

# ICONICS v10.95.3

## What's New – ICONICS Suite

April 2018



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Microsoft Partner



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# Overview

## How to Use this Document

Arranged so that users can see the features of each module or provider, all of the new features listed are selected to give the best examples for what could be tested and used in this release. Each feature includes a brief description, a list of benefits the user or developer will receive, as well as use cases and examples.

## Recommendations

ICONICS suggests that anyone viewing this document browse the Table of Contents before diving into the text, as some features may or may not be applicable to all projects. Once a feature that is of interest to the reader is found, read the description and benefits before attempting to use the feature. If an ICONICS representative has informed a user that a certain feature that should be available is not, please email ICONICS as soon as possible so that we can verify the feature and timing.

## Version Product Testing

This version, 10.95.3, was tested for compatibility with Microsoft security patches for Spectre and Meltdown vulnerabilities. No compatibility issues with ICONICS products were found.

## Platform Services

### Data Manipulator for REST Web Services

#### *Description*

The Web Service Point Manager now allows users to call a REST Service on demand, rather than being tether to a single subscription during runtime.

#### *Benefits*

A service can now be dynamically called by a user during runtime. This also allows users to modify parameters before calling a service.

#### *Use*

1. Launch the Workbench.
2. Navigate to Web Services (Data Connectivity > Web Services). From a REST Service, right-click and select **Add Web Manipulator**.
3. Configure the new form and select **Apply** to create a new Web Manipulator.
4. This Web Manipulator can now be selected as data source from the Data Browser. As a note, a data manipulator will not show a live value in runtime until it is executed.

### Default Languages for Users and Groups

#### *Description*

A default language can now be set to users and groups.

#### *Benefits*

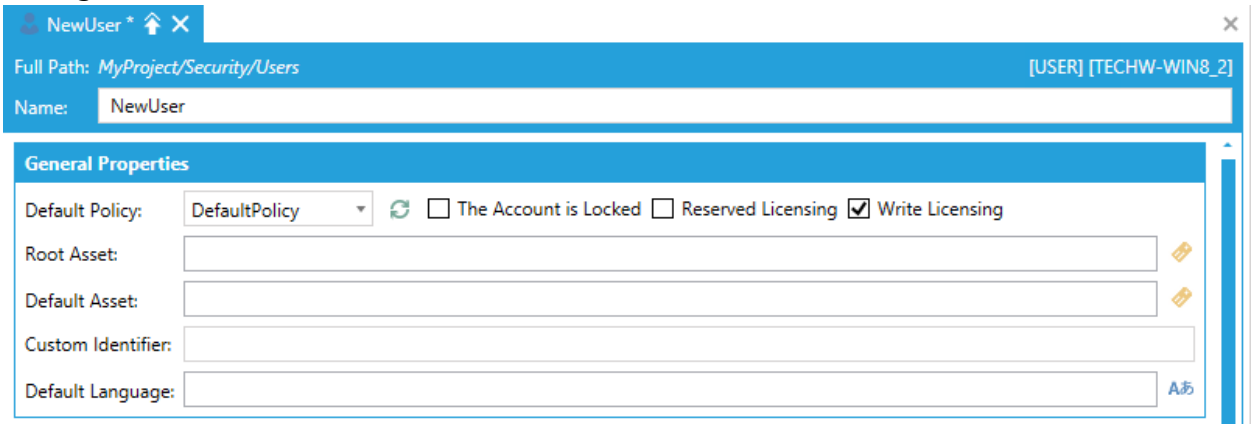
When a specified user or group logs into GraphWorX64, GENESIS64 will automatically switch the language set in Language Aliasing to the assigned language. This will prevent users or groups from inadvertently logging in or designing in an incorrect language.

#### *Use*

A default language for a user or group can be set for any project from the Workbench.

1. Open Workbench.
2. Navigate to **Users** (Security > Users) or **Groups** (Security > Groups) in the Project Explorer.
3. Select an existing user or group or create a new user or group.

4. Within the **General Properties** section, locate the **Default Language** field. A default language can be manually entered or selected using the  button to the right of the field.



The screenshot shows a 'NewUser' dialog box with a blue header. The 'Full Path' is 'MyProject/Security/Users' and the user is '[USER] [TECHW-WIN8\_2]'. The 'Name' field contains 'NewUser'. The 'General Properties' section is expanded, showing fields for 'Default Policy' (set to 'DefaultPolicy'), 'Root Asset', 'Default Asset', 'Custom Identifier', and 'Default Language'. The 'Default Language' field has a blue border and a language selection icon to its right. The 'Write Licensing' checkbox is checked.

5. Set the desired language. Select **Apply** to update the changes.

## JSON Web Token Authentication

### Description

Certain Web Services require an authentication object, as a method for representing claims securely between two parties. JWT (JSON Web Token) is a method that ensures authenticated communications for REST Web Services.

### Benefits

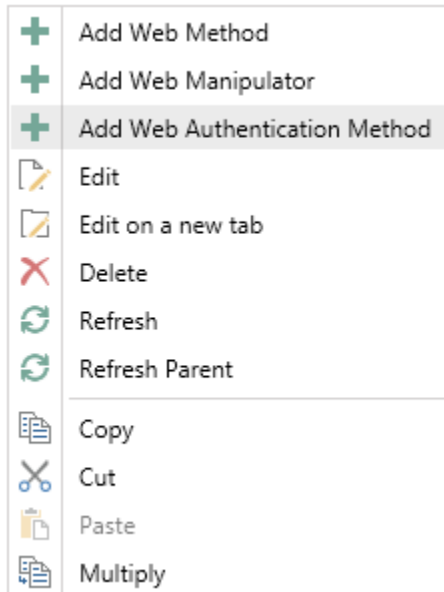
Any communications utilizing this authentication method can now be permitted in ICONICS products when utilizing REST Web Services.

