




# CygNet v9.8 Release Notes

**Release Date: March 15, 2024**

This document describes new features and changes to CygNet Software since the v9.7 release.

For instructions on updating your host, refer to the  [CygNet v9.8 Upgrade Procedure](#) for more information.

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# Contents

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<b>Product Lifecycle</b> .....	<b>4</b>
CygNet Lifecycle Notice .....	4
<b>Upgrade Assistance</b> .....	<b>5</b>
<b>CygNet Documentation</b> .....	<b>5</b>
<b>Highlights in v9.8</b> .....	<b>6</b>
CygNet Core .....	6
CygNet EIEs .....	6
CygNet Measurement and Dispatch .....	7
Canvas and CygNet Thin Web HMI Client .....	7
<b>Changes in v9.8</b> .....	<b>8</b>
CygNet Clients — Canvas .....	8
Canvas Backstage View .....	8
Canvas Controls .....	8
CygNet Clients — CygNet Studio .....	8
CygNet Dispatch .....	9
CygNet Measurement (FMS) .....	9
CygNet Services .....	12
Current Value Services (CVS) .....	12
Device Definition Service (DDS) .....	13
General Notification Service (GNS) .....	13
HyperPoint Scripting Service (HSS) .....	14
OPC Interface Service (OPCIS) .....	14
Point Service (PNT) .....	14
Service Monitoring Service (SVCMON) .....	14
Universal Interface Service (UIS) .....	14
Enhanced Alarm Configuration (EAC) .....	15
EIEs – Device Template Files .....	15
EIEs – Remote Devices .....	15
Allen Bradley CIP EIE .....	15
Benchmark EIE .....	15
BSAP EIE .....	15
DNP3 Emerson EIE .....	16
Emerson ROC EIE .....	17
Emerson ROCPlus EIE .....	18
EProdRPC EIE .....	19
Ferguson Beauregard EFM3000 EIE .....	19
Flow Automation EIE .....	19
IoT Sparkplug EIE .....	19
Lufkin MPC/RPC EIE .....	20

Lufkin SAM EIE .....	20
Micro1c EIE .....	20
Modbus EFM EIE .....	20
Modbus Omni EIE .....	20
Modbus Pickford EIE .....	20
Modbus Realflo EIE .....	21
NuFlo EIE .....	21
OPC EIEs (OPC EIE, OPC Lufkin EIE, and OPC Weatherford EIE) .....	21
ProSoft EIE .....	21
Thermo EIE .....	21
Totalflow EIE .....	21
OPC Server .....	22
Scripting .....	22
CygNet.API .....	22
Utilities .....	22
CygNet Web .....	23
CygNet Online Help .....	23

# Product Lifecycle

For more information on the lifecycle of CygNet components, refer to the **CygNet Software Product Lifecycle Matrices** on the [Software Support portal](#) (login required) under **CygNet Software > Maintenance & Support Info**.

## CygNet Lifecycle Notice

CygNet Software follows a fixed product lifecycle policy and offers three years of support (two years of mainstream support followed by one year of limited support). Contact your Weatherford Account Manager or CygNet Sales (via email at [CygNet Sales](#)) for more information about your support options.

The following table lists the release and support dates for the currently supported versions of CygNet Software.

CygNet Version	Release Date	Limited Support Begins	Limited Support Ends (End of Life)
<b>9.8</b>	March 15, 2024	March 15, 2026	March 15, 2027
<b>9.7</b>	March 27, 2023	March 27, 2025	March 27, 2026
<b>9.6</b>	March 2, 2022	March 2, 2024	March 2, 2025

The following CygNet versions have reached lifecycle milestones with the release of CygNet v9.8:

- **CygNet v9.7** will enter Limited Support on March 27, 2025, and will reach its End of Life on March 27, 2026.
- **CygNet v9.6** entered Limited Support on March 2, 2024, and will reach its End of Life on March 2, 2025.
- **CygNet v9.5** reached its End of Life on February 5, 2024.

The following CygNet components have reached lifecycle milestones with the release of CygNet v9.8:

- **CygNet Web** entered Limited Support with the release of CygNet v9.7. It has reached its **End of Life** with the release of CygNet v9.8.
- **CygNet v9.4 Online Help** entered Limited Support with the release of CygNet v9.7. It has reached its **End of Life** with the release of CygNet v9.8 and has been removed from the documentation website.
- **CygNet v9.5 Online Help** will enter Limited Support with the release of CygNet v9.8. It will reach its **End of Life** with the release of CygNet v9.9 and will be removed from the documentation website.

The following Windows operating systems are no longer supported with the release of CygNet v9.8:

- **Windows Server 2012 R2**
- **Windows 8.1**

Refer to the [Microsoft Lifecycle Policy](#) for information about Windows operating system support.

# Upgrade Assistance

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Upgrade assistance is provided through prepaid professional service hours provided with your annual services subscription or through time-and-materials consulting services. If you need assistance in planning, upgrading, or deploying this release, please contact CygNet Support for more information about these options. Contact CygNet Support at the [Software Support portal](#) (login required), via phone at 1-866-4CYGNET (1-866-429-4638), or via email at [CygNet Support](#).

# CygNet Documentation

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Refer to the [CygNet Help](#) for CygNet v9.8 for user assistance. The online help is best viewed in Microsoft Edge or Google Chrome browser. Microsoft Internet Explorer 11 is not supported.

