American Innovations

CartoPac
an American Innovations technology

CartoPac v9

Release History

American Innovations

Proven compliance solutions.
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Revised March 2022

CartoPac Enterprise Improvements

Updates and Improvements in CartoPac Enterprise

American Innovations is committed to continuously improving our CartoPac Enterprise software through feature enhancements and upgrades. The details about improvements made in this and previous releases, are listed below. For questions or additional information, contact AI Support at support@aiworldwide.com

CartoPac Enterprise v9.10 Updates

February 2022

The updates included in the 9.10 release of CartoPac Enterprise Studio, Server, and Mobile applications are described below.

New Features

The following features were added to the CartoPac Enterprise Platform:

CartoPac Studio AutoSave

AutoSave functionality has been added to prevent potential data loss due to unexpected CartoPac Studio crashes. When the feature is enabled, CartoPac Studio automatically saves progress of CSN files for open solutions to a configured directory at specified increments. With AutoSave enbaled, lost or misconfigured CartoPac solutions can be restored. The feature must be enabled and configured by Server Administrators.

Enabling and Using AutoSave

New **Preferences** and **Tools** menus are available to set options and manage backups.

To enable the feature and configure relevant options, click the **Edit** menu in the CartoPac Studio toolbar and select **Preference**.
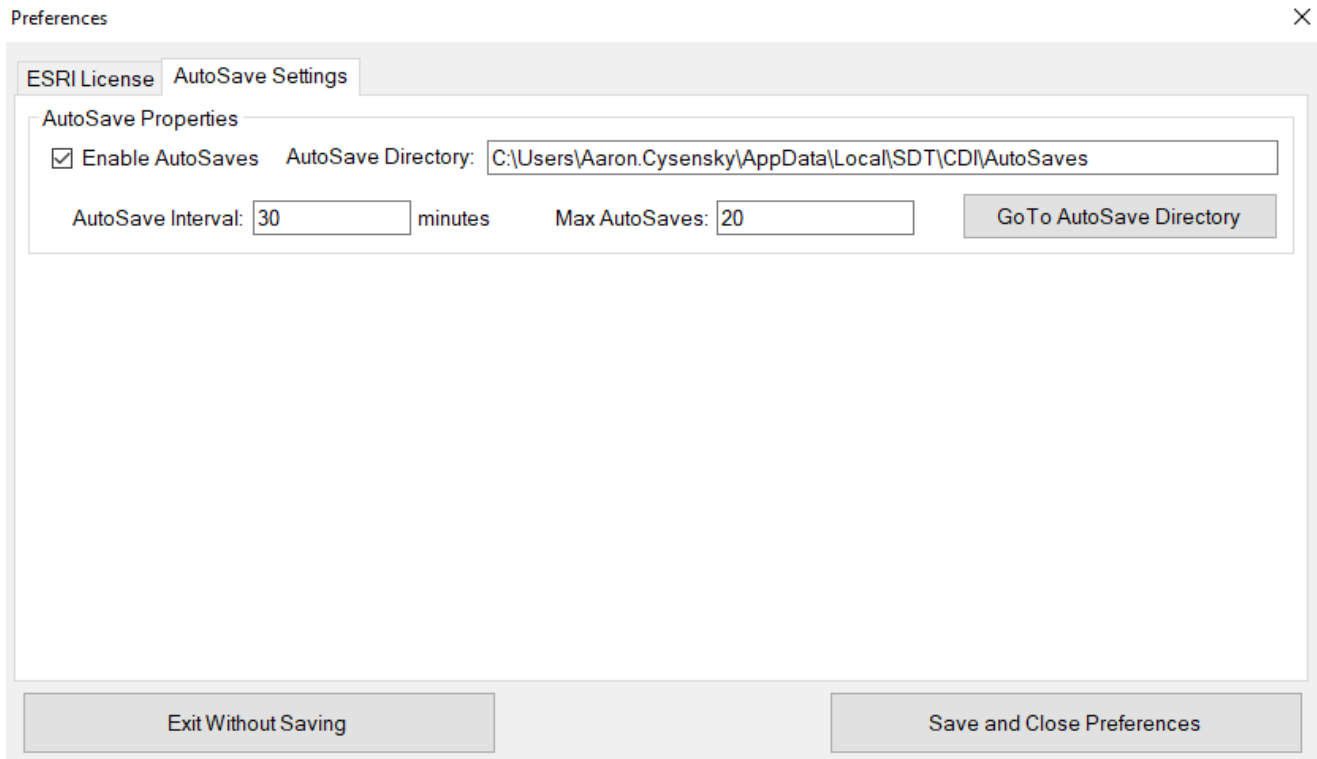

Figure 1-1. AutoSave Properties

To load or delete backups, click the **Tools** menu in the CartoPac Studio toolbar and select **Manage Backup**.

Figure 1-2. Manage Backups Menu

Store Encrypted Credentials in proxy.config File

CartoPac Enterprise v9.10 adds support for encrypting passwords, private keys, and tokens used in ArcGIS Proxy configurations prior to storing them in the **proxy.config** file, allowing secured storage for protected information.

Figure 1-3. Encrypted Credentials Stored in proxy.config File

Server Administrators use the *Proxy Configuration UI in CartoPac Web Application* to enter proxy details and enable the **Encrypt** option for respective authentication methods. Changes are written to and stored in the existing **proxy.config** file used by CartoPac Server.

Proxy Configuration UI in CartoPac Web Application

A user interface for complete management of proxy configurations has been added to the CartoPac Web Application's *Map and ESRI Service Administration* page, giving users the option to encrypt their proxy authentication credentials without having to manually manipulate the **proxy.config** file.

Using the Proxy Configuration User Interface

Server Administrators use the **Proxy Config** tab on the *Map and ESRI Service Administration* page to add, delete, and manage proxy configurations. Proxy configuration passwords, secret keys, and tokens can be encrypted in the user interface.

Figure 1-4. Map Proxy User interface

Figure 1-5. Configure Map Proxy User Interface

Changes are written to and stored in the existing **proxy.config** file used by CartoPac Server.

> **NOTE:** Encrypted credentials **should not** be entered manually into the **proxy.config** file.

Server Administrators also ensure that the IIS Application Pool running CartoPac Enterprise has read/write permissions to the **arcgisproxy/proxy.config** file in IIS.

Vertical Datum Configurations in CartoPac Studio

CartoPac Studio solutions can be configured with a Geoid model to convert from Height Above Ellipsoid (HAE) to an Orthometric Height vertical datum. Vertical database units are Standard Foot, Survey Foot (US_Foot), and Meters.

Vertical transformations are incorporated into existing transform settings to properly store coordinates collected by GNSS devices in the current vertical datum [NAVD88] used by the National Spatial Reference System (NSRS).

Figure 1-6. Projection Configuration with Vertical Settings

Using Vertical Datum Configuration in CartoPac Studio

Server Administrators must configure CartoPac solutions to take advantage of the othometric height functionality. A spatial transform can be configured in the **Solution Explorer** at the solution, database, or table level.