### Use

Before beginning, a user should ensure an authentication method is already created. If this is already configured, skip to step 4.

1. Launch Workbench.
2. Navigate to the REST Service (Data Connectivity > Web Services) that has to be configured to use JWT (JSON Web Token) authentication. If the REST Service does not exist, right-click on any folder under Data Connectivity and select Add REST Service.

3. To configure an authentication method, right-click on the service and select **Add Web Authentication Method**.



4. A new form will populate. Fill out this form with the required settings to invoke the JWT authentication method exposed by the server you wish to interact with, and click Authenticate. If the authentication is successful and a JWT could be retrieved, the result will be shown in the Result Schema textbox. This Web Authentication Method will be used later.
5. Within Workbench, edit the REST Service (Data Connectivity > Web Services) that was created at step 2. This will open the service form.
6. Within the **General Settings** section, there is a field for Authentication: Select JSON Web Token from the drop-down list. A new section called Connection Credentials will appear.
7. From the **Authentication Method** drop-down menu, select the Web Authentication Method that was configured at step 4.
8. The **Token Property** drop-down menu will automatically populate with the schema of the authentication's method result. From within this drop-down menu, select the property that contains the JWT.
9. With the next three fields (Authorization Parameter Kind, Name and Value) configure how the JWT will be sent to server with each request. The placeholder @JwtSecurityToken can be used in the Authorization Parameter Value field and will be replaced with the actual JWT in runtime. Apply to save changes
10. All methods configured through this service will now use JSON Web Token Authentication.

# Web Services Diagnostic Counters

## Description

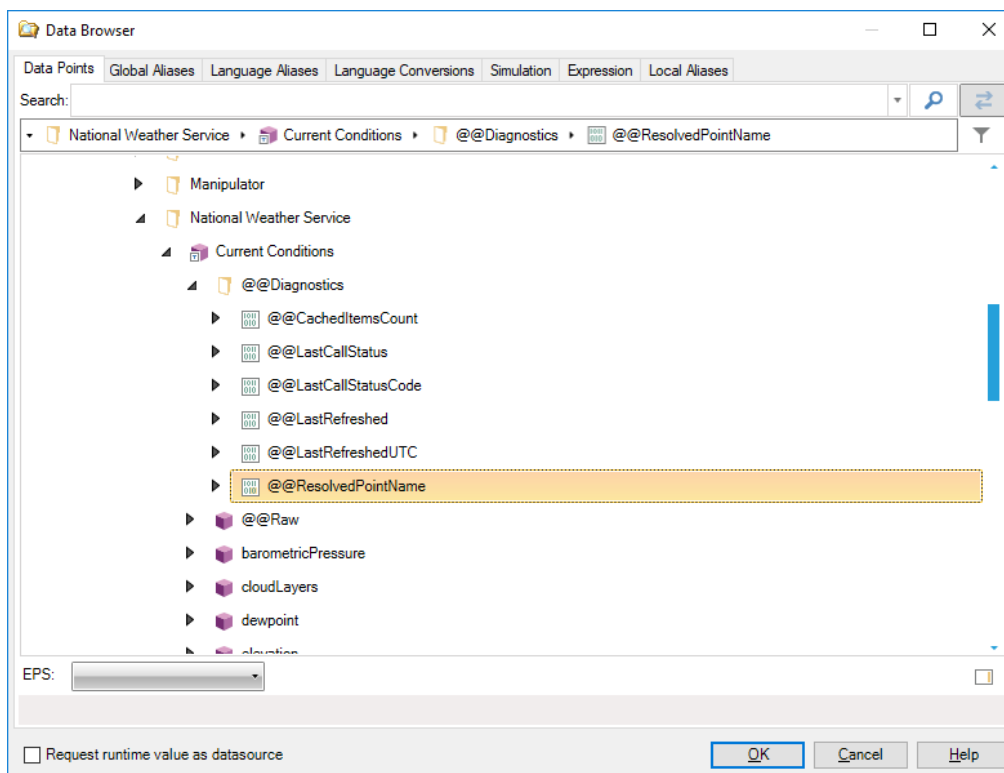
The new diagnostic metrics for Web Services provides more detailed diagnostic metrics that can be used to track internal components of the point manager in order to facilitate diagnosing runtime problems.

## Benefits

The new Web Services point manager counters will include users with pertinent diagnostic metrics for troubleshooting and monitoring. These metrics include how many items are currently in the server's cache, how many items are cached specifically per web method, the current status of a web method (running, succeeded, failed, timed out), and the last error that occurred during the execution of a web method.

## Use

Users can now browse and subscribe to these diagnostic counters the same as any other data sources. This will allow users to attach a visual metric to diagnostics such as the last time there was a refresh on Web Services or a count of cached items.



Within the Data Browser, metrics like these will appear as “@@LastRefreshed” or “@@CachedItemsCount”.