# Highlights in v9.8

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This section highlights some of the major new features and enhancements in the v9.8 release. Please see [Changes in v9.8](#) below for a detailed list of changes. Refer to the [CygNet Help](#) for user assistance on these enhancements, modifications, and other updates.

## CygNet Core

A set of **Deviation For Time** alarm calculation types have been added to the CVS to meet the requirements of PHMSA rule (192.635(a)) "Notification of potential rupture" — Unanticipated or unexplained pressure loss outside a pipeline's normal operating pressures. See the note [here](#).

Several enhancements have been made to the **CygNet.NET API** to aid programmatic access to CygNet services, security access, devices, points, and scheduling records. See the notes [here](#).

You can now optionally **suppress the replication of DDS Transaction deletes** caused by the background transaction scrubbing process, which will eliminate the periodic spike in the DDS replication queue entries and the corresponding delay in UIS Command transaction replication, which may cause ForeSite timeouts. See the note [here](#).

The GNS has been enhanced to **retry the sending of notification emails** that previously failed to send. New GNS keywords are required to support configuration. See the note [here](#).

You can now optionally configure the maximum number of **notification threads** in the GNS. A configuration keyword is required and two info items are available to monitor notification threads. See the note [here](#).

## CygNet EIEs

The **Emerson ROC EIE** and **Emerson ROCPlus EIE** have been enhanced to support an updated Emerson firmware for the **FloBoss 107 series** and for the **ROC800 and ROC800L series** remote devices, which complies with enhanced security features stipulated by the United States **Transport Security Administration (TSA) Security Directive Pipeline-2021-02**. Changes have been made to the Device Editor, added support for longer and more complex user names and passwords, password encryption, added an enhanced security data group, **LoginSec** "Login Secure Enhanced Request", and added a new UIS command "component type", **LOGINSEC** (Login Secure), to send enhanced security credentials to the device. See the notes [here](#) and [here](#).

The **Emerson ROC EIE** has been modified to use **Opcode 136 (History Multiple Points Periodic)** for polling FMS History with **FloBoss 107** field devices that are using firmware version 1.40 or higher and for all Emerson **FBx** field devices using the ROC protocol. See the note [here](#).

You can now retrieve hourly history data from a BSAP 3300 device for DCP via the Bsap\_W386c075.dtf. Several data group changes were made to the sample DTF to distinguish new DCP data groups from existing DEGT data groups. See the notes [here](#).

**FMS support** has been added for FB1x and FB2x series devices in the DNP3 Emerson EIE. See the note [here](#).

Added three new command types for the "Command – Device" (**CmdDev**) and "Command – Edge Node" (**CmdNode**) data groups to write a topic using a Sparkplug command (DCMD/NCMD) for the **IoT Sparkplug EIE**. The new command types are: **DgHist** – to send and retrieve data group transaction history, **History** – to send and retrieve point history, and **UisCmd** – to send a UIS command to a remote EDGE device. See the [note](#) here.

The **Totalflow EIE** now uses version 3.15 of the **ABB Totalflow toolkit API** (tcidll.dll and tcidll64.dll). See the note [here](#).

You can now use the Totalflow EIE to get **Mass data** into the **HistDly** "History - Daily" and **HistLog** "History - Log Period" data groups for Coriolis meters (device application SUCOR) for Record Rev 78. See the note [here](#).

# CygNet Measurement and Dispatch

Effective with the v9.8 release, CygNet Measurement is delivered with a **64-bit FMS service** to increase performance and efficiency. In addition, a new **64-bit FMS Explorer** is provided, and a 32-bit version is also still available as an option.

**Liquid data** support has been expanded and now supplies additional database support for liquid metering and quality data items, normalization of liquid data records, and incorporates **API 11.1** liquid product calculations in data processing.

The **Microsoft OLE DB driver for SQL Server** is now supported by FMS. This newer driver replaces the (deprecated) Microsoft SQL Server Native Client, and updating to the newer driver is strongly recommended, in accordance with Microsoft guidelines.

Several **FMS controls** have user interface improvements, labeling updates, and/or noticeable processing and performance increases.

A **Thin Device Data** command has been added to provide another avenue for data management, allowing optimization of database resources and removal of duplicate data records prior to archiving operations.

An **Add Node to Group** option has been added to data request commands, to enhance operator work flow and facilitate re-polling of Nodes with unsuccessful data requests.



The **Update Normalization Views** command now offers an option to select whether or not to include archived data in the normalization action, increasing performance when archived data access is not required.

Memory usage has been improved to increase the efficiency of **FMS Reports**.

An array of additional enhancements, modifications, and fixes for CygNet Measurement and Dispatch are included in the v9.8 release, as listed below and further detailed [here](#).

# Canvas and CygNet Thin Web HMI Client

All changes made to Canvas and the CygNet Thin Web Client since CygNet v9.7 are recorded in the following documents:

-  [CygNet Thin Web Client v1.0 Release Notes](#)
-  [CygNet Thin Web Client v1.2 Release Notes](#)
- *CygNet Thin Web Client v1.4* will be released in April 2024.

# Changes in v9.8

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This section describes enhancements, modifications, and fixes to existing components in CygNet v9.8.

## CygNet Clients – Canvas

All changes made to Canvas and the CygNet Thin Web Client since CygNet v9.7 are recorded in the following documents:

-  [CygNet Thin Web Client v1.0 Release Notes](#)
-  [CygNet Thin Web Client v1.2 Release Notes](#)

The following notes list changes made to Canvas since TWC v 1.2 was released:

### Canvas Backstage View

#### Modification

- Validation has been added to the **prevent users from entering an invalid date time format** in the Backstage view. Canvas will warn the user if an invalid Default date format is entered. If the field is left empty, Canvas will automatically default to the following date time format: MM/dd/yyyy hh:mm:ss.