Solutions, databases, or layers that takes part in a NAD83 horizontal datum and NAVD88 vertical datum need to have a transform implemented and configured with vertical units and Geoid Model Definition. If a Geoid Model Definition is defined and the spatial transform is not using a NAD83 HTDP definition, CartoPac Studio will generate a warning message in the **CartoPac Studio Validation** pane.

ArcObjects Configurable Batch Merge

Added batch merge configurations in CartoPac Enterprise to improve upload performance. CartoPac solutions utilizing ArcObjects connections can be configured to merge records to the CartoPac Server in configurable batches, significantly enhancing data transfer performance.

CartoPac Enterprise can be configured to merge in batches of up to 1,000 records simultaneously.

Using Configurable Batch Merge Feature

Server Administrators can set the **Merge Batch Size** property for each ArcObjects database connection in a CartoPac CSN file individually.

Figure 1-7. Merge Batch Size

Each layer can be manually configured as needed.
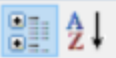
Figure 1-8. Merge Batch Size Property for a Layer

Ideal batch sizes are subject to factors including CartoPac Server resources, network constraints, and internet speed variables. The following guidelines provide a starting point for determining the optimal batch size:

- Batch size recommendation for non-attachments layers/tables is between 500 and 1000 records.

- Batch size recommendation for attachment layers/tables is between 50 and 100 records.

- A single batch with attachments should be configured to equate to roughly 500 MB.

IMPORTANT: Projects upgraded to CartoPac Enterprise v9.10 will have the **Merge Batch Size** set to 1 and need to be manually updated to utilize the new functionality. All layers and tables in a connection inherit the batch size from the database connection. If a layer should have a different batch size, it must be set manually at the layer/table level.

Derived Features in iOS Application

CartoPac Enterprise v9.10 supports use of the Derived Features workflow in the CartoPac Enterprise iOS application, allowing users to take advantage of workflows that create features derived from known locations with distance and bearing.

Using the Derived Features Workflow

Server Administrators configure CartoPac Enterprise solutions to take advantage of the Derived Features workflow. The Derived Features workflow in iOS is configured the same way as the Derived Features workflow in Windows. Refer to Derived Features documentation and metadata for details.

Stylized Buttons in iOS Application

CartoPac Enterprise v9.10 supports use of a traditional button style for auto-rest checkboxes, one-to-many relationship controls, one-to-one relationship controls, self-referencing relationship controls, and index controls.

Stylized buttons with haptic feedback provide enhanced user experience while aligning with the Window implementation of the application.

Using Stylized Buttons

Server Administrators must ensure that stylized button icons fit within previously configured forms and may need to remove previously configured labels used to identify buttons.

Set Value Batch Updates in CartoPac Mobile

CartoPac Mobile has enhanced Set Values capabilities that allow operations on more than one record at a time. CartoPac Solutions architects can create robust solutions capable of propagating data throughout the data collection process more efficiently.

Using Set Value Batch Updates

Server Administrators must configure CartoPac solutions with the intent of modifying several records using a single set value. A solution's Queried Records Set Values must be modified to use a query that will return more than one record to fit the desired workflow.

NOTE: This change has no impact on Set Values currently configured to only return a single value in the Queried Record statement.

.NET Framework Components Packaged with CartoPac Enterprise Installer

The CartoPac Enterprise installer executable includes the .NET 4.8 framework can install it on a client server or user device if the decencies are not recognized when the installer loads.

Server Administrators do not need to install the latest version of the .NET framework prior to installation of CartoPac Server, CartoPac Studio, or CartoPac Mobile. The CartoPac Enterprise v9.10 installation media installs the missing prerequisite as needed.

Improved Features

The following features have been improved:

Improved One-to-One Relationship Control Labels in iOS

CartoPac Enterprise v9.10 supports display of custom text for the **Add** button of a one-to-one relationship control in the iOS application. This feature, along with stylized buttons, enhances user experience when using one-to-one relationship controls.

Using Customized Text for One-to-One Relationship Control Buttons

Server Administrators configure customized text for one-to-one relationship control buttons in the CartoPac Solution file in CartoPac Studio.

Updated GNSS Cursor in CartoPac Mobile

the GNSS cursor in CartoPac Mobile has been updated to allow better visibility of features underneath the icon. A new **Scale** property is available in the **Display** tab under **CartoPac Options** allowing resizing of the GNSS cursor.

Adjusting GNSS Reticle Properties in CartoPac Mobile

GNSS cursor **Scale** and **Thickness** settings are located in the **Display** tab under **CartoPac Options** in CartoPac Mobile.
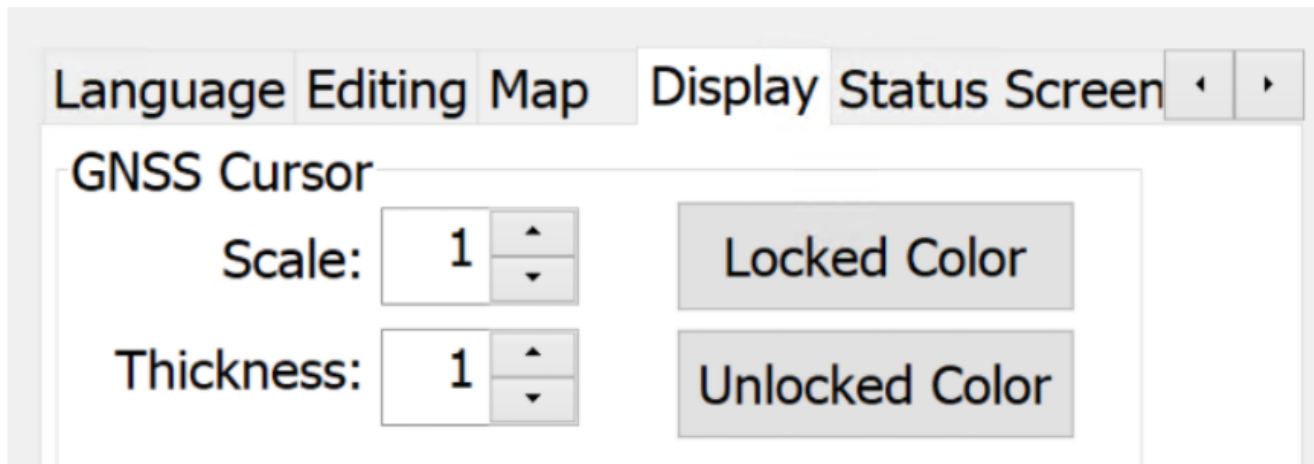
Figure 1-9. GNSS Cursor Settings

Configuration File Consolidation in CartoPac Server

Most CartoPac Server configuration files are consolidated into the default CartoPac Field Server configuration file directory `C:\CartoPac_FieldServer\Config`.

When installing CartoPac Server v9.10 and opening the CartoPac Server Setup Utility, a warning message alerts the Server Administrator about file location changes.