# AnalytiX

## Facility Fault Diagnostic Model

### Description

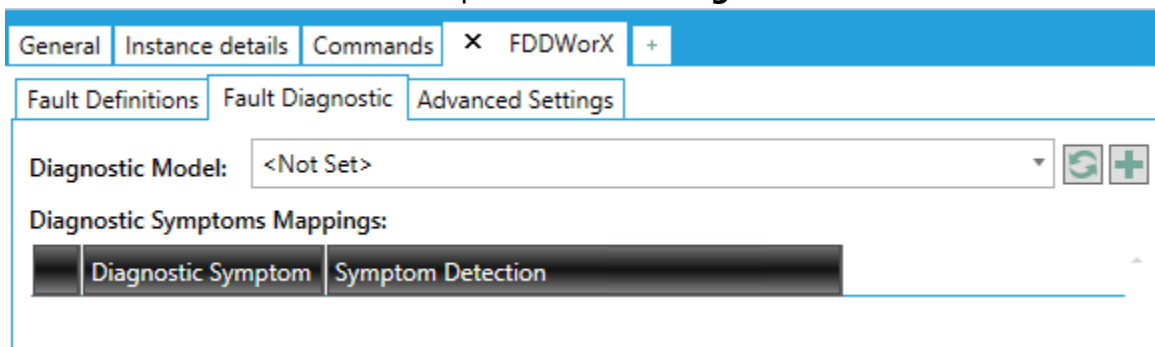
Fault Diagnostic Models can now be added directly from assets and equipment, allowing for more intuitive project creation.

### Benefits

This feature allows the convenience of creating a new diagnostic model directly from equipment in AssetWorX.

### Use

1. Launch the Workbench.
2. Navigate to any equipment in the Project Explorer (Assets > Equipment > Company).
3. Select the plus sign immediately to the right of the Commands Tab. Select **FDDWorX**. This will create a new FDDWorX tab.
4. Within this new FDDWorX tab, open the **Fault Diagnostic** subtab.



5. Clicking the plus sign opens up the "Select Diagnostic Model Folder (DMF)" window.
6. After creating the Diagnostic Model with symptoms and causes, select OK to save the changes. Refresh the Diagnostic Model option in the asset window
7. The drop down list should now show a Diagnostic Model. This model will exist in the AnalytiX section of the Project Explorer.

# GENESIS64

## Cache BACnet Alarm Descriptions

### Description

BACnet alarms can now cache the descriptions (messages) coming from the BACnet device in the regular alarm or event notifications. An initial read of the alarms and events does not provide the descriptions. In previous versions, when the machine or the BACnet services were restarted, the descriptions were not available. Now, the descriptions are cached and are available with the other information that is coming from the BACnet devices following a restart.

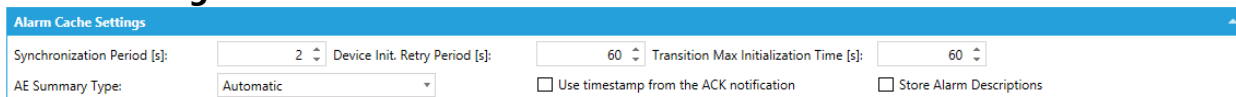
### Benefits

Users can now monitor the latest description of each alarm and event in the cache (SQLite database). Initial readings of the alarms and events will add the description from the cache and update the descriptions as changes are made.

### Use

By default, cached BACnet Alarm Descriptions are disabled.

1. Launch Workbench.
2. Navigate to BACnet **Devices** in the Project Explorer (Data Connectivity > BACnet > Devices).
3. Within the Devices form, select the **Communication** tab. Locate the **Alarm Cache Settings** section.



| Alarm Cache Settings                    |           |                                                                  |                                                   |
|-----------------------------------------|-----------|------------------------------------------------------------------|---------------------------------------------------|
| Synchronization Period [s]:             | 2         | Device Init. Retry Period [s]:                                   | 60                                                |
| Transition Max Initialization Time [s]: | 60        |                                                                  |                                                   |
| AE Summary Type:                        | Automatic | <input type="checkbox"/> Use timestamp from the ACK notification | <input type="checkbox"/> Store Alarm Descriptions |

4. Select the **Store Alarm Descriptions** checkbox.
5. Select **Apply** to save changes. BACnet Alarm Descriptions will now be cached.

## Context-based Parameter Fields

### Description

Within the Workbench, Data Flow includes a tab called parameters used to add and modify parameters for each data flow. This tab now includes fields relevant to the selected data type.