### Canvas Controls

#### Modifications

- For all Canvas controls, if an invalid **Date and time format** is configured for the point, the control will automatically use the format configured for the **Default date format** saved in the global settings file, which is configured in the Backstage view.
- Validation and warnings have been added in Canvas and the web view to **avoid empty values** when configuring and interacting with the **UIS Command Button**. The user will be notified about a missing parameter value in the prompt and when attempting to run the UIS command without entering a value for the command.

## CygNet Clients – CygNet Studio

The following changes have been made to the CygNet Studio client application in CygNet v9.8.


#### Fix

- Fixed a performance issue in CygNet Studio that greatly increased the number of **GetDatabaseInfo** messages sent to the Facility service when resolving facility tags.



# CygNet Dispatch

The following changes have been made to CygNet Dispatch in CygNet v9.8.

**Important:** **CygNet Bridge v4.7** is required to run Dispatch with CygNet Measurement in CygNet v9.8. Refer to the  [CygNet v9.8 System Requirements](#) for more information about additional version compatibility details.


## Fixes

- Fixed an issue arising in a particular situation where an FMS service timeout would occur, so that adding a new job via Dispatch will sync properly with FMS as expected. Previously, a new job added via Dispatch in this circumstance would not sync and could block further synchronization between the Dispatch client and FMS service.
- Fixed an issue that could occur in situations without internet access so that the correct job status appears after a single complete and sync action. Previously, two complete/sync actions were necessary in certain circumstances.

# CygNet Measurement (FMS)

The following changes have been made to CygNet Measurement in CygNet v9.8.

## Enhancements

- Enhanced performance and efficiency of the **FMS service** by utilizing 64-bit architecture, instead of 32-bit as in prior software versions. Note that certain features supported in prior versions are not yet supported in the 64-bit version, specifically using the Vision control or viewing device/facility details (via the View polling device, View polling FAC, or View reporting FAC options).
- Added support to FMS for liquid data normalization, by converting the existing periodic raw data, so that normalized liquid data can be processed and displayed in FMS controls. **Note:** Accessing the additional functionality requires a database update to version 1053. After the update, it is necessary to upgrade your archived databases PRIOR TO performing any archiving operations. To do this, execute a Perform Database Maintenance command with "Update archived databases" set to "Yes" before proceeding. This will ensure that your archived data is consistent with the FMS database update. For instructions on updating your host, refer to the  [CygNet v9.8 Upgrade Procedure](#) for more information.
- Enhanced database support and modified data tables for liquid metering and quality data, to improve performance when viewing liquid data and managing balances for liquid devices.
- Expanded the application of **API 11.1** liquid product calculations to apply to normalized data in FMS.
- Updated CygNet Measurement to use the **Microsoft OLE DB driver** instead of the (deprecated) Microsoft SQL Server Native Client.
- Added a new **Thin Device Data** command to allow selective deletion of duplicate historical records from FMS while maintaining master records. This option can help reduce the burden on database and archiving resources. Note that this action is not applicable to Gas Analysis data.
- Added the ability to automatically **Add Node to Group** for Nodes with unsuccessful polls, to facilitate workflow and further polling actions.

- Expanded the **Request New Data** command so that requests including configuration data also include product data, if supported by the Node. Requests configured to occur at a frequency described by the optional "Configuration request frequency" parameter value also apply to product data, if supported.
- Added an option to the **Update Normalization Views** command to select whether or not to include archived data in the normalization action. This allows increased performance when archived data access is not required.
- Added the ability to include liquid product information when running a **Request Configuration** command.
- Added unit set creation details to command log results shown for data request (Device Communication) commands, to enrich information provided when **"high" level logging** is configured in the command definition properties.
- Increased performance in the **Balance** control by improving processing of SQL queries.
- Added a Node category selector to the Node chooser pane of the FMS Explorer **Balance** control, and modified the corresponding ActiveX (OCX) Balance control General page and scripting properties, to improve workflow and allow more granular view selection in the control. Node category options include a new "Station Group" category that only includes physical and virtual station groups in the grid (i.e. displays station groups but does not include station meter groups).
- Added a Node category selector to the Node chooser pane of the FMS Explorer **Configuration** control, and modified the corresponding ActiveX (OCX) Configuration control General page and scripting properties, to improve workflow and allow more granular view selection in the control.
- Increased performance in the **Exceptions** control by improving records processing functionality.
- Increased performance in the **History Grid** control by improving row-by-row records processing.
- Increased efficiency of **FMS Reports** by optimizing memory usage.
- For users of FMS Dispatch, added a column to the **Jobs** control to display "Job Name" information in the data grid.

## Modifications

- Modified the message produced if an attempt is made to add a liquid device Node when manually creating a physical **Station Group Nodes**, to clarify that only gas device Nodes are valid for physical station group membership.
- Added the ability to select "Show only most recent records" via the ActiveX property page interface for the **Raw Data** control. This option is in addition to previous support via the FMS Explorer control and the ActiveX property sheet.
- Updated labels and corresponding scripting property names used in several controls, so that usage of "Data view" and "Data mode" terminology is consistent across controls:
  - In the **Dashboard** ActiveX control and scripting properties, "Data view" (DataView property) was previously called "Visible attribute" (VisibleAttribute property).
  - In the **Raw Data** ActiveX control and scripting properties, "Data view" (DataView property) was previously called "Display mode" (DisplayMode property).
  - In the **History Graph** and **History Grid** controls, "Data mode" (DataMode property) was previously called "Station meter view" (MeterStationView property) in FMS Explorer, ActiveX controls, and scripting properties.

