) for information about customizing the grid layout and sorting order.

View CI Inspections Eligible for Compensation

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to view close interval (CI) inspections eligible for telluric compensation in ISM:

1. If the ISM module is not open, click **Modules > Indirect Survey Manager (ISM)**.
2. Click **Data Entry > Edit ISM Data** to open the *Edit ISM Data* window.

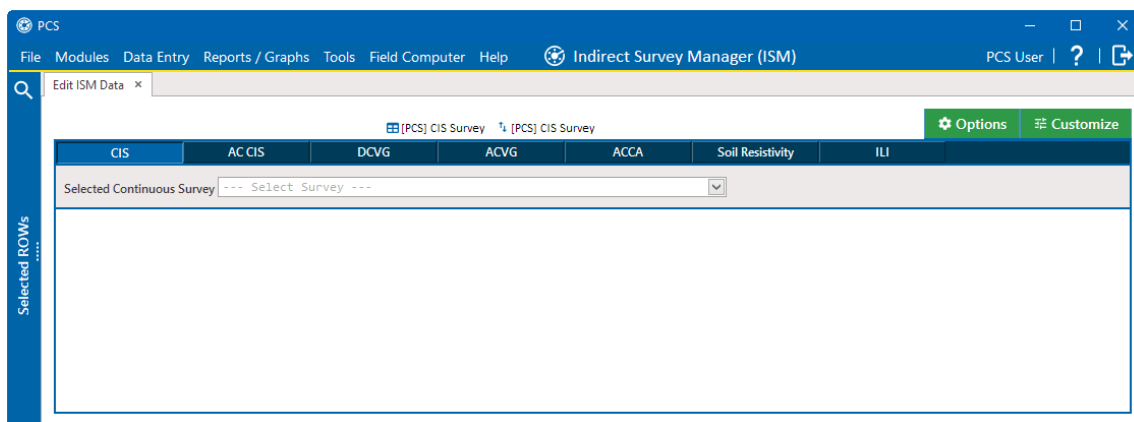


Figure 13-30. Edit ISM Data

3. Click the **CIS** tab to work with close interval survey data.
4. Select a survey folder with CI inspection readings you want to run telluric compensation. Click the down arrow in the field **Selected Continuous Survey** and select a survey folder in the selection list.

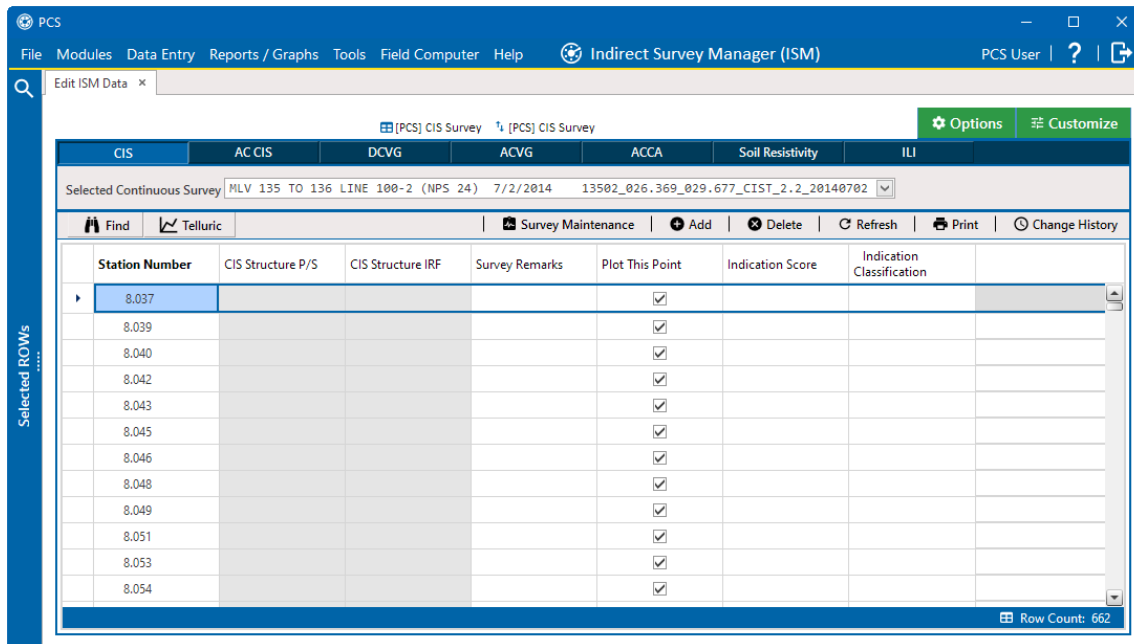


Figure 13-31. Edit ISM Data

Inspection records eligible for compensation include voltage measurements in the **CIS Structure P/S Uncompensated** and **CIS Structure IRF Uncompensated** fields .

Change the Compensation Requirement

If you want to change the compensation requirement for a pipeline segment and related close interval (CI) inspections, use the *Maintenance* window available in the *Telluric* workspace to apply *Add Requirement* or *Remove Requirement* as needed.

IMPORTANT: Changing the compensation requirement must occur prior to running telluric compensation for a pipeline segment and associated CI inspections. The compensation requirement cannot be changed once telluric compensation has completed and results have been applied to the PCS database.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

the following steps to change the compensation requirement for a pipeline segment and associated CI inspections:

1. Open the *CIS* data grid in *Edit ISM Data*. Click **Data Entry > Edit ISM Data** and then the **CIS** tab.

2. Select a survey folder with survey readings you want to change the compensation requirement from the **Selected Continuous Survey** drop-down list.

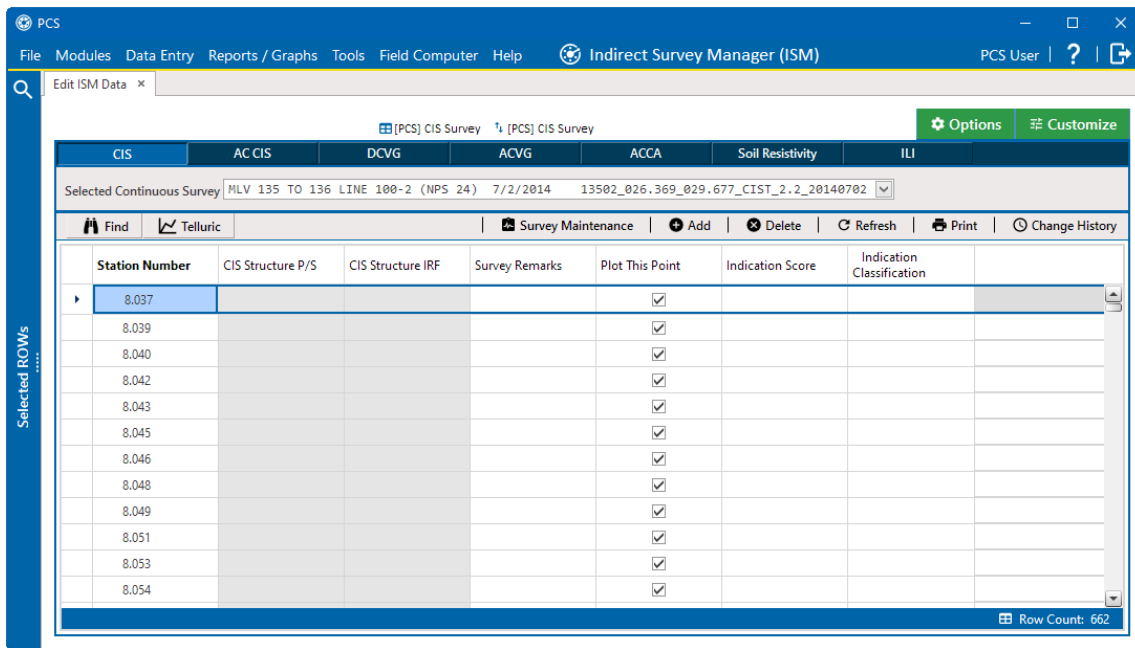


Figure 13-32. Edit ISM Data

3. Click the **Telluric** tab to open the *Telluric* workspace.

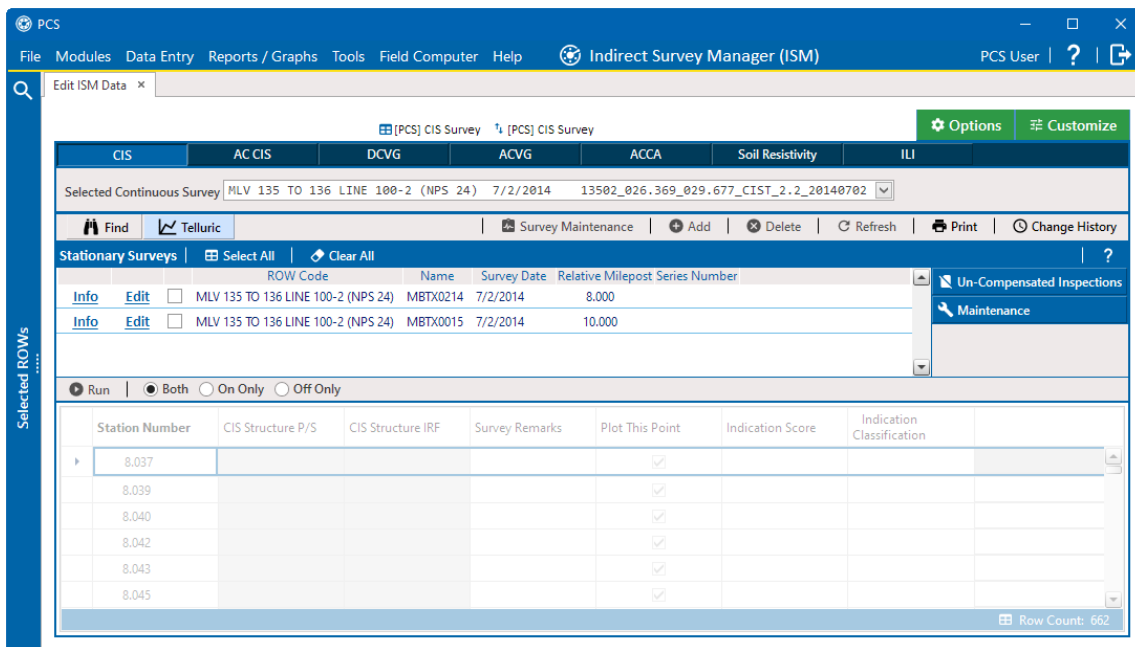



Figure 13-33. ISM Telluric Workspace

4. Click  **Maintenance** to open the *Maintenance* window and then click the **Compensation Requirements** tab.

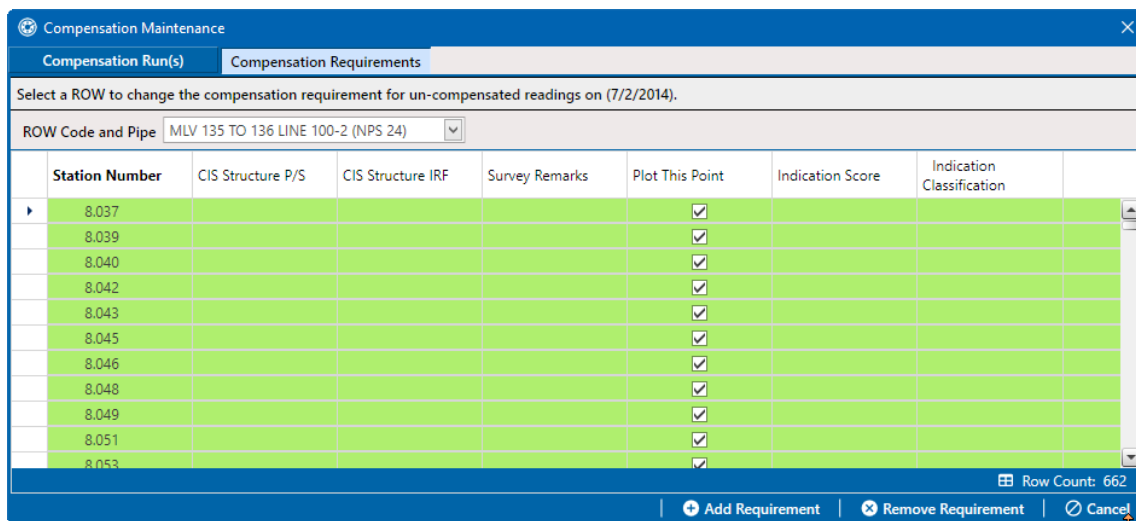





Figure 13-34. Maintenance

5. Select a pipeline segment from the **ROW Code and Pipe** drop-down list to view related CI inspections in the grid.
6. Complete one of the following steps:
 - a. To add the compensation requirement to the selected pipeline segment, click  **Add Requirement**.
 - b. To remove the compensation requirement from the selected pipeline segment, click  **Remove Requirement**.
After adding or removing the compensation requirement, PCS closes the *Maintenance* window and returns to the *Telluric* workspace.
 - c. If you want to close the window without changing the current compensation requirement, click  **Cancel** to return to the *Telluric* workspace.

Run Telluric Compensation in ISM

Running telluric compensation takes place in the *Telluric* workspace of the *Edit ISM Data* grid. After receiving field computer or mobile device survey files and importing and evaluating SDL survey files, use the information in this section to run telluric compensation for inspections in a close interval (CI) survey that include telluric effects and require compensation.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to run telluric compensation in the ISM module:

1. Click **Data Entry > Edit ISM Data** and then the **CIS** tab to open the *CIS* data grid in *Edit ISM Data*.
2. Select a survey folder with CI inspections that you want to run compensation from the **Selected Continuous Survey** drop-down list.

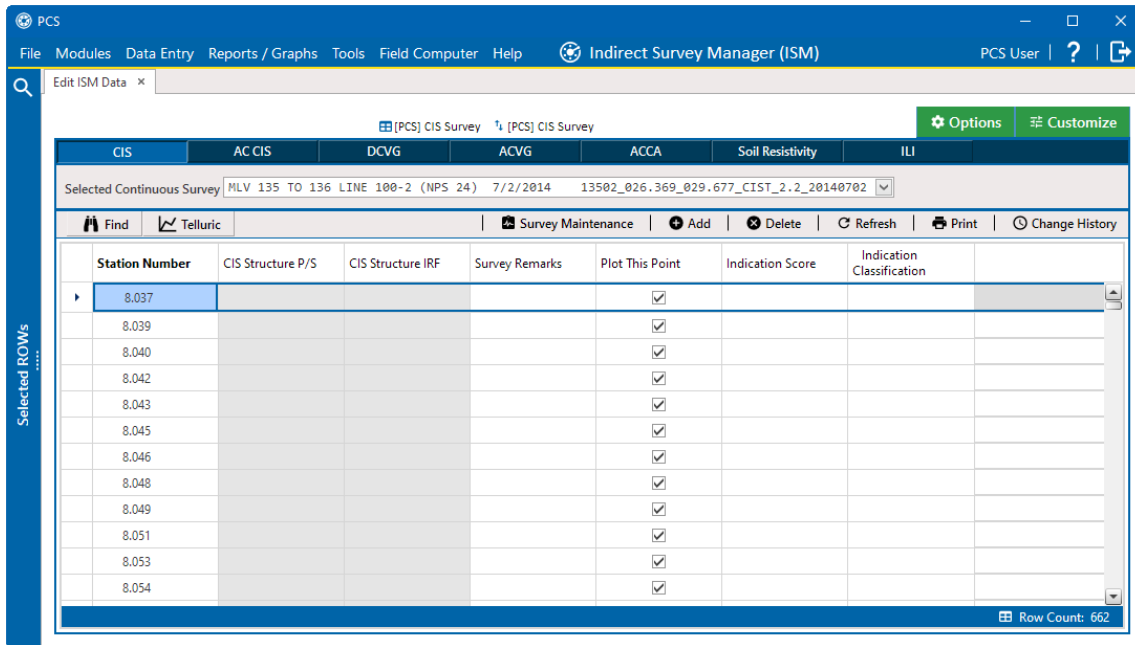


Figure 13-35. Edit ISM Data

3. Click the **Telluric** tab to open the *Telluric* workspace.

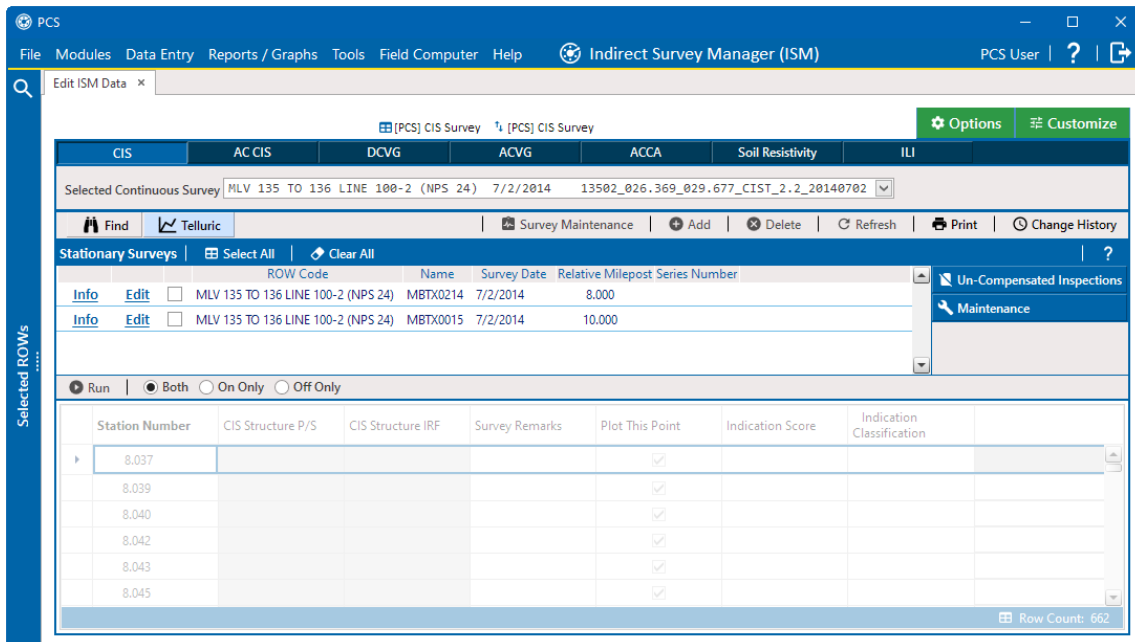


Figure 13-36. Telluric Workspace

A list of stationary data logger (SDL) survey files related to the selected pipeline segment and CI survey display in the *Stationary Surveys* group box of the *Telluric* workspace.

4. If you want to view a telluric summary of an SDL survey listed in the *Stationary Surveys* group box, click the **Info** link to open the *Stationary Telluric Info* window. For a description of this window, refer to [View Telluric Summary Information on page 702](#).
5. If you want to view voltage measurements associated with an SDL survey listed in the *Stationary Surveys* group box, click the **Edit** link to open the *Stationary Survey Maintenance* window. A description of this window is available in [Stationary Survey Maintenance on page 695](#).
6. To run telluric compensation, follow these steps:
 - a. Select the SDL upstream/downstream data set pair to use in the compensation run. Click the check box associated with the upstream and downstream SDL survey files.
 - b. Click **Run** to begin the compensation process and open the *Compensation Results* window.

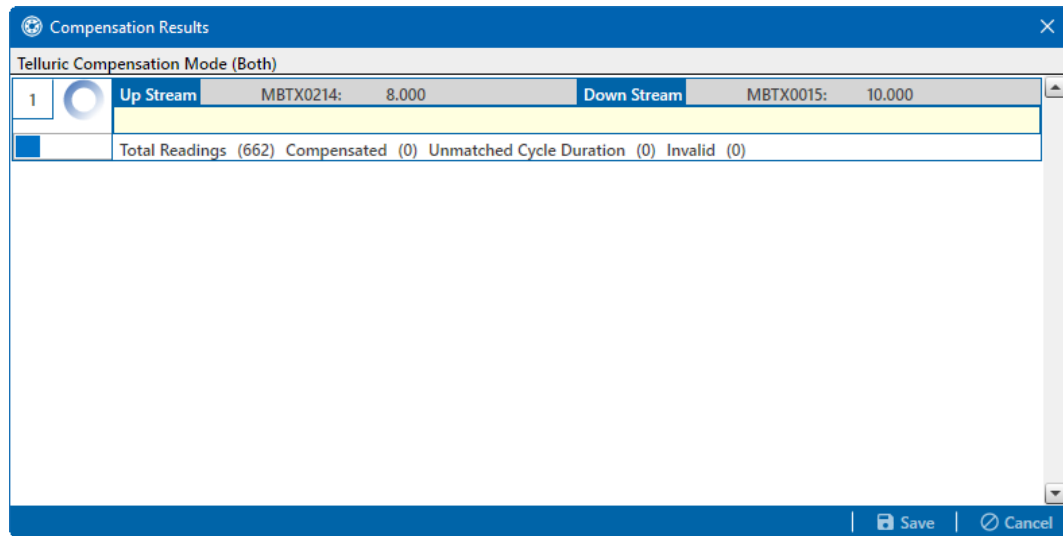




Figure 13-37. Compensation Results

- c. If an error occurs during the compensation run, a  warning icon displays in the *Compensation Results* window. A description of the error and how to resolve it also display.
- d. When the compensation process completes, click  **Preview** to view a graph of compensation results.

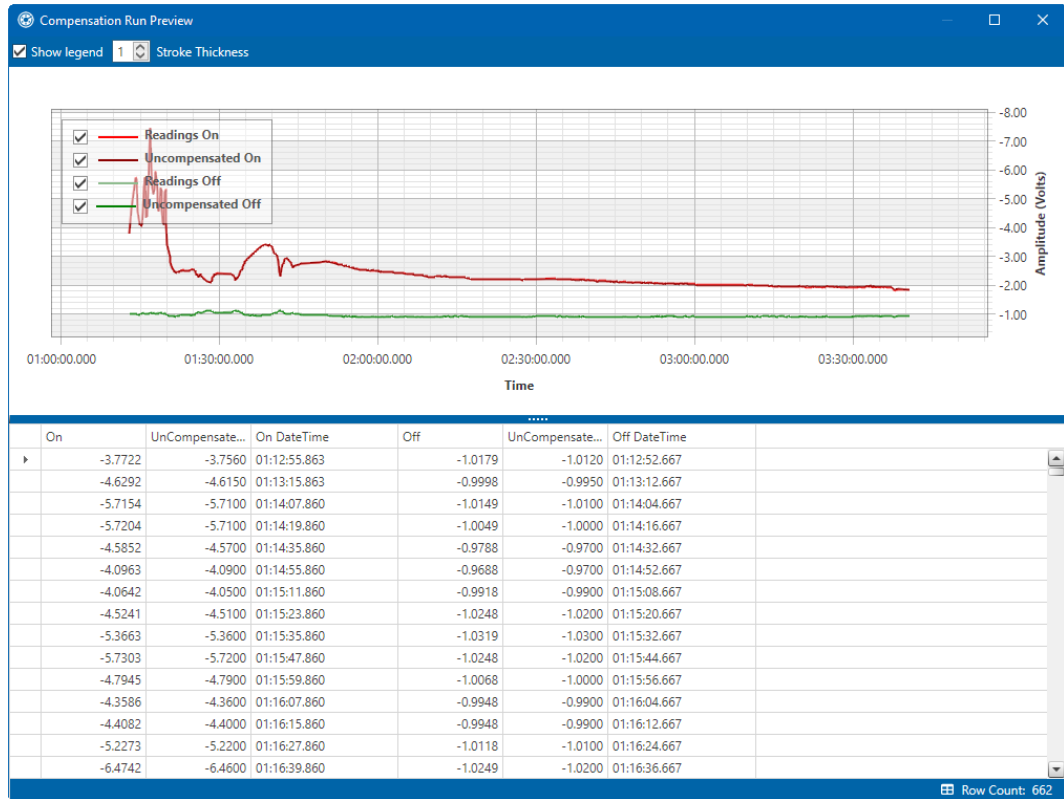


Figure 13-38. Compensation Run Preview

- e. To view more details in the graph, move your mouse over the graph.

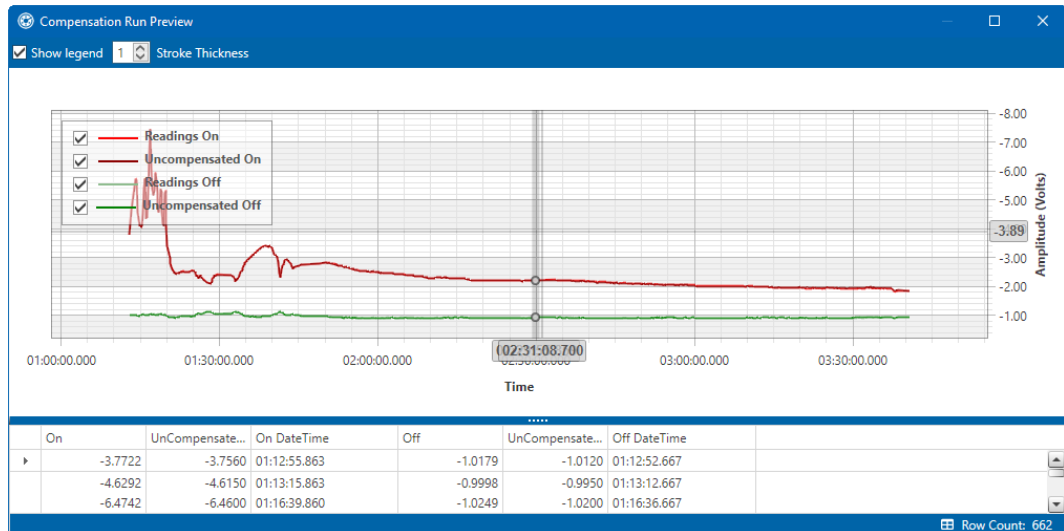




Figure 13-39. View Additional Data on Graph

- f. When you finish viewing the graph, click the close button to close the graph and return to the *Compensation Results* window.
- g. If you want to apply compensation results to the PCS database, click  **Save** in the *Compensation Results* window.
- h. Click  **Cancel** to cancel the compensation process. PCS closes the window and returns to the *Telluric* workspace. Compensation results are not applied to the PCS database.

Reverse a Compensation Run in ISM

If you want to reverse (undo) one or more compensation runs in ISM, use the *Maintenance* window available in the *Telluric* workspace to view a list of completed compensation runs available for uncompensation. After reversing a compensation run, the data grid in *Edit ISM Data* updates with uncompensated close interval (CI) inspections.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to reverse a compensation run in ISM:

1. Click **Data Entry > Edit ISM Data** and then the **CIS** tab to open the *CIS* data grid in *Edit ISM Data*.
2. Select a survey folder with CI inspections you want to reverse (undo) a compensation run from the **Selected Continuous Survey** drop-down list.

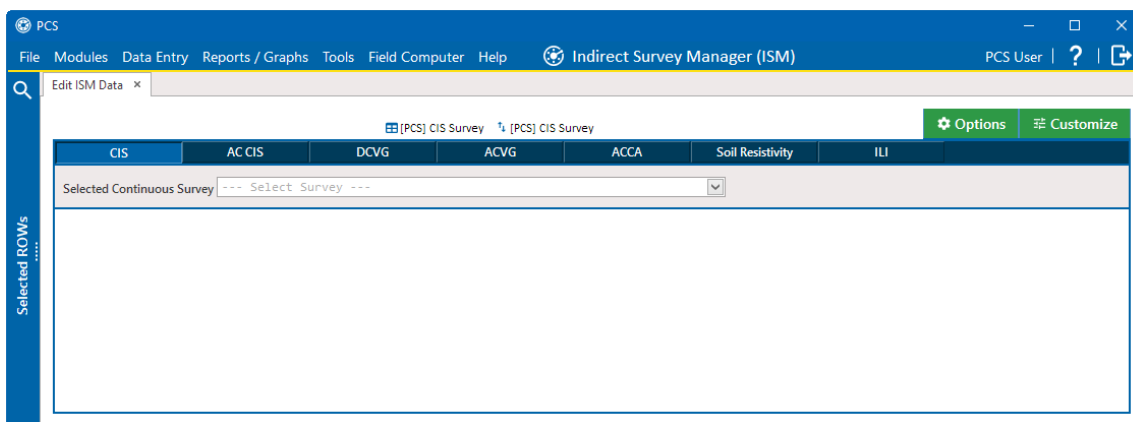


Figure 13-40. Edit ISM Data

3. Click the **Telluric** tab to open the *Telluric* workspace.

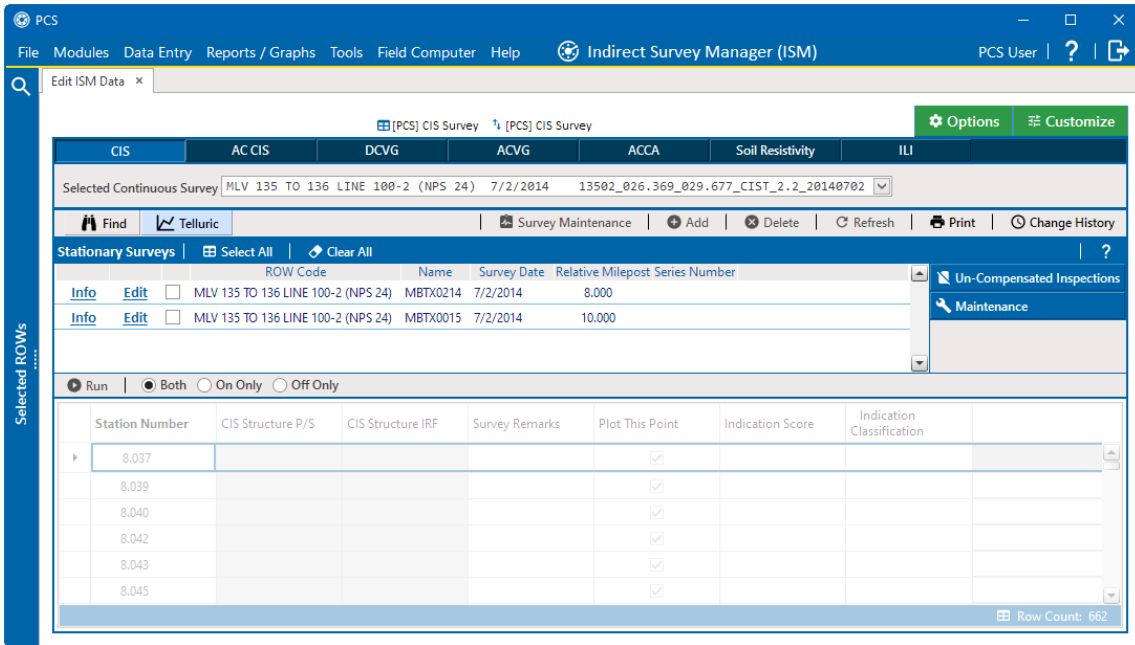



Figure 13-41. ISM Telluric Workspace

- Click  **Maintenance** to open the *Maintenance* window.

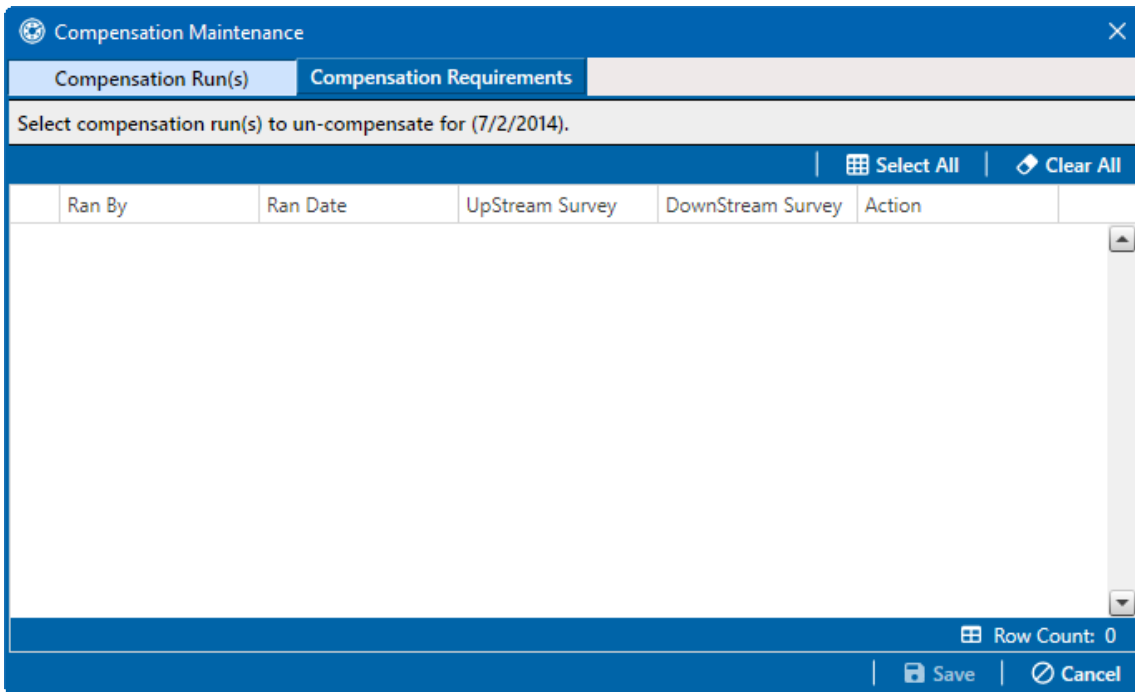




Figure 13-42. Maintenance

5. If the *Compensation Run(s)* grid is not visible, click the **Compensation Run(s)** tab to view a list of compensation runs.
6. Click the check box associated with the compensation run you want to reverse. Then click  **Save** to reverse (undo) the selected compensation run. Or click  **Cancel** to close the window without completing the action.

Uncompensate CI Test Point Inspections

If you want to exclude one or more close interval (CI) inspections in a compensation run, or want to change the telluric compensation to zero (0) for one or more CI inspections, use the *Un-Compensated Inspections* window in the *Telluric* workspace to apply *ForceZero* or *Exclude* as needed.

ForceZero applies no telluric correction to the selected CI inspection(s). *Exclude* removes the selected CI inspection(s) from the compensation run.

Complete the following steps to uncompensate one or more CI inspections in a compensation run:

1. Click **Data Entry > Edit ISM Data** and then the **CIS** tab to open the *CIS* data grid in *Edit ISM Data*.
2. Select a survey folder with CI inspections you want to reverse (undo) a compensation run from the **Selected Continuous Survey** drop-down list.

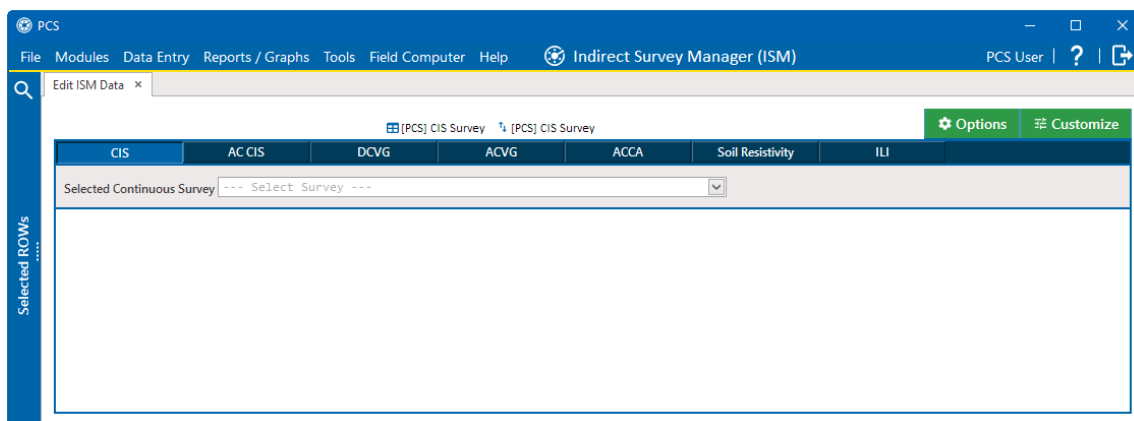


Figure 13-43. Edit ISM Data

3. Click the **Telluric** tab to open the *Telluric* workspace.

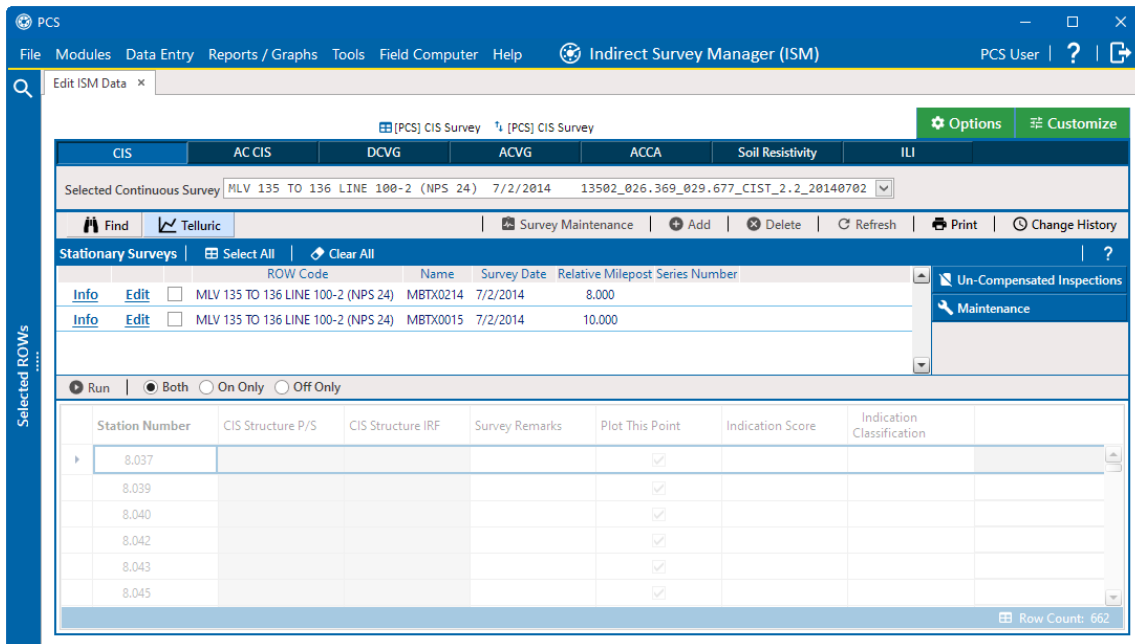


Figure 13-44. ISM Telluric Workspace

4. Click **Un-Compensated Inspections** to open the *Un-Compensated Inspections* window.
5. Select records you want to un-compensate either individually or click **Select All** to select all records. To clear all selections, click **Clear All**.

Selected records display in green.

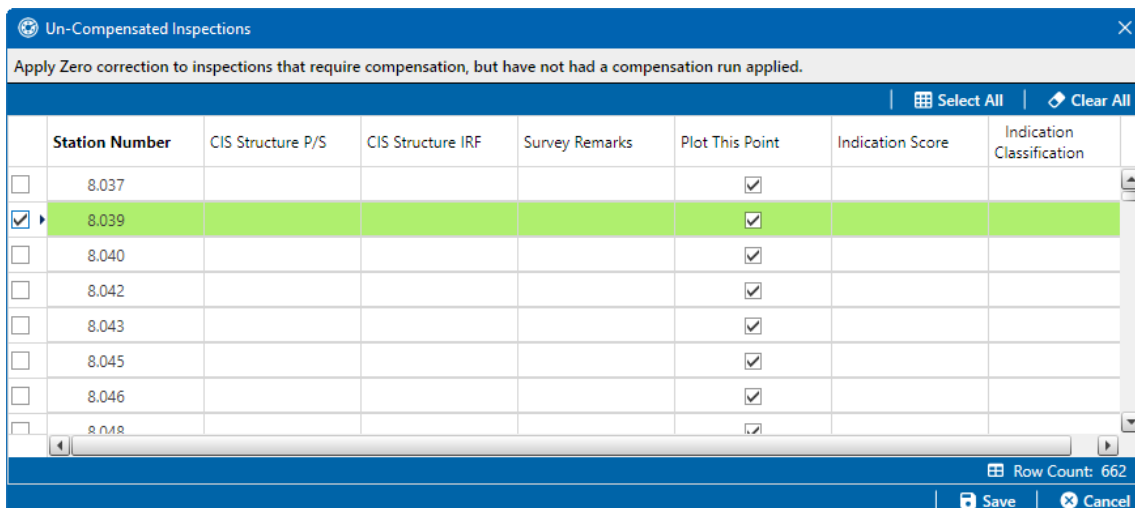


Figure 13-45. Uncompensated Inspections

6. Click **Save** to begin the uncompensate process or **Cancel** to close the window and return to the *Telluric* workspace.

Themes

Facility type themes can be managed in the *Facility Type Themes* window. All themes can be managed in the *Themes Management* window. Both of these windows can be accessed from the **Tools** main menu.

NOTE: The information in this section or sections is/are intended for users with SysAdmin security permissions, unless noted otherwise.

This chapter includes the following topics:

- [Work with a Facility Type Theme](#)
- [Manage Themes on page 743](#)

Work with a Facility Type Theme


A facility type theme is a named set of one or more facility types, such as test point, rectifier, valve, and atmospheric facility types. Certain features in PCS require you to select a facility type theme to complete an operation, such as selecting a facility type theme when working in *Define Routes* (Data Entry > Define Routes) or *Field Computer Send* (Field Computer > Send).

Two types of facility type themes are available for use. They include *installed* and *addition* facility type themes. An installed facility type theme is one that has been installed during the PCS software installation. A facility type theme addition is one that you create.

Information in this section explains how to work with a facility type theme in *Facility Type Themes Management*. Topics include those in the following list:

- [Edit an Installed Facility Type Theme on page 738](#)
- [Add a Facility Type Theme Addition on page 740](#)
- [Edit a Facility Type Theme Addition on page 742](#)

Edit an Installed Facility Type Theme

An installed facility type theme includes [PCS] in the name of the theme, such as  [PCS] Rectifier Survey. You can add or remove a facility type or revert an installed facility type theme.

Complete the following steps to edit an installed facility type theme:

1. Click **Tools > Facility Type Themes** to open the *Facility Type Themes* window.

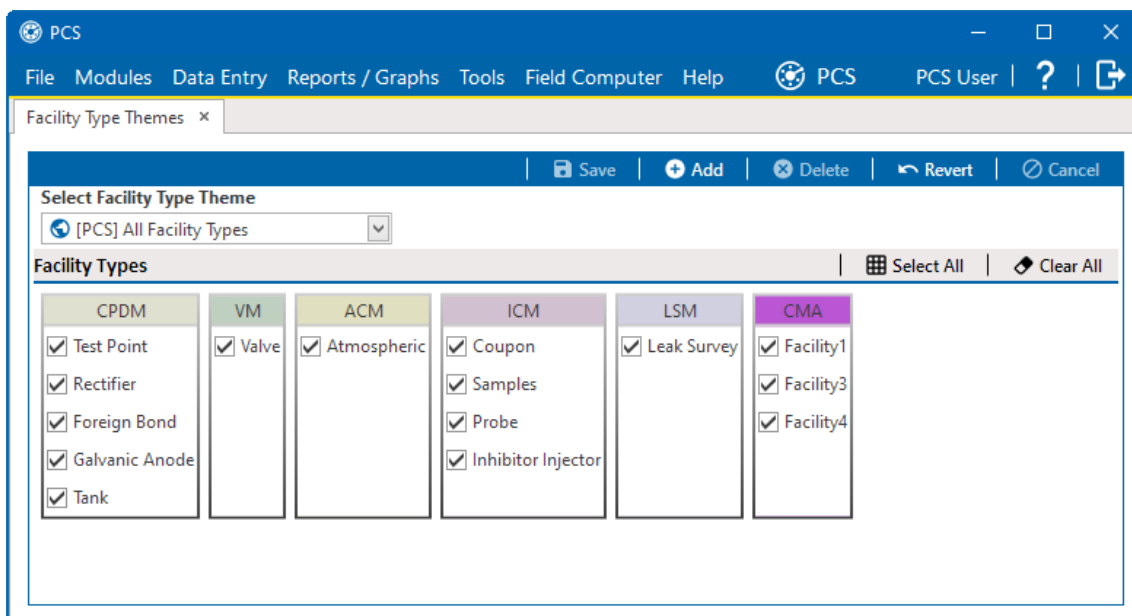


Figure 14-1. Facility Type Themes

2. Select a PCS installed theme from the **Select Facility Type Theme** drop-down list, such as **[PCS] P/S Survey**.
3. To add one or more facility types in an installed theme, click the check box for each facility type you want to add.
4. Click **Save** to save changes.
5. To remove one or more facility types in an installed theme, click the check box to clear the check mark for each facility type you want to remove.
6. Click **Save** to save changes.
7. To revert a facility type theme and restore settings prior to editing, click **Revert**. Click **Yes** in the *Confirm Revert* message window.

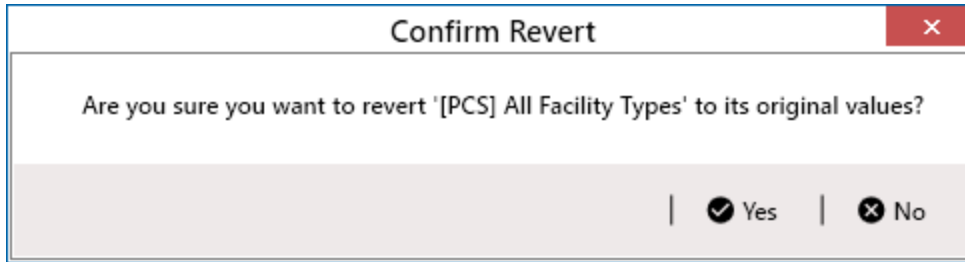


Figure 14-2. Confirm Revert Message Window

Add a Facility Type Theme Addition

Complete the following steps to add a facility type theme addition:

1. If the *Facility Type Themes* window is not open, click **Tools > Facility Type Themes**.

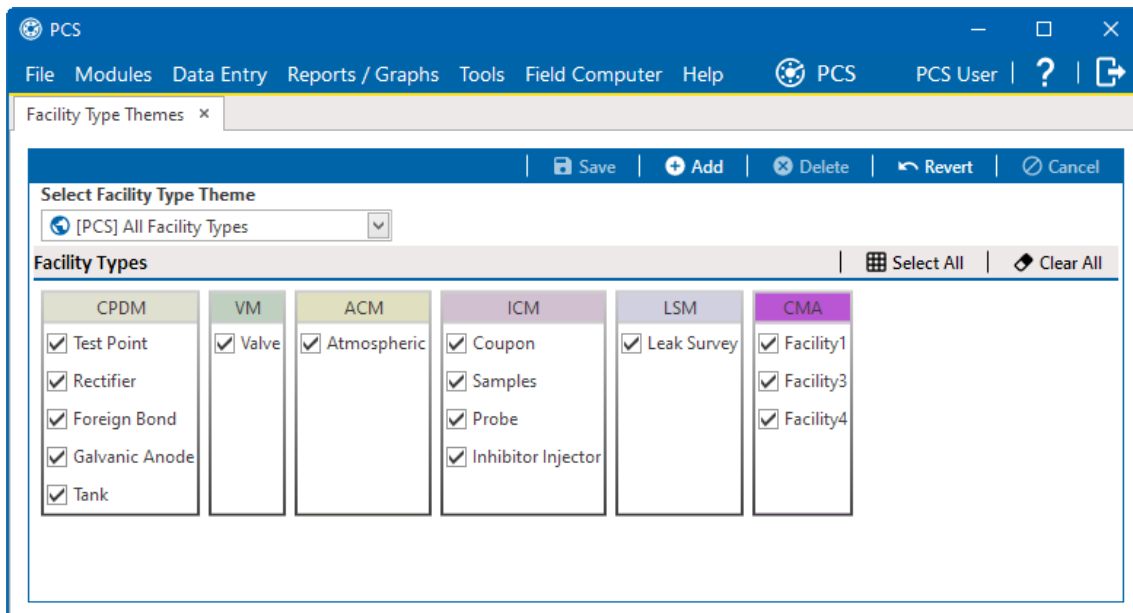


Figure 14-3. Facility Type Themes Management

2. Click **Add** to open the *New Facility Type Theme* window.

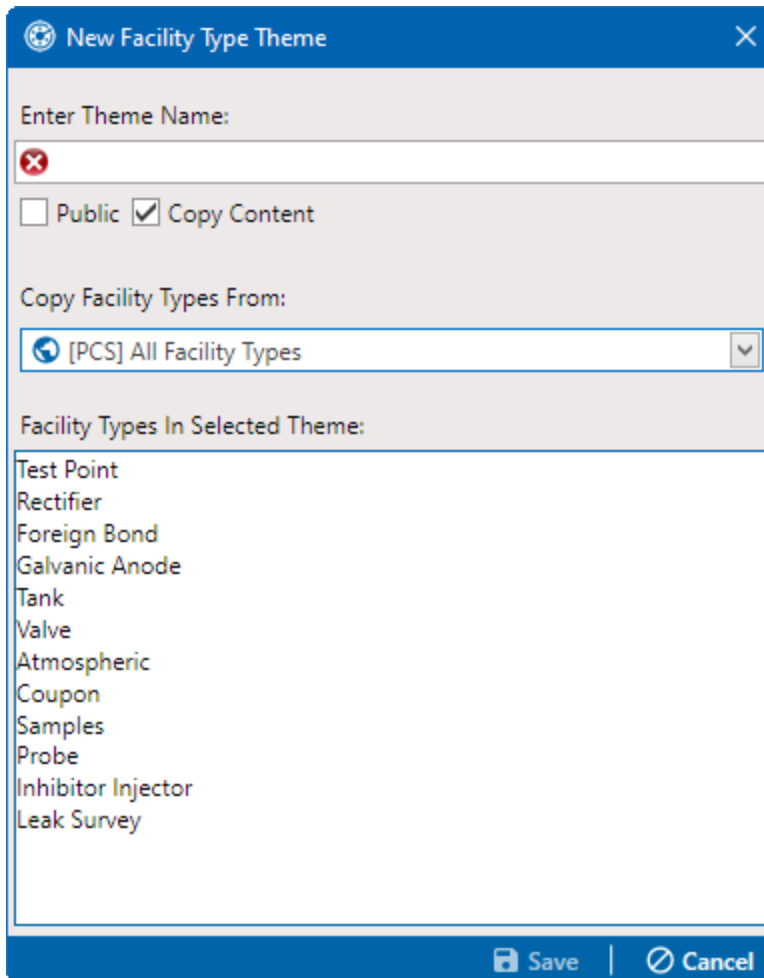






Figure 14-4. New Facility Type Theme

3. Type a name for the new theme in the field **Enter Theme Name**.
4. Select the **Public** check box if you want the new theme available to all PCS users.
When a theme is not public, it is a private theme. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
5. Select an existing facility type theme with facility types you want to copy to the new theme from the **Copy Facility Types From** drop-down list.
6. Click  **Save** to save changes and close the window.
7. To add one or more facility types in the new theme, click the check box for each facility type you want to add. You can also click  **Select All** to add all facility types in the new theme. A check mark inside a check box indicates a selection.

8. To remove one or more facility types from the new theme, click the check box to clear the check mark for each facility type you want to remove. You can also click  **Clear All** to removes all facility types in the new theme.
9. Click  **Save** to save changes.

The facility type theme is now available for selection in the *Define Routes* window (**Data Entry > Define Routes**; refer to [Routes on page 442](#)) and the *Field Computer Send* window (**Field Computer > Send**; refer to [Field Computer on page 650](#)).

Edit a Facility Type Theme Addition

You can to add or remove facility types in a facility type theme addition or delete a facility type theme addition.

Complete the following steps to edit a facility type theme addition:

1. Click **Tools > Facility Type Themes** to open the *Facility Type Themes* window.

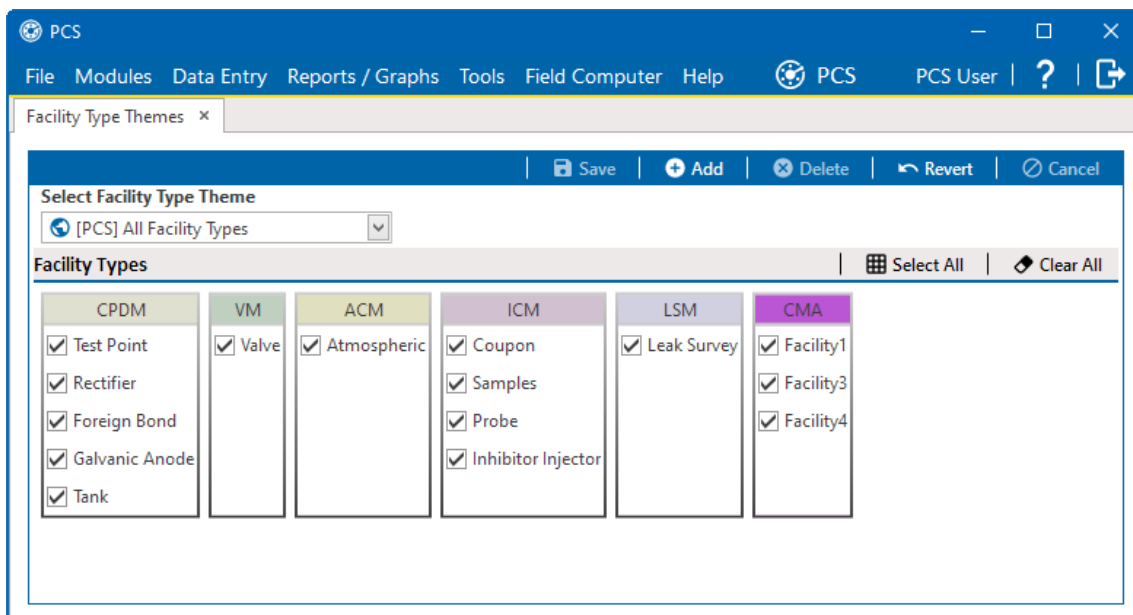









Figure 14-5. Facility Type Themes Management

2. Select a facility type theme addition from the **Select Facility Type Theme** drop-down list.
3. To add one or more facility types, click the check box for each facility type you want to add. You can also click  **Select All** to add all facility types. A check mark inside a check box indicates a selection. Click  **Save** to save changes.

4. To remove one or more facility types, click the check box to clear the check mark for each facility type you want to remove. You can also click  **Clear All** to clear all selections. Click  **Save** to save changes.
5. To revert a facility type theme and restore settings prior to editing, click  **Revert**, then click  **Yes** in the *Confirm Revert* message window.
6. To delete a facility type theme addition, click  **Delete** and then click **Yes** in the *Confirm Delete* message window.

Manage Themes

Themes Management allows you to perform the following tasks for any PCS installed and user-created theme in the system:

- Change the Based On method for working with facility records
- Rename a theme
- Change a theme from Public to Private or from Private to Public
- Assign a Private theme to a user
- Delete a theme
- Import and export a theme

NOTE: Importing and exporting themes is only available for form themes. Not all themes can be imported and exported.

Complete the following steps to manage themes in the system:

1. Click **Tools > Themes Management** to open the *Themes Management* window.

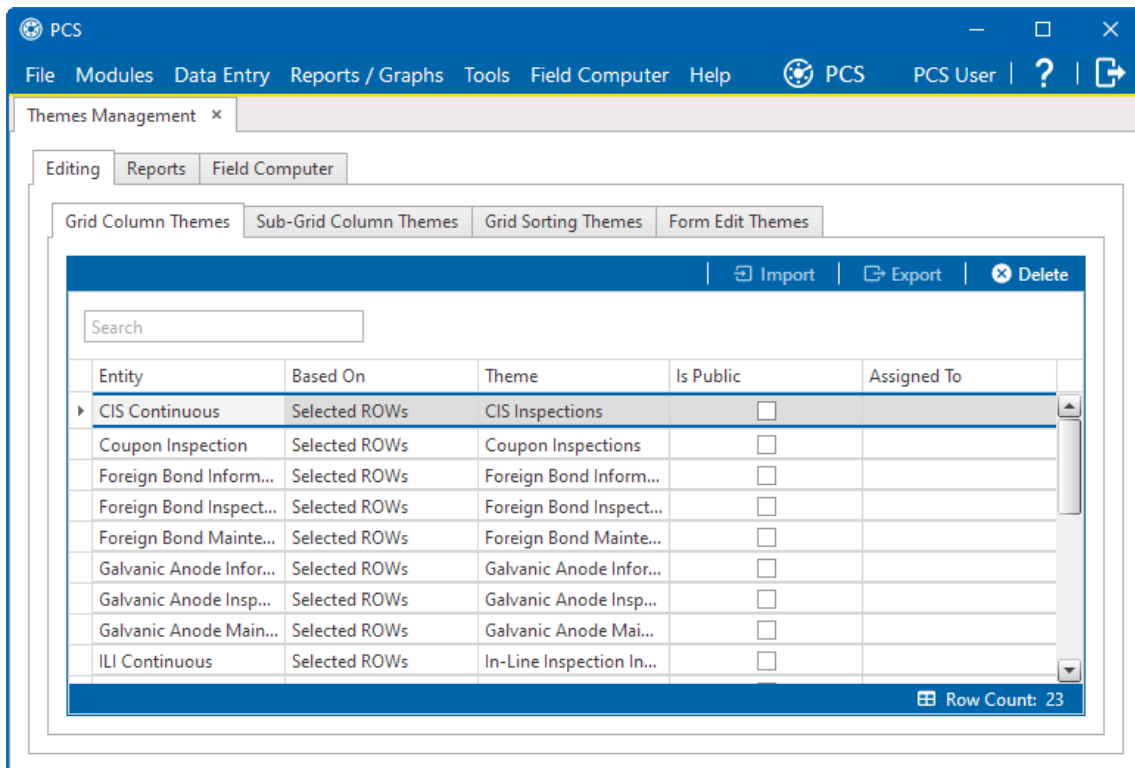





Figure 14-6. Themes Management

2. Open a grid with the theme you want to edit. For example, to edit a grid layout theme, click the **Editing** tab and then the **Grid Column Themes** tab.
3. To edit the **Based On** method for a theme:
 - a. Select a theme in the grid.
 - b. Select one of the options available from the **Based On** drop-down list to select a mode for displaying facility records in a data entry grid, report, or survey file sent to the Allegro field computer or mobile device. Options may include Selected ROWs, Route, Schedule, or Exported.
4. To rename a theme, select a theme in the grid and then type a name in the **Theme** column cell.
5. To change a theme from Public to Private:
 - a. Select a theme in the grid and then click the **Is Public** check box to remove the check mark.
 - b. Assign the Private theme to a user. Select a user name from the **Assigned To** drop-down list.

6. To change a theme from Private to Public, select a theme in the grid and then click the **Is Public** check box to place a check mark inside the check box. PCS automatically removes the user name associated with the private theme in the **Assigned To** column cell.
7. To delete a theme, select a theme in the grid and then click  **Delete**. Click **Yes** in the *Confirm Delete* message window to confirm the deletion.
8. To import a previously exported theme, select a theme in the grid and click  **Import**. Navigate to and select an exported theme (.csv or .txt) file and click **Open** then **Yes** to import the selected theme.
9. To export a theme to a file, select a theme in the grid and click  **Export**. Navigate to a location on your hard drive or network, enter a name in the field provided, and click **Save** to export the selected theme.

Reports and Graphs

PCS can generate and several different reports and graphs based on the data within your database.

Most PCS users can generate these reports and graphs.

The reports and graphs are available from the **Reports/Graphs** main menu.

This chapter includes the following topics:

- [Value of PCS Reports](#)
- [KPI Dashboard](#)
- [Overview of Reports on page 762](#)
- [Work With Reports Based on a Style on page 787](#)
- [Add a Custom Report on page 796](#)
- [Report Themes and Filter Groups on page 800](#)

Value of PCS Reports

PCS reporting supports a variety of business applications. A few example include managing data collection and data entry, reviewing the quality of cathodic protection (CP) data, providing information for an audit, and examining the effectiveness of a maintenance program.

The following list describes how you can use PCS reporting in your business:

- **Manage data collection and data entry.**
Provide a printed copy of the *Survey Report* or *Data Collection Report* to technicians and vendors for recording CP data in the field. Update the PCS database using completed reports submitted by technicians and vendors. Using PCS reports in this manner allows you to verify consistent data collection and data entry in PCS.
- **Review data quality.**
Use PCS reporting to check the quality of survey data submitted by vendors. The quickest method is to view the *Survey Report* to determine which facilities have not been surveyed. Blank report fields indicate no survey data. If a vendor is using the Allegro field computer to collect survey data, view the Field Computer Log to determine which facilities have not been surveyed.

Another method for checking the quality of survey data is to generate an *Exceptions* or *Comparisons* report. The *Exceptions* report allows you to compare surveys from previous years. Look for dramatic changes between surveys. You can also use the *Exceptions* report to check for data entry mistakes. This is helpful when range checking is not used or when personnel enter data using survey data recorded in a printed form. The *Comparisons* report compares multiple years of survey data. Use the *Comparisons* report to review changes in data and check for mistakes that might have been made during data entry.

- Provide information for an audit.

The *Survey Report* and facility *Inspections Graph* contain most of the information needed for an audit. When an audit requires more specific information, create a custom facility report using a columnar, summary, or graph report style.

To prepare for an audit, generate a *Delinquency Report* to help with creating a plan for bringing a pipeline system into compliance. Another method for preparing for an audit is to generate a *Survey Report* or any custom summary report to provide data for an audit. All other PCS reports are also beneficial in providing information for an audit.

- Determine the effectiveness of a maintenance program.

PCS reporting provides several reports and graphs that help with determining the effectiveness of a maintenance program. For example, use the *CPDM Rectifier Output History Report* to review the output of a rectifier over time. Look for changes in the rectifier output and any survey remarks or permanent comments that identify reasons for the change. Another method for determining a maintenance program's effectiveness is to generate the *Survey Report* and review the number of inspection readings for a particular survey period. Also look for changes among facilities.

KPI Dashboard

Key performance indicators (KPIs) are displayed on a dashboard for easy access to database information.

The dashboard can be access through the **Reports/Graphs > Dashboard** menu.

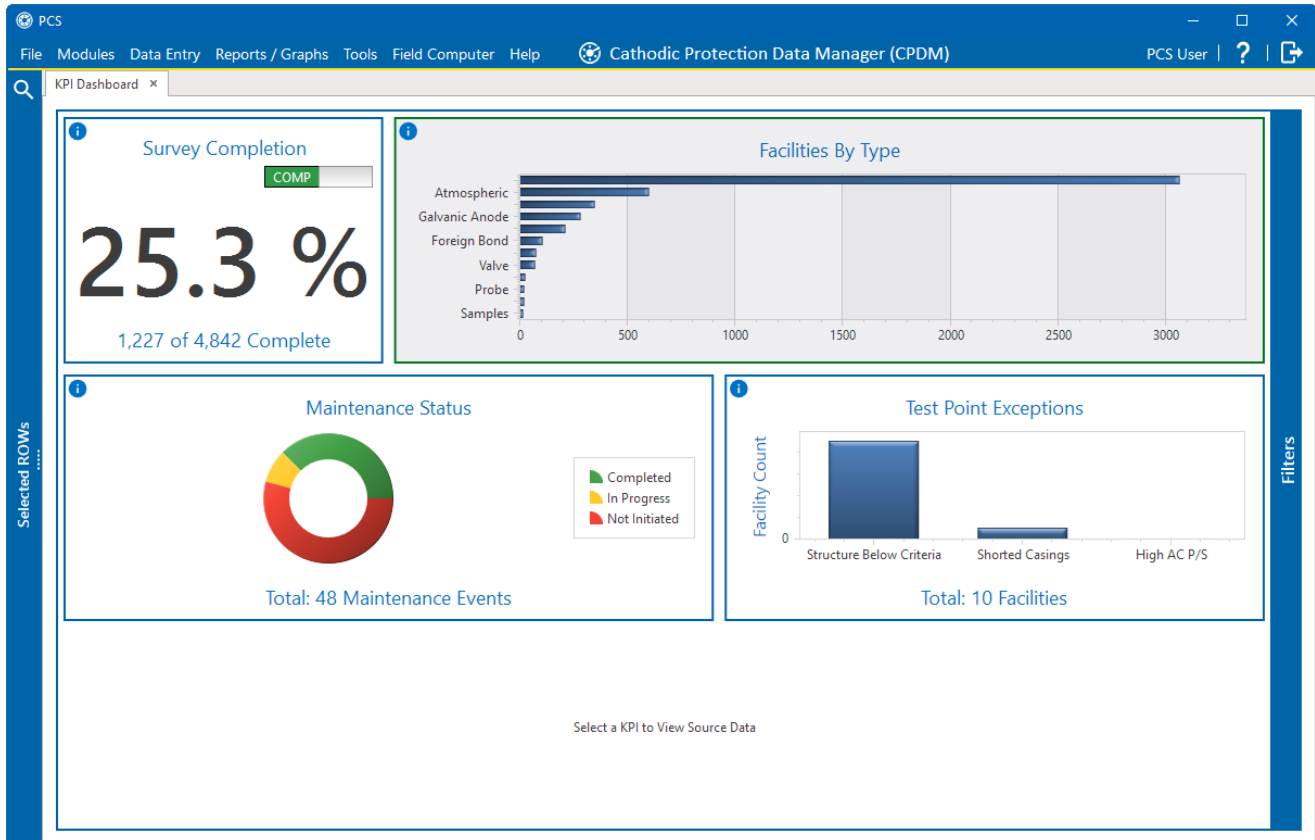


Figure 15-1. KPI Dashboard

Before data can be visualized on the dashboard, you must run four bridge definitions. Refer to [Set Up the KPI Dashboard](#) for additional information.

The dashboard includes the following KPIs:

- **Survey Completion** – displays the percentage of facilities that have an inspection marked as Surveyed in the filtered date range in the current hierarchy selection.
- **Facilities by Type** – displays the number of facilities in the current hierarchy selection.
- **Maintenance Status** – displays the current status of all maintenance items that fall into the filtered date range in the current hierarchy selection.
- **Test Point Exceptions** – displays the number of exception for the most recent inspection records that violates the following criteria:
 - **Structure Below Criteria:** shows the number of inspections that are not meeting their defined Test Point Protection Criteria.
 - **Shorted Casing:** shows the number of inspections that have a Structure P/S-Casing P/S within the threshold defined in Options.

- **High AC P/S:** shows the number of inspections that have an AC PS reading greater than 3.

You can view source data associated with any of the KPIs by selecting a subsection of an individual KPI. Refer to [Drill Down into Dashboard Data](#) for additional information.

The dashboard can be filtered by active facilities, date range, and facility type.

Filters

^ Active Facilities

Active All

^ Date Range

12/31/2015 10/19/2020

^ Facility Type

[PCS] All Facility Types

Ad Hoc Theme

Select All Clear All

CPDM

Test Point

Rectifier

Foreign Bond

Galvanic Anode

Tank

VM

Valve

ACM

Atmospheric

ICM

Coupon

Samples

Probe

Inhibitor Injector

Reset to Default

Figure 15-2. Dashboard Filters

- **Facility Type** – select a facility type theme or **Ad Hoc Theme**. For Ad Hoc Theme, select either **Select All** or individual facility types.

- **Active Facilities** – select either **Active** or **All**.
- **Date Range** – select begin and end dates from the drop-down fields. You can also use the slider above the fields to adjust either date.

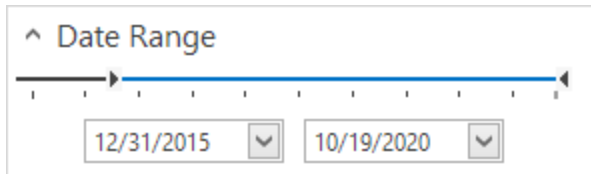


Figure 15-3. Date Range Slider

- Click and slide the ► icon on the slider to adjust the begin date.
 - Click and slide the ◀ icon on the slider to adjust the end date.
- **Reset to Default** – resets the filter to original settings.

The KPI Dashboard updates as changes are made.

Set Up the KPI Dashboard

The data that is displayed on the KPI (key performance indicators) Dashboard (**Reports/Graphs > Dashboard**) comes directly from your database.

When first setting up PCS 2.3 you must run four bridge definitions that are automatically added to your list of bridge definitions. For the dashboard to update on an automated basis, ensure that the dashboard has been configured to run automatically to ensure that all changes to the database are captured and available to display on the dashboard. Refer to [Set Basic Bridge Definition Properties](#) for more information on setting schedules for Bridge definitions.

NOTE: Changes to the database will not be available for display on the dashboard until the four dashboard bridge definitions are run.

The pre-defined bridge definitions that are used to populate the KPI Dashboard include:

- **Dashboard Facilities by Type**
- **Dashboard Maintenance Status**
- **Dashboard Survey Completion**
- **Dashboard Test Point Exception**

Complete the following steps to schedule and run the four bridge definitions:

1. From the main menu, click **Tools > Bridge** to open the *Bridge* window.

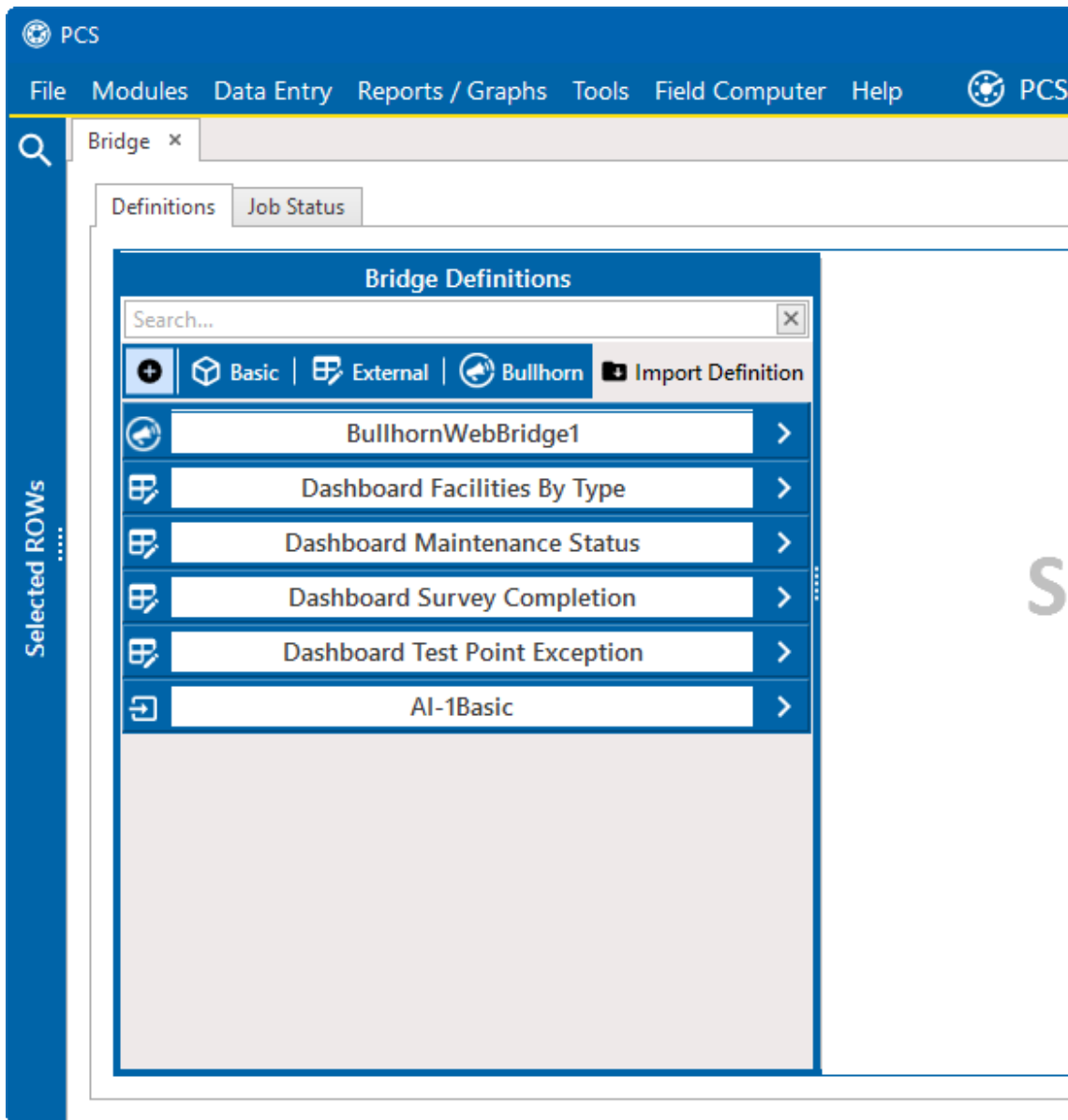


Figure 15-4. Bridge Window - Dashboard Definitions

2. Complete the following steps for **each** of the four Dashboard bridge definitions:
 - a. Select the bridge definition.
 - b. Select **Scheduled** check box. The default setting is daily.