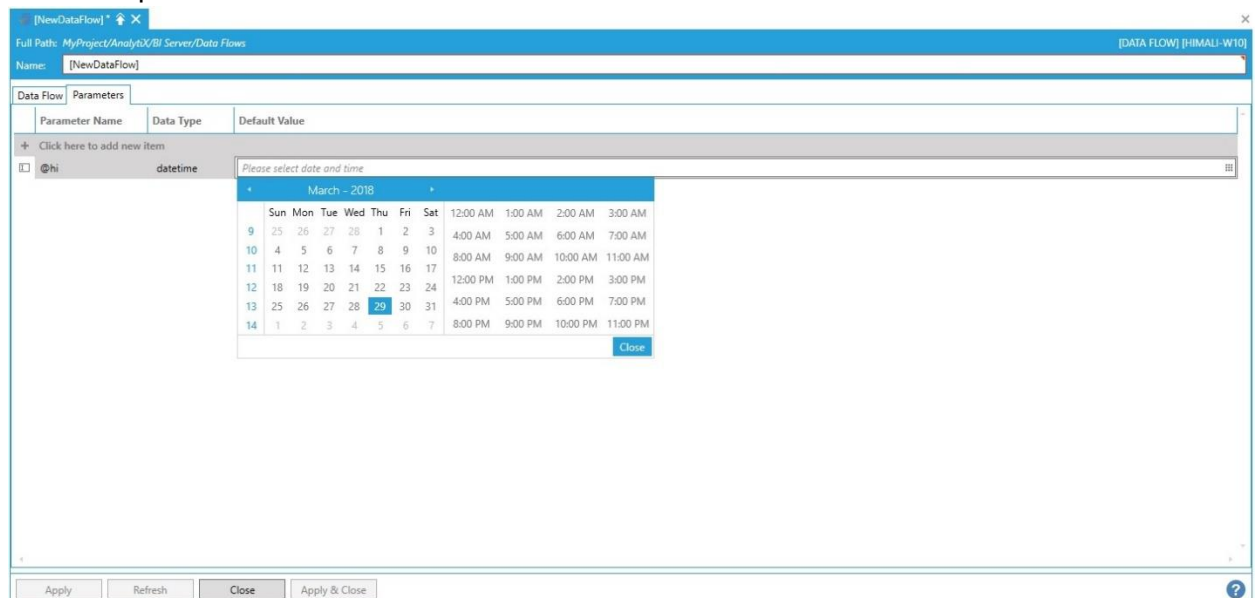
## Benefits

These context-based fields provide users with more relevant information and direction when editing an expression.

## Use

Users will not need to initiate any changes and will see the updated fields whenever they configure a Data Flow.

1. Open the Workbench.
2. Within the **Project Explorer**, navigate to Data Flows (AnalytiX > BI Server > Data Flows).
3. Select an existing Data Flow or create a new one.
4. Expand the **Parameters** tab. Name the new parameter and select the data type.
5. The default value field will update to show only relevant fields. For example, selecting "datetime" for Data Type will populate the Default Value field with a calendar picker.



6. From the **Data Flow** tab, users can now select these parameters. Once the Data Flow is configured, select **Apply** to create or modify the data flow.

# GraphWorX64 Clone Dynamic

## Description

The GraphWorX64 Clone Dynamic allows users to generate copies of a symbol during runtime where each copy of the symbol can be connected to a different data point. This can be useful for visualizing a dataset, where each clone of a symbol visualizes a different row from the dataset. Similarly, it can be used with AssetWorX data where the generated symbol clones visualizes the child assets from a branch in the asset hierarchy.

## Benefits

This new feature allows for a variable number of symbols in a GraphWorX64 display which is especially useful if a user does not know ahead of time how many assets or dataset rows will need to be visualized. This feature will also make it significantly easier to create and maintain displays by only requiring a user to configure one instance of the symbol since all other instances are generated during runtime. This will also minimize display file sizes since only one instance of the symbol to be cloned is saved.

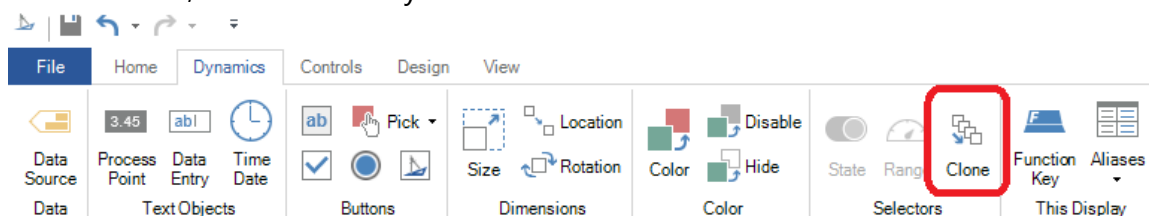
## Use

The clone dynamic can be applied to any object in GraphWorX64. For this example, we will be using to clone a label.

1. Launch GraphWorX64 and create a new display.
2. Add a Stack Panel to the canvas from the Home tab (Panels > Simple Panels > Stack Panel).
3. Inside the Explorer, add a single Label.

