ICONICS 10.97.1

What's New | **ICONICS Suite**™

November 2021

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Contents

Introduction to What's New

This edition of the "What's New" describes many notable new features and enhancements in version 10.97.1 since the previous release (10.97). For information on features and enhancements made in earlier versions, see the appropriate "What's New" document for those versions.

For information on fixes made in version 10.97.1, see the appropriate "Resolved Issues" document.

Note that if updates need to be made, the most up to date "What's New" and "Resolved Issues" documents can be found in our online documentation here:

Release Notes

This copy was updated in December 2021.

Structure of the Document

This document is split into two main sections, one for major updates that contain significant explanation and another for smaller additional enhancements and features that are listed in a table. Each section is broken down further into the different areas of the ICONICS Suite, then further into sections for major updates.

Where appropriate, references to additional information, such as instructional application notes or help files, will be indicated.

Security Vulnerabilities

Information about security vulnerabilities will not be found in this document. For this information, refer to iconics.com/cert.

Most Notable Features

Some of the most notable new features in 10.97.1 are listed below. Visit each link to learn more and see the "Major Enhancements" section for additional notable features.

- New Hyper Alarm Logger for improved alarm logging
- Technical Preview of the BACnet with SC Point Manager, designed for ASHRAE 135-2020 and Secure Connect
- Mitsubishi Electric FA Connector has support for additional PLC and GOT series
- OPC UA structured variables
- CFSWorX & AlertWorX:
  - New alert methods:
    - Microsoft Azure Communications Services SMS
    - Sendinblue email
  - Acknowledgement support for FDDWorX, Hyper Alarming, and OPC UA
  - Display geofences and replay worker paths in EarthWorX
- Execute commands on GraphWorX64 events, adding more user-friendly and easier to maintain options to replace scripting that work in both desktop (WPF) and HTML5
- Technical Preview of 3D viewer support in HTML5 WebHMI and MobileHMI displays
- Internet of Things:
  - MQTT Sparkplug Connector
  - IoTWorX simplified initial setup
  - Takebishi DeviceGateway OPC UA Server
  - Hyper Alarm Server publishing
- AnalytiX-BI:
  - Performance enhancements
  - Expanded query functionality
  - Parameterized views
- ReportWorX64:
  - Create predefined parameters for all templates
  - Preconfigured parameters for common use cases
  - Allow users to select a tag as a parameter value

Major Enhancements

Common & Platform Services

Installation

Language Pack Included in Release

Previous versions of ICONICS Suite could be localized into several additional languages, but it required the application of an additional language pack or rollup.

Version 10.97.1 eliminates the need for this additional installation. Simply choose the **Language Pack** option during installation and the necessary files to display ICONICS Suite in another language will be installed. The language pack installs all available localization files, and the software will use the language that matches the operating system, where available.

These languages are included in the language pack:

- French
- Japanese
- Russian (runtime only)

Secure By Default Installation Secures UA Server

(Reference ID: 63708)

Starting in version 10.97, ICONICS Suite helps users be more security conscious by installing in a secure mode by default. For a secure system, ICONICS recommends closing as many channels into the system as possible, only leaving open channels that are being used. The secure installation helps users adhere to this design methodology by requiring them to act to open only the channels they need.

New in version 10.97.1, when performing a secure installation, the FrameWorX OPC UA Server interface is now disabled by default.

The FrameWorX OPC UA Server is designed to allow third party OPC UA clients to retrieve data from FrameWorX and the ICONICS system. Closing this channel by default prevents a potential avenue of access for malicious users. ICONICS recommends closing this channel on systems where it is not being used.

Users who have third party OPC UA clients that need FrameWorX access can reenable the OPC UA server with these steps:

1) Open **Platform Services Configuration** from either **Start** > **ICONICS Tools** or **Workbench** > **Tools**.
2) Go to the **Basic** tab.
3) Select **Enable OPC UA interface**.

Alternatively, users who need the OPC UA interface enabled can choose to install in demonstration mode by selecting **I want to install a demonstration system** during the installation. A demonstration installation provides a less secure but easier to use system, so it is ideal for users who wish to secure things on their own or simply wish to try out the features of ICONICS Suite without worrying about security.

For Further Reference
- Help: [Configuring OPC UA Servers in FrameWorX Server](#)

Security

Use Commanding and Datasets to Configure Security in Runtime

(Reference IDs: 83132, 83133)

It is now possible, with the correct permissions, to perform common security administrative functions in GraphWorX64 displays or other runtime areas. System designers can now create their own interfaces to give security administrators the tools they need without having to open Workbench.

To display information about the current security configuration, use the datasets under **Diagnostic** > **Configuration** > **Security**. There are two datasets, one to show security groups and another to show security users:

- **SecRole - All** – This dataset contains information about all groups in the security configuration.
  - Example tag name: `cfg:entities/readall<SEC,SecRole>`
- **SecUser - All** – This dataset contains information about all users in the security configuration.
  - Example tag name: `cfg:entities/readall<SEC,SecUser>`

These datasets can be displayed in a GridWorX Viewer or table control. More advanced users can select individual cells of the dataset to display in a process point and leverage the clone dynamic in GraphWorX64 to create more customized views.

The datasets are secured using the same application actions that control whether a user can browse, edit, or delete security items. You can grant or revoke these privileges in the **Application Actions** section of a user or group under **Workbench** > **Security**.

A new command, **Configure Security** was added. This command can perform several different functions, based on the value of the Action parameter:

- **CreateUser** – Creates a new security user with the given username, group, policy, and password.
- **ChangePassword** – Changes the password of the given security user. Note, this command is designed to be used by a security administrator to change the password of other users. It does not require the previous password. Users looking to change their own password should use the Change Password button in the security login dialog.
- **AddUser** – Adds a security user to a group.
- **RemoveUser** – Removes a security user from a group.

The **Password** parameter of the **CreateUser** and **ChangePassword** actions must take a hashed password. Plaintext passwords are not supported. To hash a password, the new **Password** and **PasswordHashing** properties of GraphWorX64 process points must be used. (For more information on the new password masking feature, see the entry for reference ID 11122 in the *Additional Enhancements* section.)

The CreateUser, AddUser, and RemoveUser actions can only work with one group at a time. To add a user to multiple groups, use the Batch command and call the ConfigureSecurity command multiple times.

Follow these example steps to create an example display that allows a security administrator to add a new user:

1) Add these four labels (text) to a GraphWorX64 display:
    a. **Username**
    b. **Group**
    c. **Policy**
    d. **Password**
2) Next to each label, add a data entry process point. (There should be four process points in total.) Connect each process point's data source to these local variables:
    a. Username: **localsim::user:String**
    b. Group: **localsim::group:String**
    c. Policy: **localsim::policy:String**
    d. Password: **localsim::password:String**
3) If you are not already in Advanced Mode, go to **View** > **Application Mode** > **Advanced Mode**.
4) For the process point next to the Password label, set these properties:
    a. **Password** to **True**
    b. **PasswordHashing** to **Password-Based Key Derivation Function 2**

5) Add a button and label it, **Create**.
6) Configure the button's pick action with these properties:
   a. **Command** to **Configure Security**
   b. **Action** to **CreateUser**
   c. **UserName** to **{{localsim::user:String}}**
   d. **Group** to **{{localsim::group:String}}**
   e. **Policy** to **{{localsim::policy:String}}**
   f. **Password** to **{{localsim::password:String}}**
   g. (Optional) **DataEntryLostFocusWritesValue** to **True** (This will allow the user to click away from the data entry field without losing the value. This setting is recommended for local variables only and not live values, especially not connected to equipment that may be damaged if an incomplete value is written by mistake.)
7) Add a **GridWorX Viewer** control.
8) Configure the **GridWorX Viewer**.
9) Select the **Grid** object.
10) Set the data tag to **cfg:entities/readall<SEC,SecUser>** (In the tag browser, this tag can be found at **Diagnostic** > **Configuration** > **Entities** > **Security** > **SecUser – All**.)
11) **Close** the GridWorX Viewer configuration.
12) **Save** the display.
13) For best results, confirm that your currently logged-in user has the proper permission to create users with this command:
    a. Open **Workbench**.
    b. Expand **Security**.
    c. Expand **Users** and open the desired user or expand **Groups** and open a group that the desired user is a member of.
    d. Find the **Application Actions** section,
    e. Ensure that these items are enabled (they must be enabled directly on the user or on at least one of the groups the user is a member of)
       i. **Workbench** > **Security** > **Edit Items**
       ii. **Commands** > **Configure Security**
       iii. (Optional) **Workbench** > **Security** > **Browse Items** (allows viewing users in the GridWorX Viewer, but does not affect creating users)
    f. **Apply** any changes.
    g. Log in as the desired user.
14) Return to **GraphWorX64** and go into **runtime**.
15) The GridWorX Viewer should populate with the current users in your security configuration.
16) Enter values into the process points. Group and Policy must match existing group and policy names in your security configuration. Here are some example values:

a. **Username**: **Test**
b. **Group**: **GroupA**
c. **Policy**: Leave blank to use the default security policy.
d. **Password**: Ensure the password is consistent with the policy's password complexity rules.

17) Select **Create**.
18) Refresh the GridWorX Viewer. If the user was created successfully, it should now show in the list of users. You should also be able to see the user in Workbench, after refreshing the list.

The user executing the Configure Security command must have edit permission for the security configuration (configured on a user or group under **Application Actions** > **Workbench** > **Security**) and permission to execute the command, itself (configured via **Application Actions** > **Commands** > **ConfigureSecurity**).

For Further Reference
- Help: Security in Runtime

AnalytiX

AnalytiX-BI

Performance Enhancements

(Reference ID: 77788)

There have been a number of performance enhancements in the AnalytiX-BI server. The performance has been improved in multiple areas and should be better overall, but these particular areas are worth noting:

- The Insert action now performs faster on very large datasets (on the order of a million rows). (Reference ID: 51162)
- Read and write transactions can now happen at the same time (previously all read queries were locked while a write was happening). (Reference ID: 76412)

Parameterized Views

(Reference ID: 82351)

Reusable queries have been a frequently requested feature for AnalytiX-BI. Now, users can achieve this functionality by configuring a view with parameters. Other queries can call the view and pass values to those parameters.

For example, the user could create a view named, "MyView", and configure it as follows:

```
        SELECT * FROM
Orders WHERE CustomerID
= @CustID AND OrderDate
> @Date
```

This includes two parameters, @CustID and @Date. The parameters can be configured in the new Parameters section of the Data View object in Workbench.

These parameters can be supplied when MyView is used in another query, such as:

ParameterizedOrders ✕

Full Path: *MyProject/AnalytiX/BI Server/Data Models/...* [DATA VIEW] [   ]

Name: ParameterizedOrders

General Settings | Parameters

Data View Settings

Description: Orders for the given customer after the given date.

Query Text:
(Click to test query)

```
SELECT * FROM Orders WHERE CustomerID = @CustID
AND OrderDate > @Date
```

Apply | Refresh | Close | New...

```
SELECT OrderID FROM MyView(@CustID = 'ALFKI', @Date = '1996-01-01')
```

Named parameters can be specified in any order inside the parentheses. The names are optional, but when they are omitted, the parameters must occur in the same order in which they were configured:

```
SELECT OrderID FROM MyView('ALFKI','1996-01-01')
```

For Further Reference
- Help: Data Views

New Refresh Type: "Update Existing and Insert New Data"

(Reference ID: 84278)

Previously, when adding new data to a BI table, users had to choose between only inserting new data or discarding all of the previous table contents and replacing it entirely with the new data.

Under the refresh tab for a table there is now a new **Refresh Type** called **Update existing and insert new data**. As described in the name, when this refresh type is selected any rows that exist will be updated, and rows that do not exist will be inserted. (The table's primary key is used to determine if rows exist or are new.)

12
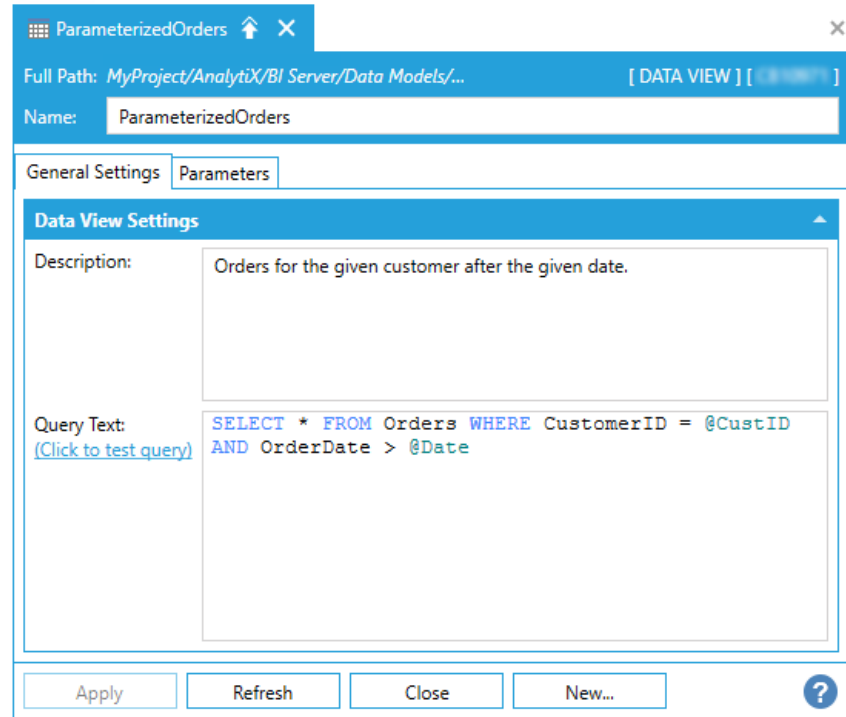
This new refresh type allows users update existing rows without losing any of the previous table contents.