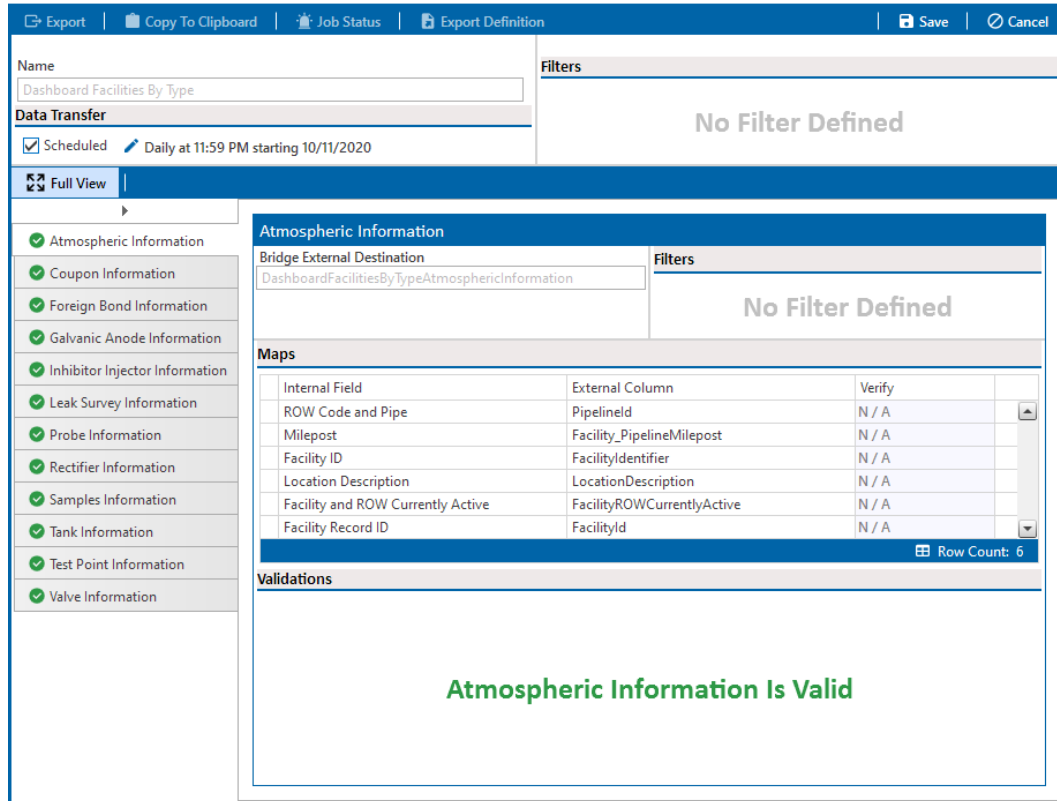



Figure 15-5. Scheduled Bridge Definition

- c. Click the  icon to open the *Schedule Frequency* window and set the date to current date and the time to a convenient time for your organization. Click **Save** to close the window.

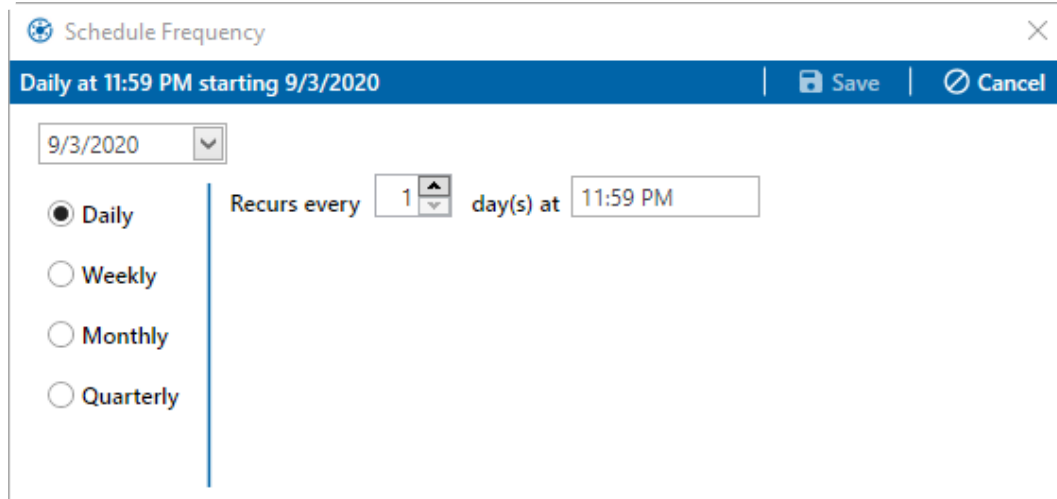



Figure 15-6. Schedule Frequency Window

- d. Click **Save** in the *Bridge* window.
- e. Click  **Export**.

Drill Down into Dashboard Data

You can access the source data from any of the KPIs (key performance indicators) on the dashboard.

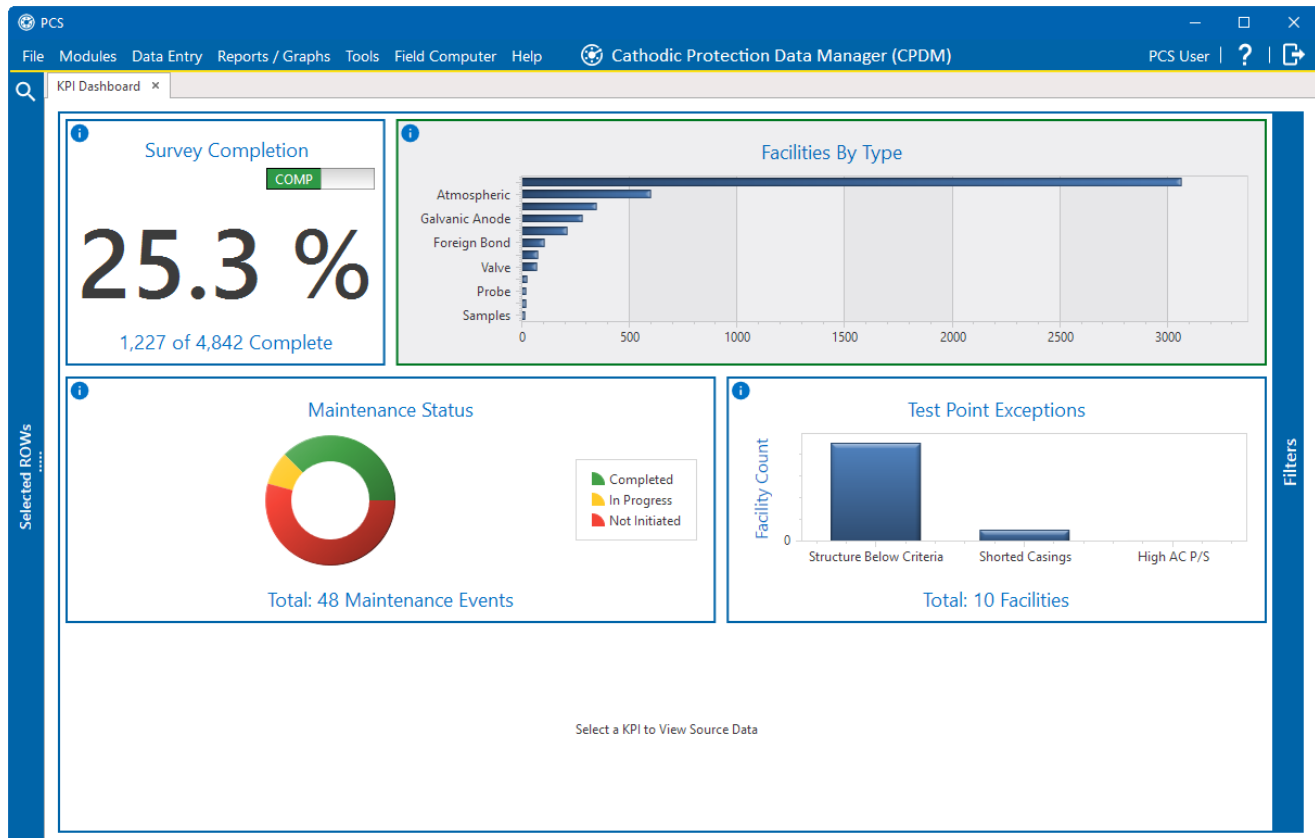



Figure 15-7. KPI Dashboard

NOTE: To view descriptions about any of the KPI panes, hover your mouse over the  icon in the upper left-hand corner of the pane.

Survey Completion KPI

This KPI displays the percentage of facilities that have an inspection marked as Surveyed in the filtered date range in the current hierarchy selection. As default, the KPI displays completed (**COMP**).

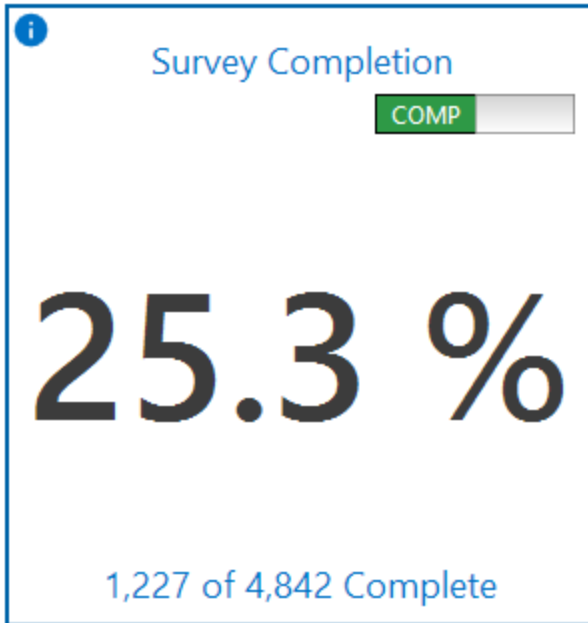


Figure 15-8. Survey Completion - Percent Completed

To view facilities that do not have an inspection marked as Surveyed in the filtered date range in the current hierarchy selection, click the slider bar to display **INCOMP**.

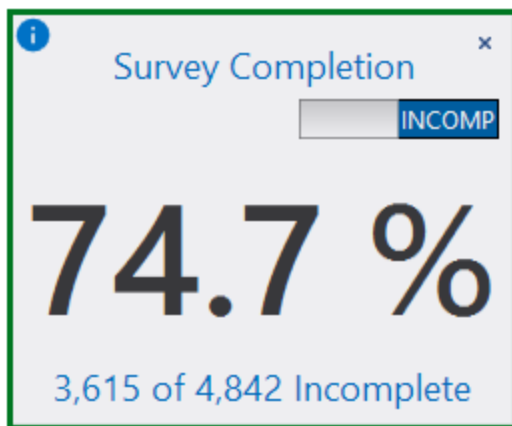


Figure 15-9. Survey Completion - Percent Incomplete

The facility records associated with the selected view display in the drilldown below the KPIs. The information automatically updates as you change views.

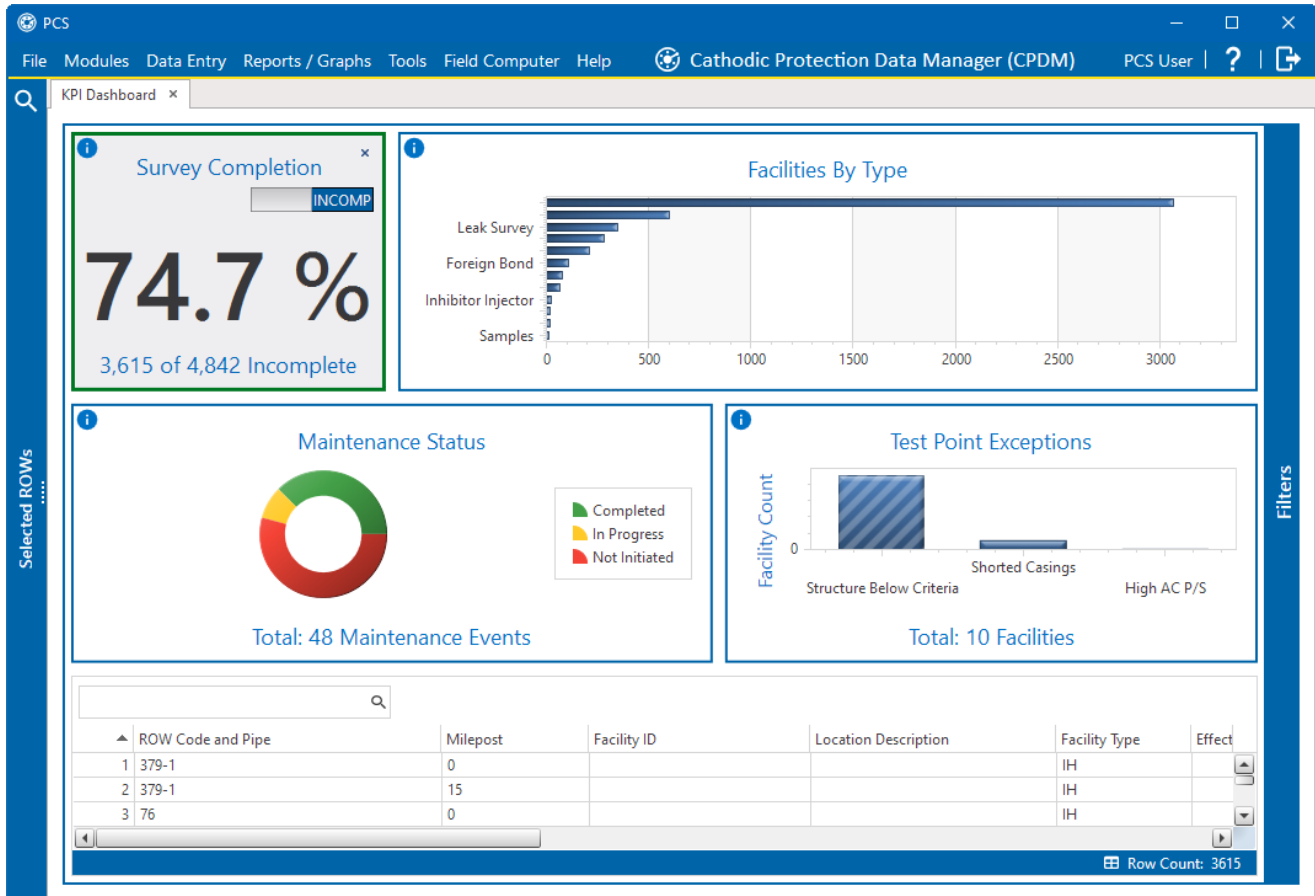


Figure 15-10. Survey Completion and Associated Facilities

To unselect a KPI, click the x in the upper right-hand corner of the KPI. This will also close the drilldown pane associated with it.

Facilities By Type KPI

This KPI displays the quantity of facilities grouped by facility type associated with the current hierarchy selection in a bar graph format.

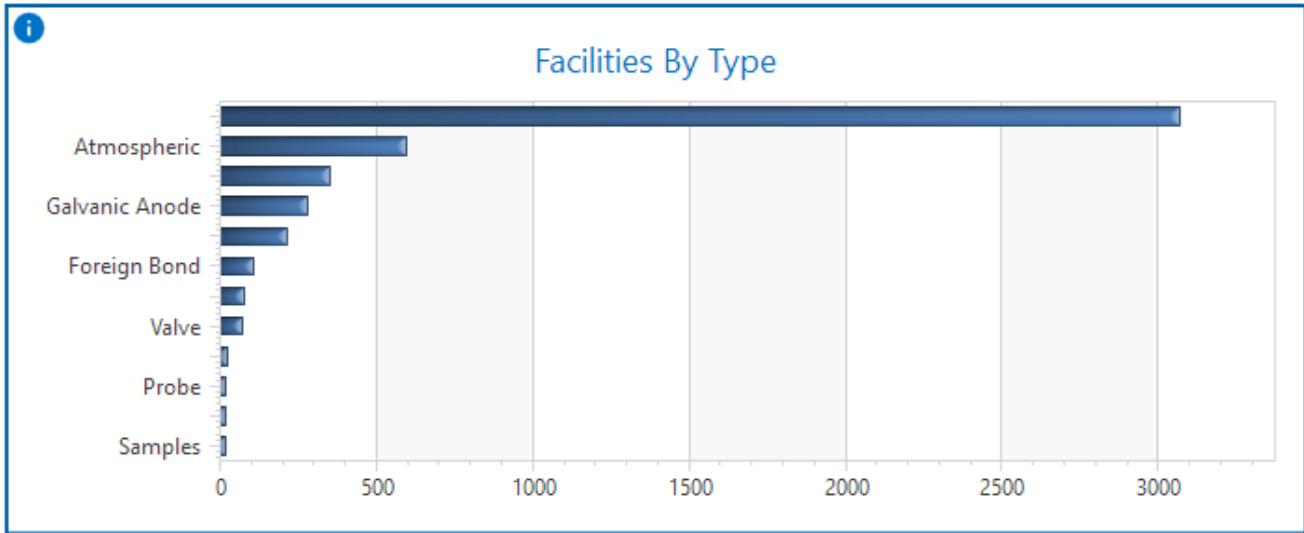


Figure 15-11. Facilities By Type Pane

To view the facility type and number and percentage of facilities for any of the categories (for example, Atmospheric), click in the KPI and hover your mouse over the bar.

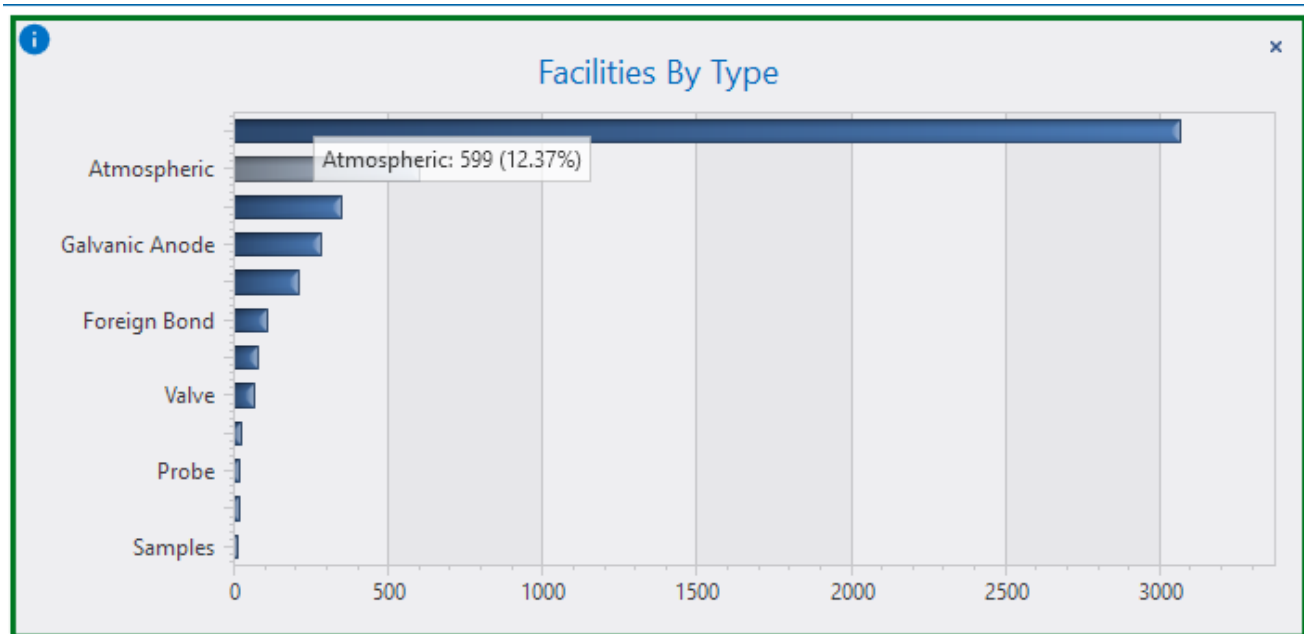


Figure 15-12. Atmospheric Data

To display the facilities in the drilldown pane, click on the bar in the KPI. The bar changes to shaded to indicate that it is selected.

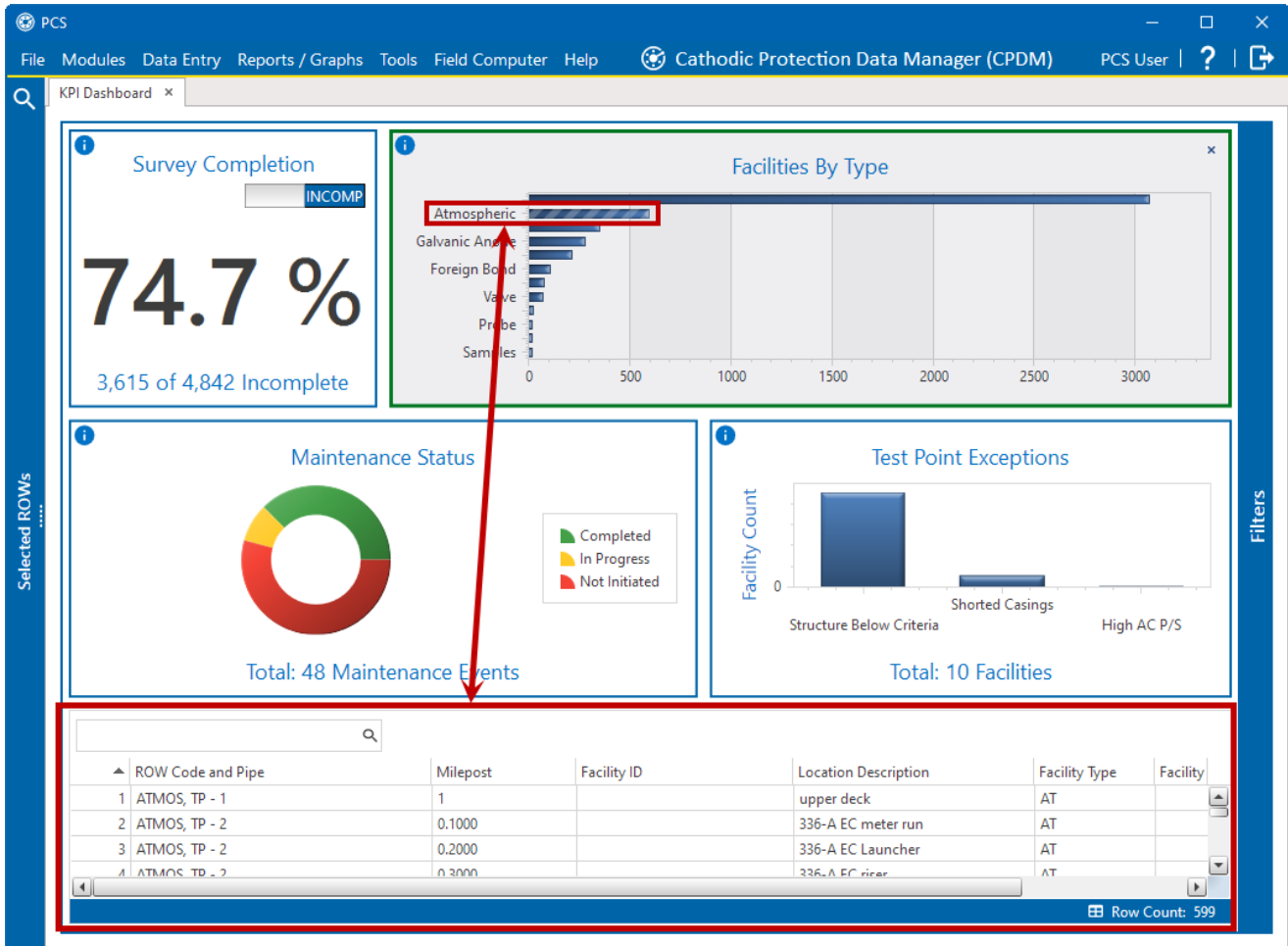


Figure 15-13. Facilities By Type - Selected Facility Type and Associated Data

To unselect a KPI, click the x in the upper right-hand corner of the KPI. This will also close the drilldown pane associated with it.

Maintenance Status KPI

This KPI displays the current status of all maintenance items that fall into the filtered date range in the current hierarchy selection in a doughnut chart.

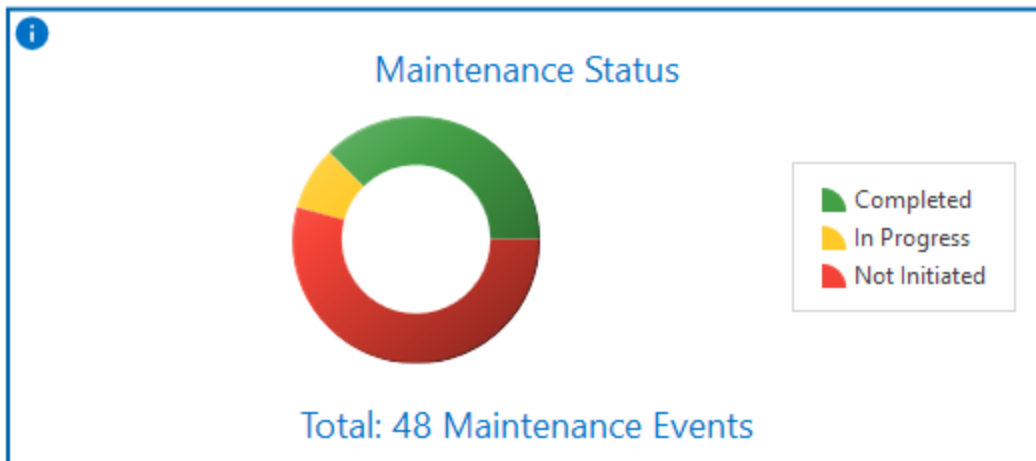


Figure 15-14. Maintenance Status Pane

To view the number of facilities for any of the categories plotted on the doughnut chart (shown: Completed, In Progress, and Not Initiated), click in the KPI, and then hover your mouse over a section of the chart. The example below shows **Completed** selected on the doughnut chart.

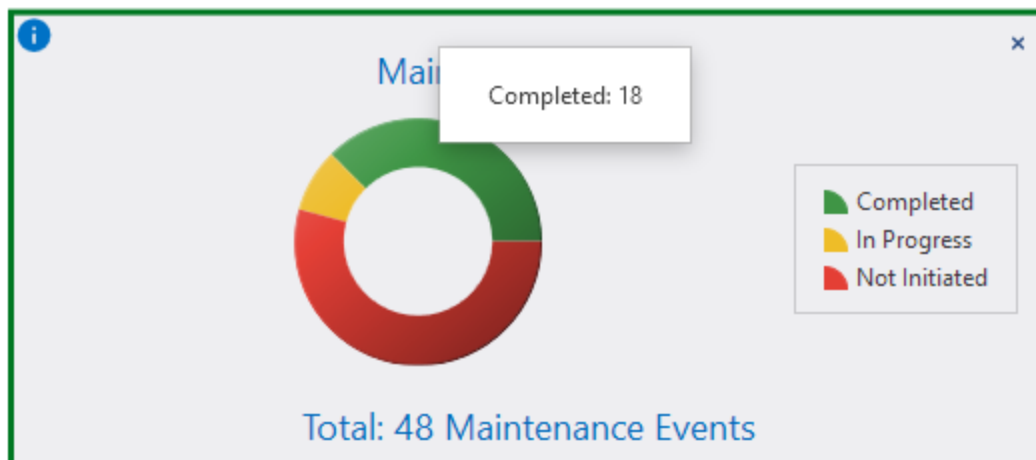


Figure 15-15. Maintenance Status - Number Completed

To display the facilities in the drilldown pane below the KPI, click on a section of the doughnut chart. The section changes to shaded to indicate that it is selected.

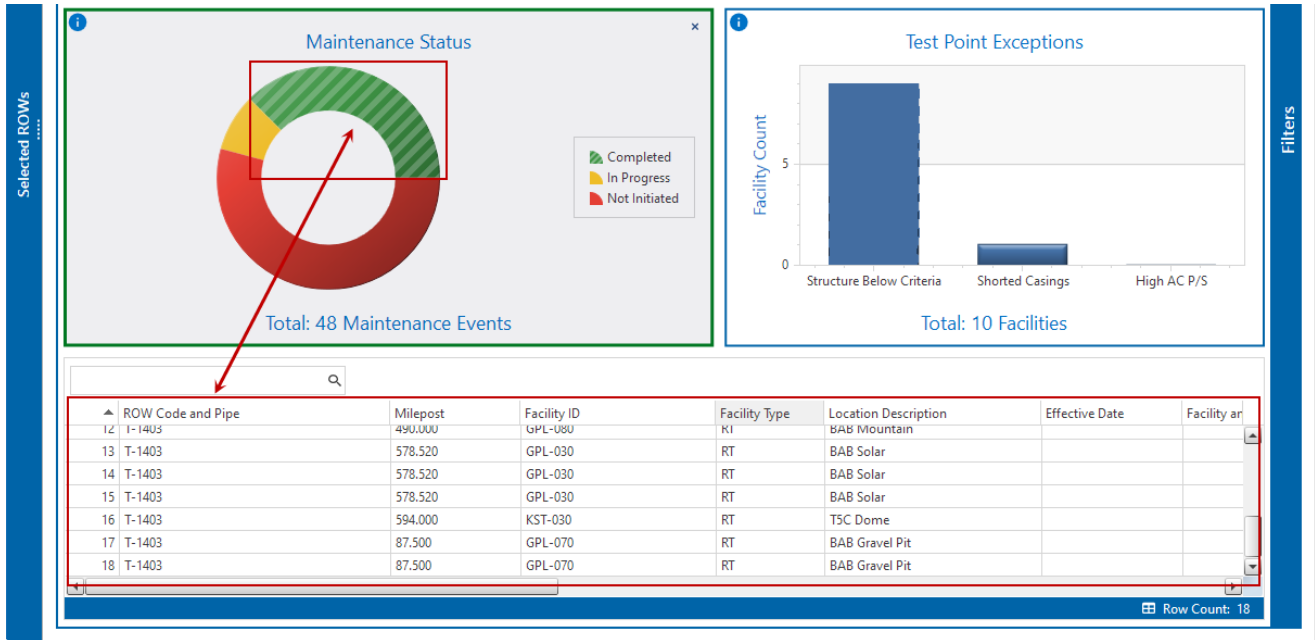


Figure 15-16. Maintenance Status - Selected Status and Associated Data

To unselect a KPI, click the **x** in the upper right-hand corner of the KPI. This will also close the drilldown pane associated with it.

Test Point Exceptions KPI

This KPI displays the number of exceptions for the most recent inspection records that violate Structure Below Criteria, Shorted Casings, and High AC P/S in a bar chart.

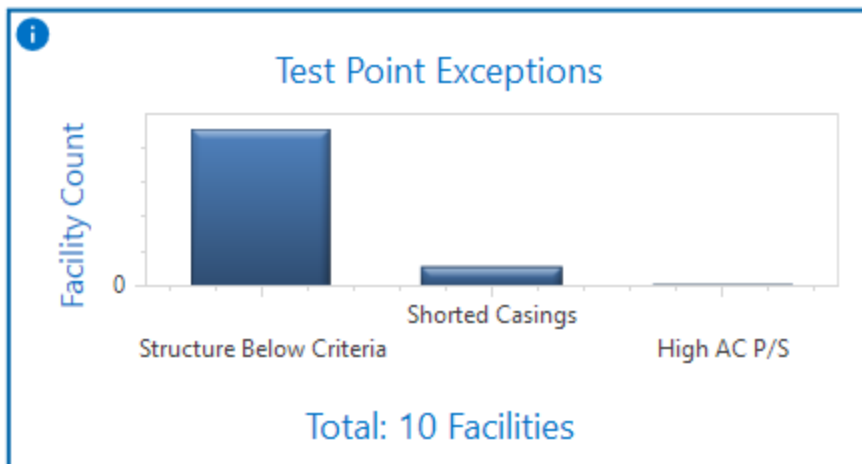


Figure 15-17. Test Point Exception Pane

To view the number of facilities for any of the categories plotted on the chart, click in the KPI, and then hover your mouse over a section of the bar chart. The example below shows **Structure Below Criteria** selected on the chart.

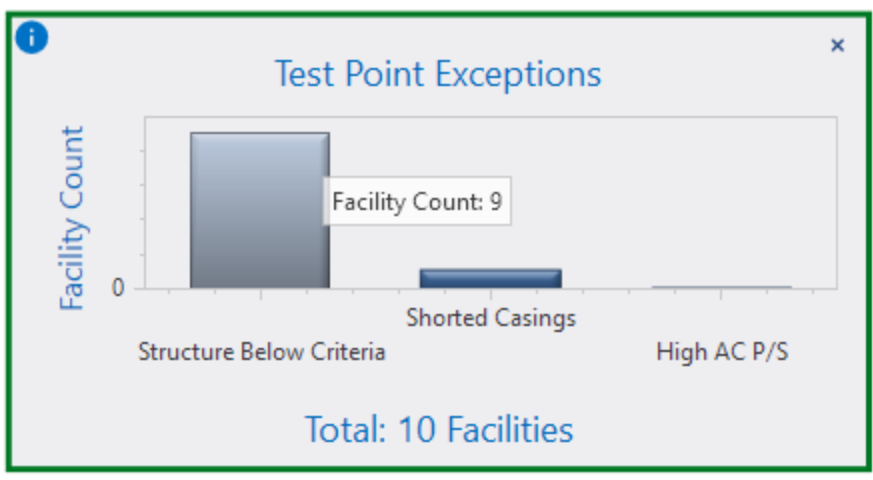


Figure 15-18. Test Point Exceptions - Facility Count for Structure Below Criteria

To display the facilities in the drilldown pane below the KPIs, click on a section of the bar chart. The section changes to shaded to indicate that it is selected.

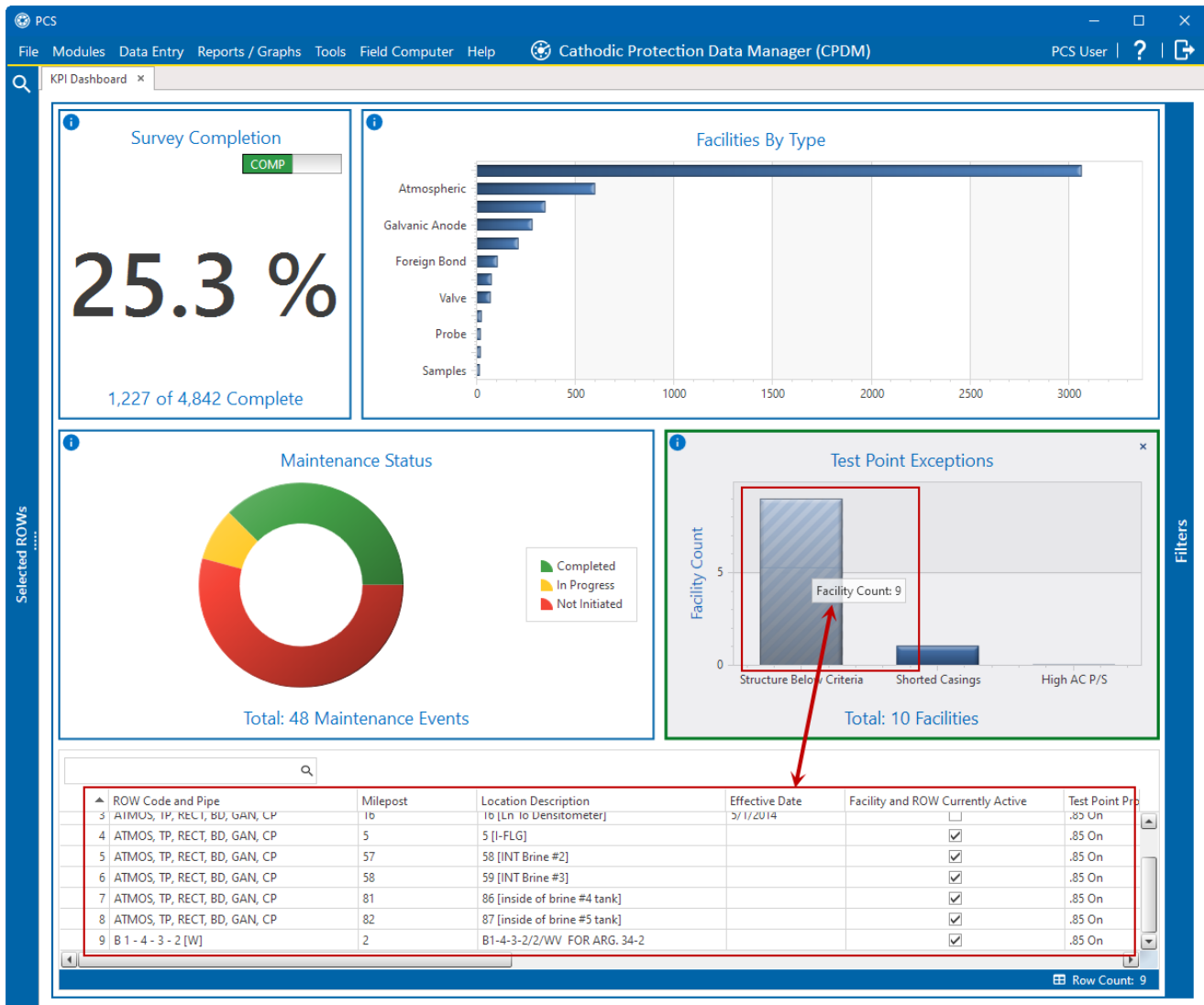


Figure 15-19. Test Point Exceptions - Selected Status and Associated Data

To unselect a KPI, click the x in the upper right-hand corner of the KPI. This will also close the drilldown pane associated with it.

Overview of Reports

Information in this section provides an overview of the report types and styles available in PCS, including a description of each PCS report.

This chapter includes the following topics:

- *PCS Reports*
- *Description of All PCS Reports on page 767*

- [Report Styles on page 763](#)
- [Summary Drilldown Report on page 780](#)

Report Styles

The reports available in PCS can be generated in one or more of the following styles:

- [Columnar Report Style](#)
- [Summary Report Style on page 763](#)
- [Graph Report Style on page 764](#)
- [Form Report Style on page 765](#)

Columnar Report Style

The columnar report style organizes data in columns and rows, with each row representing a record. You configure a layout, sorting, and filtering theme, as well as setting paper and print options for the report theme.

My Pipeline Company										
Test Point Inspection Report										
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401										
Filter Settings: Survey Is equal to '2006 Annual Survey'										
Options: Based On: Selected ROWs; Only include facilities with inspections during the reporting time period; Filter Options: All inspections that meet the filter criteria;										
Indicate missing inspection readings										
ROW Code and Pipe	Milepost	Effective Date	Inspection Date	Survey	Structure P/S	Casing P/S	Foreign P/S	Insulator P/S	Technician	Inspection Remarks
Region: TRANSMISSION										
System: TRANSMISSION SYSTEMS										
ROW Code: T-1401		ROW Name: College Station to Austin								
T-1401	0.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.141					Misc. piping -1.324 (Paint good)
	0.001		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.150					
	1.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.173		-0.428			
	1.500		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.963		-1.410			
	1.627		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.922	-0.298				
	1.750		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.895	-0.412				
	2.000		3/22/2006 12:00:00 AM	2006 Annual Survey	<input type="text"/>	-0.635				No TP.
Surveyor _____										
				9/24/2013	Page 1/4					

Figure 15-20. Example of Columnar Report Style

Summary Report Style

The summary report allows you to analyze large amounts of pipeline data easily in a familiar spreadsheet format. The report provides a summary of totals, subtotals, and aggregated numeric data for facilities on a pipeline.

My Pipeline Company
 Test Point Inspection Report
 Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; 7 ROWs; 7 Pipelines
 Filter Settings: Survey Is equal to '2006 Annual Survey'
 Options: Based On: Selected ROWs; Only include facilities with inspections during the reporting time period; Filter Options: All inspections that meet the filter criteria; Indicate missing inspection readings

Active	TPs Su	Percen	TPs Be	TPs Ab	TPs Re	Percen	Grand Total	
System	ROW Code	Active TPs	TPs Surveyed	Percent Surveyed	TPs Below Criteria	TPs Above Criteria	TPs Requiring P/S	Percent Above Criteria - TPs
TRANSMISSION SYSTEMS	T-1400	40	39	98%	1	38	40	95%
	T-1401	102	100	98%	23	64	101	63%
	T-1403	137	125	91%	12	108	134	81%
	T-1600	5		0%				0%
	T-1700			0%				0%
	T-1701			0%			48	0%
	T-1903	136	124	91%	12	107	133	80%
TRANSMISSION SYSTEMS Total		420	388	92%	48	317	456	70%

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Figure 15-21. Example of Summary Report Style

The summary report style provides an optional *Drilldown* feature for viewing summary data in a pivot table. You can add, remove, and arrange data columns in the pivot table to obtain a desired report of summary data. Double-clicking a field in the grid opens a window with drilldown information.

The screenshot shows a software window titled 'Summary' with a 'Print Preview' button. The main content area displays the same report as Figure 15-21. A 'Drilldown for TPs Above Criteria' window is open in the foreground, showing a detailed table with the following data:

Count	System	ROW Code	Pipe	Milepost	Inspection Date
1	TRANSMISSION SYSTEMS	T-1400	1	0.000	2/19/2006
2	TRANSMISSION SYSTEMS	T-1400	1	0.500	2/19/2006
3	TRANSMISSION SYSTEMS	T-1400	1	0.669	2/19/2006
4	TRANSMISSION SYSTEMS	T-1400	1	1.000	2/19/2006
5	TRANSMISSION SYSTEMS	T-1400	1	1.028	2/19/2006
6	TRANSMISSION SYSTEMS	T-1400	1	1.100	2/19/2006
7	TRANSMISSION SYSTEMS	T-1400	1	2.000	2/19/2006
8	TRANSMISSION SYSTEMS	T-1400	1	2.041	2/19/2006
9	TRANSMISSION SYSTEMS	T-1400	1	3.000	2/19/2006
10	TRANSMISSION SYSTEMS	T-1400	1	3.343	2/19/2006
11	TRANSMISSION SYSTEMS	T-1400	1	4.000	2/19/2006
12	TRANSMISSION SYSTEMS	T-1400	1	5.000	2/19/2006
13	TRANSMISSION SYSTEMS	T-1400	1	6.000	2/19/2006
14	TRANSMISSION SYSTEMS	T-1400	1	6.259	2/19/2006
15	TRANSMISSION SYSTEMS	T-1400	1	7.000	2/19/2006

Figure 15-22. Summary Drilldown Report

Graph Report Style

A graph report presents data in a line graph format. The report shows survey data versus distance or time. You can graph several bands of survey data on one report. Each band includes an X-axis, Y-axis, and survey readings.

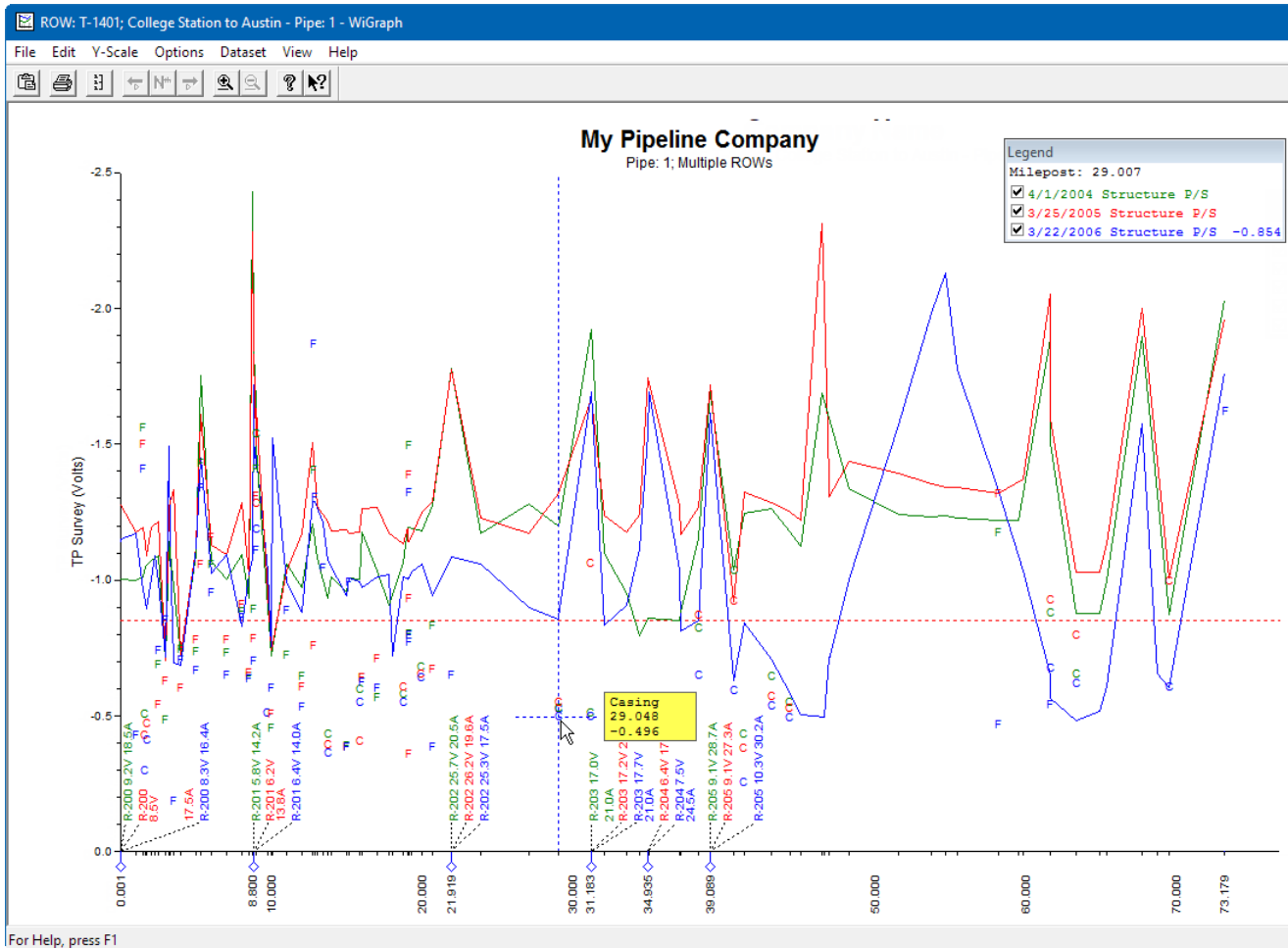


Figure 15-23. Example of Graph Report Style

Form Report Style

A form report separates report data into sections, with each section describing a single record. The sections of the report present the record's information in a consistent format using the same form design. The form report allows for a closer examination of an individual record's information and can show information difficult to present in other report styles, such as a record's images.

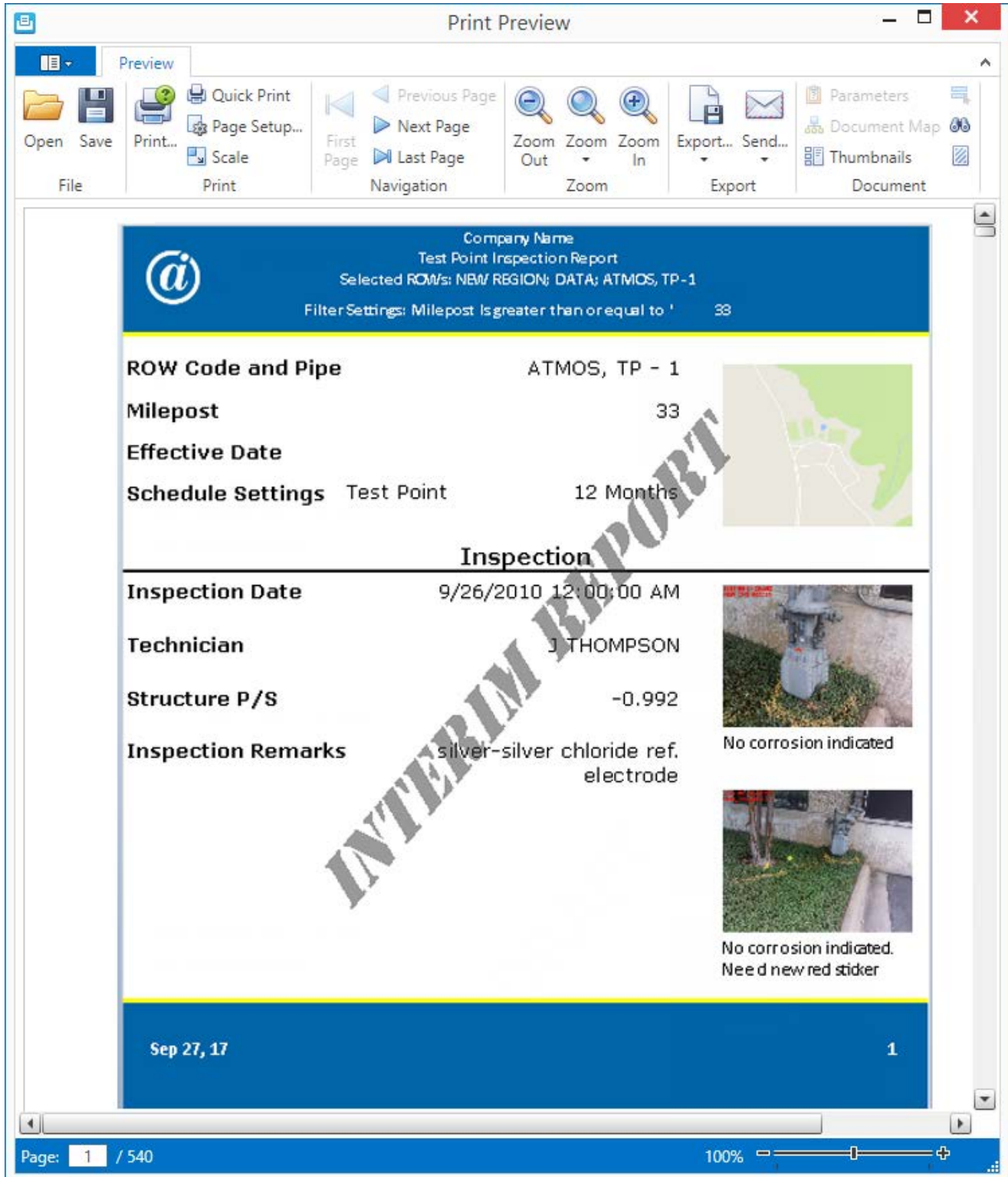


Figure 15-24. Example of Form Report Style

PCS Reports

PCS includes the following types of reports:

- **Compliance:** This type of report includes statistics, such as: number of test points; number of test points surveyed; missing test points; delinquent test points; and test points below criteria. Each one provides a concise data summary. Compliance reports are a key report typically used for auditing purposes.
- **Delinquency:** A delinquency report includes information about facilities that are currently delinquent or have been delinquent based on regulatory survey intervals. This type of report includes both interval violations and calendar year violations.
- **Exceptions:** Report includes survey data and other related information only for facilities that fail to meet certain criteria. For example, based on filter options selected in *Exception Filters*, the report can include facilities with missing structure readings, structure readings less negative than -0.85, or structure readings more negative than -2.0. This type of report is helpful when trying to quickly locate a problem in the maintenance of a pipeline.
- **Facility Schedules:** A list of facilities (such as test points, rectifiers, bonds, and galvanic anodes) that need to be surveyed based on the last survey date and target survey month.
- **Survey:** All data collected for each facility for a specific survey period.

Description of All PCS Reports

PCS organizes reports in categories, such as PCS reports, module survey reports, facility type reports, pipeline reports, and continuous survey reports. Most reports in each of these categories are available for set up as a columnar, summary, or graph report style.

If you frequently use one or more reports, you can designate these reports as a "favorite" in the report set up window to have them listed in the Favorite Reports sub-menu (under **Reports/Graphs**) for quicker access.

The following topics describe the different types of PCS reports found under the **Reports/Graphs** main menu and provide examples of the reports:

- [PCS Reports](#)
- [Module Reports on page 771](#)
- [Facility Type Reports on page 773](#)
- [ROW Reports on page 781](#)
- [Continuous Survey \(CIS\) Reports on page 783](#)


PCS Reports

The following reports and graphs are available through the **Reports/Graphs > PCS Reports** main menu:

- *PCS Schedule Report* – this report is not available in the ISM module.
- *PCS Delinquency Report* – this report is not available in the ISM module.
- *PCS Inspections Graph*

PCS Schedule Report

The PCS Schedule Report lists facilities that require inspection using the schedule definition selected for the report. The schedule definition and a calculation based on the last inspection date and target survey month determine which facilities the report includes. Information is presented in a columnar report style in two formats: as a monthly calendar overview and as a detailed list.

To view the report, click  **Print** in the *PCS Schedule Report* window.

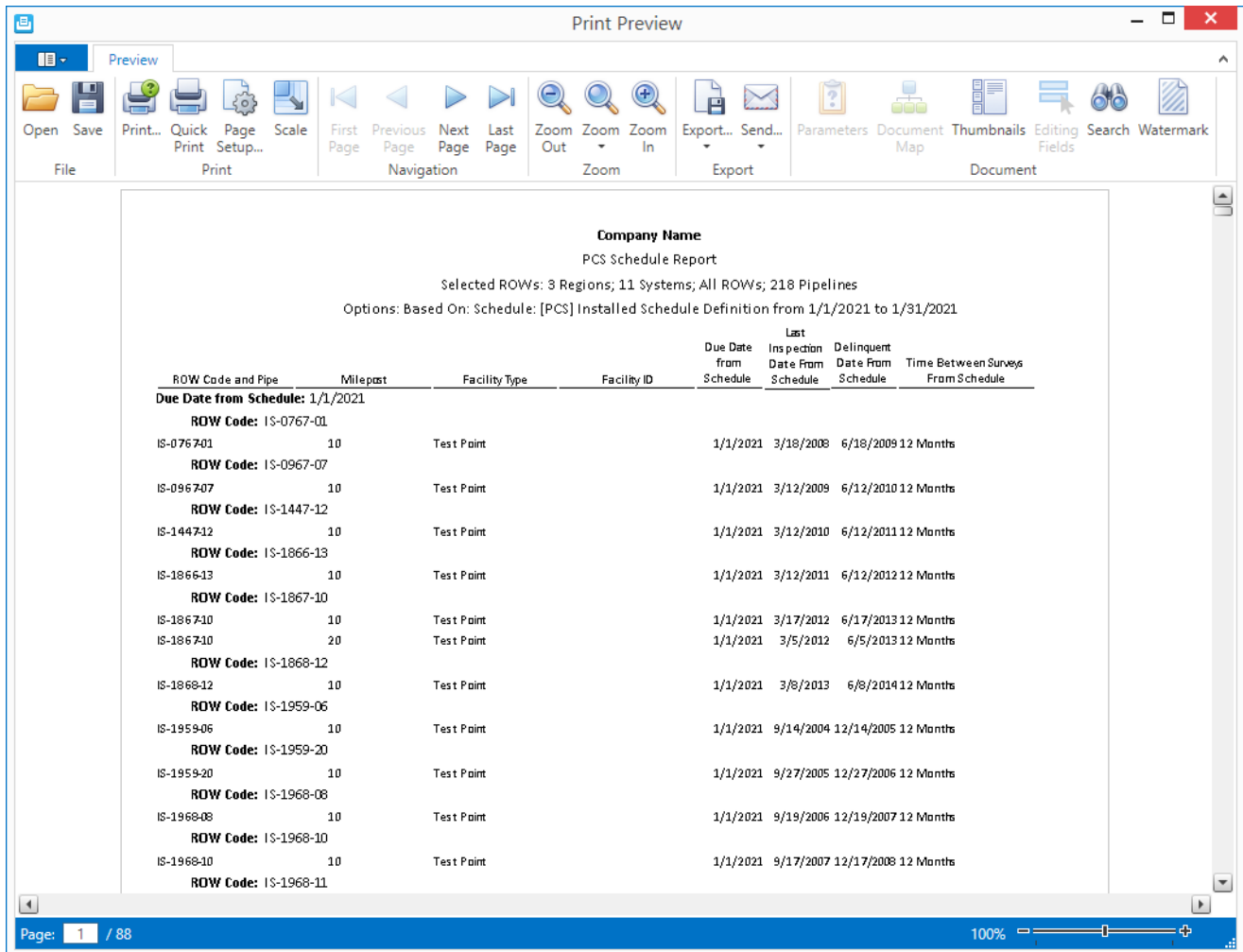



Figure 15-25. Example of PCS Schedule Report

PCS Delinquency Report

The PCS Delinquency Report is a compliance report that identifies delinquent facilities based on a survey schedule. Information is presented in a columnar style with a list of delinquent facilities, missing and surveyed facilities, facilities not included in a survey, and facilities below criteria.

To view the report, click  **Print** in the *PCS Delinquency Report* window.

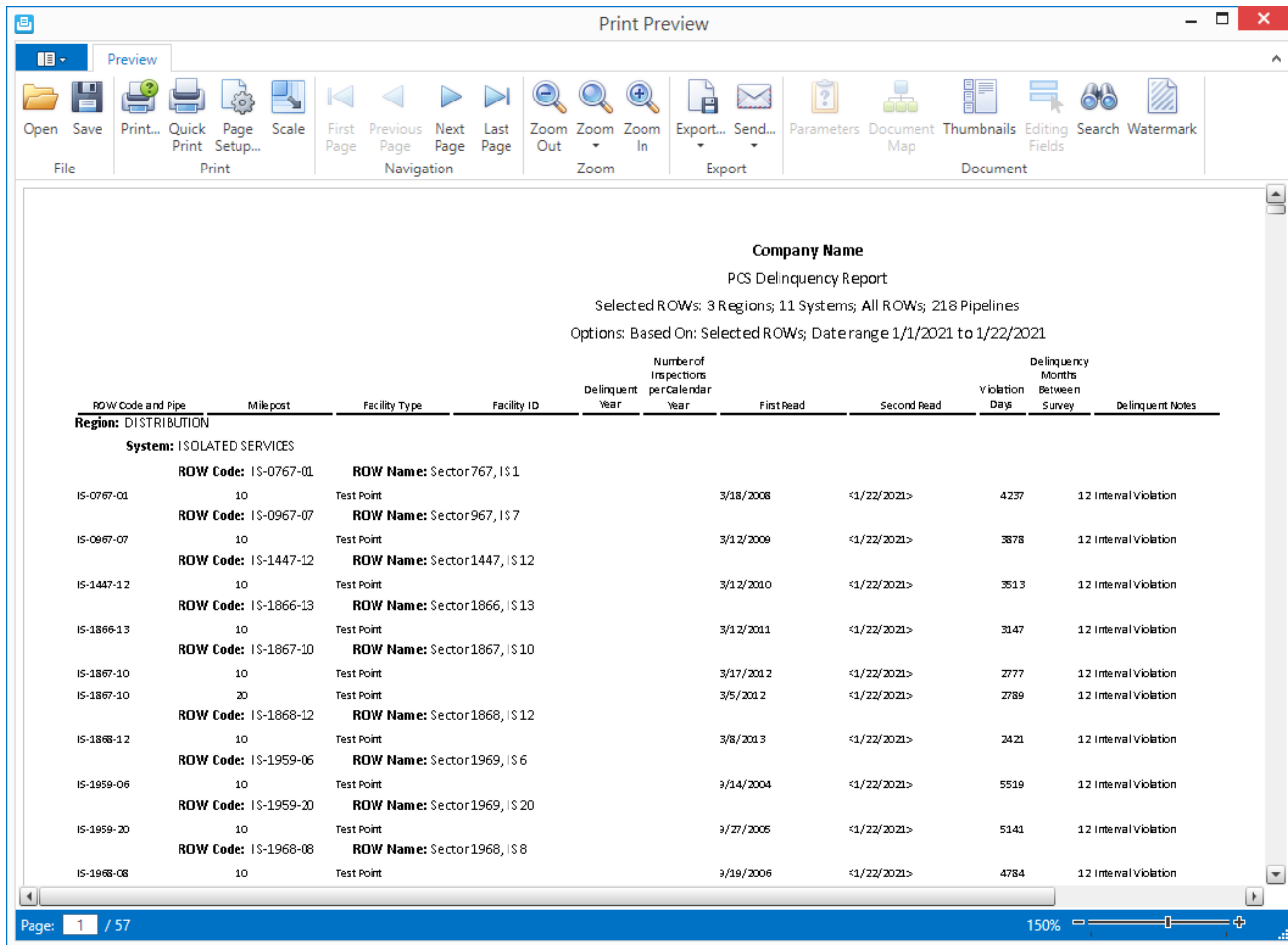


Figure 15-26. Example of PCS Delinquency Report


When the report is customized using the *Summary* report style, it is a statistical status report with a concise summary of the cathodic protection system. It includes the number of delinquent facilities, missing and surveyed facilities, and facilities below criteria. As an option, the report also provides drilldown functionality for further analysis of delinquent facilities.

Example: A facility with a 12-month inspection cycle was initially inspected 1/15/2013. The facility became delinquent on 4/15/2014; this includes the 12-month inspection cycle plus the grace period. An inspection was recorded for the facility on 4/27/2014. If the report option labeled *Include only delinquent facilities* is not set, the facility is included in the Delinquency Report because it was delinquent from 4/15 to 4/26.

PCS Inspections Graph

The PCS Inspections graph includes inspection readings in a facility survey or survey readings in a continuous survey based on property settings in the Graph tab. Property settings include selection of one or more band fields, survey folders, and graph options. Band fields are equivalent to data fields in a data entry grid, such as Structure P/S in the *Edit CPDM Data* grid and CIS Structure P/S in the *Edit ISM Data* grid.

Areas of the graph with spikes indicate areas where survey data should be reviewed closely. Locations in the graph marked with the letter **C** indicate **Casing P/S**. Those marked with the letter **F** indicate **Foreign Bond**. Hovering the mouse over either of these captions displays a yellow tooltip with measurement data as shown in the next example. To toggle these and other captions on or off when viewing the graph, click **Options** and then click a check box labeled with the caption you want to toggle on or off, such as **Show Casing P/S**.

To view the graph, click  **Graph** in the *PCS Inspections Graph* window.

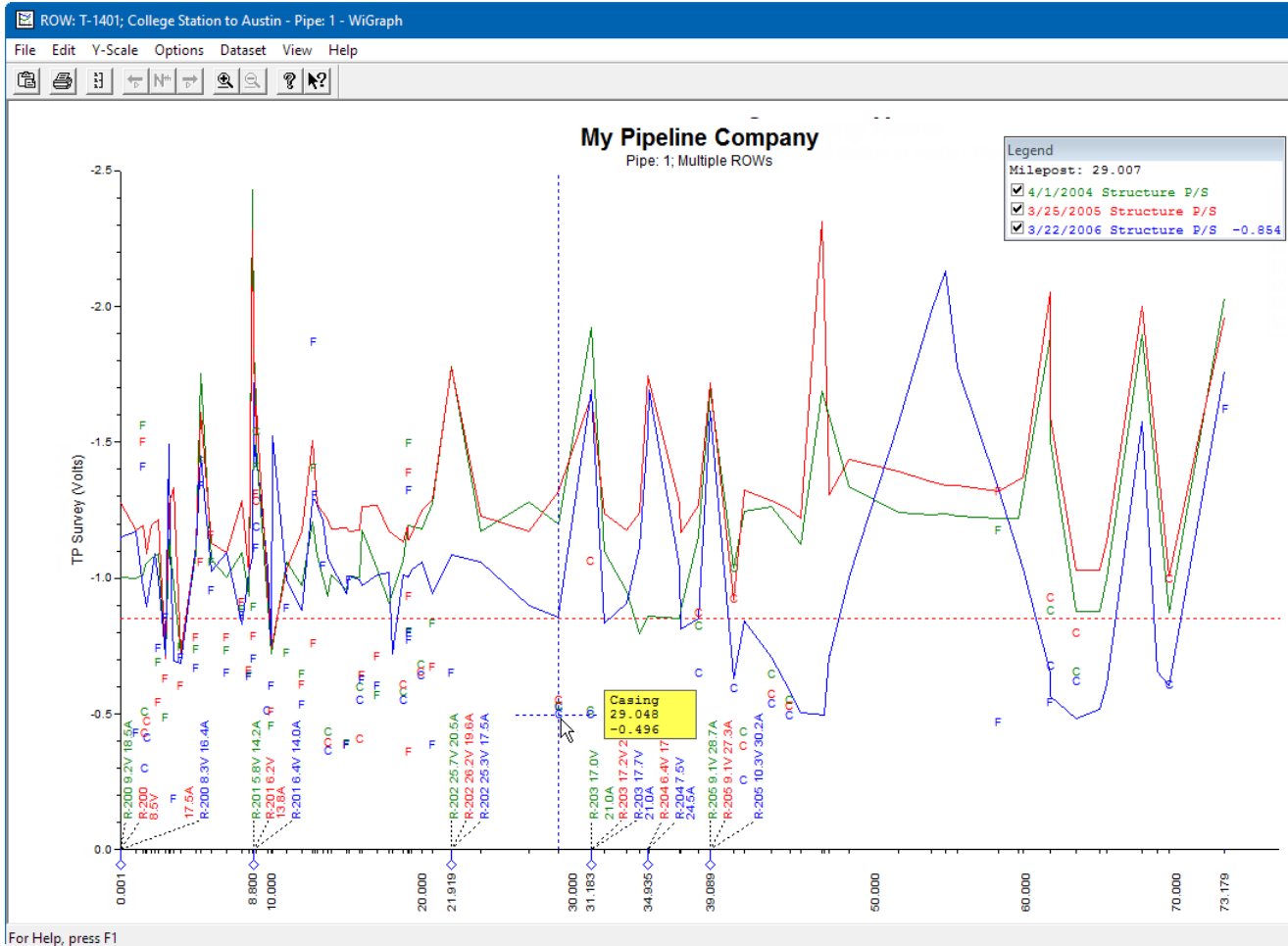


Figure 15-27. Example of PCS Inspections Graph

Module Reports


The following reports are available through the **Reports/Graphs > <module> Reports** main menu:

NOTE: For a list of reports available in the ISM module, refer to *Continuous Survey (CIS) Reports*

- [Module Survey Report on page 772](#)
- [Module Data Collection Report on page 773](#)

Module Survey Report

The survey report includes survey information by module, such as the *CPDM Survey Report*. It is available in a columnar, summary, or graph report style. The report includes all facility data in the survey period selected for the report, such as facility data in a survey period for the *CPDM Survey Report*.


To view the report, click  **Print** in the *<module> Survey Report* window.

My Pipeline Company												
CPDM Survey Report												
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401												
Options: Based On: Selected ROWs; Selected Facility Type Theme: [PCS] P/S Survey; Only include facilities with inspections during the reporting time period; Filter												
Options: All inspections that meet the filter criteria; Indicate missing inspection readings												
ROW Code and Pipe	Facility ID	Milepost	Inspection Date	Structure P/S	Foreign P/S	Casing P/S	Bond Current Found	Rectifier Output Current Found	Rectifier Output Volts Found	Rectifier Negative Inspections	Inspection Remarks	
Region: TRANSMISSION												
System: TRANSMISSION SYSTEMS												
ROW Code: T-1401		ROW Name: College Station to Austin										
T-1401		0.000	3/13/2003 12:00:00 AM	-1.019							Misc. piping -1.100	
			4/1/2004 12:00:00 AM	-1.002								
			3/25/2005 12:00:00 AM	-1.275							Misc. piping -1.324 (Paint good)	
			3/22/2006 12:00:00 AM	-1.141							Misc. piping -1.324 (Paint good)	
	R-200	0.001	3/13/2003 12:00:00 AM					18.10	7.30			
			4/1/2004 12:00:00 AM					18.50	9.16			
			12/3/2004 12:00:00 AM					17.00	21.00			
			3/3/2005 12:00:00 AM									
			3/25/2005 12:00:00 AM					17.50	8.54			
			4/7/2005 12:00:00 AM					17.00	8.00			
			5/5/2005 12:00:00 AM					8.00	17.00			
			6/3/2005 12:00:00 AM					20.00	8.00			
			7/7/2005 12:00:00 AM					17.00	6.00			
			8/4/2005 12:00:00 AM					17.00	8.00			
			9/1/2005 12:00:00 AM					17.00	7.80			
			10/6/2005 12:00:00 AM					17.00	8.00			
			11/4/2005 12:00:00 AM					17.00	7.50			
			2/2/2006 12:00:00 AM					7.00	17.00			
			3/1/2006 12:00:00 AM					7.00	18.00			
			4/5/2006 12:00:00 AM					7.00	16.00			
			5/5/2006 12:00:00 AM					16.00	8.00			
			6/8/2006 12:00:00 AM					16.00	7.00			
			6/22/2006 12:00:00 AM					16.40	8.28			
			7/5/2006 12:00:00 AM					17.00	7.00			
			8/18/2006 12:00:00 AM									
			9/14/2006 12:00:00 AM						10.80			
Surveyor _____												
						9/24/2013			Page 1/20			

Figure 15-28. Example of CPDM Survey Report

Module Data Collection Report

The data collection report is a blank report used by technicians and vendors to record survey readings in the field. It is available for selection in all modules except ISM. The report uses a columnar report style and includes survey information by module, such as the *CPDM Data Collection Report*. Based on the survey type selected when setting up the report, it includes a list of facilities and related data, such as previous survey readings.

To view the report, click  **Print** in the *<module> Data Collections Report* window.

My Pipeline Company												
CPDM Data Collection Report												
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401												
Options: Based On: Selected ROWs; Selected Facility Type Theme: [PCS] P/S Survey; Include previous readings												
ROW Code and Pipe	Facility ID	Milepost	Inspection Date	Structure P/S	Casing P/S	Foreign P/S	Insulator P/S	Rectifier Output Volts Found	Rectifier Output Current Found	Inspection Remarks	Technician	
Region: TRANSMISSION												
System: TRANSMISSION SYSTEMS												
ROW Code: T-1401		ROW Name: College Station to Austin										
T-1401		0.000	[] []	[]						[] []	[]	
			3/22/2006 12:00:00 AM	-1.141						Misc. piping -1.324 (Paint good)		
	R-200	0.001	[]	[]				[] []	10.80	[] []	[]	
			9/14/2006 12:00:00 AM									
			3/22/2006 12:00:00 AM	-1.150								
		1.000	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-1.173		-0.428						
		1.500	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-0.963		-1.410						
		1.627	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-0.922		-0.298						
		1.750	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-0.895		-0.412						
		2.000	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-0.635						No TP.		
		2.250	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-1.091								
		2.500	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-0.996		-0.739						
		3.000	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-0.717		-0.852						
		3.218	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-1.492								
		3.250	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-1.118								
		3.500	[]	[]		[]				[] []	[]	
			3/22/2006 12:00:00 AM	-0.694		-0.184						
Surveyor _____												
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Figure 15-29. Example of CPDM Data Collection Report

Facility Type Reports

The following reports are available through the **Reports/Graphs > <facility type> Reports** main menu in any module except ISM:

NOTE: For a list of reports available in the ISM module, refer to *Continuous Survey (CIS) Reports*

- [Facility Type Information Report](#)
- [Facility Type Detail Information Report](#)
- [Facility Type Inspections Report on page 777](#)
- [Facility Type Detail Inspection Report](#)
- [Facility Type Maintenance Report on page 778](#)
- [Facility Type Exceptions Report on page 779](#)
- [Summary Drilldown Report](#)

Facility Type Information Report

A report based on the columnar report style that includes information entered in the *Information* data entry grid for a facility type, such as the *Test Point Information* report. Depending on how the report is set up, it can include information for user-selected fields such as ROW Name and Code, Milepost number, Effective Date, Active/Inactive status, Protection Criteria, and so on. The report does not include survey readings.