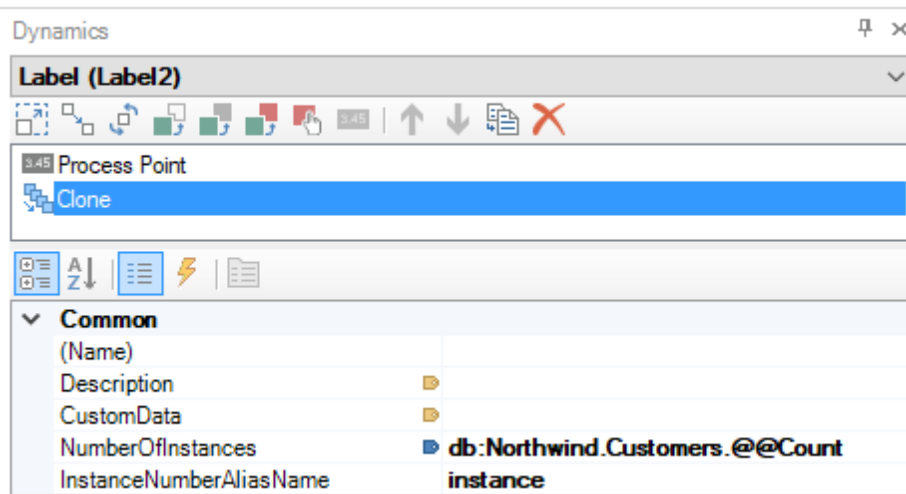


4. On the Label, add a Clone Dynamic.

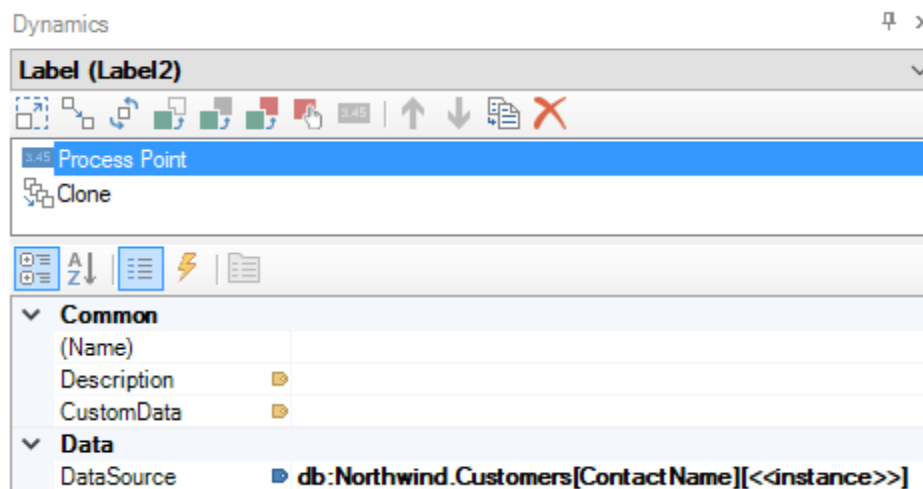


5. For the Clone Dynamic, set the NumberOfInstances property in the Dynamics window to: "db:Northwind.Customers.@@Count". This tells the Clone Dynamic to generate a clone for each customer in the Customers table of the Northwind

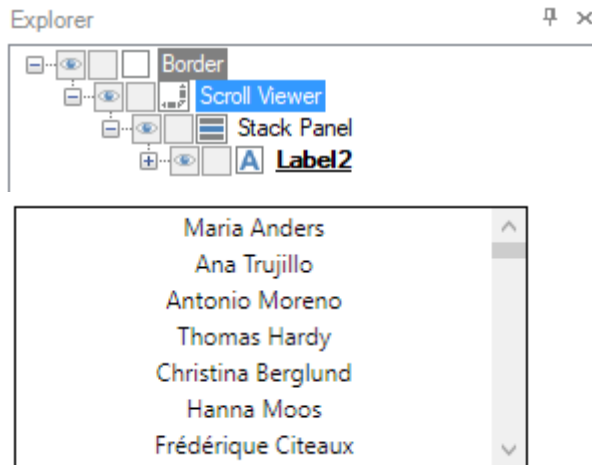
database.



- For the Process Point Dynamic, set the DataSource to: "db:Northwind.Customers[ContactName][<<instance>>]". This tells the Process Point to display the "ContactName" for a customer from the "Northwind" database. The <<instance>> alias will be filled in at runtime with instance number of the generated clone, which is used as an index into a row in the "Customers" table.



- Initiate runtime. The Stack Panel is filled with a list of names from the "Customers" table of the "Northwind" database. If the list of names is too long to fit within the Stack Panel, the Stack Panel can be placed inside a Scroll Viewer to create a scrollable list of names.



## MobileHMI

### Asset Navigator Enhancements for HTML5

#### **Description**

The Asset Navigator for HTML5 applications has been improved with features previously only available for WPF applications or had limited functionality. This includes:

- Search (enhanced)
- Commanding (enhanced)
- Columns
- Context menu configuration
- Column resizing
- List mode
- Multi-selection
- Favorites
- Styling rules

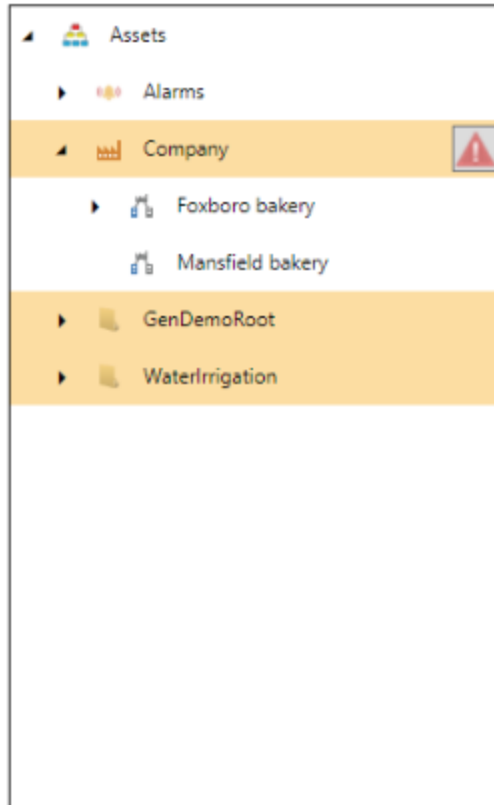
#### **Benefits**

These updates empower users to include Asset Navigator enhancements within mobile and web displays. This allows additional customizability and increased cross-platform ability.