- Removed inapplicable unit set selection options from the **Alarm** control interface.
- Removed an unnecessary column option (Is Master Record) from the **History Grid** control interface.
- Modified the **Sediment and Water Correction Factor** token from [CSW] to [SWCorrectionFactor] for clarity. Previous usages are still recognized.
- For users of FMS Dispatch, modified processing of **AGA-7** recalculations to ignore "0" flow time values.

## Fixes

- Fixed an issue with **Workspace (.few) file** usage when opening FMS Explorer, so that the option to create a new default workspace file is presented when no workspace file is present (e.g., file has been deleted). Previously in this circumstance the client would enter read-only mode without clearly presenting this option.
- Fixed an issue occurring for batch-only devices when purging and then reloading data, so that **DeviceSummary records** are processed as expected. Previously in such circumstances, an extraneous empty DeviceSummary record could be left in the database.
- Fixed an issue with configuration of **General Group Nodes** so that the "Enforce uniqueness for group" selection status is properly displayed in the Node properties.
- Fixed an issue when running a **Request New Data** command so that the configuration data request proceeds when the "Configuration request frequency (days)" value is set to zero. Previously, the request may not have occurred in this circumstance.
- Fixed an issue with the **Export: Device Data CSV** command so that the action succeeds when using token variants appended with `_Begin` or `_End`. Previously including these variants could cause the data export to fail.
- Reordered the sequence of listed options shown when creating new liquid configuration records in the **Configuration** control, Configuration view.
- Fixed an issue with the editing process in the **Configuration** control, Configuration view, to ensure that the correct record status is maintained when managing and viewing record details.
- Updated the display of liquid configuration items shown during mass update actions in the **Configuration** control, so that only data item options appropriate to the selected meter type are listed in the update dialog.
- Removed inapplicable column headers from the **Raw Data** control options when viewing liquid configuration data.
- Fixed an issue with **FMS reports** scheduled via the MSS, to prevent the generation of duplicate temporary file names in certain circumstances. Previously this could occur when multiple FMS reports commands were scheduled to run at the same time.
- Fixed an issue in the **Raw (Gas) Device QTR Report** to correctly display decimal point positions for gas quality composition values. Previously these values could be shown multiplied by a factor of 100.
- Fixed an issue occurring in some **ActiveX controls** containing Node choosers, so that Node category selections made via the General property page will also appear in the corresponding property sheet (ChooserNodeCategorySelection value). Previously some values selected via the control property page would not appear in the property sheet.
- Fixed an issue with the LiqConfigLogDetail data table so the liquid configuration data is now available as expected for users of the **Business Slave**, for replication purposes. Previously these records could be missing.

- For CygNet **Dispatch** users, fixed an issue arising in a particular situation where an FMS service timeout would occur, so that adding a new job via Dispatch will sync properly with FMS as expected. Previously, a new job added via Dispatch in this circumstance would not sync and could block further synchronization between the Dispatch client and FMS service.
- For CygNet **Dispatch** users, fixed an issue so that the correct job Status value is retained when a job is closed on one day and re-opened the following day. Previously some job status values could change in such circumstances.
- For CygNet **Dispatch** users, fixed an issue that could occur in situations without internet access so that the correct job status appears after a single complete and sync action. Previously, two complete/sync actions were necessary in certain circumstances.

## CygNet Services

The following changes have been made to CygNet services in CygNet v9.8.

### Current Value Services (CVS)

See [Enhanced Alarm Configuration](#) for notes about the Enhanced Alarm Configuration (EAC) feature.

#### Enhancement

- Added a set of **Deviation For Time** alarm calculation types to meet the requirements of the PHMSA rule (192.635(a)) "Notification of potential rupture" — Unanticipated or unexplained pressure loss outside a pipeline's normal operating pressures. The six variations on the Deviation For Time alarm calculation are as follows:
  - Deviation Percent For Time
  - Deviation Percent Positive For Time
  - Deviation Percent Negative For Time
  - Deviation Value For Time
  - Deviation Value Positive For Time
  - Deviation Value Negative For Time

These alarm calculations are different to the pre-v9.8 change rate alarm calculations and are only available for use with any of your custom point schemes, for example, the CygNet Enhanced Point Scheme. Contact CygNet Support for assistance with these changes.

This enhancement requires changes to the CVS Metadata for your custom point scheme. A new attribute has been added to the PointScheme element in the CvsMetadata.xml file for an enhanced point scheme only, **histvaluecount**, which specifies the number of values for all enabled historized config bits that can be stored in the CVS. CygNet will perform any alarm calculations against those values. The default value is 60; the maximum value is 600. Note that specifying a very high value for histvaluecount will increase the memory utilization of the CVS and possibly affect performance adversely. Best practice recommends that you create a custom point scheme to test and implement this feature so as to not interfere with any existing point scheme used by your enterprise.

Refer to the [Alarm Calculation Types](#) topic in the **CygNet Help** for more information about the **Deviation For Time** alarm calculation types and the **histvaluecount** attribute.