CartoPac Server Configuration File Migration ✕

As of CartoPac v9.10, the following config files have changed location to CacheDirectory's Config folder (default: C:\CartoPac_FieldServer\Config):

> CartoPacFieldServer.config
> CartoPacMapViewer.config
> CartoPacUserManagement.config
> DataAccelerator.config
> SateMachine.config
> CartoPac.FieldServer.Web.config
> arcgisproxy\proxy.config

These files will be automatically migrated from their original locations if they are not found within CacheDirectory's Config folder.

Please Note: Legacy config files may remain at their original locations for backward compatibility post migration.
Any modifications to these legacy files will have no effect on system configuration which is now defined by the files within CacheDirectory's Config folder.
No action is required at this time.

Would you like to hide this message moving forward?

[Yes] [No]

Figure 1-10. Configuration Migration Warning Message

Steps for Upgrading to CartoPac Server v9.10

Server Administrators should complete the following steps when upgrading an earlier version of CartoPac Server to v9.10.

- Disable CartoPac Server Service and Application Pool

- Backup CartoPac via Server Backup Utility

- Uninstall CartoPac and Delete Program Files (x86)\CartoPac directory

- Place backed-up config files into **~\CartoPac_FieldServer\Config**

  - The **proxy.config** file should be placed in **~\CartoPac_FieldServer\Config\arcgisproxy**

  - Place the **SDT.FieldServer.Service.exe.config** and **Web.config** files into **~\Program Files(x86)\CartoPac\bin**

- Restart CartoPac Server Service and Application Pool

NOTE: The **SDT.FieldServer.Service.exe.config** and **Web.config** files **are not** relocated to the cache root directory.

Advanced Diagnostics Logging Enhancements in CartoPac Mobile

Advanced Diagnostics logging in CartoPac Mobile has been enhanced to output additional detail to the **$$ErrorLog.gdt** file, allowing all background events to be logged to the GDT tables for investigation and troubleshooting purposes. Advanced Diagnostics logging should be disabled when not actively troubleshooting an issue.

Enabling Advanced Diagnostics Logging

To enable Advanced Diagnostics logging, select the **Advanced Diagnostics** checkbox located on the **Software** tab in CartoPac Mobile's *Options* window.
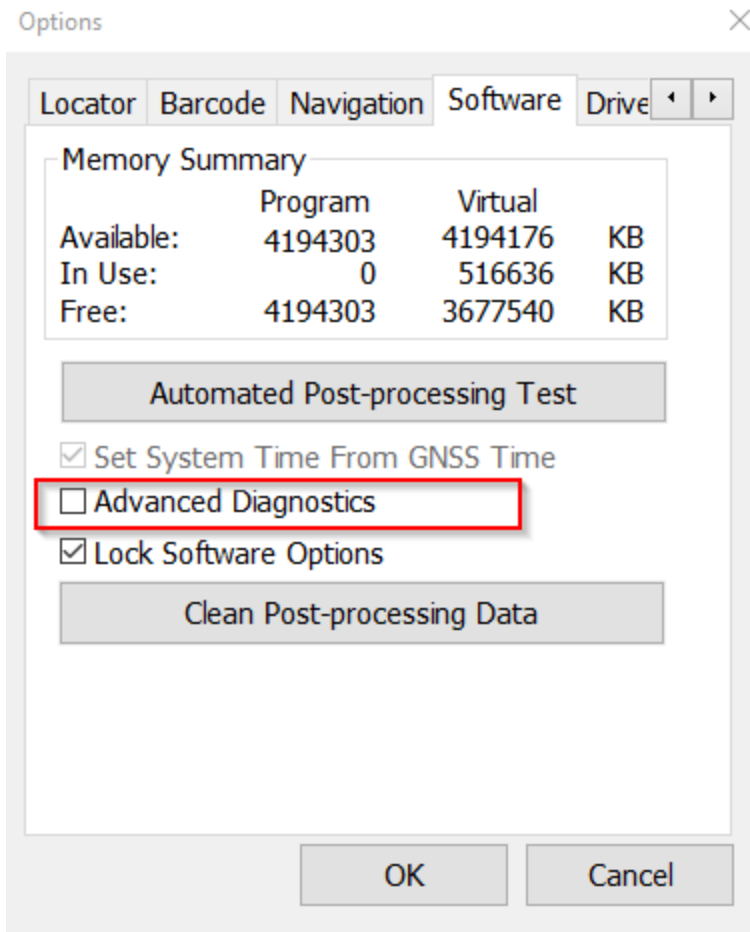
Figure 1-11. Advanced Diagnostics Option

IMPORTANT: Filed users should only enable Advanced Diagnostics logging if directed to do so by a CartoPac Support team member.

Because it logs significantly more data in the CartoPac Server storage space, Advanced Diagnostics logging should be disabled when not needed. Server Administrators can modify CartoPac Solution files' option sets to disable Advanced Diagnostics by default.
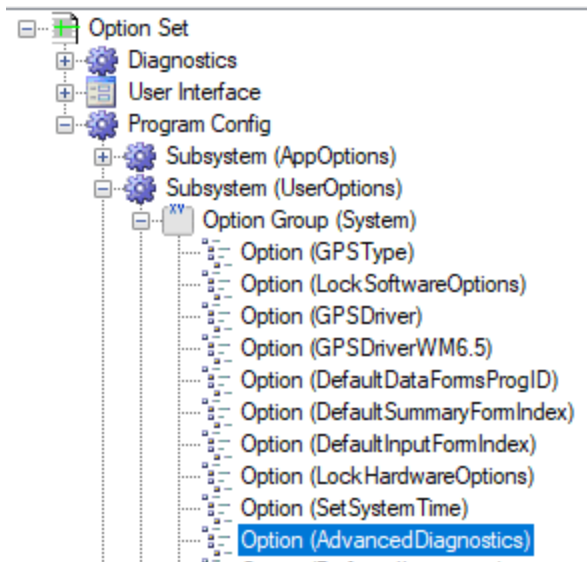
Figure 1-12. Advanced Diagnostics Option Sets