| Asset               | Unacked Count | Acked Count | Unacked Max Severity |
|---------------------|---------------|-------------|----------------------|
| Assets              | 40            | 0           | 900                  |
| Alarms              | 40            | 0           | 900                  |
| CriticalTemps       | 0             | 0           |                      |
| Fire                | 0             | 0           |                      |
| HVAC                | 0             | 0           |                      |
| Multimedia Alarming | 18            | 0           | 500                  |
| Plant Area A        | 2             | 0           | 500                  |
| Plant Area B        | 4             | 0           | 800                  |
| Reactor Hall        | 2             | 0           | 900                  |
| Security            | 1             | 0           | 600                  |
| Unassigned          | 9             | 0           | 900                  |
| Company             | 0             | 0           |                      |

## Use

Creating an HTML5 AssetWorX Navigator is the same as creating an AssetWorX Navigator in previous versions of the program for WPF. To ensure the AssetWorX Navigator is available and interactive in MobileHMI, save the display as .gdfxp (GraphWorX64 mobile file extension). As with all MobileHMI displays, consider responsive UI elements when creating displays containing AssetWorX Navigator.



## BACnet Calendar Control for HTML5

### ***Description***

BACnet calendars are used to visualize operating days and exceptions on a calendar view. Multiple schedules can reference a single calendar to apply sweeping edits when multiple schedules need to be updated. The BACnet Calendar Control for HTML5 will allow users to view the calendar for BACnet objects from any HTML5-enabled device.

### ***Benefits***

Users can now view and modify BACnet calendars from mobile devices or web-enabled clients. Calendars can be viewed as a standard calendar view or in a list view.

### ***Use***

Once a BACnet Calendar object is created in Workbench or an existing BACnet Calendar object is included in an application, a user can access it via MobileHMI or a web browser. In runtime, a BACnet calendar control will primarily be used for viewing or adjusting calendars. Users should expect the same interaction as the desktop version. For HTML5 users, consecutive days should be selected individually. HTML5 clients are currently limited to visualizing a single month.

| Calendar List View General |    |    |    |    |    |    |
|----------------------------|----|----|----|----|----|----|
| March 2018                 |    |    |    |    |    |    |
| Su                         | Mo | Tu | We | Th | Fr | Sa |
| 25                         | 26 | 27 | 28 | 1  | 2  | 3  |
| 4                          | 5  | 6  | 7  | 8  | 9  | 10 |
| 11                         | 12 | 13 | 14 | 15 | 16 | 17 |
| 18                         | 19 | 20 | 21 | 22 | 23 | 24 |
| 25                         | 26 | 27 | 28 | 29 | 30 | 31 |
| 1                          | 2  | 3  | 4  | 5  | 6  | 7  |

## BACnet Schedule Control for HTML5

### *Description*

BACnet objects support scheduling for each device. These schedules can be modified from ICONICS products by interfacing with the device to modify the device schedule. These schedules can now be viewed and modified from any mobile device or HTML5-enabled web browsers.

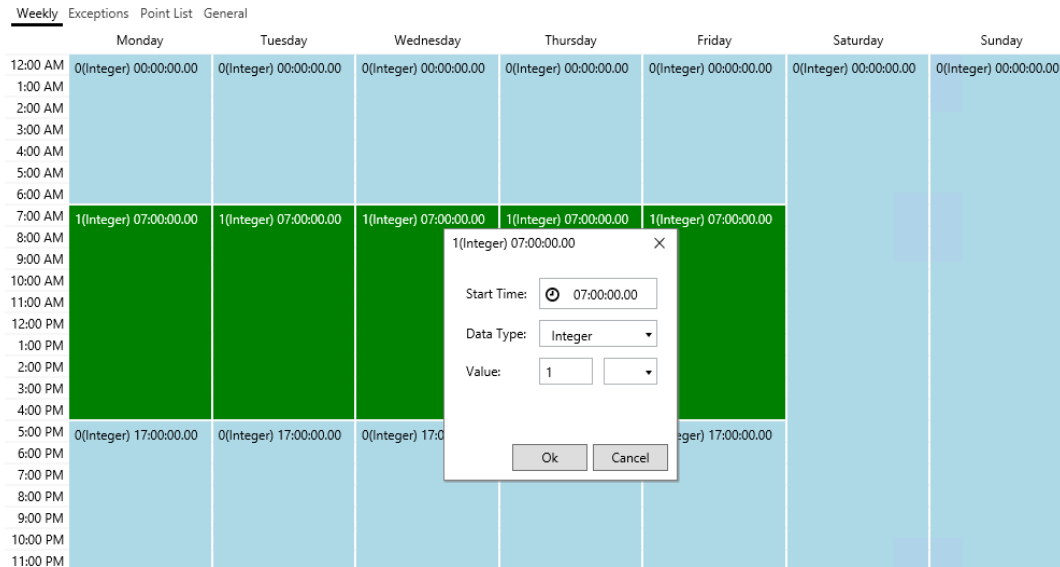
### *Benefits*

Users can now view and modify BACnet schedules from mobile devices or web-enabled clients.

### *Use*

Once a BACnet Schedule is created in Workbench or an existing BACnet Schedule object is included in an application, a user can access it via MobileHMI or a web browser. In runtime, a BACnet schedule control will primarily be used for viewing or adjusting schedules. Users should expect the same interaction as the desktop version.

For HTML5, users should double-click (or right-click on) an event to edit the start time or value. From the **Point List** tab, users can view or modify the list of BACnet objects controlled by the schedule. Exceptions can be added, removed, or modified the same and desktop version.