For Further Reference
- Help: <u>Data tables</u>

Expanded Query Functionality

(Reference ID: 77790)

Numerous improvements have been made to the query functionality of the AnalytiX-BI Server, including:

- Expressions are now available in all parts of the query, not just in the SELECT list, and no longer need to be surrounded by single quotes. Examples:

  ```
  SELECT * FROM Categories WHERE CategoryID + 1 > 4
  SELECT * FROM Categories ORDER BY CategoryID * 2
  SELECT AVG(UnitPrice) FROM Products GROUP BY CategoryID – 3
  HAVING AVG(UnitPrice) + 1 > 10.0
  ```

- Expressions can contain aggregate columns. Example:

  ```
  SELECT SUM(UnitPrice) / COUNT(UnitPrice) AS [avg] FROM Products
  ```

- Support for LEFT and RIGHT OUTER JOIN.
- Support for GROUP BY. Previously when using aggregates, any non-aggregated columns were grouped, but using an explicit GROUP BY clause allows the user to group by a column that is not part of the output. Example:

  ```
  SELECT AVG(UnitPrice) FROM Products GROUP BY CategoryID
  ```

- ORDER BY supports OFFSET and FETCH. Example:

  ```
  SELECT * FROM Products ORDER BY ProductName OFFSET 10 FETCH 10
  ```

- Support for UNION and UNION ALL. UNION removes duplicate rows, while UNION ALL simply unions the results, leaving duplicates (so UNION ALL should be used whenever possible for better performance). Examples:

  ```
  SELECT CategoryID FROM Categories UNION SELECT ProductID FROM
  Products
  SELECT CategoryID FROM Categories UNION ALL SELECT ProductID FROM
  Products
  ```

- Support for subqueries in the FROM and WHERE clauses. Examples:

  ```
  SELECT CategoryID FROM (SELECT CategoryID FROM Categories WHERE
  CategoryID > 3) AS C
  SELECT CompanyName  FROM Customers  WHERE CustomerID IN (SELECT
  CustomerID FROM Orders WHERE OrderDate > '1/3/95')
  SELECT CustomerID  FROM Customers AS c WHERE NOT EXISTS (SELECT *
  FROM Orders  WHERE c.CustomerID = Orders.CustomerID)
  ```

- Support for CASE WHEN. Both simple case and searched case are supported. Examples:

  ```
  SELECT CASE ProductID WHEN 10 THEN 'Product 10' WHEN 20 THEN
  'Product 20' END FROM Products
  SELECT CASE WHEN UnitPrice > 20 THEN 20 WHEN UnitPrice < 10 THEN
  10 ELSE UnitPrice END FROM Products --with default
  ```

- Support for IS NULL and IS NOT NULL operators.
- Support for BETWEEN and NOT BETWEEN operators.
- Aliases are now always optional in the SELECT clause.
- Collation support has been added. Example:

  ```
  SELECT * FROM Categories WHERE Description COLLATE en-us_ci =
  'Cheeses'
  ```

- It is possible to define and use table aliases. The AS for defining the alias is mandatory. Example:

  ```
  SELECT p.ProductName, c.CategoryName FROM Categories AS c INNER JOIN
  Products AS p ON c.CategoryID = p.CategoryID ORDER BY p.ProductName
  ```

- All comparison operators are now allowed in a join predicate. Example:

  ```
  SELECT p.ProductID, c.CategoryID, c.CategoryName, p.ProductName
  FROM Categories AS c INNER JOIN Products AS p ON p.ProductID !=
  c.CategoryID ORDER BY p.ProductID, c.CategoryID
  ```

- WHERE predicates can now compare columns to columns instead of being limited to comparing columns and constants. Example:

  ```
  SELECT CategoryID, ProductID FROM Products WHERE CategoryID =
  ProductID
  ```

- Unqualified columns are allowed if a FROM clause is used. Previously columns always had to include the table name. Also, can use * in the SELECT clause without a table name.
- The COUNT aggregate can now be used with *. Note that this counts all rows, including NULLs, whereas COUNT when used with a specific column name does not include NULLs. Example:

  ```
  SELECT COUNT(*) FROM table
  ```

Note, due to these enhancements, there are a few queries that used to work in older versions that may need to be updated before they work in version 10.97.1.

Because the WHERE predicate now allows combining columns and columns, rather than being limited to columns and constants, users may need to be more careful with comparing columns and constants of different types. For example, take this query:

```
SELECT * FROM table WHERE SITE_NUM = 6002
```

If SITE_NUM is a column of type String and contains some empty string values (not NULLs), the query will fail when encountering those empty strings. This happens because the new AnalytiX-BI query parser is implicitly converting these different data types into the same type, and Int32 has a higher precedence than String, so BI attempts to cast SITE_NUM to Int32. This casting fails for an empty string.

This worked in previous versions because the constant was always on the right and the column always on the left, so the constant was always converted to the type of the column, regardless of type precedence.

In the current version, the best way to resolve this is to explicitly convert the constant to the same type as the column. With this specific example, you can specify the 6002 value as a literal string:

```
SELECT * FROM table WHERE SITE_NUM = '6002'
```

If this type conversion problem occurs in the current query parser, a type conversion error will be reported. This should make it clear to the user that they must consider the types involved.

That the precedence of types for these sorts of conversions is noted in the help file here: AnalytiX BI SQL Language

A second change is that aliases are no longer usable in the WHERE clause. This was necessary to support expressions in WHERE. That means that a query like this used to work in the old AnalytiX-BI query parser, but will not work in version 10.97.1:

```
SELECT '{{Categories.CategoryID}} + 1' AS expr FROM Categories WHERE expr > 3
```

To achieve the same result in the new BI query parser, either repeat the expression in the WHERE clause or use a subquery, as in these examples:

```
SELECT CategoryID + 1 AS c FROM Categories WHERE CategoryID + 1 > 3

SELECT * FROM (SELECT CategoryID + 1 AS c FROM Categories) AS t WHERE c > 3
```

In both cases, the new functionality works more consistently with SQL Server queries than previous instances of the AnalytiX-BI server.

For Further Reference
- Help: AnalytiX BI SQL Language

BridgeWorX64

Transactions

Acknowledgement Support for FDDWorX, Hyper Alarming, and OPC UA

See Acknowledgement Support for FDDWorX, Hyper Alarming, and OPC UA.
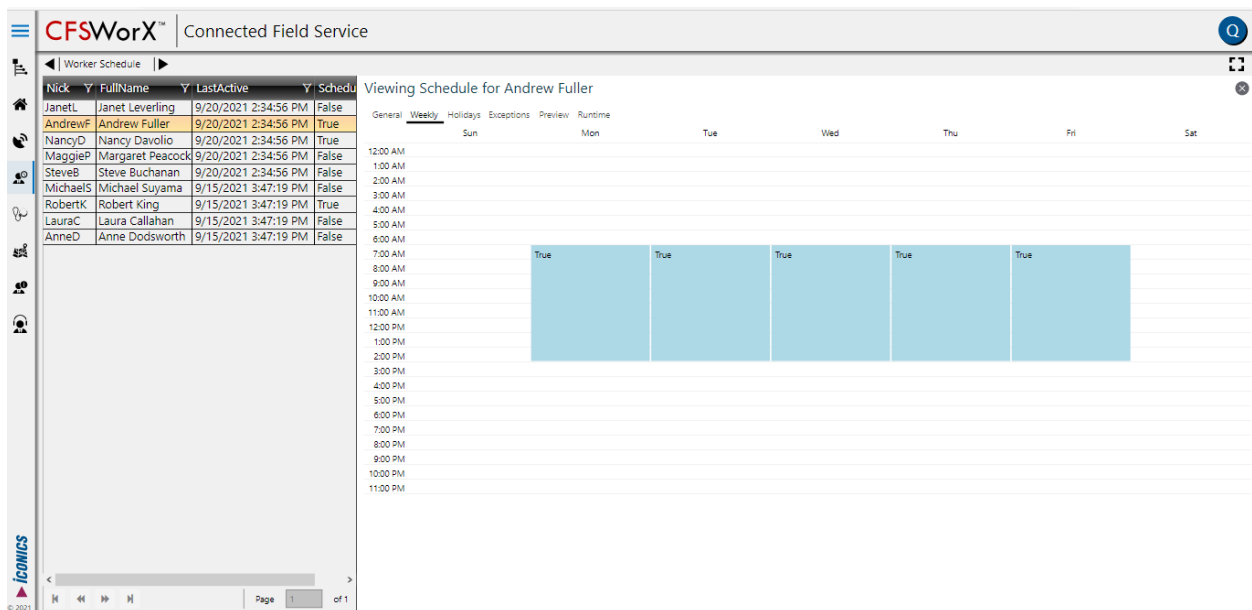
CFSWorX

General

Schedule View in CFSWorX Dashboard

(Reference ID: 83281)

The CFSWorX Dashboard now contains a page for displaying worker schedules.

For Further Reference
- Help: CFSWorX AnalytiX Dashboard Deployment

Workflow and Alerts

Microsoft Azure Communications Services SMS

(Reference ID: 80233)

CFSWorX alerts can now be sent out via Microsoft Azure Communications Services (ACS). For this release, only SMS is supported. We plan to add voice, chat, and incoming SMS (for acknowledgements) in later versions.

To leverage ACS, users must have an Azure account with an active subscription.

Follow these steps to configure ACS:

1) Choose an active Azure Communication Services resource or create a new one (see [Create Azure Communication Resource](#)).
2) Note the connection string of the Communication Services resource. It will be used later to configure the ACS Configuration object in Workbench.
3) Provision a phone number from Azure (see [Provision your ACS phone number](#)). Choose a number with outgoing SMS capabilities. Note this phone number for later use in Workbench.
4) Open **Workbench**.
5) Select **Alarms and Notifications** > **AlertWorX** > **ACS Configurations**.
6) Use the ribbon or context menu to **Add ACS Configuration**.
7) Give the configuration a **name**.
8) Enable **Is Default Configuration**.
9) If desired, add a **description**.
10) Go to the **Phone Numbers** tab.
11) Add the phone number obtained from Azure portal in step 3.
12) Go back to the **General Settings** tab.
13) For **Default Phone Number**, select the phone number added previously.
14) For **ACS Connection String**, paste in the connection string for your Communication Services resource that you noted in step 2.
15) **Apply** the changes.
16) It is recommended to test the configuration at this point using these steps:
    a. Ensure that AlertWorX is running (ICONICS Alert REST service).
    b. Find the **Test this configuration** section.
    c. Choose a number you'd like to send a test SMS message to and enter that number in **To Number** (format of *+15555555555*).
    d. Select **Test SMS**.

17) If the test failed, correct any issues and test again. Make sure to **apply** any changes.

18) In your Connected Field Worker template, use the **Azure SMS Message** activity to send an SMS using this configuration.

For Further Reference

- Help: Setting up Azure Communication Services (ACS)

Send Email using Sendinblue

(Reference ID: 80247)

CFSWorX emails can now be sent out via the Sendinblue service.

To configure Sendinblue emails:

1) Open **Workbench**.
2) Select **Alarms and Notifications** > **AlertWorX** > **Sendinblue Configuration**.
3) Use the ribbon or context menu to **Add Sendinblue Configuration**.
4) Give the configuration a **name**.
5) Enable **Is Default Configuration**.
6) If desired, add a **description**.
7) Fill in the **API Key** supplied by Sendinblue. (For more detailed instructions on how to obtain your Sendinblue API Key, see the help files.)
8) Fill in the **default from** email address.
9) Use the **Test Email** button to confirm emails are able to send.
10) If the test failed, correct any issues and test again.
11) Once the configuration is correct, **apply** the changes.
12) In your Connected Field Worker template, use the **Sendinblue Email** activity to send an email using this configuration.

Note, acknowledgement via Sendinblue email is currently not supported due to limitations in Sendinblue's API.

For Further Reference

- Help: Setting Up Sendinblue

Acknowledgement Support for FDDWorX, Hyper Alarming, and OPC UA

(Reference ID: 83696)

In previous versions, acknowledging alarms sent via CFSWorX workflows or BridgeWorX64 transactions was only supported for AlarmWorX64 Server. Now, in version 10.97.1, acknowledgement works with FDDWorX faults, Hyper Alarming alarms, and third-party OPC UA alarm and event servers.
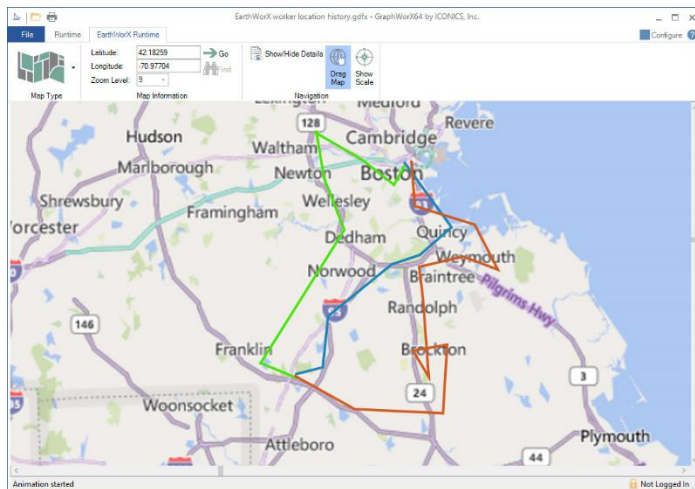
For Further Reference

- Help: [Notification Methods](#)

Worker Access

Display Geofences and Replay Worker Location Path in EarthWorX

(Reference IDs: 78859, 78862)

EarthWorX Viewers can now display geofences and worker path replays. These features were first added to KPIWorX maps in version 10.96.2.

The configuration of geofences has not changed and can still be found in **Workbench** under **MobileHMI** > **Configuration** > **Augmented Reality**. The configuration of worker location paths has also not changed. The steps can be found in the help file under **AnalytiX Suite** > **CFSWorX** > **Setting Up Worker Path Replay**.

To display geofences in an EarthWorX Viewer:

1) Go to the **EarthWorX Configuration** tab.
2) Select **Setup Connection** > **Add New Connection**.
3) For Map Type, choose **Geofences**.
4) Give the connection a name, such as **GeofencesConnection**.
5) Select **OK**.
6) Add a new map layer.
7) In the **Explorer** panel, select the new layer.
8) Expand the dropdown under the **Geofences** button and choose **GeofencesConnection**.
9) Optionally, with the map layer still selected, go to the **Properties** panel, and customize the **Geofence Palette**.