To view the report, click  **Print** in the *<facility type> Information Report* window.

My Pipeline Company
 Test Point Information Report
 Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401
 Options: Based On: Selected ROWs

ROW Code and Pipe	Milepost	Location Description	Effective Date	Facility Active	Test Point Protection Criteria	Activate Structure P/S	Activate Casing P/S	Activate Foreign P/S	Activate Insulator P/S	Permanent Comments
Region: TRANSMISSION										
System: TRANSMISSION SYSTEMS										
ROW Code: T-1401 ROW Name: College Station to Austin										
T-1401	0.000	Bethel Station		Yes	.85 On	Yes	No	No	No	
	0.001	Rectifier R-200		Yes	.85 On	Yes	No	No	No	
	1.000	Alderman #1		Yes	.85 On	Yes	No	Yes	No	
	1.500	Williford E #1		Yes	.85 On	Yes	No	Yes	No	
	1.627	FM 321		Yes	.85 On	Yes	Yes	No	No	
	1.750	Park Rd. 64		Yes	.85 On	Yes	Yes	No	No	
	2.000	Texas 84		Yes	.85 On	Yes	Yes	No	No	
	2.250	County Rd.		Yes	.85 On	Yes	No	No	No	
	2.500	Fryer B		Yes	.85 On	Yes	No	Yes	No	
	3.000	Whitaker #1		Yes	.85 On	Yes	No	Yes	No	
	3.218	County Road		Yes	.85 On	Yes	No	No	No	
	3.250	Old Meter Riser		Yes	.85 On	Yes	No	No	No	
	3.500			Yes	.85 On	Yes	No	Yes	No	
	4.000	Mills #1		Yes	.85 On	Yes	No	Yes	No	
	5.000	Richard - Wynn		Yes	.85 On	Yes	No	Yes	No	
	5.275	Eastex Trans.		Yes	.85 On	Yes	No	Yes	No	
	6.000	FM 27		Yes	.85 On	Yes	No	Yes	No	
	7.000	Layton #1		Yes	.85 On	Yes	No	Yes	No	
	8.000	4" Riser		Yes	.85 On	Yes	No	Yes	No	
	8.500	Gas Unit #4		Yes	.85 On	Yes	No	Yes	No	
	8.717	Valve		Yes	.85 On	Yes	No	No	No	
	8.800	Rect R-200		Yes	.85 On	Yes	No	No	No	
	8.830	Big Brown Plant		Yes	.85 On	Yes	No	Yes	No	
	8.957	Valve		Yes	.85 On	Yes	No	No	No	
	8.979	Big Brown Pit R		Yes	.85 On	Yes	Yes	No	No	
	9.000	Gas Unit #3		Yes	.85 On	Yes	No	Yes	No	

Surveyor _____

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Figure 15-30. Example of CPDM Test Point Information Report

Facility Type Detail Information Report

The detail information report includes information entered in the Detail Information mini-grid for a particular facility type. It is available as a columnar report.

To view the report, click  **Print** in the <facility type> Detail Information Report window.

Company Name							
Test Point Detail Information Report							
Selected ROWs: 3 Regions; 11 Systems; All ROWs; 218 Pipelines							
Options: Based On: Schedule: [PCS] Installed Schedule Definition from 1/1/2021 to 1/31/2021							
Due Date from Schedule	ROW Code	Milepost	Effective Date	Facility Active	Name	Sub Facility Active	PCS Field Name
Due Date from Schedule: 1/1/2021							
Region: NEW REGION							
System: NEW System							
ROW Code: 76D-51 ROW Name: blank							
1/1/2021	76D-51	443332		Yes	76SubFac	Yes	AC P/S
1/1/2021				Yes	76SubFac	Yes	AC P/S
ROW Code: MLV 1217 TO 1218 LINE 1200-1 (NPS 36) ROW Name: blank							
1/1/2021	MLV 1217 TO 1218 LINE 1	0.872		Yes	P2 BK	Yes	Structure P/S
1/1/2021				Yes	P2 BK	Yes	Structure P/S
1/1/2021				Yes	P2 BK (VAC)	Yes	AC P/S
1/1/2021				Yes	P2 BK (VAC)	Yes	AC P/S
1/1/2021				Yes	P3 BK	Yes	Structure P/S
1/1/2021				Yes	P3 BK	Yes	Structure P/S
1/1/2021				Yes	P5 BR	Yes	Structure P/S
1/1/2021				Yes	P5 BR	Yes	Structure P/S
1/1/2021	MLV 1217 TO 1218 LINE 1	2.209		Yes	P2 RD	Yes	Structure P/S
1/1/2021				Yes	P2 RD	Yes	Structure P/S
1/1/2021				Yes	P3 BK	Yes	Structure P/S
1/1/2021				Yes	P3 BK	Yes	Structure P/S
1/1/2021				Yes	P3 BK (VAC)	Yes	AC P/S
1/1/2021				Yes	P3 BK (VAC)	Yes	AC P/S
1/1/2021	MLV 1217 TO 1218 LINE 1	2.939		Yes	P1 RD (FAULTY)	Yes	Structure P/S
1/1/2021				Yes	P1 RD (FAULTY)	Yes	Structure P/S
1/1/2021				Yes	P2 BK	Yes	Structure P/S
1/1/2021				Yes	P2 BK	Yes	Structure P/S
1/1/2021				Yes	P2 BK (VAC)	Yes	AC P/S
1/1/2021				Yes	P2 BK (VAC)	Yes	AC P/S
1/1/2021	MLV 1217 TO 1218 LINE 1	3.946		Yes	P1 RD	Yes	Structure P/S
1/1/2021				Yes	P1 RD	Yes	Structure P/S
1/1/2021				Yes	P2 BK	Yes	Structure P/S
1/1/2021				Yes	P2 BK	Yes	Structure P/S
1/1/2021				Yes	P2 BK (VAC)	Yes	AC P/S
1/1/2021				Yes	P2 BK (VAC)	Yes	AC P/S
1/1/2021	MLV 1217 TO 1218 LINE 1	4.974		Yes	P2 RD	Yes	Structure P/S
1/1/2021				Yes	P2 RD	Yes	Structure P/S
1/1/2021				Yes	P3 BK	Yes	Structure P/S
1/1/2021				Yes	P3 BK	Yes	Structure P/S
1/1/2021				Yes	P3 BK (VAC)	Yes	AC P/S
1/1/2021				Yes	P3 BK (VAC)	Yes	AC P/S
1/1/2021	MLV 1217 TO 1218 LINE 1	6.370		Yes	P2 BK	Yes	Structure P/S
1/1/2021				Yes	P2 BK	Yes	Structure P/S
1/1/2021				Yes	P2 BK (VAC)	Yes	AC P/S
1/1/2021				Yes	P2 BK (VAC)	Yes	AC P/S
1/1/2021	MLV 1217 TO 1218 LINE 1	6.371		Yes	POS 1	Yes	Structure P/S
1/1/2021				Yes	POS 1	Yes	Structure P/S
1/1/2021				Yes	POS 1 (VAC)	Yes	AC P/S

Figure 15-31. Example CPDM Data Test Point Detail Information Report

Facility Type Inspections Report

The inspections report includes information entered in the Inspection data entry grid for a particular facility type. It is available as a columnar, summary, or graph report. For example, the *Test Points Inspection* report includes all survey data collected at a test point but does not include other facility types such as rectifiers and bonds. Rectifier and bonds are included in a report specific to these facility types.

To view the report, click  **Print** in the <facility type> *Inspections Report* window.

My Pipeline Company										
Test Point Inspection Report										
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401										
Filter Settings: Survey Is equal to '2006 Annual Survey'										
Options: Based On: Selected ROWs; Only include facilities with inspections during the reporting time period; Filter Options: All inspections that meet the filter criteria; Indicate missing inspection readings										
ROW Code and Pipe	Milepost	Effective Date	Inspection Date	Survey	Structure P/S	Casing P/S	Foreign P/S	Insulator P/S	Technician	Inspection Remarks
Region: TRANSMISSION										
System: TRANSMISSION SYSTEMS										
ROW Code: T-1401 ROW Name: College Station to Austin										
T-1401	0.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.141					
	0.001		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.150					
	1.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.173		-0.428			
	1.500		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.963		-1.410			
	1.627		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.922	-0.298				
	1.750		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.895	-0.412				
	2.000		3/22/2006 12:00:00 AM	2006 Annual Survey		-0.635				No TP.
	2.250		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.091					
	2.500		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.996		-0.739			
	3.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.717		-0.852			
	3.218		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.492					
	3.250		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.118					
	3.500		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.694		-0.184			
	4.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.686		-0.707			Isolated at main - Bare line
	5.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.116		-0.665			
	5.275		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.451		-1.339			Meter needs painting, County Road.
	6.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.024		-0.954			
	7.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.094		-0.648			Rd casing abandoned
	8.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.831		-0.862			Mainline tie in
	8.500		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.020		-0.638			
	8.717		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.080					East edge of Big Brown (Needs paint). BV-F76B
	8.800		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.720					KWA meter # bad.
	8.830		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.514		-0.700			paint OK, plant side needs painting
	8.957		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.422					West of Big Brown tie-in. BV-F76.
	8.979		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.409	-1.186				
Surveyor _____										
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Figure 15-32. Example of CPDM Test Point Inspections Report

Facility Type Detail Inspection Report

The detail inspection report includes information entered in the Detail Inspections mini-grid for a particular facility type. It is available as a columnar report.

To view the report, click  **Print** in the <facility type> *Detail Inspections Report* window.

Company Name
 Test Point Detail Inspection Report
 Selected ROWs: 3 Regions; 11 Systems; All ROWs; 218 Pipelines
 Options: Based On: Selected ROWs

ROW Code	Milepost	Effective Date	Inspection Date	Name	Sub Facility Active	FCS Field Name	Selected Reading	On	Off	On Date and Time	Off Date and Time	Latitude
Region: NEW REGION												
System: NEW System												
ROW Code: 76D-51		ROW Name: blank										
76D-51	44332		1/4/2011 12:00:00 AM	76SuFac	Yes	AC P/S						
76D-51	44332		1/4/2011 12:00:01 AM	76SuFac	Yes	AC P/S						
ROW Code: MLV 1217 TO 1218 LINE 1200-1 (NPS 36)		ROW Name: blank										
MLV 1217 TO 1218 LINE1	0.872		8/26/2014 06:07:00 PM	P 2 BK	Yes	Structure P/S	True			8/26/2014 01:40:11 PM	8/26/2014 01:40:10 PM	
			8/26/2014 06:07:00 PM	P 2 BK (VAC)	Yes	AC P/S	True			8/26/2014 01:47:47 PM	8/26/2014 01:47:44 PM	
			8/26/2014 06:07:00 PM	P 3 BK	Yes	Structure P/S				8/26/2014 01:48:27 PM	8/26/2014 01:48:24 PM	
			8/26/2014 06:07:00 PM	P 5 BR	Yes	Structure P/S				8/26/2014 01:48:35 PM	8/26/2014 01:48:32 PM	
MLV 1217 TO 1218 LINE1	2.209		8/26/2014 06:07:00 PM	P 2 RD	Yes	Structure P/S	True			8/26/2014 02:07:53 PM	8/26/2014 02:07:40 PM	
			8/26/2014 06:07:00 PM	P 3 BK	Yes	Structure P/S				8/26/2014 02:09:27 PM	8/26/2014 02:09:24 PM	
			8/26/2014 06:07:00 PM	P 3 BK (VAC)	Yes	AC P/S	True			8/26/2014 02:08:39 PM	8/26/2014 02:08:36 PM	
MLV 1217 TO 1218 LINE1	2.879		8/26/2014 06:07:00 PM	P 1 RD (FAULTY)	Yes	Structure P/S	True			8/26/2014 02:21:07 PM	8/26/2014 02:21:04 PM	
			8/26/2014 06:07:00 PM	P 2 BK	Yes	Structure P/S				8/26/2014 02:22:29 PM	8/26/2014 02:22:26 PM	
			8/26/2014 06:07:00 PM	P 2 BK (VAC)	Yes	AC P/S	True			8/26/2014 02:21:51 PM	8/26/2014 02:21:40 PM	
MLV 1217 TO 1218 LINE1	3.846		8/26/2014 06:07:00 PM	P 1 RD	Yes	Structure P/S	True			8/26/2014 02:35:40 PM	8/26/2014 02:35:40 PM	
			8/26/2014 06:07:00 PM	P 2 BK	Yes	Structure P/S				8/26/2014 03:16:35 PM	8/26/2014 03:16:32 PM	
			8/26/2014 06:07:00 PM	P 2 BK (VAC)	Yes	AC P/S	True			8/26/2014 03:16:19 PM	8/26/2014 03:16:16 PM	
MLV 1217 TO 1218 LINE1	4.974		8/26/2014 06:07:00 PM	P 2 RD	Yes	Structure P/S	True			8/26/2014 02:52:35 PM	8/26/2014 02:52:32 PM	
			8/26/2014 06:07:00 PM	P 3 BK	Yes	Structure P/S				8/26/2014 02:53:35 PM	8/26/2014 02:53:32 PM	
			8/26/2014 06:07:00 PM	P 3 BK (VAC)	Yes	AC P/S	True			8/26/2014 02:53:19 PM	8/26/2014 02:53:16 PM	
MLV 1217 TO 1218 LINE1	6.370		8/26/2014 06:07:00 PM	P 2 BK	Yes	Structure P/S	True			8/26/2014 03:40:48 PM	8/26/2014 03:40:40 PM	
			8/26/2014 06:07:00 PM	P 2 BK (VAC)	Yes	AC P/S	True			8/26/2014 03:41:23 PM	8/26/2014 03:41:20 PM	
MLV 1217 TO 1218 LINE1	6.372		8/26/2014 06:07:00 PM	P 0E 1	Yes	Structure P/S	True			8/26/2014 03:44:27 PM	8/26/2014 03:44:24 PM	
			8/26/2014 06:07:00 PM	P 0E 1 (VAC)	Yes	AC P/S	True			8/26/2014 03:44:03 PM	8/26/2014 03:44:00 PM	
MLV 1217 TO 1218 LINE1	7.719		8/26/2014 06:07:00 PM	P 1 RD (FAULTY)	Yes	Structure P/S	True			8/26/2014 04:02:59 PM	8/26/2014 04:02:56 PM	
			8/26/2014 06:07:00 PM	P 2 BK (FAULTY)	Yes	Structure P/S				8/26/2014 04:03:40 PM	8/26/2014 04:03:40 PM	
			8/26/2014 06:07:00 PM	P 2 BK (VAC) (FAULTY)	Yes	AC P/S	True			8/26/2014 04:03:23 PM	8/26/2014 04:03:20 PM	
MLV 1217 TO 1218 LINE1	9.015		8/26/2014 06:07:00 PM	P 1 RD	Yes	Structure P/S	True			8/26/2014 04:13:03 PM	8/26/2014 04:13:00 PM	
			8/26/2014 06:07:00 PM	P 2 RD	Yes	Structure P/S				8/26/2014 04:14:03 PM	8/26/2014 04:14:00 PM	

Figure 15-33. Example of CPDM Test Point Detail Inspections Report

Facility Type Maintenance Report

A report based on the columnar report style that includes information entered in the *Maintenance* data entry grid for a facility type. For example, the *Test Points Maintenance* report includes a detail listing of all current, pending, and completed repairs for test points.

To view the report, click  **Print** in the <facility type> *Maintenance Report* window.

My Pipeline Company									
Test Point Maintenance Report									
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1403									
Options: Based On: Selected ROWs; Filter Options: All maintenance that meet the filter criteria									
ROW Code and Pipe	Milepost	Effective Date	Repair Found Date	Test Point Repair Code	Repair Initiated Date	Repair Corrected Date	Reference Number	Repair Priority	Repair Remarks
Region: TRANSMISSION									
System: TRANSMISSION SYSTEMS									
ROW Code: T-1403		ROW Name: Dallas to Houston							
T-1403	0.000	12/31/2003	1/5/2006	23			3257	High	
	0.507		1/5/2006	4	1/5/2006	1/5/2006	3701	Crit	
	0.607		1/8/2011	5			3291	Low	Needs paint
	1.059		3/8/2011	6			2621	Crit	Destroyed
	2.703		1/5/2006	3	1/5/2006	1/5/2006	7226	Med	
			3/8/2008	4			1306	Med	
			3/8/2010	5			6921	Low	
			3/8/2011	6			1032	Low	
	2.705								
	2.753		3/8/2003	15	3/6/2011	3/8/2011	9434	Crit	Replaced leads
		3/23/2005	3/8/2011	24			9925	Med	
	2.798								
	5.869		3/8/2011	36			433	High	
	7.872		1/5/2006	1		1/5/2006	6529	Low	
	8.877		1/5/2006	20		2/9/2006	2114	High	
	10.190								
	10.191								
	12.850		3/8/2011	7			5797	Low	Leads are loose
	15.000								
	20.990		3/8/2011	15			3033	Low	
	20.995								
	23.762								
	25.778								
	25.779								
	29.812								
	32.490								
Surveyor _____									
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Figure 15-34. Example of CPDM Test Point Maintenance Report

Facility Type Exceptions Report

A report based on the columnar report style that includes survey data and other related information only for facilities that fail to meet certain criteria. For example, based on filter options selected in *Exception Filters*, the report can include facilities with missing structure readings; structure readings less negative than -0.85; or structure readings more negative than -2.0. This type of report is helpful when trying to quickly locate a problem in the maintenance of a pipeline.

To view the report, click  **Print** in the <facility type> *Exceptions Report* window.

My Pipeline Company
Test Point Exception Report
 Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1403
 Filter Settings: Structure P/S Is less negative than '-0.95'

Options: Based On: Selected ROWs; Indicate missing inspection readings; Exceptions to include: All exceptions and subsequent improved inspections

ROW Code and Pipe	Milepost	Effective Date	Inspection Date	Survey	Structure P/S	Casing P/S	Foreign P/S	Insulator P/S	Technician	Inspection Remarks
Region: TRANSMISSION										
System: TRANSMISSION SYSTEMS										
ROW Code: T-1403 ROW Name: Dallas to Houston										
Exception Filter: Structure P/S Is less negative than -0.95										
T-1403	0.507		2/11/2005 12:00:00 AM	2005 Annual Survey	-0.500					
			3/23/2005 12:00:00 AM	2005 Annual Survey	-1.151					
			5/11/2005 12:00:00 AM	2005 Annual Survey	-2.000					
			3/5/2006 12:00:00 AM	2006 Annual Survey	-0.750		-0.989			
			3/11/2006 12:00:00 AM	2006 Annual Survey	-0.955		-0.985			
	0.607		3/6/2004 12:00:00 AM	2004 Annual Survey	-0.780					
			4/23/2005 12:00:00 AM	2005 Annual Survey	-1.112					Paint good
			3/5/2006 12:00:00 AM	2006 Annual Survey	-1.000					B
	2.798		3/5/2006 12:00:00 AM	2006 Annual Survey	-0.680	-0.670				
			3/7/2006 12:00:00 AM	2006 Annual Survey	-1.090	-0.540				
	5.869		3/5/2006 12:00:00 AM	2006 Annual Survey	-0.878	-0.740				
	7.872		3/5/2006 12:00:00 AM	2006 Annual Survey	-0.821	-0.821				
	8.877		3/6/2004 12:00:00 AM	2004 Annual Survey	-0.891	-0.428				
			2/26/2006 12:00:00 AM	2005 Annual Survey	-1.178	-0.541				
			3/26/2006 12:00:00 AM	2006 Annual Survey	-0.881	-0.645				
	10.190		3/6/2004 12:00:00 AM	2004 Annual Survey	-0.904	-0.393				Valve BV O-10
			4/23/2005 12:00:00 AM	2005 Annual Survey	-1.143	-0.585				Valve BV O-10 (Paint good)
			1/5/2006 12:00:00 AM		-1.050					
			2/17/2006 12:00:00 AM		-1.120					
			3/5/2006 12:00:00 AM	2006 Annual Survey	-1.102	-0.557				
			3/28/2006 12:00:00 AM		-1.080					
			4/27/2006 12:00:00 AM		-0.980					
			5/24/2006 12:00:00 AM		-0.990					
			6/15/2006 12:00:00 AM		-1.040					
			7/18/2006 12:00:00 AM		-1.090					
			8/26/2006 12:00:00 AM		-1.030					
	20.990		3/6/2004 12:00:00 AM	2004 Annual Survey	-0.906					Valve #3
			3/10/2006 12:00:00 AM	2006 Annual Survey	-1.064					Block valve needs paint.
			7/18/2006 12:00:00 AM	2005 Annual Survey	-1.208					Valve #3 (Paint good)
	54.801		4/25/2003 12:00:00 AM	2003 Annual Survey	-0.630		-0.960			Black -0.96, White -0.63
			3/6/2004 12:00:00 AM	2004 Annual Survey	-0.850					Black -0.602, White -0.523 (Old mag bed depleted);
			4/23/2005 12:00:00 AM	2005 Annual Survey	-1.110					


Surveyor _____

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Figure 15-35. Example of CPDM Test Point Exceptions Report

Summary Drilldown Report

The *Summary* report includes the Drilldown option for displaying data in an interactive pivot table format.

To view a Drilldown of the Summary report for a report that includes a Summary tab, click  **Drilldown** in the <facility type> <report type> Report window. Examples of reports that include the Summary tab are Test Point Information Report and Test Point Inspection Report.

The following example is from the CPDM module and found through **Reports/Graphs > Test Point Reports > Test Point Inspection Report > Summary > Drilldown**.

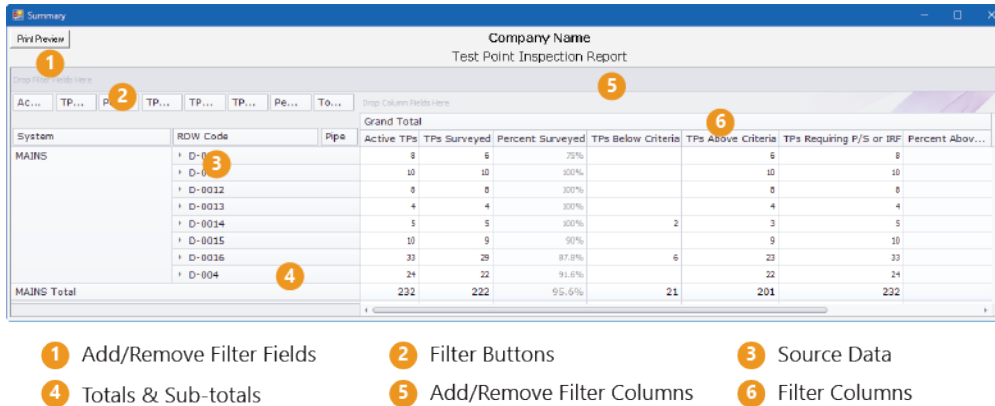


Figure 15-36. Summary Drilldown Report

Drilldown allows you to display different representations of the same summary data. You can add, remove, and rearrange filters to display a subset of summary data for easier analysis of large amounts of data. Double-clicking a field opens a window with detailed drill-down information for the selected summation type. The following list describes operations you can perform in a pivot table:

- **Arrange Column Fields in the Grid** – the arrangement of filter buttons corresponds to the arrangement of column fields in the grid. Drag a filter button to a different position within the group of buttons to rearrange column fields in the grid. Hover your mouse over a filter button to display a tool tip with the filter name.
- **Remove Column Fields in the Grid** – drag a filter button to the area of the pivot table labeled **Drop Column Fields Here** to remove the selected column from the grid.
- **Remove Filters from Calculations** – drag a filter button to the area of the pivot table labeled **Drop Filter Fields Here** to remove the selected filter from calculations.
- **View or print a section of the drilldown table** – double-click a total or sub-total.

ROW Reports


The following reports are available for selection in any module except ISM:

NOTE: For a list of reports available in the ISM module, refer to [Continuous Survey \(CIS\) Reports](#)

- [ROW Information Report](#)
- [ROW Maintenance Report on page 782](#)

ROW Information Report

A report based on the columnar report style that includes pipeline system information entered in the *Edit ROW Detail Information* grid. Depending on how the report is set up, it includes information for user-selected fields such as pipeline name and size, total footage, default location format, surface area, and so on.

To view the report, click  **Print** in the *ROW Information Report* window.

My Pipeline Company										
ROW Information Report										
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; 4 ROWs; 4 Pipelines										
Options: Based On: Selected ROWs										
ROW Code	ROW Name	Pipe	Pipeline Name	Pipeline Size	Total Footage	Default Location Format	ROW Effective Date	ROW Active	Surface Area	ROW Permanent Comments
Region: TRANSMISSION										
System: TRANSMISSION SYSTEMS										
ROW Code: T-1401										
T-1401	College Station to Austin	1		12.00	390720	Milepost (3 Decimals)		Yes		
	<i>ROW Code: T-1401</i>	Records: 1								
ROW Code: T-1403										
T-1403	Dallas to Houston	1		24.00	992640	Milepost (3 Decimals)		Yes		
	<i>ROW Code: T-1403</i>	Records: 1								
ROW Code: T-1701										
T-1701	Kilgore to Henderson	1				Station Number		Yes		
	<i>ROW Code: T-1701</i>	Records: 2								
							2/12/2007	No		
ROW Code: T-1903										
T-1903	Station 400 to Station 401	1		24.00	992640	Milepost (3 Decimals)		Yes		
	<i>ROW Code: T-1903</i>	Records: 1								
<i>System: TRANSMISSION SYSTEMS</i>		Records: 5								
<i>Region: TRANSMISSION</i>		Records: 5								
Total Records: 5										
Surveyor _____										
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Figure 15-37. Example of ROW Information Report

ROW Maintenance Report

A report based on the columnar report style that includes pipeline system information entered in the *Edit ROW Detail Maintenance* grid. It includes a detail listing of all current, pending, and completed repairs.

To view the report, click  **Print** in the *ROW Maintenance Report* window.

My Pipeline Company
ROW Maintenance Report

Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; 3 ROWs; 3 Pipelines
Options: Based On: Selected ROWs; Filter Options: All maintenance that meet the filter criteria

ROW Code	Pipe	ROW Effective Date	ROW Active	ROW Repair Code	ROW Repair Found Date	ROW Repair Initiated Date	ROW Repair Corrected Date	ROW Repair Remarks	ROW Reference Number
Region: TRANSMISSION									
System: TRANSMISSION SYSTEMS									
ROW Code: T-1401									
T-1401	1		Yes	RC101	9/9/2013	9/10/2013	9/10/2013	routine maintenance	Ref-101
	<i>ROW Code: T-1401</i>	<i>Records: 1</i>							
ROW Code: T-1403									
T-1403	1		Yes	RC102	9/17/2013	9/18/2013	9/19/2013	routine maintenance	Ref-201
	<i>ROW Code: T-1403</i>	<i>Records: 1</i>							
ROW Code: T-1903									
T-1903	1		Yes	RC203	9/20/2013	9/20/2013	9/20/2013	routine maintenance	Ref-301
	<i>ROW Code: T-1903</i>	<i>Records: 1</i>							
	<i>System: TRANSMISSION SYSTEMS</i>	<i>Records: 3</i>							
<i>Region: TRANSMISSION</i>	<i>Records: 3</i>								
Total Records: 3									
Surveyor _____									
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Figure 15-38. Example of ROW Maintenance Report

Continuous Survey (CIS) Reports


The following reports are available for selection under **Reports/Graphs** main menu in the ISM Module:

- [CIS Survey Report and Graph on page 783](#)
- [CIS Criteria Report](#)
- [CIS Survey Folders Report on page 786](#)

CIS Survey Report and Graph

A report based on the columnar or graph report style that includes station numbers with associated survey readings for a selected survey folder and pipeline segment(s) selected in the *Select ROWs* window.

NOTE: This report is only available in the ISM Module.

To view the report, select a Continuous Survey from the drop-down list and then click  **Print** in the *CIS Survey Report* window.

My Pipeline Company										
CIS Survey Report										
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1403										
Filter Settings: CIS Structure P/S Is less negative than '-0.95'										
Options: Based On: Selected ROWs; Select Continuous Survey: T-1403 3/14/2006 On- Off Survey										
ROW Code and Pipe	Station Number	CIS Structure P/S	CIS Structure IRF	Indication Score	Indication Classification	Longitude	Latitude	Plot This Point	Surveyor	Survey Remarks
T-1403	136+00	-0.753						Yes		Foreign Line Xing
T-1403	140+70	-0.948						Yes		
T-1403	189+30	-0.943						Yes		
T-1403	198+80	-0.848						Yes		
T-1403	202+10	-0.921						Yes		
T-1403	213+00	-0.930						Yes		
T-1403	213+10	-0.924						Yes		
T-1403	213+40	-0.914						Yes		
T-1403	213+50	-0.713						Yes		
T-1403	263+72	-0.800	-0.760					Yes		TS 284+05 -0.798 Retie
T-1403	263+80	-0.832	-0.767					Yes		
T-1403	263+90	-0.851	-0.778					Yes		
T-1403	264+00	-0.881	-0.796					Yes		
T-1403	264+10	-0.890	-0.796					Yes		
T-1403	264+20	-0.892	-0.797					Yes		
T-1403	264+30	-0.900	-0.802					Yes		
T-1403	264+40	-0.889	-0.792					Yes		
T-1403	264+42	-0.884	-0.785					Yes		CL Caliche Rd
T-1403	264+50	-0.894	-0.794					Yes		
T-1403	264+60	-0.902	-0.800					Yes		
T-1403	264+70	-0.903	-0.802					Yes		
T-1403	264+71	-0.900	-0.797					Yes		Line Marker
T-1403	264+80	-0.899	-0.798					Yes		
T-1403	264+90	-0.896	-0.795					Yes		
T-1403	265+00	-0.887	-0.791					Yes		
T-1403	265+10	-0.885	-0.789					Yes		
T-1403	265+20	-0.882	-0.789					Yes		
T-1403	265+30	-0.883	-0.786					Yes		
T-1403	265+40	-0.891	-0.789					Yes		
T-1403	265+50	-0.892	-0.788					Yes		
T-1403	265+60	-0.892	-0.788					Yes		
T-1403	265+70	-0.887	-0.785					Yes		

Surveyor _____

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Figure 15-39. Example of Continuous Survey Report (Columnar Report Style)

To view a graph version of the report, click the **Graph** tab in the *CIS Survey Report* window. Select a survey from the list shown in the *Survey Selections* pane of the window, and then click  **Graph**.

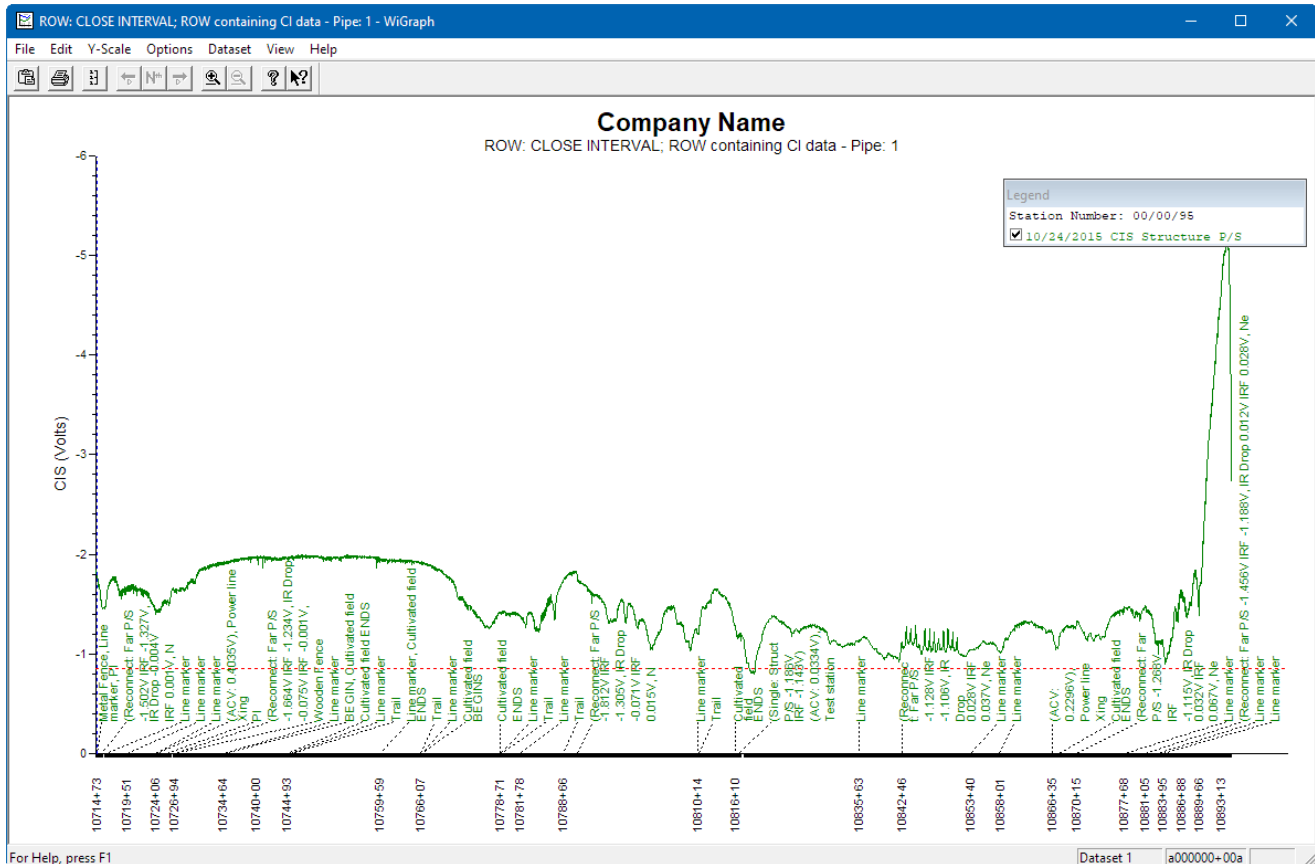



Figure 15-40. Example of Continuous Survey Report (Graph Report Style)

CIS Criteria Report

A report based on the columnar report style that lists survey data for on/off and native state surveys.

The *CIS Criteria Report* allows you to include or exclude survey readings based on the following fields: native (no cathodic protection); on potential (cathodic protection system on); and instant off (regular timed interruptions from the current source). If other report information is required, you can create a custom criteria report that meets those requirements. Report information also allows you to quickly determine if survey readings are out of specification or were recorded incorrectly.

NOTE: This report is only available in the ISM Module.

To view the report, under *Options*, select an On Off Survey and Native Survey from the drop-down lists, and then click  **Print** in the *CIS Criteria Report* window.

My Pipeline Company
CIS Criteria Report

Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1403

Filter Settings: Reading does not meet the .85 On Criteria; Reading does not meet the .85 IRF Criteria; Reading does not meet the 100mV Criteria

Options: Based On: Selected ROWs; Selected On Off Survey: T-1403 2/15/2006 Native Survey; Selected Native Survey: T-1403 2/15/2006 Native Survey

Station Number	CIS Structure P/S	CIS Structure IRF	CIS Native P/S (CIS Criteria)	Meets .85 On Criteria	Meets .85 Off Criteria	Meets 100mV Criteria	Number of Readings in Survey	Plot This Point	Survey Remarks	Surveyor
29+48	-0.580			No			21674	Yes	Pipe Enters Ground	
29+50	-0.602			No			21674	Yes	ok	
29+51	-0.615			No			21674	Yes	Fence	
29+60	-0.641			No			21674	Yes		
29+70	-0.630			No			21674	Yes		
29+80	-0.666			No			21674	Yes		
29+90	-0.666			No			21674	Yes		
30+00	-0.676			No			21674	Yes		
30+10	-0.683			No			21674	Yes		
30+20	-0.700			No			21674	Yes		
30+30	-0.696			No			21674	Yes		
30+40	-0.686			No			21674	Yes		
30+50	-0.683			No			21674	Yes		
30+60	-0.690			No			21674	Yes		
30+70	-0.696			No			21674	Yes		
30+80	-0.689			No			21674	Yes		
30+90	-0.676			No			21674	Yes		
31+75	-0.596			No			21674	Yes	Csg-0.302	
31+80	-0.563			No			21674	Yes		
31+84	-0.527			No			21674	Yes	Line Marker	
31+90	-0.548			No			21674	Yes		
32+00	-0.585			No			21674	Yes		
32+10	-0.608			No			21674	Yes		
32+20	-0.623			No			21674	Yes		
32+22	-0.594			No			21674	Yes	Fence to Seadrift PL Station	
32+30	-0.633			No			21674	Yes		
32+40	-0.637			No			21674	Yes		
32+50	-0.634			No			21674	Yes		
32+60	-0.642			No			21674	Yes		
32+64	-0.632			No			21674	Yes	Line Marker, PI Right	
32+70	-0.664			No			21674	Yes		
32+80	-0.678			No			21674	Yes		

Surveyor _____

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Figure 15-41. Example of CIS Criteria Report (Continuous Survey)

CIS Survey Folders Report

A report based on the columnar report style that lists all survey folders associated with the currently selected pipeline segment in the *Select ROWs* window. The report includes the survey folder name, start date, and total number of survey readings for each survey folder included in the report.

NOTE: This report is only available in the ISM Module.

To view the report, click  **Print** in the *CIS Survey Folders Report* window.

My Pipeline Company							
CIS Survey Folders Report							
Selected ROWs: Northwest Region; LB123; 3 ROWs; 3 Pipelines							
Options: Based On: Selected ROWs							
ROW Code and Pipe	CI Survey Name	Start Date	Number of Readings in Survey	Survey Interval	Total Footage	Surveyor	Vendor
LB123-A	160PN NASCORP 2005	4/1/2005	25596	2.5	69147	NASC	Smith CP Services
LB123-A	160PN 2008 - FOLLOW-UP	10/24/2008	6864	2.5	69147	CEM	CP Services CEM
LB123-B	1844+17 to 1841+67	8/31/2009	55	2.5	154213	BDP	
LB123-B	00 to 250	8/31/2009	41	2.5	154213	BDP	
LB123-B	00-250	9/8/2009	42	2.5	154213	BDP	
LB123-C	243817 TO 244017	6/22/2009	41	5.0	362123	BDP	Smith CP Services
LB123-C	249755 TO 249955	6/22/2009	41	5.0	362123	BDP	
LB123-C	249755 TO 249955 WOB	6/22/2009	40	5.0	362123	BDP	
LB123-C	45.6373 TO 45.6752	6/22/2009	41	5.0	362123	BDP	
Total Records: 9							
Surveyor _____							
9/24/2013 Page 1/1							

Figure 15-42. Example of Continuous Survey Folders Report

Work With Reports Based on a Style

For PCS reports, facility type, and ROW reports, print, export, or create a graph. Some of the reports, such as the Test Point Inspection Report (**Reports/Graphs > Test Point Reports > Test Point Inspection Report**) include multiple report styles of that report.

To set up a report for printing, exporting, or creating a graph you first select various options and (optional) filters for filtering data.

Refer to the following topics for more information on working with the different report styles:

- [Work With Columnar Style Reports](#)
- [Work With Summary Style Reports on page 791](#)

- [Work with Graph Style Reports on page 793](#)
- [Work With Form Style Reports on page 795](#)

Work With Columnar Style Reports

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to set up and print or export a columnar style report:

1. Click **Reports/Graphs** and then select a report in a columnar style from the menu to open a window with the report's property settings. For example (in the CPDM module) **Reports/Graphs > Test Point Reports > Test Point Detail Information Report**.

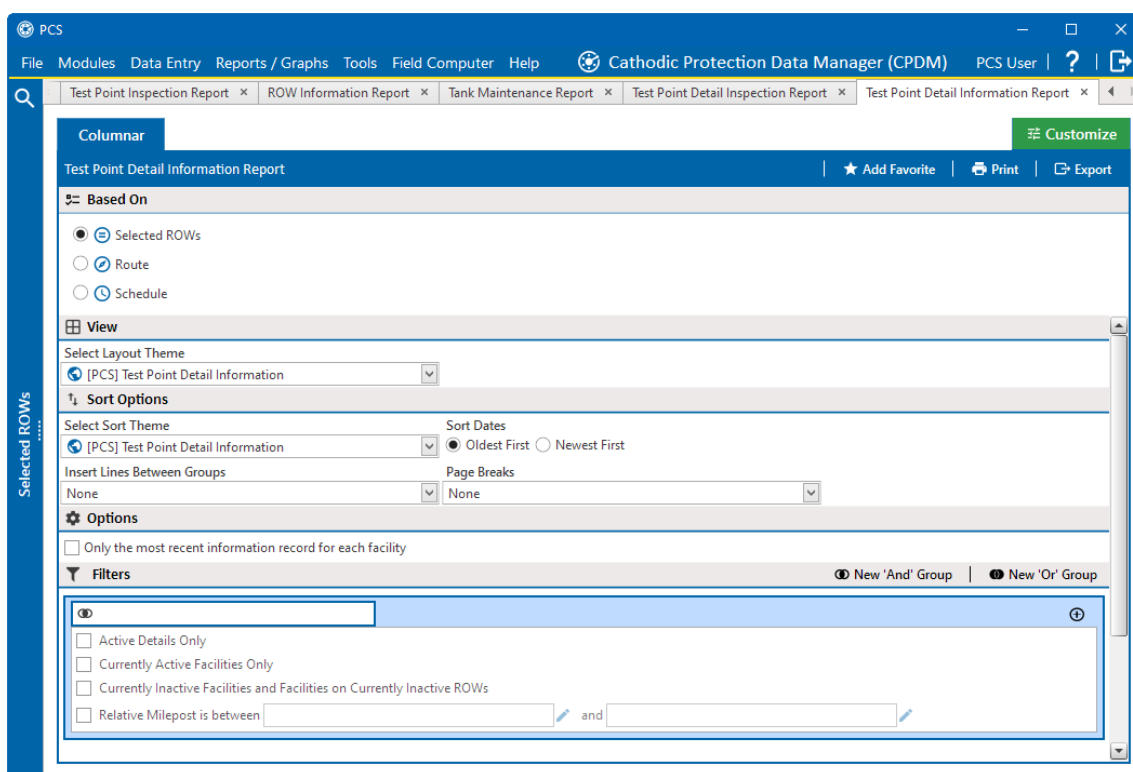


Figure 15-43. Test Point Detail Information Report

2. Select one of the following options to choose which facility records to include in the report:
 - a. Select the **Selected ROWs** option to include facilities associated with the pipeline selection(s) in the *Select ROWs* window.
 - b. Select the **Route** option and then select a route to include facilities associated with the selected route.

- c. Select the **Schedule** option and then select a schedule definition and a start and end date.

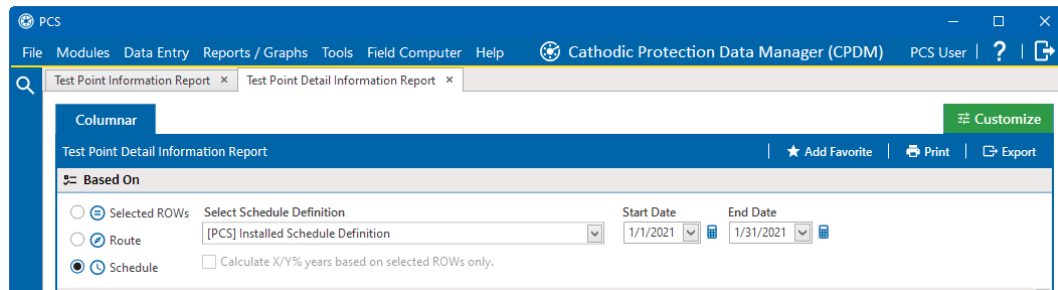


Figure 15-44. Based On Schedule for Columnar Report

NOTE: Not all columnar reports include the **Schedule** option.








3. Select a layout theme from the **Select Layout Theme** drop-down list. The layout theme determines which fields are included in the report, paper and font settings, and additional print options such as including a signature line in the report.
4. Select a sorting theme from the **Select Sort Theme** drop-down list. The sorting theme determines how PCS sorts report data.
5. Choose a method for sorting inspection dates. Click **Oldest First** or **Newest First** in **Sort Dates** to sort records with the oldest or newest inspection dates first.
6. Choose an option for inserting a line between different groups of report data. Select an option from the **Insert Lines Between Groups** drop-down list.
7. Choose an option that determines where a page break occurs in the report. Select an option from the **Page Breaks** drop-down list.
8. Select one or more of the following options as needed in the *Options* pane, depending on the type of columnar report. Date range in filter criteria is determined by considering all time frame filters, such as inspection date, survey, and periodic survey filters.
 - **Only the most recent information record for each facility** – includes the most recent record for each facility.
 - **Only show facilities with inspections**– When time frame filters are not selected in the *Filters* group box, such as inspection date, survey, or periodic survey filters, the report includes all inspections using the inspection date and time as the reporting time period. If one or more time frame filters are selected in the *Filters* group box, the report only includes inspections for the selected time frame filter(s).

- **All inspections that meet the filter criteria**— Report includes all inspections that meet filter criteria based on selections in the *Filter* group box.
- **Apply other filters to the most recent inspection found within report timeframe:** This option finds the latest inspection within the reporting time frame first, and then applies all other filters selected in the *Filter* group box. The report only includes inspections for facilities when the latest record within the date range meets other filters.
- **The most recent inspection after the filter criteria has been met** – This option applies all filter criteria first based on selections in the *Filter* group box, and then finds the latest inspection.
- **Indicate missing inspection readings** – This option includes an empty box in the report for each missing inspection reading.

9. Select one or more options in the *Filters* pane to filter report data according to your filter selection(s). For example, click **Currently Active Facilities Only** to only include currently active facilities in the report.

PCS disables the **Only show facilities with inspection records** option when the *Columnar* report includes any of the following filter settings: Inspection Date is between, Survey is equal to, Periodic Survey is equal to, or Periodic Survey Year is equal to.

When adding a date filter, such as **Inspection Date is between**, set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - To set a date range using dynamic start and end dates, click the  icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
10. If you want to add the report in *Favorite Reports* (**Reports/Graphs > Favorite Reports**), click  **Add Favorite**. To remove it from the list, click  **Remove Favorite**.
 11. To export the report, click  **Export** to open the *Export File* window. Navigate to the location where you would like to save the file. Select an export file type from the **Save as type** drop-down list. Click **Save**.
 12. To print the report, click  **Print** to open the report in a preview window.
 13. To print the report using the default printer set up in Windows, click the  **Quick Print** icon. To select a printer other than the default printer, click the  **Print** icon.
 14. When finished, click the close icon to close the print preview window.

Work With Summary Style Reports

The following procedure explains how to set up and print or export a report based on the summary report style. Also included are instructions for using the optional Drilldown feature.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to set up, drilldown, and print or export a summary style report:

1. Click **Reports/Graphs** and then select a report in a summary style from the menu to open a window with the report's property settings. For example, (in the CPDM module) **Report/Graphs > Test Point Reports > Test Point Inspection Report**. Click the **Summary** tab to see the options for this report.

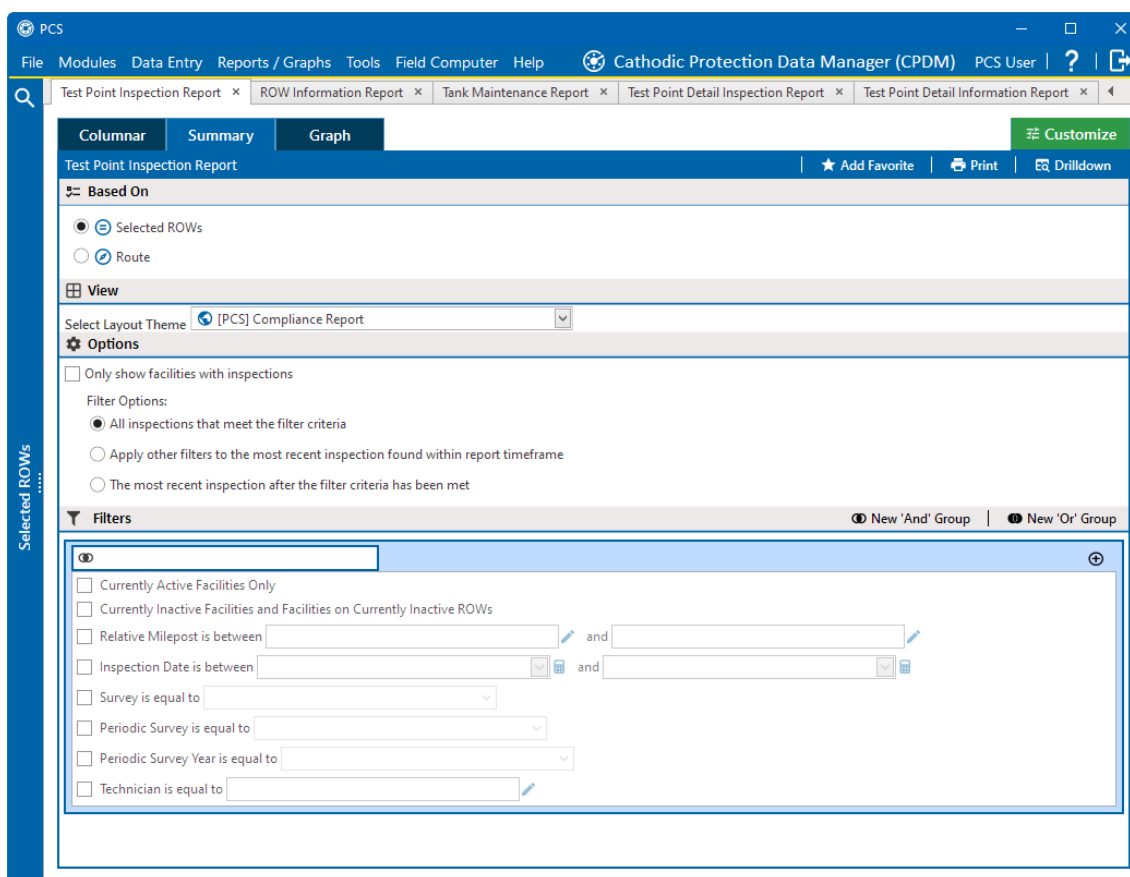









Figure 15-45. Test Point Inspection Report (Summary)

2. Select one of the following options to choose which facility records to include in the report:
 - a. Select the **Selected ROWs** option to include facilities associated with the pipeline selection(s) in the *Select ROWs* window.

- b. Select the **Route** option and then select a route to include facilities associated with the selected route.
3. Select a layout theme from the **Select Layout Theme** drop-down list. The layout theme determines which fields are included in the report.

Only public themes are available for selection. If you would like to use a private theme, your company's system administrator must make your private theme a public one.
4. Select one or more of the following options as needed in the *Options* pane. Date range in filter criteria is determined by considering all time frame filters, such as inspection date, survey, and periodic survey filters.
 - **Only show facilities with inspections:** When time frame filters are not selected in the *Filters* group box, such as inspection date, survey, or periodic survey filters, the report includes all inspections using the inspection date and time as the reporting time period. If one or more time frame filters are selected in the *Filters* group box, the report only includes inspections for the selected time frame filter(s).
 - **All inspections that meet the filter criteria:** Report includes all inspections that meet filter criteria based on selections in the *Filter* group box.
 - **Apply other filters to the most recent inspection found within report timeframe:** This option finds the latest inspection within the reporting time frame first, and then applies all other filters selected in the *Filter* group box. The report only includes inspections for facilities when the latest record within the date range meets other filters.
 - **The most recent inspection after the filter criteria has been met:** This option applies all filter criteria first based on selections in the *Filter* group box, and then finds the latest inspection.
5. Select one or more of the survey filters in the *Filters* pane. The summary report requires at least one of these filter settings:
 - Survey is equal to
 - Periodic Survey is equal to
 - Periodic Survey Year is equal to

PCS disables the **Only show facilities with inspection records** option when the summary report includes any of the following filter settings: Inspection Date is between, Survey is equal to, Periodic Survey is equal to, or Periodic Survey Year is equal to.
6. Select additional filters in the *Filters* pane as required. For example, click **Currently Active Facilities Only** to only include active facilities in the report.

7. When adding a date filter, such as **Inspection Date is between**, set a date range using a calendar or dynamic dates in the following manner:
 - To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - To set a date range using dynamic start and end dates, click the  icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
8. If you want to add the report in *Favorite Reports* (**Reports/Graphs > Favorite Reports**), click  **Add Favorite**. To remove it from the list, click  **Remove Favorite**.
9. If you want to work with report data in an interactive pivot table, click  **Drilldown** to open the report in a new window. Refer to [Summary Drilldown Report on page 780](#) for a more information.
10. To print the report, click  **Print** to open the report in a preview window.
11. To print the report using the default printer set up in Windows, click the  **Quick Print** icon. To select a printer other than the default printer, click the  **Print** icon.
12. When finished, click the close icon to close the print preview window.

Work with Graph Style Reports

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to set up and print or export a graph style report:

1. Click **Reports/Graphs** and then select a report in a columnar style from the menu to open a window with the report's property settings. For example, (in the CPDM module) **Report/Graphs > Test Point Reports > Test Point Inspection Report**. Click the **Graph** tab to see the options for this report.

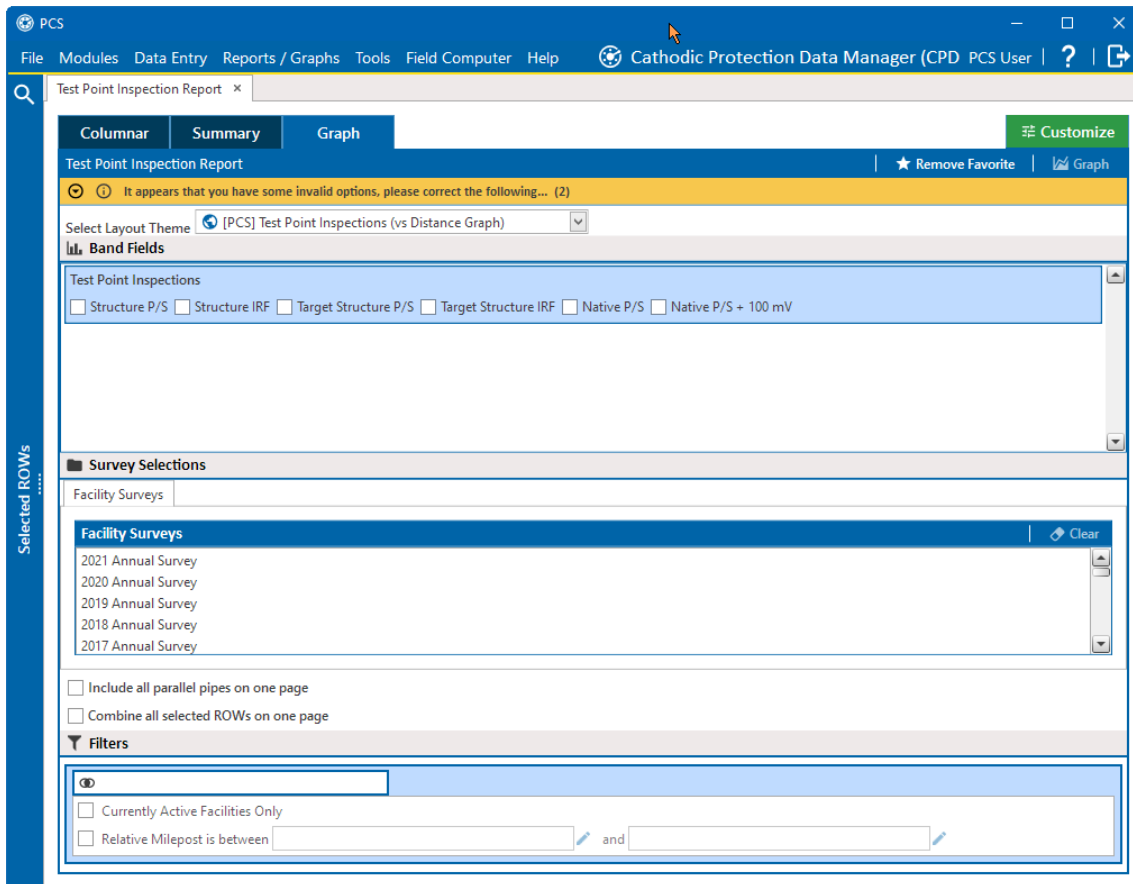






Figure 15-46. Test Point Inspection Report - Graph Report

2. Select a layout theme from the **Select Layout Theme** drop-down list. The layout theme determines which fields are included in the report.
Only public themes are available for selection. If you would like to use a private theme, your company's system administrator must make your private theme a public one.
3. In the *Band Fields* pane, click the check box for more or more types of survey data you want to include in the graph.
4. In the *Survey Selections* pane, select one or more Facility Surveys. To select facility surveys in sequential order, press **Shift** and then click each survey. To select facility survey in non-sequential order, press **Ctrl** and then click each survey.
5. To include all parallel pipelines on one page, select the **Include all parallel pipes on one page** check box.
6. To show all selected pipelines on a single page, select the **Combine all selected ROWs on one page** check box.
7. Select additional filters in the *Filters* pane as required.

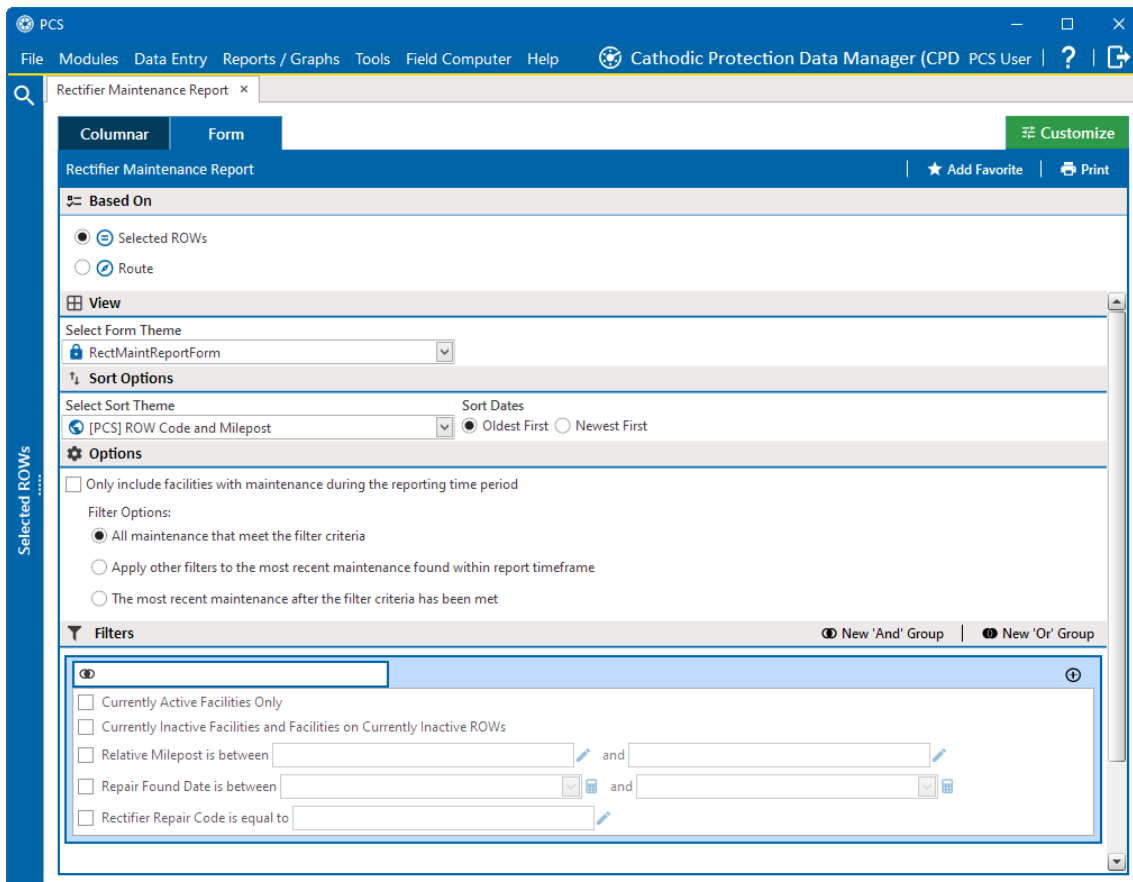
8. If you want to add the report in *Favorite Reports (Reports/Graphs > Favorite Reports)*, click  **Add Favorite**. To remove it from the list, click  **Remove Favorite**.
9. To view the graph, click  **Graph** to open the graph in a preview window. Then click the  **Print** button to print the graph.

Work With Form Style Reports

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to set up and print or export a form style report:







1. Click **Reports/Graphs** and then select a report that includes a form style from the menu to open a window with the report's property settings.
2. Click the **Form** tab to open the form report. If the Form tab is not available, a form report theme has to be created. Refer to [Form Report Designer Themes on page 820](#) to create a theme.



The screenshot displays the 'Rectifier Maintenance Report' configuration window in the PCS software. The window has a blue header with the title 'Rectifier Maintenance Report' and buttons for 'Add Favorite' and 'Print'. Below the header, there are two tabs: 'Columnar' and 'Form', with 'Form' selected. A 'Customize' button is visible in the top right corner. The main content area is divided into several sections:

- Based On:** Radio buttons for 'Selected ROWs' (selected) and 'Route'.
- View:** A dropdown menu for 'Select Form Theme' with 'RectMaintReportForm' selected.
- Sort Options:** A dropdown for 'Select Sort Theme' with '[PCS] ROW Code and Milepost' selected, and radio buttons for 'Sort Dates' with 'Oldest First' selected.
- Options:** A checkbox for 'Only include facilities with maintenance during the reporting time period' (unchecked). Below it, 'Filter Options' include:
 - All maintenance that meet the filter criteria
 - Apply other filters to the most recent maintenance found within report timeframe
 - The most recent maintenance after the filter criteria has been met
- Filters:** A section with a search bar and two group buttons: 'New 'And' Group' and 'New 'Or' Group'. Below the search bar are several filter criteria:
 - Currently Active Facilities Only
 - Currently Inactive Facilities and Facilities on Currently Inactive ROWs
 - Relative Milepost is between [input] and [input]
 - Repair Found Date is between [input] and [input]
 - Rectifier Repair Code is equal to [input]

Figure 15-47. Form Report

3. Select one of the following options to choose which facility records to include in the report:
 - a. Select the **Selected ROWs** option to include facilities associated with the pipeline selection(s) in the *Select ROWs* window.
 - b. Select the **Route** option and then select a route to include facilities associated with the selected route.
4. Select a public layout theme from the **Select Form Theme** drop-down to determine which form design is used for the report.
5. Select one or more of the options as needed in the *Options* pane.
6. Select additional filters in the *Filters* pane as needed.
7. If you want to add the report in *Favorite Reports* (**Reports/Graphs > Favorite Reports**), click  **Add Favorite**. To remove it from the list, click  **Remove Favorite**.
8. If the option is available, click  **Export** to export the report information to an Excel file
9. To print the report, click  **Print** to open the report in a preview window.
10. To print the report using the default printer set up in Windows, click the  **Quick Print** icon. To select a printer other than the default printer, click the  **Print** icon.
11. When finished, click the close icon to close the print preview window.

Add a Custom Report

The following procedure explains how to add a custom report and set up report options. For information about deleting a custom report or changing a custom report from Public to Private or Private to Public, refer to the instructions in [Themes on page 738](#).

Complete the following steps with one or more pipeline segments chosen in the *Select ROWs* window:

1. Click **Reports/Graphs**, navigate to a report in the list, then click **+ Add Report**.

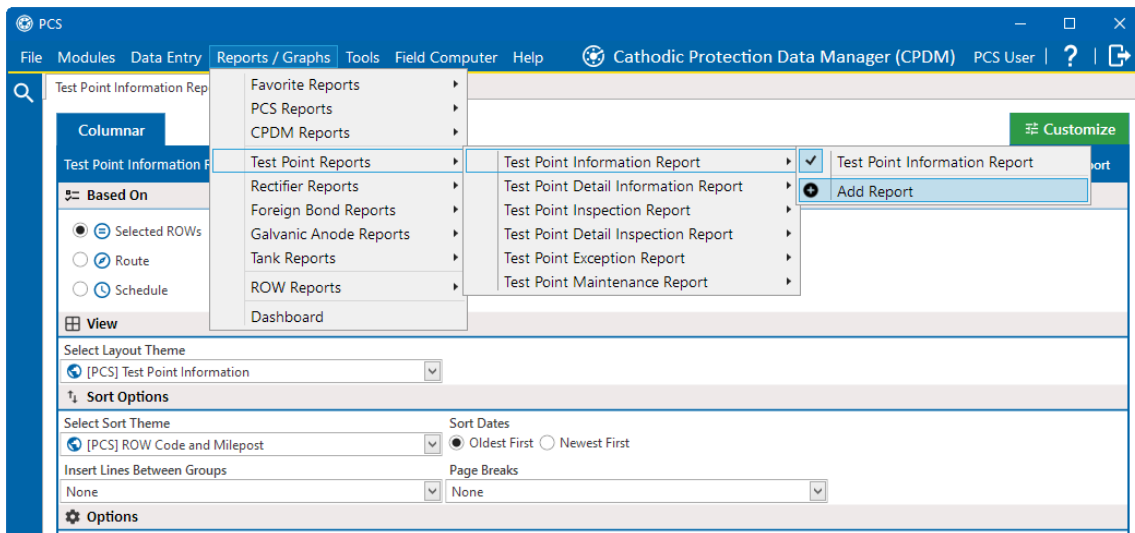


Figure 15-48. Add Report Menu Item

For example, click **Reports/Graphs > Test Point Reports > Test Point Inspection Report > Add Report** to open the *Add Custom Report* window.

 The dialog box is titled 'Test Point Information Report: Add Custom Report'. It has a blue header bar with a close button (X). The main area contains three input fields: 'Name' (a text box with a red 'X' icon), 'Description' (a large text area), and 'Public' (a checkbox). At the bottom, there are two buttons: 'Save' (with a checkmark icon) and 'Cancel' (with a circle and slash icon).

Figure 15-49. Add Custom Report

2. Type a name for the report in the **Name** field. This field is required.
3. If you want to add information about the report, type the information in the **Description** field.
4. Select the **Public** check box if you want the report available to all PCS users. When a report is not public, it is a private report that is only available to the user who created it.
5. Click **Save**.

6. When the report options window opens, select one of the following options to choose which facility records to include in the report:

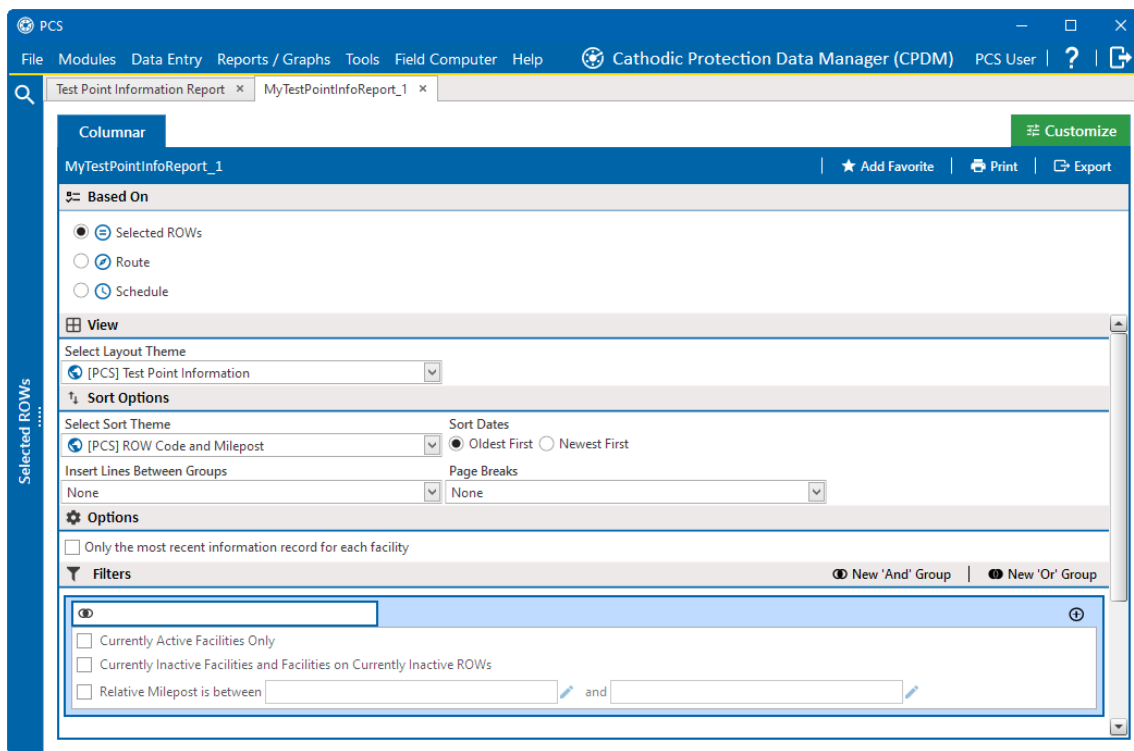









Figure 15-50. Custom Report Options

- a. Click the **Selected ROWs** option to include facilities associated with the pipeline selection (s) in the *Select ROWs* window.
 - b. Click the **Route** option and then select a route to include facilities associated with the selected route.
 - c. Click the **Schedule** option and then select a schedule definition and start and end dates.
7. Select a layout theme from the **Select Layout Theme** drop-down list. The layout theme determines which fields are included in the report.
For information about adding new report themes, such as a report layout theme, sorting theme, and filter theme, refer to [Report Themes and Filter Groups on page 800](#).
 8. Complete the following steps in the *Sort Options* pane:
 - a. Select a sorting theme from the **Select Sort Theme** drop-down list. The sorting theme determines how PCS sorts report data.

-
- b. Select a method for sorting inspection dates. Click either the **Oldest First** or **Newest First** radio button under **Sort Dates** to sort records with the oldest or newest inspection dates first.
 - c. Select an option for inserting a line between different groups of report data from the **Insert Lines Between Groups** drop-down list.
 - d. Select an option that determines where a page break occurs in the report from the **Page Breaks** drop-down list.
 9. Select one or more of the following options as needed in the *Options* pane. Date range in filter criteria is determined by considering all time frame filters, such as inspection date, survey, and periodic survey filters.
 - **Only show facilities with inspections**— when time frame filters are not selected in the *Filters* pane, such as inspection date, survey, or periodic survey filters, the report includes all inspections using the inspection date and time as the reporting time period.
If one or more time frame filters are selected in the *Filters* group box, the report only includes inspections for the selected time frame filter(s).
 - **All inspections that meet the filter criteria**— report includes all inspections that meet filter criteria based on selections in the *Filters* group box.
 - **Apply other filters to the most recent inspection found within report timeframe**— this option finds the latest inspection within the reporting time frame first, and then applies all other filters selected in the *Filters* group box. The report only includes inspections for facilities when the latest record within the date range meets other filters.
 - **The most recent inspection after the filter criteria has been met** — this option applies all filter criteria first based on selections in the *Filters* group box, and then finds the latest inspection.
 - **Indicate missing inspection readings** — this option includes an empty box in the report for each missing inspection reading.
 10. Select optional filters in the *Filters* pane as required. For example, click **Currently Active Facilities Only** to include only currently active facilities in the report.


When adding a date filter, such as Inspection Date is between, set a date range using a calendar or dynamic dates in the following manner:

 - To set a date range using a calendar, click the down arrow in the **start date** field to open a calendar and select a date. Repeat this step for the **end date** field.