## Device Definition Service (DDS)

### Enhancement

- The DDS has been enhanced to optionally **suppress the replication of DDS Transaction deletes** caused by the background transaction scrubbing process. This should eliminate the periodic spike in the DDS replication queue entries and the corresponding delay in UIS Command transaction replication, which may cause ForeSite timeouts.
  - A new keyword, **SUPPRESS\_SCRUBBER\_REPL**, has been added to the DDS service configuration file (Dds.cfg) to enable or disable suppression of the replication of DDS Transaction deletes.
  - A new info item, **DDS\_NO\_SCRUB\_REPL**, has been added to monitor the DDS keyword setting.

To enable this new behavior, replace the DDS.exe in the production environment and add the following keyword to the Dds.cfg file: "SUPPRESS\_SCRUBBER\_REPL TRUE"

You must also replace the version of the DDS.exe in the replicated environment since fixes were required to the transaction scrubbing process when in replication.

## General Notification Service (GNS)

### Enhancements

- Enhanced the GNS to **retry to send notification emails** that previously failed to send.
  - Added two keywords to the "Shared Mail Settings" section of the GNS service configuration file (Gns.cfg) to support the resending of notification emails that failed to send:
    - **EMAIL\_SEND\_FAIL\_RETRY\_MAX\_ATTEMPTS** — Specifies the maximum number times the GNS will attempt to resend a failed notification email. Valid values are 0 to 999; the default value is 0.
    - **EMAIL\_SEND\_FAIL\_RETRY\_DELAY** — Specifies the delay in seconds between retries when resending a failed notification email. Valid values are 1 to 999; the default value is 1.
  - Added a "Retrying On Fail" state in the Status column in the Resend Queue on the Queue Viewer dialog box to report when the GNS is planning on resending an email notification that has failed. Note that an older CygNet Explorer client may display a state of "Unknown" when the new state of "Retrying On Fail" occurs. This option applies only to email notifications at this time.

After updating to v9.8, run the CygNet Config File Manager to update your GNS service configuration file.

- You can now optionally configure the **maximum number of notification threads** via a new keyword added to the GNS service config file (Gns.cfg). Previously the number of notification threads was fixed at 10.
  - **NOTIFICATION\_THREAD\_COUNT** — Specifies the maximum number of active notification threads. Valid values are 1 to 99; default value is 10.
  - Two new GNS info items are available to support this configurable thread count option:
    - **GNS\_NOTIF\_THRDS\_MAX** (Notif threads max) — The maximum number of notification threads.
    - **GNS\_NOTIF\_THRDS\_ACT** (Notif threads active) — The number of active notification threads.

After updating to v9.8, run the CygNet Config File Manager to update your GNS service configuration file.

Fix

- Fixed an issue with the GNS and the CygNet Email Engine where the **service stopped sending notification emails**. Applied email response timeout values from the GNS service configuration file (Gns.cfg) to allow the service sufficient time to complete notification processing. Added extra logging around when notifications are removed from the Notification and Resend Queues to ensure timed-out notifications are resent and not lost.

## HyperPoint Scripting Service (HSS)

Fix

- Fixed a potential crash when launching a CVS (HSS, OPCIS, SVCMON, UIS) when a **PendingAlarms.dat file** exists at startup. This file is typically generated during a HSS failover and contains all pending alarm updates that have not been sent to the CAS service at failover time.

## OPC Interface Service (OPCIS)

Fix

- Fixed a potential crash when launching a CVS (HSS, OPCIS, SVCMON, UIS) when a **PendingAlarms.dat file** exists at startup. This file is typically generated during an OPCIS failover and contains all pending alarm updates that have not been sent to the CAS at failover time.

## Point Service (PNT)

See [Enhanced Alarm Configuration](#) for a note about the Enhanced Alarm Configuration (EAC) feature.

See [Current Value Services \(CVS\)](#) for a note about new alarm calculation types.

## Service Monitoring Service (SVCMON)

Fix

- Fixed a potential crash when launching a CVS (HSS, OPCIS, SVCMON, UIS) when a **PendingAlarms.dat file** exists at startup. This file is typically generated during a SVCMON service failover and contains all pending alarm updates that have not been sent to the CAS at failover time.

## Universal Interface Service (UIS)

Fix

- Fixed a potential crash when launching a CVS (HSS, OPCIS, SVCMON, UIS) when a **PendingAlarms.dat file** exists at startup. This file is typically generated during a UIS failover and contains all pending alarm updates that have not been sent to the CAS at failover time.

# Enhanced Alarm Configuration (EAC)

The following change has been made to the CygNet Enhanced Alarm Configuration feature in CygNet v9.8.

## Enhancement

- Added a new CygNet Studio sample screen, CopyEacSettings.csf, to **copy EAC settings between points**. Sample screens are found in CygNet\Clients\CStudio\Screens\Examples.

# EIEs – Device Template Files

**Important:** *If a device template file has been updated for this release, we strongly recommend that you obtain the applicable v9.8 sample device template file, edit it to retain customizations you added to your pre-v9.8 in-use template, and replace your pre-v9.8 in-use template with the version v9.8 sample template. Do not simply replace your pre-v9.8 in-use template with that provided on the source image because you will lose any template customizations that you previously made. Refer to the [Device Template Files](#) sections in the **CygNet Help** for detailed information about modifying templates.*

# EIEs – Remote Devices

The following changes have been made to CygNet remote devices in CygNet v9.8.