Vertical Toolbar Placement in CartoPac Mobile

CartoPacMobile v9.10 includes the ability to change position of the vertical toolbar between the left and right hand sides of the screen.
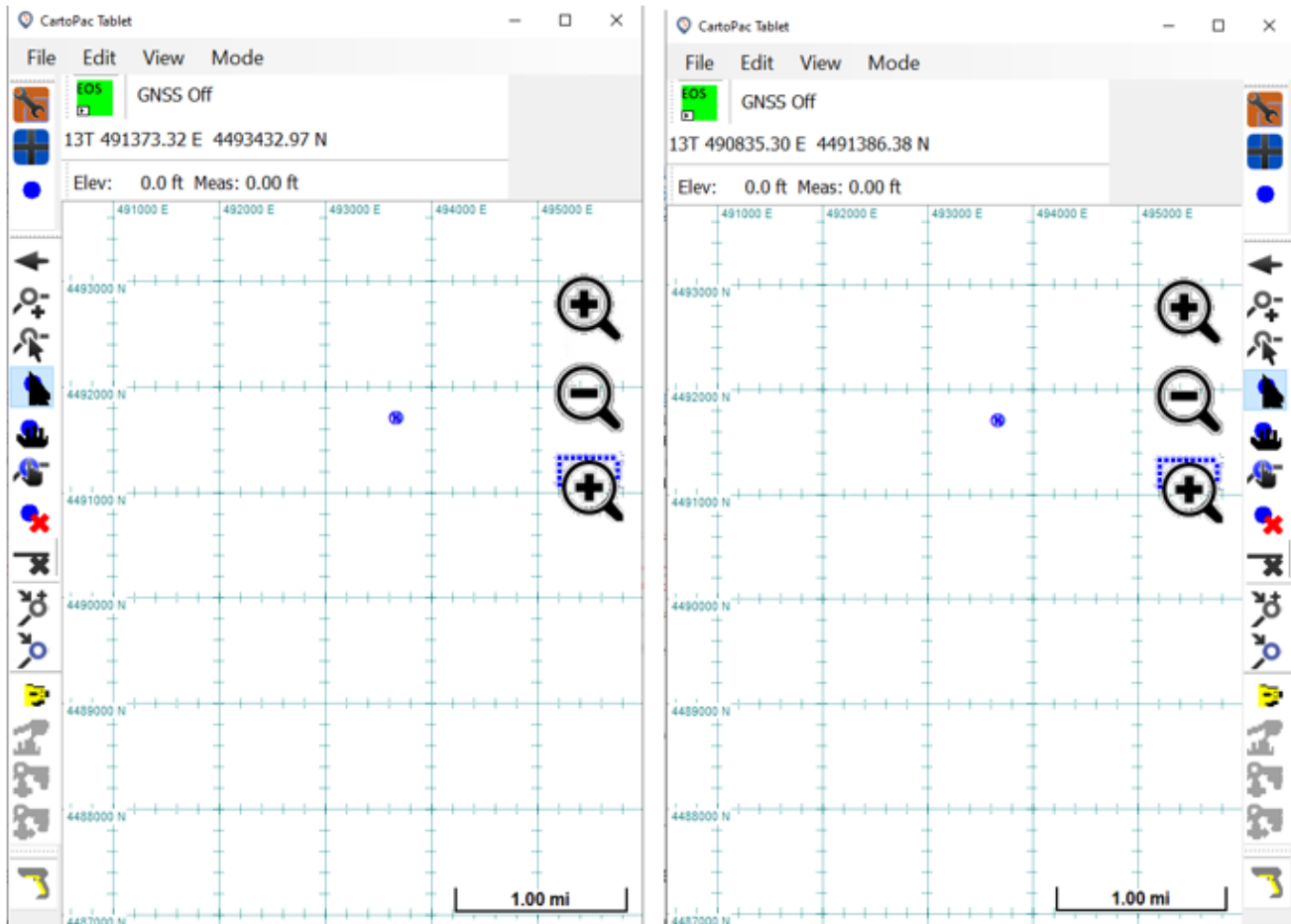
Figure 1-13. Vertical Toolbar Positions in the CartoPac Tablet App

Changing Position of the Vertical Toolbar

Users set where the vertical toolbar is displayed with the **Side Toolbar Location** menu under **Toolbar** in **CartoPac Options**.

NOTE: The **Side Toolbar Location** setting is user specific per tablet device. It cannot be set in the CartoPac Option Sets and persists on a tablet device for each logged in user.

Reordered Vertical Toolbar in CartoPac Tablet App

The vertical toolbar in the CartoPac Tablet app has been reordered, and a separator was added between the snapping buttons and the other spatial editing buttons.

Figure 1-14. Reordered Vertical Toolbar in the CartoPac Tablet App

Enhanced Photo Orientation and Camera Selection in CartoPac Mobile

A **Rotate Image Post-Capture** menu in CartoPac Mobile camera controls allows Windows 10 Tablet users to select the orientation of captured images before saving them to storage.

CartoPac Mobile retains camera selection and rotation settings between uses.

Figure 1-15. Rotate Image Post-Capture Options

Fixed Issues

The following issues have been corrected:

- Studio

    - Fixed ability to use default spatial transformations in ArcGIS Server when no spacial transformation is set in Studio using the Feature Services provider.

- Windows Tablet and Touch:

    - Fixed crash when opening **Peripheral Status** screen or the **CartoPac Mobile Options** menu in pre-Windows 10 environments.

- iOS

- Disabled the **Go-To** button functionality in **Data Summary** on the iOS Application for Non-Spatial tables.

- Corrected an issue with the CartoPac iOS application causing an additional label to be displayed for one-to-many relationship controls with the Label Buttons property set to **TRUE**.

- Corrected a CartoPac iOS issue that prevented features created from a one-to-one relationship control from displaying until all forms are closed.

- Remedied an issue where one-to-one relationship controls would not allow the user to remove an added feature until the feature was viewed. This caused a poor user experience causing the user to open a feature prior to be allowed to delete it.

- Corrected an issue that caused the Text of buttons on one-to-one and one-to-many Relationship Controls to disappear after a configuration change in CartoPac Studio.

- Corrected an issue introduced by a recent iOS update that allowed a form to be 'swiped down' and closed without first enforcing all forms logic and required attribution. This allowed forms to be saved and closed while only partially completed, allowing for incomplete data entry.

- Corrected an issue that crashed the iOS application when attempting to View or Remove a previously collected feature via a one-to-one relationship control.

- Corrected an issue in the CartoPac iOS application that caused one-to-one relationship control buttons to be displayed incorrectly when a form is opened. The issue caused the buttons text to be displayed in the incorrect location and replace the button text with the default **Add** text.

- Server

  - Automated Token Refresh in ArcGIS Proxy.

- Misc.

  - Added validation to one-to-many relationship controls with foreign key set to primary/secondary key.

  - Remedied a display issue that was causing **Self-Referencing Relationship Controls** set to show icons instead of text, to not display any icons.

  - Fixed an issue where a feature deleted via Relationship Control or Index Control would still be rendered on the map display after deletion. Issue corrected in both CartoPac Mobile and iOS Application.

- Remedied an issue in the CartoPac Mobile software that would cause a barcode scanned with a CODE2700 barcode reader to inadvertently change the values of certain drop-down controls.

- Prevented a crash of the CartoPac Mobile application when it is deployed to a 7-inch screen tablet while using Large display settings in CartoPac Mobile. Primary effected tablets were the Juniper Mesa 3 and the Panasonic FZ-M1.

- Corrected an issue causing CartoPac Mobile to not correctly apply configured option sets for the Internet Settings while using the GNSSDirect driver.

- Remedied a CartoPac Mobile crash caused by enabling the Create Index Property in the Solution Explorer Panel of CartoPac Explorer on a feature/attribute that is configured to not export to the mobile device. CartoPac Studio user is not presented with a warning that an attribute is set to not export and set to be indexed.

- Addressed an issue introduced in CartoPac 9.9.0 in which CartoPac solutions connected to ArcGIS Feature Services in projected data frames, such as Web Mercator, UTM, State Plane, etc. would require a CartoPac solution Spatial Transform to be set in Studio.

CartoPac Enterprise v9.9.1 Updates

September 2021

The updates included in the 9.9.1 release of CartoPac Enterprise Studio, Server, and Mobile applications are described below.