The steps to display worker path replay are similar:

1) Go to the **EarthWorX Configuration** tab.
2) Select **Setup Connection** > **Add New Connection**.
3) For Map Type, choose **Worker Path Replay**.
4) Give the connection a name, such as **WorkerPathConnection**.

19

5) Select **OK**.
6) Add a new map layer.
7) In the **Explorer** panel, select the new layer.
8) Expand the dropdown under the **Worker Path Replay** button and choose **WorkerPathConnection**.
9) In the dialog that appears, choose your **Path History Data Source**.
10) If desired, customize the **color palette**.
11) Select **OK**.

Geofences and worker path replay map layers are supported for both desktop (WPF) and HTML5 displays.

For Further Reference
- Help: [Setting Up Worker Path Replay](#)

Worker Location Data from ServiceNow and Maximo

(Reference ID: 80838, 80837)

Instead of using MobileHMI device health data, the location of workers can now be determined from ServiceNow or Maximo. On the desired field worker source object, select the Use CRM Location box to get location from ServiceNow or Maximo. (See help files for information on how to enable the field technician location tracking feature in the ServiceNow or Maximo apps.)

Worker location can also be obtained from Dynamics 365. This functionality was added in version 10.97.

For Further Reference
- Help:
  - [Configuring ServiceNow to obtain mobile location updates](#)
  - [Configuring Maximo to obtain mobile location updates](#)

Energy AnalytiX

Various Ease of Use and Accuracy Enhancements

Energy AnalytiX has had a lot of various enhancements to help make it easier to use and provide more precise data. These enhancements include:

- Additional equipment class parameter support for Energy AnalytiX fields:
  - Able to parameterize rollover value for consumption tag (Reference ID: 82196)

- o Able to configure equipment classes with energy calculations for virtual meter types (Reference ID: 82292)
- Improved rollup calculation expressions for virtual meters (Reference ID: 82726)
- Additional energy data aggregation in Hyper Historian for hourly, daily, monthly, and yearly periods (Reference IDs: 83045, 83046, 83047, 83048)
  - o Improved Energy AnalytiX data model in AnalytiX-BI to take advantage of these additional aggregations
- Support for having different storage intervals for each aggregate type (example, store hourly aggregate at a different interval than daily) (Reference ID: 82728)
- Improved accuracy of consumption calculations, especially in the event of few samples or communication delays (Reference ID: 82635)

Data Models and Sample Dashboards Updated to Use New AnalytiX-BI and KPIWorX features

(Reference ID: 82851)

The Energy AnalytiX data models and sample dashboards have been enhanced to take advantage of features added to AnalytiX-BI and KPIWorX in recent versions, including the Sankey diagram and enhanced filters.

ReportWorX64

General

Allow Users to Select a Tag as a Parameter Value

(Reference ID: 81955, 81957)

Previously, reports that allowed the user to choose a tag or tags to report on had to build the tag name themselves in some fashion, such as using parameters of type, "Select from a fixed list of values" or "Select from a dynamic list of values" and pull values from a database. These parameter choices would echo the tag space but had to be manually synchronized. If new tags were added to the system, they also had to be added to the fixed list of values or the database that populated the dynamic list.

To solve this problem, a new **parameter type** is introduced in version 10.97.1: **Select a tag**. When executing the report, a parameter of this type will present the user with a tag browser, browsing the live address space, and allow them to choose a tag name. The parameter can then be used as an alias in other data sources, allowing the user who generates the report to choose exactly what tags to report on.

The user can supply a default value for the parameter to provide a starting place in the tag address space. This default value can be a folder name.

These "select a tag" parameters are supported when downloading values from the Excel Add-In and when executing a report from the desktop (WPF) ReportWorX64 Viewer control, but the HTML5 platform does not currently support browsing the tag address space, so HTML5 ReportWorX64 Viewers must type in the tag name by hand. We plan to add support for an HTML5 tag browser and these "select a tag" parameters in a future version.

For Further Reference
- Help: Parameters

Preconfigured Parameters

(Reference ID: 81431)

There are three new parameter types in ReportWorX64 that can be used to quickly create frequently used parameters. These are not true parameter types, but shortcuts to preconfigure a parameter with a prefilled list of values.

When adding a new parameter, select the given parameter type and the rest of the parameter dialog will be configured appropriately. Once created, the user can modify these parameters as needed, such as removing options that do not apply to their specific system.

- **Aggregate name list** – HDA aggregates (such as Interpolative and Average).
- **Datetime format list** – Date/time string formats (such as "dd/mm/yyyy" or "mm/dd/yyyy"). (Useful with the new Parameterized Date Time and Double Formats feature.)
- **Double format list** – Double string formats (such as "0.0" and "#,###"). (Useful with the new Parameterized Date Time and Double Formats feature.)
- **Sort mode list** – Ascending or descending. (Useful with the new Configure Sorting of Data Sources feature.)

Note, each of these parameters has a "true" parameter type, such as "Select from a fixed list of values". This parameter type will be shown after the user has navigated away from the parameter configuration and back.

For Further Reference
- Help: Parameters

Local and Server Machine Name Parameters

(Reference ID: 81952)

Two new **parameter types** have been added: **Local machine name** and **Server machine name**. These parameters will populate in runtime with the local machine and FrameWorX server machine names, respectively.

Note that reports executed by ReportWorX64 Server will have the same local and server machine names.

For Further Reference

- Help: Parameters

Predefined Parameters for Every Template

(Reference ID: 81952)

Users who create the same set of parameters for every new template can now create **predefined parameters**. These parameters will be automatically added to every Excel template created on this machine.

To create a predefined parameter:

1) In **Excel**, go to the **ReportWorX64** ribbon.
2) Select **Quick Enable**, if necessary.
3) Open the **General Configuration** window. (Depending on your resolution, you may need to expand to the last section on the ribbon.)
4) Expand **Parameters**.
5) Select **Predefined parameters**.
6) Create your parameters as desired.
7) **Save** when finished.
8) Create a new Excel **workbook**.
9) Go to the **ReportWorX64** ribbon and **enable** the ReportWorX64 Add-In.
10) Select **Parameters**. You should see your predefined parameters here.

Predefined parameters will only be added to new workbooks. Once predefined parameters are added into a workbook they can be modified like ordinary parameters. The predefined parameter settings only define their starting values.

The predefined parameters are stored on the local machine where Excel is running and will not carry over to other machines, even when using the same FrameWorX Server.

Cell parameters cannot be created as predefined parameters.

23

For Further Reference
- Help: [Parameters](#)

Find and Replace in Headers

(Reference ID: 81271)

Users can now perform a find and replace on data source headers in a ReportWorX64 Excel template.

To perform a find and replace:

1) Open the template in **Excel**.
2) Select one or more data sources
3) Open the context menu or go to the **ReportWorX64** ribbon.
4) Select **Edit** > **Headers**.
5) Expand the **Find and replace** section at the bottom of the **Header configuration window**.

The dialog supports simple find and replace actions along with regular expressions. If multiple data sources were selected, the user can filter the replace action to a specific data source.

For Further Reference
- Help: [Excel Add-In](#)

New Series Column Mode for Charts

(Reference ID: 81646)

ReportWorX64 charts were introduced in version 10.97. These charts are created on the fly by ReportWorX64, rather than native Excel features. Optionally, users could designate one data source column as the "series column" (a common use case would be the point name column for a historical data source), allowing one data source to add multiple series to a single chart or even create multiple charts, one per series.

The configuration of whether to create one chart or multiple charts when using a series column has been improved in 10.97.1. Now there is a **Mode** in the **Use series column** section. Mode has three possible values:

- One chart with all series (1 chart)
- Each series in a separate chart (N charts)
- One chart with all series, plus each series in a separate chart (N+1 charts)

Not only does this enhanced configuration make it easier to understand the result, but previously it was not possible to configure each series in a separate chart without also having a chart with all series together. (In other words, previously, options 1 and 3 existed out of the list above, but not option 2.)

This feature is supported bot with the "Download Data" feature of the Excel Add-In and when the report is executed in the ReportWorX64 Server.

For Further Reference
- Help: [Excel Add-In](#)

Configure Sorting of Data Sources

(Reference ID: 82616)

In previous versions, ReportWorX64 would insert data into the report in whatever order was determined by the data source. Now, the user can specify how the data can be sorted. The sort order (ascending or descending) can even be parameterized, giving users the opportunity to choose the sort order when executing the report.

Here is an example of how to add a data source and customize the sorting, including using a parameter:

1) In **Excel**, add a data source to the sample **Data Connectivity** > **Databases** > **SQL Server** > **Northwind** > **Data Sources** > **Categories** table.
2) Select the data source, then use the context menu or **ReportWorX64** ribbon to select **Edit** > **Data Source**.
3) Go to the **Sort Header** tab.
4) Add the **CategoryName** header to the sorting list.
5) Change its **Sort Mode** to **Descending**.
6) **Save and close** the dialog.
7) From the **ReportWorX64** ribbon, select **Download Data**. Note that the data is now sorted by category name in descending order.
8) Select **Clear Data**.
9) Edit the data source again.
10) Go to the **Global Parameters** tab.
11) Add a new parameter.
12) Set the **Display name** to **SortOrder**.
13) For **Parameter type**, choose **Sort mode list**.
14) Note the **Name** of the parameter. If this is your first parameter, it will be **param0**.
15) Go to the **Sort Header** tab.
16) Enable the **Use parameter** box for the **CategoryName** header.
17) For **Sort Mode**, choose the parameter you just added.

18) **Save and close** the dialog.
19) Select **Download Data**.
20) When prompted, choose your desired sort order.
21) Note that the data is ordered by your chosen sort order. You can **Clear Data** and **Download Data** again and choose the other sort order.

To sort by more than one column, add multiple columns to the sorting list. The up and down buttons can be used to reorder the headers and change the sorting priority.

Sorting can also be quickly configured by selecting a particular column's cell, then using the **Edit** > **Order By** option in the ReportWorX64 ribbon or context menu. That column will be added to the bottom of the sort list for the data source using ascending order. (To change the sort priority or sort order, use **Edit** > **Data Source** as described above.) The **Remove** > **Remove order by** option can be used to quickly remove a column from the sorting list.

To give users the option of not sorting by a particular column, use a parameter, and include a "NoSort" choice in the parameter's list. Choosing this option will cause ReportWorX64 to skip that column when determining the sorting.

For Further Reference
- Help: Chart Support for ReportWorX64 Add-In

Parameterized Date Time and Double Formats

(Reference ID: 81415)

The format of date time and double values in a data source can now be parameterized, allowing the user executing the report to choose their desired formats.

To parameterize the date time or double formats:

1) In **Excel**, select your data source.
2) Use the context menu or **ReportWorX64** ribbon to select **Edit** > **Data Source**.
3) Go to the **Global Parameters** tab.
4) Add a new parameter.
5) Set the **Display name** to **DateTimeFormat**.
6) For **Parameter type**, choose **Datetime format list**.
7) Note the **Name** of the parameter. If this is your first parameter, it will be **param0**.
8) Add another new parameter.
9) Set the **Display name** to **DoubleFormat**.
10) For **Parameter type**, choose **Double format list**.

11) Note the **Name** of the parameter. If this is your second parameter, it will be **param1**.
12) Go to the **Configuration** tab.
13) For **Date Time Format** enable **Use Parameter** and choose **DateTimeFormat**. (If you do not see your parameter in the dropdown list immediately, select the refresh button.)
14) For **Double Format** enable **Use Parameter** and choose **DoubleFormat**. (If you do not see your parameter in the dropdown list immediately, select the refresh button.)
15) **Save and close** the dialog.
16) In the **ReportWorX64** ribbon, select **Download Data**.
17) When prompted choose your desired double format and datetime format.
18) The data will populate using your desired formats.

For Further Reference
- Help: [Excel Add-In](#)

ReportWorX 365

Removing Support for ReportWorX 365

(Reference ID: 85776)

ReportWorX 365 is an application available in the Office Store that would allow users to use a limited set of ReportWorX64 functionality. The ReportWorX 365 app is not supported for use with ICONICS Suite servers of version 10.97.1 or later. It will remain in the Office Store but will not be compatible with this version of ICONICS Suite.

Users are encouraged to switch to ReportWorX64 Express or full ReportWorX64, which have more functionality than the ReportWorX 365 app. ReportWorX64 Express is included at no extra charge in GENESIS64 and most ICONICS Suite packages.

For questions about this removal, please contact your local ICONICS representative or distributor.

Data Connectivity

BACnet Connector

Technical Preview: BACnet With SC Point Manager

(Reference IDs: 69019, 84422)

This version contains a preview of an all new BACnet Point Manager. The new **BACnet with SC Point Manager** is designed for ASHRAE 135-2020 (BACnet Protocol Revision 22) and includes support for the BACnet Secure Connect (BACnet/SC) addendum to the BACnet protocol.

In addition to this enhanced security, BACnet with SC comes with improved support for BACnet alarms, improved network discovery (with better filtering), and multi-channel support (allowing BACnet device ID isolation between different networks).

Along with the improved BACnet with SC Point Manager, the **BACnet with SC Workbench Provider** has been redesigned to work with the latest BACnet standards, including support for many new object types.

The Data Explorer has also been improved to work with the new BACnet with SC Point Manager and take advantage of the new features. Currently, the Schedule Control does not have support for BACnet SC. We plan to add this support in future versions.

Since the new BACnet with SC Point Manager is a technical preview, the **BACnet Classic Point Manager** is still included in this version and is the default BACnet Connector. There is currently no upgrade path from a BACnet Classic configuration to a BACnet with SC configuration, but we plan to have one in future versions.

The **Project Document** feature of Workbench, which allows users to generate reports about their configuration, has been enhanced to work with either BACnet point manager.

To try out the BACnet with SC Point Manager:

1) Open **Workbench**.
2) Select your project in **Project Explorer**.
3) From the context menu or the **Home** ribbon, select **Configure Application(s) Settings**.
4) Uncheck **BACnet Classic**.