## Flip View for AlarmWorX64 Viewer in HTML5

### Description

The AlarmWorX64 Viewer in HTML5 can now be viewed responsively when a phone or device is held in landscape mode.

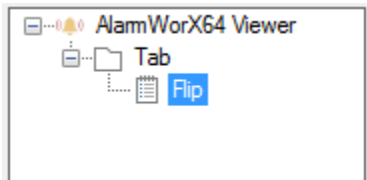
### Benefits

The flip view allows for full screen use of alarm details in a more responsive and native interface.

### Use

1. Launch GraphWorX64.
2. Be sure the display you are creating is designed for MobileHMI or WebHMI use. To do this, open the **File** menu and select **New Settings...** This will launch the "New Display" window. Within the "Display Type" section, select **MobileHMI** as the platform. This will update the canvas and file extension.
3. Within the updated canvas, add an AlarmWorX64 Viewer.
4. Double click on the control to launch the "Configure you Control" window. By default, this explorer will contain a **Grid** beneath **Tab**. Right-click on the **Grid** to remove it.

5. Right-click on the **Tab** and select **Add > Flip**.



6. The runtime display for this will AlarmWorX64 Viewer will now appear as a swipeable list with only a single alarm shown on screen at a time.

## KPIWorX Theme Manager

### Description

KPIWorX now offers several additional themes for users. These options allow customization of various aspects KPIWorX visuals including:

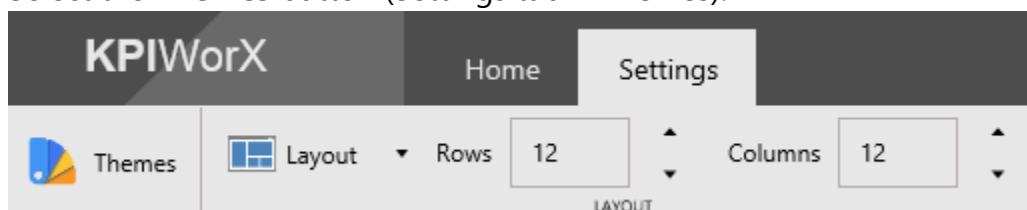
- Header colors
- Navigation colors
- Browser/Property grid colors
- Canvas color
- Widget colors

### Benefits

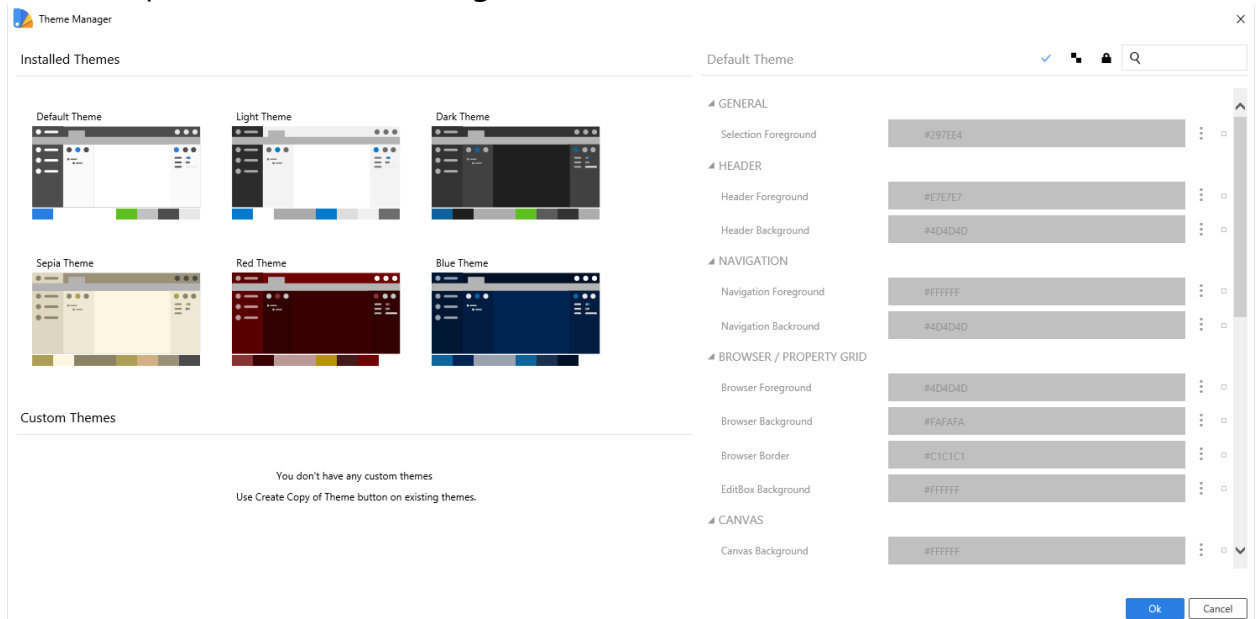
These new modifiers allow greater customization when modifying KPIWorX visuals, as well as applying a consistent color theme across multiple displays.