Fixed Issues

The following issues have been corrected:

- Fixed *Installer Prerequisite* screen not displaying during install process.

- Improved workflow for .NET Framework 4.8 installation, including mandatory restart required by Microsoft.

- Updated RINEX Post Processing engine to use NGS Amazon S3 bucket located at https://noaa-cors-pds.s3.amazonaws.com/index.html.

CartoPac Enterprise v9.9 Updates

August 2021

The updates included in the 9.9 release of CartoPac Enterprise Studio, Server, and Mobile applications are described below.

New Features

The following feature was added to CartoPac Enterprise Enterprise Platform:

- Windows Tablet and Touch – new *HID Barcode Scanner Driver* to support the CR2700 Barcode Reader from Core Corp.

Improved Features

The following features have been improved:

- Windows Tablet:
  - Updated the vertex collection type (:vtxtype) of a feature that is being snapped to another feature with :vtxtype metadata.
  - Added ability to create a snapped feature from a 1:1 relationship control.
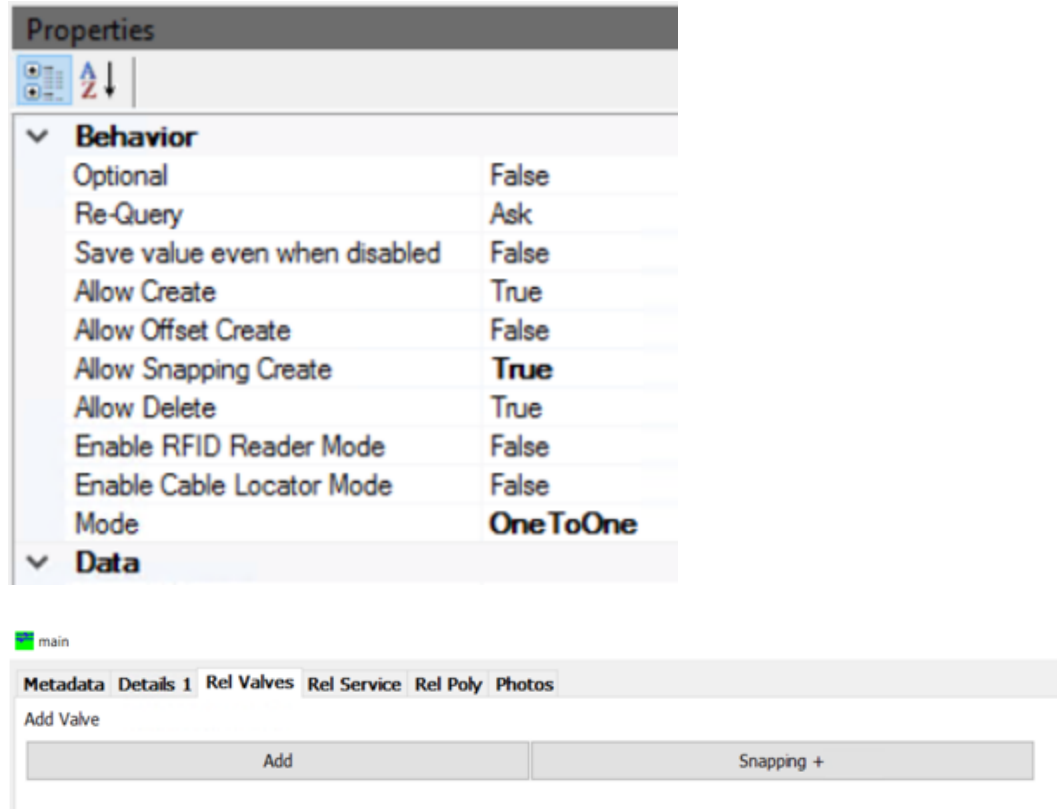
Figure 1-16. Creating Snapped Feature from 1:1 Relationship Control

- Windows Touch:

‒ Updated the custom help tips to support HTML rendering in peripherals status screen.
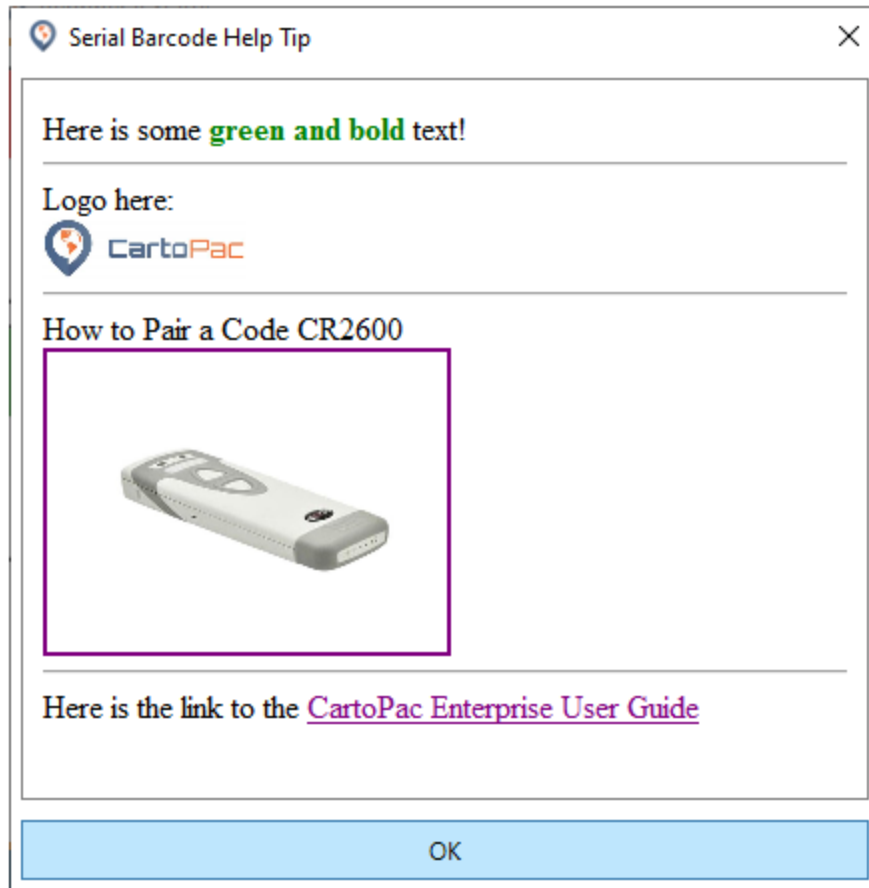
Figure 1-17. Custom Help Tip in Peripherals Status Screen

- iOS:

  ‒ Changed project file location to the CartoPac application **Documents** folder, allowing programs like iExplorer to retrieve projects from an iOS device.

Fixed Issues

The following issues have been corrected:

- Studio

  ‒ Fixed ability to use default spatial transformations in ArcGIS Server when no spacial transformation is set in Studio using the Feature Services provider.

- Windows Tablet and Touch:

- Fixed regression where **Set Values** control caused a crash in certain situations.

- Fixed incorrect display colors of feature symbology.

- iOS

  - Fixed crashes and improved application stability when projects include large amounts of data.