5) Check **BACnet with SC** and select the desired **SQL Server** and **Catalog**. (This can be the same database where the BACnet Classic configuration is located or a different database.)
6) If there is not already a configuration in the desired database:
    a. Select the ⬛ **Create or overwrite the database associated with this application** button for BACnet with SC.
    b. If you are sure there is no existing BACnet with SC configuration or you're okay with overwriting it, select **OK** to the warning message. (This will not overwrite the BACnet Classic configuration.)
    c. Wait for the configuration to be created in the database.
7) **Apply** the changes.
8) Confirm that the **Notes** for **BACnet with SC** say **Configuration Active**.
9) In **Project Explorer** under **Data Connectivity**, you should now see the **BACnet with SC** provider.

To switch back to BACnet Classic, follow the steps again except check BACnet Classic and uncheck BACnet with SC. Advanced users can enable both applications at the same time, but note that they share the same port, so only one point manager can run at a time. One set or the other of BACnet services must be disabled from the Windows Services control panel. (The Configure Application(s) Settings dialog takes care of this when only one application is enabled.)

There are some notable differences in the behavior of BACnet with SC and BACnet Classic that users may want to be aware of. ICONICS plans to update many of these differences in a future version when the BACnet with SC Connector is officially released.

- **Trends** – BACnet with SC does not currently support BACnet trends.
- **Schedule Control support** – The schedule control's BACnet Schedule View and BACnet Calendar View do not currently support BACnet with SC.
- **Backup device support** – Devices cannot currently be backed up or restored using BACnet with SC.
- **BBMD support** – BBMDs are not currently supported in BACnet with SC.
- **Device templates** – BACnet with SC currently only has one default device template.

- **Device status checking** – In BACnet Classic, Workbench automatically detects a device's status and reflects this in the device's icon in the Workbench tree. This is done by regularly polling each device's systemStatus point. With BACnet with SC, Workbench only polls systemStatus to updates a device's status icon when the device is refreshed. This means the Workbench icons do not update automatically, but it is a more efficient use of resources. A refresh action can be manually triggered from each individual device or from the parent level of all devices.
- **List modification** – BACnet with SC does not currently support the "ModifyListProperty" method, meaning it cannot add or remove elements in a list.
- **Time/date and priority array format** – BACnet with SC exposes time/date data types and priority arrays as JSON objects, rather than datetime and arrays, respectively.

For Further Reference
- Help: [Overview of BACnet/SC](#)

EtherNet/IP Connector

EtherNet/IP Connector Deprecated

(Reference ID: 85331)

The EtherNet/IP Connector has been deprecated in this version. It will not be visible by default after installing 10.97.1 or upgrading to it from a previous version. Users who were utilizing the EtherNet/IP Connector in a previous version can restore it by following a series of steps outlined in the help files.

There are no current plans to replace the EtherNet/IP Connector in a future version of ICONICS Suite, and we anticipate at some point it will no longer be included, even in a hidden fashion. We recommend that users interested in EtherNet/IP connectivity should ask their distributor or sales representative about the Takebishi DeviceXPlorer.

For Further Reference
- Help: [EtherNet/IP Connector Deprecation](#)

Mitsubishi Electric Factory Automation (FA) Connector

Support for Additional PLC and GOT Series

The Mitsubishi Electric FA Connector has added support for these PLC series:

- iQ-L (LHCPU)
- Q (QCPU, QSCPU)
- L (LCPU)
- FX (FXCPU)

And these GOT series:

- GOT2000 (GT27, GT25)
- SoftGOT2000

For Further Reference
- Help: [MELSEC System Configuration](#)

OPC UA Connectivity

Read Support for Structured Variables

(Reference ID: 80887)

In 10.97.1, FrameWorX can now support reading OPC UA structured variables. Previously, structured variables did not come through to FrameWorX, aside from a few specific exceptions.

For client applications that cannot yet work with the whole structure, it is possible to use the member() modifier to access individual members.

For example, assume we have a UA structured variable named "ua:MyServer\\:Server.:ServerStatus". Its members can be accessed with the "member" modifier like this:

- member(ua:MyServer\\:Server.:ServerStatus).CurrentTime
- member(ua:MyServer\\:Server.:ServerStatus).BuildInfo

If BuildInfo is another structure, its members can be accessed like this:

- member(ua:MyServer\\:Server.:ServerStatus).BuildInfo.SoftwareVersion
- member(ua:MyServer\\:Server.:ServerStatus).BuildInfo.ManufacturerName

Note, writing to OPC UA structured variables is not currently supported.

Systems with a GENESIS64 Basic SCADA license must use the member() function and map individual structured variable leaves to the Real-time Data tab of an AssetWorX equipment property. Using the example above, a Basic SCADA user could access the current time, software version, and manufacturer name by creating three AssetWorX

equipment properties, going to the **Real-time Data** tab of each one, selecting a **Source type** of **Dynamic tag**, then setting each equipment property's **Real-time data tag** to one of these:

- member(ua:MyServer\\:Server.:ServerStatus).CurrentTime
- member(ua:MyServer\\:Server.:ServerStatus).BuildInfo.SoftwareVersion
- member(ua:MyServer\\:Server.:ServerStatus).BuildInfo.ManufacturerName

Mapping AssetWorX properties to a complex member, such as member(ua:MyServer\\:Server.:ServerStatus).BuildInfo, is not currently supported. Each simple child value must have its own equipment property if it is to be read in a Basic SCADA system.

For Further Reference
- Help: [OPC and FrameWorX](#)

Takebishi DeviceXPlorer OPC Server

Version 6.4.0

The **Takebishi DeviceXPlorer OPC Server for ICONICS** included on the ICONICS Suite installation media has been updated to version 6.4.0.

Version 6.4.0 contains some improvements and fixes. See the included readme file in the **OPC_Servers\dxpserver** folder for details on what has changed since the previous version.

To install DeviceXPlorer 6.4.0, run setup.exe from the **OPC_Servers\dxpserver** folder and follow the installation prompts. If a previous version of DeviceXPlorer is already installed, it must be uninstalled before this version can be applied. [See this page](#) for instructions on how to preserve the previous version's configuration.

GENESIS64

Alarms and Notifications

AlertWorX

See [Microsoft Azure Communications Services SMS](#) and [Send Email using Sendinblue](#).

Hyper Alarm Logger

New Module: Hyper Alarm Logger

(Reference ID: 81606)

In version 10.97, ICONICS introduced the Hyper Alarm Server. Now, in version 10.97.1, we also introduce its companion, the Hyper Alarm Logger.

The Hyper Alarm Logger is a new alarm logger that is natively integrated with the latest ICONICS technology, such as Platform Services and AssetWorX. It provides reliable data logging of alarm events from any alarm source, including AlarmWorX64 Server, BACnet alarms, third party UA alarm servers, and of course, Hyper Alarm Server.

Events are stored in SQLite databases, providing easy access and an open data structure, and can be viewed with the AlarmWorX64 Viewer's. Older data can be archived for optimal use of hard drive space and cold storge.

The Hyper Alarm Logger can be run in a redundant pair, and store-and-forward functionality can ensure data is not lost in the event that communication to the data storage is temporarily interrupted.

The AlarmWorX64 Logger is still available for the sake of backwards compatibility, but for new systems users are encouraged to use the new Hyper Alarm Logger for forward compatibility, best performance, and the most extensive functionality.

The Hyper Alarm Logger uses the AlarmWorX64 Logger license, so it can be used with any product that includes AlarmWorX64 Logger. Licensing is node-based, so the Hyper Alarm Logger and AlarmWorX64 Logger can both run on the same machine at the same time even with only one available AlarmWorX64 Logger license.

For Further Reference
- Application Note: *Hyper Alarm Logger – Quick Start*
- Help: [About Hyper Alarm Logger](#)

Controls

Data Diagram

Support for Query Interface

(Reference ID: 82668)

The Data Diagram control now supports the Query Interface. The Query Interface provides enhanced performance and filtering for datasets. To use the Query Interface with the Data Diagram, configure the control, go to the **General** page, and set the **Type** to **Query**.

The Data Diagram's Query Interface support can be used in both desktop (WPF) and HTML5 formats.

EarthWorX

Support for Geofences and Replay of Worker Location Path

See Display Geofences and Replay Worker Location Path in EarthWorX.

Query Interface

Technical Preview: Display Historical Data in Table, Data Diagram, Sankey Diagram via Query Interface

See Technical Preview: Display Historical Data in Table, Data Diagram, Sankey Diagram via Query Interface.

Data Diagram Supports Query Interface

See Support for Query Interface.

GENESIS64 Basic SCADA Suite Option

Updates to GENESIS64 Basic SCADA

Most of the improvements mentioned in this document also apply to GENESIS64 Basic SCADA, except where GENESIS64 Basic SCADA did not previously include the module being improved, or otherwise noted in the description of the feature.

In addition to those updates, these enhancements and changes are specific to GENESIS64 Basic SCADA systems.

- AssetWorX "Advanced Features" are no longer restricted from Basic SCADA licenses. No AssetWorX features are hidden from Workbench, starting in version 10.97.1, and the Bulk Asset Configurator is now included. (Note, AssetWorX Viewer still requires an add-on license.) (Reference IDs: 83759, 83762)
- The new Hyper Alarm Logger and BACnet with SC modules can be used with GENESIS64 Basic SCADA licenses at no additional cost.
- These items are now included in a default Basic SCADA installation (they were usable before now, but users needed to choose them in a custom installation):
  - Hyper Alarm Server (Reference ID: 83876)
  - GraphWorX64 symbol library (Reference ID: 84414)
  - GraphWorX64 starter displays (Reference ID: 84034)
- The Sankey diagram, which was new in version 10.97, is hidden unless DATASETS-VIEW-CLIENT add-on license is present. (Reference ID: 84415)

For Further Reference
- Application Note: *GENESIS64 Basic SCADA – Quick Start*
- Help: GENESIS64 Basic SCADA

GraphWorX64

Execute Commands on GraphWorX64 Events

(Reference IDs: 67252, 83890)

We've added significant flexibility to commands in version 10.97.1 by adding events to GraphWorX64 that can be used to trigger commands. Many controls already had the ability to associate commands with events for that control, but now commands can be attached to GraphWorX64 overall events, dynamics, and GraphWorX64 Viewers.

To configure GraphWorX64 event commands:

1. Ensure you are in advanced mode (**View** ribbon > **Application Mode** > **Advanced Mode**).
2. Select the object or dynamic with the event in question, such as:
   a. The ThisDisplay object (i.e. deselect all objects).
   b. A layer.
   c. A dynamic on an object.
   d. A GraphWorX64 Viewer.
3. On the **Properties** panel (for This Display, layers, or GraphWorX64 viewers) or Dynamics panel (for dynamics), find the **Runtime – Event Commands** section.
4. Edit the **EventCommands** property.

5. In the dialog that opens, choose your **event** from the dropdown and add commands to it.

The configured commands will now be executed automatically when the event occurs. Multiple commands configured for the same event will be executed in parallel. To ensure a particular order, use a batch command.

Many events have associated context variables. For example, commands attached to the DataEntryValueEntered event can use "@@valueentered.value" to get the value that was written. These context variables are available in the expression editor within a command. Open the **expression editor**, select **Variables**, then go to the **Context Variables** tab.

It is possible to disable the commands on an object without completely removing them. Simply set **EnableEventCommands** to **false**. Set it back to **true** when you are ready for your commands to work again.

These commands will execute in both the desktop (WPF) and HTML5 platforms.

For Further Reference
- Help: [Event Commands](#)

Referenced SVG Images

(Reference IDs: 81986, 82190)

Users now have a choice when incorporating SVG images into their GraphWorX64 displays. Previously, SVGs had to be imported, and the import process converted them into GraphWorX64 native shapes. This functionality is still available, but now users also have the option of adding SVGs as reference images.

A referenced SVG is represented in GraphWorX64 as a single object with no children. When the GraphWorX64 display loads it reads the referenced SVG file and loads it on demand in the display. The shapes are not stored as part of the display. Because of this, reference SVGs cannot be modified inside GraphWorX64. Dynamics can be added to the entire SVG, but not to individual elements or shapes in the SVG.

The chief benefit to referenced SVGs is performance. They are faster to render, especially in HTML5 displays, when the same SVG is rendered many times in a display, or when the SVG contains a lot of objects.

There are several different ways to add a referenced SVG image:

- Use the **Insert Referenced Image** button in the GraphWorX64 ribbon and choose an SVG or SVGZ file.

- Drag an SVG or SVGZ file from File Explorer into the GraphWorX64 display while holding the **Alt** key. (Dragging without the Alt key will do a traditional SVG import.)
- Use the **right mouse button** to drag an SVG or SVGZ file from File Explorer into the GraphWorX64 display. Choose **Insert as Referenced** from the context menu when dropping.

If you insert a referenced SVG image and decide it should have been imported instead, open the context menu on the referenced SVG object and choose **Convert to Shapes**. This will change the reference image into a collection of shapes, giving the same result as if the SVG image were imported in the first place.

These referenced images are supported in both the desktop (WPF) and HTML5 platforms.

For Further Reference
- Help: [Referenced SVGs](#)

WPF Embedded Web Browser is Now Edge-Based

(Reference ID: 80656)

In desktop GraphWorX64 or WPF WebHMI, the previous embedded web browser was based on Internet Explorer (IE), which limited the pages that could be loaded or caused strange behavior if the pages were not coded to be IE-compatible.

Now in WPF clients, the ICONICS web browser control uses Microsoft's Chromium-based Edge browser for rendering. Pages loaded in the embedded web browser should now render the same as in Edge.

Displays will be upgraded to use the new web browser automatically, but users who need the legacy web control based on IE can set the **UseLegacyWebBrowser** property to **true** on the web browser control to switch back.

For Further Reference
- Help: [Web Browser](#)

Hyper Historian

General

Technical Preview: Display Historical Data in Table, Data Diagram, Sankey Diagram via Query Interface

(Reference ID: 75247, 84800)

As a technical preview, Hyper Historian data can now be easily displayed in controls that support the Query Interface, including Table, Data Diagram, and Sankey Diagram controls.

Timestamp	Ramp	Random	Sine
10/21/2021 2:59:35 PM	15.9333333333333	41.9514166692099	7.89975671986041
10/21/2021 2:59:45 PM	32.6007370517928	96.5237970984818	5.59799728953179
10/21/2021 2:59:55 PM	49.2683333333333	41.6695333719901	47.7024093710669
10/21/2021 3:00:05 PM	65.9342637215529	41.9160130619221	92.1018233364578

In previous versions, displaying Hyper Historian data in a tabular format often required the use of the Hyper Historian SQL Query Engine. Now this data can easily be displayed in the Table and other controls without having to write any queries or use GridWorX Server.