- To set a date range using dynamic start and end dates, click the  calculator button in the **start date** field and set up dynamic date properties. Repeat this step for the **end date** field. Clicking the calculator button opens and closes dynamic date property fields.
11. If you want to add the report to the **Favorite Reports** sub-menu of the **Reports/Graphs** main menu, click  **Add Favorite**. The link then changes to  **Remove Favorite**.
If you want to remove a favorite report listed in the **Favorite Reports** sub-menu of the **Reports/Graphs** main menu, open the report and click  **Remove Favorite**.
 12. To print the report, click  **Print** to open the report in a preview window.
 - a. To print the report using the default printer set up in Windows, click the  **Quick Print** button. To select a printer other than the default printer, click the  **Print** button.

Report Themes and Filter Groups

A theme is a group of named settings saved for later use, such as a report layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS software installation. PCS installed themes are public themes available to all PCS users. These themes are identified with a globe icon and PCS in brackets [PCS], such as  **[PCS] Test Point Inspections**.

A filter group is a named set of one or more filters that affect the data output of a report. PCS provides two types of filter groups you can define and include in the property settings of a report. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude in a report. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. When you generate the report, PCS processes filters in descending order beginning with the filter at the top of the filter group.

The following topics describe how to add a report layout theme, a graph sort theme, and an optional filter group:

- [Add a Columnar Report Layout Theme on page 801](#)
- [Add a Summary Report Layout Theme on page 805](#)
- [Graph Report Layout Themes on page 811](#)
- [Form Report Designer Themes on page 820](#)

- [Add a Report Sort Theme on page 858](#)
- [Add or Edit an AND or OR Filter Group on page 862](#)
- [Edit and Arrange Filter Groups on page 863](#)

Add a Columnar Report Layout Theme

A columnar report layout theme is a group of settings for a columnar report layout that have been saved as a theme for later use. Settings include choosing which fields to include in the report, paper settings, and print options. The following procedure applies to a columnar report layout theme for any columnar report in PCS.

Complete the following steps to add a columnar report layout theme:

1. Select the report you want to work with in the **Reports/Graphs** menu. Click **Report/Graphs** and then select a report in the list.
For example, click **Reports/Graphs > Test Point Reports > Test Point Inspection Report**.
2. Click the **Customize** tab and then the **Columnar Layout** tab to open the *Layouts* page.

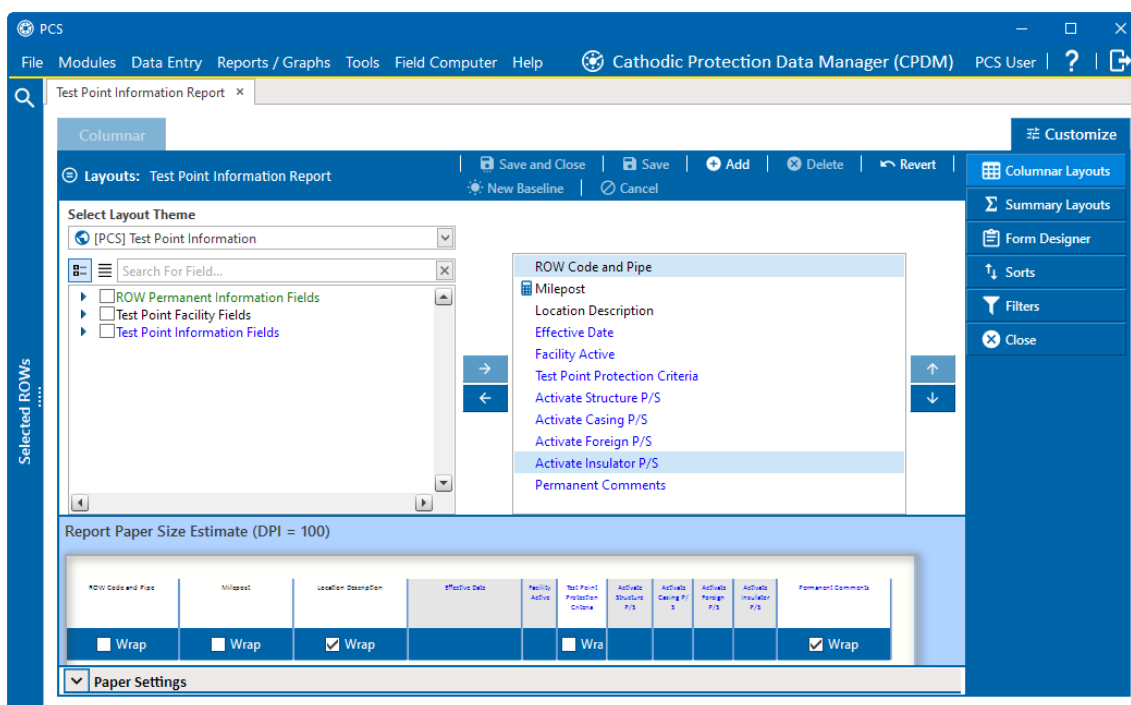


Figure 15-51. Report Layouts

3. Click **Add** to open the *New Layout Theme* window.

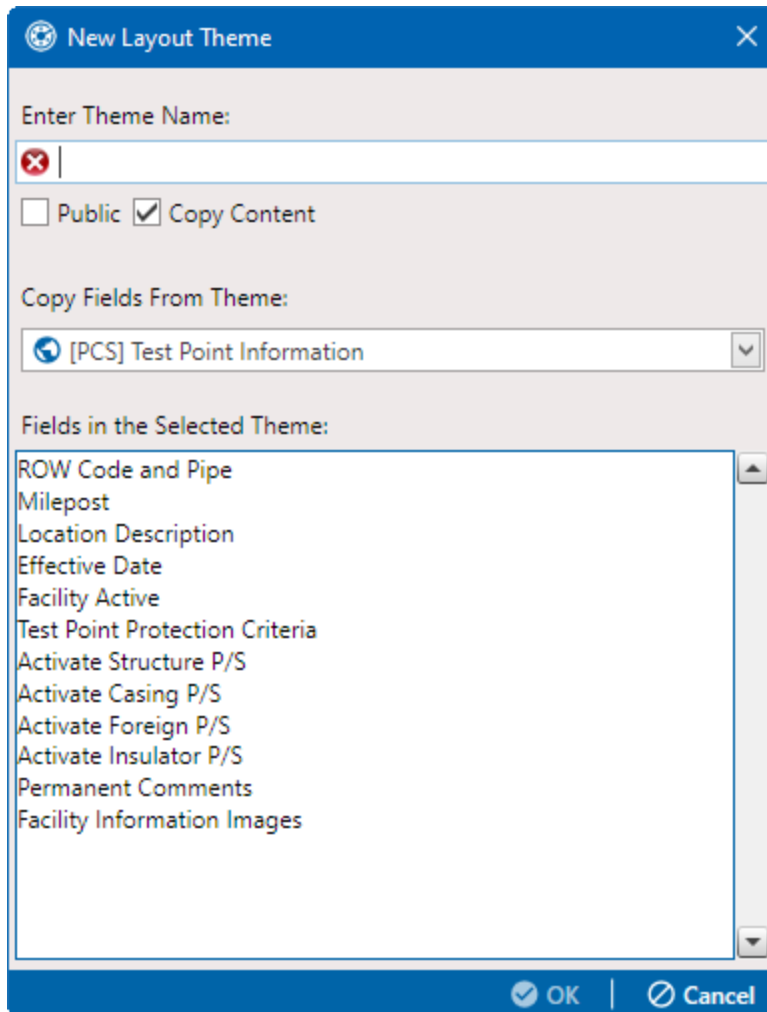


Figure 15-52. New Layout Theme

4. Enter a name for the layout theme in the **Enter Theme Name** field. This field is required.
5. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a private theme.
Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
6. If you want to copy fields from another layout theme, click the **Copy Content** check box and then select a theme from the **Copy Fields From Theme** drop-down list.
7. Click **OK** to save changes and return to the *Layouts* window.

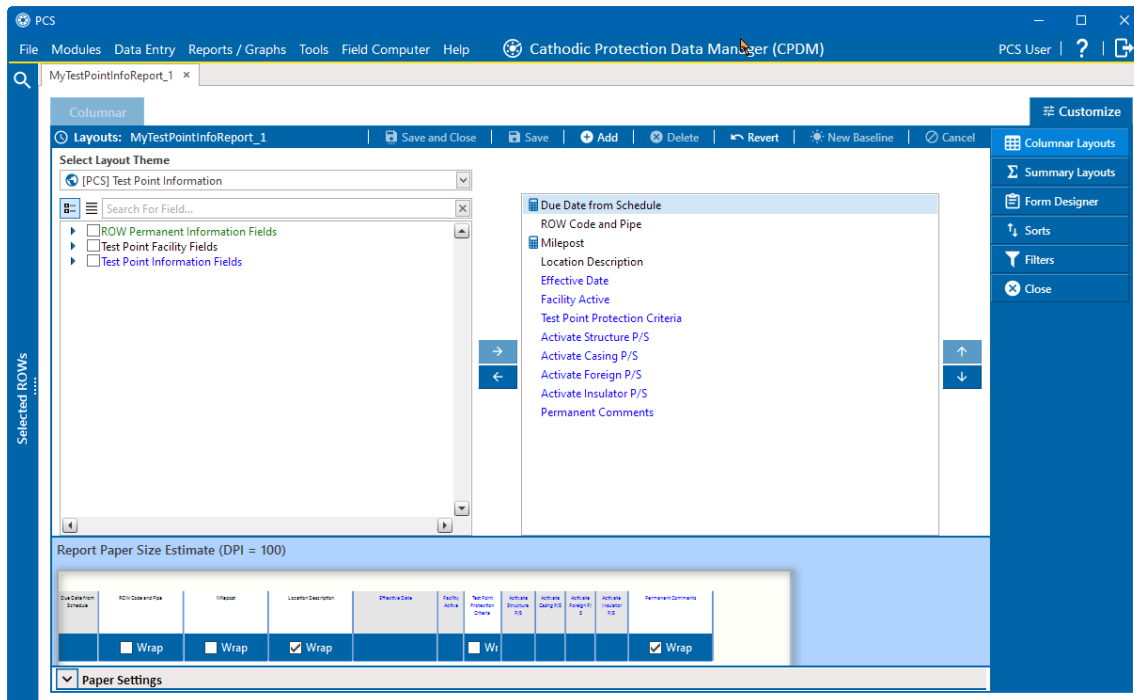


Figure 15-53. Layouts Window With New Layout

8. Complete the following steps to add and remove fields in the report layout theme as needed:
 - a. Click the toggle arrow **▶** for a field category in the left pane of the window to view a list of fields available for selection. For example, click **▶ All Fields**.
 - b. Select a field by clicking in the check box for the field and then click the **→** button to move it to the left pane. You can also double-click a field to move it to the right pane. Repeat this step as needed. The report layout theme includes all fields in the right pane of the *Layouts* window.
 - c. To remove a field in the layout theme, select the field in the left pane and then click the **←** button to move it to the right pane. You can also double-click a field to move it to the left pane. Repeat this step as needed.
 - d. To change the order of fields in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the **↑** or **↓** button.
9. Click the **Wrap** check box in *Report Paper Size Estimate* for each field you want text to wrap.

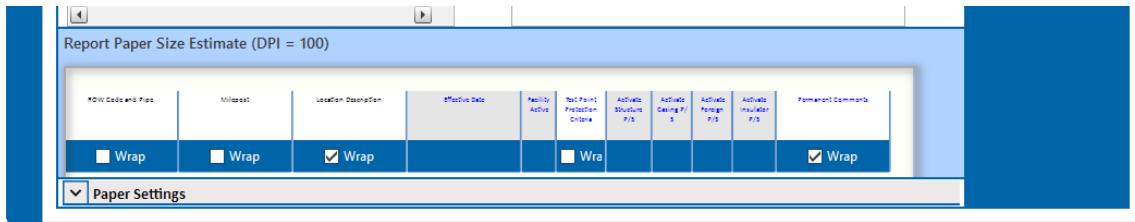



Figure 15-54. Wrap Option for Text Fields

10. To adjust the width of report columns:

- a. Place the mouse over a column boundary to change the cursor to a horizontal resize cursor .
- b. Click and drag a column boundary to adjust the width of the report column.

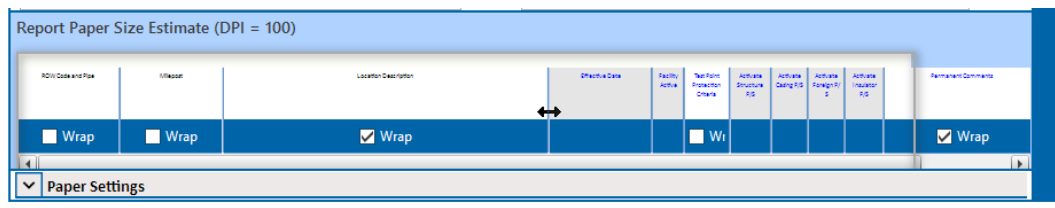



Figure 15-55. Resizing a Column

- c. If the adjustment extends report columns outside of the page, a red "out of bounds" message displays. Click and drag the column boundary to make adjustments as needed to clear the message.

11. Click  **Paper Settings** to open the property settings pane.

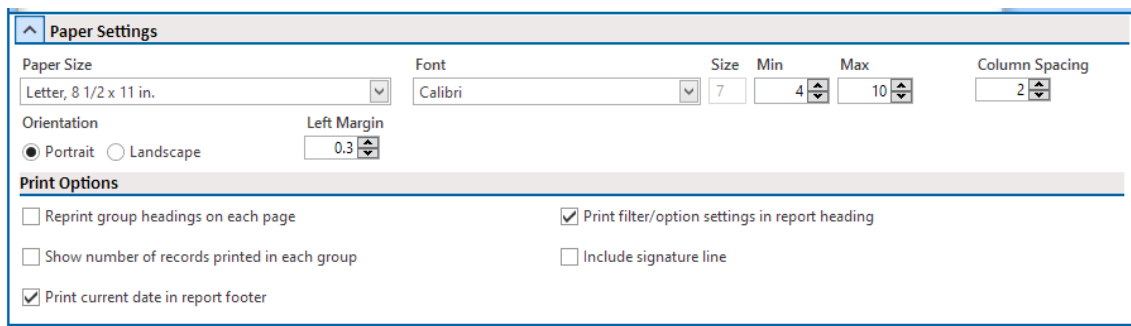



Figure 15-56. Paper Settings

12. Set options as needed in the *Paper Settings* and *Print Options* panes.

- a. To increase or decrease the font size, adjust the **Min** and **Max** settings for the font selected.

- b. To adjust the space between columns, enter or adjust the value in the **Column Spacing** field.
 - c. Select either **Portrait** or **Landscape** radio button to set orientation.
 - d. To adjust the left margin, enter or adjust the value in the **Left Margin** field.
 - e. Select any of the option under **Print Options** as needed.
13. Click  **Save and Close** to save changes and return to the report options window.
 14. To apply the layout theme to the report, select the new layout theme from the **Select Layout Theme** drop-down list.

Add a Summary Report Layout Theme

A layout theme is a group of named settings saved for later use. You can define a *Summary* layout theme with report settings that define the table row, column, and data fields as well as the aggregate functions (average, sum, count, and percentage) used to calculate data fields in a *Summary* report. Summation fields, field operators, filters, drilldown fields, drilldown sorting fields, horizontal and vertical field groupings, as well as paper settings can all be saved in a *Summary* layout theme.

A *Summary* report presents data in a cross tab table view. It provides a "big picture" of pipeline and facility data by summarizing and analyzing the data. You can control how PCS summarizes the data, for example by sum, average, count, or percentage. Using a *Summary* report can help with analyzing data, making comparisons, and detecting patterns in the pipeline system.

Complete the following steps to add a summary layout theme:

1. Select the report you want to work with in the **Reports/Graphs** menu. Click **Report/Graphs** and then select a report in the list.
For example, click **Reports/Graphs > Test Point Reports > Test Point Inspection Report**.
2. Click the **Customize** tab and then the **Summary Layouts** tab to open the *Summaries* window.

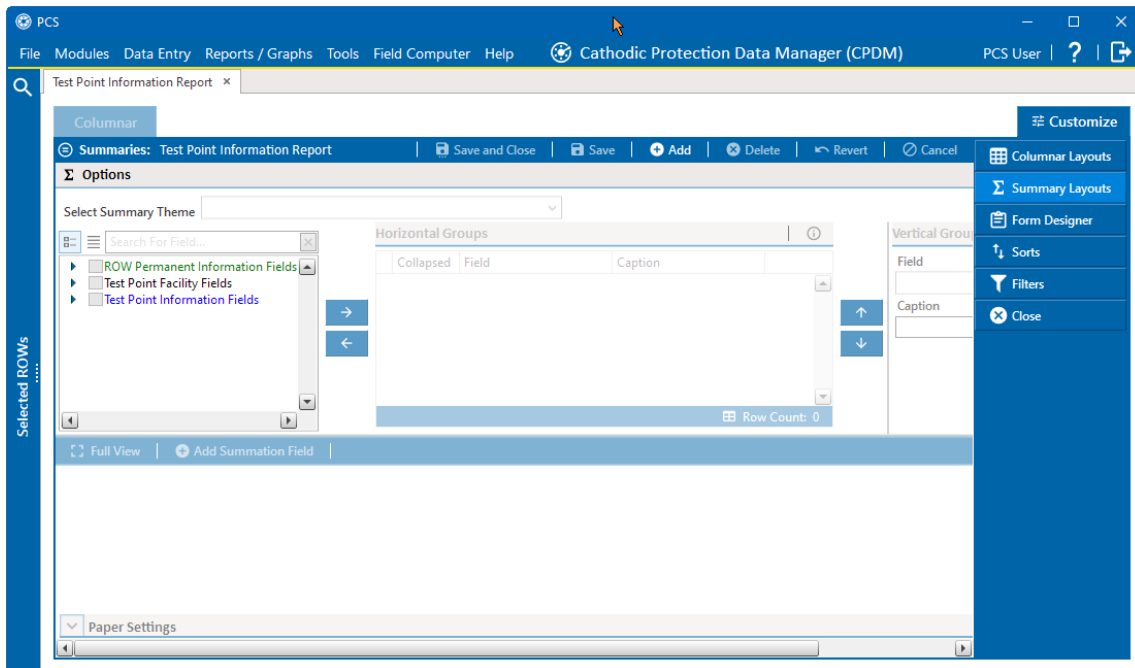



Figure 15-57. Summary Layouts

3. Click  **Add** to open the *New Summary* window.

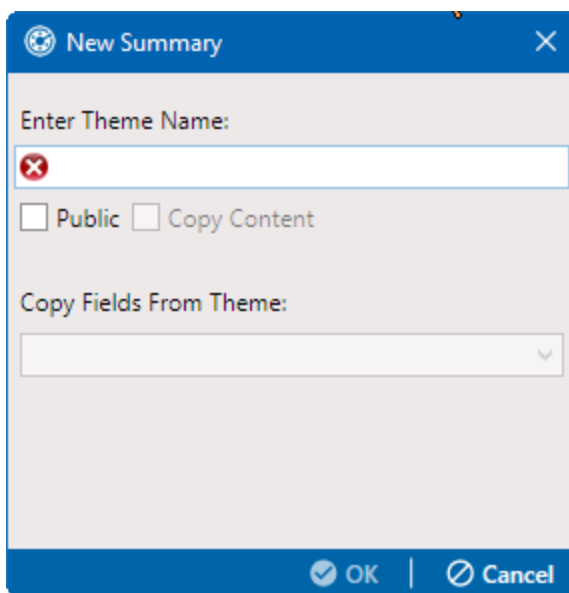


Figure 15-58. New Summary

4. Enter a name for the summary layout theme in the **Enter Theme Name** field.
Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who created it.

5. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a private theme.
6. If you want to copy fields from another layout theme, click the **Copy Content** check box and then select a theme from the **Copy Fields From Theme** drop-down list.
7. Click **OK** to save changes and return to the *Summaries* window.

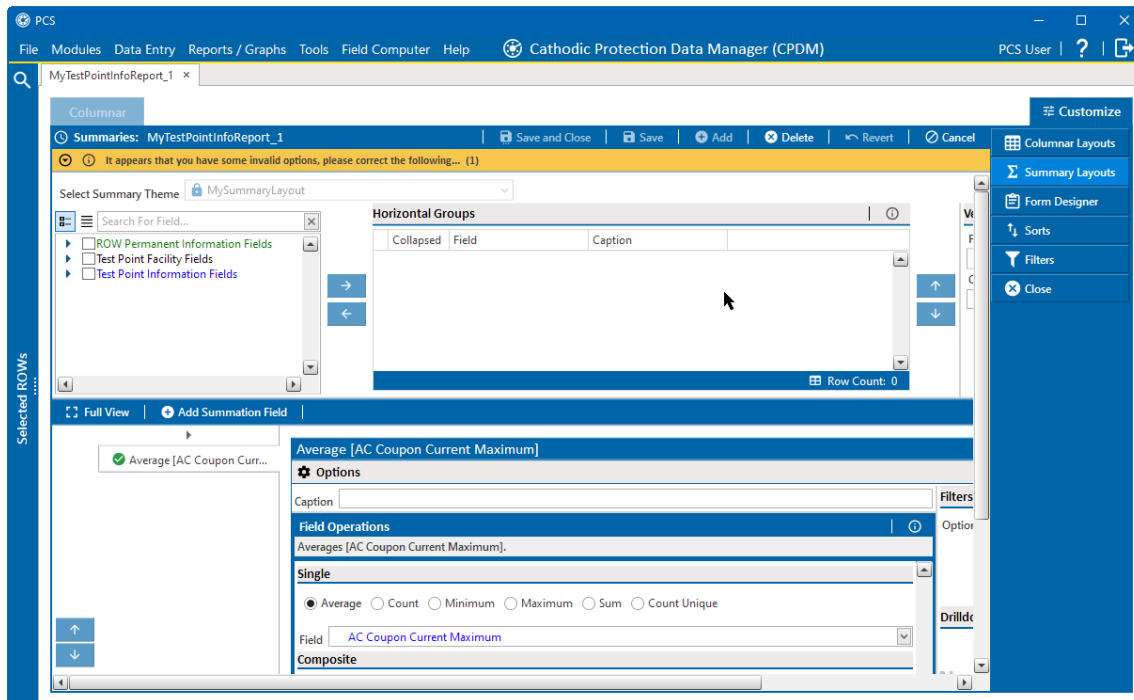


Figure 15-59. Summaries Window With New Theme

8. Complete the following steps to select one or more PCS fields to be used as horizontal table rows in the report. Field selections display in the *Horizontal Groups* pane. In a *Summary* report, these fields display horizontally on the left side of the report.
 - a. Click the toggle arrow **▶** for a field category in the left pane of the window to view a list of fields available for selection. For example, click **▶ All Fields**.
 - b. Select a field by clicking in the check box for the field and then click the **→** button to move it to the left pane. You can also double-click a field to move it to the right pane. Repeat this step as needed.

As an example, when selecting **System** and **ROW Code**, each time a System table row is included in the report, a ROW Code table row is also included.

- c. In the *Horizontal Groups* pane, if you want the data collapsed for a table row when you first open the *Summary* report, click the **Collapsed** check box for that table row. An expand/collapse button is available when viewing the report to expand and collapse data as needed.

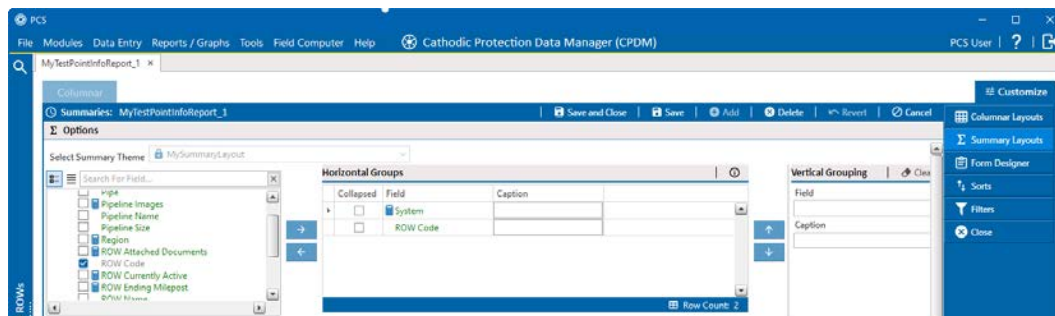


Figure 15-60. Horizontal Groups Pane

- d. In the *Horizontal Groups* pane, if you want to rename the caption of a table row, enter a name in the **Caption** field for that table row. When this field is empty, the caption of the table row uses the default PCS description.
- Click the ⓘ icon in the *Horizontal Groups*, *Vertical Grouping*, or *Field Operations* panes opens a window with information related to current property settings.
- e. To change the order of fields in the *Horizontal Groups* pane and subsequently in the Summary report, click and drag a field to a new position in the grid, or select a field and then click the up ⬆ or down ⬇ button.
9. **Vertical Grouping** is an optional setting. It allows you to group horizontal table rows by a vertical column. For example, selecting *Inspection Date* displays data by *Month*, *Quarter*, or *Year* based on the *Data Group Interval* option you select.
- To group horizontal table rows by a vertical column, complete the following steps in the *Vertical Grouping* pane:
- Select a PCS field you want to use as the vertical column from the **Field** drop-down list.
 - If you want to use a different caption other than the name of the selected PCS field, enter a name in the **Caption** field.
10. Click **Full View** to hide all the panes under **Options**. Click **Full View** again to display these pane.
11. Identify how you want data calculated. Set up one or more summations in the following manner:

- a. Click  **Add Summation**.

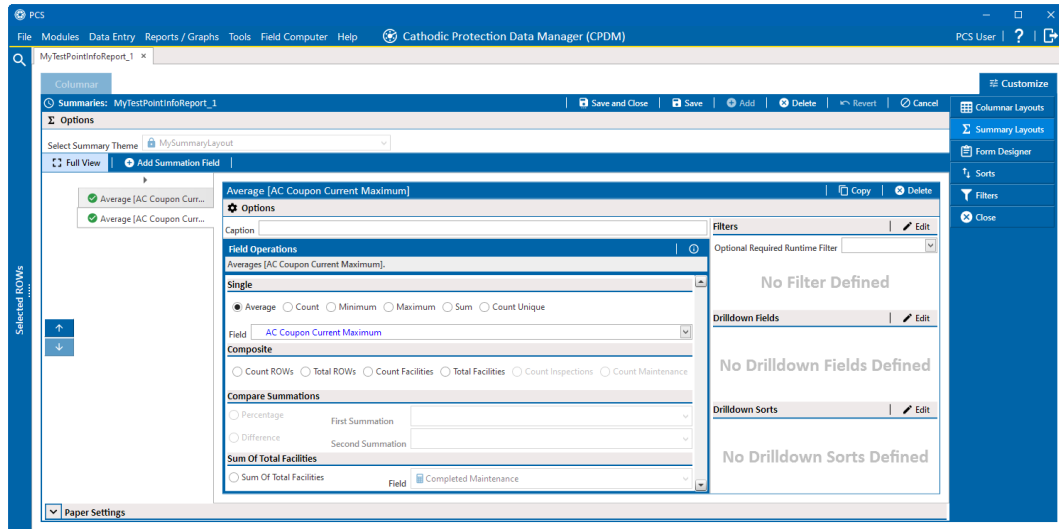


Figure 15-61. Add Summation Fields

- b. Enter a name in the **Caption** field.
- c. Choose an aggregate function used to calculate data fields (average, sum, count, or percentage) by selecting an option in the *Single*, *Composite*, *Compare Summations*, or *Sum Of Total Facilities* panes in the *Field Operations* pane.

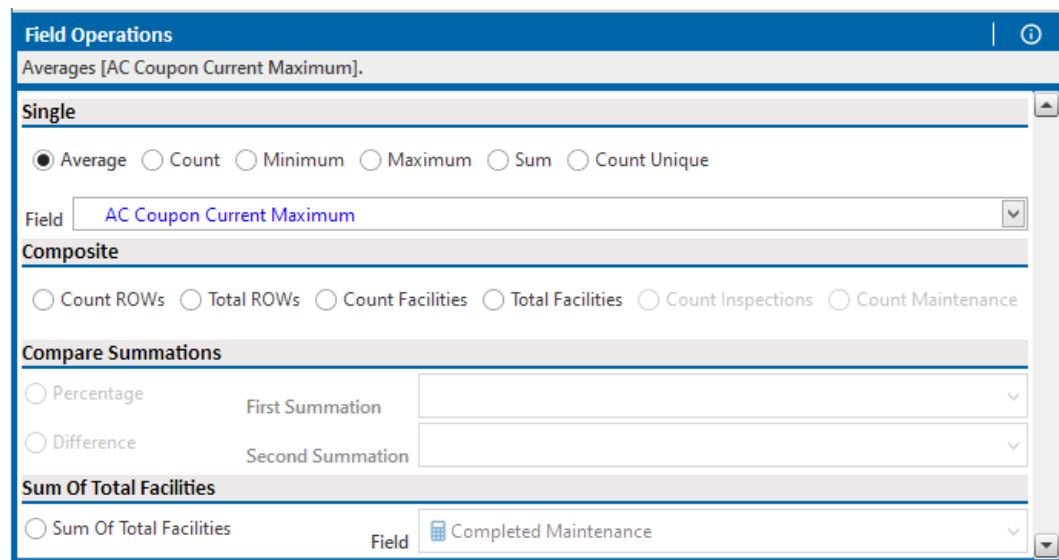


Figure 15-62. Field Operations Panes

- d. If you selected an option in either the *Single* or *Sum Of Total Facilities* pane, select the PCS field you want to use in the calculation from the **Field** drop-down list

- e. If you want to compare two summations, select **Percentage** or **Difference** in the *Compare Summations* pane. Then select a summation from the **First Summation** drop-down list and a second summation from the **Second Summation** drop-down list.
- f. Repeat as needed to add additional summations.
- g. To delete a summation, select a summation tab and then click **Delete**. Click **Yes** in the *Delete* message window.

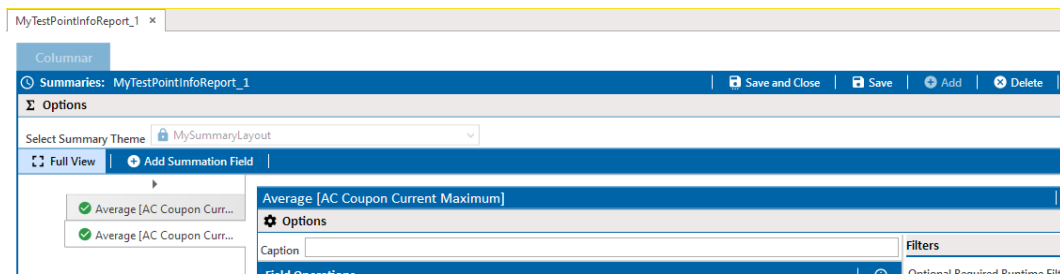


Figure 15-63. Select a Summation

12. If you want to filter the data output in the report, select a PCS field from the **Optional Required Runtime Filter** drop-down list in the *Filters* pane. Or click **Edit** to set up an *AND* or *OR* filter group. Refer to [Report Themes and Filter Groups on page 800](#) for related information.

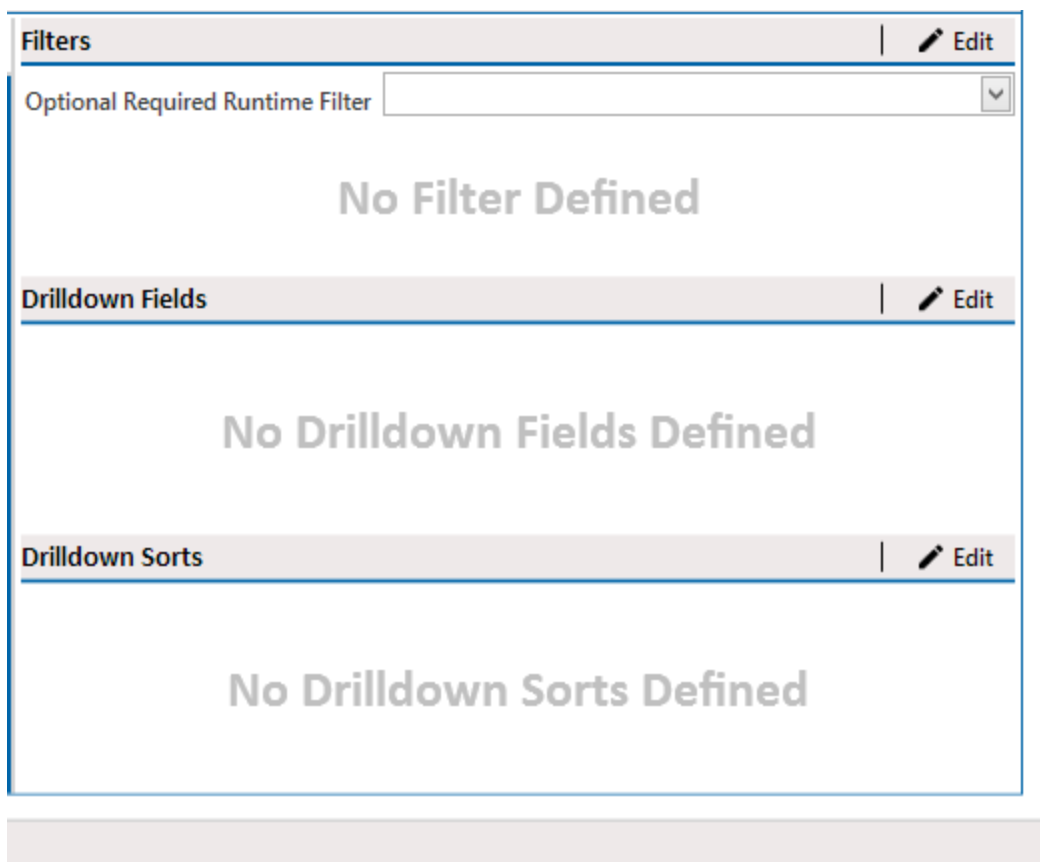


Figure 15-64. Filters Panes

13. Click **Edit** in the *Drilldown Fields* pane and select one or more fields you want to use as drilldown fields. When viewing the report in PCS, clicking a drilldown field displays another data view with more information about the field.
14. Click **Edit** in the *Drilldown Sorts* pane and select one or more fields that determine how data sorts. Click to sort data in ascending order or to sort in descending order.
15. Click and set paper, font, and print options as needed. Refer to [Add a Columnar Report Layout Theme](#) for more information about these settings.
16. Click to save changes and return to the report options window.

Graph Report Layout Themes

A graph report layout theme is a named layout of fields that determine what data is displayed in a graph and how that data is displayed. The theme can be saved as either public or private; a public theme is available for all users, whereas a private theme is only available to the user who creates it.

Open the Graph Layouts Editor

The Graph Layouts editor allows you to create a new graph layout theme or edit an existing theme. Once in edit mode, you can modify which fields are charted in the graph, which data fields are charted in the same graph band, and whether a graph band should have data charted on both the right and left axis. Graph properties, including captions, legends, and axis range, can also be modified in the Graphs Layouts editor.

To access the Graph Layouts editor, click the **Customize** tab from a graph report and then click  **Graph Layouts**.

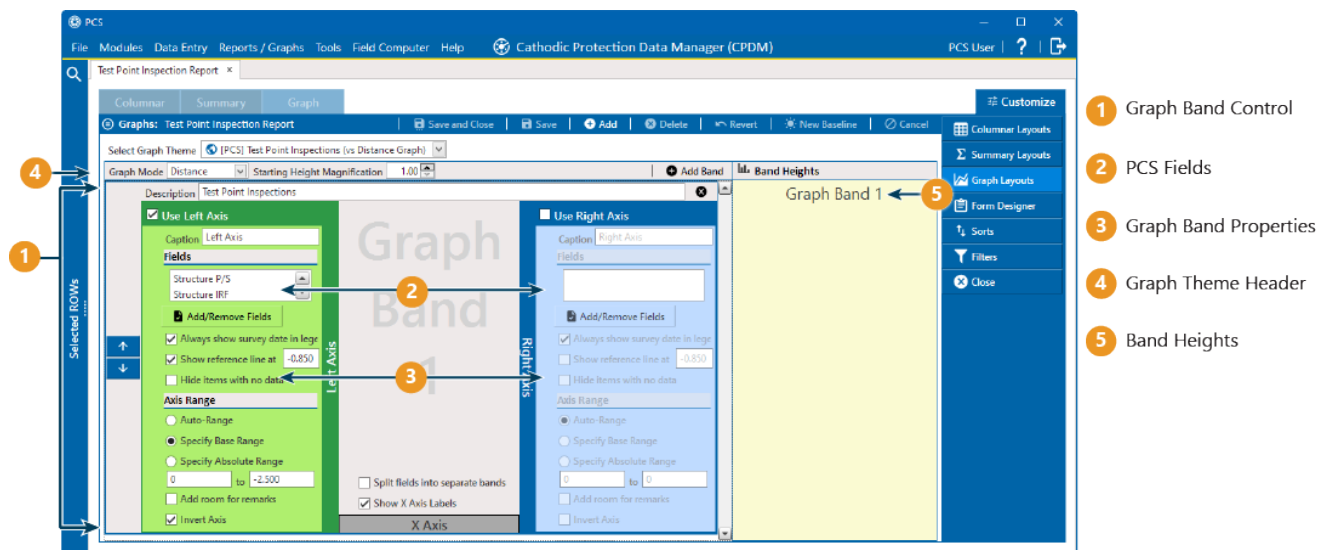


Figure 15-65. Graph Layouts Editor

From within the Graph Layouts editor, a new graph report layout theme can be created, a new or existing theme can be modified, and the theme can be saved or deleted. Once the theme is saved, it can be used in *Reports/Graphs*. Refer to the following topics for more information:

- [Add a New Graph Report Layout Theme](#)
- [Edit a Graph Report Layout Theme on page 813](#)
- [Manage the Graph Report Layout Theme on page 819](#)
- [Use the Graph Report Layout Theme on page 820](#)

Add a New Graph Report Layout Theme

Complete the following steps to create a new theme from the Graph Layouts editor:

1. Click **+** **Add** to open the *New Graph Layout* window.

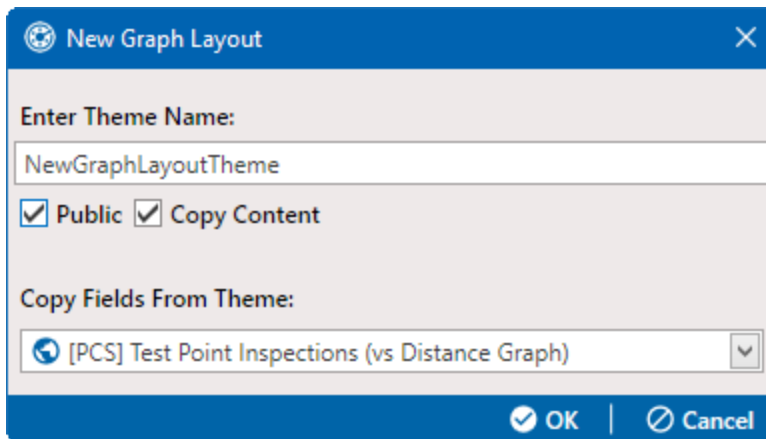


Figure 15-66. New Graph Layout

2. Enter a name for the theme in the **Enter Theme Name** field.
3. Click the **Public** check box to mark the theme as public and available to all users. To keep the theme private, ensure the check box is clear.
4. To copy the contents of an existing theme, keep the **Copy Content** check box checked and select a theme from the **Copy Fields From Theme** drop-down list.
To start with a blank theme with no pre-existing fields or properties, click to clear the **Copy Content** check box.
5. Click **OK**. A new graph report layout theme is created and ready for editing in the Graph Layouts editor.

Edit a Graph Report Layout Theme

You can edit a graph report layout theme's display properties, add, remove, or re-size graph bands, add new fields to a graph band, or modify graph band properties.

To edit a graph report layout theme, click to select a theme from the **Select Graph Theme** drop-down. The workspace area updates to show the selected theme.

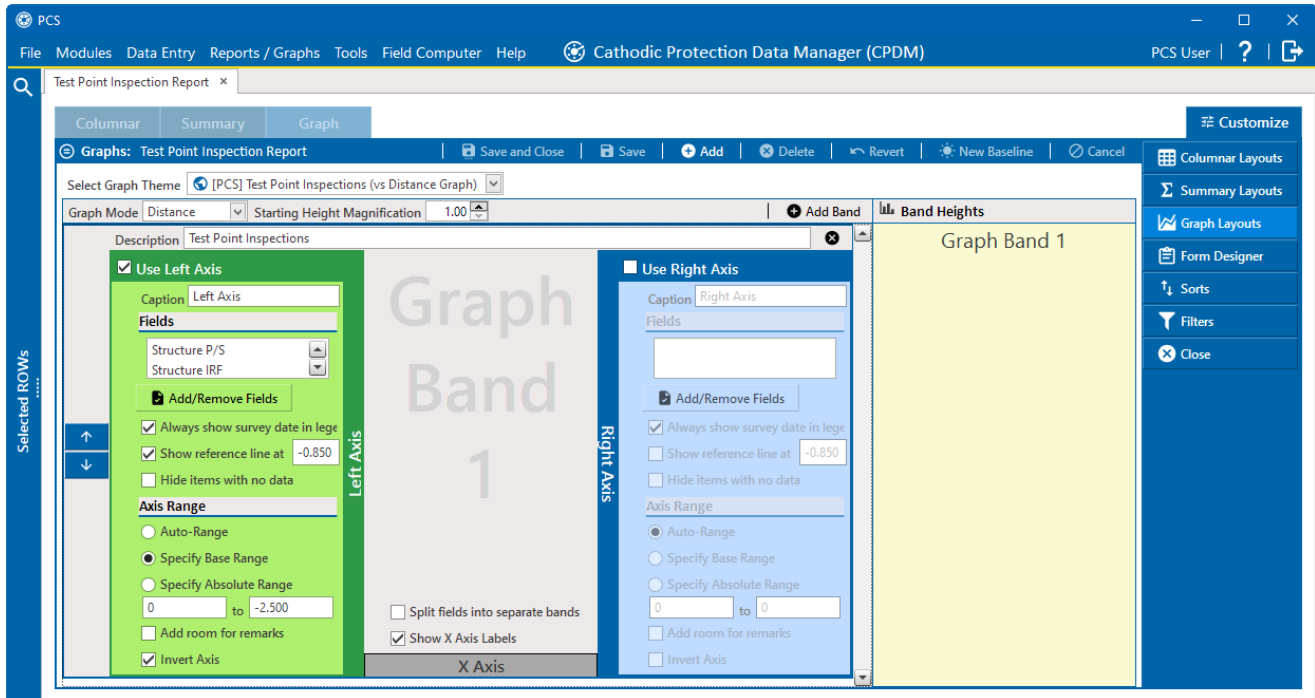


Figure 15-67. Graph Theme Ready to Edit

The theme can have multiple graph bands with each graph band consisting of one chart with all of its band fields' data plotted. The number of graph bands, the fields plotted in the graph bands, and the way that the data is displayed in the graph bands can be modified to fit your report's needs. Refer to the following topics for more information:

- [Configure Graph Report Layout Theme Properties](#)
- [Add or Remove Graph Bands on page 815](#)
- [Re-size Graph Bands on page 816](#)
- [Set Graphing Parameters in a Graph Band on page 817](#)

Configure Graph Report Layout Theme Properties

Graph report layout theme properties that apply to all graph bands can be modified in the Graph Theme Header.

Select an option from the **Graph Mode** drop-down to dictate whether the graphs in the graph bands will be plotted based on time or distance. The X axis in the graphs will display time- or distance-based intervals, respectively.

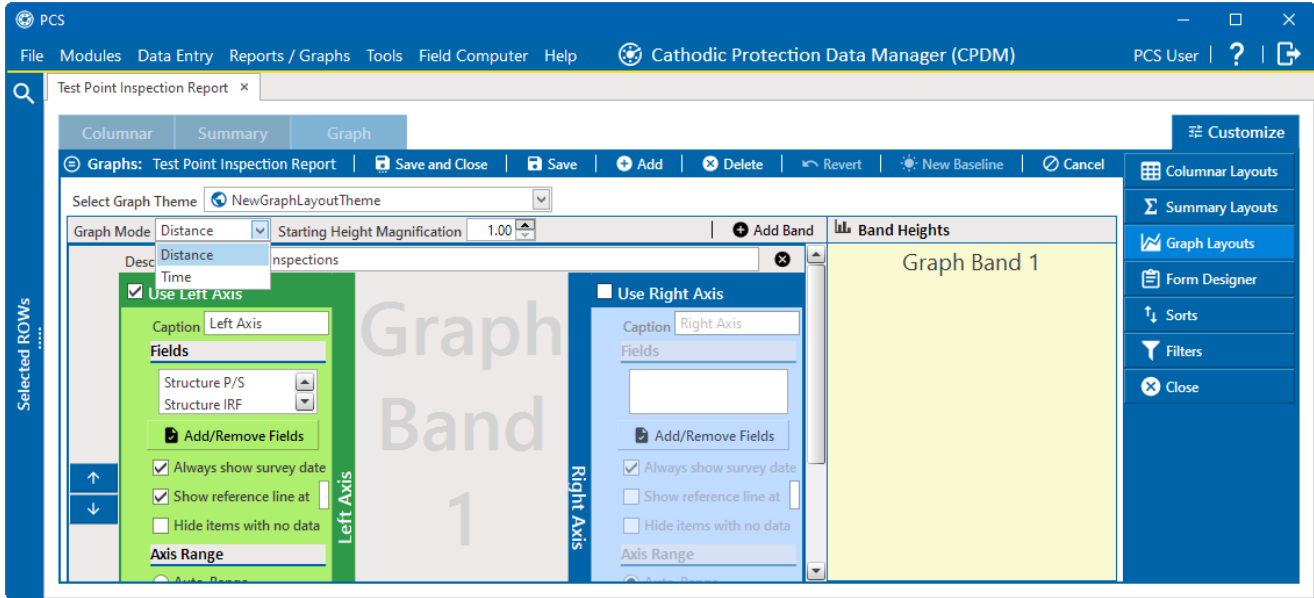


Figure 15-68. Graph Mode Drop-down List

Enter a value in the **Starting Height Magnification** field or click the arrows next to the field to increase or decrease the height of all graph bands.

Add or Remove Graph Bands

Graph bands can be added or removed as needed for the current report type.

To add a graph band, click **+ Add Band**. A new band is added at the bottom of the list of graph bands. The band can be re-sized and the graphing parameters can be defined.

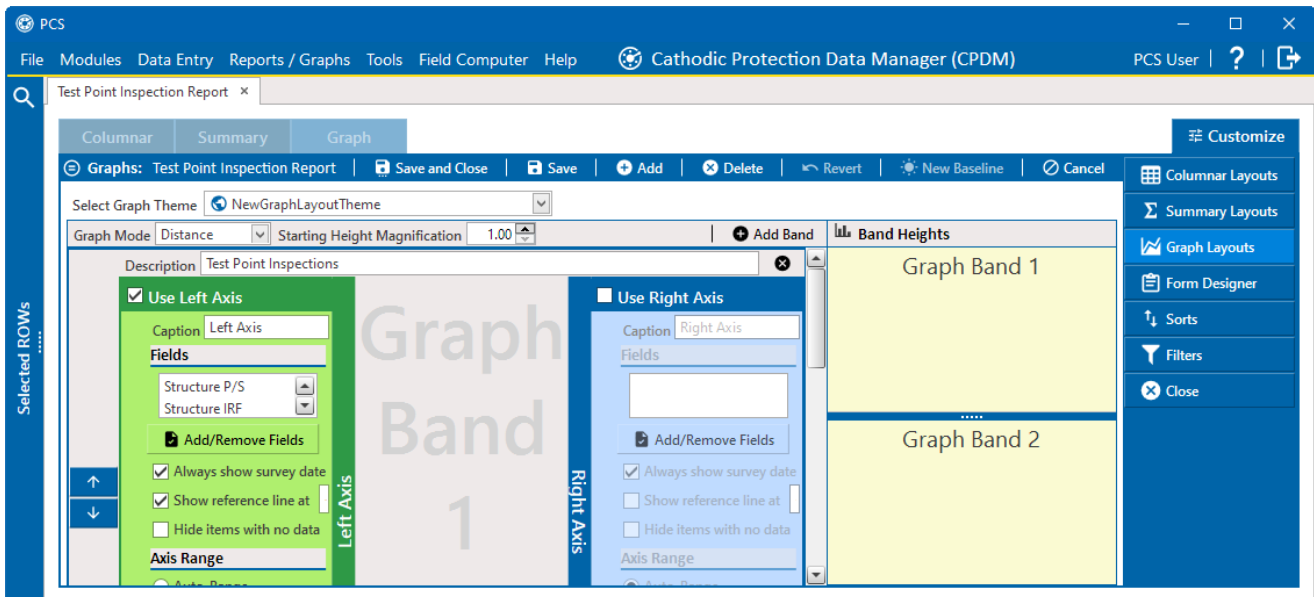




Figure 15-69. New Band Added to Band Heights Pane

To remove a graph band, click  next to the graph band **Description** field, and then click  **Yes** in the *Delete Band* confirmation window.

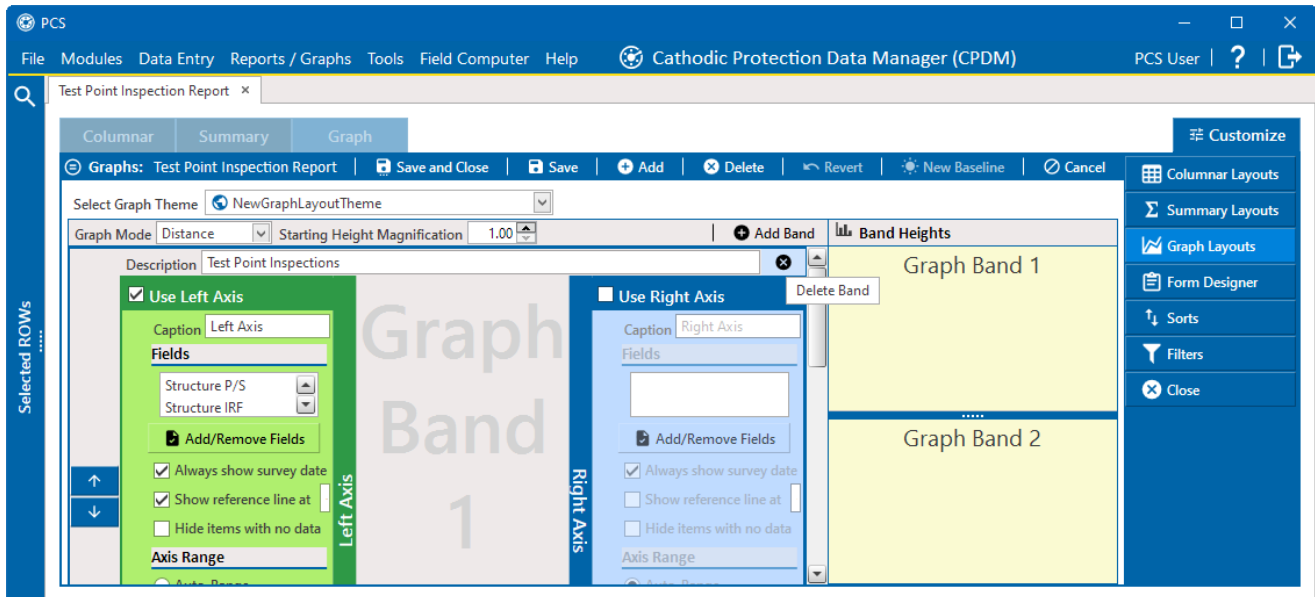



Figure 15-70. Delete a Graph Band

Re-size Graph Bands

All graph bands that exist in the graph report are stacked vertically on the screen. A graph band can be made larger or smaller as needed.

To resize a graph band in the current theme, click to select the divider bar () above or below the graph band and drag the divider bar to increase or decrease the graph band size.

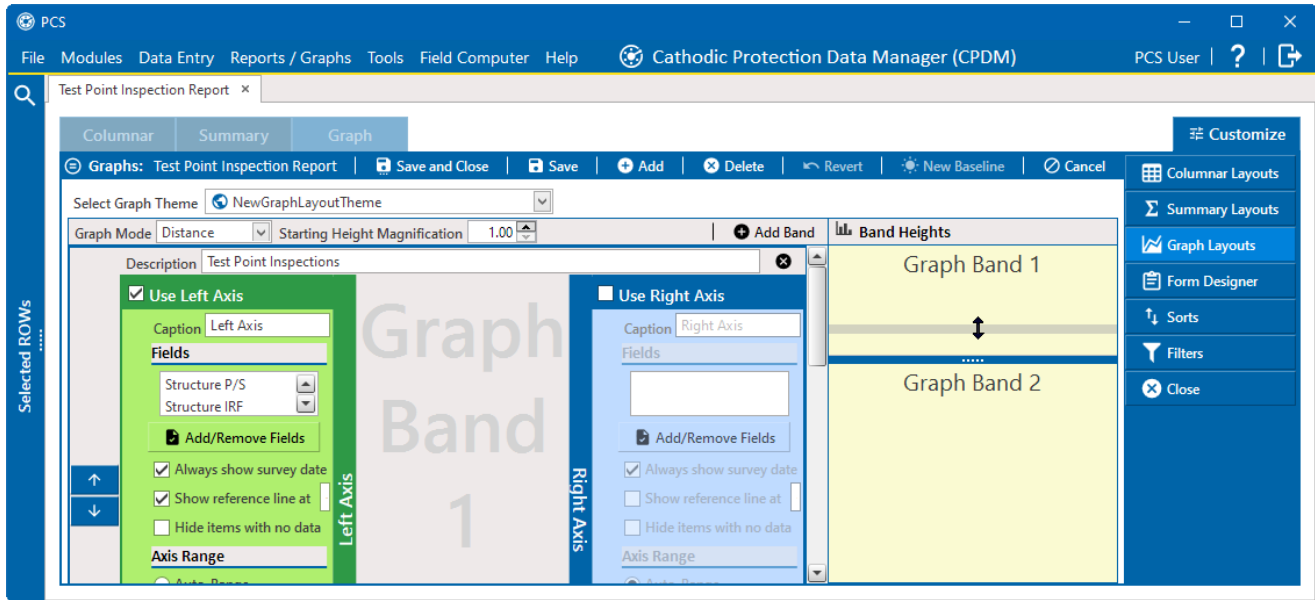


Figure 15-71. Re-size a Graph Band

Set Graphing Parameters in a Graph Band

Each graph band consists of one chart with all of its band fields' data plotted. Data can be graphed on either the right or left axes or, if desired, both axes can be used to graph data. Click to select the **Use Right Axis** and/or **Use Left Axis** check box and set the following parameters for the selected axis or axes:

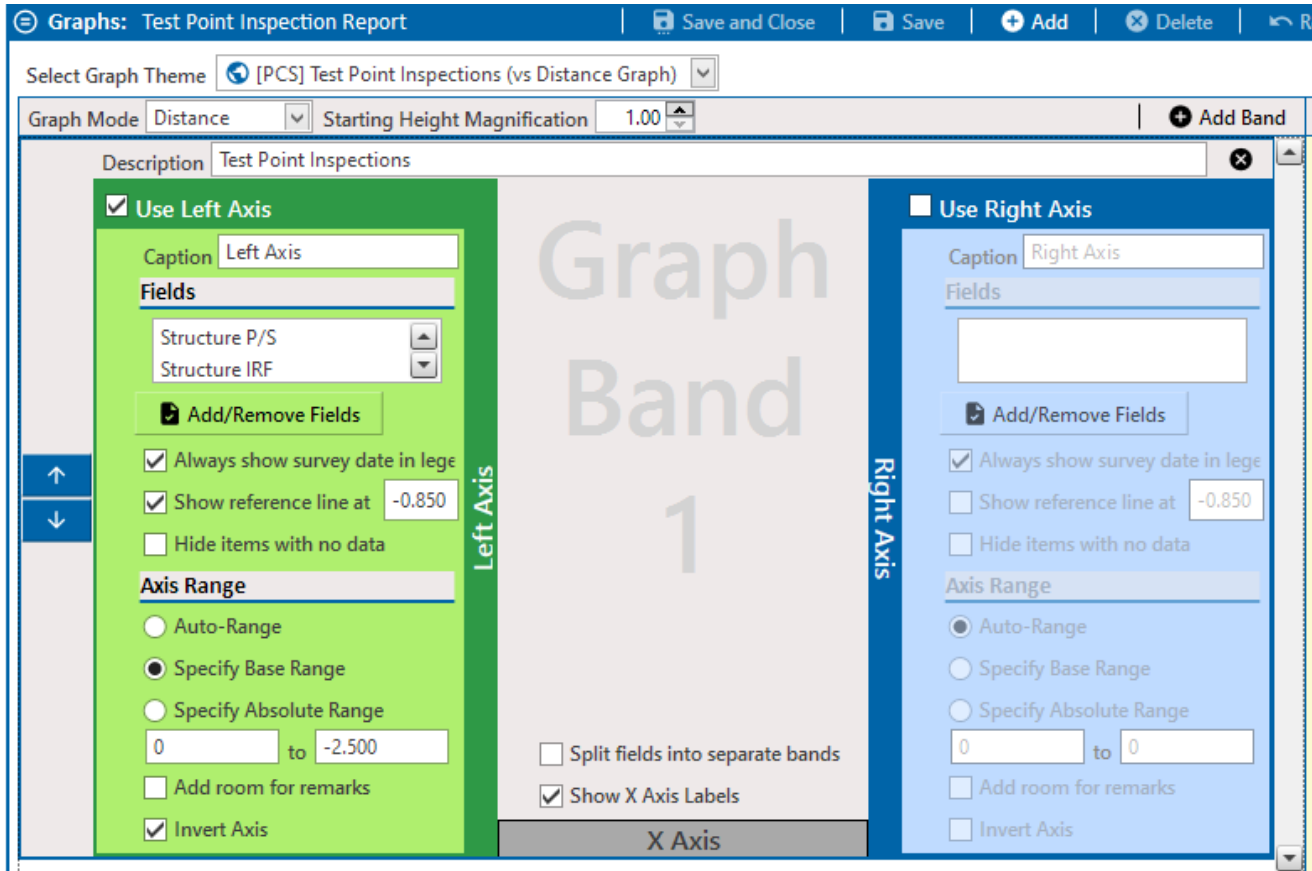











Figure 15-72. Use Left Axis and Use Right Axis Panes

- **Caption** – enter new text in the **Caption** field to set a caption for the current axis.
- **Fields** – click **Add/Remove Fields**. In the *Edit Layout* window, identify the fields that you want to add or remove from the graph band. Up to ten fields can be graphed on an axis at a time. To add new fields, select the desired field(s) from the pane on the left and click **→**. To remove existing fields, select the desired field(s) from the pane on the right and click **←**. Once the correct fields are showing in the pane on the right, click **OK**.
- **Modify Fields** – you can further modify fields by selecting any of the following options:
 - **Always show survey date** check box: shows survey date.
 - **Show reference line at** check box: change the value, if necessary, in the text field provided.
 - **Hide items with no data** check box: do not show items that do not have data.
- **Modify the Data Fields Displayed** – to further modify what data is plotted and how it is displayed, do any of the following:

- To show the date of the survey alongside the survey data in the legend, select the **Always show survey date in legend** check box.
- To plot only surveys that have data in the graph, select the **Hide items with no data** check box.
- **Axis Range** – select the desired axis range. The following options are available:
 - **Auto-Range**: click the **Auto-Range** radio dial to have the axis range automatically determined based on the charted values.
 - **Specify Base Range**: click the **Specify Base Range** radio button and enter lower and upper values in the text fields provided below the range options. The axis range is determined by the values entered, unless the data plotted would exist out of the bounds of the lower and upper values entered. In this situation, the axis range would be extended to display all data points.
 - **Specify Absolute Range**: click the **Specify Absolute Range** radio button and enter lower and upper values in the text fields provided below the range options. The axis range is determined by the values entered. The axis range will not be extended, even if a data point plotted exists out of the bounds of the lower and upper values entered.
 - **Add room for remarks** check box: add space in the axis to accommodate remarks.
 - **Invert Axis** check box: the axis range and data plotted will be flipped vertically.

Manage the Graph Report Layout Theme

Complete the following actions when working with or finishing creating a graph report layout theme.

- To undo all recent changes that have **not yet been saved**, click  **Cancel**. All graph layout themes are reverted to their latest saved state.
- To save the graph report layout theme, click  **Save**. All changes made to the theme is saved.
- To remove the currently selected theme, click  **Delete** in the header row and then  **Yes** in the *Confirm Delete* window. The currently selected theme is removed from PCS.
- To save the theme and close the Graph Layouts editor, click  **Save and Close**. All changes made to the theme is saved and the Graph Layouts editor is closed.
- To close the Graph Layouts editor, click  **Close**. If there are unsaved changes to a graph report layout theme in the Graph Layouts editor, a *Save Changes?* window displays. Click  **Yes** to save all changes in the themes,  **No** to close without saving changes, or  **Cancel** to return to the Graph Layouts editor.

Use the Graph Report Layout Theme

Complete the following steps to apply the theme in a graph when creating a new graph report:

1. In the report's Graph tab, select a theme from the **Select Layout Theme** drop-down list.

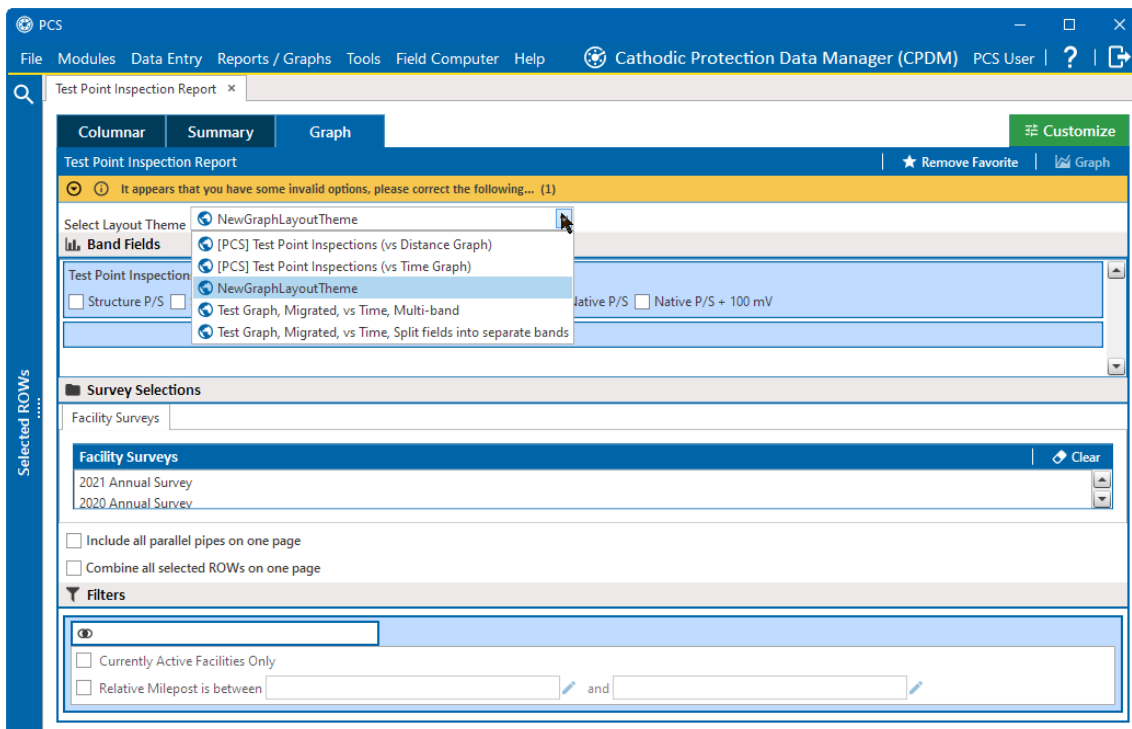


Figure 15-73. Select Layout Theme Drop-down List

2. Select the desired fields to graph, configure data filters (if desired), and select the appropriate survey(s), (if available). Refer to [Work with Graph Style Reports on page 793](#) for detailed instructions.
3. Click **Graph** to open the graph in a preview window.
4. Click **Print** to print the graph.

Form Report Designer Themes

A form report separates report data into sections, with each section describing a single record. Each section presents the record's information in a consistent format, using the same form design. A form report theme determines the contents and page settings of a form report, including what details are included each section of a form report and how the data is displayed. A form report theme can be saved as either public or private; a public theme is available for all users, whereas a private theme is only available to the user who creates it.


Refer to the following topics for more information on creating a form report theme:

- *Open the Form Designer*
- *Add a New Form Report Theme*
- *Edit a Form Report Theme*
- *Manage the Form Report Theme*
- *Use the Form Report Theme*

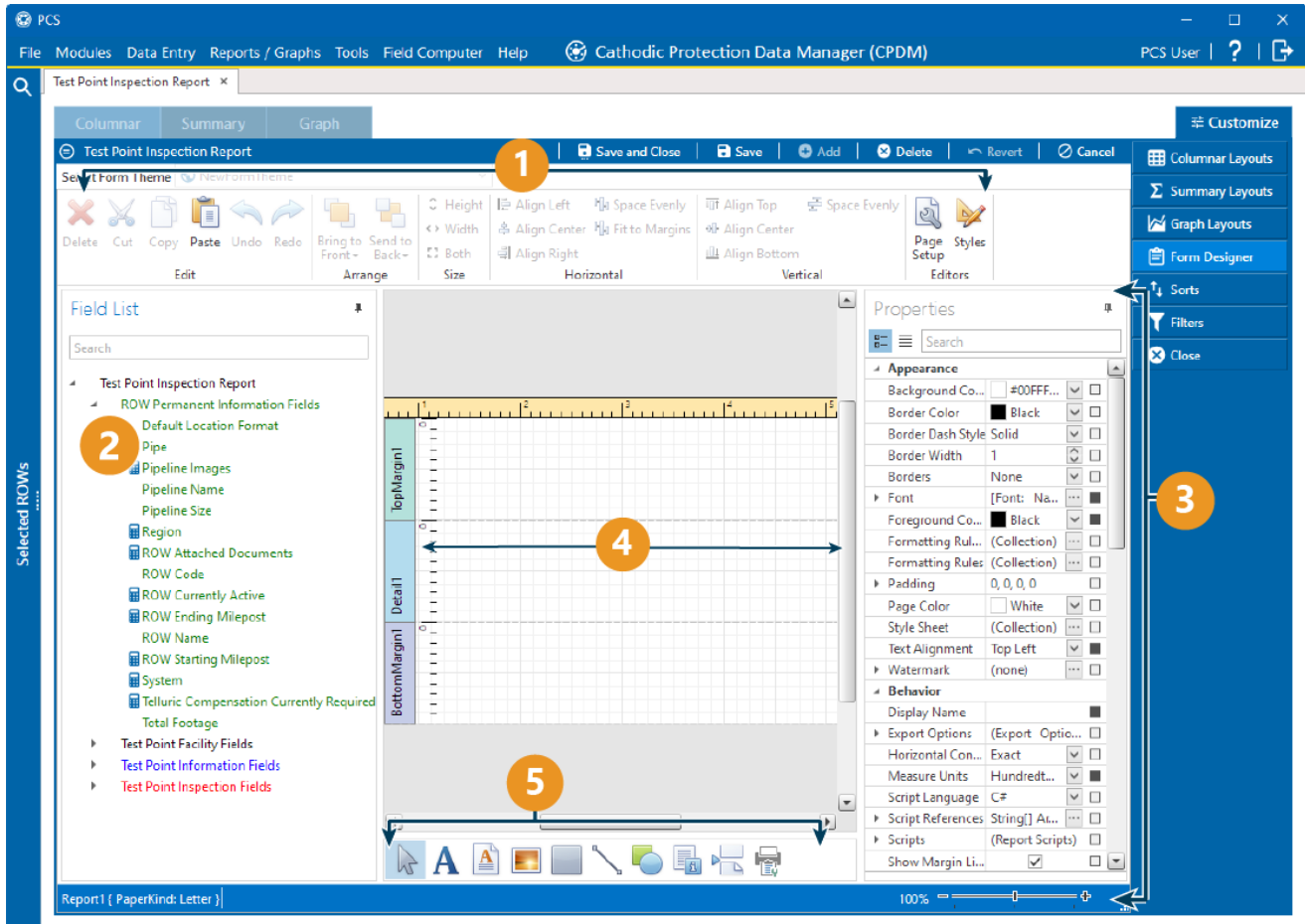
Open the Form Designer

The *Form Designer* allows you to create a new form report theme or edit an existing theme. Once in edit mode, you can decide which fields are displayed on the form theme, how the information in the fields are displayed, what other elements to include in the theme, and what page settings to change.

You can access the *Form Designer* from a report that supports a forms layout, such as the Test Point Inspection Report (CPDM module).

In the report window, click  **Customize**. If the report supports forms, **Form Designer** will be listed on the right.

Click  **Form Designer** to open the *Form Designer* window.



- 1 Ribbon toolbar
- 2 PCS Fields list
- 3 Control properties
- 4 Workspace area
- 5 Control toolbar

Figure 15-74. Form Designer

From within the *Form Designer*, a new form report theme can be created, a new or existing form report theme can be modified, and the theme can be saved or deleted. Once a form report theme is saved, it can be used in *Reports/Graphs*. Refer to the following topics for more information:

- [Add a New Form Report Theme on page 822](#)
- [Edit a Form Report Theme on page 823](#)
- [Manage the Form Report Theme on page 856](#)
- [Use the Form Report Theme on page 857](#)

Add a New Form Report Theme

Complete the following steps to create a new theme from the *Form Designer*.

1. Click **+** **Add** to open the *Add Form Theme* window.

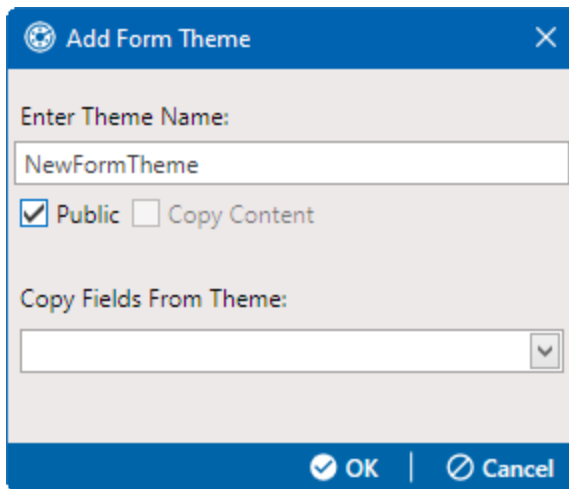


Figure 15-75. New Form Theme

2. Type a name for the theme in the **Enter Theme Name** field.
3. Click the **Public** check box to mark the theme as public and available to all users. To keep the theme private, ensure the check box is clear.
4. To copy the contents of an existing theme, keep the **Copy Content** check box checked and select a theme from the **Copy Fields From Theme** drop-down list.
5. To start with a blank theme with no pre-existing fields or properties, click to clear the **Copy Content** check box.
6. Click **OK**. A new form report theme is created and ready for editing in the Form Designer.

Edit a Form Report Theme

To modify a form report theme, you can add objects from the *Field List* or *Control* toolbar to the workspace area and modify the object's properties in the *Properties* pane or in the ribbon. When adding an object to the workspace area, you can add it to a margin or a detail section. *TopMargin1* and *BottomMargin1* represent the space at the top and bottom of every page of the report, similar to the header and footer of a Word document. *Detail1* represents the space in a report reserved for a record's data. Changes to the *Detail1* section of the workspace applies to every record's section of the report. Unless a page break is added to the workspace area or the properties of *Detail1* include a page break after each record, the record sections are stacked vertically without adding space between the sections.