  - Fixed various incorrect display colors of feature symbology.

- Server

  - Fixed CMW custom columns displaying in incorrect configured order.

CartoPac Enterprise v9.8 Updates

May 2021

The updates included in the 9.8 release of CartoPac Enterprise Studio, Server, and Mobile applications are described below.

New Features

The following features were added to CartoPac Enterprise Enterprise Platform:

- Windows Touch – new *Peripherals Status* screen that displays connectivity and configuration status for GNSS, RTK, laser range finder, barcode reader, and cellular/network information. Additional information about the devices can be access through the ❓ icon.
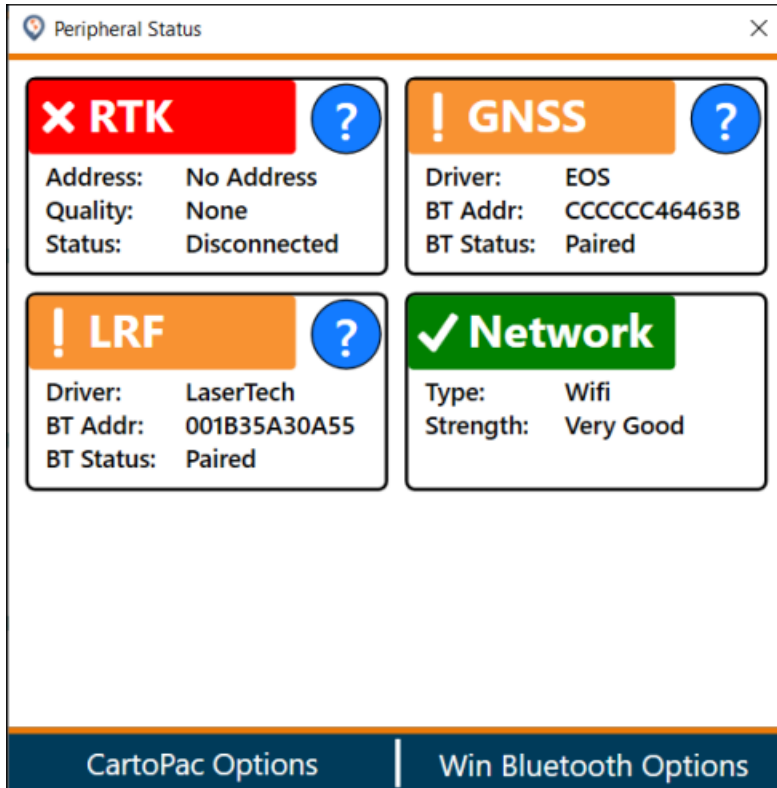
Figure 1-18. Example Peripheral Status Window

- Studio – support for Spatial Transforms when using Feature Service data connections.

Improved Features

The following features have been improved:

- Window Tablet and Touch:
  - When configured, the ability to use estimated accuracy with NMEA driver. If configured to require a certain accuracy before data can be used, a message displays stating that the required accuracy is not met when editing data. Spatial editing will pause until the required accuracy is met. The user has the ability to cancel the action if the required accuracy is not met while editing.

  - A restriction was added for minimum number of GPS (USA) satellites locked before collecting data with post processing enabled with EOS driver to improve post processing performance and success rates. The option to set the number of GPS satellites is found under the **File > Options > GNSS > Post-processing** menu or from **Option Sets**.

  - Configurable minimum carrier lock time required before allowing data collection with EOS driver.

- — Sensitivity of map screen rotation.

- — Support for ASTM standard barcodes with zero in D1 code value.

- — Event logging for peripheral status screen added to `%localappdata%\SDT\LogFiles` directory.

- — When post processing is enabled, the carrier lock timer will reset if the minimum number of GPS satellites is not currently locked. Countdown timer starts after the minimum number of GPS satellites is locked.

- — Improved double-tap on map to re-orient map to North.

- iOS:

  - — Applied NAD83 (2011) to WGS84 (current year epoch) spatial transform on ellipsoid height (Z value) when using RTK services with EOS driver.

CartoPac Enterprise Web Server:

- Added logging to more areas of the application. Added web server text log file to `CartoPac_FieldServer\LogFiles` directory for IIS App Pools that do not have permission to write to Windows Event Viewer.

- When re-merging a project, a new message window displays with number of records merged vs total number of records. Messages are color coded to describe how the re-merge completed:

  - — Green (success): all records merged successfully.
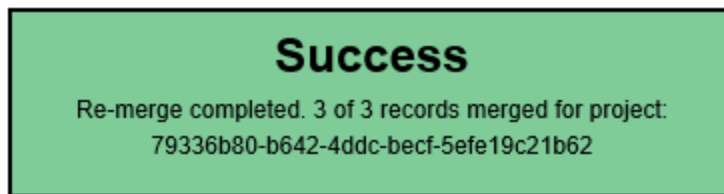
Figure 1-19. Green Success Message for Re-merge

  - — Yellow (warning): at least one record failed to merge. Displays number of records merged vs. number not merged.
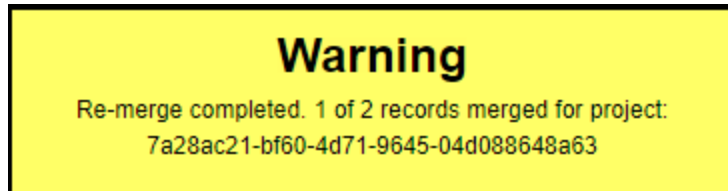
Figure 1-20. Yellow Warning Message for Re-merge

    − Red (error): no records merged.

Figure 1-21. Red Error Message - Re-merge

CartoPac Enterprise Enterprise Platform – updated to Microsoft .NET 4.8 Framework.

Fixed Issues

The following issues have been corrected:

- Windows Tablet and Touch:
  − UTM zone display and background imagery did not update when switching UTM zones.
  − Disable screen rotation check box failed to disable screen rotation for multi-touch gestures.
  − **BaseType** property did not persist and **ServerName** did not display with EOS driver.
  − **BaseType** property did not persist and **ServerName** did not display with GNSS direct driver.
  − Some devices could not enter COM port for offset device when COM port was multiple digits.
  − Window size on restart was inconsistent.
  − GDI and other memory leaks resulted in instability.
  − German *About* dialog window would crash the application.

Removed Features

The following features were removed:

- Support for Window 7 and 8 on mobile devices.

- Support for Portable Tablet.

CartoPac Enterprise v9.7.2 Updates

April 2021

The updates included in the 9.7.2 release of CartoPac Enterprise Studio, Server, and Mobile applications are described below.

New Features

The following feature has been added to CartoPac Enterprise Enterprise Platform:

- Support for Spatial Transforms when using Feature Service data connections.

Improved Features

The following feature has been improved:

- iOS EOS driver and GNSS Direct driver – applied NAD83(2011) transform to WGS84 (current year epoch) when using RTK services.

CartoPac Enterprise v9.7.1 Updates

March 2021

The updates included in the 9.7.1 release of CartoPac Enterprise Studio, Server, and Mobile applications are described below.