The Hyper Historian query interface supports the Tags table, containing information about the tags being logged, and the Data table, containing logged historical data and annotations.

To display Hyper Historian data in the Table control using the Query Interface, follow the steps below. (Note, these steps assume you are using the sample Hyper Historian configuration.)

1. Make sure the **ICONICS Hyper Historian Query Interface** service is running.
2. Open **GraphWorX64** in configuration mode.
3. Add a **Table** control.
4. Configure the table control.
5. On the **Data Source** page, make sure the **Type** is set to **Query**.
6. For **Data Source**, choose the Hyper Historian Query Interface by using one of these methods:
   a. Select the square on the right and choose **hh:.Query**.
      OR

b. Browse for tags and select **Historical Data** > **Hyper Historian Query Interface** > **.Query**.
7. For **Table**, select **Historical Data**.
8. Under **Parameters**, for **Resampling Interval**, select 1 minute.
9. Go to the **Fields** page.
10. In the **Fields** section, select the ⟳ **refresh** button to retrieve the fields in this table. By default, you will only get a **Timestamp** field.
11. Use the **add** ✛ button then select **Browse** to browse for a new column to add.
12. Select **Signals** > **Ramp** > **Value** > **Interpolative**. This will give us the value of the Signals > Ramp tag using the Interpolative aggregate.
13. Use the **add** button again to add these tags:
    a. **Signals** > **Random** > **Value** > **Interpolative**
    b. **Signals** > **Sine** > **Value** > **Interpolative**
14. Go to the **Columns** page.
15. Select the ⟳ **refresh** button to automatically map our selected fields to table columns.
16. Go to the **Filters** page.
17. Use the ✛ **add** button to add a new filter.
18. Under **Expressions**, use that ✛ **add** button to add a new expression.
19. Configure the expression with these values:
    a. **Field: Timestamp**
    b. **Operator: Is greater than or equal to**
    c. **Value:** Select a good start time for your data, such as an hour ago.
20. Add a second expression.
21. Ensue **Add** is selected for that second expression.
22. Configure the second expression with these values:
    a. **Field: Timestamp**
    b. **Operator: Is less than or equal to**
    c. **Value:** Select a good end time for your data, such as the current time.
23. Select **OK** to apply the changes and close the configuration dialog.
24. Go into runtime. You should see the interpolated values at once a minute for the three tags you selected, starting from the start time.

Note, both a beginning and end filter are necessary when filtering on the timestamp column.

To see annotations, add a field, browse for your tag, expand it, then expand Annotation. You can add the message, time, and username of the annotation as fields.

For a more interactive table, a TrendWorX64 Viewer can be used to supply the time range to the table. After following the steps above, you can follow these steps to add a TrendWorX64 Viewer:

1. Add a **TrendWorX64 Viewer** to the display.
2. Configure the TrendWorX64 Viewer.
3. Select the **Chart** object.
4. On the **Chart** tab, **Enable** the **Commands on Events** section.
5. **Configure** the **Commands on Events**.
6. Select the **Time Range Changed** event.
7. Use the ✚ **add** button to add a new command.
8. Choose the **Write Value** command.
9. Configure the command with these values:
   a. **PointName: @sim64:String.Static("Start").Value**
   b. **ValueType: String**
   c. **Value: {{x={{@@chart.starttime}}}}**
10. Add a second **Write Value** command and configure it with these values:
    a. **PointName: @sim64:String.Static("End").Value**
    b. **ValueType: String**
    c. **Value: {{x={{@@chart.endtime}}}}**
11. Select **OK**.
12. If desired, add more pens to the TrendWorX64 Viewer. These pens are the same as those used in the Table control:
    a. **hh:\Configuration\Signals:Ramp**
    b. **hh:\Configuration\Signals:Random**
    c. **hh:\Configuration\Signals:Sine** (usually added by default)
13. Go to the **Range** tab and enable **Start Frozen**.
14. **Close** the TrendWorX64 Viewer configuration.
15. Configure the Table control.
16. Go to the **Filters** page.
17. For the first filter ("greater than"), set **Value** to **{{@sim64:String.Static("Start").Value}}**.
18. For the second filter ("less than"), set **Value** to **{{@sim64:String.Static("End").Value}}**.
19. Select **OK**.
20. Go into runtime. Observe that you can change the range of the TrendWorX64 Viewer and the Table control will refresh to display the data in the range.

Note, the Time Range Data Source field on the General tab of the Table control does not apply to Hyper Historian Query Interface data. Time Range Data Source only applies to microchart columns. Use the above-described method of setting a start and end timestamp filter to synchronize the Table control with another control like the TrendWorX64 Viewer.

IoTWorX & Internet of Things

Internet of Things

MQTT Sparkplug Connector

(Reference ID: 82871)

Integrated into the Internet of Things Point Manager, the subscriber connections can now communicate using the Sparkplug B protocol.

Sparkplug B provides a standardized format for MQTT messages and standardized topic structures. Sparkplug-compliant devices can publish to an MQTT broker, then ICONICS clients can subscribe to that MQTT broker and receive the data in a known format. No custom decoder needed.

To communicate using Sparkplug:

1) Set up an MQTT Broker and configure it appropriately for your desired broker.
2) Right-click on the **Subscriber Connections** folder and select **Add Sparkplug Subscriber Connection**.
3) In the **Sparkplug Settings** section, choose your **MQTT Broker** from step 1.
4) Configure the rest of the subscriber connection settings appropriate for your system.
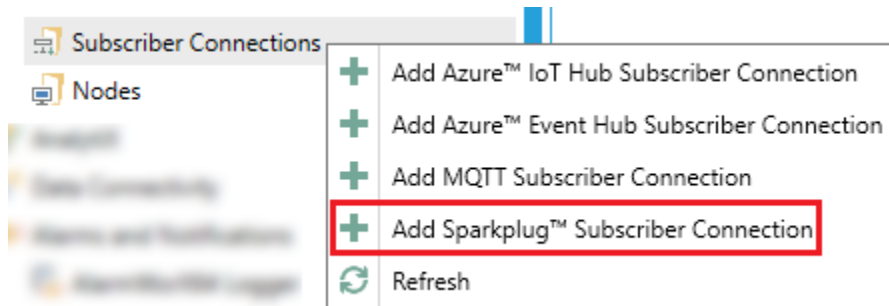
For Further Reference
- Help: MQTT Sparkplug Connector

Easier Configuration for Subscribers of ICONICS and Non-ICONICS Devices

It's now easier to configure a system with a combination of ICONICS and non-ICONICS devices.

In previous versions, if the user wanted to ingest data from both standard IoTWorX devices and third-party gateways, they needed to create two separate IoT Subscriber Connection, one with the "Enable compatibility with ICONICS Clients" box selected and one without.

In version 10.97.1, the same Subscriber Connection can be used to ingest custom JSON data from third-party devices and from standard IoTWorX devices at the same time. Once the Subscriber Connection is created, both types of devices will appear automatically in the data browser. The "Enable compatibility with ICONICS Clients" option is no longer part of the subscriber configuration.

For Further Reference
- Help: [Subscriber Connections](#)

IoTWorX

IoTWorX Deployment

Support for Windows Edge Devices using EFLOW

Windows devices can now be configured as IoTWorX gateways using EFLOW. For instructions on how to configure a Windows IoTWorX gateway using EFLOW, see the IoTWorX quick start instructions in the help or application notes.

For Further Reference
- Application Notes: *IoTWorX – Quick Start*
- Help: [IoTWorX – Quick Start](#)

Azure Marketplace Deployment

As an alternative way to deploy to IoTWorX devices, IoTWorX is now available on Azure Marketplace. Users can deploy IoTWorX as Marketplace Modules from the Azure Portal.

Simplified Initial Setup

(Reference ID: 80298)

The initial setup process of an IoTWorX edge device (also known as a gateway) has been simplified. In the past, files needed to be placed on a system before the IoTWorX modules could work properly. The IoTWorX installation took care of this in previous versions. Now, in version 10.97.1, these files no longer need to be present.

IoT Edge (and its prerequisites) still need to be installed and provisioned, but this can be done with a few simple steps.

Because of these changes, there is no IoTWorX DVD or ISO file for version 10.97.1. Instead, the IoTWorX Tools ZIP file is provided, which includes some instructions and a batch file to help in the provisioning process.

For Further Reference
- Help: Setting Up the IoTWorX Edge Device

Hyper Alarming Publishing

(Reference ID: 81496)

Version 10.97 introduced alarming support on the edge device via the new Hyper Alarm Server, but the alarms could only be viewed locally on the edge device. Now, in version 10.97.1, alarms can be published by the IoT Publisher and consumed by the IoT Subscriber. Subscribed alarms are translated to A/E format and exposed to ICONICS alarm clients such as AlarmWorX64 Viewer and AlarmWorX64 Logger. Users can acknowledge published alarms.

To configure which alarms to publish, add or configure a publish list, then use the **Published Alarms** tab.

For Further Reference
- Help: Hyper Alarm Server - IoTWorX

Edge Device Data Connectivity

Takebishi DeviceGateway OPC UA Server Container

(Reference ID: 84482)

The Takebishi DeviceGateway (DWG) OPC UA Server is available on IoTWorX edge devices. This is a Takebishi OPC UA Server provided as an IoT Edge Module (in a Docker container) and designed to be licensed and deployed with IoTWorX.

For Further Reference

- Help: About IoTWorX

MQTT Sparkplug B and OPC UA

IoTWorX edge devices can take advantage of the new features in these areas:

- BACnet connectivity (see BACnet Connector)
- MQTT Sparkplug connectivity (see MQTT Sparkplug Connector)
- OPC UA (see OPC UA Connectivity)

Workbench IoT Projects

Simplified Configuration and New Options

All dialogs in IoT projects have been simplified for easier configuration, and options have been added to clear the cache for each device and restart the containers remotely.

WebHMI and MobileHMI

HTML5 WebHMI and MobileHMI Apps for iOS and Android

Technical Preview: 3D Viewer Support

(Reference ID: 76408)

In this version, users can preview 3D viewport support in HTML5 WebHMI and MobileHMI displays. This feature will close a significant functionality gap compared with WPF WebHMI (which runs only in Internet Explorer) and desktop GraphWorX64.

The 3D viewport is now available when GraphWorX64 is in Web Browser or Mobile App edit mode. Previously the 3D viewport was only available in the Desktop App or UWP App modes.

The preview 3D support must be enabled in **ico.anyglass.parsing.config** by setting `<Experimental3DSupport enabled="`**`true`**`"/>`. Without this enabled, the 3D viewport will not be rendered in HTML5 displays.

There are some limitations and differences to the HTML5 3D support from the WPF implementation. Most notably, these are not supported:

- Annotations and embedded GraphWorX64 Viewers in the 3D space
- Primitives: Tiling, custom tile, mapping, and mapping direction properties

- Camera View: Camera Patrol, Camera Follow
- Materials: Back material, 2D material, material mapping and mapping directions (only solid color materials are supported)
- Dynamics: Disable dynamic

Note, in HTML5 displays the 3D viewport will be rendered on top of any other controls or elements in the GraphWorX64 display.

For Further Reference
- Help: [Mobile 3D Viewports](#)

Export Image of Display

(Reference ID: 59236)

The Export Image command can now be used to capture an image of the GraphWorX64 display running in an HTML5 browser or the MobileHMI app.

When used in a batch command, following commands can use the @@result[filename] context variable to retrieve the location of the saved image file for subsequent downloading or display.

These example steps can be used to create a button to export an image and open the file in a browser tab.

1) Open **GraphWorX64**.
2) Optional: At the bottom right of the window, set the mode to **Web Browser**.
3) Make sure the display or GraphWorX64 Viewer has a commanding name.
   a. To set the commanding name of the current display:
      i. Select the canvas by deselecting all other objects.
      ii. Go to **Properties**.
      iii. Set **SpecifyRuntimeWindowProperties** to **True**.
      iv. Expand **RuntimeWindowProperties**.
      v. Set **CommandingName** to your desired name. For example, **gwx**.
   b. To set the commanding name of a GraphWorX64 Viewer:
      i. Select the **GraphWorX64 Viewer**.
      ii. Go to **Properties**.
      iii. Set **CommandingName** to your desired name. For example, **gwx**.
4) Add a button.
5) For **Command**, choose **Batch**.
6) Edit the command steps.

7) Add an **Export Image** command.

8) Edit the command parameters.

9) Specify a **FileName** (such as **test.png**)

10) Choose **CurrentView** for **Area**.

11) For **Target**, enter the commanding name of the display or viewer you want to capture. For example, **gwx**.

12) Select **OK** when done editing the parameters.

13) Set the **Timeout** value to **5000**.

   a. The export image action may take longer than the default of 1000 milliseconds. Depending on the system it may need longer than 5000. Adjust this value as needed.

14) Add an **Open URL** command.

15) Edit the command parameters. Select **New Window** for the **TargetType** and for URL, use this expression: **{{x={{@@result[filename]}}}}** Select **OK** when done editing the parameters.

16) Select **OK** to the batch command configuration.

17) Optional: Add some other shapes or text to the display.

18) Save the display into the **PubDisplay** folder (or another web-accessible folder).

19) Open the display in an HTML5-compliant browser. (If GraphWorX64 is in Web Browser mode, you should be able to use the **Open in Web Browser** button in the top right corner.)

20) Select the button. An image of the current view should open in a new browser tab.

   a. If the new tab doesn't open after five seconds, consider increasing the timeout value in step 13.

For Further Reference

- Help: [Export Image of Display](#)

Feature Parity Improvements

HTML5 browsers and the MobileHMI apps for iOS and Android can now use the following features and functionality that were previously only available in the desktop GraphWorX64 app (WPF) or the Universal Windows Platform (WPF) MobileHMI app.

General

Ref ID	Description
83004	The tab key can now be used to switch between writable fields in grids, such as in the GridWorX Viewer and Table control.