## Allen Bradley CIP EIE

### Fix

- Added a new "**Configurable Data Group**" (**CfgDg**) **data group**, which provides a flexible way to create custom data groups on a per-device basis using the remote device editor.

Added an **IO Service** drop-down menu to the **Data Group Definition** dialog box to allow you to configure the desired IO Service (Tag, TagFragmented, None) for the configurable data group. Also added string length validation for DEIDs; the maximum value allowed depends on the IO Service selected.

## Benchmark EIE

### Fix

- Fixed an **8-byte data type issue** for the Benchmark EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## BSAP EIE

### Enhancement

- Several enhancements have been made to the sample **Bsap\_W386c075.dtf** to support retrieval of hourly history data from a **BSAP 3300 device for DCP**. Other changes were made to distinguish new DCP data groups from existing DEGT data groups.
  - Added a new dgStruct attribute, "dcpHist", to determine the data group type for DCP.
  - Added two new data groups to poll hourly history data using the new dgStruct attribute:

- "Hourly History DCP" (HryHistDcp)
  - "Hourly History Pointers DCP" (xDcpHryPt) (This is a fixed data group name and must not be changed.)
- Renamed two existing data groups that poll hourly and daily history pointers for DEGT, because the driver searches for these hardcoded names. These are fixed data group names and must not be changed.
  - "Hourly History Pointers DEGT" (xDegtHryPt) — previously named "Hourly History Pointers" (HryPtrs)
  - "Daily History Pointer DEGT" (xDegtDlyPt) — previously named "Daily History Pointer" (DlyPtr)
- The "Hourly History Pointers DCP" (xDcpHryPt) data group works differently from the way the "Hourly History Pointers DEGT" (xDegtHryPt) data group works, because the EIE needs to poll a different signal for each ordinal. For the "Hourly History Pointers DCP" (xDcpHryPt) data group, each DEID should end with the ordinal number. The data group contains the following elements:
  - <HstHrRow1 src="LOG.HOUR.1"/>
  - <HstHrArr1 src="HOUR.ARRAY.1"/>

These two signals will be used for ordinal 1.

- Changed the niceName attribute in two data groups in order to differentiate between the DEGT and the DCP data groups:
  - "Daily History DEGT" (DlyHist)
  - "Hourly History DEGT" (HryHist)

The sample Bsap\_W386c075.dtf is found in CygNet\Samples\EIETemplates\Samples. Refer to the [Device Template Files](#) sections in the **CygNet Help** for detailed information about modifying templates.

## Modification

- Modified the **BSAP EIE** to protect the UIS from crashing in the event of unexpected data being received during BSAP device polling.

## DNP3 Emerson EIE

### Modifications

- **FMS support** has been added for FB1x and FB2x series devices in the DNP3 Emerson EIE. The DNP3Emerson\_FB2x.dtf has been enhanced to support both FB1x series devices and FB2x series devices. Several data groups have been added or modified and an <fmsMaps> structure has been added to the DTF. The sample DNP3Emerson\_FB2x.dtf is found in **CygNet\Samples\EIETemplates\Samples**. Refer to the [Device Template Files](#) sections in the **CygNet Help** for detailed information about modifying templates.
- Modified the DNP3 Emerson EIE to include support for the "**histType**" attribute on the **FMS History data groups** in the DTF so they can be set to PM, PQ or PM+PQ. Previously, the EIE would only set FMS History data groups to PM+PQ, which required the node in FMS to have the "Gas quality history" box checked regardless of the history items in the data group. Now data groups can be instantiated to match the field device history configuration.



## Fix

- Fixed an issue with **FMS History** when items in the Station History configuration on the field device do not have a Type/instance defined. Previously, if a history item did not have a Type/instance in the configuration it was always excluded from FMS History for any meter using that history segment regardless of <fmsMaps> structure in the DTF. Now, items without a Type/instance that resolve to mapped items in the DTF ("efmItem", "tag" or "deid") will be included in FMS History for any meter using that history segment.

## Emerson ROC EIE

### Enhancement

- Enhanced the Emerson ROC EIE to support an **updated Emerson firmware for the FloBoss 107 series remote devices**, which complies with enhanced security features stipulated by the United States **Transport Security Administration (TSA) Security Directive Pipeline-2021-02**.

CygNet SCADA is now fully integrated with Emerson devices to ensure secure communication, encrypted channels, and proper authentication and authorization mechanisms. New security features include:

- **Device Editor** – Modifications made to the **Device** page of the Emerson ROC EIE device editor to support the configuration of the secure login credentials, including security **Access level** settings. The new **Login secure** field on the **Device** page will display only for the FloBoss 107 devices that support the new firmware.
- **Credential Support and Password Encryption** – Longer and more complex user names and passwords are now supported. The maximum character length for the username is 30 chars and for the password is 32 chars. The password is encrypted using a password hashing algorithm. A new version of the ROCLINK 800 configuration software (2.70+) has been released to support the new password formats and allow them to be configured within the devices. The maximum number of user accounts for the FloBoss 107 is 16 (no change).
- **Data Group** – Added an enhanced security data group, **LoginSec** "Login Secure Enhanced Request", using the Emerson Opcode 17, Login Request. The EmersonRoc\_107.dtf has been modified to include the new LoginSec data group.
- **UIS Command** – Added a new UIS command "component type", **LOGINSEC** (Login Secure), to send enhanced security credentials to the device. The UIS command uses the login credential information from the "Login secure" section of the Device page on the remote device editor.
- **More Information** – Refer to the [CygNet Help](#) for more information:
  - **Device Editor** topic for information about the Login secure properties
  - **Data Groups** topic for information about the LoginSec data group
  - **UIS Commands** sections for information about configuring and issuing UIS Commands
  - **UIS Command Component Parameters** topic for information about the LOGINSEC command component type
  - **Device Template Files** sections for information about modifying DTFs.