To edit a form report theme, click to select a theme from the **Select Form Theme** drop-down. The workspace area updates to show the selected theme. Refer to the following topics for more information about editing a form report theme:

- [Create and Manage Form Theme Styles](#)
- [Modify Form Report Page Properties on page 831](#)
- [Modify Form Report Margins on page 838](#)
- [Modify Form Report Detail Section on page 843](#)
- [Add Objects to a Margin or Section on page 845](#)
- [Edit Objects in a Margin or Section on page 849](#)
- [Arrange Objects in a Margin or Section on page 855](#)
- [Re-size Objects in a Margin or Section on page 856](#)

Create and Manage Form Theme Styles

Theme styles are saved collections of color, border, padding, and font properties that can be applied to objects on the form or set as defaults in report sections or margins. When a style is applied to an object on the form, the object's background, border, font, and padding properties follow the properties defined in the style. To apply a style to an object, select an object on the form theme. In the Properties pane, locate a **Styles** property and select the style from the drop-down.

To view, create, and edit a theme style, click **Styles**. The *Edit Styles* window opens.

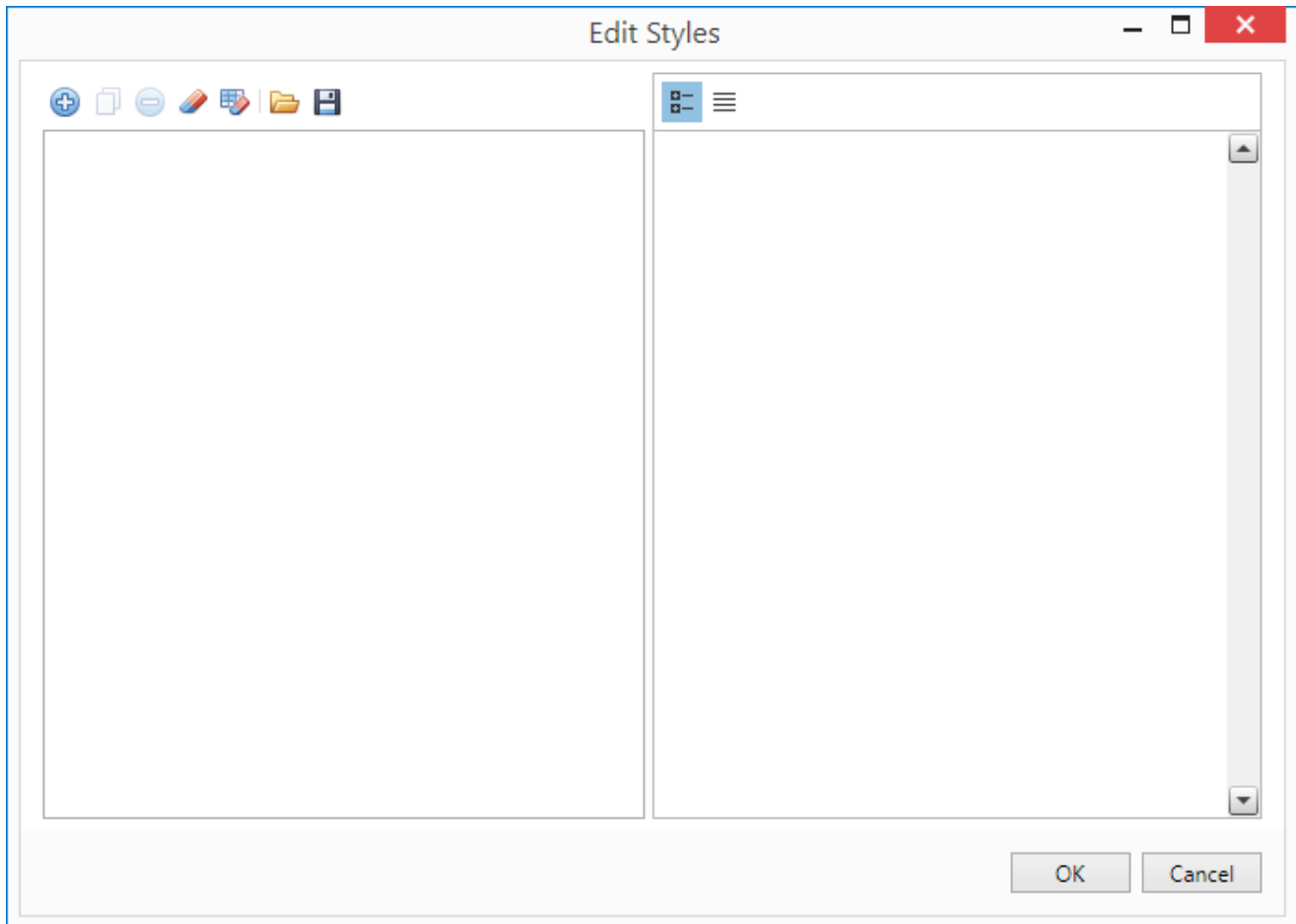



Figure 15-76. Edit Styles

Complete the following steps to create, edit, remove, save, or load a style:

1. Click . A new style is created with a default name and set of properties. Select the newly created style in the list on the left to edit the style

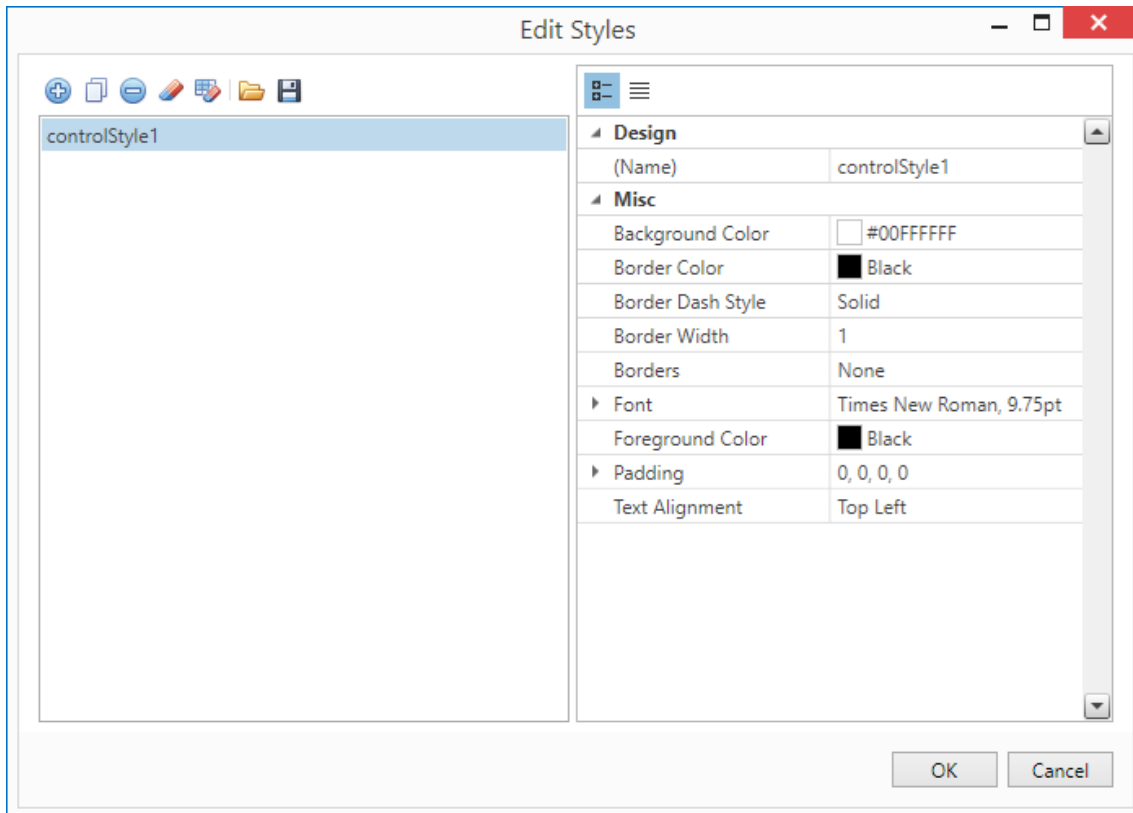







Figure 15-77. New Style

2. Edit the style using the property selections on the right side of the window.
 - a. **Name** – to rename the style, select the text in the **Name** field and enter a new value.
 - b. **Background Color** – to change the background color for the style, select the **Background Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click **More Colors** to switch to the custom color selector and create a custom color by doing any of the following:
 - i. Select a color with the color slider and color field.
 - ii. Enter a hexadecimal value in the field provided.
 - iii. Select a color model in the drop-down provided and enter the following in the fields provided:
 - For RGB color model: Red (**R**), Green (**G**), Blue (**B**), and Alpha (**A**) values
 - For CMYK color model: Cyan (**C**), Magenta (**M**), Yellow (**Y**), and Black (**K**) values

- For HSL color model: Hue (**H**), Lightness (**L**), Saturation (**S**), and Alpha (**A**) values
 - For HSB color model: Hue (**H**), Saturation (**S**), Brightness (**B**), and Alpha (**A**) values
- iv. Click to activate the color picker and move your mouse over a spot on your computer that has the color you wish to use. Click your mouse to select the color.
- c. **Border Color** – to change the color of the border for the style, select the **Border Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click **More Colors** to switch to the custom color selector and create a custom color by doing any of the following:
- i. Select a color with the color slider and color field.
 - ii. Enter a hexadecimal value in the field provided.
 - iii. Select a color model in the drop-down provided and enter the following in the fields provided:
 - For RGB color model: Red (**R**), Green (**G**), Blue (**B**), and Alpha (**A**) values
 - For CYMK color model: Cyan (**C**), Magenta (**M**), Yellow (**Y**), and Black (**K**) values
 - For HSL color model: Hue (**H**), Lightness (**L**), Saturation (**S**), and Alpha (**A**) values
 - For HSB color model: Hue (**H**), Saturation (**S**), Brightness (**B**), and Alpha (**A**) values
 - iv. Click  to activate the color picker and move your mouse over a spot on your computer that has the color you wish to use. Click your mouse to select the color.
- d. **Border Dash Style** – To change the type of line used for the border, select one of the following options from the **Border Dash Style** drop-down:
- i. Solid – for a single solid line
 - ii. Dash – for a consistent dashed line
 - iii. Dot – for a consistent dotted line
 - iv. Dash-Dot – for a line that alternates between dashes and dots

- v. Dash-Dot-Dot – for a line that alternates between dashes and two dots
 - vi. Double – for two solid lines
- e. **Border Width** – to change the thickness of the border, enter a value in pixels in the **Border Width** text field.
- f. **Borders** – to determine what sides will have borders, click the **Borders** drop-down and complete the following steps:
- Click **All** to have borders on all sides of the object the style is applied to.
 - Click **None** to not have any borders on the object the style is applied to.
 - Click at the top, bottom, left, or right edge of the border drop-down to toggle whether the top, bottom, left, or right border is applied for the style.
- g. **Font** – click the ellipsis (...) next to the Font field to open the Font window. Select a font family, style, size, effect, and script for the object the style is applied to and click **OK**.
- h. **Foreground Color** – to change the color of the text for the style, select the **Foreground Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click **More Colors** to switch to the custom color selector and create a custom color by doing any of the following:
- Select a color with the color slider and color field.
 - Enter a hexadecimal value in the field provided.
 - Select a color model in the drop-down provided and enter the following in the fields provided:
 - For RGB color model: Red (**R**), Green (**G**), Blue (**B**), and Alpha (**A**) values
 - For CYMK color model: Cyan (**C**), Magenta (**M**), Yellow (**Y**), and Black (**K**) values
 - For HSL color model: Hue (**H**), Lightness (**L**), Saturation (**S**), and Alpha (**A**) values
 - For HSB color model: Hue (**H**), Saturation (**S**), Brightness (**B**), and Alpha (**A**) values
 - Click to activate the color picker and move your mouse over a spot on your computer that has the color you wish to use. Click your mouse to select the color.

- i. **Padding** – to control the amount of space between the form object's contents and the border click the arrow next to **Padding** to expand the padding options. Enter values in pixels in the fields available.
 - j. **Text Alignment** – to set the alignment of the object's text, select one of the following values from the **Text Alignment** drop-down: Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right, Top Justify, Middle Justify, and Bottom Justify.
3. To remove a single style, select the style from the list on the left and click (remove a style). The style is removed from the *Edit Styles* window and cleared from any object that the style was applied to.
4. To remove all styles, click (Clear Styles). The all styles are removed from the *Edit Styles* window and cleared from any object that styles have been applied to.
5. To remove only the styles that have not been applied to objects on the form theme, click (delete unused styles). Any unused styles are removed from the *Edit Styles* window.
6. Click  **Save** to save all created styles. A *Save As* window opens. Navigate to a location where you wish to save the style, enter a name for the style, and click **Save**.
7. Click **OK** to close the *Edit Styles* window.
8. To load saved styles, click  (load styles from a folder), navigate and select the style, then click **Open**.
9. To use a style for an object, such as text, select the style. Then click the  next to **Styles** to expand it, then click the  in the **Style** line, and select one of the saved styles.

NOTE: If you click the ellipses button next to **(Collection)**, the *Styles Editor* window will open. You can make edits to styles this way as well as through the **Styles** button.

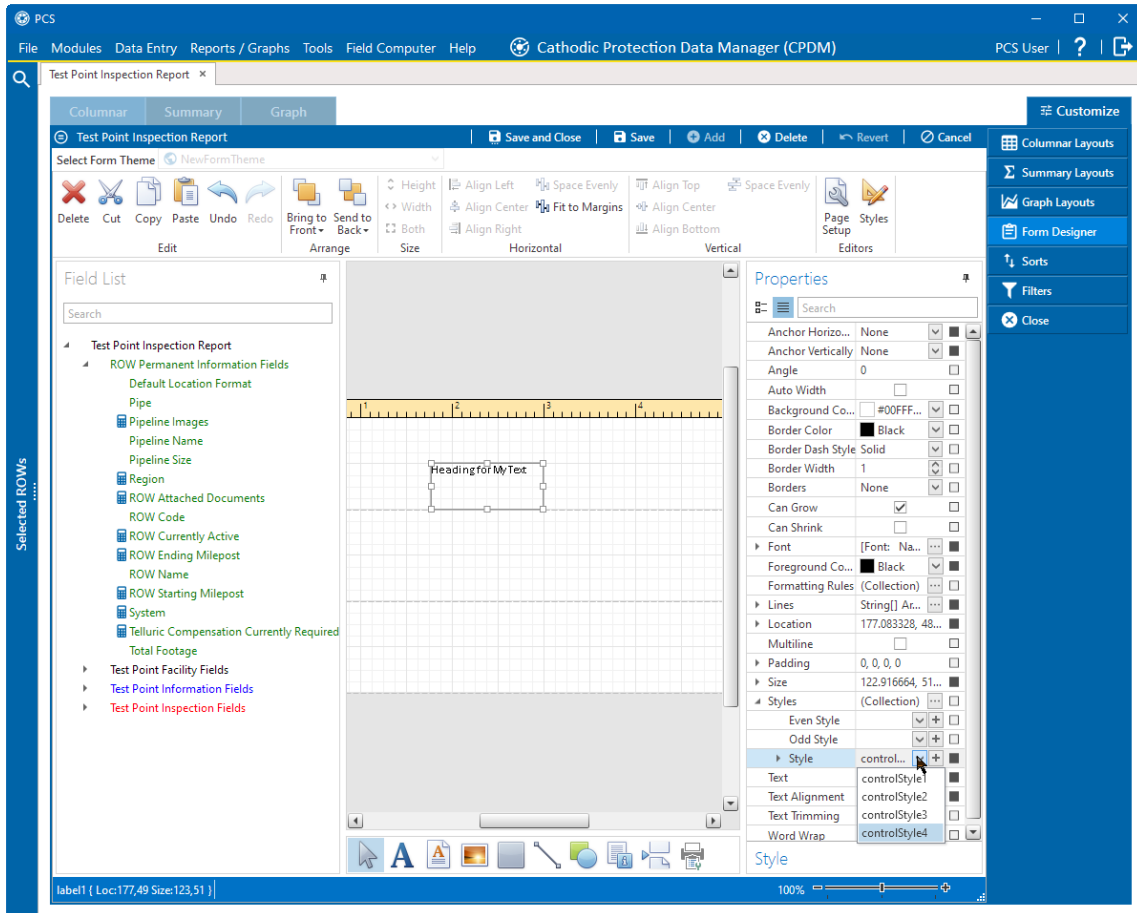


Figure 15-78. Selecting a Style for an Object in the Form

The style is applied to the object once you click anywhere outside of it.

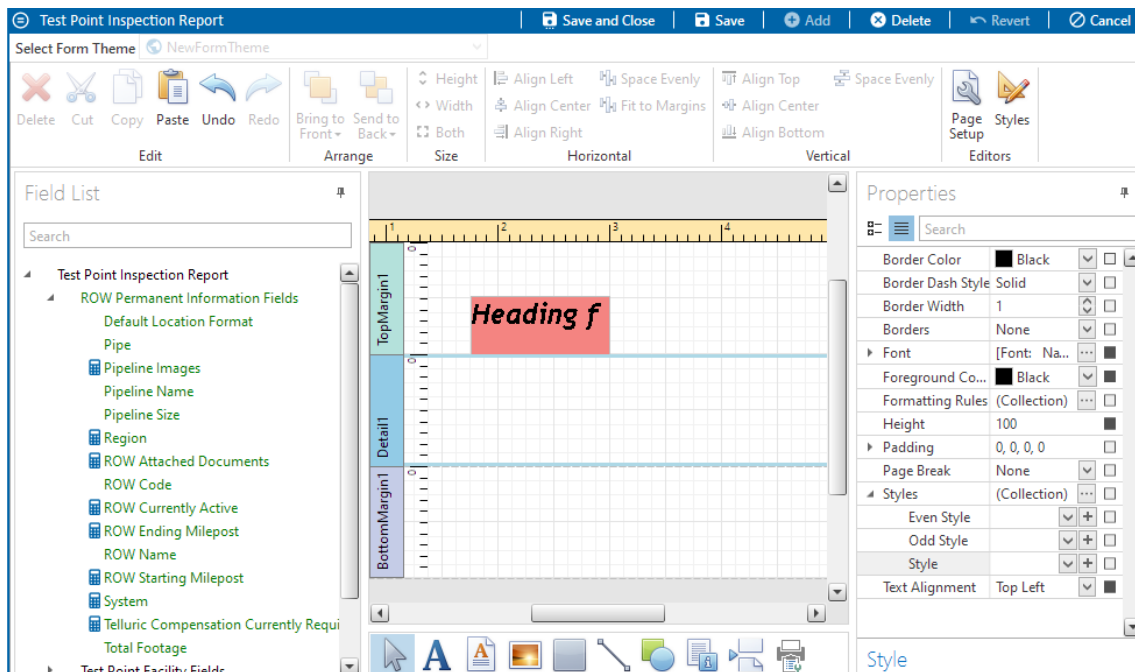


Figure 15-79. Style Applied to Object

Modify Form Report Page Properties

When the *Form Report* page is selected, you can define the report watermark, all page settings, record printing options, set the default appearance settings for objects added to the form, and the behavior of the form designer itself.


The ribbon allows you to modify most watermark and page settings, while the *Properties* pane can be used to configure advanced page and watermark settings, form designer behavior, and default appearance settings.

You can use either of the following sections of the *Form Designer* window to modify appearances and properties of the form:

- [Use Ribbon to Modify a Report Form Page Setup](#)
- [Use Properties Pane to Modify a Report Form Page Setup](#)

Use Ribbon to Modify a Report Form Page Setup

Use the ribbon to set simple page settings. Options available from the ribbon include selecting a standard page size, defining page margins, and choosing an orientation for the page. To set more advanced page properties or to define a custom page size or use a custom page size that is already defined in your printer settings, or to set watermark options, use the *Properties* pane. Refer to [Use Properties Pane to Modify a Report Form Page Setup on page 832](#).

1. Click  **Page Setup** to open the *Page Setup* window.

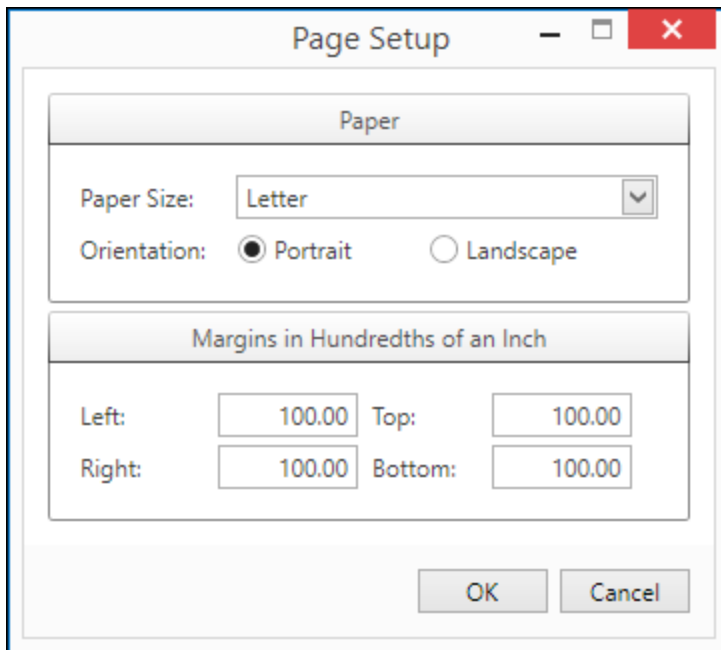


Figure 15-80. Page Setup Window

2. Select a size from the **Paper Size** drop-down.
3. Select an **Orientation** radio button.
4. Enter a margins in inches for the **Left**, **Right**, **Top**, and **Bottom** margins in the fields provided.
5. Click **OK** to save the page settings and close the *Page Setup* window or click **Cancel** to undo any changes made in the *Page Setup* window before closing the window.

Use Properties Pane to Modify a Report Form Page Setup

You can use the *Properties* pane for a form report theme to define the report watermark, all page settings, record printing options, the default appearance settings for objects added to the form, and the behavior of the form designer itself.

To modify the properties of a form report theme, with a form report theme selected in the *Form Designer* click in the gray edges outside of the workspace area. The form report theme's available properties load in the *Properties* pane. You will need to scroll down to see all of the properties.

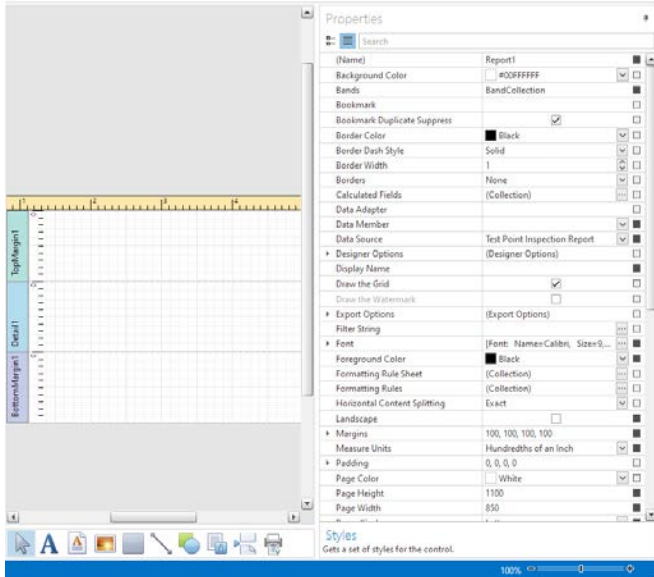


Figure 15-81. Properties Pane

If a property can be reset, the check box will be filled in black. To reset a property, click the check box to the far right of the property name line.

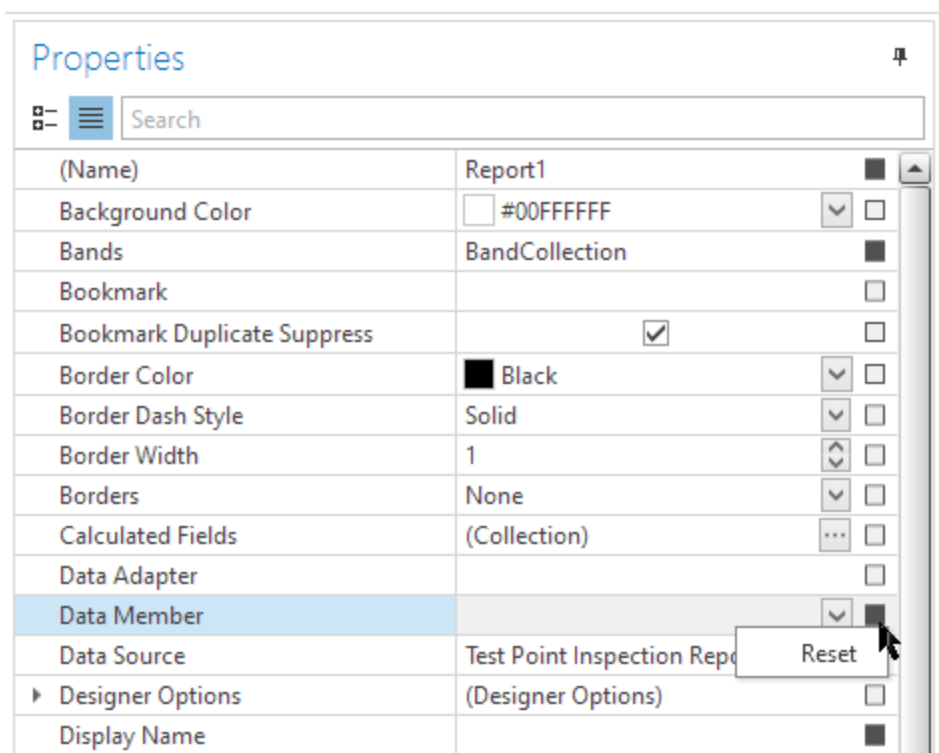


Figure 15-82. Resetting a Property

When you click on a Property, a definition of the property displays at the bottom of the screen. For example, **Background Color** has been selected in the following image. The definition for Background Color is shown in the pane below *Properties*. Use these definitions to understand each of the properties listed in this pane.

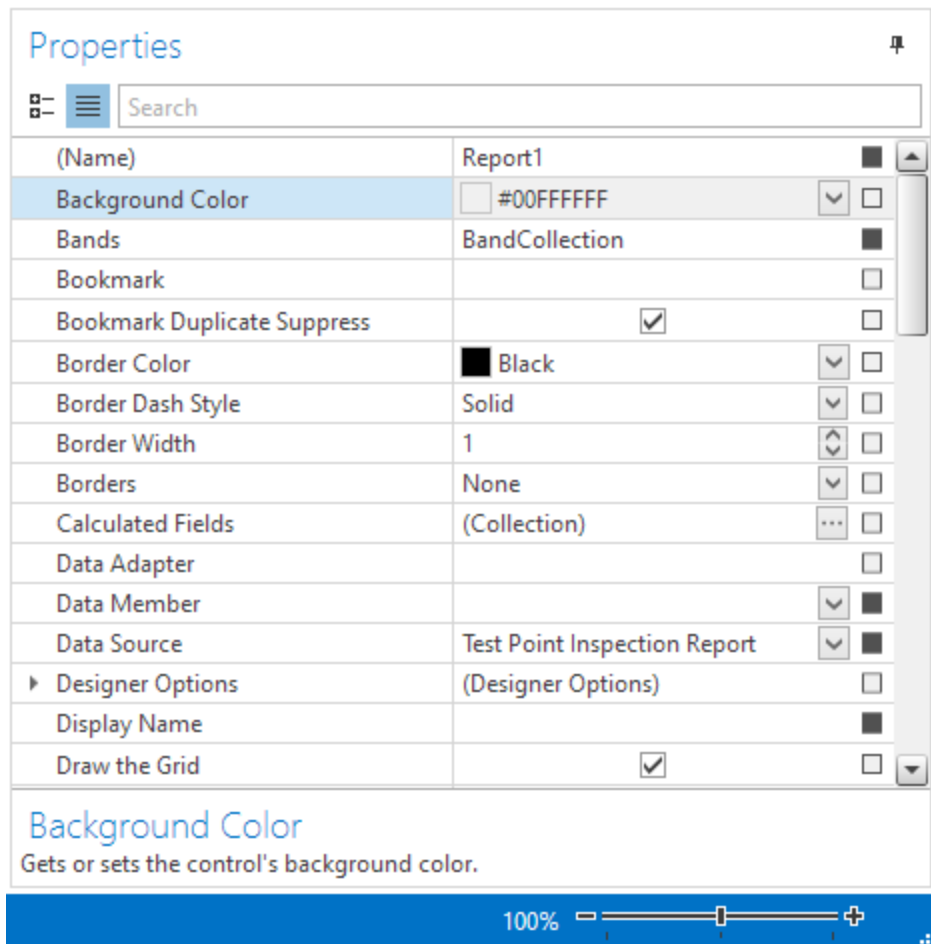




Figure 15-83. Property Descriptions

Appearance properties. When a report theme's default appearance settings are configured, any Control object added to the form will inherit that setting from the report theme unless it's configured elsewhere. If the same appearance setting is also changed in the margin properties (for Control objects placed in the Top or Bottom margins) or detail properties (for Control objects placed in the Detail section), they will inherit the margin or detail properties instead.


If the appearance setting is changed on the Control object itself, then any defaults set in the report theme, margins, or details are ignored and the Control object's settings are used.

The following default appearance settings are available for the report theme:

- **Background Color** – to change the default background color for a Control object added to the form, select the **Background Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click 🎨 **More Colors** to switch to the custom color selector and create a custom color by doing any of the following:
 - Select a color with the color slider and color field.
 - Enter a hexadecimal value in the field provided.
 - Select a color model in the drop-down provided and enter the following in the fields provided:
 - For RGB color model: Red (**R**), Green (**G**), Blue (**B**), and Alpha (**A**) values
 - For CYMK color model: Cyan (**C**), Magenta (**M**), Yellow (**Y**), and Black (**K**) values
 - For HSL color model: Hue (**H**), Lightness (**L**), Saturation (**S**), and Alpha (**A**) values
 - For HSB color model: Hue (**H**), Saturation (**S**), Brightness (**B**), and Alpha (**A**) values
 - Click to activate the color picker and move your mouse over a spot on your computer that has the color you wish to use. Click your mouse to select the color.
- **Border Color** – to change the default color of the border for a Control object added to the form, select the **Border Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click 🎨 **More Colors** to switch to the custom color selector (see above for options).
- **Border Dash Style** – To change the default type of line used for a border of a Control object added to the form, select one of the following options from the **Border Dash Style** drop-down:
 - **Solid** : for a single solid line
 - **Dash** : for a consistent dashed line
 - **Dot** : for a consistent dotted line
 - **Dash-Dot**: for a line that alternates between dashes and dots
 - **Dash-Dot-Dot**: for a line that alternates between dashes and two dots
 - **Double** : for two solid lines
- **Border Width** – to change the default thickness *for a border of a Control object added to the form*, enter a value in pixels in the **Border Width** text field.
- **Borders** – to determine what sides of a object will have borders by default, click the **Borders** drop-down and complete the following steps:

- Click **All** to have borders on all sides of the objects added to the form.
 - Click **None** to not have any borders on the objects added to the form.
 - Click  at the top, bottom, left, or right edge of the border drop-down to toggle whether the top, bottom, left, or right border is applied to objects added to the form
- **Font** – click the ellipsis (...) next to the **Font** field to open the *Font* window. Select a default font family, style, size, effect, and script for text-based objects added to the form and click **OK**.
 - **Foreground Color** – to change the default text color for text-based objects added to the form, select the **Foreground Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color (see [Background Color](#), above).
 - **Padding** – to control the default amount of space between a Control object's contents and the border click the arrow next to **Padding** to expand the padding options. Enter values in pixels in the fields available.
 - **Text Alignment** – to set the alignment of the object's text, select one of the following values from the **Text Alignment** drop-down: Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right, Top Justify, Middle Justify, and Bottom Justify.

Appearance properties. The following properties are available to modify for the report's appearance:

- **Page Color** – to change the background color of the page, select the **Page Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color (see [Background Color](#), above).
- **Style Sheet** – click the ellipsis (...) next to the **Style Sheet** field to open the *Styles Editor*. Add, edit, or remove styles defined in the form report theme as desired. Refer to [Create and Manage Form Theme Styles](#) for more information about form report theme styles.
- **Watermark** – double-click the **Watermark** field to open the ribbon's *Watermark* window and fill out the Text Watermark, Picture Watermark, Position, and Page Range options as desired. Refer to [Use Properties Pane to Modify a Report Form Page Setup on page 832](#) for instructions detailing the watermark properties available from the ribbon.
 - To edit the watermark options in the *Properties* pane, click to expand the **Watermark** field and modify the Font, Foreground Color, Image, Image Alignment, Image Tiling, Image Transparency, Image View Mode, Page Range, Show Behind, Text, Text Direction, and Text Transparency properties.

Behavior properties. Behavior properties determine the units of measurement used in the form report theme, as well as how the form report should handle objects that extend beyond the page margins. The following behavior properties are available for editing:

- **Horizontal Content Splitting** – to determine what should happen when a horizontal page break would naturally occur in the middle of an object or group of objects, select the **Horizontal Content Splitting** drop-down and choose one of the following options:
 - **Exact** – allows a page break to occur in the middle of an object or group of objects; objects or groups of objects that are split in two so they can continue on the next page.
 - **Smart** – whenever possible, moves the entire object or group of objects to the next page if a page break would have occurred in the middle of the object(s).
 - **Measure Units** – to change the units of measurement used in the form report theme, select an option from the **Measure Units** drop-down.
- **Vertical Content Splitting** – to determine what should happen when a vertical page break would naturally occur in the middle of an object or group of objects, select the **Vertical Content Splitting** drop-down and choose one of the following options:
 - **Exact** – allows a page break to occur in the middle of an object or group of objects; objects or groups of objects that are split in two so they can continue on the next page.

Design properties. Design properties determine how objects in the form report theme are displayed and used in the designer. The following Design properties are available:

- **Display Name** – to change the name of the form report theme, replace the text in the **(Name)** field with a new name.
- **Designer Options** – to show or hide popup hints and warnings in the Report Designer. Options include:
 - **Show Designer's Hints**
 - **Show Export Warnings**
 - **Show Printing Warnings**
- **Draw the Grid** – to show or hide the grid on the designer, click to select or clear the **Draw the Grid** check box, respectively.
- **Draw the Watermark** – if a Watermark has been added, this option gets or sets a value indicating whether or not to draw a watermark at design time.
- **Snap Grid Size** – to change the amount of space between the grid lines, select the text in the **Snap Grid Size** field and enter a new value.

- **Snap to Grid** – to allow objects to snap to the grid when moving or resizing, click to select the **Snap to Grid** check box. To disable this feature, click to clear the check box.
- **Snapping Mode** – specifies the mode in which report elements are snapped to each other when they are re-sized or being relocated.

Page Settings properties. These properties define the paper's size, margins, and orientation. Unlike the page setup options found in the ribbon, the *Properties* pane also allows you to use custom page sizes. Custom page sizes can be predefined sizes found in a local printer or defined manually in the *Properties* pane.

- **Landscape** – select the **Landscape** check box to orient the page to landscape mode or clear the check box to orient the page to portrait mode.
- **Margins** – to set amount of space at the edge of the paper to be reserved for the margins, click the arrow next to **Margins** to expand the **Margins** options. Enter values in hundredths of an inch in the fields available.
- **Page Height** – to define the paper's height for a custom paper size, enter a height in the field provided. This field only enabled if a custom Paper Kind is selected.
- **Page Width** – to define the paper's width for a custom paper size, enter a width in the field provided. This field is only enabled if a custom Paper Kind is selected.
- **Paper Kind** – to set the paper size for the form report, select a **Paper Kind** from the drop-down. The **Page Height** and **Page Width** fields update to match the height and width of the selected paper kind, however the **Page Height** and **Page Width** fields are only editable if a **Custom** paper kind was selected.
- **Paper Name** – to use a paper size that's been predefined in printer preferences for the printer selected in the *Printer Name* field, enter the name of the paper size exactly as it's defined in the printer's printer preferences.
- **Printer Name** – to use the paper sizes predefined in a specific printer's printer preferences, select the desired printer from the **Printer Name** drop-down. The **Printer Name** field is used alongside the **Paper Name** field when **Custom** paper kind was selected.

Modify Form Report Margins

You can use the *Properties* pane for a form report theme's top or bottom margin to define the margin height as well as default appearance settings for objects added to the margin.

To modify the properties of a form report margin, with a form report theme selected in the *Form Designer* click a margin to select **TopMargin1** or **BottomMargin1** of the workspace area. The selected margin's available properties load in the *Properties* pane.

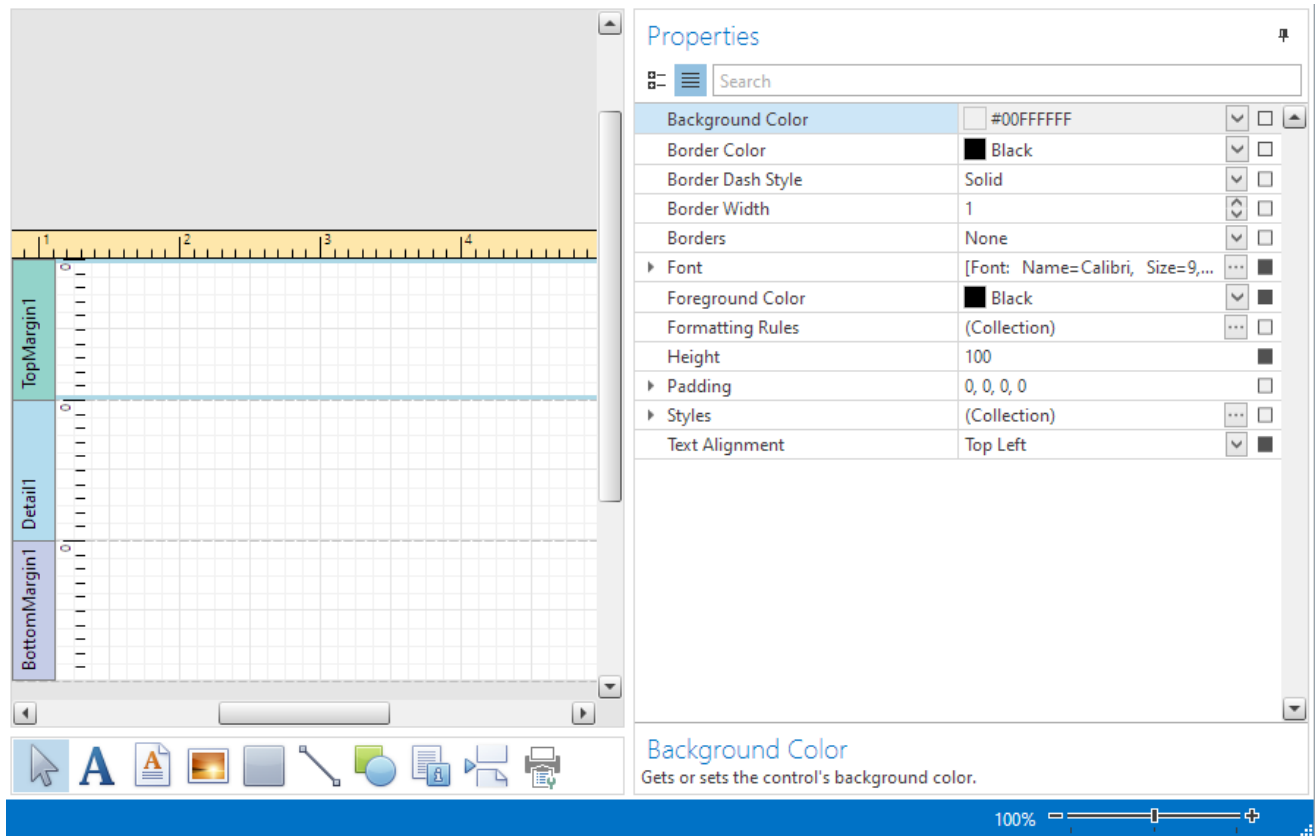


Figure 15-84. Margin Properties

If a property can be reset, the check box will be filled in black. To reset a property, click the check box to the far right of the property name line.

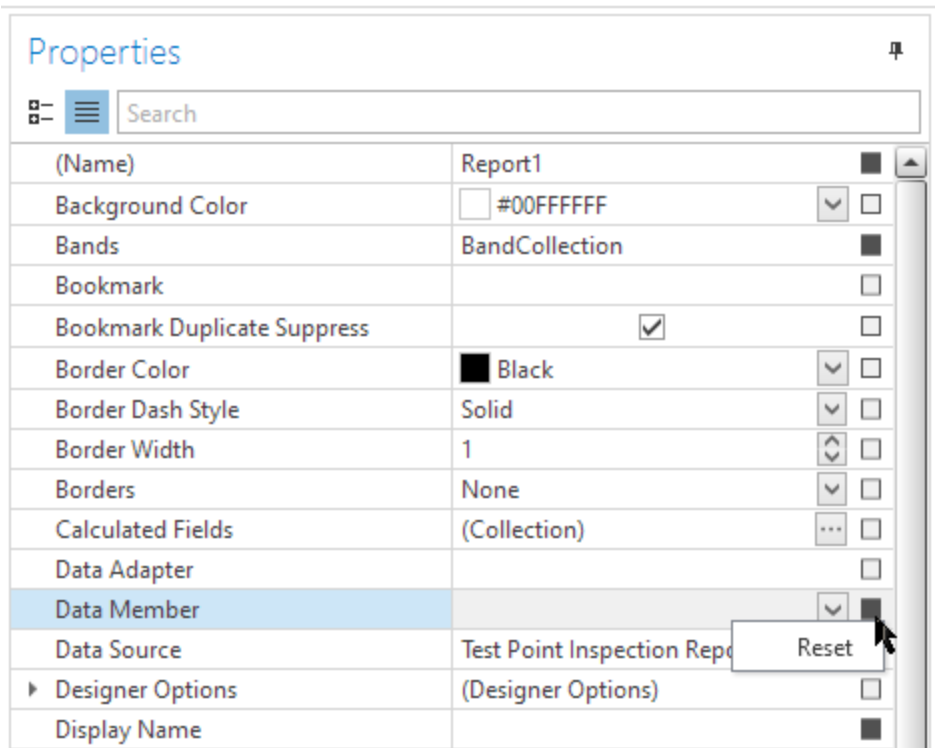


Figure 15-85. Resetting a Property

When you click on a Property, a definition of the property displays at the bottom of the screen. For example, **Background Color** has been selected in the following image. The definition for Background Color is shown in the pane below *Properties*. Use these definitions to understand each of the properties listed in this pane.

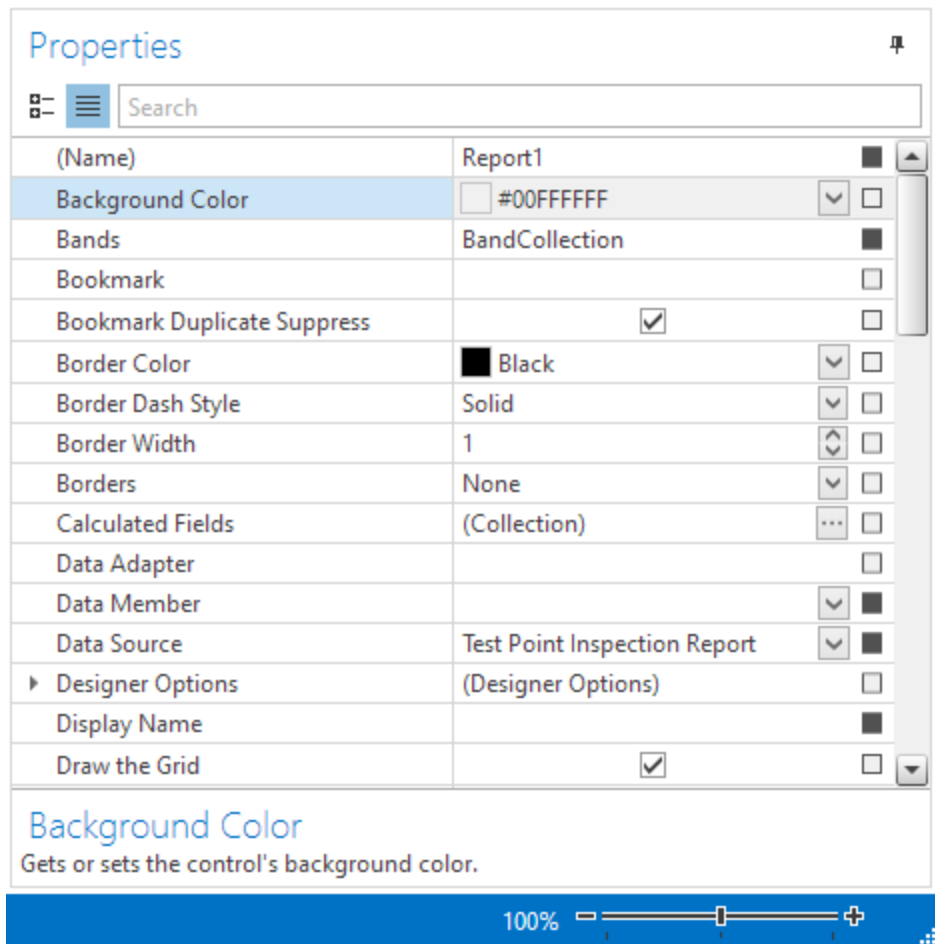






Figure 15-86. Property Descriptions

Appearance properties. When a margin's default appearance settings are configured, any Control object added to the margin will inherit its property settings from the margin's appearance properties and any appearance properties defined in the margin's *Properties* pane will override properties set in the form report theme. If the appearance properties for an object are defined in the object's *Properties* pane, any defaults set in the margin are ignored and the Control object's settings are used.

The following default appearance settings are available for the margin:

- **Background Color** – to change the default background color for a Control object added to the margin, select the **Background Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color by doing any of the following:
 - Select a color with the color slider and color field.
 - Enter a hexadecimal value in the field provided.

-
- Select a color model in the drop-down provided and enter the following in the fields provided:
 - For RGB color model: Red (**R**), Green (**G**), Blue (**B**), and Alpha (**A**) values
 - For CYMK color model: Cyan (**C**), Magenta (**M**), Yellow (**Y**), and Black (**K**) values
 - For HSL color model: Hue (**H**), Lightness (**L**), Saturation (**S**), and Alpha (**A**) values
 - For HSB color model: Hue (**H**), Saturation (**S**), Brightness (**B**), and Alpha (**A**) values
 - Click to activate the color picker and move your mouse over a spot on your computer that has the color you wish to use. Click your mouse to select the color.
 - **Border Color** – to change the default color of the border for a Control object added to the margin, select the **Border Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color (see [Background Color](#)).
 - **Border Dash Style** – to change the default type of line used for a border of a Control object added to the form, select one of the following options from the **Border Dash Style** drop-down:
 - **Solid** : for a single solid line
 - **Dash** : for a consistent dashed line
 - **Dot** : for a consistent dotted line
 - **Dash-Dot**: for a line that alternates between dashes and dots
 - **Dash-Dot-Dot**: for a line that alternates between dashes and two dots
 - **Double** : for two solid lines
 - **Border Width** – To change the default thickness *for a border of a Control object added to the margin*, enter a value in pixels in the **Border Width** text field.
 - **Borders** – To determine what sides of a object will have borders by default, click the **Borders** drop-down and complete the following steps:
 - Click **All** to have borders on all sides of the objects added to the form.
 - Click **None** to not have any borders on the objects added to the form.
 - Click  at the top, bottom, left, or right edge of the border drop-down to toggle whether the top, bottom, left, or right border is applied to objects added to the form

- **Font** – click the ellipsis (...) next to the Font field to open the Font window. Select a default font family, style, size, effect, and script for text-based objects added to the margin and click **OK**.
- **Foreground Color** – to change the default text color for text-based objects added to the margin, select the **Foreground Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color (see [Background Color](#)).
- **Padding** – to control the default amount of space between a Control object's contents and the border click the arrow next to Padding to expand the padding options. Enter values in pixels in the fields available.
- **Text Alignment** – to set the alignment of the object's text, select one of the following values from the **Text Alignment** drop-down: Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right, Top Justify, Middle Justify, and Bottom Justify.

Layout properties. Layout properties define the margin's height.

- **Height** – to define the margin's height for a custom paper size, enter a height in hundredths of an inch in the field provided.


Modify Form Report Detail Section

You can use the Properties pane for a form report theme's detail section to define the details for every sections' height as well as default appearance settings for objects added to the section and whether there's a page break at the end of each section.

To modify the properties of a form report detail section, with a form report theme selected in the *Form Designer* click the center of the workspace area to select **Detail1**. The detail section's available properties load in the *Properties* pane.



Appearance properties. When a detail section's default appearance settings are configured, any Control object added to the detail section will inherit its property settings from the detail's appearance properties and any appearance properties defined in the detail section's *Properties* pane will override properties set in the detail section. If the appearance properties for an object are defined in the object's *Properties* pane, any defaults set in the detail section are ignored and the Control object's settings are used.

The following default appearance settings are available for the detail section:

- **Background Color** – to change the default background color for a Control object added to the detail section, select the **Background Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color

selector and create a custom color by doing any of the following:

- Select a color with the color slider and color field.
 - Enter a hexadecimal value in the field provided.
 - Select a color model in the drop-down provided and enter the following in the fields provided:
 - For RGB color model: Red (**R**), Green (**G**), Blue (**B**), and Alpha (**A**) values
 - For CYMK color model: Cyan (**C**), Magenta (**M**), Yellow (**Y**), and Black (**K**) values
 - For HSL color model: Hue (**H**), Lightness (**L**), Saturation (**S**), and Alpha (**A**) values
 - For HSB color model: Hue (**H**), Saturation (**S**), Brightness (**B**), and Alpha (**A**) values
 - Click to activate the color picker and move your mouse over a spot on your computer that has the color you wish to use. Click your mouse to select the color.
- **Border Color** – to change the default color of the border for a Control object added to the detail section, select the **Border Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click 🎨 **More Colors** to switch to the custom color selector and create a custom color by doing any of the following:
 - **Border Dash Style** – to change the default type of line used for a border of a Control object added to the form, select one of the following options from the **Border Dash Style** drop-down:
 - **Solid** : for a single solid line
 - **Dash** : for a consistent dashed line
 - **Dot** : for a consistent dotted line
 - **Dash-Dot**: for a line that alternates between dashes and dots
 - **Dash-Dot-Dot**: for a line that alternates between dashes and two dots
 - **Double** : for two solid lines
 - **Border Width** – to change the default thickness *for a border of a Control object added to the form*, enter a value in pixels in the **Border Width** text field.
 - **Borders** – to determine what sides of a object will have borders by default, click the **Borders** drop-down and complete the following steps:
 - Click **All** to have borders on all sides of the objects added to the form.
 - Click **None** to not have any borders on the objects added to the form.

- Click  at the top, bottom, left, or right edge of the border drop-down to toggle whether the top, bottom, left, or right border is applied to objects added to the form
- **Font** – click the ellipsis (...) next to the **Font** field to open the *Font* window. Select a default font family, style, size, effect, and script for text-based objects added to the form and click **OK**.
- **Foreground Color** – to change the default text color for text-based objects added to the form, select the **Foreground Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color (see [Background Color](#), above).
- **Padding** – to control the default amount of space between a Control object's contents and the border click the arrow next to **Padding** to expand the padding options. Enter values in pixels in the fields available.
- **Text Alignment** – To set the alignment of the object's text, select one of the following values from the **Text Alignment** drop-down: Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right, Top Justify, Middle Justify, and Bottom Justify.

Behavior properties. Behavior properties determine whether each report section starts on their own page or continues where the previous section ended.

- **Page Break** – to set a page break for each section, select an option from the **Page Break** drop-down.

Layout properties. Layout properties define the detail section's height.

- **Height** – to define the detail section's minimum height, enter a height in hundredths of an inch in the field provided. When the form report is generated, each section will take up at least the height designated in the field. If page breaks are set up for a report, the space used by the section may increase.

Add Objects to a Margin or Section

The same data fields that can be shown in a data entry form can be added to a form report theme. In addition, labels, rich text fields, static pictures, lines, and shapes can be added to improve the design of the form report. panes can be added, which allow form report objects to be grouped together. Page breaks are available to control when objects should appear on different pages in a report, while PCS Report Info and Page Info controls can be added to the margins to provide contextual information for a report.

When an object is added to a detail section, When an object is added to a top or bottom margin, it will appear at the top or bottom of every page. If a data field is added to a margin, the information that appears in the margin on the report's page comes from the first record to appear on that page.

If a property can be reset, the check box will be filled in black. To reset a property, click the check box to the far right of the property name line.

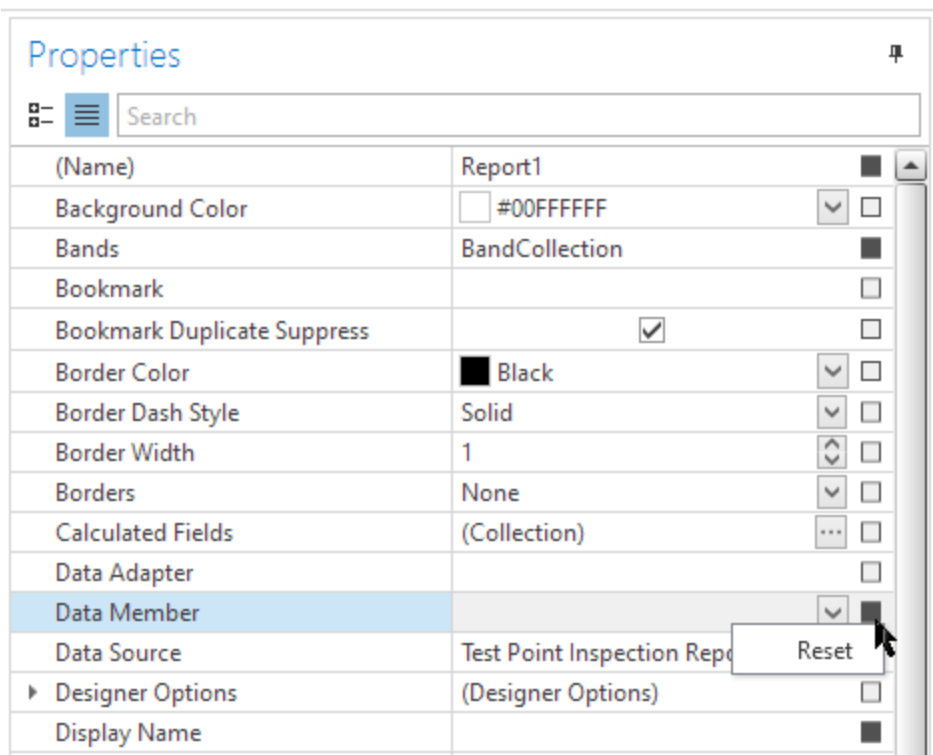


Figure 15-87. Resetting a Property

When you click on a Property, a definition of the property displays at the bottom of the screen. For example, **Background Color** has been selected in the following image. The definition for Background Color is shown in the pane below *Properties*. Use these definitions to understand each of the properties listed in this pane.

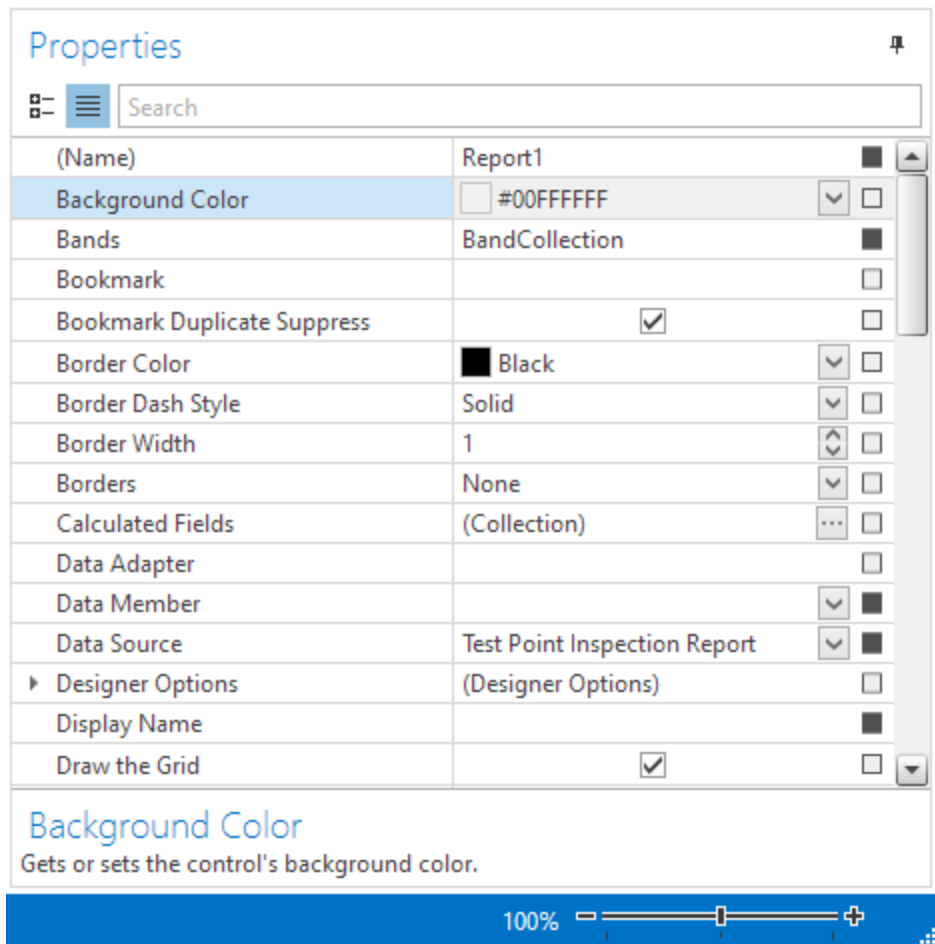


Figure 15-88. Property Descriptions

- **Add Data Fields.** To add a field to the form report theme, find the desired field in the *Field List* pane. Click to select the field and drag it to the form report theme. A data field is added to the form report theme. The colors, borders, padding, font, size, location, and alignment of the field can be edited in the *Properties* pane, as well as what type of caption should accompany the field and if the field's text should wrap to the next line.
- **Add Images Fields.** To add an images field to the form report theme, find the desired field in the *Field List* pane. Click to select the field and drag it to the form report theme. The images field is added to the form report theme. The caption, colors, borders, padding, font, size, location, and alignment of the field can be edited in the *Properties* pane, as well as which images from the images field should be included in the form report and how the images are displayed.
- **Add Labels, Pictures, Lines, and Shapes.** To add a text label, rich text field, picture, shape, or line to the form report theme, click to select the desired control from the *Control* toolbar and drag it to the form report theme.

Depending on the control added, various properties can be edited in the *Properties* pane. A label's color, border, padding, angle, size, location, text alignment and trimming, label text, word wrap and multiline capabilities, and font style can be edited; a rich text field's color, border, padding, size, location, and font style can be modified; a picture's source file can be identified and its color, border, padding, size, location, and alignment can be determined; and a shape and line's color, padding, border, size, and location can be set. A shape's angle and shape type can also be defined.

- **Rich Text Fields.** Rich text fields allow you to load text from a formatted document into the control and retain formatting that exists in the file. To add a rich text field to the form report theme, click to select the control from the *Control* toolbar and drag it to the form report theme. Right-click on the rich text field and select **Load File** from the context menu. Navigate to and select the file that contains the formatted text and click **Open**. The text in the document loads into the rich text field control, retaining any compatible formatting.

A rich text field's color, border, padding, size, location, and font style can be modified in the *Properties* pane.

- **Add panes.** panes allow form report objects to be grouped together. To add a pane to the form report theme, click to select the pane from the *Control* toolbar and drag it to the form report theme. Once added to the form report theme, edit the colors, borders, padding, size, and location of the pane in the *Properties* pane.
- **Add PCS Report Info.** The PCS Report Info control is a text control that will display the company name (configured in *Options*) and the report title, selected ROWs, selected filters, and selected options for the report (configured when creating or editing the Form Report). This control is most often added to a form report margin.

To add the PCS Report Info to the form report theme, click to select the control from the *Control* toolbar and drag it to the theme. Once added to the form report theme, the PCS Report Info's color, border, padding, size, location, text alignment and trimming, word wrap, and font style can be modified.

- **Add Page Info.** To add a page number, current date, user name, or page count to the form report theme, click to select **Page Info** from the *Control* toolbar and drag it to the theme. This control is most often added to a form report margin. Once added to the form report theme, the Page Info control's color, border, padding, size, location, text alignment, word wrap, and font style can be modified, as well as the page info format and starting page number.
- **Add Page Breaks.** To add a page break to the form report theme, click to select the Page Break control from the *Control* toolbar and drag it to the theme. Anything added below the page break in the theme will be moved to the next page in the generated form report. The location of the page break can be modified in the *Properties* pane.

Once objects are placed on the form report theme, they are ready for editing, resizing, and rearranging.

Edit Objects in a Margin or Section

When an object is added to the form, it inherits the default styles set in the margin or section that the object was added. If no default was set for the margin or section, the report page's defaults are used. You can override these defaults by modifying the objects' properties in the *Properties* pane.

Appearance properties. Appearance properties define the color, borders, and padding of the space allotted for the object.

When the appearance properties for an object added to the form are modified in the *Properties* pane, any defaults set in the form report, the margin, or the detail section are ignored and the object's settings are used. Depending on the object selected, the appearance properties available in the *Properties* pane will vary.

If a property can be reset, the check box will be filled in black. To reset a property, click the check box to the far right of the property name line.

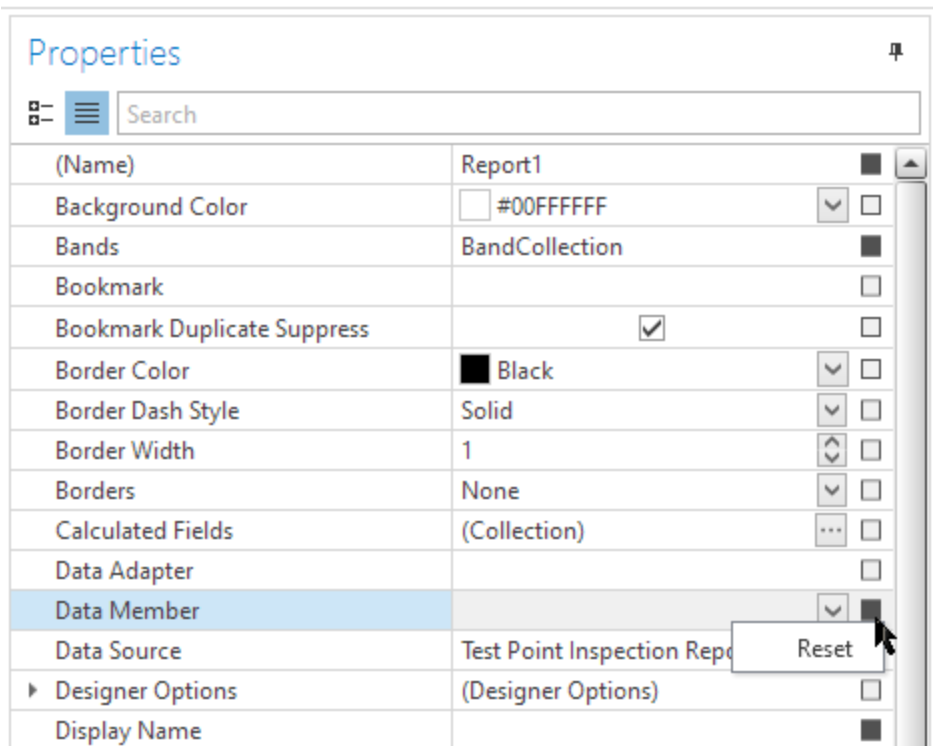


Figure 15-89. Resetting a Property

When you click on a Property, a definition of the property displays at the bottom of the screen. For example, **Background Color** has been selected in the following image. The definition for Background Color is shown in the pane below *Properties*. Use these definitions to understand each of the properties listed in this pane.

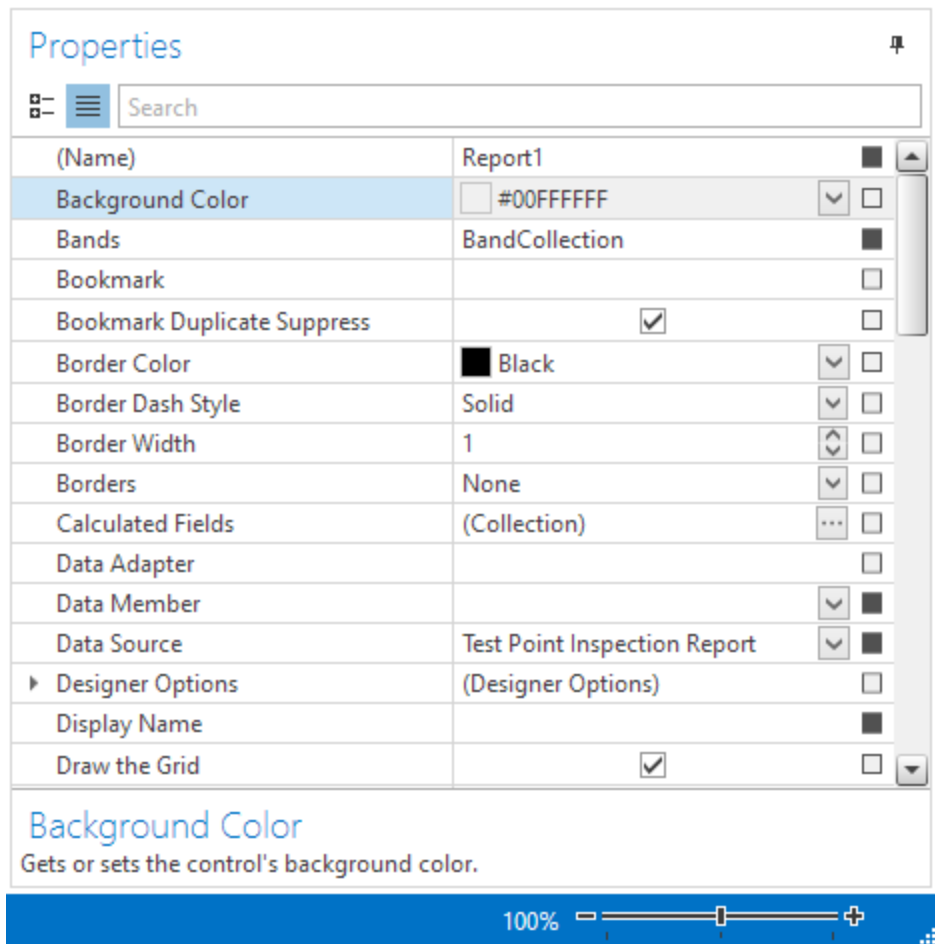







Figure 15-90. Property Descriptions

The following appearance settings may be available for the object:

- **Background Color** – to change the background color for an object added to the form, select the **Background Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color by doing any of the following:
 - Select a color with the color slider and color field.
 - Enter a hexadecimal value in the field provided.
 - Select a color model in the drop-down provided and enter the following in the fields provided:
 - For RGB color model: Red (**R**), Green (**G**), Blue (**B**), and Alpha (**A**) values
 - For CYMK color model: Cyan (**C**), Magenta (**M**), Yellow (**Y**), and Black (**K**) values
 - For HSL color model: Hue (**H**), Lightness (**L**), Saturation (**S**), and Alpha (**A**) values

-
- For HSB color model: Hue (**H**), Saturation (**S**), Brightness (**B**), and Alpha (**A**) values
 - Click to activate the color picker and move your mouse over a spot on your computer that has the color you wish to use. Click your mouse to select the color.
 - **Border Color** – to change the color of the border for an object added to the form, select the **Border Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color (see Background Color, above).
 - **Border Dash Style** – To change the default type of line used for a border of a Control object added to the form, select one of the following options from the **Border Dash Style** drop-down:
 - **Solid** : for a single solid line
 - **Dash** : for a consistent dashed line
 - **Dot** : for a consistent dotted line
 - **Dash-Dot**: for a line that alternates between dashes and dots
 - **Dash-Dot-Dot**: for a line that alternates between dashes and two dots
 - **Double** : for two solid lines
 - **Border Width** – to change the default thickness *for a border of a Control object added to the form*, enter a value in pixels in the **Border Width** text field.
 - **Borders** – to determine what sides of a object will have borders by default, click the **Borders** drop-down and complete the following steps:
 - Click **All** to have borders on all sides of the objects added to the form.
 - Click **None** to not have any borders on the objects added to the form.
 - Click  at the top, bottom, left, or right edge of the border drop-down to toggle whether the top, bottom, left, or right border is applied to objects added to the form
 - **Fill Color** – to change the fill color for shapes added to the form, select the **Foreground Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color (see **Background Color**, above).
 - **Font** – click the ellipsis (...) next to the Font field to open the Font window. Select a font family, style, size, effect, and script for text-based objects added to the form and click **OK**.

- **Foreground Color** – to change the text color for text-based objects added to the form or the line color for lines and shapes added to the form, select the **Foreground Color** drop-down. A grid of available and standard colors appears. Select a color from the grid or click  **More Colors** to switch to the custom color selector and create a custom color (see **Background Color**, above).
- **Line Direction** – to change the direction the line is drawn for a line object, select the preferred direction from the **Line Direction** drop-down.
- **Line Style** – to change the type of line used for the outline of a shape or line object added to the form, select one of the following options from the **Line Style** drop-down:
 - **Solid** : for a single solid line
 - **Dash** : for a consistent dashed line
 - **Dot** : for a consistent dotted line
 - **Dash-Dot**: for a line that alternates between dashes and dots
 - **Dash-Dot-Dot**: for a line that alternates between dashes and two dots
 - **Double** : for two solid lines
- **Line Width** – to change the thickness of the line for a shape or line *object added to the form*, enter a value in pixels in the **Line Width** text field.
- **Padding** – to control the amount of space between a Control object's contents and the border click the arrow next to Padding to expand the padding options. Enter values in pixels in the fields available.
- **Text Alignment** – to set the alignment of the object's text, select one of the following values from the **Text Alignment** drop-down: Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right, Top Justify, Middle Justify, and Bottom Justify.
- **Text Trimming** – to define what should happen when the text for the field extends beyond the space allotted for the control, select one of the following values from the **Text Trimming** drop-down:
 - **None**: does not trim the text content in any special way.
 - **Character**: trims the text after the last character to fully fit within the bounds of the field.
 - **Word**: trims the text after the last word to fully fit within the bounds of the field.
 - **Ellipsis Character**: trims the text after the last character to fully fit within the bounds of the field and adds an ellipsis (...) in place of remaining text.

- **Ellipsis Word**: trims the text after the last word to fully fit within the bounds of the field and adds an ellipsis (...) in place of remaining text.
- **Ellipsis Path**: trims enough text from the middle of the text to fully fit within the bounds of the field and adds an ellipsis (...) in place of removed text. This selection is useful for displaying file paths, since the filename at the end of the path contains the most relevant information.

Behavior properties. Behavior properties determine how the object fills the space allotted for the object.

- **Angle** – enter a value in degrees in the **Angle** text field to rotate the object.
- **Format** – to show the page information in a customized format, click the ellipsis (...) next to the *Format* field to open the *Format String Editor* window. Select a category from the list on the left and a format from the pane on the right and click **OK**.
- **Image Alignment** – to set the alignment of the image in the space available for the control, select one of the following values from the **Image Alignment** drop-down: Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, and Bottom Right
- **Keep Together** – to keep the entire object together on the same page, click to select the **Keep Together** check box. If a page break would naturally occur in the middle of the object, it will move to the next page instead of breaking across pages.
- **Multiline** – to allow multiple lines of text to be entered in the label, click to select the **Multiline** check box. If the check box is cleared, text that is entered on multiple lines in the label will combine into one long string of text.
- **Page Information** – select an option from the **Page Information** drop-down to define what information is shown in the control.
- **Shape** – select a shape from the drop-down provided to change the shape that's drawn on the form report.
- **Sizing** – select an option in the **Sizing** drop-down to determine if the image should fill the space available for the control and how it should be filled.
- **Start Page Number** – if the information showing in the control is a page number, enter a value in the **Start Page Number** to indicate what page number should be displayed for this control on the first page of the report. This is useful mainly if you combine the PCS report with other materials to form a single report and wish for the page numbers to be accurate for the final report.