AlarmWorX64 Viewer

Ref ID	Description
64670	The HTML5 AlarmWorX64 Viewer now supports the AutoFlipInterval advanced property, which allows the flip view to automatically cycle through alarms.
84075	The DoubleFormat property of the AlarmWorX64 Viewer is now supported. (This property is configured on the Advanced tab of the grid object.)
84078	The HTML5 AlarmWorX64 Viewer's grid now supports grouping range, both using the Grouping Range tab or the "Severity Range" grouping type on the Grouping tab.

Camera Control

Ref ID	Description
83638	The HTML5 camera control can now display RSTP video streams. No additional configuration is required.

Data Diagram

Ref ID	Description
82077	The HTML5 Data Diagram now supports tooltips.

GraphWorX64

Ref ID	Description
59432	HTML5 displays now support the ToolTipDuration display-level property.
63061	HTML5 displays now support the Foreground and Background properties of popup menu items.
83843	The Runtime Value feature of smart symbol smart properties now works in HTML5 clients.

GridWorX

Ref ID	Description
70563	The HTML5 GridWorX Viewer now supports the Show Cursor option.
82543	The HTML5 GridWorX Viewer now respects the "Allow Move Columns" setting. Previously columns were always allowed to be reordered regardless of this setting.
84245	In the HTML5 GridWorX Viewer, the X or Y axis title no longer needs to be surrounded by single quotes to appear.

Schedule Control

Ref ID	Description
81970 81971	Users can now cut, copy, paste, delete, and drag and drop events. These operations can only be performed on one event at a time. Note that only the start cell will be highlighted during a drag operation.
83664	The HTML5 Schedule Viewer now supports the title and subtitle.

TrendWorX64 Viewer

Ref ID	Description
61090	The HTML5 TrendWorX64 Viewer now supports using the keyboard arrow keys to move the cursor. Note that the user must first put focus on the chart by tapping or clicking with the mouse. Holding down the arrow key is not supported - this is a limitation of the HTML5 platform.
66394	The HTML5 TrendWorX64 Viewer can now support cursor widths larger than 10.
75490	The legend now supports using an image as the background. Note, tiling is not supported.
82463	The HTML5 TrendWorX64 Viewer can now display the low and high ranges in the legend.

Workbench

General

Small Configuration Improvements

There have been various small improvements to the configuration across many different providers including but not limited to SNMP, IoTWorX, and the alarm subscriptions in various areas such as CFSWorX, BridgeWorX64, triggers, and AlertWorX.

Notification of System User Password Change

(Reference ID: 30084)

All ICONICS services run as a particular Windows user, chosen by the user on installation. If the password of this user ever changes without updating the services, the system may not run after a reboot. This can lead to a dangerous situation where someone unknowingly updates the password and doesn't update the system until weeks later, then nothing works and there's no apparent reason.

A new notification has been added to Workbench to identify this situation. This notification appears if the password for this ICONICS services user changes and the services have not been updated. The notification advises the user to run the Configure System utility, which will make the appropriate changes to update the services with the new password.

A GenEvent message also appears in this situation. This can be used to notify outside of Workbench.

For Further Reference
- Help: [Local User](#)

Project Reporting

Additional Reports for Security Configuration

(Reference ID: 83132)

The **Project Document** feature can now generate more reports about the security configuration of your project. These reports are now available:

- **Groups privilege** – Each group in the security configuration, and the list of security permissions it has configured.
- **Users and groups** – The security mode, reserved licensing status, and write licensing status for each user and group in the security configuration.
- **Users by group** – The memberships of users and groups, along with the security mode, reserved licensing status, and write licensing status for each user.
- **Users privilege** - Each user in the security configuration, and the list of security permissions it has configured.

To generate one of these reports, go to the **Project Explorer**, select your project, bring up the context menu or go to the **Home** ribbon, and select **Project Document**. When selecting the reports for the project document, select one or more of the **[Security]** reports.

For Further Reference
- Help: Project Document

Additional Enhancements

Common & Platform Services

Data Browser

Ref ID	Description
81089	Data browsing can now be secured with ICONICS security. When configuring the permissions for a group or user, the Points tab contains a Browse column in addition to the Read and Write columns. Users without browse permission will be unable to see the matching tags and folders in the data browser and in search results.
83540 83898 83922	Network browsing for OPC-UA, FrameWorX servers, GenBroker64 has been disabled by default. This feature required insecure system settings which ICONICS does not recommend, and which were disabled by default on many operating systems. Instead of browsing the network for servers, users should explicitly configure the remote servers that will appear in the data browser under Network. To configure FrameWorX Network, add them in Workbench under Platform Services > FrameWorX > Network Settings > FrameWorX Network. For OPC UA Network, go to Data Connectivity > OPCUA > OPC UA Network. For GenBroker64 Network, go to Platform Services > FrameWorX > Server Settings > GenBroker64 Settings and add your servers to the desired channel. Users who were able to use network browsing in the past may reenable network browsing for FrameWorX and GenBroker64, but the functionality is not guaranteed to work and ICONICS will not be able to troubleshoot network browsing issues (other than to advise that servers be configured manually, as described above). To reenable network browsing for FrameWorX, launch Platform Services Configuration from Workbench or the Start menu, go to the Point Managers tab, select the Networking point manager, set BrowseOnlyConfiguredServers to false, then restart the FrameWorX service. To reenable network browsing for GenBroker64, edit IcoSetup64.ini (located by default in C:\ProgramData\ICONICS) and add or modify this INI entry: [GENBROKER\GenBroker] DisableNetEnum=0
86243	Improved the data browser handling of tags with multiple types (such as DA and AE or DA and HDA).

FrameWorX

Ref ID	Description
37761	Custom point managers can now provide a description to show in the Platform Services Configuration's Point Managers tab. See the Extensibility ToolWorX documentation for more details. (Contact your sales representative or distributor for information on obtaining Extensibility ToolWorX.)
52632	Users who prefer to their alarm servers to seamlessly fail over without any notice or warning to the user can disable the "Alarm subscription created successfully" and "OPC Event Server is unavailable or does not exist" messages. To disable these messages, edit the IcoSetup64.ini file and add or modify these entries: [AWX\AWXServer] EnableWarning=false [GENBROKER\GenClient] SendEventMessages=0 Note: Systems where these messages are disabled should implement some other way to notify the users or system administrators that a failover has occurred so that the problem that caused the failover should be addressed. A failover that is completely silent may leave the system in a vulnerable state, where only one alarm server is functioning and there is no functional backup.
83684	The Key field is no longer present in the Reporting table under Platform Services Configuration > Basic Tab. A key is no longer required to configure these reverse network connections.

Global Search

Ref ID	Description
49749	Global search indexes can now repeat at a specific time of day, rather than a given interval. Indexing can take a lot of system resources and being able to specify the time of day allows users to schedule it when it causes the least impact to users.

Installation

Ref ID	Description
83829	The ICONICS Suite installation no longer asks for a Facility AnalytiX serial number by default. To specify a Facility AnalytiX serial number, make sure to select Facility AnalytiX on the suite selection page.
85698	In the database creation options, the "Silent Configuration" option has been renamed to "Advanced Configuration". When the user selects Advanced Configuration, an additional dialog will appear towards the end of the installation to offer more advanced database configuration options. In previous versions, this dialog would appear by default. Now, the dialog only appears when the user specifically selects "Advanced Configuration".

Licensing

Ref ID	Description
78056	The ICONICS License Service is now configured by default to start as Automatic (Delayed). This change resolves an issue that has been observed on some systems where the License Service would not start after a reboot, causing clients such as Workbench and GraphWorX64 to display keys or a license failure message.
84855	In previous versions, only PresentValue BACnet tags were only counted as points with a GENESIS64 Advanced license. Now, instead of counting the PresentValue tags, unique BACnet objects are counted as a point. In most cases, this should result in no change to the number of points a GENESIS64 Advanced system consumes from BACnet usage, but the point count may go up slightly if there were objects where the PresentValue point was not subscribed but other points were. This method of counting unique BACnet objects is the same whether BACnet Classic or BACnet with SC is used. GENESIS64 Basic SCADA point counting has not changed with regards to BACnet.

OPC UA

Ref ID	Description
65289	FrameWorX now limits the number of items per various operations as requested by OPC UA servers that may expose these limits. This prevents ICONICS clients from overloading an OPC UA server by obeying its limits.
83452 83459	In past releases, the default behavior was that when FrameWorX connected to an OPC UA server, the connection would succeed even if the server's certificate was not trusted. This has been changed - the default behavior is now that certificate must be trusted for the connection to succeed. This new default behavior is more secure and in line with recommendations by the OPC Foundation, but systems upgrading to this version may discover that they can no longer connect to their OPC UA servers until the certificate is trusted. Trusting certificates is easier in this version. When adding or configuring an OPC UA server under Data Connectivity > OPCUA > OPC UA Network, users can select the "Configure" icon for the server, then select Test Connection. If the connection fails due to an untrusted certificate, a message will appear asking the user if they would like to trust the certificate.
83486	If the issuer of a UA certificate is rejected because it is not trusted, the entire chain of certificates is copied into the rejected certificates folder on the client. Previously, only the original certificate would be copied into the rejected certificates folder. (Chain certificates must be available in the Windows store to be copied.)

Project Reporting

Ref ID	Description
83135	All datasets under Diagnostics > Configuration > Availability and Entities are now secured by the applicable Workbench application actions. For example, datasets under Entities > SNMP can only be seen by a user granted the Workbench > SNMP > Browse Items Application Action.

Security

Ref ID	Description
81089	Data browsing can now be secured with ICONICS security. When configuring the permissions for a group or user, the Points tab contains a Browse column in addition to the Read and Write columns. Users without browse permission will be unable to see the matching tags and folders in the data browser and in search results.
81975	Different alarm operations, such as shelve, latch reset, and accept can now be secured. To configure the security for these alarm operations, select a user or group under the Security provider, then go to the Alarms tab. In the Allow or Deny table, add a new item, then select the "Click to select alarm options tag" button. A dialog will appear, allowing you to browse for an alarm or area and also select an operation. Browse for the alarm tag, select an operation, then select OK. A security string representing that alarm tag and that operation will be added. An example security string that can be used to secure the ShelvedOn operation for an alarm is: alms:/Area.Tag|StateOperation=ShelvedOn Wildcards can still be used. For example, this security string will control the ShelvedOn action for all alarm tags: *|StateOperation=ShelvedOn Note, when an operation is specified in the security string, only the "Ack" column's checkbox applies. The View checkbox is ignored. To control whether a user can view alarms, specify the alarm tag (or a wildcard) with no operation specified. Also note, the AlarmWorX64 Server supports writing to specific data points to acknowledge alarms. These points must be secured separately using the Points tab. Failing to secure these points could give a user the ability to acknowledge an alarm, even if the Alarms tab denies acknowledgment for that alarm.

TraceWorX

Ref ID	Description
40081	It is now possible to sort the TraceWorX modules by different headers by clicking on that header.
64657	Added a Disable All Tracing button that allows the user to quickly disable tracing for all modules at once.
83587	Added a start menu shortcut to the TraceWorX Log Viewer under ICONICS Tools.

Web Platform Services (WebAPI)

REST Provider

Ref ID	Description
78064	The WebAPI's REST provider can now support real-time and historical alarms.

AnalytiX

AnalytiX-BI

Ref ID	Description
74966	The dayofweek and dayofweekoffset functions have been added to the BI Server. Dayofweek returns a value from 0 to 6, representing the day of the week where 0 is Sunday, 1 is Monday, etc. This example query will aggregate the results by the day of the week for a given month. SELECT SUM(od.UnitPrice), dayofweek(o.OrderDate) FROM OrderDetails AS od INNER JOIN Orders AS o ON od.OrderID = o.OrderID WHERE year(o.OrderDate) = 1996 AND month(o.OrderDate) = 7 GROUP BY dayofweek(o.OrderDate) Dayofweekoffset returns a similar value of 0 to 6 but will sort the days according to the data model default collation. It is designed to be used when sorting. For example, adding an ORDER BY clause to the above query: SELECT SUM(od.UnitPrice), dayofweek(o.OrderDate) FROM OrderDetails AS od INNER JOIN Orders AS o ON od.OrderID = o.OrderID WHERE year(o.OrderDate) = 1996 AND month(o.OrderDate) = 7 GROUP BY dayofweek(o.OrderDate) ORDER BY dayofweekoffset(o.OrderDate) This will order the data with the first day of the week as Sunday when using en-us as a culture, and as Monday when using it-it. KPIWorX can access this DayOfWeek dimension when browsing AnalytiX-BI data.
82764	For data flows, added a new "Data Processing" section to the Hyper Historian Aggregated Data step. This section allows users to specify the percent good and percent bad values for the aggregate.
85467	Added optional query plan cache. Caching query plans can provide a small performance improvement on systems where the tables are smaller (thousands or tens of thousands of rows) and the average query execution is in the tens of milliseconds. The query plan cache is off by default and can be enabled in Platform Services Configuration > Point Managers > BI Server Point Manager by setting EnableQueryPlanCache to True.

BridgeWorX64 & Workflow

Common

Ref ID	Description
60003	Added a new activity block: Historical Upload. This block allows users to take a dataset from a previous activity block and import it into a historical tag.
82819	Previously, the failure or success of the AlertWorX action was not visible to BridgeWorX64 or CFSWorX. These included activities such as Email, Twilio Message, SendGrid Email, etc. Once the request from one of these blocks got to AlertWorX, it would be considered successful, regardless of the status of the actual alert being sent from AlertWorX. The block would report a success and follow the success path. An activity could retry if it failed sending the request to AlertWorX, but once AlertWorX got the request it would not retry further, even if the alert failed in AlertWorX. The status of the AlertWorX actions are now visible to BridgeWorX64 and CFSWorX activity blocks. The visibility of the AlertWorX status means that the "retry" functionality of activity blocks can now be used to resend failed AlertWorX messages. The activity blocks can also follow the "fail" path and report a failure to the transaction trace based on the AlertWorX status. They will also wait for the success or failure of the alert (or for the configured timeout period of the activity) before proceeding to the next activity.