## Modifications

- Modified the **Emerson ROC EIE** to no longer include point type 41 (Run Parameters) as part of **FMS Configuration** polling on devices that support point type 46 (Meter Configuration Parameters). Previously, point type 41 was being used for all ROC protocol devices when polling FMS Configuration. For the FloBoss 107, as of Firmware Version 2.00 or greater, point type 41 has been deleted.
- The Emerson ROC EIE now uses **Opcode 136 (History Multiple Points Periodic)** for polling FMS Hourly History with **FloBoss 107** field devices that are using firmware version 1.40 or higher and for all **Emerson FBx** field devices using the ROC protocol. Previously FMS Hourly History was retrieved using Opcode 130. Opcode 136 is the preferred method for polling history.

## Emerson ROCPlus EIE

### Enhancements

- Enhanced the Emerson ROCPlus EIE to support an **updated Emerson firmware for the ROC800 and ROC800L series remote devices**, which complies with enhanced security features stipulated by the United States **Transport Security Administration (TSA) Security Directive Pipeline-2021-02**.

CygNet SCADA is now fully integrated with Emerson devices to ensure secure communication, encrypted channels, and proper authentication and authorization mechanisms. New security features include:

- **Device Editor** – Modifications made to the **Device** page of the Emerson ROCPlus EIE device editor to support the configuration of the secure login credentials, including security **Access level** settings. The new **Login secure** field on the **Device** page will display only for the ROC800 and ROC800L devices that support the new firmware.
- **Credential Support and Password Encryption** – Longer and more complex user names and passwords are now supported. The maximum character length for the username is 30 chars and for the password is 32 chars. The password is encrypted using a password hashing algorithm. A new version of the ROCLINK 800 configuration software (2.70+) has been released to support the new password formats and allow them to be configured within the devices. The maximum number of user accounts for the ROC800 and ROC800L is now 64.
- **Data Group** – Added an enhanced security data group, **LoginSec** "Login Secure Enhanced Request", using the Emerson Opcode 17, Login Request. The EmersonRocPlus\_800.dtf and EmersonRocPlus\_800L.dtf have been modified to include the new LoginSec data group.
- **UIS Command** – Added a new UIS command "component type", **LOGINSEC** (Login Secure), to send enhanced security credentials to the device. The UIS command uses the login credential information from the "Login secure" section of the Device page on the remote device editor.
- **More Information** – Refer to the [CygNet Help](#) for more information:
  - **Device Editor** topic for information about the Login secure properties
  - **Data Groups** topic for information about the LoginSec data group
  - **UIS Commands** sections for information about configuring and issuing UIS Commands
  - **UIS Command Component Parameters** topic for information about the LOGINSEC command component type
  - **Device Template Files** sections for information about modifying DTFs.
- Added a "**Logout**" (Logout Request) data group for Emerson ROCPlus 800 devices. The Logout request is issued to the device via Opcode 17.

## EProdRPC EIE

### Fix

- Fixed a **memory exception** issue with the EProdRPC EIE that caused the 64-bit UIS to fail.

## Ferguson Beauregard EFM3000 EIE

### Fix

- Fixed an **8-byte data type issue** for the Ferguson Beauregard EFM3000 EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## Flow Automation EIE

### Fix

- Fixed an **8-byte data type issue** for the Flow Automation EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## IoT Sparkplug EIE

### Enhancement

- The IoT Sparkplug EIE has been enhanced to provide three new command types for the "Command – Device" (**CmdDev**) and "Command – Edge Node" (**CmdNode**) data groups to write a topic using a Sparkplug command (DCMD/NCMD). The new command types support the backfill of missing data (data group transaction history data and/or point history) in the case where the Link service becomes unavailable for an extended period of time (e.g., Link goes down for any reason or loses network connectivity), and to send UIS commands to a remote system, e.g., to an EDGE device. The new command types are:
  - **DgHist** – to send and retrieve data group transaction history
  - **History** – to send and retrieve point history
  - **UisCmd** – to send a UIS command to a remote EDGE device

Some important points to note when configuring commands:

- Topic and command-type configuration is performed on the **View Data** dialog box of the command-type data group.
- For data group transaction history for dynacards and point history the **Start Date** and **End Date** must be in **ISO 8601 format**. The Time Zone is always UTC. If Local time is used it will be converted to UTC. The conversion from Local time to UTC is done by the client. When sending the command from the data group editor, that client has the option to adjust for time zone. When sending from a UIS command, it is up to the sender / client to make any time zone adjustments.
- Data group transaction history backfill supports a **Data Group Filter** to limit data group types.
- Point history backfill supports a **Point Tag Filter** to limit history points and takes the same format as the pointFilter member specified in the publish object of the CVS endpoint in the Link appsettings.json file.

- For **UIS commands**, the command name indicates the command on the remote device, e.g., an EDGE device. The **EmbedParms** parameter is used to send command parameters that will be sent to the UIS running on the EDGE device. The format for a list of commands is as follows: EmbedParms=[val1=1, val2=2, val3=3].
- An optional **Status point ID** is supported to monitor the status and progress of the UIS command.