- **Stretch** – to stretch the shape to fill the space available for the control, click to select the **Stretch** check box. To maintain the exact angle defined in the Angle property, click to clear the **Stretch** check box.
- **Word Wrap** – to define what should happen when the text for the field extends past the first line, click to select or to clear the **Word Wrap** check box. To have the text wrap to the second line, the check box should be selected. To trim the text, the check box should be cleared.

Data properties. Data properties define what content is displayed in the control.

- **Image** – to preview the image identified for the image control, click once in the Image field. The following actions are available with the image preview box showing:
 - Clear the Image – to clear the image from the image control, click **Clear**.
 - Define an Image – to define or redefine the image that shows in the image control, click the image preview box and navigate to the image in the *Open* window that appears. Select the image and click **Open**.
- **Image URL** – to define the image that shows in the image control by file path or URL, enter the path to an image in the **Image URL** field.
- **Text** – enter text in the field provided to define the text shown in the label.

Design properties. The design property identifies a unique name for the object selected on the form. This field does not need to be edited.

Display properties. Display properties define how and if the caption, images, and barcode should show in the report.

- **Caption Text** – enter text in the **Caption Text** field to change the text that appears alongside the value of the data field.
- **Description Height** – enter a value in hundredths of an inch to define the space available for an image's description.
- **Display Mode** – select an option from the **Display Mode** drop-down to define how the field and caption should be shown on the form report. If either **BarCodeAndValue** or **BarCodeValueAndCaption** is selected, make sure the control on the form is tall enough to show a bar code below the value.
- **Image Columns** – to show several images in an images field on one row, enter the number of images that should be shown on a single row in the field provided.
- **Image Count** – if **Count** is selected in **Image Display Mode**, enter the number of images from the selected images field that should be included in the report.

- **Image Display Mode** – select from the following options from the Image Display Mode drop-down to define which images from the selected images field should be included in the report:
 - **All** – includes all images from the selected images field
 - **Count** – includes a specified number of images from the selected images field, as defined in the **Images Count** property. The order the images are defined in the images field determines which images will be included in the report.
 - **PrimaryOnly** – only displays the image defined as the images field's primary image. If no primary image is defined for the images field, no image will be displayed.
 - **PrimaryOrFirst** – displays the image defined as the images field's primary image. If no primary image is defined for the images field, the first image in the list of images for the field is displayed.
- **Show Caption** – click to select the **Show Caption** check box if you want to show the caption for images fields. Click to clear the check box to hide the caption on the report.

Layout properties. Layout properties define the control's size and location on the form report.

- **Location** – to modify the control's location in relation to the margin, section, or pane the object's placed in, click to expand the **Location** property and enter an **X** or **Y** value in hundredths of an inch in the fields provided.
- **Size** – to modify the control's size, click to expand the **Size** property and enter a **Height** and **Width** in hundredths of an inch in the fields provided.

Arrange Objects in a Margin or Section

Form report objects can be repositioned on the form report theme to a general location using the mouse or to a precise location using the keyboard or alignment buttons. When a pane is moved, the objects within the pane move with the pane.

Objects must be selected on the form report theme before rearranging. Do any of the following:

- To select a single object, click to select the form report object.
- To select multiple objects, click to select a form report object, then press the shift key and click to select additional form report objects.
- To select a group of objects located near each other, click in an empty spot on the form report theme and drag to create a selection box around the objects. Release the mouse to select the objects within the selection box.




Move Objects Manually




Form objects can be manually moved to a general location using the mouse or to a precise location using the keyboard. Select one or more form objects and do one of the following:

- Click and drag the form object(s) to the desired location.
- Press the **left**, **right**, **up**, or **down** arrow keys on the keyboard to move the form object(s) incrementally to the left, right, up, or down.

Align Objects

Form objects can be repositioned so that the objects' edges or center points are aligned. When form objects are aligned, they are repositioned according to the location of the first selected object.

Horizontal alignment – select multiple form objects and click , , or  to align the objects according to the first selected object's left edge, horizontal center, or right edge.







Vertical alignment – select multiple form objects and click , , or  to align the objects according to the first selected object's top edge, vertical center, or bottom edge.

Distribute Objects

Form objects can be repositioned so that there is an equal amount of space vertically or horizontally between the selected objects. The top-most and bottom-most form objects stay in place while all other form objects are distributed between those two form objects. Select multiple form objects and click **Horizontal** or **Vertical** to distribute the form objects horizontally or vertically on the form theme.


Re-size Objects in a Margin or Section






Form report objects can be manually re-sized to a general size and shape using the mouse or to match the size to other form report objects using buttons in the ribbon. Select one or more form report object (s) and do one of the following:

- Hover the mouse over a corner or edge of the form object until the cursor changes to , , or . Click and drag the corner or edge until the form object(s) reach the desired size or shape.
- Click , , or  to resize all selected form object(s) to match the width, height, or full size of the first selected object's width, height, or full size.

Manage the Form Report Theme

Complete the following actions when working with or finishing creating a form report theme.

- To undo all recent changes that have **not yet been saved**, click  **Cancel**. All graph layout themes are reverted to their latest saved state.

- To save the graph report layout theme, click  **Save**. All changes made to the theme is saved.
- To remove the currently selected theme, click  **Delete** in the header row and then **Yes** in the *Confirm Delete* window. The currently selected theme is removed from PCS.
- To save the theme and close the Graph Layouts editor, click  **Save and Close**. All changes made to the theme is saved and the Graph Layouts editor is closed.
- To close the Forms editor, click  **Close**. If there are unsaved changes to a graph report layout theme in the Forms editor, a *Save Changes?* window displays. Click **Yes** to save all changes in the themes, **No** to close without saving changes, or  **Cancel** to return to the Forms editor.

Use the Form Report Theme

Complete the following steps to apply the theme in a form report when creating a new form report:

1. Click to select a theme from the **Select Form Theme** drop-down list.

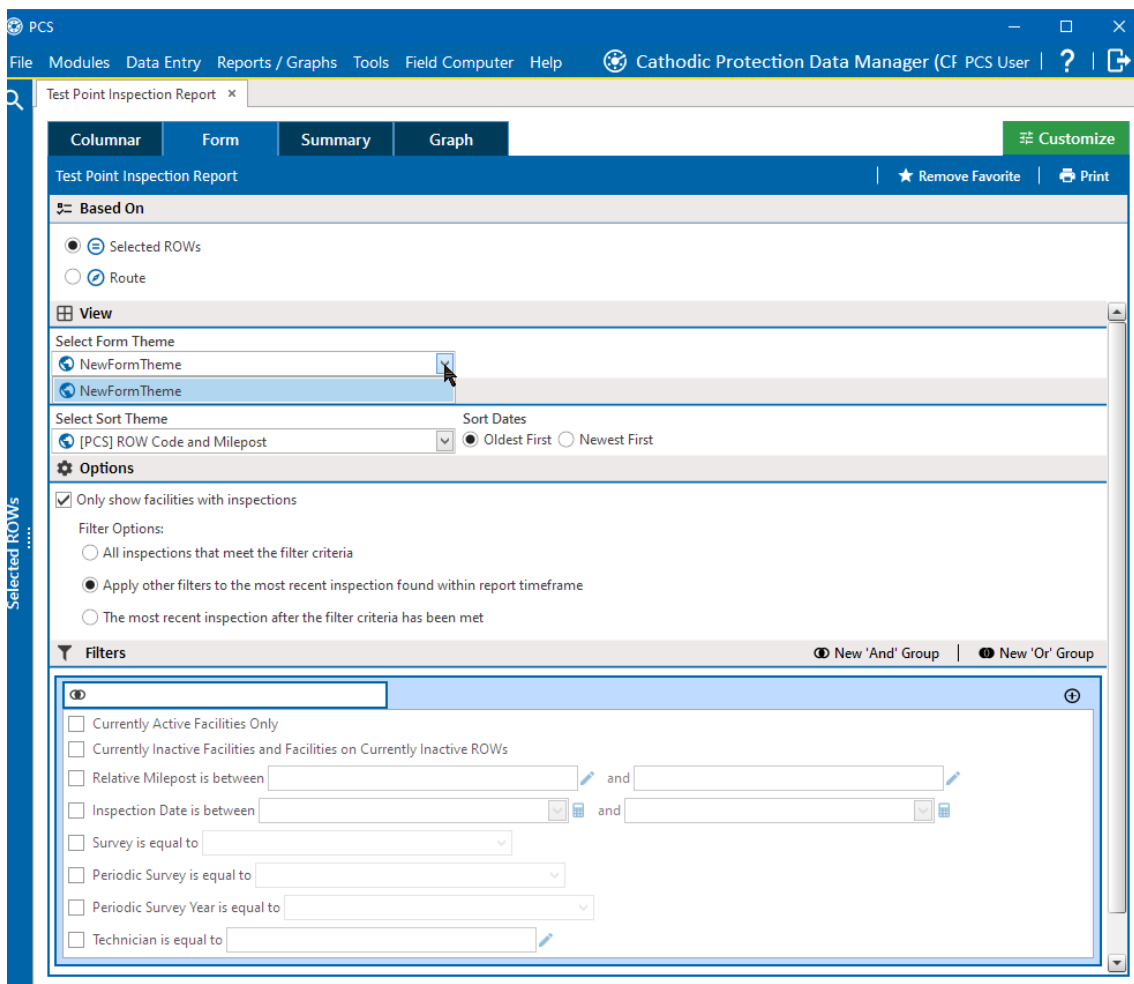



Figure 15-91. Select Form Theme Drop-down List

2. Select the desired fields filter and sort options. Refer to [Work With Form Style Reports on page 795](#) for detailed instructions.
3. Click  **Print** to open the report in a Print Preview window.

Add a Report Sort Theme

A sort theme determines how PCS sorts and groups records in the report. Adding a sort theme allows you to choose which field(s) to sort and group records by, such as sorting by name or ROW code. A sort theme also allows you to set options for sorting records alphanumerically in either ascending or descending order. Including a group filter in the sorting theme allows you to organize records in a group for easier analysis.

These instructions start with the assumption that the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to add a report sort themes:

1. Select the report you want to work with in the **Reports/Graphs** menu. Click **Report/Graphs** and then select a report in the list.
For example, click **Reports/Graphs > Test Point Reports > Test Point Inspection Report**.
2. Click the **Customize** tab then the **Sorts** tab to open the *Sorts* window.

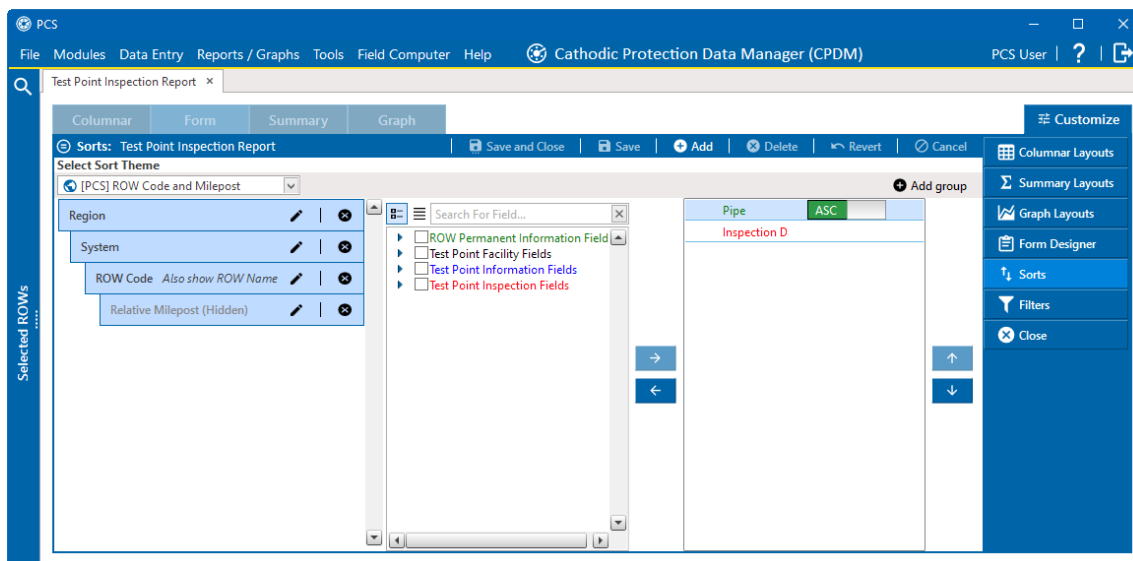


Figure 15-92. Report Sorts Window

3. Click  **Add** to open the *New Sort Layout* window.

The screenshot shows a 'New Sort Theme' dialog box. The title bar is blue with a globe icon and a close button. The main area is light gray. It contains the following elements:

- Enter Theme Name:** A text box with the value 'MyReportSortTheme1'.
- Public:** An unchecked checkbox.
- Copy Content:** A checked checkbox.
- Copy Fields From Theme:** A dropdown menu with the selected item '[PCS] ROW Code and Milepost'.
- Groups in the Selected Theme:** A list box containing 'Region', 'System', 'ROW Code', and 'Relative Milepost'.
- Fields in the Selected Theme:** A list box containing 'Pipe' and 'Inspection Date'.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

Figure 15-93. New Sort Layout

4. Enter a name for the sorting theme in the field **Enter Theme Name**.
Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
5. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a private theme.
Themes are either public or private. A public theme is available for use by all PCS users. A private theme is available only to the user who creates it.
6. If you want to copy fields from another layout theme, click the **Copy Content** check box and then select a theme from the **Copy Fields From Theme** drop-down list.
7. Click **OK** to save changes and return to the *Sorts* window.
8. Complete the following steps to add and remove fields in the report sort theme as needed:

- a. Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **All Fields**.
 - b. Select a field by clicking in the check box for the field and then click the → button to move it to the left pane. You can also double-click a field to move it to the right pane. Repeat this step as needed. The report layout theme includes all fields in the right pane of the *Layouts* window.
 - c. To remove a field in the layout theme, select the field in the left pane and then click the ← button to move it to the right pane. You can also double-click a field to move it to the left pane. Repeat this step as needed.
 - d. Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select **ASC**. To sort in descending order, click the toggle button to select **DESC**.
 - e. To change the order of fields in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the ↑ or ↓ button.
9. Complete the following steps to add a new group with one or more fields that determine how records sort in the report:
- a. Click + **Add group** to add a new group.

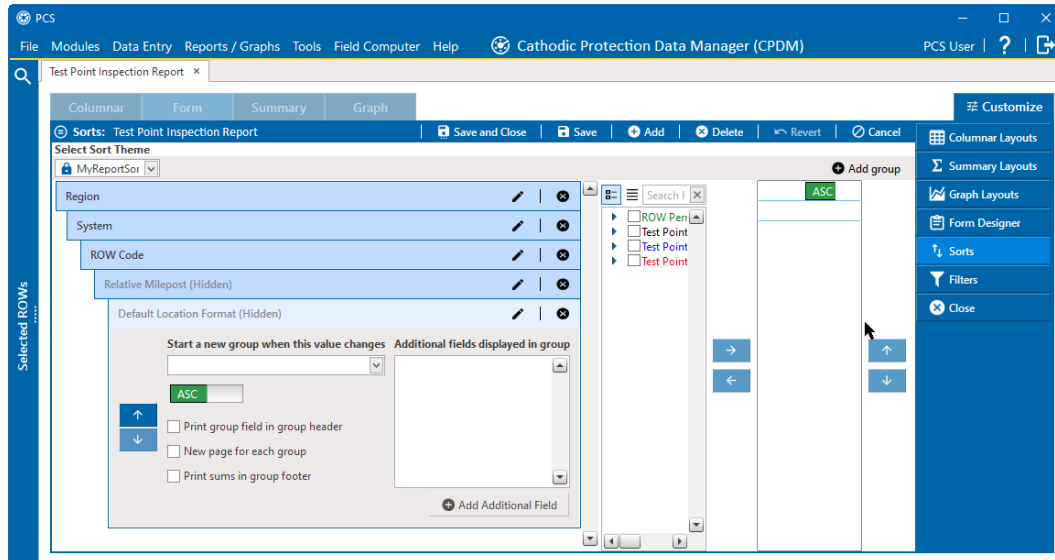













Figure 15-94. Sort Theme Groups

Click the ✎ icon for an existing group (such as *City*) to open a group box with current settings and edit if needed.

- b. Select which PCS field starts the new group when that field's value changes. Select a field in the **Start a new group when this value changes** drop-down list.
 - c. If you want to add another field in the group, click  **Add Additional Field**. Then select a field in the selection list. The title bar of group includes the name of each field.
 - d. Select a sorting method for the new group. To sort the group in ascending order, click the toggle button to select . To sort in descending order, click the toggle button to select .
 - e. To change the position of the new group within the set of other groups in the theme, click the  or  button. PCS processes groups in descending order beginning with the group at the top of the set.
 - f. To apply optional settings to the new group, click the check box for the following options as needed:
 - Click the check box **Print group field in group header** to have the group name print as a heading at the beginning of each group.
 - Click the check box **New page for each group** to have each group print on a new page.
 - Click the check box **Print sums in group footer** to have the total number of records in a group print at the end of each group.
 - g. Choose which fields to include in the new group. Click the toggle arrow  for a field category in the left pane of the window to view fields available for selection.
 - h. Double-click a field listed in the left pane to move it to the right pane, such as *Facility ID* shown in the next figure. Repeat this step as needed. The theme includes all fields listed in the right pane.
 - i. Choose a sorting method for each field added in the new group. To sort fields in ascending order, click the toggle button to select . To sort in descending order, click the toggle button to select .
 - j. To change the position of fields in the new group, click the  or  button.
10. Click  **Save and Close** to save changes and return to the report options window.
 11. To apply the sorting theme to a report, click the down arrow in **Select Sort Theme** and select the sorting theme in the selection list.

Add or Edit an AND or OR Filter Group

The *Filters* pane consists of a set of pre-defined filters as well as on demand filters grouped together with AND or OR joins. A filter group is a named set of one or more filters that affect the data returned. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes all filters in AND filter groups together then processes all filters in OR filter groups together.

You can add an AND filter group to restrict the data returned in a report so it only contains a subset of records that meet all filter conditions. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

An OR filter group is a named set of one or more filters that affect the data output of a route selected in *Define Routes*. Adding an OR filter group produces a subset of records that meet any filter condition. PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

These instructions start with the assumption that a PCS module is already selected and the correct pipeline segments have been selected. For information detailing how to select pipeline segments, refer to [Select ROWs on page 173](#).

Complete the following steps to create or edit an AND or an OR filter group for use in the *Reports/Graphs* window:

1. Choose the report you want to work with in the *Reports/Graphs* menu.
 2. Click **Report/Graphs** and then select a report, such as *Test Point Inspection Report*, to open the report options window.
 3. Click the **Customize** tab and then the **Filters** tab to open the *Filters* window.
1. To create a new And group, click **New 'And' Group** to open the filter properties group box.

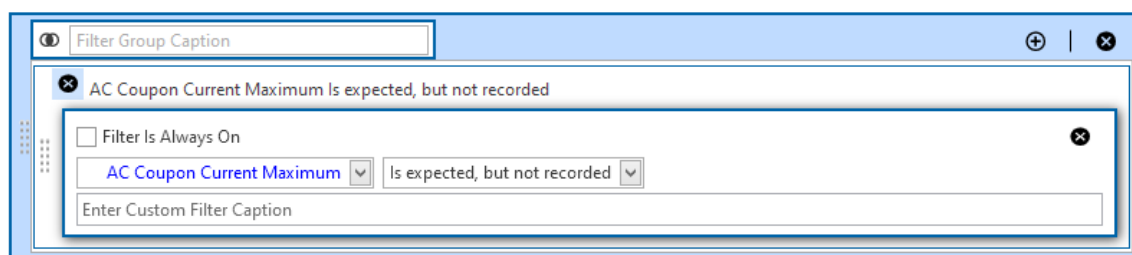


Figure 15-95. And Group Filters

2. To create a new Or group, click **New 'Or' Group** to open the filter properties group box.

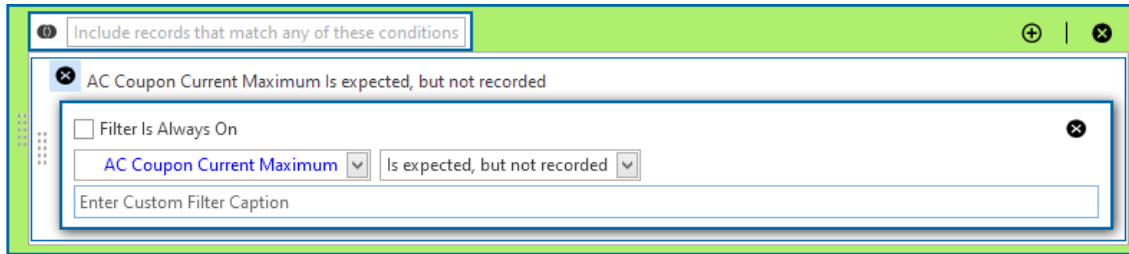







Figure 15-96. Or Group Filters

3. Type a name for the filter group in the **Filter Group Caption** field.
4. Select the **Filter Is Always On** option to keep the filter on.
5. Use filter selection fields to set up filter criteria. Select a PCS field, operator, and one or more filter conditions.
 - a. When adding a date filter, set a date range using a calendar or dynamic dates in one of the following ways:
 - Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.
 - To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
 - To set a date range using dynamic start and end dates, click the  calculator icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
 - b. Type a name for the filter in the **Enter Custom Filter Caption** field.
 - c. If additional filters are needed within the filter group, click  and repeat these steps.
6. If necessary, click the  edit icon for a filter to open that filter's property settings and change settings as needed.
7. Click  **Save** to save the filter group.
8. Click  **Save and Close** when finished saving all filter groups.

Edit and Arrange Filter Groups

PCS processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Information in this section explains how to edit filter property settings and also how to arrange filters in a group of filters.

Complete the following steps to edit and arrange filter groups:

1. Click **Report/Graphs** and then select a report, such as *Test Point Inspection Report*, to open the report options window.

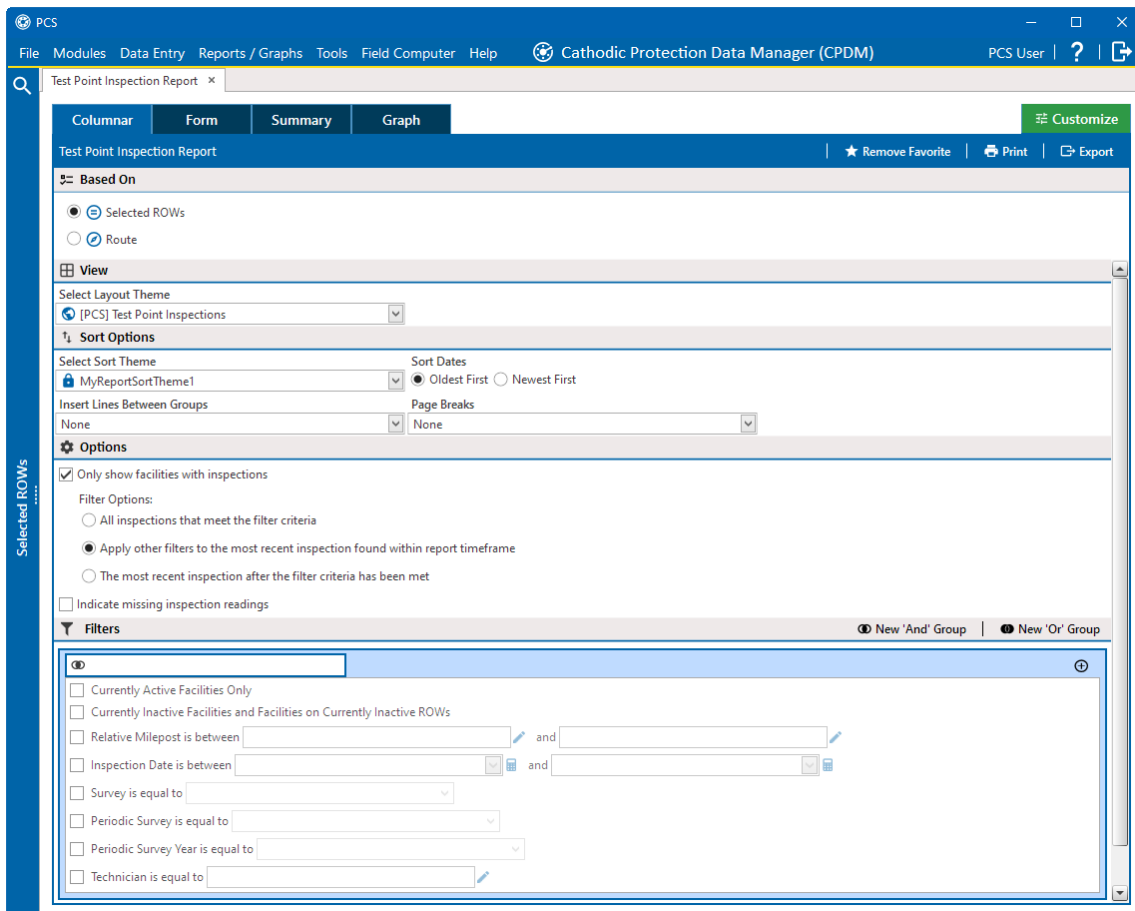


Figure 15-97. Report Options

2. Click the **Customize** tab then the **Filters** tab to open the *Filters* window.

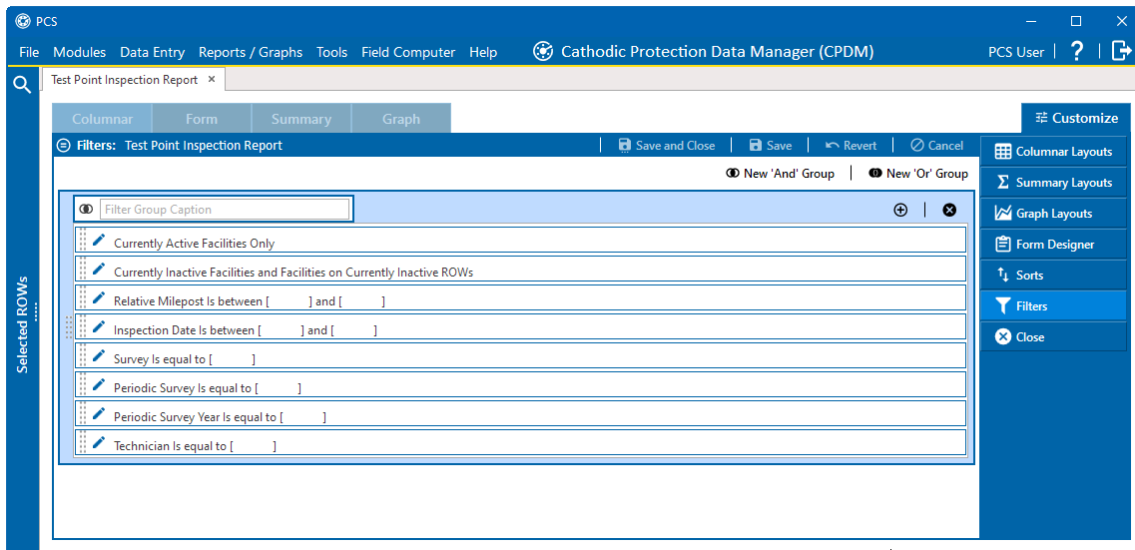



Figure 15-98. Filters

3. Click the edit icon  to display a filter's property settings. In the following example, property settings for **Inspection Data Is between** are visible.

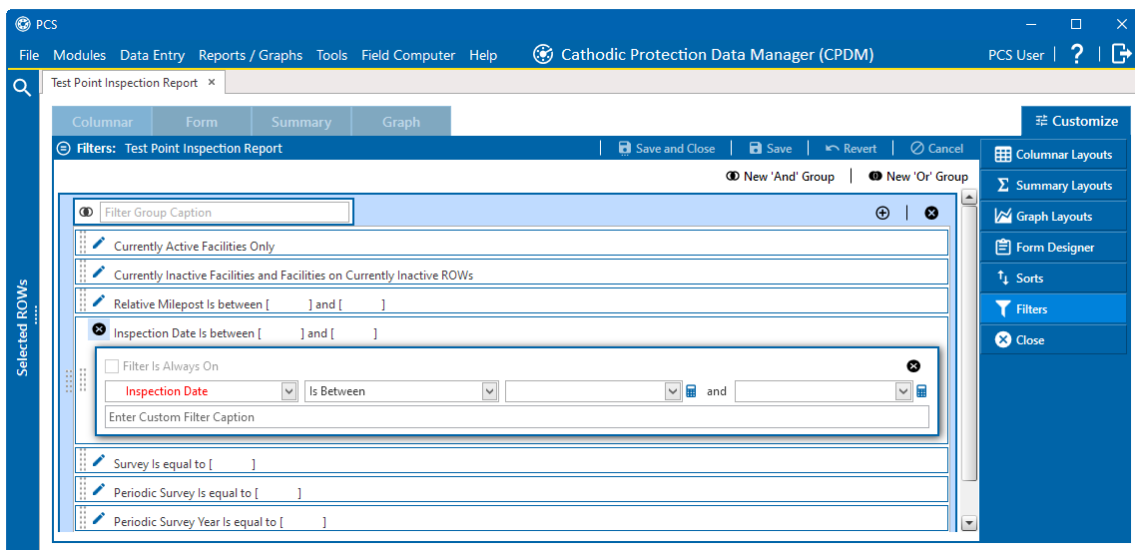




Figure 15-99. Inspection Date Is Between

4. To rename the filter, type a description in the **Enter Custom Filter Caption** field.
5. To change filter criteria, use filter selection fields to select a PCS field, operator, and one or more filter conditions. When adding a date filter, such as **Inspection Date Is Between**, set a date range using a calendar or dynamic dates in the following manner:

6. To enable the filter for all sessions of the report, select the **Filter is Always On** check box. When this check box is not selected, toggle the filter on and off in the report options page using the filter's check box.
7. To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.
8. To set a date range using dynamic start and end dates, click the  icon in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.
9. To delete a filter in a filter group, click the  icon.

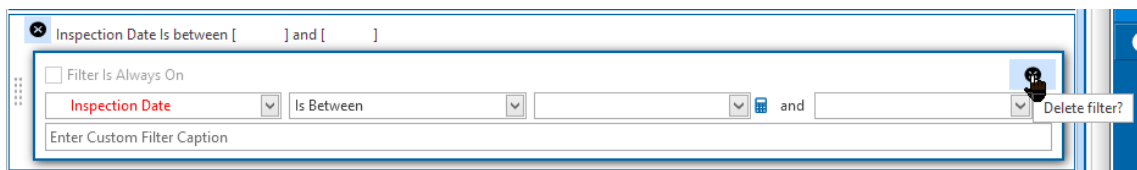



Figure 15-100. Deleting a Filter Group Box

10. To close the filter's property settings group box, click the  icon next to the filter name.

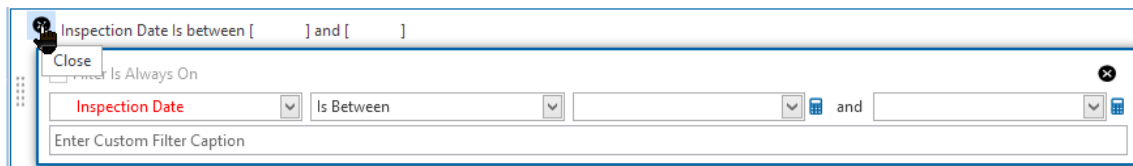


Figure 15-101. Close the Filter Group Box

11. Click  **Save and Close** to return to the report options window.

Database Management

The information in this section is intended for the PCS Administrator or a user with SysAdmin permissions.

Database management includes such tasks as tracking data changes, running database integrity checks or re-indexing, or moving records using the Data Modification Utility.

This chapter includes the following topics:

- [Overview of the PCS Databases on page 867](#)
- [Track Data Changes on page 869](#)
- [Run Database Integrity Check on page 890](#)
- [Run Reindex Database on page 892](#)
- [Move Records With Data Modification Utility on page 893](#)

Overview of the PCS Databases


The PCS application uses three databases to store and manage PCS data: the main PCS database, an Images database, and an Export database.


- Main PCS database – contains all data necessary for the successful use of PCS, including PCS data, settings, and customizations.
- Images database – named by appending *_Images* to the end of the main PCS database name; contains all images that have been attached to an images field for a record in PCS.
- Export database – named by appending *_Export* to the end of the main PCS database name; contains the data exported by the beta Export to Table feature.

While the Images and Export databases must exist alongside the PCS database to use the Image Management and Export to Table features, we have designed PCS to work independent of the data in the Images and Export databases. References to the images, as well as the descriptions and properties of the image, exist within the main PCS database. If the corresponding image does not exist in the Images database, the image will not show but all other information for the image remains.

The following are some common questions about the creation, use, and maintenance of the PCS databases.

Can I Create My Own PCS Databases

No. PCS depends upon a specific schema in the PCS databases, and in the case of the main PCS database, certain data must exist in the database. To create missing PCS databases, such as the Images or Export database, click  Create/Upgrade in the PCS Connection Manager. The missing databases will be created with the proper schema but without PCS data.

Any user who clicks  Create/Upgrade in the PCS Connection Manager during the upgrade/installation process must have permissions to create and modify a SQL database.

If you have any questions or need further assistance, give us a call at 1-800-229-3404 or email us at support@aiworldwide.com.

Which PCS Databases Should I Backup?

You should regularly back up all or some of your PCS databases based on the needs of your organization, including complying with state and federal regulations and corporate IT policies. This may mean that both the main PCS and the Images databases are backed up, or if server space is a concern, only a portion of the main PCS database is backed up on a regular basis. Since it contains a subset of the data that existed in the PCS database at a specific point of time, the Export database does not typically need to be backed up.

If you restore the backup of the PCS database without an Images database, records in the backup with attached images will still contain the information about the images, but the images themselves will not be made available. If, however, you restore the Images database with the main PCS database or the original Images database still exists when you restored the backup, those images will be available in PCS.

Do I Have to Have the Images and Export Databases?

Yes, if you want to use either the Image Management or Export to Table features. These databases can remain empty of actual PCS content, but in order to use the corresponding feature in PCS, they must have been created in the PCS Connection Manager.

If you do not have an Images database in your SQL instance, you cannot use an images field in a grid layout or form of *Edit Module Data*, include an images field in a report, or have an images field in a prompt sent to or received from a field computer. Adding these fields to a layout or form theme or in a report, or sending or receiving field computer data with the images field in a prompt will result in errors.

The Export database must exist if you use the Export to Table feature in the Bridge.

How Do I Send PCS Databases for Technical Assistance

You can send a backup of just the main PCS database to AI Support for troubleshooting assistance or data projects without impacting the use of images in PCS. Simply backup and send your main PCS database to AI or your database administrator. The AI Support team can assist in your data needs without accessing the images or impacting links to images in the Images database.

Track Data Changes

If enabled in the *Options* window (**Tools > Options**), PCS keeps a log of all changes made to PCS data. When data changes are tracked, additions, modifications, and deletions of data are stored in the PCS database. Additional information about the data change is recorded, such as who made the change, what tool was used to make the change, when the change was made, and what the data was before the change. With this information, data audits become more reliable and troubleshooting data abnormalities is made easier.

When PCS is upgraded, custom modules or user defined fields are created, or data usage changes, an update to change tracking set ups may be necessary. A review should be done to ensure any new tables or fields have the correct change tracking settings and all existing tables and fields' settings are still appropriate.

If you configure enhanced change tracking with CDC and SQL Server Agent is used to pull changes into PCS, ensure SQL Server Agent is running at all times. In this scenario, if SQL Server Agent is not running, changes to data in CDC-enabled tables will still be tracked in the SQL transaction log. However, they will not be available to PCS and the PCS job service until the SQL Server Agent is restored. If the SQL Server Agent is still not running when a SQL backup occurs, changes that were made while the SQL Server Agent was stopped will be lost.

For more information about setting up, modifying, disabling, and using change tracking, refer to the following topics:

- [Configure Change Tracking](#)
- [Update or Modify Change Tracking on page 880](#)
- [Disable Change Tracking on page 888](#)
- [Access Change History Records on page 888](#)

Configure Change Tracking

Change history can be configured two different ways: using a simple trigger or enhancing the triggers with change data capture (CDC). A trigger is very easy to set up and is compatible with all PCS setups but can cause large operations, such as bulk imports or updates of data, to take slightly longer to complete. Enhancing change tracking with CDC requires an enterprise version of Microsoft SQL Server and some advanced configurations, including granting elevated SQL rights to PCS users, but has key advantages. When CDC is enabled, performance is optimized for recording changes and you have more control over the configuration and performance of the change tracking process.

You can configure CDC-based change tracking for all track-able tables in the database or for a subset of the tables. It is recommended to configure CDC-based tracking for any table that undergoes high-volume operations. Any table that PCS tracks but is not configured for CDC-based tracking will use a

trigger to record the database changes. If a table or field is set up to be tracked using CDC but **System-Enable Change History** is set to **No** in PCS, records of the changes will not be accessible from within PCS and may not be retained.

If you need help in determining which configuration is best for your company, refer to the following decision tree.

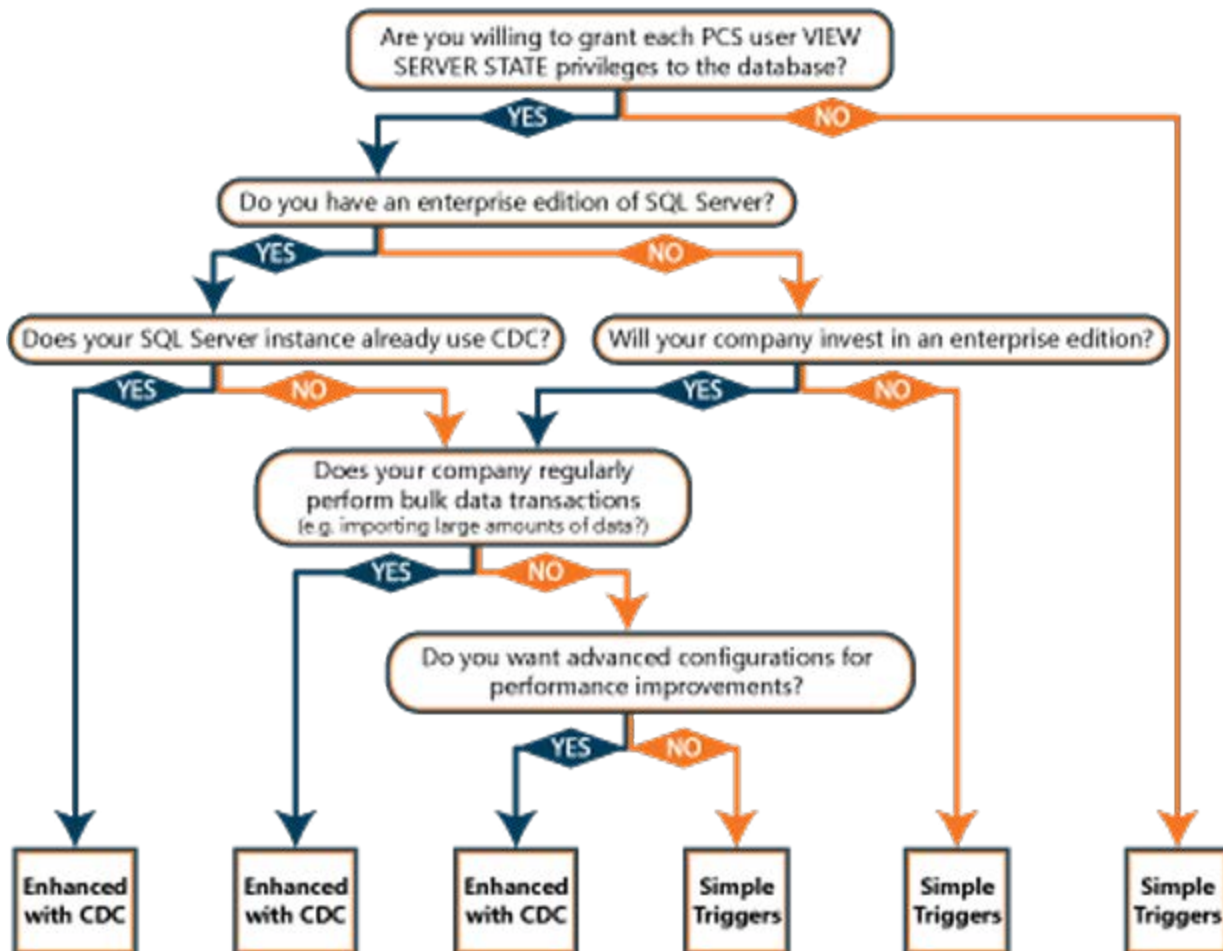


Figure A-1. Change Tracking Configuration Decision Tree

To set up or modify change tracking with a trigger or CDC, refer to the following topics:

- [Set Up Change Tracking with a Simple Trigger](#)
- [Set Up Enhanced Change Tracking with CDC](#)

It is recommended that change tracking configurations are made during the initial configuration of PCS or while performing system maintenance. A field becomes locked while its change history setting is modified in *Field and UDF Customizations*. Users are prevented from adding, modifying, or deleting data that contains the field.

If SQL Server Agent is not running, changes to data in CDC-enabled tables will still be tracked. However, they will not be pulled into PCS until the SQL Server Agent is restored. If the SQL Server Agent is down for greater than 60 days, changes that were made more than 60 days ago will be lost.

Set Up Change Tracking with a Simple Trigger

Configuring PCS to track data changes with a trigger can be done from within PCS using the **Field and UDF Customizations** and **Options** menus under the **Tools** main menu.

IMPORTANT: It is recommended that change tracking configurations are only made during the initial configuration of PCS or while performing system maintenance.

The following steps describe how to track data changes using a trigger either for all of PCS or individual fields.

Complete the following steps to enable overall change history for PCS:

1. Click **Tools > Options**.

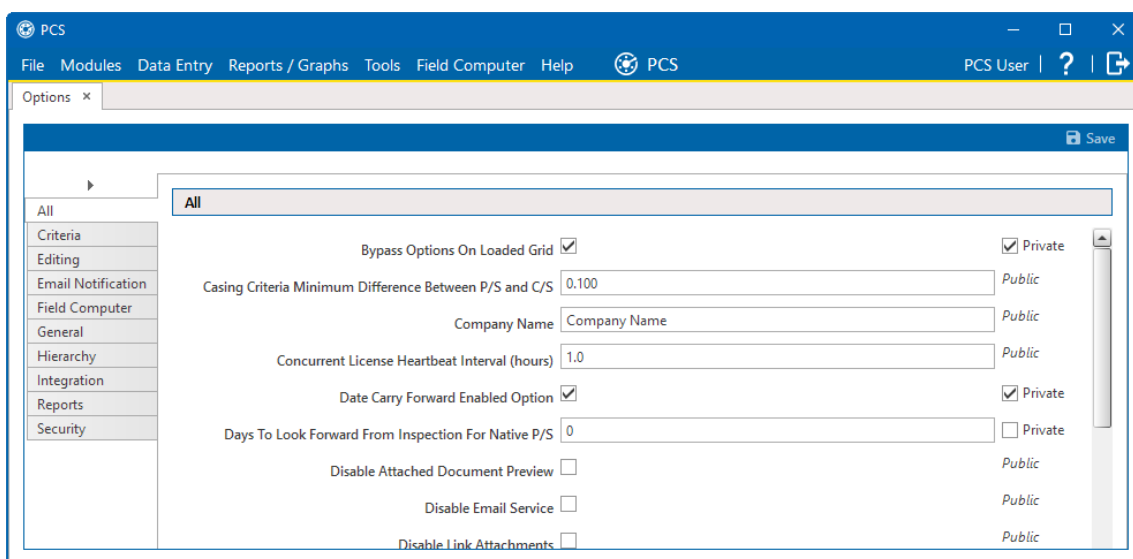


Figure A-2. Options Window

2. In the *All* pane, scroll down to **Turn On Change Tracking** and select it.

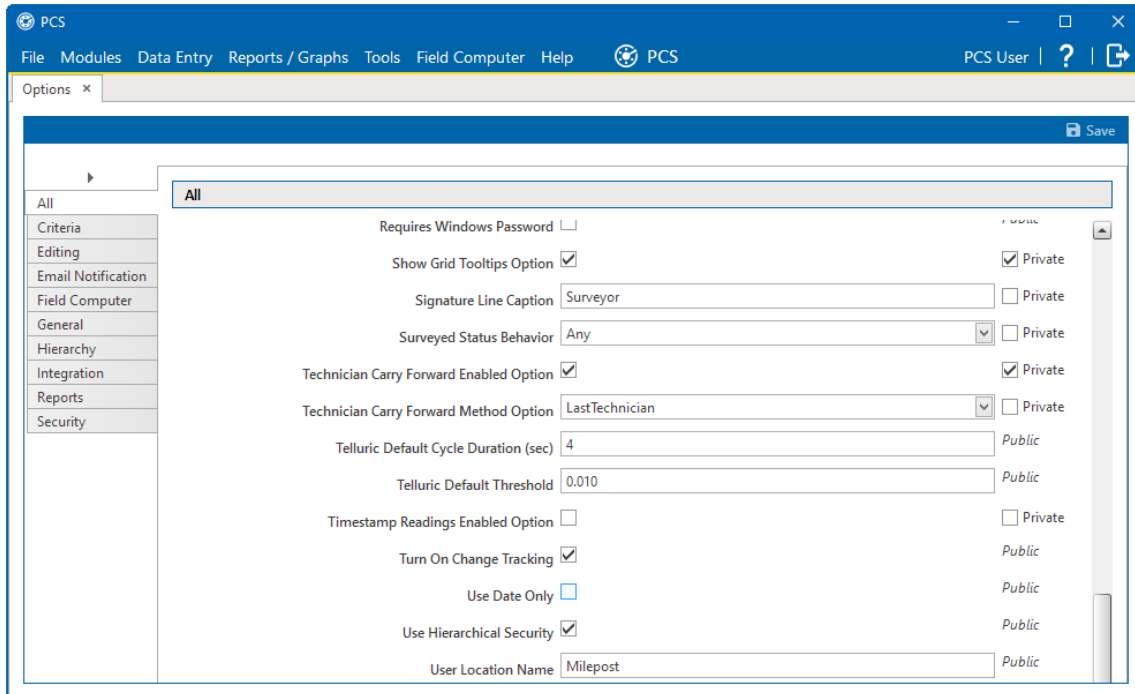


Figure A-3. Turn On Change Tracking Option

Complete the following steps to modify change tracking settings for individual fields as needed:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

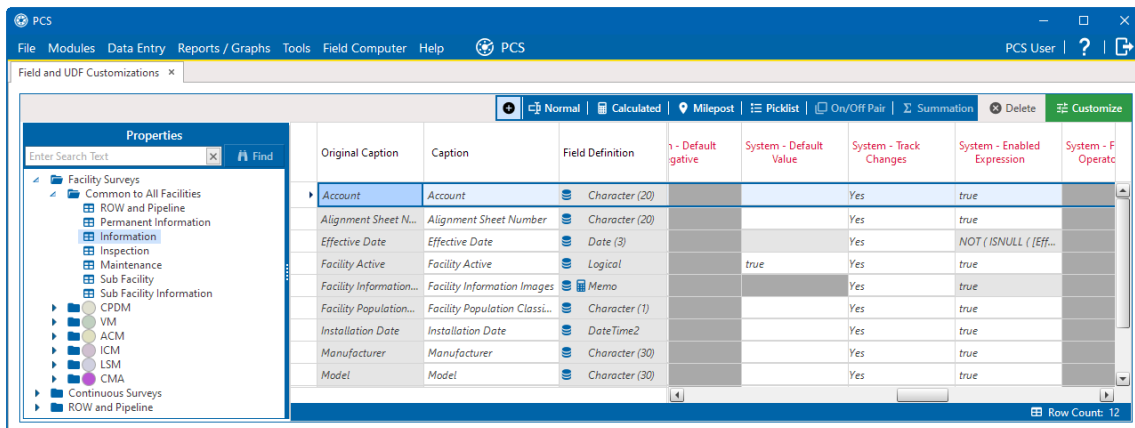


Figure A-4. Field and UDF Customization Window

2. Select a table in the *Properties* panel that includes the field you want to modify for change history.
3. In the grid, select the field you want to set up for change tracking.

4. In the **System-Track Changes** column, select **Yes** to track changes made in the selected field while change history is enabled. Select **No** to not record any changes made in the field, even if change history is enabled in **Options**.
5. Repeat steps for additional fields.

Set Up Enhanced Change Tracking with CDC

Configuring PCS to track data changes with change data capture (CDC) must be done both in SQL Server Management Studio and from within PCS using the **Field and UDF Customizations** and **Options** menus under the **Tools** main menu.

IMPORTANT: It is recommended that change tracking configurations are made during the initial configuration of PCS or while performing system maintenance to avoid any impact to PCS users.

If SQL Server Agent is not running, changes to data in CDC-enabled tables will still be tracked. However, they will not be pulled into PCS until the SQL Server Agent is restored. If the SQL Server Agent is down for greater than 60 days, changes that were made more than 60 days ago will be lost.

To set up enhanced change tracking using CDC, first complete either the steps to enable overall change history for PCS or for individual fields. Then complete the last set of steps to set up the SQL server.

Complete the following steps to enable overall change history for PCS:

1. Click **Tools > Options**.

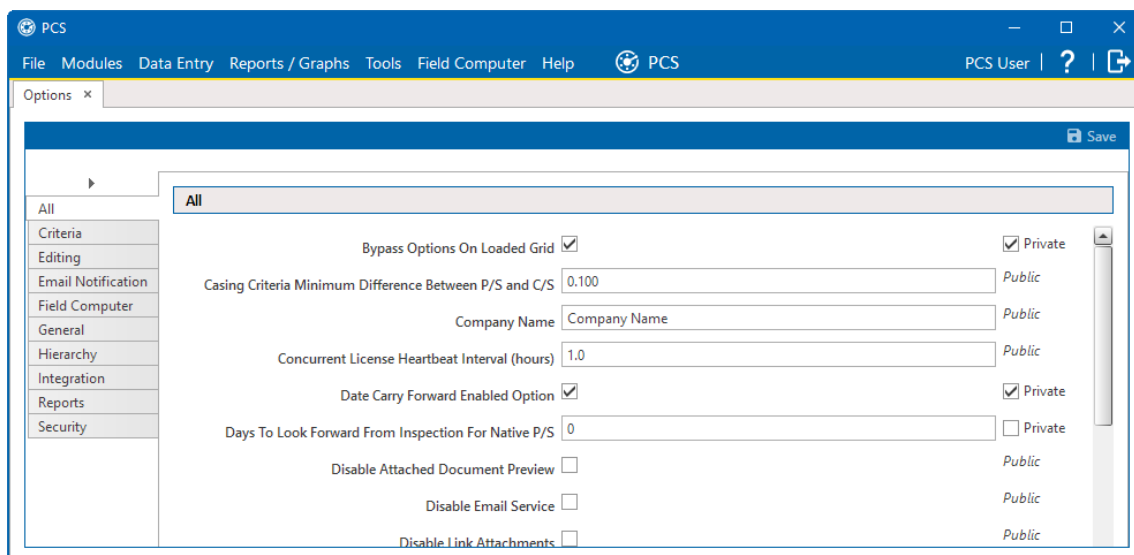


Figure A-5. Options Window

- In the *All* pane, scroll down to **Turn On Change Tracking** and select it.

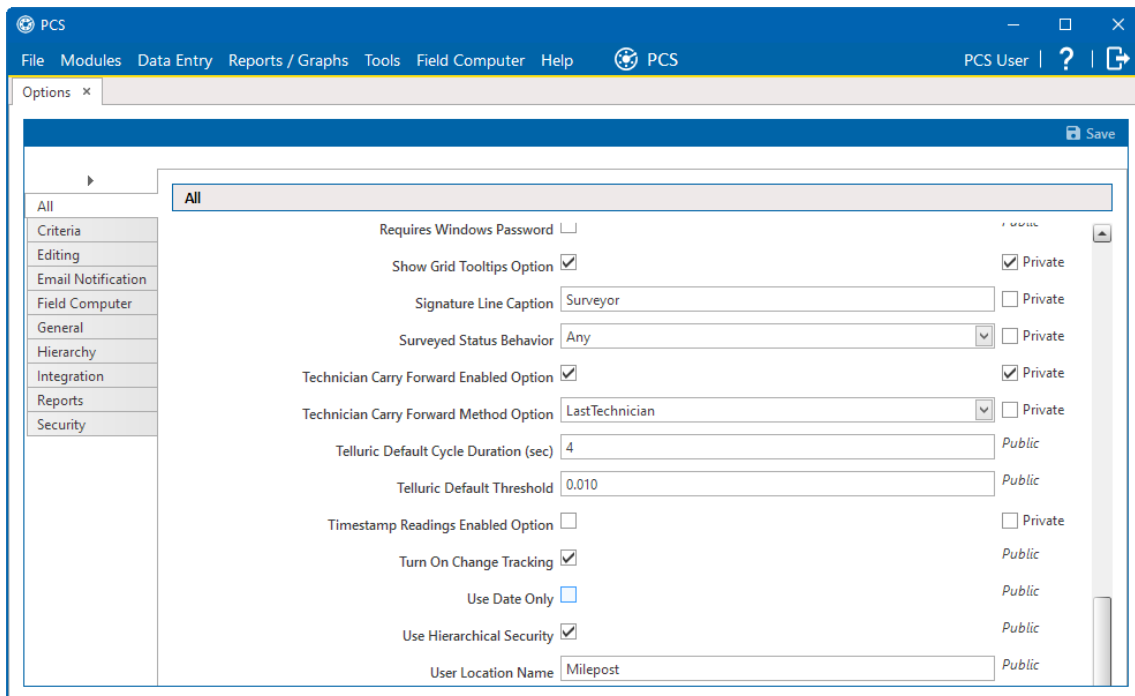


Figure A-6. Turn On Change Tracking Option

Complete the following steps to modify change tracking settings for **individual** fields as needed:

- Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

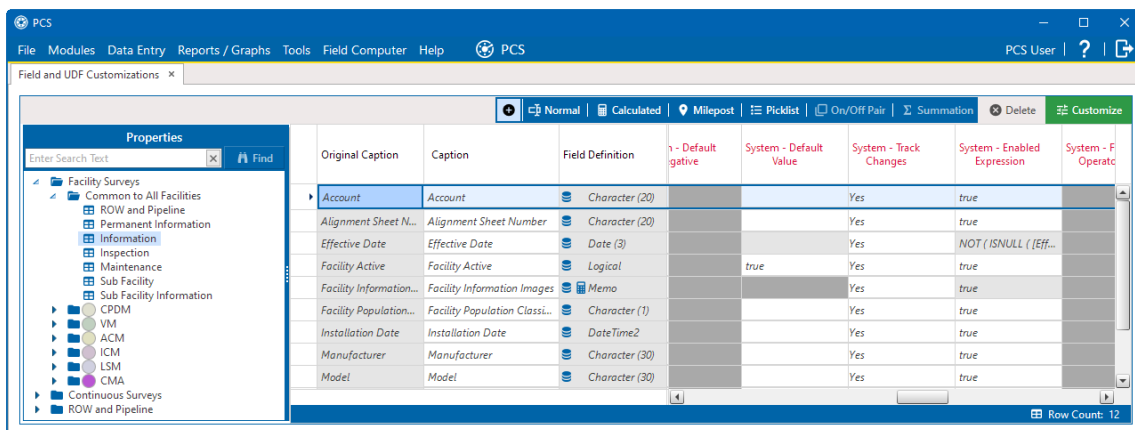


Figure A-7. Field and UDF Customization Window

- Select a table in the *Properties* panel that includes the field you want to modify for change history.

3. In the grid, select the field you want to set up for change tracking.
4. In the **System-Track Changes** column, select **Yes** to track changes made in the selected field while change history is enabled. Select **No** to not record any changes made in the field, even if change history is enabled in **Options**.
5. Repeat steps for additional fields.

Complete the following steps to set up SQL Server:

1. Connect to your PCS database using Microsoft SQL Server Management Studio.
2. Open a new query window to enter SQL commands.
3. Enter text to enable CDC with either of the following configurations:
 - a. **Continuous Mode**– SQL Server Agent will run the process to capture changes on a regular basis, scheduled by default to run every five minutes. Enter the following text in the Query pane, replacing <tablename> with the actual name of your PCS database:

```
USE <tablename>
EXEC configureChangeTrackingCDCSettings @enableCDC = 1
```
 - b. **Continuous Mode with a Custom Polling Interval** – SQL Server Agent will run the process to capture changes on a regular basis, scheduled to run according to your desired polling interval. Enter the following text in the Query pane, replacing <tablename> with the actual name of your PCS database and xx with the desired polling interval in seconds:

```
USE <tablename>
EXEC configureChangeTrackingCDCSettings @enableCDC = 1,
@oneshotmode = 0, @pollingInterval = xx
```

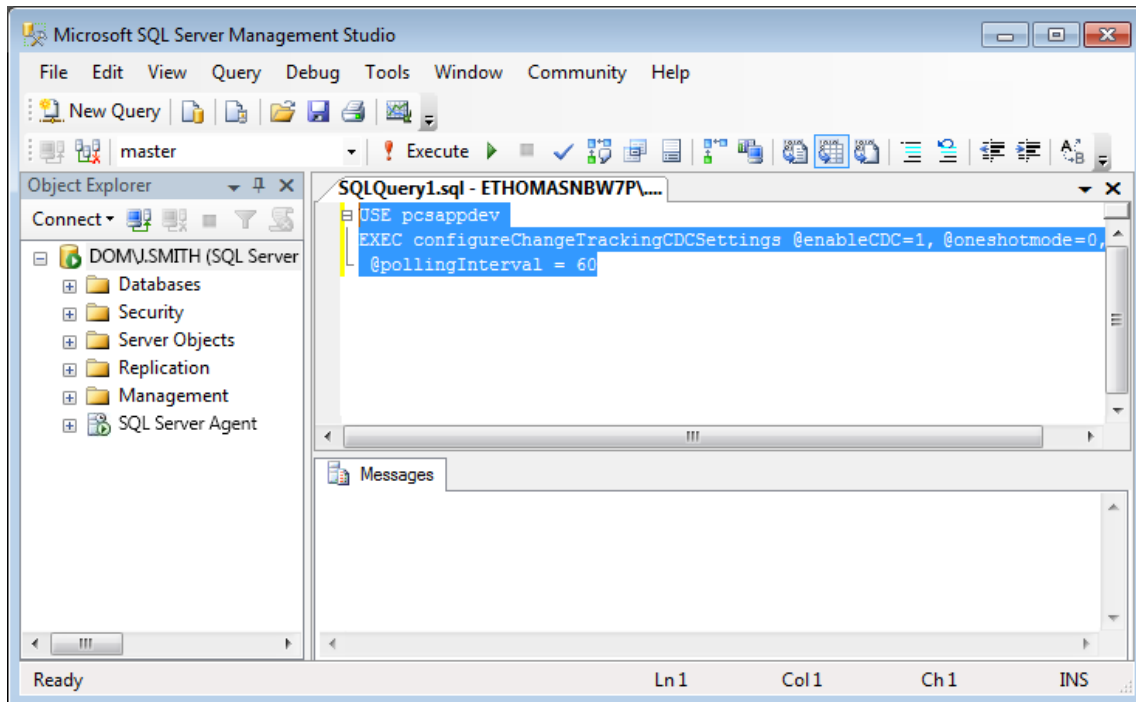


Figure A-8. Enable CDC Mode in SQL Server Management Studio

4. Select the entered text and click **Execute**.

To configure the SQL Server Agent to capture the changes, enter the following text in the Query pane, replacing <databasename> with the actual name of your PCS database:

```
USE <databasename>
DECLARE @settings nvarcharkeyvaluepair
INSERT @settings
VALUES
( 'CDCCapture_MSCDC_Capture_Job_ExecutionMode', 'None' )
EXEC configureChangeTrackingSettings @settings = @settings
```

Then right-click on SQL Server Agent and select **Start**.

5. Grant each PCS user VIEW SERVER STATE privileges to the database. VIEW SERVER STATE privileges are required so PCS can match the transaction log, which stores the history of data changes, with user information. To grant each user VIEW SERVER STATE privileges, execute the stored procedure **grantAxisUsersChangeTrackingPermissions** saved in the PCS database.

Alternatively, you can manually grant each user database permissions. For more information, refer to the MSDN article *GRANT Server Permissions (Transact-SQL)* (<https://msdn.microsoft.com/en-us/library/ms186717.aspx>).

6. Enable CDC for tables in the PCS database by doing the following:

- a. Determine which tables you want to enable CDC-based change tracking. Some tables are not tracked by PCS change tracking; tables that are not tracked by PCS should not be configured for CDC-based change tracking.

To get a list of all tables in the PCS database that are tracked by PCS change tracking but are not (yet) configured to use CDC to track changes, enter the following text in the Query pane, replacing <tablename> with the actual name of your PCS database:

```
USE <tablename>
GO
SELECT OBJECT_NAME ( parent_id )
FROM sys.triggers
WHERE name LIKE '%changelogging'
AND name NOT IN (
SELECT name FROM sys.tables WHERE is_tracked_by_cdc =
1 )
ORDER BY name
GO
```

Select the entered text and click **Execute**.

It is recommended to configure CDC-based tracking for any table that undergoes high-volume operations. You can configure CDC-based change tracking for all tables in the resulting list or for a subset of the tables. Any table that PCS tracks but is not configured for CDC-based tracking will use a trigger to record the database changes.

If a table or field is set up to be tracked using CDC but *System-Enable Change History* is set to *No* in PCS, records of the changes will not be accessible from within PCS and may not be retained.

- b. Enter the following text in the Query pane, replacing <tablename> with the actual name of your PCS database, replacing <tablename> with the name of the first table you wish to track using CDC, and adding , ('<tablename>') for each additional table you wish to track with CDC to the end of the text statement:

```
USE <tablename>
DECLARE @tables nvarcharlist
INSERT @tables
VALUES
( '<tablename>' )
```

Once all tables have been added to the statement in the Query pane, enter the following text to the end of the statement:

```
EXEC configureChangeTrackingCDCTables @enable = 1,
@tables = @tables
```

Select the text entered and click **Execute**.

EXAMPLE:

The following example script sets up the *PCSAppTest* database to track the *ACCAInspection*, *ACVGSurveyFolder*, and *CISurveyFolder* tables with CDC-based tracking:

```
USE PCSAppTest
DECLARE @tables nvarcharlist
INSERT @tables
VALUES
( 'ACCAInspection' ), ( 'ACVGSurveyFolder' ),
( 'CISurveyFolder' )
EXEC configureChangeTrackingCDCTables @enable
= 1, @tables = @tables
```

2. If CDC is set up to track changes on specific tables that you wish to stop tracking, disable CDC for those tables in the PCS database by doing the following:
 - a. Determine which tables you want to stop CDC-based change tracking. Any table that PCS tracks but is not configured for CDC-based tracking will use a trigger to record the database changes. It is recommended to configure CDC-based tracking for any table that undergoes high-volume operations.

To get a list of all tables in the PCS database that currently have change tracking enabled with CDC, enter the following text in the Query pane, replacing <databasename> with the actual name of your PCS database:

```
USE <databasename>
GO
SELECT *
FROM sys.tables
WHERE is_tracked_by_cdc = 1
ORDER BY name
GO
```

Select the entered text and click **Execute**.

- b. Enter the following text in the Query pane, replacing <databasename> with the actual name of your PCS database, replacing <tablename> with the name of the first table you wish to stop tracking with CDC, and adding , ('<tablename>') for each additional table you wish to stop tracking with CDC to the end of the text statement:

```
USE <databasename>
DECLARE @tables nvarcharlist
```

```
INSERT @tables
VALUES
( '<tablename>' )
```

The following example script stops using CDC to track the *ACCAInspection*, *ACVGSurveyFolder*, and *CISurveyFolder* tables in the *PCSAppTest* database:

```
USE PCSAppTest
DECLARE @tables nvarcharlist
INSERT @tables
VALUES
( 'ACCAInspection' ), ('ACVGSurveyFolder'),
('CISurveyFolder')
```

- c. Once all desired tables have been added to the statement in the Query pane, enter the following text to the end of the statement:

```
exec configureChangeTrackingCDCTables @enable = 0,
@tables = @tables
```

- d. Select the text entered in steps and click **Execute**.

3. Update the change history setting in PCS by clicking to clear the **Change History** check box and then clicking to re-select the check box.
7. If CDC is set up to track changes on specific tables that you wish to stop tracking, disable CDC for those tables in the PCS database by doing the following:

- a. Determine which tables you want to stop CDC-based change tracking. Any table that PCS tracks but is not configured for CDC-based tracking will use a trigger to record the database changes. It is recommended to configure CDC-based tracking for any table that undergoes high-volume operations.

To get a list of all tables in the PCS database that currently have change tracking enabled with CDC, enter the following text in the Query pane, replacing *<databasename>* with the actual name of your PCS database:

```
USE <databasename>
GO
SELECT *
FROM sys.tables
WHERE is_tracked_by_cdc = 1
ORDER BY name
GO
```

Select the entered text and click **Execute**.

- b. Enter the following text in the Query pane, replacing <tablename> with the actual name of your PCS database, replacing <tablename> with the name of the first table you wish to stop tracking with CDC, and adding , ('<tablename>') for each additional table you wish to stop tracking with CDC to the end of the text statement:

```
USE <tablename>
DECLARE @tables nvarcharlist
INSERT @tables
VALUES
( '<tablename>' )
```

Once all desired tables have been added to the statement in the Query pane, enter the following text to the end of the statement:

```
exec configureChangeTrackingCDCTables @enable = 0,
@tables = @tables
```

Select the entered text entered and click **Execute**.

EXAMPLE:

The following example script stops using CDC to track the *ACCAInspection*, *ACVGSurveyFolder*, and *CISurveyFolder* tables in the *PCSAppTest* database:

```
USE PCSAppTest
DECLARE @tables nvarcharlist
INSERT @tables
VALUES
( 'ACCAInspection' ), ( 'ACVGSurveyFolder' ),
( 'CISurveyFolder' )
```

8. Update the change history setting in PCS by clicking to clear the **Change History** check box and then clicking to re-select the check box.

Update or Modify Change Tracking

Changes to whether a field's change history is retained can be made easily within PCS and tables can have CDC-based tracking enabled or disabled as needed. It is recommended that change tracking modifications are made during the initial configuration of PCS or while performing system maintenance to avoid any impact to PCS users. The following are some scenarios that warrant a review of the change tracking settings and may result in updates to change tracking configurations:

- **PCS is upgraded** – when installing new versions of PCS, new tables or fields may be added to the database. As a result, you may want to enable or disable fields from being tracked in the *Field and UDF Customizations* window. If your configuration of change tracking is enhanced with CDC, then you may want to enable CDC on the new tables and verify that CDC is not enabled on legacy tables.
- **New custom module or user defined field is created** – when creating a new custom module or user defined field, new tables and fields are created and added to the database and set to be change tracked through simple triggers only, if change tracking is enabled. If your configuration of change tracking is enhanced with CDC, then you may want to enable CDC on the new tables. Or, depending on your company needs, you may want to disable the newly created fields from being tracked in the *Field and UDF Customizations* window.
- **Data usage changes** – if your company's general usage of PCS evolves so that the tables involved in large operations changes, you may want to change which tables are tracked using CDC.

For instructions detailing how to update your simple trigger-based or CDC-enhanced change tracking configuration, refer to [Update Simple Trigger-Based Change Tracking](#) or [Update CDC-Enhanced Change Tracking](#), respectively.

Update Simple Trigger-Based Change Tracking

Updating change tracking options when using a simple trigger can be done from within PCS using the *Field and UDF Customizations* and *Options* windows. It is recommended that modifications to change tracking are only made during the initial configuration of PCS or while performing system maintenance.

Perform the following steps to track data changes using a trigger:

Complete the following steps to enable overall change history for PCS:

1. Click **Tools > Options**.

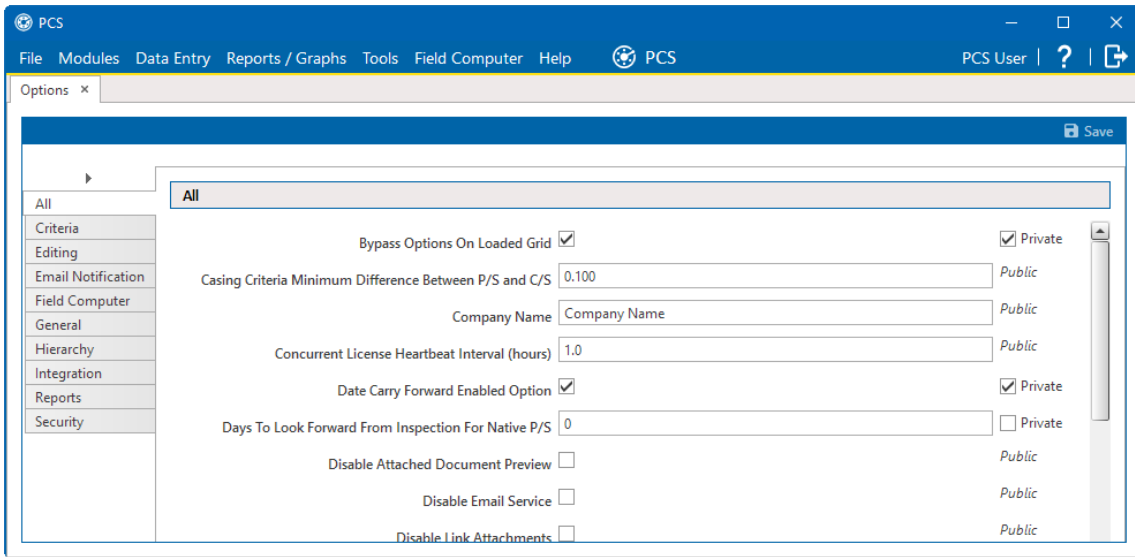


Figure A-9. Options Window

2. In the *All* pane, scroll down to **Turn On Change Tracking** and select it.

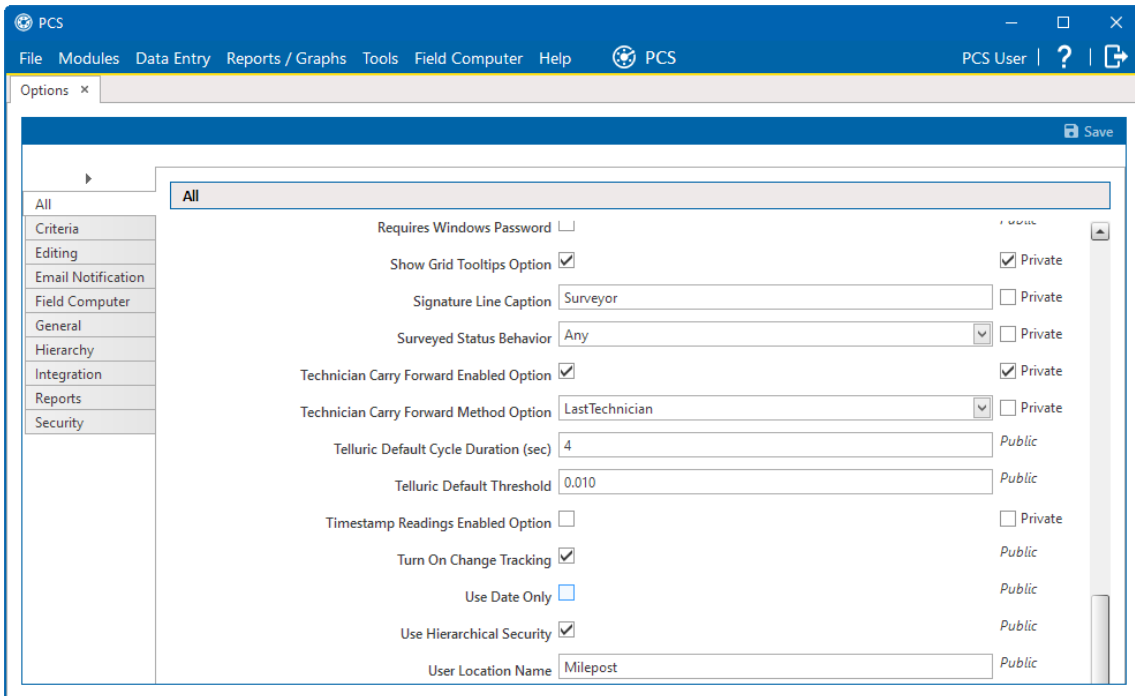


Figure A-10. Turn On Change Tracking Option

Complete the following steps to modify change tracking settings for **individual** fields as needed:

1. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

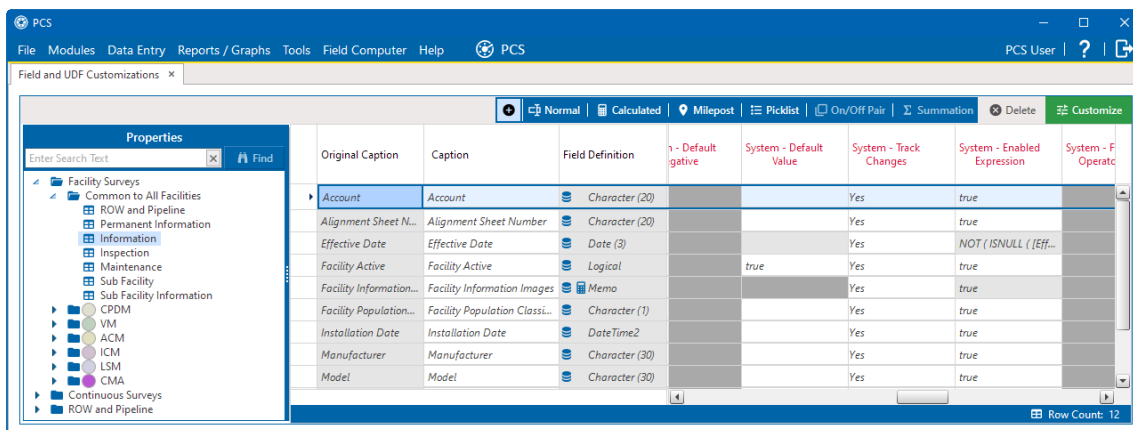


Figure A-11. Field and UDF Customization Window

2. Select a table in the *Properties* panel that includes the field you want to modify for change history.
3. In the grid, select the field you want to set up for change tracking.
4. In the **System-Track Changes** column, select **Yes** to track changes made in the selected field while change history is enabled. Select **No** to not record any changes made in the field, even if change history is enabled in **Options**.
5. Repeat steps for additional fields.