BridgeWorX64 Server

Ref ID	Description
85097	BridgeWorX64 configuration objects can now set a default Acknowledge Code. When transactions in this configuration invoke AlertWorX actions that support acknowledgment, the user acknowledging the alarm must enter this acknowledge code. This setting is located in the Advanced Properties section of the BridgeWorX64 configuration object, located under Bridging > Transactions.

BridgeWorX64 Workbench Provider

Ref ID	Description
84068	The expression editor in Workflows, BridgeWorX64, and CFSWorX templates now contains a tree of related variables. This gives the user easier access to trigger data, alarm data, internal variables, and more.

Workflows Workbench Provider

Ref ID	Description
84068	The expression editor in Workflows, BridgeWorX64, and CFSWorX templates now contains a tree of related variables. This gives the user easier access to trigger data, alarm data, internal variables, and more.

CFSWorX

General

Ref ID	Description
85102	CFSWorX configuration objects can now set a default Acknowledge Code. If an acknowledge code is not available when invoking AlertWorX actions that support acknowledgment, this acknowledge code will be used instead. This setting is located in the Advanced Properties section of the CFSWorX configuration object, located under Connected Field Worker > Field Workflows.

CFSWorX Workbench Provider

Ref ID	Description
83264	Minor UI updates to the CFSWorX template editor.
83290	A pause can be added to the Twilio voice message. In the Connected Field Worker template, in the Twilio Voice Message activity, edit the Message field and add the "Pause(x)" where you would like a pause. Replace "x" with the number of seconds you would like to delay. (For easy reference, this syntax is displayed in the shortcuts section of the Twilio Voice Message activity.)
84068	The expression editor in Workflows, BridgeWorX64, and CFSWorX templates now contains a tree of related variables. This gives the user easier access to trigger data, alarm data, internal variables, and more.
84501	For SendGrid Configurations, the Verify Key button is now only enabled if the email field is filled. Also, the Test Email button will only be enabled once the email has been verified. The UI has been modified slightly to help users understand that these fields are required.

Workflows and Alerts

Ref ID	Description
84067	The sample Connected Field Worker configuration database now contains example Field Workflows to subscribe to FDDWorX and Hyper Alarm Server. Previously, the only Field Workflow available was configured to subscribe to AlarmWorX64 Server.

Energy AnalytiX

Ref ID	Description
82263	Unpacking the Energy AnalytiX package file can now set the KPIWorX dashboard icon and order in the navigation tree sidebar. This will override the information about any existing dashboards in the navigation tree. (Dashboards in the tree will remain there, but the order and icon will revert to default settings.) Users who do not want to override their navigation tree information can exclude the KPIWorX index file (KPIXStorage\kpix.index) while unpacking.
83289	Enhanced the efficiency of the AnalytiX-BI data model used by Energy AnalytiX dashboards.

Facility AnalytiX & FDDWorX

Ref ID	Description
79719	Facility AnalytiX and FDDWorX can now support Azure Active Directory and SQL Azure.

Fault Viewer

Ref ID	Description
86164	The Table and Fault Viewer controls now support the Min and Max aggregates for Boolean columns. Previously Boolean columns only supported the Count aggregate.

FDDWorX Workbench Provider

Ref ID	Description
83542	The configuration of OPC UA servers has been moved from Platform Services to Data Connectivity > OPC UA > OPC UA Network.

ReportWorX64 & ReportWorX64 Express

Ref ID	Description
83207	It is now possible to upload XLSM templates to the report template configuration in Workbench. Note, macros will not be executed by the ReportWorX64 Server when generating reports.

ReportWorX64 Express & Excel Add-In

Ref ID	Description
81528	Improved the wording of some error messages to make them clearer to the user.
83900	Parameters of type "Automatically evaluate a date and time" can now use "Months" in the Offset Range.

Data Connectivity

BACnet Connector

BACnet Classic

Ref ID	Description
84855	In previous versions, only PresentValue BACnet tags were only counted as points with a GENESIS64 Advanced license.

Ref ID	Description
	Now, instead of counting the PresentValue tags, unique BACnet objects are counted as a point. In most cases, this should result in no change to the number of points a GENESIS64 Advanced system consumes from BACnet usage, but the point count may go up slightly if there were objects where the PresentValue point was not subscribed but other points were.
	This method of counting unique BACnet objects is the same whether BACnet Classic or BACnet with SC is used.
	GENESIS64 Basic SCADA point counting has not changed with regards to BACnet.

GridWorX (Databases)

GridWorX Server

Ref ID	Description
83346	GridWorX Server no longer supports SAP connections.

GridWorX Viewer

Ref ID	Description
81388	The delimiter for CSV files exported from an AlarmWorX64 or GridWorX Viewer can now be configured by the user. Configure the viewer, select the grid or chart object, go to the Advanced tab, then edit the CsvReportSeparator property (in the Common section). The default separator is a comma.

SNMP Connector

Ref ID	Description
85533	Previously, the Multiple Get Count setting only applied to devices that were configured for SNMP v2 or v3. Now, this property also applies to SNMP v1 devices. In Workbench, this setting has been moved from the "SNMP v2 Settings" section to the "Timing" section on an SNMP device.
	The Multiple Get Count setting determines the maximum number of variables that the server will attempt to retrieve in a single SNMP request. Increasing this value can improve performance on systems with an extremely large number of properties (thousands), but could increase errors, as a failure of any variables in a single request may result in a failure of the entire request.

Web Services Connector

Ref ID	Description
85901	The token type "Bearer" will now be added by default to web service requests when no token type was returned from the server during authentication. This allows us to communicate with web services that do not return a token type when authenticating. (This situation should be rare, as web services should return a token type during authentication.)

GENESIS64

Alarms and Notifications

AlarmWorX64 Logger

Ref ID	Description
53733	These performance counters have been added to help monitor a redundant AlarmWorX64 Logger system. They are available in both the Windows Performance Monitor and in ICONICS Suite under Diagnostics > Control and Diagnostics > System Performance Counters ICONICS AlarmWorX64 Logger Server/Store and Forward Files Creation Count ICONICS AlarmWorX64 Logger Server/Store and Forward Files Primary Count ICONICS AlarmWorX64 Logger Server/Store and Forward Files Removal Count ICONICS AlarmWorX64 Logger Server/Store and Forward Files Secondary Count ICONICS AlarmWorX64 Logger Server/Successful Logs to Primary Count ICONICS AlarmWorX64 Logger Server/Successfull Logs to Secondary Count
61699	Enhanced AlarmWorX64 Logger redundancy performance, especially in cases where two redundant logging databases were used, and one database was offline.
75458	In previous versions, many fields of the AlarmWorX64 Logger were limited to 255 characters. This limit can now be extended to the maximum allowed by SQL Server. The default behavior is to enforce the 255 character limit. Users who wish to extend this limit must do two things. First, the IcoSetup64.ini must be edited to add or modify this field: [AWX\AWXLog] LegacySize=0 Second, the logging table must support the longer data types. New logging tables created in this version will use the longer data types by default. Existing logging tables must be modified manually. For existing databases, modify the table where alarms or events are being logged and change all columns type that have a type of NVARCHAR(255) to NVARCHAR(MAX), especially the Message column.

AlarmWorX64 Server

Ref ID	Description
83444	Added a new INI setting to reduce incidents where both AlarmWorX64 Servers in a redundant pair have valid but non-identical sets of data. This is known as "split-brain". This can occur when the source data is remote from the alarm servers and each alarm server receive different updates from the source data (perhaps because of network inconsistencies). This new setting sacrifices availability to help prevent split-brain issues from occurring. Contact technical support for information on how to implement this setting if you think you have having split-brain issues.

AlarmWorX64 Viewer

Ref ID	Description
81388	The delimiter for CSV files exported from an AlarmWorX64 or GridWorX Viewer can now be configured by the user. Configure the viewer, select the grid or chart object, go to the Advanced tab, then edit the CsvReportSeparator property (in the Common section). The default separator is a comma.

AlertWorX

Ref ID	Description
60546	AlertWorX email and pager agents now have better support for online changes. Previously, these agents only recognized configuration changes on an AlertWorX service restart or when the agent was tested. Now email and pager agents periodically check for changes while running. (This is now consistent with most of our other Workbench providers and point managers.)

Ref ID	Description
81073	The voice and language settings for Twilio voice messages can now be customized. When configuring a Twilio Configuration object, set these values in the Voice Customizations section.
81595	The configuration of the email notification settings of AlertWorX Email and SMS/Text nodes has been moved to a new tab named Message Settings. In addition, a new checkbox has been added to this tab to enable or disable the message-on-alarm feature. We hope this UI change will make it clearer to users what the message settings are for and how AlertWorX will use them.
82072 82073	Expressions can now be used in AlertWorX email subject and body fields.
82074	Email and text nodes now contain an "Enable the node" checkbox. Disabling this box will prevent the email or text from being sent to this node.
83290	A pause can be added to the Twilio voice message. In the Connected Field Worker template, in the Twilio Voice Message activity, edit the Message field and add the "Pause(x)" where you would like a pause. Replace "x" with the number of seconds you would like to delay. (For easy reference, this syntax is displayed in the shortcuts section of the Twilio Voice Message activity.)

Hyper Alarm Server

Ref ID	Description
49272	Alarms in a particular area or globally can now be acknowledged using the Call Method command. For the Call Method's "Name" parameter, browse for one of these methods in the Hyper Alarm Server: Acknowledge, LatchReset, OutOfServiceOff, OutOfServiceOn, ShelvedOff, ShelvedOn, SuppressedByDesignOff, SuppressedByDesignOn. All methods can take one parameter for the comment. The ShelvedOn method can also take another parameter for the shelve time in seconds. Note that the operation will be applied to every alarm in the chosen area, even inactive alarms. This provides similar functionality to the AlarmWorX64 Server, which used to provide realtime tags that could be used to acknowledge alarms globally or in a particular area.
68444	In a non-redundant setup, Hyper Alarm Server now remembers the state of the alarms (including acknowledgment, shelved, etc.) after the service has been restarted. (On a redundant system, the running member of the pair will remember the states while the other restarts.)

AssetWorX

Asset Navigator

Ref ID	Description
57687	There is a new option for the List Mode settings called "Start Empty". When selected, the Asset Navigator will display an empty list when the List Mode Parent data source resolves to an empty string. This new setting makes it easier to configure connected asset navigators. With this setting unchecked the "child" navigator would start showing the children of the configured root, which could be confusing to a user. Now, when "Start Empty" is enabled, the "child" navigator can start empty, as expected, and return to empty if the selection in the "parent" navigator is cleared. Note, the List Mode settings have been moved from the General tab to the new Navigation tab. There is a new section called List Mode. The new Start Empty setting is found here.

Query Interface

Ref ID	Description
83535	Equipment properties can now be used as a field and listed as a column in the Table control (and other controls that support the Query Interface).

Ref ID	Description
	In the Table control, when using a Type of Query, Data Source of ac:.Query, and Table of Equipment, on the Fields tab you can select the + button and then Browse. In the browser, select one of the equipment properties. That property will now be available as a field, able to be added to the Columns tab or used in filters or styling. Note, any asset that does not have this property will return a blank value for this field.
83536	The AssetWorX Query Interface tables can now return fields for each level of the asset path. These fields are named ".EquipmentPath[N]" where N is the level of the asset path (starting at zero). There are also a set of fields that provide the level in the reverse order: ".EquipmentPathReversed[N]".

For example, if an asset has a path of "Building/Floor/Room/", the ".EquipmentPath[0]" field will be "Building", ".EquipmentPath[1]" will be "Floor", and ".EquipmentPath[2]" will be "Room". The ".EquipmentPathReversed[N]" field will be the same, but in the reverse order, so ".EquipmentPathReversed[0]" will be "Room".

If an asset doesn't have a path long enough, the extra fields will show as blank. In the above example, .EquipmentPath[3] will be blank.

In the Table control (and other controls that support the Query Interface), these fields can be added by selecting the + button and choosing "Browse". At the bottom of the browse list, expand either ".EquipmentPart Path" or ".EquipmentPath Reversed Part" and choose the desired field to add. |
| 84793 | The AssetWorX "Equipment" Query Interface table now provides a field for ".Commands". When this field is mapped to a column in the Table control, users can choose a content type of "Commands" to display this column as a set of buttons. These command buttons function like the command buttons displayed in the Asset Navigator, allowing users to execute commands configured on the asset in question. |
| 85493 | The in the AssetWorX Equipment table, .ParentEquipmentPath field of the root asset now returns an empty string ("") instead of a null value. This allows for easier filtering.

(The Equipment table can be accessed by controls that use the Query Interface, such as the Table control. To access the Equipment table in the Table control, set the Type to Query, the Data Source to ac:.Query, and the Table to Equipment.) |

Controls

Camera Control

Ref ID	Description
38667	Improved the behavior of the desktop (WPF) camera control when the camera feed was offline.

Previously, if the camera feed was offline when the display loaded or became offline after that, no retries would be made to reestablish the feed. The last displayed image (or a black screen, in the case that no image had been loaded) would remain on the screen indefinitely until the display was reloaded. There was no indication whether the image was simply not changing or if it was frozen due to the feed being offline.

Now, the WPF camera control will periodically try to reconnect if the camera had been offline. If an image had been loaded, it will be replaced by a black screen after a configurable timeout period (set by the RenderingTimeout property) to visually indicate that the camera is offline.

Note, the behavior of the HTML5 camera control is unchanged, and may vary based on the browser. |

Data Diagram

Ref ID	Description
60308	The sort order of the data diagram's horizontal and vertical axes can now be customized. On the Columns or Rows page, select Sorting. For Comparison Expression, select the small square on the right and choose from either Alphabetic, Numeric, or Date sorting. The user can also supply their own expression to create a custom sorting order.
75258	The data diagram's tooltips now use the font settings on the Style page and the Window Background and Window Foreground colors in the Child Controls Style section.

Ref ID	Description
82253	Styling rules can now be applied to the Data Diagram. This can improve the readability by allowing the user to specify different foreground colors for different cells. It can also be used to highlight cells that have an error condition or other unusual circumstance. Go to the Rules page to configure styling rules for background and foreground colors.
83899	Small improvements to the performance of the desktop (WPF) Data Diagram.
83914	More color palettes have been added to the Data Diagram's configuration ribbon.