Refer to the [IoT Sparkplug EIE](#) section in the *CygNet Help* for more information.

## Lufkin MPC/RPC EIE

Fix

- Fixed an **8-byte data type issue** for the Lufkin MPC/RPC EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## Lufkin SAM EIE

Fix

- Fixed an **8-byte data type issue** for the Lufkin SAM EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## Micro1c EIE

Fix

- Fixed an **8-byte data type issue** for the Micro1c EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## Modbus EFM EIE

Fix

- Fixed an **8-byte data type issue** for the Modbus EFM EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## Modbus Omni EIE

Fix

- Fixed an **8-byte data type issue** for the Modbus Omni EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## Modbus Pickford EIE

Fix

- Fixed an **8-byte data type issue** for the Modbus Pickford EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## Modbus Realflo EIE

### Fix

- Fixed an **8-byte data type issue** for the Modbus Realflo EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## NuFlo EIE

### Fix

- Fixed an **8-byte data type issue** for the NuFlo EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## OPC EIEs (OPC EIE, OPC Lufkin EIE, and OPC Weatherford EIE)

### Fix

- Fixed an issue where the **Configurable Data Group Definition** dialog box would not always display the **Data group elements** of the Configurable Data Group for the OPC EIEs.

## ProSoft EIE

### Fix

- Fixed an **8-byte data type issue** for the ProSoft EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## Thermo EIE

### Fix

- Fixed an **8-byte data type issue** for the Thermo EIE. Previously when combining data across multiple registers, the EIE improperly interpreted ui8 and i8 data types failing to process retrieved data.

## Totalflow EIE

### Enhancement

- The Totalflow EIE now uses **version 3.15 of the ABB Totalflow toolkit API (tcidll.dll and tcidll64.dll)**. Contact your ABB Totalflow representative for additional information about changes to the tcidll.dll.

### Modifications

- Modified the Totalflow EIE to get **Mass data** into the **HistDly** "History - Daily" and **HistLog** "History - Log Period" data groups for Coriolis meters (device application SUCOR) for Record Rev 78. Previously mass data was restricted by Record Rev 49.
- Logging has been added or fixed in several calls in the **Totalflow API (tcidll.dll and tcidll64.dll)**. Logging has been added to the following calls: AddRegisterDownload, AddRegisterRequest, GetDailyRec, GetEventRec, GetLogPerRec, and SetTimeouts. Logging has been improved for the following calls: LockDaily, LockEvents, LockLogPer, OrganizeValveData, UnlockDaily, UnlockEvents, and UnlockLogPer.

# OPC Server

## Fix

- Fixed a **crashing bug** with the CygNet OPC Server encountered when OPC clients would disable and then unregister a large number of OPC tags prior to disconnecting from the server.

# Scripting

The following changes have been made to scripting libraries in CygNet v9.8.

## CygNet.API

The following enhancements have been made to the CygNet .NET APIs in CygNet v9.8. The CygNet.API assemblies are documented in a standalone help file, **CygNet\Bin\CygNet.API.chm**.

### Enhancements

- Enhanced the **CygNet.API.AccessControl** library to provide programmatic access to applications and events in the **Access Control Service (ACS)**: `CreateApplication()`, `DeleteApplication()`, `DoesApplicationExist()`, `DoesEventExist()`, and `DeleteEvent()`.
- Enhanced the CygNet.API library to include **CygNet.API.Devices** to aid in programmatic access to the CygNet Device Definition Service (DDS) (via a `ConfigClient`) and the CygNet Universal Interface Service (UIS) (via a `PollingClient`). Interfaces are available to access devices, device templates, device facility links, data groups, data group elements, data group transactions, UIS commands and command components, etc., via script.
- Enhanced the **CygNet.API.Points** library by adding the following properties to the **CygNet.Data.Points.PointConfigRecord**: `CreatedDatetime`, `LastUpdateDatetime`, and `LastUpdateUserId`, to provide programmatic access to this data in a point configuration record in the CygNet Point (PNT) service.
- Enhanced the .CygNet.API library to include **CygNet.API.Schedules** to aid in programmatic access to the CygNet Master Scheduling Service (MSS). Methods are available to schedule command tasks (UIS, FMS, and Set Info Keyword), SetPoint tasks, and blackouts via script.

### Modification

- Modified the filter processing of **CygNet.API.Points.ImportExportManager.Export()** to return the same results as `CygNet.API.Points.ConfigClient.GetPointTagList()`. Previous to this change, `Export` would incorrectly return zero results when certain filters were provided.

# Utilities

The following changes have been made to CygNet utilities in CygNet v9.8.

### Enhancement

- Added a new CygNet Studio sample screen, `TransferPointHistory.csf`, which invokes multiple instances of the **VhsImportExport** utility to more **quickly transfer a large amount of VHS data** from one historian service to another. Sample screens are found in `CygNet\Clients\CStudio\Screens\Examples`.

# CygNet Web

## Notice of Status Change (NSC)

- The **CygNet Web** application reached its **End of Life** with the release of CygNet v9.8. See the [Product Lifecycle](#) for more information.

# CygNet Online Help

## Notice of Status Change (NSC)

- The CygNet v9.4 Help reached its **End of Life** with the release of CygNet v9.8 and has been removed from the documentation website.
- The CygNet v9.5 Help is now in **Limited Support** with the release of CygNet v9.8. It will reach its End of Life with the release of v9.9 and will be removed from the documentation website.