Update CDC-Enhanced Change Tracking

Changes to how PCS tracks data changes while using change data capture (CDC) must be done both in SQL Server Management Studio and from within PCS using the *Field and UDF Customizations* and *Options* windows. It is recommended that change tracking modifications are made during the initial configuration of PCS or while performing system maintenance to avoid any impact to PCS users.

Complete the following steps to update enhanced change tracking using CDC:

1. Review the PCS Job Service queue to ensure that all current jobs have finished.
2. Stop the PCS Job Service.
3. Complete the following steps to enable overall change history for PCS:

- a. Click **Tools > Options**.

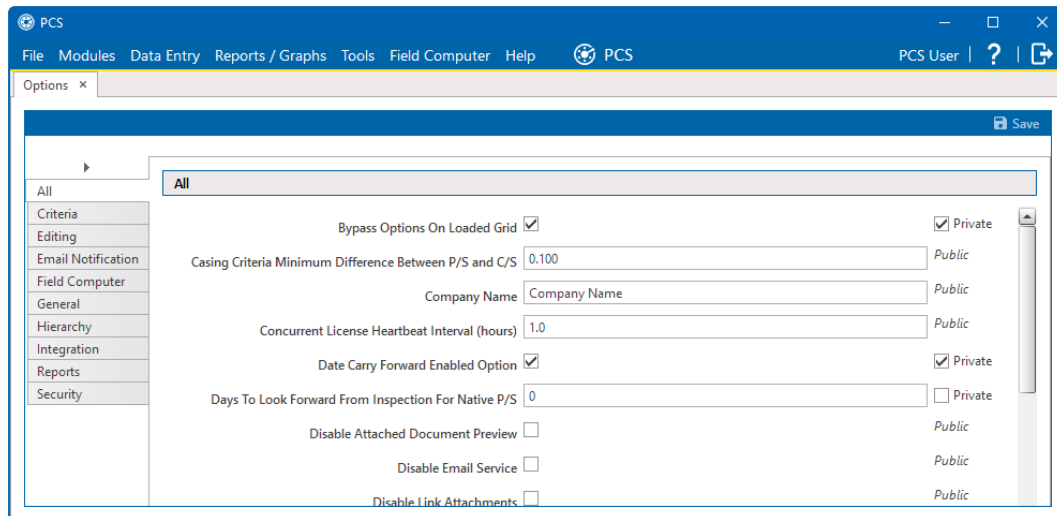


Figure A-12. Options Window

- b. In the *All* pane, scroll down to **Turn On Change Tracking** and select it.

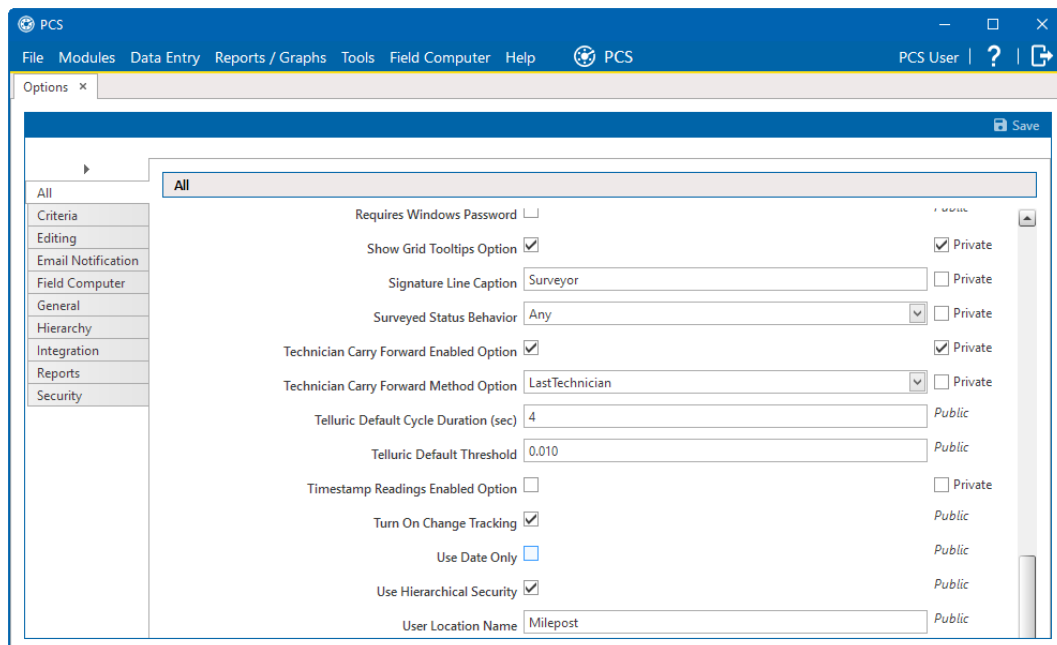


Figure A-13. Turn On Change Tracking Option

Complete the following steps to modify change tracking settings for **individual** fields as needed:

- a. Click **Tools > Field and UDF Customizations** to open the *Field and UDF Customizations* window.

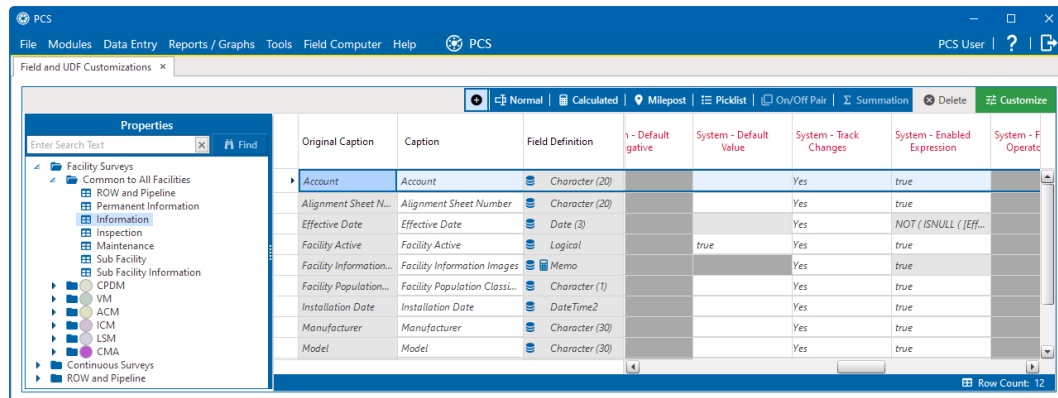


Figure A-14. Field and UDF Customization Window

- b. Select a table in the *Properties* panel that includes the field you want to modify for change history.
 - c. In the grid, select the field you want to set up for change tracking.
 - d. In the **System-Track Changes** column, select **Yes** to track changes made in the selected field while change history is enabled. Select **No** to not record any changes made in the field, even if change history is enabled in **Options**.
 - e. Repeat steps for additional fields.
4. Enable CDC for tables in the PCS database by doing the following:
- a. Determine which tables you want to enable CDC-based change tracking. Some tables are not tracked by PCS change tracking; tables that are not tracked by PCS should not be configured for CDC-based change tracking.

To get a list of all tables in the PCS database that are tracked by PCS change tracking but are not (yet) configured to use CDC to track changes, enter the following text in the Query pane, replacing <tablename> with the actual name of your PCS database:

```
USE <tablename>
GO
SELECT OBJECT_NAME ( parent_id )
FROM sys.triggers
WHERE name LIKE '%changelogging'
AND name NOT IN (
SELECT name FROM sys.tables WHERE is_tracked_by_cdc =
1 )
ORDER BY name
GO
```

Select the entered text and click **Execute**.

It is recommended to configure CDC-based tracking for any table that undergoes high-volume operations. You can configure CDC-based change tracking for all tables in the resulting list or for a subset of the tables. Any table that PCS tracks but is not configured for CDC-based tracking will use a trigger to record the database changes.

If a table or field is set up to be tracked using CDC but *System-Enable Change History* is set to *No* in PCS, records of the changes will not be accessible from within PCS and may not be retained.

- b. Enter the following text in the Query pane, replacing <tablename> with the actual name of your PCS database, replacing <tablename> with the name of the first table you wish to track using CDC, and adding , ('<tablename>') for each additional table you wish to track with CDC to the end of the text statement:

```
USE <tablename>
DECLARE @tables nvarcharlist
INSERT @tables
VALUES
( '<tablename>' )
```

Once all tables have been added to the statement in the Query pane, enter the following text to the end of the statement:

```
EXEC configureChangeTrackingCDCTables @enable = 1,
@tables = @tables
```

Select the text entered and click **Execute**.

EXAMPLE:

The following example script sets up the *PCSAppTest* database to track the *ACCAInspection*, *ACVGSurveyFolder*, and *CISurveyFolder* tables with CDC-based tracking:

```
USE PCSAppTest
DECLARE @tables nvarcharlist
INSERT @tables
VALUES
( 'ACCAInspection' ), ('ACVGSurveyFolder'),
('CISurveyFolder')
EXEC configureChangeTrackingCDCTables @enable
= 1, @tables = @tables
```

5. If CDC is set up to track changes on specific tables that you wish to stop tracking, disable CDC for those tables in the PCS database by doing the following:

- a. Determine which tables you want to stop CDC-based change tracking. Any table that PCS tracks but is not configured for CDC-based tracking will use a trigger to record the database changes. It is recommended to configure CDC-based tracking for any table that undergoes high-volume operations.

To get a list of all tables in the PCS database that currently have change tracking enabled with CDC, enter the following text in the Query pane, replacing `<databasename>` with the actual name of your PCS database:

```
USE <databasename>
GO
SELECT *
FROM sys.tables
WHERE is_tracked_by_cdc = 1
ORDER BY name
GO
```

Select the entered text and click **Execute**.

- b. Enter the following text in the Query pane, replacing `<databasename>` with the actual name of your PCS database, replacing `<tablename>` with the name of the first table you wish to stop tracking with CDC, and adding `, ('<tablename>')` for each additional table you wish to stop tracking with CDC to the end of the text statement:

```
USE <databasename>
DECLARE @tables nvarcharlist
INSERT @tables
VALUES
( '<tablename>' )
```

The following example script stops using CDC to track the *ACCAInspection*, *ACVGSurveyFolder*, and *CISurveyFolder* tables in the *PCSAppTest* database:

```
USE PCSAppTest
DECLARE @tables nvarcharlist
INSERT @tables
VALUES
( 'ACCAInspection' ), ( 'ACVGSurveyFolder' ),
( 'CISurveyFolder' )
```

- c. Once all desired tables have been added to the statement in the Query pane, enter the following text to the end of the statement:

```
exec configureChangeTrackingCDCTables @enable = 0,
@tables = @tables
```

- d. Select the text entered in steps and click **Execute**.

6. Update the change history setting in PCS by clicking to clear the **Change History** check box and then clicking to re-select the check box.
7. Start the PCS Job Service.

Disable Change Tracking

When change tracking is disabled, the records of changes made to the data while change tracking was enabled are retained, but future changes are no longer recorded. Disabling change tracking is the last action recorded in the change history.

Refer to the following topics for more information on disabling change tracking:

- [Disable Change Tracking with a Trigger](#)
- [Disable Change Tracking with CDC](#)

Disable Change Tracking with a Trigger

To stop tracking data changes using a trigger, click to clear the **Change History** check box in *Options*.

Disable Change Tracking with CDC

Complete the following steps to stop tracking data changes using CDC:

1. Connect to your PCS database using Microsoft SQL Server Management Studio.
2. Create a new query to enter SQL commands.
3. Enter the following text in the Query pane:

```
exec configureChangeTrackingCDCSettings @enableCDC = 0
```
4. Select the entered text and click **Execute**.
5. Disable change history for PCS by clicking to clear the **Change History** check box in *Options*. If change history was already disabled, update the setting by clicking to select the **Change History** check box and then clicking to clear the check box again.

Access Change History Records

When change tracking is enabled, additions and modifications of individual records can be viewed by any user from within PCS. Data deletions and changes to data other than records, such as themes or change tracking settings, will only be visible in SQL Server Management Studio. Contact AI Support at 1-800-229-3404 for assistance with accessing this data.

Complete the following steps to view the history of the changes made to an individual record:

1. In PCS, identify and select the record in the data grid.

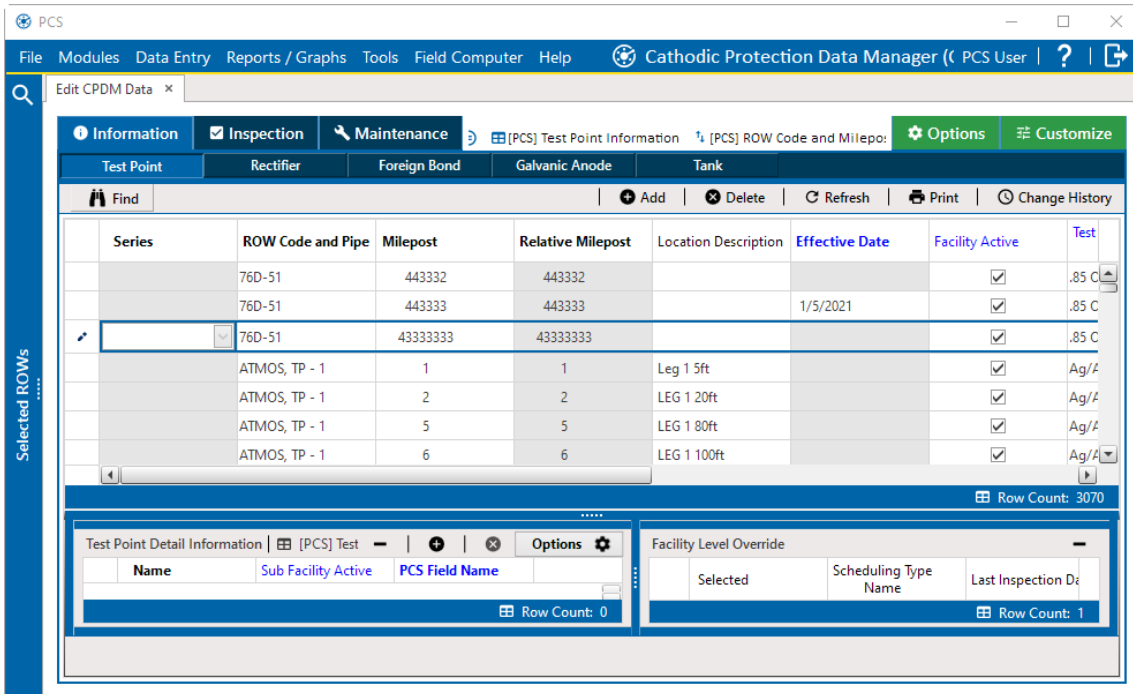


Figure A-15. Changed Record Selected

2. Click **Change History**. The *Change History* window opens reporting all changes made to the selected record in the last year.

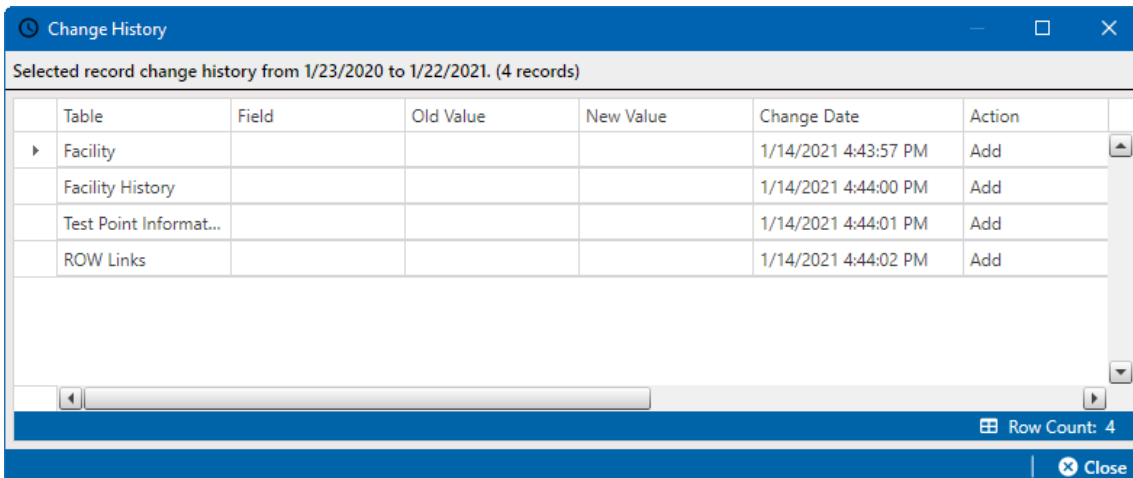


Figure A-16. Change History

3. Review the changes that are associated with the selected record. For each change found, the record's old and new values are listed, as well as the date and time of the change, the type of change made, which user was logged in when the change was made, and what application made the changes to the data.


To view all changes made to PCS while change tracking is enabled, open **SQL Server Management Studio** and access the **ChangeLog** table.

Run Database Integrity Check

In the unlikely event data becomes corrupted in the database, use *Database Integrity Check* to identify and resolve instances of data inconsistencies. The process performs an audit of the database searching for issues that may prevent PCS from loading or performing basic functions. Its purpose is to clean up data issues that may cause problems for users. For example, database issues the auditing process detects and corrects include:

- Orphan records.
- Invalid hierarchy nodes.
- Outdated or incorrect derived fields. Refer to [Work with Derived Fields on page 299](#) for information about derived fields.
- Invalid field characters, hierarchy nodes, or folders outside hierarchy levels.
- Duplicate or missing right-of-ways (ROWs) and pipes.
- Blank hierarchy level names and empty or missing hierarchy folders.
- Missing base effective dates (facilities and pipelines).
- Invalid foreign keys in database tables. (A foreign key is a field in a database table that refers to a record in another database table.)

Complete the following steps to run *Database Integrity Check*:

- Click **Tools > Database Integrity Check** to open the *Data Auditor* window. Then click  **Run**. The message *Running* displays during the database audit process.

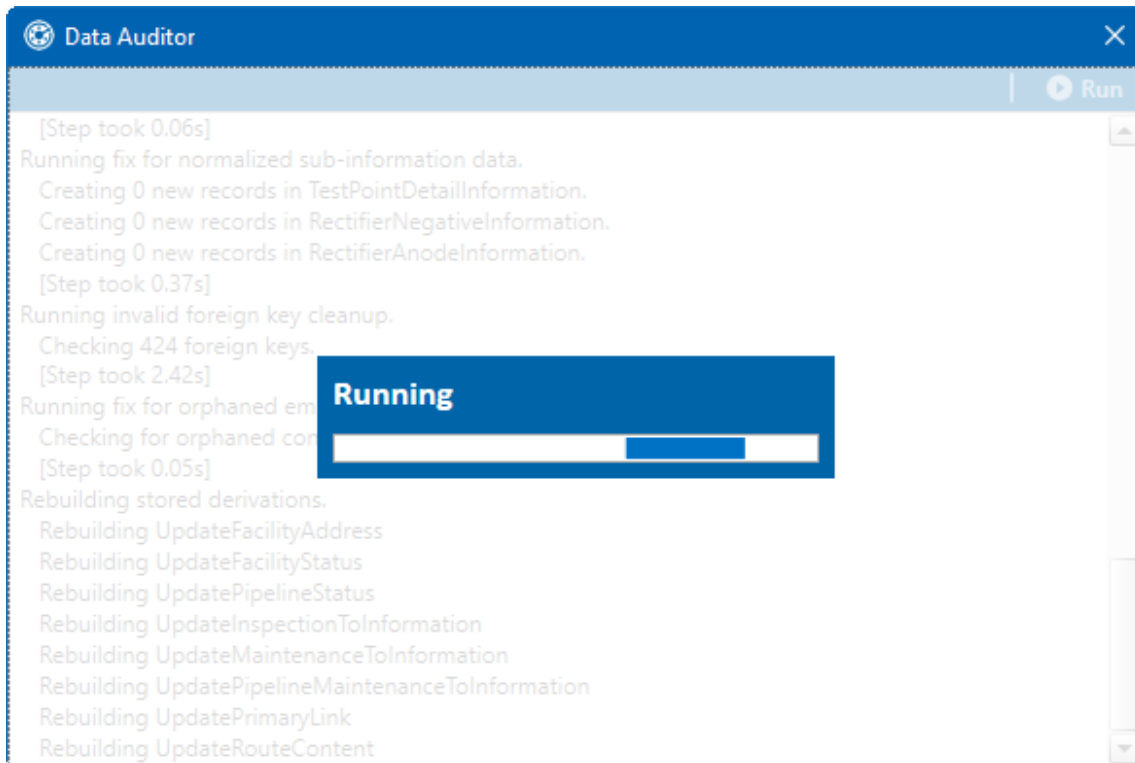


Figure A-17. Data Auditor

When the process completes, the results of the database audit display in the *Data Auditor* window. You can select and then copy text in the window to the Windows clipboard. The copied text can then be pasted in another software program such as Microsoft Excel or Word.

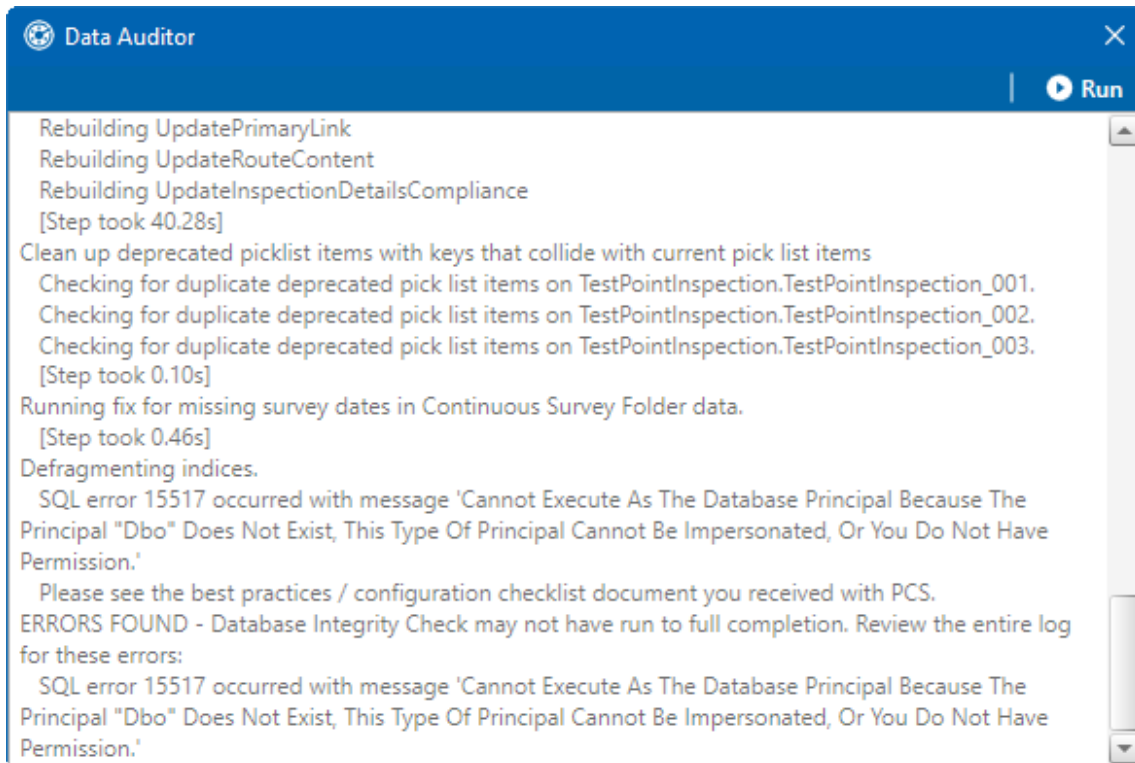


Figure A-18. Database Integrity Check Completed

Run Reindex Database

The PCS database uses indexes to accelerate the process of locating records in the database. As you add and delete records, these indexes become fragmented which in turn slow down database performance. The *Reindex Database* process restores database efficiency by updating the indexes.

IMPORTANT: Before running Reindex Database, it is recommended that you make a backup of the PCS database using Microsoft SQL Server Management Studio (SSMS). For more information about SSMS, see the AI document entitled PCS Database Backup and Restore.

To run *Reindex Database*:

1. Click **Tools > Job Service Viewer** to open the *Job Service Console* window.

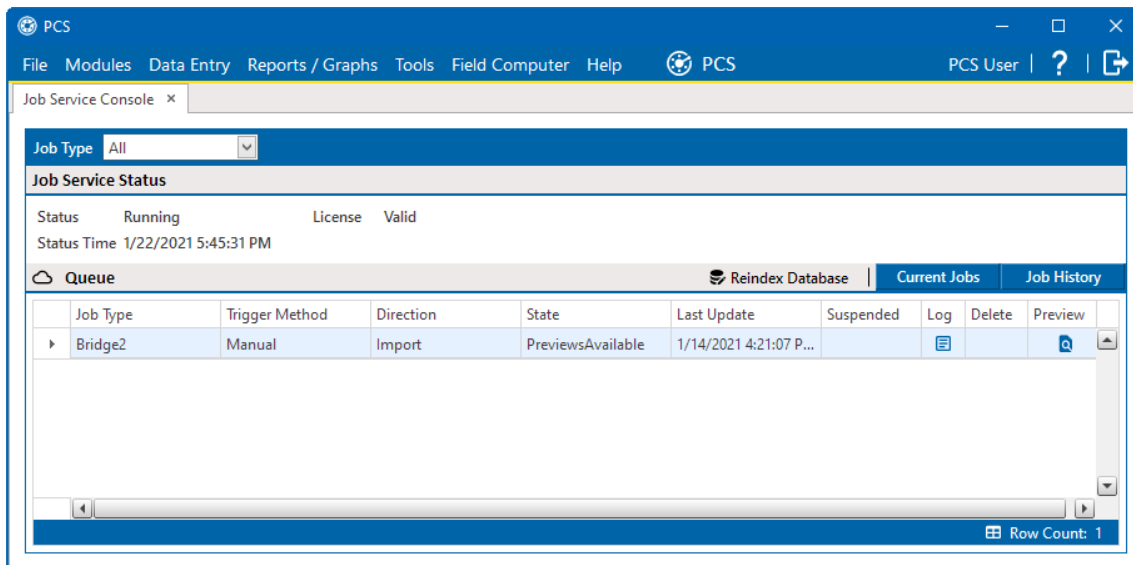


Figure A-19. Job Service Console

2. Click **Reindex Database**.
3. When a warning message opens, click **Yes** to continue the reindexing process.

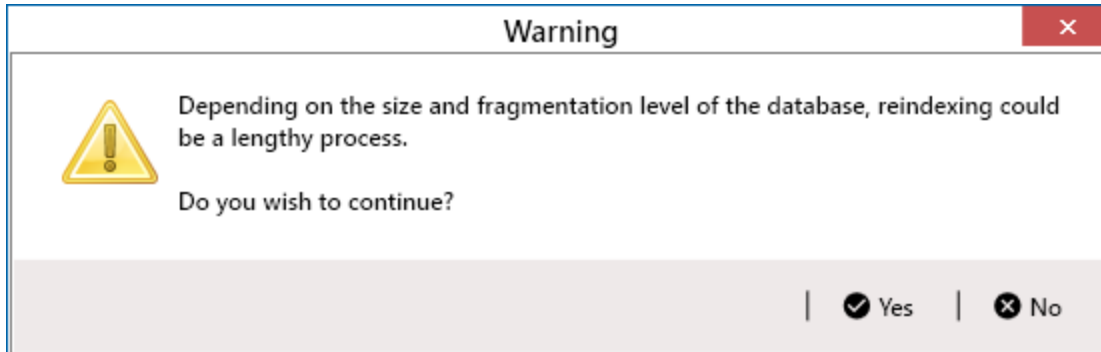


Figure A-20. Warning Message

Status information displays in the queue while running *Reindex Database*. When the process completes, status information then displays in the *Job History* pane.

Move Records With Data Modification Utility

The Data Modification Utility is a stand-alone feature that allows you to permanently move pipeline ROW records, including subfacility, inspection, and maintenance records, from one facility to another facility. Use this feature when splitting or combining pipeline segments.

The Data Modification Utility is accessed from the **Tools** menu.

IMPORTANT: Only users with SysAdmin privileges will be able to access and use the Data Modification Utility.

This chapter includes the following topics:

- [Move Facility Records](#)
- [Move Sub Facility Records on page 899](#)
- [Move Inspections Records on page 904](#)
- [Move Maintenance Records on page 907](#)

Move Facility Records

You can move facility records from one ROW to another ROW in Data Modification Utility.

Complete the following steps to move facility records:

1. Click **Tools > Data Modification Utility** to open the *Data Modification Utility* window.

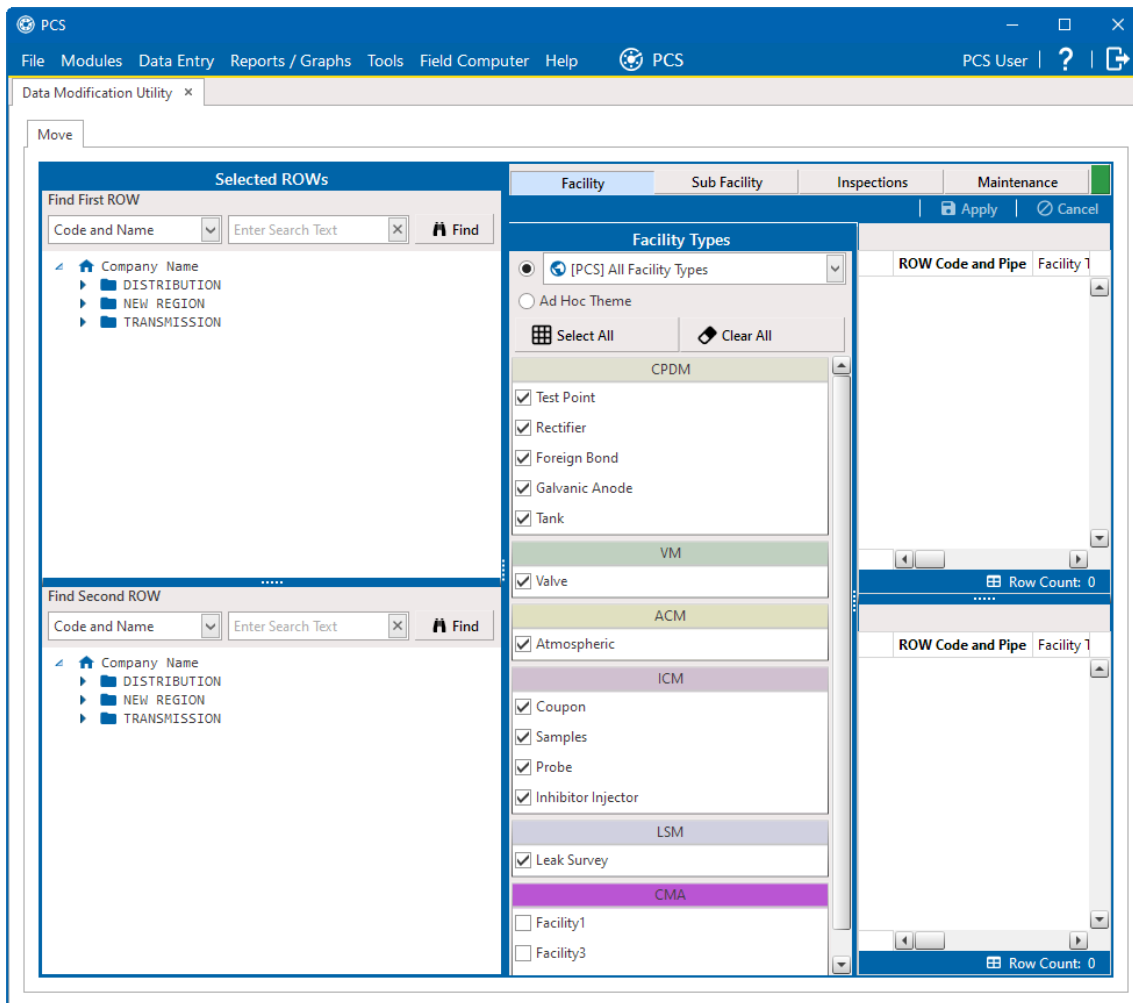


Figure A-21. Data Modification Utility - Facility

2. If necessary, re-size the *Selected ROWs* pane to view the data better.
3. Select a ROW in the top *Selected ROWs* pane that will be moved to another ROW. This is the source ROW.
4. Select a ROW in the lower *Selected ROWs* pane where the records will be moved. This is the target ROW. The records from the top pane are moved to the ROW selected in the lower pane. You cannot select the same ROW that was selected in the top pane.
5. Select the facility type(s) you want to work with using the method described in either of the following:

- a. To select a facility type, click the facility type option button and then click the down arrow and select a facility type in the list, such as **[PCS] Rectifier Survey**.
- b. To select multiple facility types, click the **Ad Hoc Theme** option button and then click the check box for one or more facility types, such as *Test Point*, *Rectifier*, and *Foreign Bond*).
 - i. Click **Select All** to select all the facilities. Click **Clear All** to clear all facilities.

An Ad Hoc Theme only applies to the current session and is not saved. A facility type is selected when a check mark appears inside the check box. To clear the check mark, click the check box again.

- 6. Click the *Selected ROWs* and *Facility Types* bars to close these panes.

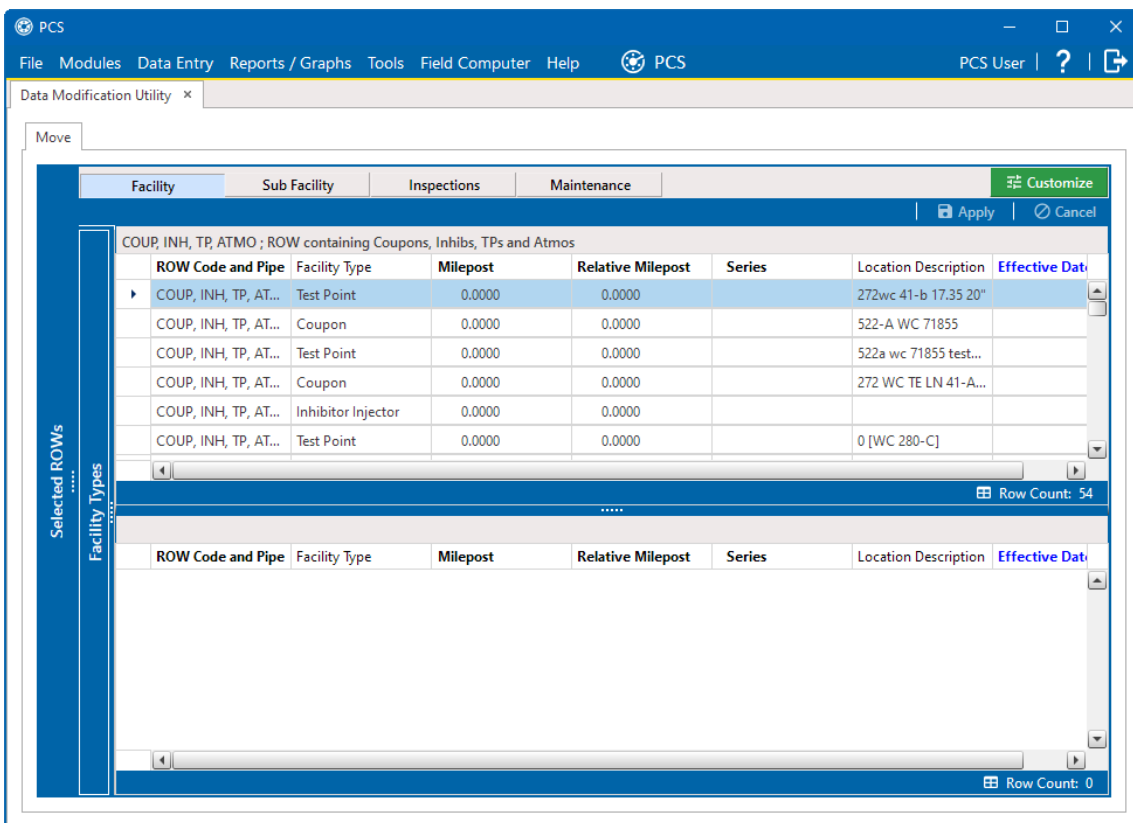


Figure A-22. Facility Move panes

- 7. To customize the layout of the facility move panes, click **Customize** to open an *Edit Layout* window.

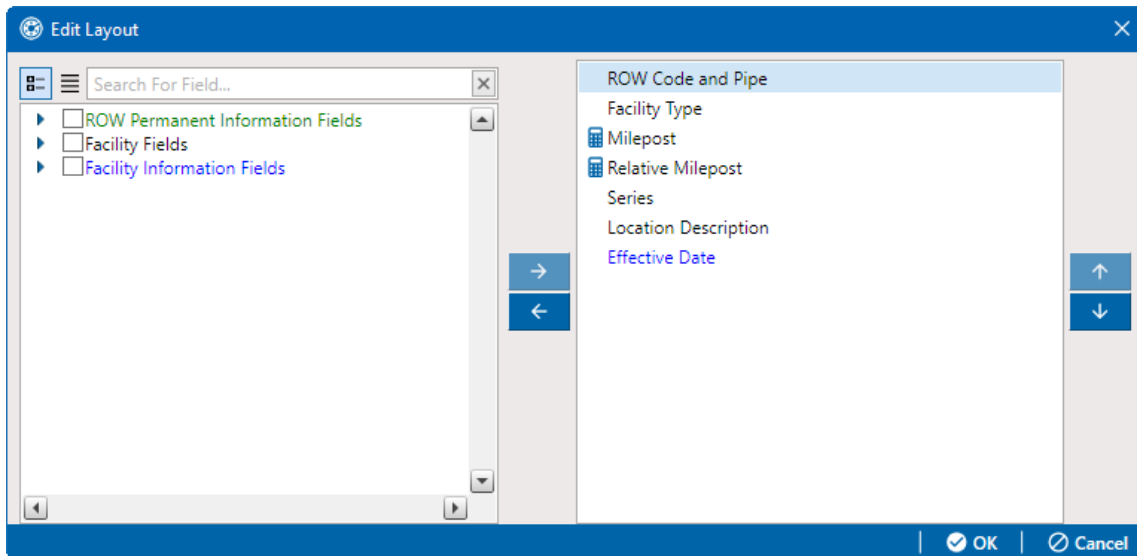


Figure A-23. Edit Layout Window

- a. Add or remove fields as desired.
 - b. Click **OK** to save changes and close the window.
8. Move records from the top pane to the lower pane in any of the following ways:
- a. Double-click the name of the record.
 - b. Click the check box next to the name of the record.
 - c. Click **Select All** to select all the records.

The records are moved to the lower pane and are highlighted in green.

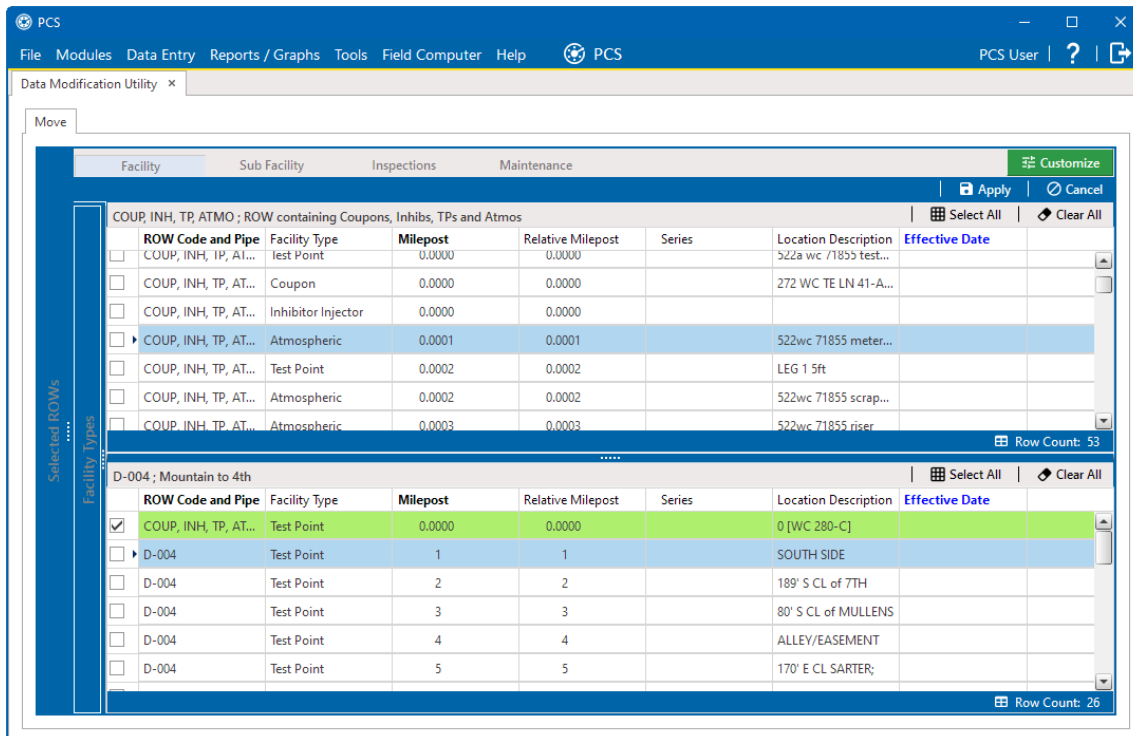






Figure A-24. Moved Facility Records

9. Move records from the lower pane back to the top pane in any of the following ways:
 - a. Double-click the name of the record.
 - b. Click the check box next to the name of the record.
 - c. Click  **Select All** to select all the records.
 - d. Click  **Clear All** to clear all records.

The records are moved back to the top pane and are highlighted in green.

10. Click  **Cancel** to revert the recent moves.
11. To save the changes and permanently move the records, click  **Apply**.

IMPORTANT: You cannot click  **Cancel** to revert moves after clicking  **Apply**.

12. Click  **Yes** in the *Warning* window to complete the move.

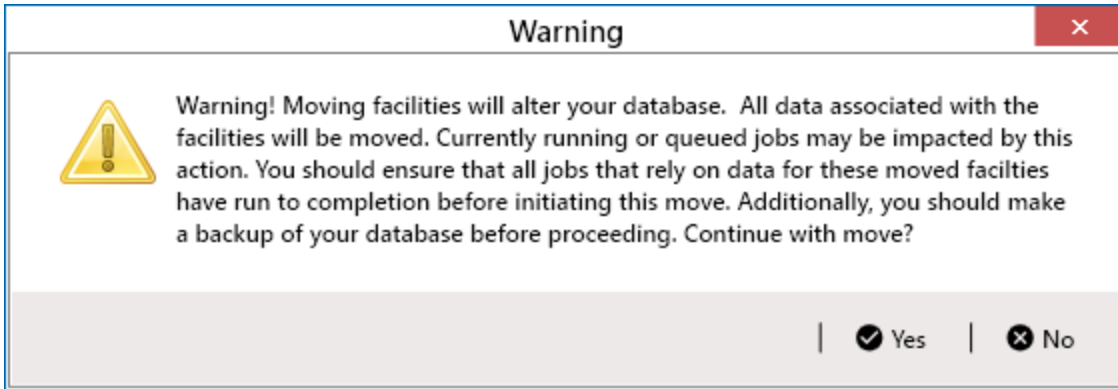


Figure A-25. Warning Message

Move Sub Facility Records

You can move sub facility records from one ROW facility to another in Data Modification Utility.

Complete the following steps to move sub-facility records from one ROW facility to another:

1. Click **Tools > Data Modification Utility** to open the *Data Modification Utility* window, and then click the **Sub Facility** tab.

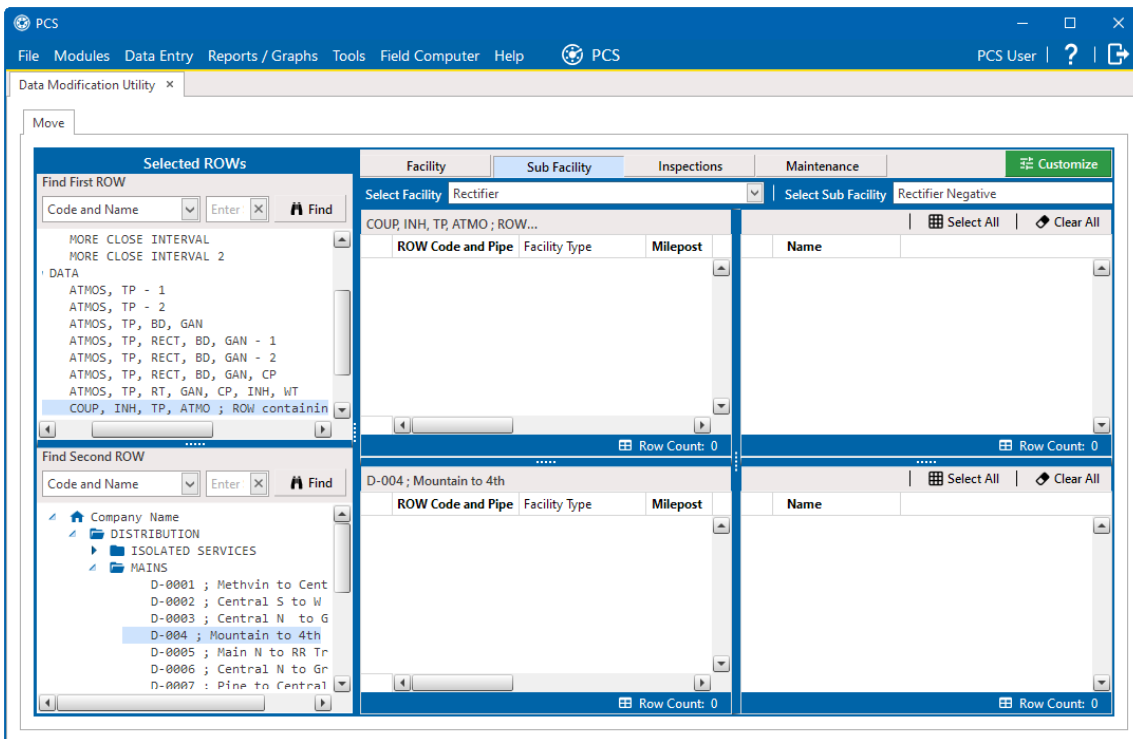


Figure A-26. Data Modification Utility - Sub Facility

2. If necessary, re-size the *Selected ROWs* pane to view the data better.
3. Select a ROW in the top *Selected ROWs* pane with the subfacility records that will be moved to another facility. This is the source ROW.
4. Select a ROW in the lower *Selected ROWs* pane where the subfacility records will be moved. This is the target ROW. The records from the top pane are moved to the subfacility selected in the lower pane.
5. Click the *Selected ROWs* bar to close this pane.

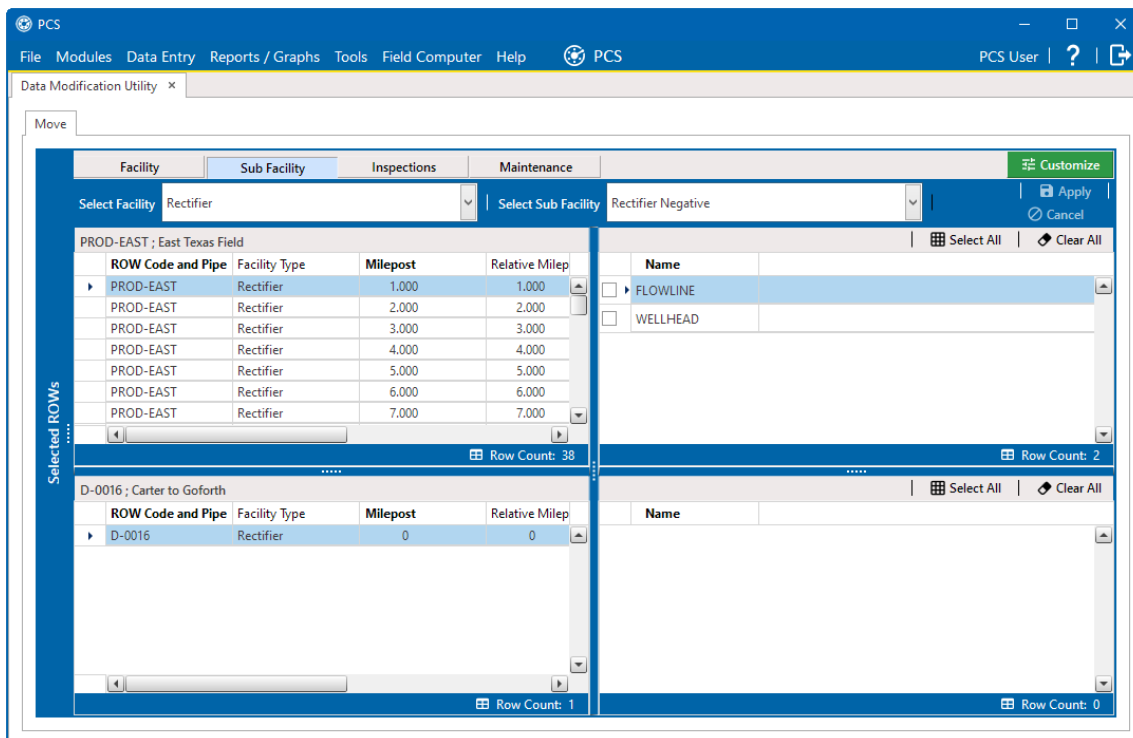


Figure A-27. Sub Facility Move

6. To customize the layout of the subfacility move panes, click **Customize** to open an *Edit Layout* window.

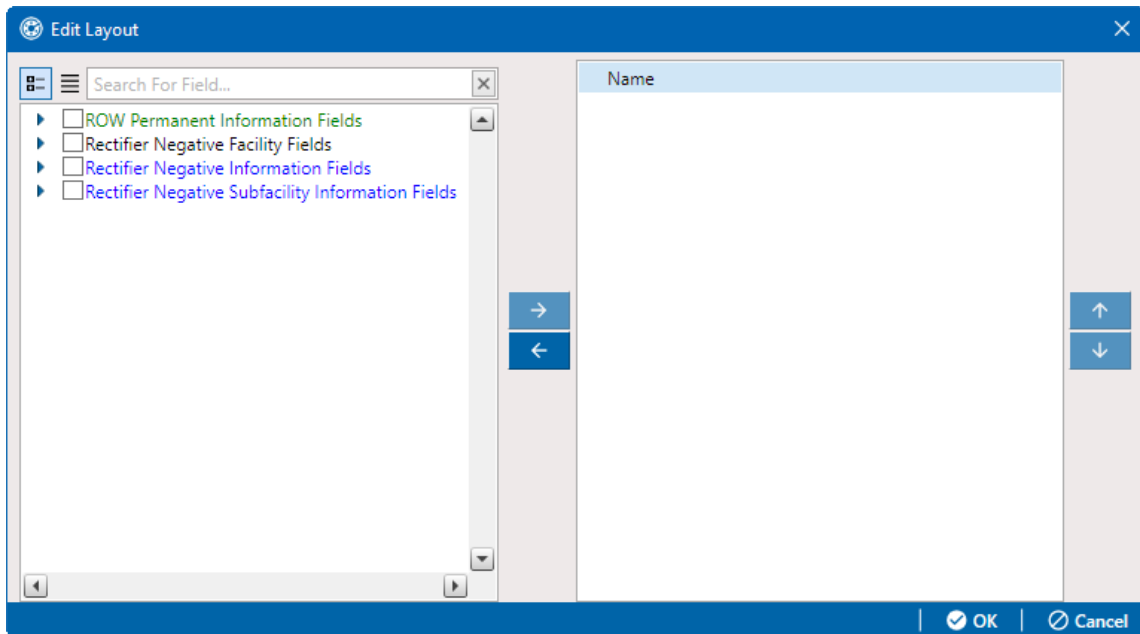


Figure A-28. Edit Layout Window

- a. Add or remove fields as desired.
 - b. Click OK to save changes and close the window.
7. Select a facility type from the **Select Facility** drop-down list.

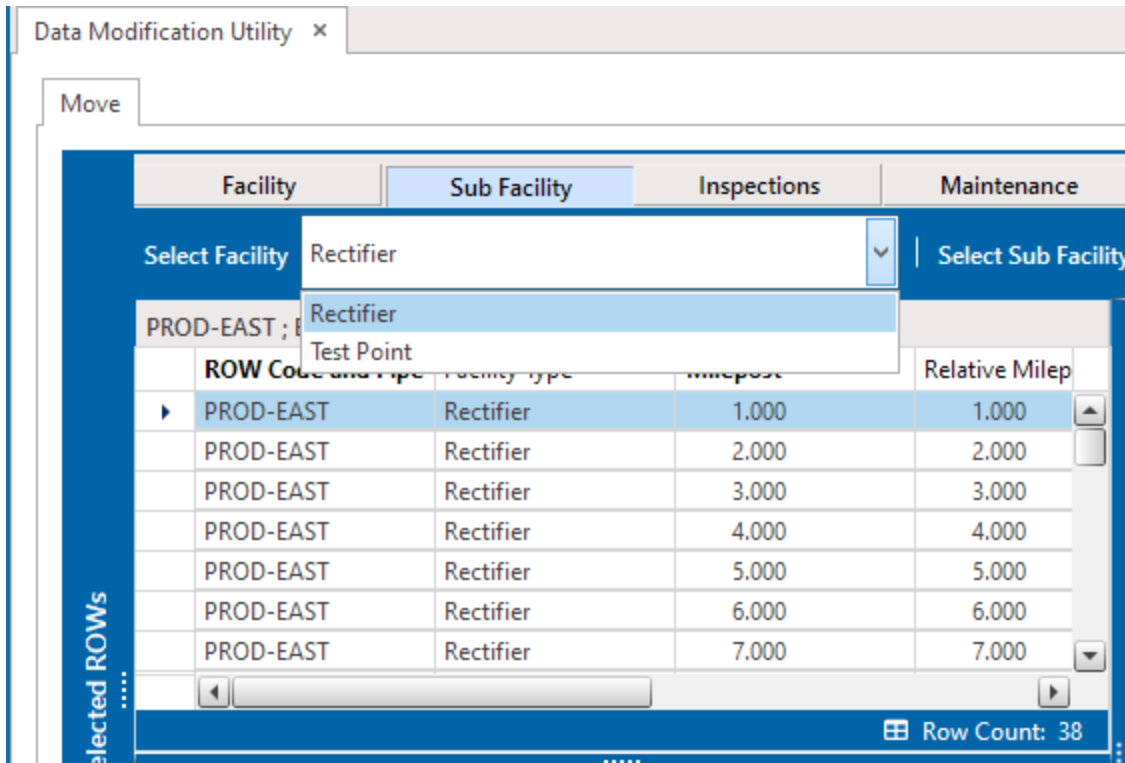


Figure A-29. Select Facility

8. Select a subfacility type from the **Sub Facility** drop down list.

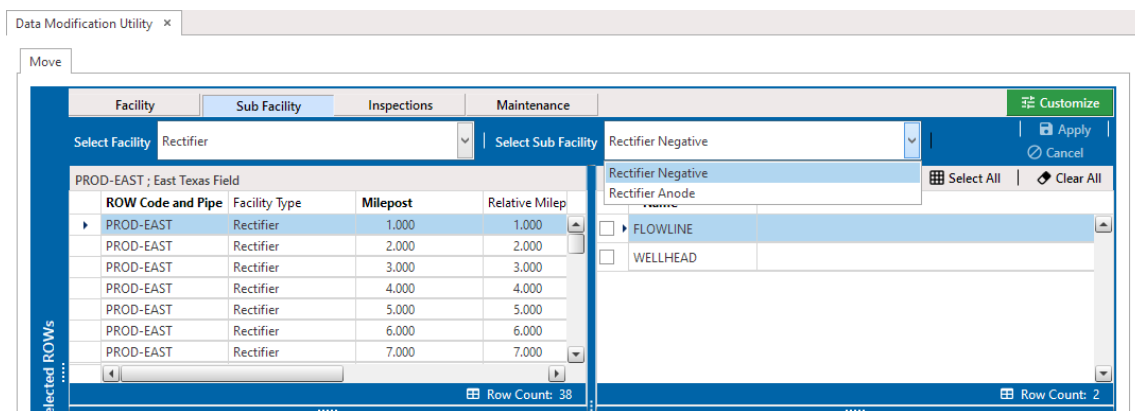



Figure A-30. Select Sub Facility

9. Move subfacility records from the top right pane to the lower right pane in any of the following ways:
 - a. Double-click the name of the record.
 - b. Click the check box next to the name of the record.

- c. Click  **Select All** to select all the records.

The records are moved to the lower right pane and are highlighted in green.

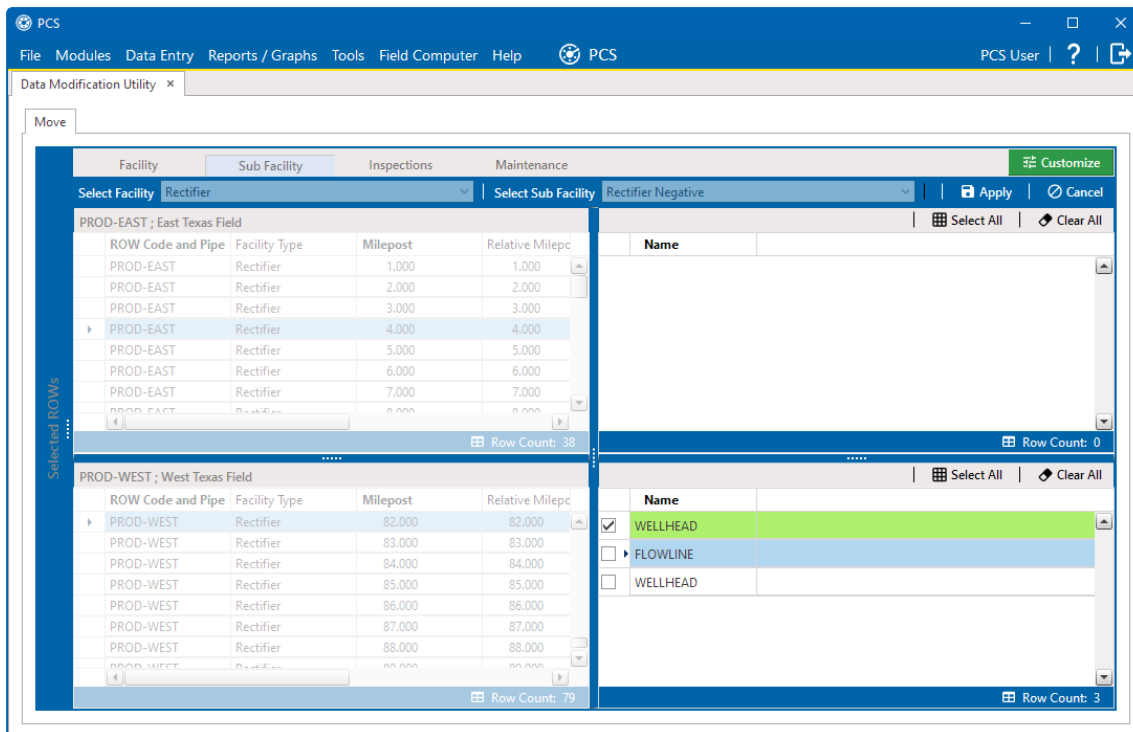






Figure A-31. Moved Sub Facility Records

10. Move subfacility records from the lower right pane back to the top right pane in any of the following ways:
 - a. Double-click the name of the record.
 - b. Click the check box next to the name of the record.
 - c. Click  **Select All** to select all the records.
 - d. Click  **Clear All** to clear all records.

The records are moved back to the top right pane and are highlighted in green.

11. Click  **Cancel** to revert the recent moves.
12. To save the changes and permanently move the records, click  **Apply**.

IMPORTANT: You cannot click  **Cancel** to revert moves after clicking  **Apply**.

13. Click  **Yes** in the *Warning* window to complete the move.

Move Inspections Records

Information in this section explains how to move inspections records from one ROW to another in Data Modification Utility.

Complete the following steps to move inspections records:

1. Click **Tools > Data Modification Utility** to open the *Data Modification Utility* window, and then click the **Inspections** tab.

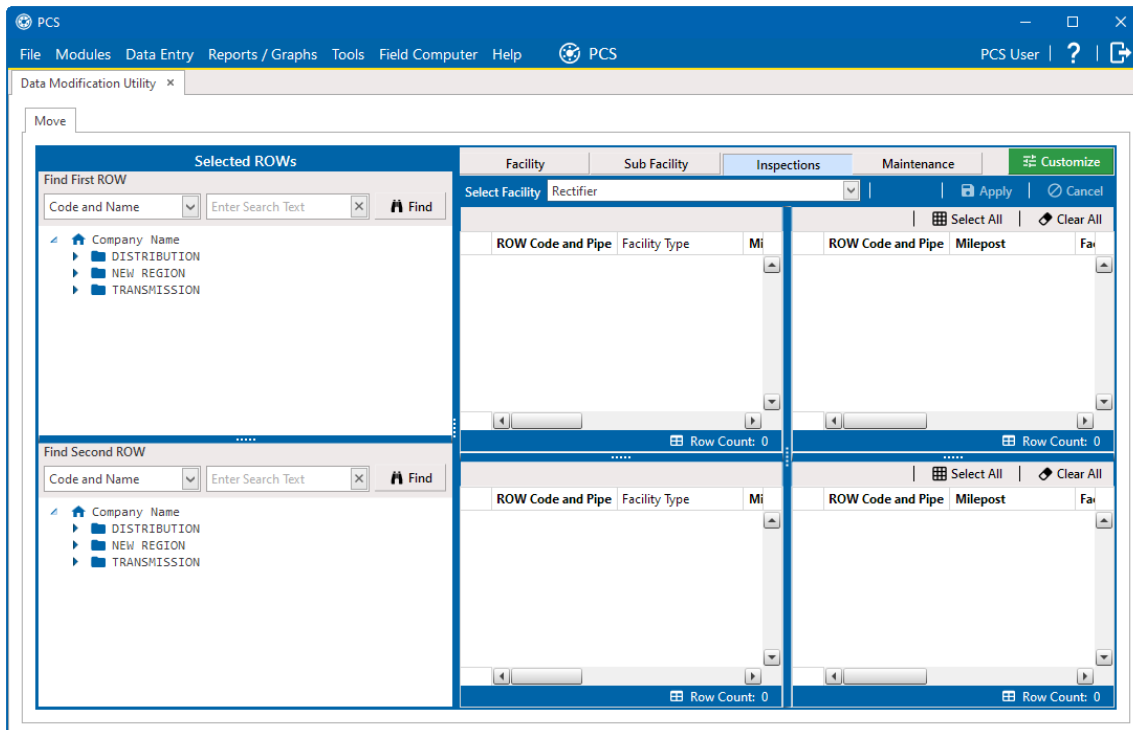


Figure A-32. Data Modification Utility - Inspections

2. If necessary, re-size the *Selected ROWs* pane to view the data better.
3. Select a ROW in the top *Selected ROWs* pane with the inspection records that will be moved. This is the source ROW.
4. Select a ROW in the lower *Selected ROWs* pane where the records will be moved. This is the target ROW. The records from the top pane are moved to the ROW selected in the lower pane.
5. Click the *Select ROWs* bar to close this pane.

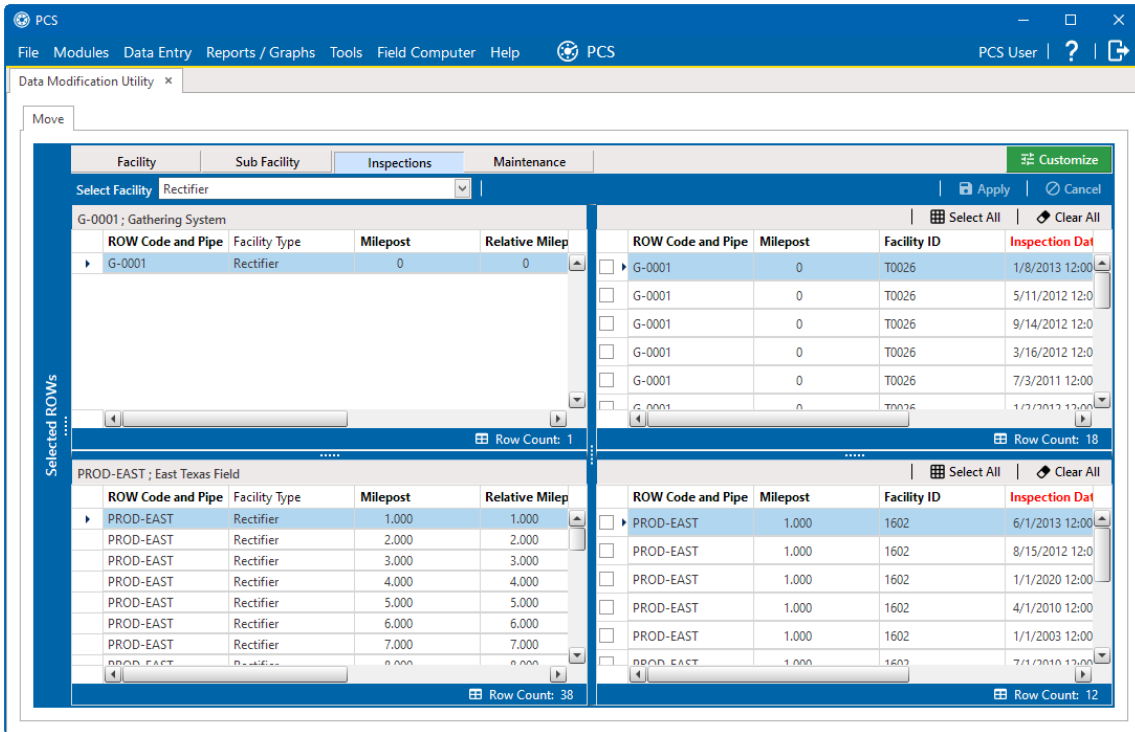


Figure A-33. Inspections Move

- To customize the layout of the inspections move panes, click **Customize** to open an *Edit Layout* window.

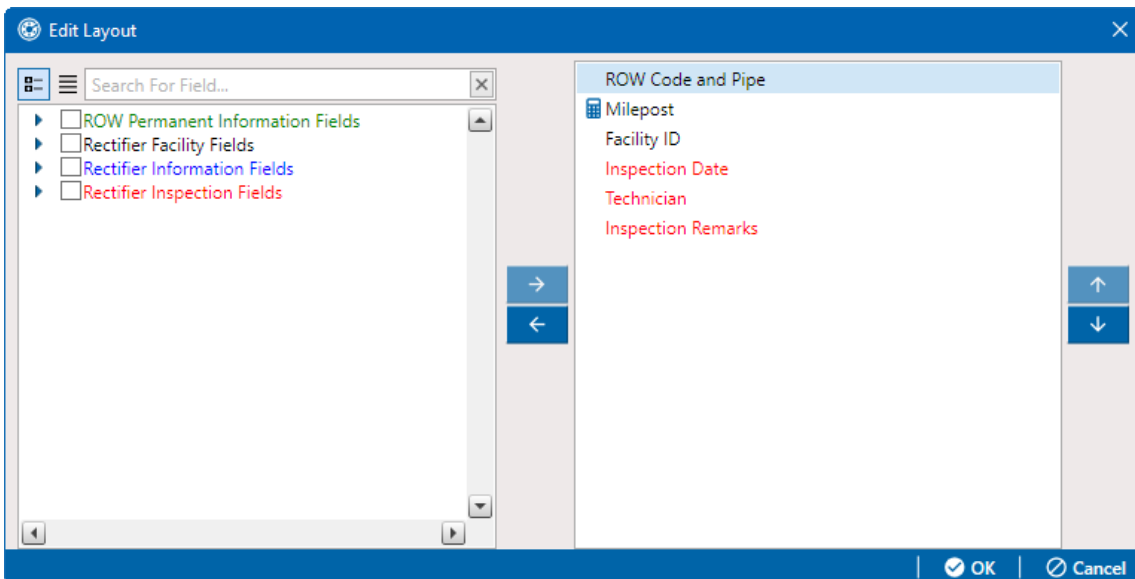


Figure A-34. Edit Layout Window

- a. Add or remove fields as desired.
- b. Click OK to save changes and close the window.