EarthWorX Viewer

Ref ID	Description
29193	Improved the feedback in the map connection manager and TraceWorX to help users identify an issue with the credentials for their map tiles.

Table Control

Ref ID	Description
70422 70423	When using a microchart column, the microchart axis can now be displayed at the bottom of the table in addition to or instead of the axis at the top. To display the bottom axis, edit the control, go to the Controls page, and enable the footer. The footer can be enabled in both the Table and Fault Viewer controls. As of this version, this footer is only used for the microchart axis.
79086	The user can now specify the point fail text for data displayed in the table control. The point fail text is configured on the General tab in the Data section. The point fail text only applies to columns of type DataSource.
79726	The runtime filtering of the Table control now supports checkbox filters.
83535	Equipment properties can now be used as a field and listed as a column in the Table control (and other controls that support the Query Interface). In the Table control, when using a Type of Query, Data Source of ac:.Query, and Table of Equipment, on the Fields tab you can select the + button and then Browse. In the browser, select one of the equipment properties. That property will now be available as a field, able to be added to the Columns tab or used in filters or styling. Note, any asset that does not have this property will return a blank value for this field.
83897	Columns can be optionally excluded from the export of the Table control. To exclude a column, configure the control, go to the Columns tab, select the column you'd like to exclude from the export, and uncheck the new "Exportable" property. This property is enabled by default.
84793 83537	The AssetWorX "Equipment" Query Interface table now provides a field for ".Commands". When this field is mapped to a column in the Table control, users can choose a content type of "Commands" to display this column as a set of buttons. These command buttons function like the command buttons displayed in the Asset Navigator, allowing users to execute commands configured on the asset in question.
86164	The Table and Fault Viewer controls now support the Min and Max aggregates for Boolean columns. Previously Boolean columns only supported the Count aggregate.

TrendWorX64 Viewer

Ref ID	Description
85837	The Time Format field on the X Axis tab of a Chart can now accept an expression. Use the {{@@timestamp}} context variable in the expression to represent the time value of the axis. A more ("...") button has been added to this field to open the expression editor. From this expression editor, the {{@@timestamp}} context variable can be found under Variables > Context Variables tab. These expressions allow users great flexibility over the X Axis labels, such as displaying the time as a number of seconds in the past, rather than a standard timestamp. Note, Time Format expressions are only supported by the data export feature when the "General Time Settings" are not inheriting from the X axis. When the time settings are inherited from the X axis, a default time format will be used in the export.

GraphWorX64

Ref ID	Description
11122 83221	Process points now support password masking. A configured process point will have its contents obscured by dots. Optionally, a masked process point can also be hashed. This hashing is necessary when setting passwords with the new Configure Security command. To mask a process point, ensure GraphWorX64 is in Advanced Mode (View > Application Mode > Advanced Mode), then set the Password property to True. To also hash a process point, in addition to setting Password to True, set PasswordHashing to Password-Based Key Derivation Function 2. When PasswordHashing is configured, the value written by the user will be hashed before being written to the data source. The Password and PasswordHashing properties work in both desktop (WPF) and HTML5 clients.
24597	A refresh option has been added to the context menu of the symbol library.
26780	If the Target property of a command is specified but is currently bad quality, the pick action will be disabled or the command will not execute. In previous versions, it acted as if there was no Target specified (meaning if may have popped up a menu of available targets).
33848	It is now possible to update the value of a localsim:property tags representing brush properties, for example, the background property of a shape. Previously, these tags could be read, but not modified.
38117	Added a new "Add Grid Page" option to the Pivot control's configuration ribbon. The previous "Add Page" button has been renamed to "Add Layer Page". Note, it was possible to add a page with a grid layout to a Pivot control previously, but this button makes the process easier and more intuitive.
46111 85038	GraphWorX64 displays and viewers can now be the target of the Go To Location and Zoom commands. Previously these commands were only able to target an EarthWorX Viewer. For Zoom, GraphWorX64 only uses the Unit and Zoom properties. For Go To Location, the Latitude and Longitude properties are the Y and X location, respectively, for the desired view location. The Unit and Zoom properties behave consistently with the Zoom command. Leave the Zoom property blank to not modify the zoom level.
46226	When nesting a classic smart symbol (smart symbol created from a group) inside a grid smart symbol (smart symbol created from a grid panel) or vice versa, the child smart symbol can now read smart property values from the parent smart symbol.
46630	File selection dialogs, such as the one in the Search and Replace dialog, now show a loading cursor when processing a large list of files.
47266	The StartPercent and EndPercent properties of size dynamics can now be set to greater than 100%. This allows size dynamics to enlarge an object. Previously, size dynamics could only shrink objects. Note, this only applies to size dynamics where the Bias and Clip properties are both false.
49380	Users can now preserve visibility of objects when updating shared objects.
57386	Custom views can now be sorted alphabetically in ascending or descending order. To sort custom views, in configure mode, go to the View ribbon, select Custom Views > Order Views and choose either Ascending or Descending. (Custom views can still be sorted manually in the Edit Views editor.)
68693 84017	Writable GraphWorX64 process points have a new property called CommentRequired. When CommentRequired is true and the Confirm and Comment properties are also true, the user must enter a non-empty (non-whitespace-only) comment to be logged for the written value. (The CommentRequired property is ignored when either the Confirm or Comment properties are false.) CommentRequired is only visible in Advanced mode. This has been implemented for both desktop (WPF) and HTML5 platforms.
70055	GraphWorX64 now logs GenEvent messages when displays are loaded in runtime or configuration mode.
79245	Improved performance for point fail or disabled color switching. This performance improvement is most noticeable on systems that have thousands of objects that need to show point fail or disabled colors.

Ref ID	Description
82788	These properties of a pick action with a Command of "Load Display" (local command) can now be edited in "Web Browser" edit mode: * TargetType: Popup Window (Independent) * OverrideWindowProperties * WindowProperties: Left, Top, Width and Height values This allows users to configure popup windows for HTML5 displays. This feature was added in 10.97 but was only configurable when in "Desktop App" edit mode. (Note, these popup windows are only supported in platforms that support window positioning.)
83030	The import and export functionality of the Edit Process Point States dialog now exports the DataSource property of the state objects, if present.

Web Publishing Wizard

Ref ID	Description
41708	A new set of radio buttons has been added to the Web Publishing Wizard's Publishing Options page. The group is called "Access Protocol". These buttons allow the user to configure which protocol will be used in the HTM files created by the Web Publishing Wizard. This can be useful if the user is using a different method for publishing and viewing the files. The "Access Protocol" option has these three settings: Default: The HTM file will use the behavior from previous versions, which is that the protocol will be inferred from the web server configuration (set on the Select a Publishing Location page). http: The HTM file will use http, regardless of the chosen web server configuration. It will still use the web server's port, if one is specified. https: The HTM file will use https, regardless of the chosen web server configuration. It will still use the web server's port, if one is specified.

ScheduleWorX64

Ref ID	Description
44563	Added new GenEvent messages that will be posted by the ScheduleWorX64 Point Manager when a schedule change is made in runtime. The messages indicate the properties that have been changed.

Hyper Historian

Hyper Historian Workbench Provider

Ref ID	Description
81930	Under Historical Data > Hyper Historian > System Administration > System Settings on the Options tab, there is a new section called "Data Exporter Settings" that includes an option called "Concurrency Level". The Concurrency Level sets the number of data exporter tasks that are allowed to run at one time. It can take a value between 1 and 100. The default value is 1, which means the first data exporter task must finish before the second is allowed to run. A value of 2 means two data exporter tasks can run at a time, and a third has to wait for one of the current two to finish, etc. A higher concurrency number may improve the export speed in cases where multiple requests for exporting data are triggered at the same (or nearly the same) time. However, a higher concurrency number will use more resources of the host system where the data exporter is running and on the target storage system where data is being exported to. Also, the more data being exported at one time, the higher network utilization can be between the Hyper Historian system and the target storage system.

Ref ID	Description
	So, users should be aware of their system resources and network utilization if they decide to increase the Concurrency Level of their data exporter system. They may want to increase the setting slowly, one level at a time, and monitor the system closely to ensure the system continues to perform as desired while multiple data export tasks are running.
	Newly created loggers now have a "Starting at" time of January 1, 2000 at 12:00:00 PM.
85276	Previously, the "Starting at" date of loggers was the date at which the logger was created, however this could cause some undesirable behavior if the date wasn't changed. For example, importing data that was logged before the logger's creation would fail to import. We hope this new "Starting at" time will eliminate such issues.

Logger

Ref ID	Description
77115	The Hyper Historian UA server now supports the GeneralModelChangeEventType event. This means UA clients to Hyper Historian will now be notified when the address spaces changes (such as when a new tag is added).

MergeWorX

Ref ID	Description
18722	Adding the text "(disabled)" to the end of a MergeWorX plugin name will disable the plugin. This text is case-insensitive. Example name: "My plugin (disabled)" This is designed to be used for debugging purposes only. For example, when adding a new plugin, all other plugins can be disabled to allow testing the new plugin in isolation.

IoTWorX & Internet of Things

Ref ID	Description
81592	The IoT Subscriber can now connect to the Basic Tier Azure IoT Hubs. Note, for full support of IoTWorX devices, an S1 Tier is still required. However, the IoT Subscriber can now consume data from third party devices using the Basic Tier.
81736	Most IoTWorX functionality has been condensed into a single container. This improves the efficiency of the edge device, uses less storage, and allows us to support Microsoft Azure Stack Edge.

KPIWorX

Ref ID	Description
53747	It is now possible to drag an asset onto a symbol widget and KPIWorX will attempt to map the properties of the asset to the properties of the widget with the same name. For example, if an asset with a property named Temperature was dragged onto a symbol widget that also had a property named Temperature, the Temperature property of the asset would be bound to the Temperature property of the symbol.
68257	Global search is now available on the Asset Navigator tab of the Data Browser panel.
74966	The dayofweek and dayofweekoffset functions have been added to the BI Server. Dayofweek returns a value from 0 to 6, representing the day of the week where 0 is Sunday, 1 is Monday, etc. This example query will aggregate the results by the day of the week for a given month. SELECT SUM(od.UnitPrice), dayofweek(o.OrderDate) FROM OrderDetails AS od INNER JOIN Orders AS o ON od.OrderID = o.OrderID WHERE year(o.OrderDate) = 1996 AND month(o.OrderDate) = 7 GROUP BY dayofweek(o.OrderDate)

Ref ID	Description
	Dayofweekoffset returns a similar value of 0 to 6 but will sort the days according to the data model default collation. It is designed to be used when sorting. For example, adding an ORDER BY clause to the above query: SELECT SUM(od.UnitPrice), dayofweek(o.OrderDate) FROM OrderDetails AS od INNER JOIN Orders AS o ON od.OrderID = o.OrderID WHERE year(o.OrderDate) = 1996 AND month(o.OrderDate) = 7 GROUP BY dayofweek(o.OrderDate) ORDER BY dayofweekoffset(o.OrderDate) This will order the data with the first day of the week as Sunday when using en-us as a culture, and as Monday when using it-it. KPIWorX can access this DayOfWeek dimension when browsing AnalytiX-BI data.

MobileHMI & HTML5 WebHMI

HTML5, iOS, Android

Ref ID	Description
77963	Added a configurable timeout period for displays to disconnect. Users who see unexplained display refreshes may want to increase this value, however setting it too large (over 30 seconds) may result in higher memory demand. To change this timeout, edit the ICONICS\GENESIS64\WebSites\AnyGlass\Bin\ico.anyglass.serviceEngine.config file and set the DisposeTimeout value.
80434	The HTML5 security control now accepts the enter key as a shortcut for the login button. This is consistent with the desktop (WPF) security control.
85547	The global Load Graphics Display command was enhanced in HTML5 to support the same types of popups as the local Load Display command.

AlarmWorX64 Viewer

Ref ID	Description
85961	Users now have the option to change the behavior of the HTML5 AlarmWorX64 Viewer sorting when selecting multiple columns. The default behavior is unchanged from previous versions and is that selecting multiple columns for sorting will sort on all selected columns. Users now have the option of changing this behavior so that selecting multiple columns for sorting will only sort on the last selected column. (Sorting on only the last column is consistent with the desktop (WPF) AlarmWorX64 Viewer.) To change this behavior, edit the \GENESIS64\WebSites\AnyGlass\Bin\ico.anyglass.parsing.config file and set AwxForceSortBySingle equal to "true".

GraphWorX64

Ref ID	Description
11122	Process points now support password masking. A configured process point will have its contents obscured by dots. Optionally, a masked process point can also be hashed. This hashing is necessary when setting passwords with the new Configure Security command. To mask a process point, ensure GraphWorX64 is in Advanced Mode (View > Application Mode > Advanced Mode), then set the Password property to True. To also hash a process point, in addition to setting Password to True, set PasswordHashing to Password-Based Key Derivation Function 2. When PasswordHashing is configured, the value written by the user will be hashed before being written to the data source. The Password and PasswordHashing properties work in both desktop (WPF) and HTML5 clients.

Ref ID	Description
83190	Load Display commands in HTML5 displays now support TargetTypes of "Popup Window (Display Dependent)" and "Popup Window (Display Dependent - Modal)". These popup displays will appear as simulated popups, able to be moved around and resized but restricted to the boundaries of the parent display. These simulated popups do not have the full range of features of WPF popups. For instance, the ribbon, menu, navigation, and status bar are all unsupported. The settings necessary to configure these new popup types are now visible when GraphWorX64 is in Web Browser mode.
86194	The localsim:property Visibility tag returned values that were not consistent between HTML5 and desktop (WPF), meaning it was not possible to use this tag to create displays that behaved the same in both platforms. We were unable to reconcile the behavior of this tag, but a localsim:property tag called "Visible" was added to HTML5. This property previously existed in desktop (WPF), and now it behaves the same in HTML5 as well. Please use the Visible property in displays that are designed to be used in both HTML5 and desktop (WPF) clients.

Workbench

Ref ID	Description
78441	The performance of managing IoT projects in Workbench has been improved.

PowerShell

Ref ID	Description
85289	The PowerShell cmdlets Set-SecRole and New-SecRole now expose the IsDefault parameter, which allows the user to set whether a group is the default group.

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