Improved Features

The following features were improved or enhanced:

- Windows Tablet and Touch:

  - The ability to use estimated accuracy was added to the NMEA driver.

  - The configurable minimum carrier lock time required before allowing data collection was added to the EOS driver.

  - The restriction for minimum number of GPS (USA) satellites locked before collecting data with post processing enabled was added to the EOS driver. This restriction improves post processing performance and success rates.

  - The sensitivity of map screen rotation was improved.

  - Support for ASTM barcodes with zero in D1 code value was added.

  - When post processing is enabled, the carrier lock timer will reset if the minimum number of GPS satellites are not currently locked.

- CartoPac Enterprise Web Server:

  - Logging to more areas of the application was added.

  - Web server text logfile to CartoPac_FieldServer\LogFiles directory for IIS App Pools without permissions to write to Windows Event Viewer was added.

Fixed Issues

The following issues have been corrected in Windows Tablet and Touch:

- Disabling the screen rotation check box failed to disable rotation for multi-touch gestures.

- Improved double-tap on map to re-orient map to North.

- Base Type property (Internet Settings) not persisting for EOS and GNSS direct drivers.

- NTRIP Mount Point (Source field in Internet Settings) not displaying for EOS and GNSS direct drivers.

- Option Set setting for Base Type property did not persist on mobile device.

- On some devices, user could not enter the COM port for offset device when COM port was multiple digits.

CartoPac Enterprise v9.7 Updates

The updates included in the version 9.7 of CartoPac Enterprise Studio, Server, and Mobile applications are described below.

New Features

The following features have been added to CartoPac Enterprise Studio and Server:

- Support for Oracle 19c database environments.

- Studio – support for Oracle Managed Driver. Special configuration is required to use the Managed Driver with Oracle Spatial.

Improved Features

The following features have been enhanced:

- Windows Tablet and Touch:
  - Various enhancements to range-range workflow to streamline the collection of the second range-range shot.

  - Prevented OS from sleeping while connected to GNSS.

- Windows Tablet:
  - Ability to snap first vertex when creating a new feature from relationship or indexing control.
  - **Insert Snapped Vertex** was added to the feature editing toolbar.

Fixed Issues

The following issues have been corrected:

- CWM – fixed an issue where users may not have been able to view archived features.

- Windows Tablet and Touch – fixed an issue where canceling out of *Add New Record* window leaves the application in an unexpected state.

- Windows Touch – NMEA driver with clean install, fixed GPS re-enable after being disabled.

Removed Features

Windows Touch – snapping functionality is disabled and hidden until a future release.

Server – removed all support for post-processing with Trimble Pathfinder Office software.

CartoPac Enterprise v9.6 Updates

July 2020

The updates included in the version 9.6 of CartoPac Enterprise Studio, Server, and Mobile applications are described below.

New Features

The following features have been added to CartoPac Enterprise Mobile, Studio, and Server:

- Windows Tablet and Touch, Studio, and Server – ability to collect raw GNSS data from EOS Arrow GNSS receivers and post process points using NGS CORS base station data.

- Windows Tablet and Touch – ability to apply spatial transform to positions from NMEA driver for 3rd Party software support.

Improved Features

The following features have been enhanced:

- Windows Tablet and CartoPac Enterprise Server – audit log is produced showing corrections for every post processed vertex.

- Windows Tablet and Touch:
  - Added option for Antenna Height to EOS driver.
  - All data: SBAS/WAAS, RTK/VRS, and Post Processed (PPK) are all reconciled to ITRF2014 (WGS84) Current Year Epoch.
  - Added option for height offset to vertices collected with a laser range finder.

- iOS – added option to auto center the map based on current location.

- All GPS driver altitudes are referenced to WGS84 height above ellipsoid, instead of orthometric height using rough GEOID model from the receiver.

CartoPac Enterprise v9.5 Updates

April 2020

The updates included in the version 9.5 of CartoPac Enterprise Studio, Server, and Mobile applications are described below.

New Features

The following features have been added to CartoPac Enterprise Mobile:

- Windows Touch – redesigned UI for aesthetic changes to improve usability.

- Windows Tablet and Touch – added ability to collect high accuracy data on EOS Arrow devices. Supports several metadata and option sets for configuration.

Improved Features

The following features have been enhanced:

- Imagery Studio – added diagnostics when processing of large imagery occurs.

- Windows Tablet and Touch – saved settings immediately after OK exit of options window instead of application exit.

- iOS – updated GNSSDirect SDK from Trimble to allow deployment to iOS 13.

Removed Features

The Bing navigation button was removed in Windows Touch.

Fixed Issues

The following issues have been corrected:

- Windows Tablet and Touch – crash when HUD editing with DGPSServer metadata.

- Windows Touch – fixed incorrect display of UTM coordinates in toolbar.

- Server – permission error on upload when user has upload permission but not download.

- Server – indefinite loading screen when identifying on a feature whose subtype doesn't have drop-down values.

- Windows Tablet and Touch – calculation control sometimes doesn't work.

- Windows Tablet and Touch – regression where text input pad causes crash.

- Windows Tablet and Touch – logical queries with leading white-space causes forms error.

CartoPac 9.4.1 Release Notes

February 2020

The updates included in the 9.4.1 release of CartoPac Enterprise are described below.

Fixed Issues

- Mobile Windows Tablet and Touch:
    - Calculation control sometimes doesn't work.
    - Regression where text input pad causes crash.
    - Logical queries with leading white space causes forms error.

CartoPac 9.4 Release Notes

December 2019

The updates included in the 9.4 release of CartoPac Enterprise are described below.

New Features

- Studio:
    - Added support for Oracle Spatial Orientation Points.
    - Added ability to ignore Compound Line Strings.
    - Added ability to configure re-query as Always, Ask, or Never.

- Mobile Windows Tablet and Touch:
    - Added ability to restrict VRS lock to a Fixed solution.

Improved Features

- Server:
    - Increased default timeout of Esri SOAP proxies.
    - Improved memory management of concurrently loaded CSNs

- Mobile iOS:
    - Replaced scroll wheels with drop down lists.
    - Increased default timeout of CartoPac Web Server SOAP requests.
    - Improved performance of Map Screen feature picker.

Removed Features

- Removed unused RFID support on Windows Table/Touch.

Fixed Issues

- Imagery Studio:
    - Special characters in directory name causes crash.

- Mobile iOS:
    - Interrupting Add New Feature and then returning causes crash.
    - Missing required custom font causes crash.
    - Upgrade to iOS 13 causes crash at start up.
    - Upgrade to iOS 13.1 causes certain drop-downs to be un-clickable, and automatically disappear within seconds.
    - Publishing CSN with broken database connection causes CartoPac Enterprise Service crash.

- Studio:
    - Extracting attachments from a temp attribute fails.
    - Invalid file path characters fail (now replaced with '_').
    - Running after clean install unexpectedly closes before user can enter license (introduced in 9.3).

- Mobile Windows Tablet and Touch:

  - Changing VRS base station causes GNSS Direct driver crash.

  - Corrupted Slide URL causes crash.

  - Clicking GPS constellation map while using Location Services causes crash.

  - Add New Feature while snapping causes crash.