7. Select a facility type from the **Select Facility** drop-down list.

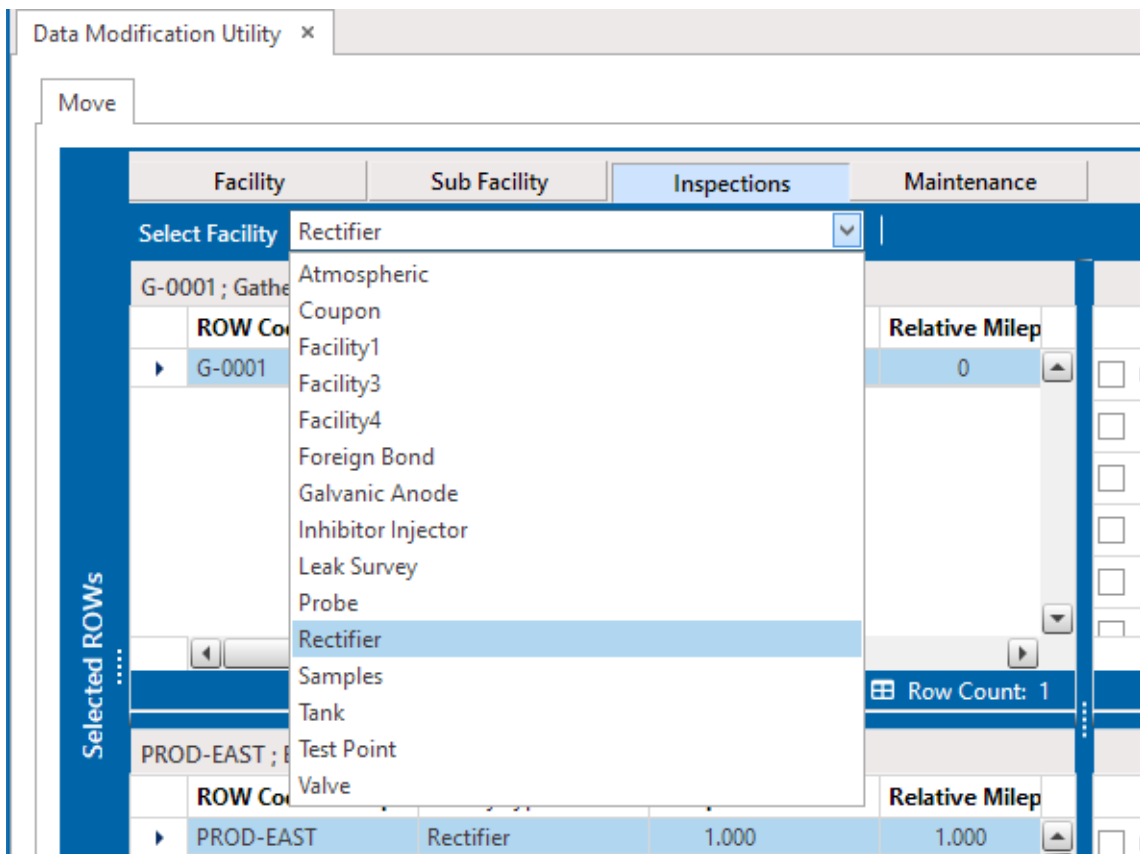


Figure A-35. Select Facility Drop-down List

8. Move inspection records from the top right pane to the lower right pane in any of the following ways:
 - a. Double-click the name of the record.
 - b. Click the check box next to the name of the record.
 - c. Click **Select All** to select all the records.

The records are moved to the lower right pane and are highlighted in green.

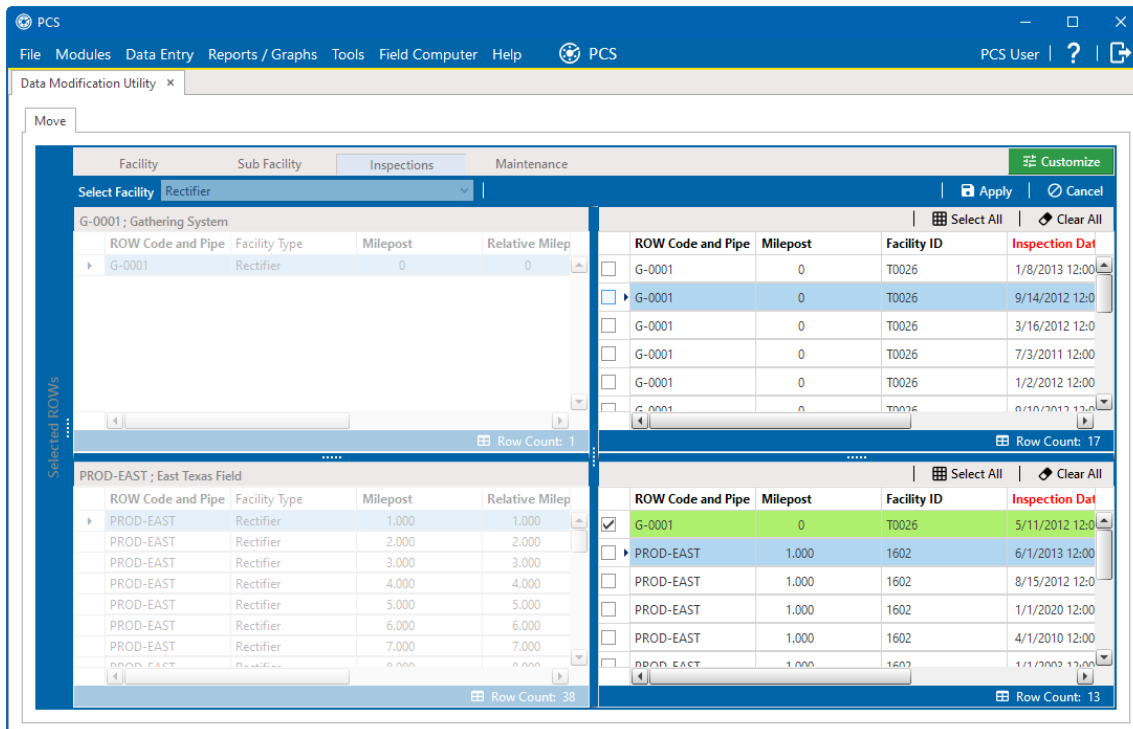


Figure A-36. Moved Inspection Records

9. Move inspection records from the lower right pane back to the top right pane in any of the following ways:
 - a. Double-click the name of the record.
 - b. Click the check box next to the name of the record.
 - c. Click **Select All** to select all the records.
 - d. Click **Clear All** to clear all records.

The records are moved back to the top right pane and are highlighted in green.

10. Click **Cancel** to revert the recent moves.
11. To save the changes and permanently move the records, click **Apply**.

IMPORTANT: You cannot click **Cancel** to revert moves after clicking **Apply**.

12. Click **Yes** in the *Warning* window to complete the move.

Move Maintenance Records

You can move maintenance records from one ROW to another in Data Modification Utility.

Complete the following steps to move maintenance records:

1. Click **Tools > Data Modification Utility** to open the *Data Modification Utility* window, and then click the **Maintenance** tab.

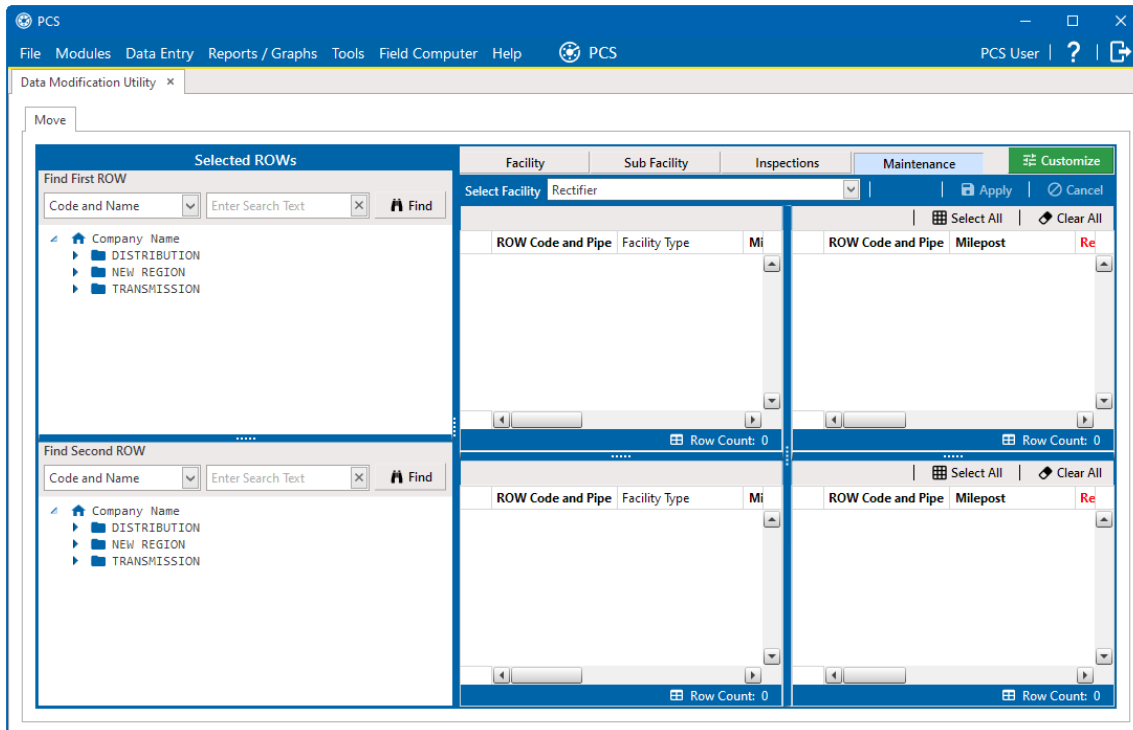


Figure A-37. Data Modification Utility - Maintenance

2. If necessary, re-size the *Selected ROWs* pane to view the data better.
3. Select a ROW in the top *Selected ROWs* pane with the maintenance records that will be moved. This is the source ROW.
4. Select a ROW in the lower *Selected ROWs* pane where the records will be moved. This is the target ROW. The records from the top pane are moved to the ROW selected in the lower pane.
5. Click the *Select ROWs* bar to close this pane.

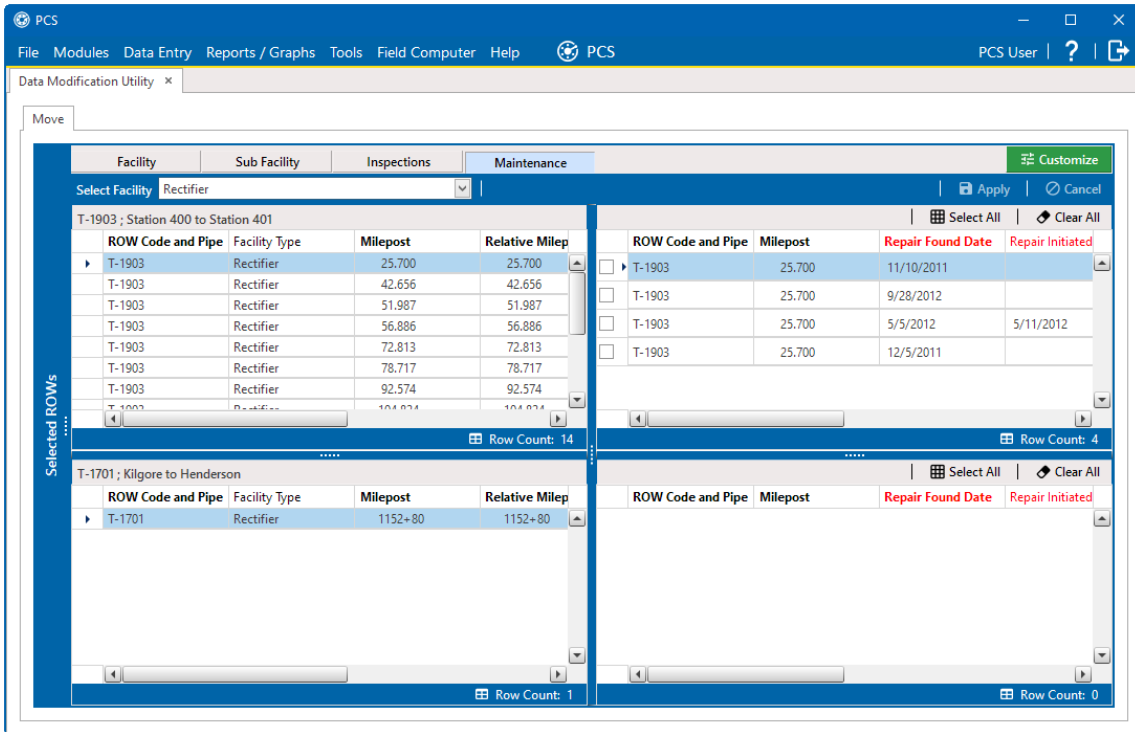


Figure A-38. Inspections Move

- To customize the layout of the inspections move panes, click **Customize** to open an *Edit Layout* window.

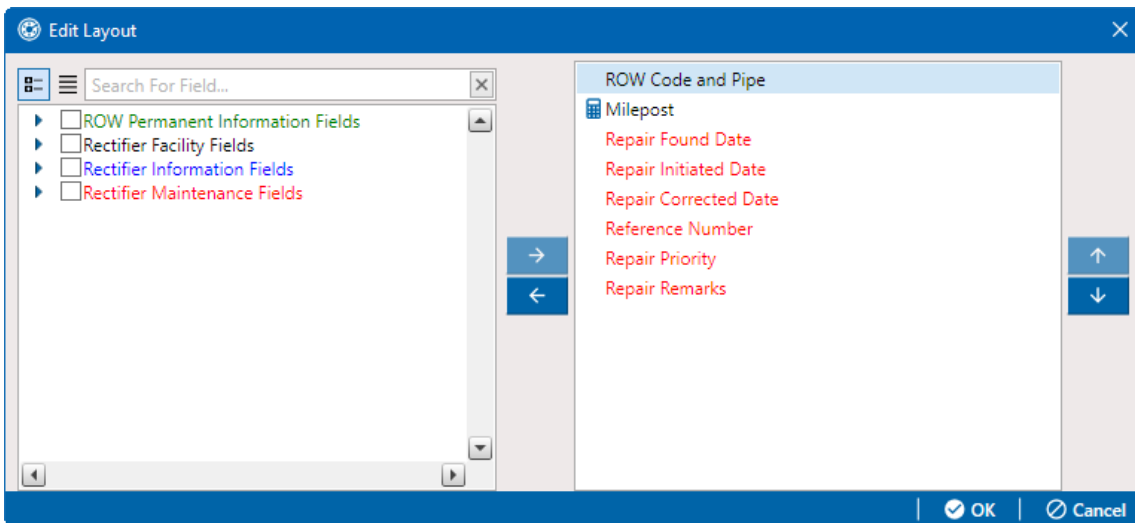


Figure A-39. Edit Layout Window

- a. Add or remove fields as desired.
 - b. Click **OK** to save changes and close the window.
7. Select a facility type from the **Select Facility** drop-down list.

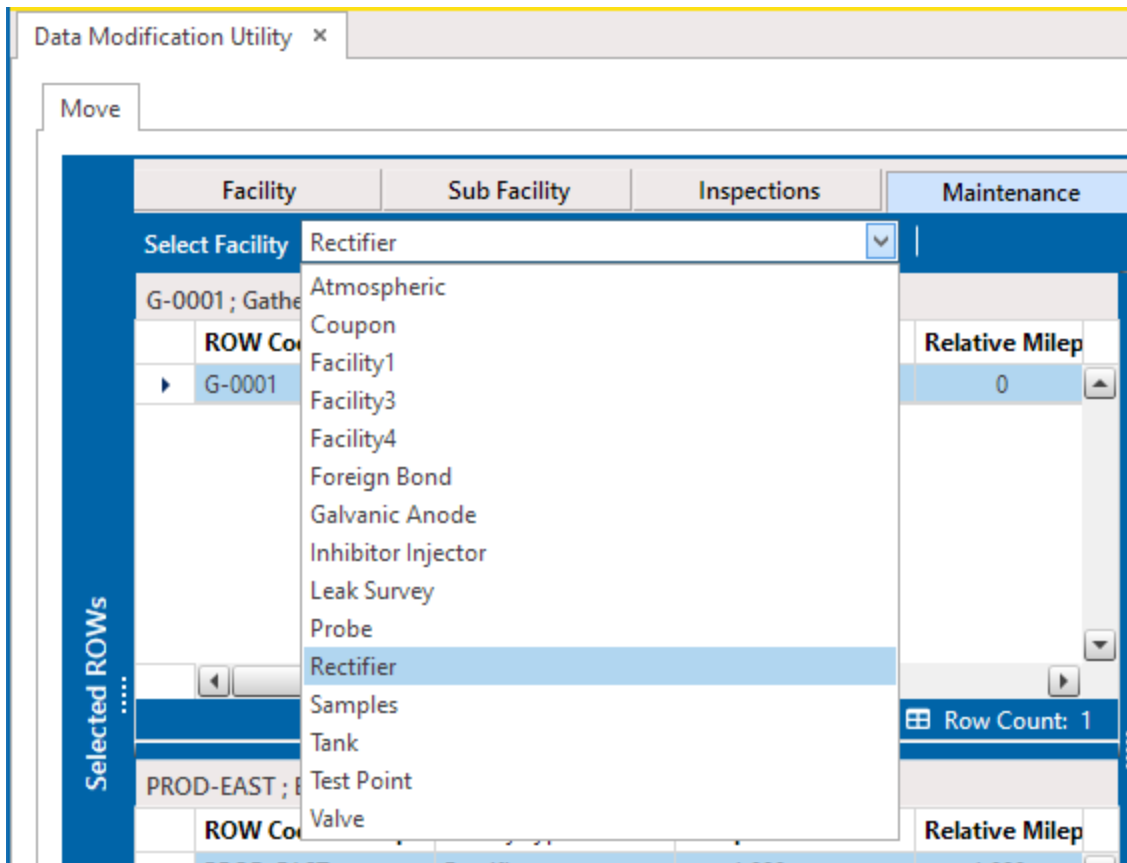


Figure A-40. Select Facility

8. Move inspection records from the top right pane to the lower right pane in any of the following ways:
- a. Double-click the name of the record.
 - b. Click the check box next to the name of the record.
 - c. Click **Select All** to select all the records.

The records are moved to the lower right pane and are highlighted in green.

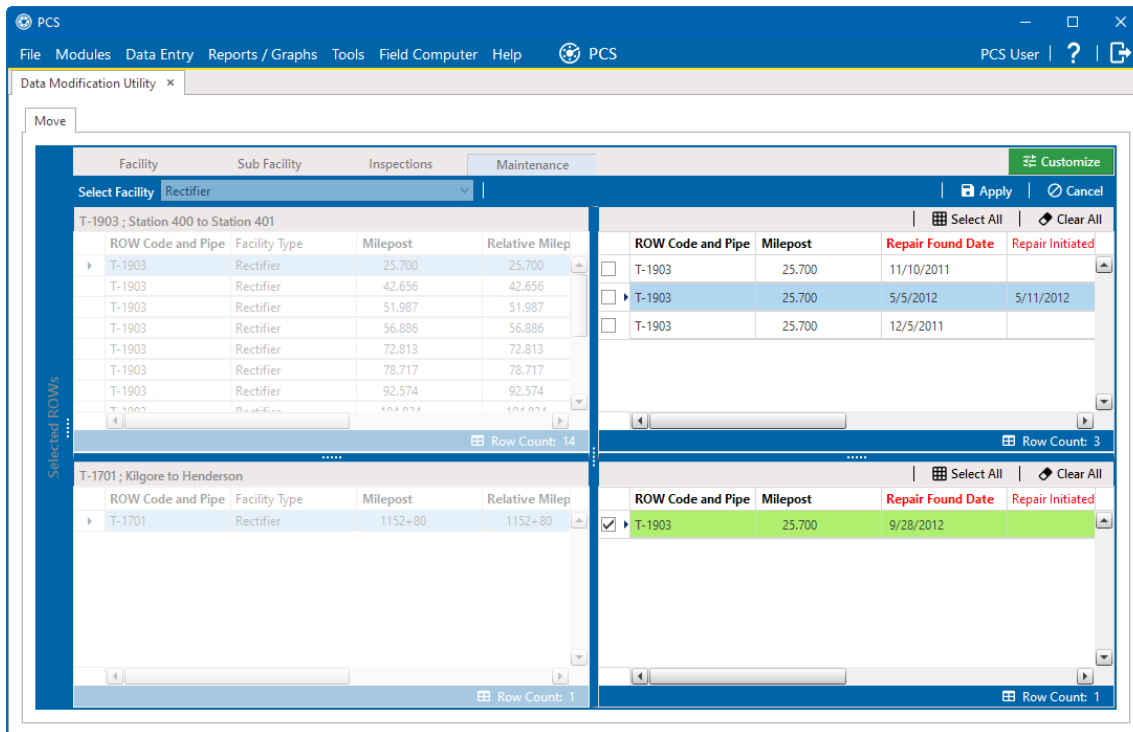






Figure A-41. Moved Maintenance Records

9. Move inspection records from the lower right pane back to the top right pane in any of the following ways:
 - a. Double-click the name of the record.
 - b. Click the check box next to the name of the record.
 - c. Click  **Select All** to select all the records.
 - d. Click  **Clear All** to clear all records.

The records are moved back to the top right pane and are highlighted in green.

10. Click  **Cancel** to revert the recent moves.
11. To save the changes and permanently move the records, click  **Apply**.

IMPORTANT: You cannot click  **Cancel** to revert moves after clicking  **Apply**.

12. Click  **Yes** in the *Warning* window to complete the move.

System Field Descriptions

Fields that include **Activate** in the field name share the same description as their counterpart, such as Activate AC Power and AC Power. The Activate AC Power field must be added in the *Information* grid to enter data in the AC Power field in the *Inspections* grid.

NOTE: The menu path included in some field descriptions may include the placeholder text *<module>*, such as *Data Entry > Edit <module> Data*. The placeholder text indicates the field description applies to more than one module, such as CPDM, VM, ACM, ICM, or LSM.

The following table includes definitions and descriptions of system fields.

Table B-19. System Field Descriptions

Name	Description
AC Input	Alternating Current Input. Voltage coming into the rectifier from a power source. See CPDM module, <i>Data Entry > Edit CPDM Data > Rectifier Information</i> grid > <i>Customize > Layouts</i> .
AC P/S (Volts)	Alternating Current Pipe-to-Soil. Potential measurement in volts. AC measurements are recorded using a voltmeter when conducting an AC CIS survey to determine AC interference from sources such as overhead power transmission lines near the pipeline. See ISM, <i>Data Entry > Edit ISM Data > AC CIS</i> .
AC Power	Alternating Current Power. Power consumed by a rectifier from a power source (watts). This value is system-supplied and calculated as follows:
AC Service	Alternating Current Service. History information field that identifies the complete source of incoming AC power; such as data for AC voltage, AC current, number of phases and so on. See CPDM module <i>Data Entry > Edit CPDM Data > Rectifier Inspections</i> grid > <i>Customize > Layouts</i> .
Account	Power company account number. Can also be the customer's account number for gas service. See CPDM module, <i>Data Entry > Edit CPDM Data > Rectifier Inspections</i> grid > <i>Customize > Layouts</i> .
Activate Cardinal Points	Add this field in the <i>Tank Information</i> grid, then enable the field's check box to allow data entry in the <i>Tank Inspection</i> grid for the following fields: North P/S, South P/S, East P/S, and West P/S. See CPDM, <i>Data Entry > Edit CPDM Data > Tank > Information</i> and <i>Inspection</i> grids > <i>Customize > Layouts</i> .

Table B-19. System Field Descriptions cont'd

Name	Description
Activate Center P/S	Activate Center Pipe-to-Soil. Add this field in the <i>Tank Information</i> grid, then enable the field's check box to allow data entry in the Center P/S field in the <i>Tank Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Tank > Information</i> and <i>Inspection</i> grids > <i>Customize > Layouts</i> .
Activate Intercardinal Points	Add this field in the <i>Tank Information</i> grid, then enable the field's check box to allow data entry in the <i>Tank Inspection</i> grid for the following fields: NE P/S, SE P/S, NW P/S, and SW P/S. See CPDM, <i>Data Entry > Edit CPDM Data > Tank > Information</i> and <i>Inspection</i> grids > <i>Customize > Layouts</i> .
Activate Mid P/S	Activate Mid Pipe-to-Soil. Add this field in the <i>Tank Information</i> grid, then enable the field's check box to allow data entry in the field Mid P/S in the <i>Tank Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Tank > Information</i> and <i>Inspection</i> grids > <i>Customize > Layouts</i> .
Activate Secondary Intercardinal Points	Add this field in the <i>Tank Information</i> grid, then enable the field's check box to allow data entry in the <i>Tank Inspection</i> grid for the following fields: ENE P/S, ESE P/S, NNE P/S, NNW P/S, SSE P/S, WNW P/S, and WSW P/S. See CPDM, <i>Data Entry > Edit CPDM Data > Tank > Information</i> and <i>Inspection</i> grids > <i>Customize > Layouts</i> .
Address	System calculated field based on information entered in the following fields: Address Post-Direction; Address Pre-Direction; Address Street; Address Street Number; and Address Suffix. This field is available for use in all modules and can be added in the <i>Information</i> grid. See <i>Data Entry > Edit <module> Data > Information</i> grid > <i>Customize > Layouts</i> .
Address Pre-Direction	Tag at the beginning of a street name used to indicate direction, such as 125 E Grand Bluff St. NW, where E is the pre-direction. This field is available for use in all modules and can be added in the <i>Information</i> grid. See <i>Data Entry > Edit <module> Data > Information</i> grid > <i>Customize > Layouts</i> .
Alignment Sheet Number	Record number assigned to an alignment sheet for a pipeline right-of-way. Add this field in either the <i>Rectifier Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information</i> or <i>Inspection</i> grids > <i>Customize > Layout</i> .
Allegro Survey Information	System-generated field showing properties in a close interval survey file transferred from the Allegro. Properties include configuration settings, ROW code, survey date, surveyor, type of survey, and so on.

Table B-19. System Field Descriptions cont'd

Name	Description
Anomaly Direction	<p>If survey readings were taken at regular intervals during an ACVG survey, use this field to indicate if the anomaly is in front of or behind the surveyor. This field does not apply to ACVG surveys that only record an ACVG point at the anomaly. Typical entries for this field are Forward or Reverse.</p> <p>See ISM, <i>Data Entry > Edit Indirect Survey Data > ACVG grid</i>.</p>
APB (Ppm)	<p>Acid Reducing Bacteria parts-per-million. Measurement of APB in parts-per-million (Ppm). Add Activate APB (Ppm) in the <i>Information</i> grid to allow data entry in the <i>Inspections</i> grid. See ICM, <i>Data Entry > Edit ICM Data > Samples > Information and Inspection grids > Customize > Layouts</i>.</p>
Apparent Leak Location	<p>Leak location. See LSM, <i>Data Entry > Edit LSM Data > Maintenance grid > Customize > Layouts</i>.</p>
Attached Documents	<p>Use this field to attach or link a document to a record in the grid. This field is available in all modules. See Attach a Document to a Grid Record on page 307.</p>
Average P/S	<p>Average Pipe-to-Soil. Reading measured in volts. Add the Activate Average P/S field in the <i>Test Point Information</i> grid to enable data entry in the Average P/S field in the <i>Test Point Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Information and Inspection grid > Customize > Layouts</i>.</p>
Bond Current Adjusted	<p>Click the check box to indicate a change was made to the bond current. This field works in conjunction with the Bond Current Found and Bond Current Left fields when the Activate field for both of these fields has been added in the <i>Information</i> grid.</p> <p>When adjusting the bond current (1) click the <i>Bond Current Adjusted</i> check box; (2) enter the pre-adjusted value (in amps) in the field <i>Bond Current Found</i>; and then (3) enter the adjusted value (in amps) in the Bond Current Left field. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond Information and Inspection grid > Customize > Layouts</i>.</p>
Bond Current Found	<p>Bond current measured during an inspection (in Amps). This field works in conjunction with the Bond Current Adjusted and Bond Current Left fields when the Activate field for both of these fields has been added in the <i>Foreign Bond Information</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond Information and Inspection grid > Customize > Layouts</i>.</p>

Table B-19. System Field Descriptions cont'd

Name	Description
Bond Current Left	Bond current measured after an inspection (in Amps). This field works in conjunction with the Bond Current Adjusted and Bond Current Found fields when the Activate field for both of these fields has been added in the <i>Foreign Bond Information</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond Information and Inspection grid > Customize > Layouts</i> .
Bond Shunt Factor	Multiplying factor measured in Amps. Used in converting the voltage drop across the shunt to current. Voltage drop and shunt resistance are used to calculate the current. Add the Bond Shunt Factor field in either the <i>Foreign Bond Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond Information and Inspection grid > Customize > Layouts</i> .
Bond Shunt Rating	Shunt size measured in millivolts and Amps (mV/A). Add the field in either the <i>Foreign Bond Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond Information and Inspection grid > Customize > Layouts</i> .
Bond Shunt Resistance	Shunt resistance measured in Ohms. Add the field in either the <i>Foreign Bond Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond Information and Inspection grid > Customize > Layouts</i> .
Bond Type	Type of bond, such as resistance or direct. Add the field in either the <i>Bond Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond Information and Inspection grid > Customize > Layouts</i> .
>Casing IRF	Casing IR free (IRF) reading. Voltage measurement indicating the potential of the casing relative to the soil with interrupted rectifier current. Add the Activate Casing IRF field in the <i>Test Point Information</i> grid to enable data entry in the Casing IRF field in the <i>Test Point Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Information and Inspection grid > Customize > Layouts</i> .
Casing IRF Minimum and Maximum	Minimum and maximum value allowed for data entry in the Casing IRF field. Add the Casing IRF Minimum and Casing IRF Maximum fields in either the <i>Test Point Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Information or Inspection grid > Customize > Layouts</i> .

Table B-19. System Field Descriptions cont'd

Name	Description
Casing P/S	Casing Pipe-to-Soil. Voltage measurement indicating the potential of the casing relative to the soil. Add the field Activate Casing P/S in the <i>Information</i> grid to enable data entry in the Casing P/S field in the <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Information</i> and <i>Inspection grid > Customize > Layouts</i> .
Casing P/S Minimum and Maximum	Minimum and maximum value allowed for data entry in the Casing P/S field. Add the Casing P/S Minimum and Casing P/S Maximum fields in either the <i>Test Point Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Information</i> or <i>Inspection grid > Customize > Layouts</i> .
Casing Status	Status of the casing, such as short, not short, electrolytic, or metallic. Add the Activate Casing Status field in the <i>Information</i> grid to enable data entry in the Casing Status field in the <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Information</i> and <i>Inspection grid > Customize > Layouts</i> .
Center P/S	Center Pipe-to-Soil. Structure reading in volts when a half-cell is under the center of the tank. Add the field Activate Casing P/S in the <i>Information</i> grid to enable data entry in the Casing P/S field in the <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Tank Information</i> and <i>Inspection grid > Customize > Layouts</i> .
Center P/S Minimum and Maximum	Minimum and maximum value (voltage reading) allowed for data entry in the Center P/S field. Add the fields Center P/S Minimum and Center P/S Maximum in either the <i>Tank Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Tank Information</i> or <i>Inspection grid > Customize > Layouts</i> .
City	City where a facility is located. This field is available for use in all modules; add the field in either the <i>Information</i> or <i>Inspection</i> grid. See <i>Data Entry > Edit <module> Data > Information</i> or <i>Inspection grid > Customize > Layouts</i> .
Close Direction	Direction the valve wheel turns to close the valve. Enter data such as CW for clockwise or CCW for counter clockwise. See VM, <i>Data Entry > Edit VM Data > Information</i> or <i>Inspection grid > Customize > Layouts</i> .
Coating	Type of coating applied to the pipeline, such as tape or epoxy. Add this field in either the <i>Information</i> or <i>Inspection</i> grid. See ACM, <i>Data Entry > Edit ACM Data > Information</i> or <i>Inspection grid > Customize > Layouts</i> .
Coating Condition	Description of coating condition. See ACM, <i>Data Entry > Edit ACM Data > Inspection grid > Customize > Layouts</i> .

Table B-19. System Field Descriptions cont'd

Name	Description
Coke Breeze Type	Type of coke breeze, such as metallurgical and petroleum-based. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier Information, Inspection, or Maintenance grid > Customize > Layouts.</i>
Coke Breeze Type	Type of coke breeze such as metallurgical and petroleum-based. Add this field in either the <i>Rectifier Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grids > Customize > Layout.</i>
Completed Maintenance	Total number of maintenance records for a facility that have the field Completed Date populated. This is a read-only, facility level calculated field. Add this field in the <i>Rectifier Information, Inspection, or Maintenance</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information, Inspection, or Maintenance grids > Customize > Layouts.</i>
Conductivity	Numeric field supporting decimal numbers with up to seven digits resolution, including two numbers after the decimal. Use this field to record conductivity measurements as measured by the inspection tool during a <i>Soil Resistivity</i> survey. Measurements are in microsiemens (μS), a metric unit of measurement for conductivity. See <i>ISM module, Data Entry > Edit ISM Data > Soil Resistivity.</i>
Connection Type	Type of connection used to secure a valve to the pipeline. See VM, <i>Data Entry > Edit VM Data > Information or Inspection grid > Customize > Layouts.</i>
Contact	Name of a contact person at the company responsible for the foreign bond. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond Information grid > Customize > Layouts.</i>
Creation Date	Date a facility record was created in a grid. Add this field in either the <i>Rectifier Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grids > Customize > Layouts.</i>
Critical Bond	Check box for indicating if a bond is critical based on location and connection. Critical bond is used in scheduling. Click to place a check mark inside the check box if the bond is considered a critical bond. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond Information, Inspection, or Maintenance grid > Customize > Layouts.</i>

Table B-19. System Field Descriptions cont'd

Name	Description
Days Since First Bad Reading	Derived field showing the number of days since the first bad reading (reading does not meet criteria). Field available in all modules in the <i>Information</i> or <i>Inspection</i> grid. See Work with Derived Fields on page 299 .
Days Since Last Good Reading	Derived field showing the number of days since the last good reading (reading meets criteria). Field available in all modules in the <i>Information</i> or <i>Inspection</i> grid. See Work with Derived Fields on page 299 .
Days Until Delinquent	Read-only, system calculated field. Number of days until a facility inspection becomes delinquent. Field is available in all modules. See <i>Data Entry > Edit <module> Data > Information or Inspection grid > Customize > Layouts</i> .
Decibel Reading (dB)	Decibel reading measured in millibels (mB, decibel microvolts) by the inspection tool using the A-Frame method during an ACVG survey. See ISM, <i>Data Entry > Edit ISM Data > ACVG</i> .
Default Location Format	Read-only field showing the format used in numbering facilities on a pipeline segment. Default Location Format is set up before adding or linking facilities to a pipeline segment. Valid entries are: <i>Metric Milepost</i> , <i>Milepost (4 decimals)</i> , <i>Location ID</i> , <i>Milepost (3 decimals)</i> , <i>Miles/Station Number</i> , <i>Reading Number</i> , and <i>Station Number</i> . Default Location Format is available in all modules. See <i>Data Entry > Edit <module> Data > Information or Inspection grid > Customize > Layout</i> .
Delinquent Date From Schedule	Read-only field showing the date a facility becomes delinquent based on scheduling properties set up in Edit Schedule Settings (<i>Data Entry > Edit Schedule Settings</i>). This field is available in all modules. See <i>Data Entry > Edit <module> Data > Information or Inspection grid > Customize > Layout</i> .
Depth	Numeric field supporting decimal numbers with up to 6 digits resolution, including two numbers after the decimal. Use this field to enter the pipeline depth reading in inches as measured by the PCM inspection tool during an ACCA survey. See ISM, <i>Data Entry > Edit ISM Data > ACCA</i> .
Diameter	Distance from wall to wall across a tank. See CPDM, <i>Data Entry > Edit CPDM Data > Tank Information, Inspection or Maintenance grid > Customize > Layouts</i> .

Table B-19. System Field Descriptions cont'd

Name	Description
Diode Rating	Amperage rating of the diode in the rectifier. See CPDM, <i>Data Entry > Edit CPDM Data > Information or Inspection grid > Customize > Layout.</i>
Due Date From Schedule	Date a facility is scheduled for survey based on settings in Edit Schedule Settings (<i>Data Entry > Edit Schedule Settings</i>). This field is available for use in all modules; add the field in either the <i>Information</i> or <i>Inspection</i> grid. See <i>Data Entry > Edit <module> Data > Information or Inspection grid > Customize > Layouts.</i>
Due Date From Schedule	Read-only field showing the date a facility is due for inspection based on scheduling properties set up in Edit Schedule Settings (<i>Data Entry > Edit Schedule Settings</i>). This field is available in all modules. See <i>Data Entry > Edit <module> Data > Information or Inspection grid > Customize > Layout.</i>
East P/S	East Pipe-to-Soil. Structure reading in volts when a half-cell is placed near the east side of a tank. Add and enable Activate Cardinal Points in the <i>Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Tank > Information and Inspection grids > Customize > Layouts.</i>
East P/S Maximum/Minimum	Maximum and minimum voltage value allowed for data entry in the field East P/S in the <i>Tank Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Tank > Information or Inspection grid > Customize > Layouts.</i>
Effective Date	Required system field automatically present in all grids. Effective Date is the date a history record becomes effective. New history records are created with an Effective Date when important permanent information changes. For example, changes to important permanent information include changing the protection criteria value for a test point; changing the operational status from active to inactive or from inactive to active; and when a pipeline becomes inactive or is taken out of service. For more information, see Create History Records Using an Effective Date on page 288 .

Table B-19. System Field Descriptions cont'd

Name	Description
Efficiency	<p>System-provided value that is calculated using the formula shown below. A value can be manually entered, but is not recommended. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grid > Customize > Layouts</i>.</p> <p>Rectifier Output Volts Left x Rectifier Output Current Left x 100 AC Power (Watts)</p>
Efficiency Filter	<p>Check box for indicating whether or not a rectifier is using an efficiency filter. Click to place a check mark inside the check box when an efficiency filter is present. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grid > Customize > Layouts</i>.</p>
Elevation	<p>Elevation in feet for a facility, survey point, or anomaly on a pipeline as reported by a GPS device. This field is available for use in all modules.</p> <p>See <i>Data Entry > Edit <module> Data > Information or Inspection > grid > Customize > Layouts</i>.</p>
End Date	<p>Last day of a start and end date range, such as a start date of 05/04/2012 and an end date of 08/06/2012. A date range is typically used when generating a schedule or when defining a survey folder. This field is available in all modules.</p> <p>See <i>Data Entry > Edit <module> Data > Information or Inspection grid > Customize > Layout</i>.</p>
Existing Facilities	<p>An existing facility is a milepost in an imported stationary survey that matches an existing milepost in PCS for the currently selected ROW (pipeline segment). Existing facilities are used in telluric compensation. Also refer to Unregistered Milepost. See CPDM, <i>Data Entry > Stationary Survey Maintenance > Snap To Facility</i>.</p>
Facility Active	<p>Check box to indicate whether or not a facility is active or inactive according to survey status. Add this field in either the <i>Information or Inspection grid</i>.</p> <p>See CPDM, <i>Data Entry > Edit CPDM Data > Information or Inspection grid > Customize > Layouts</i>.</p>
Facility and ROW Currently Active	<p>Read-only system field showing the status of linked facilities on a ROW. Check box indicates whether or not a facility and ROW are active or inactive based on survey status. Add this field in either the <i>Information or Inspection grid</i>.</p> <p>See CPDM, <i>Data Entry > Edit CPDM Data > Information or Inspection grid > Customize > Layouts</i>.</p>

Table B-19. System Field Descriptions cont'd

Name	Description
Facility Attached Document	<p>Field for attaching a file (document or image) or Internet link to a facility or ROW. File attachment or link can be previewed or edited in PCS with the appropriate viewer or file editor if installed locally on the computer.</p> <p>Use this field to link or embed a file attachment and detach an attached file. This field is available in all modules and can be added in the <i>Information</i>, <i>Inspection</i>, and <i>Maintenance</i> grids. See any module, <i>Data Entry > Edit <module> Data > Information, Inspection, or Maintenance grid > Customize > Layout</i>.</p>
Facility Delinquent Date	<p>Date a facility is considered to be past due for inspection. This is a PCS calculated field based on schedule settings set up in <i>Edit Schedule Settings (Data Entry > Edit Schedule Settings)</i>. Available for use in all modules; add the field in either the <i>Information</i> or <i>Inspection</i> grid. See <i>Data Entry > Edit <module> Data > Information or Inspection grid > Customize > Layouts</i>.</p>
Facility ID	<p>Identification code that identifies a facility. This field is available for use in all modules; add the field in either the <i>Information</i> or <i>Inspection</i> grid. See <i>Data Entry > Edit <module> Data > Information or Inspection grid > Customize > Layouts</i>.</p>
Foreign IRF	<p>Foreign IR free reading. Voltage measurement indicating the potential of a foreign line at a foreign line crossing relative to the soil with interrupted rectifier current.</p> <p>Add and enable <i>Activate Foreign IRF</i> in the <i>Test Point Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point > Information and Inspection grids > Customize > Layouts</i>.</p>
Foreign P/S	<p>Foreign Pipe-to-Soil. Potential reading of foreign line at a foreign line crossing relative to the soil. Use this field to enter pipe-to-soil "on" measurements taken at a site with all DC sources operational.</p> <p>Add and enable <i>Activate Foreign P/S</i> in the <i>Test Point Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point > Information and Inspection grids > Customize > Layouts</i>.</p>

Table B-19. System Field Descriptions cont'd

Name	Description
Galvanic Anode Initial Current	<p>Initial current output at install. Additional readings should be recorded in the field Galvanic Current in the <i>Galvanic Anode Inspection</i> grid.</p> <p>To record data in the Galvanic Current field in the <i>Inspection</i> grid: (1) add Activate Galvanic Current in the <i>Information</i> grid, then enable the field's check box, (2) add the field Galvanic Current in the <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Galvanic Anode > Information and Inspection grids > Customize > Layouts</i>.</p>
Galvanic Anode Shunt Factor	<p>Amperage value of the galvanic anode shunt factor. Shunt factor includes the value in this field and the millivolt/amperage (mV/A) value entered in the Galvanic Anode Shunt Rating field.</p> <p>Add the fields Galvanic Anode Shunt Factor and Galvanic Anode Shunt Rating in either the <i>Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Galvanic Anode > Information or Inspection grids > Customize > Layouts</i>.</p>
Galvanic Anode Size	<p>Weight in pounds (lbs) of sacrificial anode. Add this field in either the <i>Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Galvanic Anode > Information or Inspection grids > Customize > Layouts</i>.</p>
Galvanic Anode To Soil	<p>Driving potential of the anode relative to the soil. Value entered in volts. Add this field in either the <i>Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Galvanic Anode > Information or Inspection grids > Customize > Layouts</i>.</p>
Galvanic Anode Type	<p>Type of anode such as magnesium, aluminum, or zinc. Add this field in the <i>Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Galvanic Anode > Information or Inspection grids > Customize > Layouts</i>.</p>
Galvanic Current Maximum/Minimum	<p>Maximum and minimum current output. See CPDM, <i>Data Entry > Edit CPDM Data > Galvanic Anode > Information or Inspection grids > Customize > Layouts</i>.</p>

Table B-19. System Field Descriptions cont'd

Name	Description
Galvanic Number of Anodes	<p><i>Rectifier facilities:</i> Number of impressed current anodes at a rectifier/ground bed installation. If there are multiple ground beds at a rectifier, this will be the total number of anodes associated with that rectifier.</p> <p><i>Galvanic Anodes:</i> Number of sacrificial anodes at a galvanic anode installation.</p> <p>See CPDM, <i>Data Entry > Edit CPDM Data > Galvanic Anode > Information</i> or <i>Inspection grids > Customize > Layouts</i>.</p>
Gas Indicator Leak Test	<p>Remark field in the LSM module for describing the condition of the valve coating at inspection.</p> <p>To record data in the field Gas Indicator Leak Test in the <i>Inspection</i> grid: (1) add the field Activate Gas Indicator Leak Test in the <i>Information</i> grid, then enable the field's check box, (2) add the field Gas Indicator Leak Test in the <i>Inspection</i> grid. See LSM, <i>Data Entry > Edit LSM Data > Information</i> and <i>Inspection grids > Customize > Layouts</i>.</p>
Holiday	<p>Use this field to indicate a survey location with a pipeline coating anomaly (hole) as detected by the inspection tool during an ACVG survey. A check mark inside the check box indicates a survey location with a holiday. To remove the check mark, click the check box again.</p> <p>See ISM module, <i>Data Entry > Edit ISM Data > ACVG</i>.</p>
Indication Classification	<p>Use this field to classify or prioritize the severity of an indication. For example, classifications such as minor, moderate, severe, immediate, scheduled, or monitored might be used to prioritize the severity of indications. Typical indications include coating faults, holidays, corrosion activity, electrical shorts, interference, geologic current shielding, and other types of anomalies that have been discovered during an above ground, indirect survey.</p> <p>If your company uses a coding system for describing the severity of indications, you can type the code in the field; select the code and its description from a drop-down list if a picklist has previously been setup in Field and UDF Customizations (see Set Properties in Field and UDF Customizations on page 1); or import the code in PCS using Bridge (see Bridge on page 1).</p>
Indication Score	<p>Alphanumeric field that accepts up to two characters, numbers, or a combination of both. Use this field to rank, prioritize, quantify the actual size, or grade the severity of an indication classification.</p>

Table B-19. System Field Descriptions cont'd

Name	Description
Inspection Remarks	Survey comment associated with a facility, anomaly, or landmark. Field is available for use in all modules. See any module, <i>Data Entry > Edit <module> Data > Inspection > Customize > Layouts</i> .
Insulator IRF	<p>Insulator IR Free. Voltage measurement indicating the potential of an insulated flange relative to the soil with interrupted rectifier current.</p> <p>Add and enable Activate Insulator IRF in the <i>Test Point Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point > Information</i> and <i>Inspection</i> grids > <i>Customize > Layouts</i>.</p>
Insulator P/S	<p>Insulator Pipe-to-Soil. Potential reading for the other side of an insulated flange, relative to the soil. Also referred to as an "insulator-to-soil" potential reading.</p> <p>Add and enable Activate Insulator P/S in the <i>Test Point Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point > Information</i> and <i>Inspection</i> grids > <i>Customize > Layouts</i>.</p>
Insulator Shunt Factor	<p>Amperage value of the insulator shunt factor. Shunt factor consists of the value in this field and the value (mV/A) in the field Insulator Shunt Rating.</p> <p>See CPDM, <i>Data Entry > Edit CPDM Data > Test Point > Information</i> or <i>Inspection</i> grid > <i>Customize > Layouts</i>.</p>
IR (percentage)	<p>Numeric field supporting a 5 digit decimal number, including two numbers after the decimal. Use this field to enter a value that represents the estimated size or severity of a holiday as a percentage. The value you enter is the difference between the over-the-line (OTL) to remote earth (RE) readings divided by the signal strength (SS) of the voltage gradient at the anomaly.</p> <p>$\text{IR (percentage)} = (\text{OTL} - \text{RE or RE} - \text{OTL}) \div \text{SS at anomaly}$</p> <p>See <i>ISM, Data Entry > Edit ISM Data > DCVG</i>.</p>
Is Gps Time	Read-only field indicating whether or not the P/S and IRF (ON/OFF) inspection date and time is GPS time. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Detail Inspection</i> mini-grid.

Table B-19. System Field Descriptions cont'd

Name	Description
KWH Meter	Kilowatt hours (KWH) recorded from a power meter for rectifier power usage. Add and enable Activate KWH Meter in the <i>Rectifier Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information</i> and <i>Inspection</i> grid > <i>Customize > Layouts</i> .
Latitude	Numeric field that accepts up to twelve digits. Use this field to enter data that identifies the GPS latitude coordinate (north/south) for a test point, rectifier, bond, anomaly, or other location type on a pipeline. Field is available in all modules.
Level 1 Name through Level 5 Name	User setting for the names of the system hierarchy levels. PCS supports up to five hierarchy levels. See <i>Tools > Customize > Hierarchy</i> .
Locate Current (mA)	Use this field to enter a current reading in milliamps (mA) as measured by the PCM inspection tool for survey points located directly over the pipeline during an ACCA survey. See ISM, <i>Data Entry > Edit ISM Data > ACCA</i> .
Location Code	Alphanumeric code assigned to a pipeline segment. The field accepts up to five alphanumeric characters. Location Code is available for use in all modules and can be added in either the <i>Information</i> or <i>Inspection</i> grid. See <i>Data Entry > Edit <module> Data > Information or Inspection</i> grid > <i>Customize > Layouts</i> .
Log Number	Numeric field that supports up to 6 digits. This field is typically used for sequential log numbers generated by a PCM (pipeline current mapper) data logger for survey readings taken during an ACCA survey. See ISM, <i>Data Entry > Edit ISM Data > ACCA</i> .
Longitude	Numeric field that accepts up to twelve digits. Use this field to enter data that identifies the GPS longitude coordinate (east/west) for a test point, rectifier, bond, anomaly, or other location type on a pipeline. Field is available in all modules.
Loss per Distance (dB/Ft)	Numeric field supporting positive or negative decimal numbers with up to 5 digits resolution, including 2 numbers after the decimal. Use this field to enter the "dB loss per foot" value as calculated by the PCM inspection tool during an ACCA survey. The calculated value indicates the "current loss per distance ratio". See ISM, <i>Data Entry > Edit ISM Data > ACCA</i> .

Table B-19. System Field Descriptions cont'd

Name	Description
Manufacturer	Manufacturer of the rectifier being installed. See CPDM module, <i>Data Entry > Edit CPDM Data > Rectifier Inspections</i> grid > <i>Customize > Layouts</i> .
Milepost	Number representing a testing or facility location on a pipeline such as 23+123. May also be referred to as station number, milepost marker, or station marker. See <i>Tools > Customize > General > User Location Name</i> .
Native P/S	Native Pipe-to-Soil. Voltage reading taken prior to any current placed on the pipeline. Also referred to as depolarized or static potential.
Negative Shunt Factor	Amperage value of the negative shunt factor. This field is available in the <i>Rectifier Negative Inspections</i> mini-grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier Inspections</i> grid > <i>Rectifier Negative Inspections</i> mini-grid.
Number of Crossings	PCS calculated field showing the total number of crossings, such as road crossings, railroad crossings, foreign pipeline crossings, and fence lines. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point > Information</i> or <i>Inspection</i> grid > <i>Customize > Layouts</i> .
Number of Leaks	Numeric field for entering the number of leaks. Add the Activate Number of Leaks field in the <i>Information</i> grid to allow data entry in the <i>Inspection</i> grid. See LSM, <i>Data Entry > Edit LSM Data > Information</i> and <i>Inspection</i> grid > <i>Customize > Layouts</i> .
Number of Negatives	PCS calculated field in either the <i>Rectifier Information</i> or <i>Inspection</i> grid. This field shows the number of negatives in the <i>Rectifier Negative Information</i> mini-grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information</i> or <i>Inspection</i> grid > <i>Customize > Layouts</i> .
Number of Readings in Survey	A derived field showing the total number of survey readings in a continuous survey. See continuous survey types CIS, AC CIS, DCVG and so on in Indirect Survey Manager (ISM). Also see Work with Derived Fields on page 299 .
Number of Turns	Number of turns to open a valve. Add the Activate Number of Turns field in the <i>Information</i> grid to allow data entry in the <i>Inspection</i> grid. See VM, <i>Data Entry > Edit VM Data > Information</i> and <i>Inspection</i> grid > <i>Customize > Layouts</i> .
Off Delta	A value showing the difference between the uncompensated and compensated OFF values.
On Delta	A value showing the difference between the uncompensated and compensated ON values.

Table B-19. System Field Descriptions cont'd

Name	Description
Original Station Number	The initial or original station number before re-aligning station numbers using the Rubber Banding feature in <i>Survey Maintenance</i> . See ISM, <i>Data Entry > Edit ISM Data > Survey Maintenance</i> .
OTL to Remote Earth (mV)	Over-the-Line to Remote Earth. Use this field to enter a value in millivolts (mV) that represents the sum of all side drain measurements taken during a DCVG survey for a survey point on the pipeline. See ISM, <i>Data Entry > Edit ISM Data > DCVG</i> .
P/S Offset	Pipe-to-Soil Offset. Offset added to a pipe-to-soil (P/S) reading collected on the Allegro field computer or mobile device. Use this field when using a permanent reference cell other than copper-copper sulfate. PCS uses the value to convert the reading to the equivalent copper-copper sulfate reading. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point > Information or Inspection grid > Customize > Layouts</i> .
Parallel Line	Two (2) pipelines within the same ROW (right-of way) and parallel to each other. Use the fields <i>Pipeline Code</i> and <i>Pipeline Name</i> in <i>Select ROWs</i> to identify a parallel pipeline. Also see Pipe, Pipeline Code, and Pipeline Name .
PBN Dial Reading	Measurement reading taken at inspection. Add the field <i>Activate PBN Dial Reading</i> in the <i>Information</i> grid to allow data entry in the <i>Inspection</i> grid. See ICM, <i>Data Entry > Edit ICM Data > Probe > Information and Inspection grid > Customize > Layouts</i> .
PCM Current (dB)	Numeric field that supports decimal numbers with up to 6 digits resolution, including two numbers after the decimal point. Use this field to enter the PCM current reading as measured in mA and dB by the PCM inspection tool during an ACCA survey. See ISM, <i>Data Entry > Edit ISM Data > ACCA</i> .
PCS Field Name	Selection list that allows you to choose the type of potential reading associated with a test lead record in the <i>Test Point Detail Information</i> and <i>Inspection</i> mini-grid. The test lead inspection record controls which ON/OFF values copy to the <i>Inspection</i> grid P/S and IRF fields for compliance reporting. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Detail Information and Inspection</i> mini-grids.
Periodic Survey	A survey conducted more often than every 12 months, such as monthly or bi-monthly rectifier surveys. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Inspection grid > Customize > Layouts</i> .

Table B-19. System Field Descriptions cont'd

Name	Description
Periodic Survey Year	Year a periodic survey is performed. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Inspection grid > Customize > Layouts.</i>
Permanent Comments	<p>Comments permanently associated with a facility. This type of comment does not typically change during each survey year. This field is available for use in all modules and can be added in the <i>Information grid</i>. See <i>Data Entry > Edit <module> Data > Information grid > Customize > Layouts.</i></p> <p>Comments that apply to a particular survey should be entered in the Survey Remarks field.</p>
Phone Number	Phone number of the person to contact at another company about a foreign bond. See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond > Information or Inspection grid > Customize > Layouts.</i>
Pipe	Two digit alphanumeric code used to identify a parallel pipeline in a common ROW with an existing pipeline. Also see Pipeline Code , Pipeline Name , and Parallel Line .
Pipeline Code	Two digit alphanumeric code used to identify a parallel pipeline in a common ROW with an existing pipeline. Also see Pipe , Pipeline Name , and Parallel Line .
Pipeline Name	Name of a parallel pipeline in a common ROW with an existing pipeline. Also see Pipeline Code , Pipeline Name , and Parallel Line .
Plot This Point	<p>Use this field to include or exclude continuous survey readings in reports and graphs. To include a survey reading, click the check box to place a check mark in the check box. To exclude a survey reading, clear the check mark by clicking the check box. This field is enabled by default with all survey readings included in reports and graphs.</p> <p>See ISM, <i>Data Entry > Edit ISM Data > any survey type.</i></p>
Polarity	<p>Direction of current flow at a foreign bond. Add the field Activate Polarity in the <i>Information grid</i> to allow data entry in the <i>Inspection grid</i>.</p> <p>See CPDM, <i>Data Entry > Edit CPDM Data > Foreign Bond > Information and Inspection grid > Customize > Layouts.</i></p>
Power Company Phone Number	Phone number of the power company for a rectifier installation site. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grid > Customize > Layouts.</i>
Pre-Install P/S	Pipe-to-soil reading taken before installation of galvanic anodes. See CPDM, <i>Data Entry > Edit CPDM Data > Galvanic Anode > Information or Inspection grid > Customize > Layouts.</i>

Table B-19. System Field Descriptions cont'd

Name	Description
Property Rights	Code that identifies any property rights that might impact inspection or access to a pipeline. The field supports up to 10 alphanumeric characters including spaces, such as B #1234567. See LSM, <i>Data Entry > Edit LSM Data > Maintenance grid > Customize > Layouts.</i>
Rectifier Anode Size	Dimensions of impressed current anodes such as 3 x 60. Add the field in either the <i>Rectifier Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grids > Customize > Layouts.</i>
Rectifier Anode Type	Type of anode such as graphite or high silicon material. Add the field in either the <i>Rectifier Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grids > Customize > Layouts.</i>
Rectifier Current Adjusted	Check box for indicating a change was made to the rectifier current at inspection. When a change is made (1) click to add a check mark in the Rectifier Current Adjusted check box, (2) enter the adjusted reading in the fields Rectifier Output Volts Left and Rectifier Output Current Left. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Inspection grids > Customize > Layouts.</i>
Rectifier Current Density	A calculated report field indicating the amount of current required per square foot to change a structure's potential to -0.85 volts.
Rectifier Current Distributions	Number of pipelines receiving current from a rectifier. This field is generated by PCS as current distributions are added. See CPDM module, <i>Reports/Graphs > Survey Report.</i>
Rectifier Output Current Found	Initial rectifier reading at inspection measured in Amps. Add the Activate Rectifier Output Current Found field in the <i>Information</i> grid to allow data entry in the <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information and Inspection grids > Customize > Layouts.</i> PCS multiplies the initial rectifier reading by the rectifier shunt factor when the fields <i>Rated Rectifier Output Volts</i> and <i>Rated Rectifier Output Current</i> are populated in the <i>Rectifiers Information</i> grid.
Rectifier Output Current Found Maximum/Minimum	Maximum and minimum value (measured in Amps) allowed for data entry in the field Rectifier Output Current Found. Add the fields in either the <i>Rectifier Information</i> or <i>Inspection</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grids > Customize > Layouts.</i>

Table B-19. System Field Descriptions cont'd

Name	Description
Rectifier Output Current Left	Rectifier reading after making adjustments to the rectifier output current at inspection (measured in Amps). Also see description for Rectifier Output Current Found. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Inspection grids > Customize > Layouts.</i>
Rectifier Output Shunt Factor	Amperage value of the anode shunt factor. Refers to the shunt used to measure the output current of each anode in a positive junction box. Shunt factor includes the value in this field and the value entered in the field Rectifier Output Shunt Rating. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grids > Customize > Layouts.</i>
Rectifier Output Volts Found	Initial rectifier reading at inspection measured in volts. Add and enable the Activate Rectifier Output Volts Found field in the <i>Rectifier Information</i> grid to allow data entry in the <i>Inspections</i> grid. Also refer to the description Rectifier Current Adjusted. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information and Inspection grids > Customize > Layout.</i>
Rectifier Output Volts Found Maximum/Minimum	Maximum and minimum voltage value allowed for data entry in the field Rectifier Output Volts Found. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information or Inspection grids > Customize > Layouts.</i>
Rectifier Output Volts Left	See description for Rectifier Current Adjusted.
Repair Priority	Code number for identifying how soon repair work should begin. The field accepts up to five alphanumeric characters including spaces, such as A #123. This field is available for use in all modules. See <i>Data Entry > Edit <module> Data > Maintenance grid > Customize > Layouts.</i>
Revolutions	Number of times a power meter wheel has rotated in a specific time period. This field is used to calculate the value in the Efficiency field. Add and enable the field Activate Revolutions in the <i>Rectifier Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information and Inspection grids > Customize > Layout.</i>
RFID	Radio-frequency identification number populated either by transferring an Allegro Periodic Survey (PS) to PCS or manual entry in a grid. This field is available for use in all modules. See <i>Data Entry > Edit <module> Data > Information, Inspection, or Maintenance grid > Customize > Layouts.</i>

Table B-19. System Field Descriptions cont'd

Name	Description
ROW Currently Active	Check box for indicating when a pipeline is active or inactive according to survey status. Field is available for use in all modules. See <i>Data Entry > Edit <module> Data > Information</i> grid.
Seconds	Amount of time in seconds that has elapsed for the number of Revolutions. This field is used to calculate the value in the Efficiency field. Add and enable the field Activate Seconds in the <i>Rectifier Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information</i> and <i>Inspection grids > Customize > Layout</i> .
Series	Use Series to adjust or shift milepost numbers for a pipeline when adding a pipeline extension, re-routing a pipeline, or designating two pipelines as parallel lines. The calculated milepost number resulting from a Series is referred to as Relative Milepost. See CPDM module <i>Data Entry > Pipeline Series</i> .
Signal Strength	Signal strength of the voltage gradient (IR drop) at survey points along the pipeline as measured in millivolts (mV) by a voltmeter during a DCVG survey. See ISM, <i>Data Entry > Edit ISM Data > DCVG</i> .
Soil Resistivity (Ohm/cm)	Use this field to record soil resistivity measurements along the pipeline. Measurements are in Ohm-centimeters (Ohm/cm). See ISM, <i>Data Entry > Edit ISM Data > Soil Resistivity</i> .
South P/S	Structure reading in volts when a half-cell is placed near the east side of a tank. Add and enable Activate Cardinal Points in the <i>Tank Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Tank > Information</i> and <i>Inspection grids > Customize > Layouts</i> .
South P/S Maximum/Minimum	Maximum and minimum voltage value allowed for data entry when entering a structure reading in the South P/S field.
SRB	Amount of sulfate-reducing bacteria (SRB) measured as parts per million (Ppm). Add and enable Activate SRB in the <i>Samples Information</i> grid to allow data entry in the <i>Inspections</i> grid. See ICM, <i>Data Entry > Edit CPDM Data > Samples > Information</i> and <i>Inspection grids > Customize > Layouts</i> .

Table B-19. System Field Descriptions cont'd

Name	Description
Start Date	First day of a start and end date range, such as a start date of 05/04/2012 and an end date of 08/06/2012. A date range is typically used when generating a schedule or when defining a survey folder. This field is available in all modules. See <i>Data Entry > Edit <module> Data > Information</i> or <i>Inspection</i> grid.
Station Marker	See description for Milepost.
Station Number	Use this field to enter testing or facility location numbers on a pipeline (such as 23+124). Station numbers are also referred to as milepost, milepost marker, or station marker.
Station Number Maximum	A derived field showing the highest station number from survey readings in a continuous survey. See continuous survey types CIS, AC CIS, DCVG and so on in Indirect Survey Manager (ISM). Also see Work with Derived Fields on page 299 .
Station Number Minimum	A derived field showing the lowest station number from survey readings in a continuous survey.
Structure IRF and Structure IRF-CIS	Potential of the pipe, relative to the soil, with interrupted rectifier current (measured in volts). Use this field to enter pipe-to-soil "off" measurements taken at a site with all DC sources interrupted. See ISM, <i>Data Entry > Edit ISM Data > CIS</i> . In CPDM, add and enable <i>Activate Structure IRF</i> in the <i>Test Point Information</i> grid to allow data entry in the <i>Inspections</i> grid.
Structure P/S and Structure P/S-CIS	Potential of the pipe relative to the soil measured in volts. Use this field to enter pipe-to-soil "on" measurements taken at a site with all DC sources operational. See ISM, <i>Data Entry > Edit ISM Data > CIS</i> . In CPDM, add and enable the field <i>Activate Structure P/S</i> in the <i>Test Point Information</i> grid to allow data entry in the <i>Inspections</i> grid.
Surface Area	Total length and width of the pipeline expressed in feet. This field is used to determine <i>Efficiency</i> in the <i>Current Density</i> report. See any module > <i>Data Entry > Edit ROW Detail</i> .
Surface Condition	Surface condition of the pipeline. The field accepts up to five alphanumeric characters. See LSM, <i>Data Entry > Edit LSM Data > Maintenance grid > Customize > Layouts</i> .
Surface Covering	Type of coating or covering on the pipeline. See LSM, <i>Data Entry > Edit LSM Data > Maintenance grid > Customize > Layouts</i> .
Survey Date	Date an inspection or survey reading was taken.

Table B-19. System Field Descriptions cont'd

Name	Description
Survey Interval	Potential measurements taken at regular intervals for assessing the level of cathodic protection (CP). The system default is 2.5 feet for DC and AC close interval surveys (CIS and AC CIS) in ISM.
Survey Name	Identifies the survey folder where a survey reading is assigned. Field is available for use in all modules. See <i>Data Entry > Edit <module> Data > Inspection grid > Customize > Layouts</i> . For periodic survey readings in CPDM, use the fields Periodic Survey and Periodic Survey Year instead.
Survey Remarks	Remark or comment associated with a test point, rectifier, bond, anomaly, or landmark for a particular survey.
Surveyor	Name of person conducting a survey.
Tap Settings	Coarse or fine tap settings for rectifier output adjustment, such as C2F3. Add and enable Activate Tap Settings in the <i>Rectifier Information</i> grid to allow data entry in the <i>Inspections</i> grid. See CPDM, <i>Data Entry > Edit CPDM Data > Rectifier > Information</i> and <i>Inspection grids > Customize > Layouts</i> .
Total Footage	Total number of feet for pipeline segment.
Uncompensated Off	Pipe-to-soil "OFF" (P/S) value received from the Allegro. This is the raw reading without telluric compensation. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Detail Inspection</i> mini-grid.
Uncompensated On	Pipe-to-soil "On" (P/S) value received from the Allegro. This is the raw reading without telluric compensation. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point Detail Inspection</i> mini-grid.
Unregistered Milepost	An unregistered milepost is a milepost in an imported stationary survey that does not match an existing milepost in PCS for the currently selected ROW (pipeline segment). Unregistered mileposts relate only to the associated stationary survey and are not considered as facilities in PCS. Unregistered mileposts are however used in telluric compensation. Also refer to Existing Facilities . See CPDM, <i>Data Entry > Stationary Survey Maintenance > Snap To Facility</i> .
User IR Correction	When a value is entered in User IR Correction, PCS uses the value to calculate Target P/S instead of using the absolute difference between Structure P/S and Structure IRF. See CPDM, <i>Data Entry > Edit CPDM Data > Test Point > Inspection grid > Customize > Layouts</i> .

Table B-19. System Field Descriptions cont'd

Name	Description
Valve Coating	Condition of valve coating at inspection. Add and enable Activate Valve Coating in the <i>Information</i> grid to allow data entry in the <i>Inspections</i> grid. See VM, <i>Data Entry > Edit VM Data > Information and Inspection grids > Customize > Layouts</i> .
Valve Condition	General condition of valve at inspection. Add and enable Activate Valve Condition in the <i>Information</i> grid to allow data entry in the <i>Inspections</i> grid. See VM, <i>Data Entry > Edit VM Data > Information and Inspection grids > Customize > Layouts</i> .
Valve Operated	Check box for indicating if the valve was manually operated. Add and enable Activate Valve Operated in the <i>Information</i> grid to allow use of the field in the <i>Inspections</i> grid. See VM, <i>Data Entry > Edit VM Data > Information and Inspection grids > Customize > Layouts</i> .
Valve Pass/Fail	Status of the valve after inspection. Add and enable Activate Valve Pass/Fail in the <i>Information</i> grid to allow data entry in the <i>Inspections</i> grid. See VM, <i>Data Entry > Edit VM Data > Information and Inspection grids > Customize > Layouts</i> .
Valve Secured	Check box for indicating if the value was left secured. Add and enable Activate Valve Secured in the <i>Information</i> grid to allow use of the field in the <i>Inspections</i> grid. See VM, <i>Data Entry > Edit VM Data > Information and Inspection grids > Customize > Layouts</i> .
Valve Type	Type of valve such as block or plug. See VM, <i>Data Entry > Edit VM Data > Information or Inspection grid > Customize > Layouts</i> .
Vendor	Name of the company providing a service.

System Security

PCS security is based on a user role method. A user role is a collection of permissions that tell the system which features a user has access to and whether or not the user is allowed to add, edit, or delete data. The system supports the following PCS installed user roles:

- SysAdmin
- User
- Read Only

The SysAdmin user role has full control of all PCS features and functions. The SysAdmin assigns the SysAdmin, User, or Read Only user role to all other users of the PCS system. User role assignments are set up in User Management (*Tools > User Management*).

The following table identifies system permissions included with the User and Read Only user roles. Information is organized based on PCS menu and menu functions, then by permission level and user role.

Table C-20. Permissions for Installed User Roles

Menu	Function	Permission	User	Read Only
File	File Menu	Access	Yes	Yes
File	Select ROWs	Access	Yes	Yes
File	Select ROWs	Edit (move, rename), Add, Delete	Yes	No
File	Select ROWs	Find, Change, Make Selections, Clear	Yes	Yes
File	Database Integrity Check	Access	No	No
Modules	Modules Menu	Access	Yes	Yes
Modules	CPDM, VM, ACM, ICM, LSM, ISM, CMM	Access	Yes	Yes
Data Entry	Data Entry Menu	Access	Yes	Yes
Data Entry	Edit Module Data	Access	Yes	Yes
Data Entry	Edit Module Data	Edit, Add, Delete	Yes	No
Data Entry	Edit Module Data > Build Survey	Access	Yes	No

Table C-20. Permissions for Installed User Roles cont'd

Menu	Function	Permission	User	Read Only
Data Entry	Edit Module Data > Mini-grid	Access	Yes	Yes
Data Entry	Edit Module Data > Options	Access	Yes	Yes
Data Entry	Edit Module Data > Public Layout Themes	Access	Yes	Yes
Data Entry	Edit Module Data > Public Layout Themes	Edit, Add, Delete	No	No
Data Entry	Edit Module Data > Private Layout Themes	Access, Edit, Add, Delete	Yes	Yes
Data Entry	Edit Module Data > Public Sort Themes	Access	Yes	Yes
Data Entry	Edit Module Data > Public Sort Themes	Edit, Add, Delete	No	No
Data Entry	Edit Module Data > Private Sort Themes	Access, Edit, Add, Delete	Yes	Yes
Data Entry	Edit Module Data > Public Filter Themes	Access	Yes	Yes
Data Entry	Edit Module Data > Public Filter Themes	Edit, Add, Delete	No	No
Data Entry	Edit Module Data > Private Filter Themes	Access, Edit, Add, Delete	Yes	Yes
Data Entry	Edit Module Data > Ad Hoc Filters	Edit, Add, Delete	Yes	Yes
Data Entry	Define Routes Menu	Access	Yes	Yes
Data Entry	Define Routes	Edit, Add, Delete/Undelete	Yes	No
Data Entry	Define Schedules Menu	Access	Yes	Yes
Data Entry	Define Schedules	Edit	No	No
Data Entry	Edit Schedule Settings Menu	Access	Yes	Yes
Data Entry	Edit Schedule Settings	Edit	No	No
Data Entry	Edit ROW Detail Menu	Access	Yes	Yes
Data Entry	Edit ROW Detail	Edit, Add, Delete/Undelete	Yes	No
Data Entry	Pipeline Series	Access	Yes	Yes
Data Entry	Pipeline Series	Edit/Add/Delete/Undelete	No	No

Table C-20. Permissions for Installed User Roles cont'd

Menu	Function	Permission	User	Read Only
Data Entry	Survey Folder Maintenance	Access	Yes	Yes
Data Entry	Survey Folder Maintenance	Edit, Add, Delete/Undelete	No	No
Reports/Graphs	Reports/Graphs Menu, Reports, Graphs, Custom Reports	Access	Yes	Yes
Tools	Tools Menu	Access	Yes	Yes
Tools	Bridge Menu; Bridge	Access, Edit	Yes	No
Tools	Field and UDF Customization Menu	Access	Yes	No
Tools	Field and UDF Customization	Edit, Add, Delete	No	No
Tools	Data Modification Utility	Access	No	No
Tools	Data Utilities > Data Modification Utility	Access	Yes	No
Tools	Email Notification	Access	No	No
Tools	Themes Management Menu	Access	Yes	Yes
Tools	Themes Management	Edit	No	No
Tools	Activation Key	Access	Yes	Yes
Tools	Facility Type Themes Management Menu	Access	Yes	Yes
Tools	Facility Type Themes Management	Edit	No	No
Tools	User Management Menu	Access	No	No
Tools	User Management	Edit	No	No
Tools	Application Schemes Menu	Access	Yes	No
Tools	Application Schemes	Edit	Yes	No
Tools	Options Menu	Access	Yes	No

Table C-20. Permissions for Installed User Roles cont'd

Menu	Function	Permission	User	Read Only
Tools	Options > Bullhorn Options > Criteria Options > Editing Options > Field Computer Options > General Options > Hierarchy Options > Reports Options > Security	Edit	No	No
Field Computer	Field Computer Menu Send Receive Log	Access	Yes	No
Help	Help Menu About PCS Technical Support	Access	Yes	Yes