CartoPac 9.3.2 Release Notes

December 2019

The updates included in the 9.3.2 release of CartoPac Enterprise are described below.

Fixed Issues

- Mobile iOS:

  - Fixed Trimble devices don't connect bug introduced in version 9.3.1.

CartoPac 9.3.1 Release Notes

November 2019

The updates included in the 9.3.1 release of CartoPac Enterprise are described below.

Improved Features

- Server:

  - Improved memory management of concurrently loaded CSNs.

Fixed Issues

- Studio:

  - Fixed application unexpectedly closes before user can enter license bug introduced in 9.3.0.

CartoPac 9.3 Release Notes

September 2019

The updates included in the 9.3 release of CartoPac Enterprise are described below.

New Features

- ArcGIS 10.7.1 desktop support.
- ArcGIS Server Federated by ArcGIS Portal support.

Improved Features

- Mobile iOS:
  - Enhance borehole workflow.
  - Improve automated crash analytics.
- Studio:
  - Create variable size iOS form preview.
  - GUID autonumber default now false.
  - Add tool tips to Forms Explorer controls.
- Mobile Windows Tablet and Touch:
  - Enhanced boredhole workflow.

Fixed Issues

- Mobile iOS:
  - Removing multiple Photos with Delete button causes crash.
  - Initialization of barcode screen improperly aligned.
- Fixed authentication issue with Esri SOAP when Portal and ArcGIS Server web adapters are both set to Windows Auth in IIS.

CartoPac 9.2 Release Notes

June 2019

The updates included in the 9.2 release of CartoPac Enterprise are described below.

New Features

- On Mobile Windows Tablet and Touch:
    - Added SQL OR clause for attribute and spatial queries.

    NOTE: Queries combining AND and OR not supported.

    - Added column indexing for Ints, Floats, GUIDs, and Strings.

    NOTE: Only applies to "Select" queries configured in Studio.

- ArcGIS 10.7.0 desktop support.

Improved Features

- Mobile Windows Tablet and Touch:
    - Installer now bundles C++ runtimes instead of downloading during install which rarely doesn't occur properly.
    - Added performance logging for forms, rendering, and queries.
    - Updated to work with latest Trimble Pathfinder Office 9.52
    - Enhanced map render loop performance.

Fixed Issues

- Mobile iOS:
    - Relationship control required flag ignored.
- Mobile Windows Tablet and Touch:
    - Installer shows installing CartoPac Enterprise Server even when not the case.
- On Touch, GNSS Direct causes crash when GPS Toolbar not configured as visible.
    - Uninstall from control panel fails.
- Server:

- ⁃ Cannot connect to Map Services with TLS 1.2.

- Slide:

  - ⁃ Spanish language causes error dialog on download.

- Mobile Touch:

  - ⁃ GNSS Direct causes crash when GPS Toolbar not configured as visible.

CartoPac 9.1.1 Release Notes

May 2019

The updates included in the 9.1.1 release of CartoPac Enterprise are described below.

New Features

- Mobile Windows Tablet and Touch:

  - ⁃ Added SQL OR clause for attribute and spatial queries.

NOTE: Queries combining AND and OR not supported.

  - ⁃ Added column indexing for Ints, Floats, GUIDs, and Strings.

NOTE: Only applies to "Select" queries configured in Studio.

Improved Features

- Mobile Windows Tablet and Touch:

  - ⁃ Added performance logging for forms, rendering, and queries.

  - ⁃ Updated to work with latest Trimble Pathfinder Office 9.52.

  - ⁃ Enhanced map render loop performance.

Fixed Issues

- Mobile iOS:

  − Relationship control required flag ignored.

- Slide:

  − Spanish language causes error dialog on download.

- Mobile Touch:

  − GNSS Direct causes crash when GPS Toolbar not configured as visible.

CartoPac 9.1.0 Release Notes

April 2019

The updates included in the 9.1.0 release of CartoPac Enterprise are described below.

New Features

- Server:

  − Added ability to schedule batch creation of reference data sets.

  − Added ability to re-merge projects.

- Windows Touch:

  − Added reverse vertex support.

Improved Features

- Mobile iOS:

  − Integrated new camera barcode scanner.

  − Improved colors and icons.

  − Improved look and feel of Relationship Control.

  − Improved look and feel of Custom Forms.

- Mobile Windows Tablet and Touch:

  − Updated Offset Workflow to work with LTI TruPulse 200X.

Fixed Issues

- Server with ArcGIS 10.5.0 and above:
    - Esri BUG-000118197 prepends 24 bytes to BLOBs in SOAP responses breaking attachments in ArcGIS Server Feature Service connections.

- Mobile iOS:
    - Auto-complete server connection URL causes crash.

- Server and Studio:
    - Project download causes memory leak.

- Studio:
    - Obsolete Windows CE preview allowed.
    - Ignores option set for configuring screen map rotation.
    - Corrupt 0-byte config file causes crash.
    - Incorrect path with missing '\' when browsing to project.
    - Formula subtracting two INT fields equals 0 when result should be negative.

- WebApp:
    - Work around Esri bug that stores NULL dates as Dec 30, 1899.

- Mobile Windows Touch:
    - Repeatedly toggling peripheral button causes crash.
    - GNSS Status incorrectly displays 'feet' instead of 'inches'.

- Mobile Windows Tablet and Touch:
    - Configure COM port dialog appears behind application window.
    - Download fails when using Windows authentication.
    - Download fails on Windows 7.

CartoPac 9.0.2 Release Notes

March 2019

The updates included in the 9.0.2 release of CartoPac Enterprise are described below.

Fixed Issues

- Mobile Windows Tablet and Touch:
    - Download fails when using Windows authentication.
    - Download fails on Windows 7.

CartoPac 9.0.1 Release Notes

January 2019

The updates included in the 9.0.1 release of CartoPac Enterprise are described below.

Fixed Issues

- Server and Studio:
    - Project download memory leak.

CartoPac Enterprise 9.0 Release Notes

December 2018

The updates included in the 9.0 release of CartoPac Enterprise are described below.

Updated Support and Compatibility

- Enhanced security for storing sensitive data.
- Change Relationship Control **Allow Offset Create** property default from true to false.
- On Mobile Windows Tablet and Touch— when a config change requires restarting, now auto-restart instead of requiring manual shutdown and startup.

New Products and Functionality

- Added Trimble R2 sub-foot accuracy (GNSSDirect VRS) to Mobile iOS.
- Added sub-foot zoom to Mobile iOS.
- Added ability to configure Mobile iOS thru Mobile Device Management.
- Added support for ArcGIS 10.6.1

Resolutions to Known Issues

- Work around Esri bug that stores NULL dates as Jan 1, 1899.

- On Mobile Windows Tablet and Touch– Location Services on Windows 10 fails.

Removed Features

- Removed Windows Mobile.

Important Notes

- Due to enhanced security, pre-9.0 CartoPac Enterprise user passwords are unreadable in version 9.0 and must be manually reset.

- Due to change in **Allow Offset Create** default to false, existing projects that expect default to true must be manually modified as part of this upgrade.