### Use

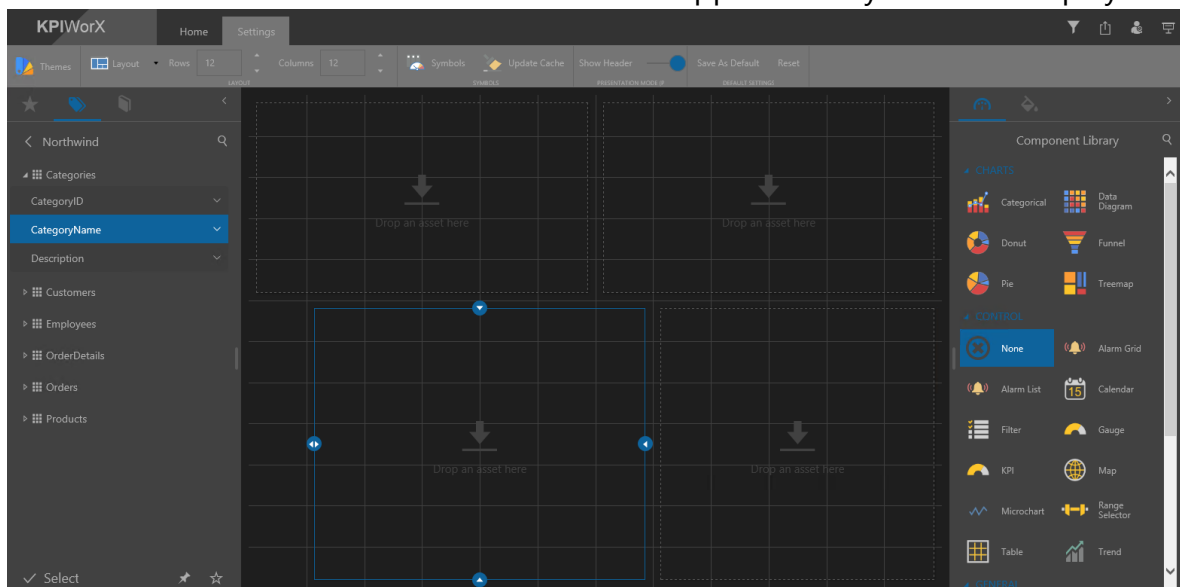
1. Launch KPIWorX.
2. Select the **Themes** button (Settings tab > Themes).



3. This will open the **Themes Manager** menu.



4. From here, a user can select from preinstalled themes or custom themes. To begin using a theme, select **Apply Theme**.
5. To edit a theme and create a custom theme, select **Create Copy of Theme**. This will ensure any customization can be saved, while also retaining the default version.
6. On the right, all the properties controlled by a theme can be edited. To save a new custom theme, select **OK**.
7. This custom theme is now available and can be applied to any KPIWorX display.



## ScheduleWorX64 Schedule Control HTML5 Enhancements

### Description

Users can now leverage the ScheduleWorX64 schedule features to manage and edit events and exceptions in MobileHMI and HTML5-enabled web clients. In previous versions, users could only view and override schedules. Users can now edit and modify exceptions with three new tabs (Weekly, Holiday, and Exceptions).

| General  | Weekly         | Holidays        | Exceptions      | Preview         | Runtime         |                 |                |
|----------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|
|          | Sun            | Mon             | Tue             | Wed             | Thu             | Fri             | Sat            |
| 12:00 AM | Weekend Lights | Night Lights on | Night Lights on | Night Lights on | Night Lights on | Night Lights on | Weekend Lights |
| 1:00 AM  |                |                 |                 |                 |                 |                 |                |
| 2:00 AM  |                |                 |                 |                 |                 |                 |                |
| 3:00 AM  |                |                 |                 |                 |                 |                 |                |
| 4:00 AM  |                |                 |                 |                 |                 |                 |                |
| 5:00 AM  |                |                 |                 |                 |                 |                 |                |
| 6:00 AM  |                |                 |                 |                 |                 |                 |                |
| 7:00 AM  |                | Morning Lights  | Morning Lights  | Morning Lights  | Morning Lights  | Morning Lights  |                |
| 8:00 AM  |                |                 |                 |                 |                 |                 |                |
| 9:00 AM  |                |                 |                 |                 |                 |                 |                |
| 10:00 AM |                |                 |                 |                 |                 |                 |                |
| 11:00 AM |                |                 |                 |                 |                 |                 |                |
| 12:00 PM |                |                 |                 |                 |                 |                 |                |
| 1:00 PM  |                |                 |                 |                 |                 |                 |                |
| 2:00 PM  |                | Lunch Hour      | Lunch Hour      | Lunch Hour      | Lunch Hour      | Lunch Hour      |                |
| 3:00 PM  |                |                 |                 |                 |                 |                 |                |
| 4:00 PM  |                |                 |                 |                 |                 |                 |                |
| 5:00 PM  |                |                 |                 |                 |                 |                 |                |
| 6:00 PM  |                |                 |                 |                 |                 |                 |                |
| 7:00 PM  |                |                 |                 |                 |                 |                 |                |
| 8:00 PM  |                |                 |                 |                 |                 |                 |                |
| 9:00 PM  | Day Lights     | Day Lights      | Day Lights      | Day Lights      | Day Lights      |                 |                |
| 10:00 PM |                |                 |                 |                 |                 |                 |                |
| 11:00 PM |                |                 |                 |                 |                 |                 |                |
|          |                |                 |                 |                 |                 |                 |                |
|          |                |                 |                 |                 |                 |                 |                |

### Benefits

The new tabs allow users to manage, edit, and modify schedules and schedule exceptions from mobile devices or HTML5-enabled web clients with features previously only available for desktop clients.

### Use

Once a ScheduleWorX64 schedule is created in Workbench and a ScheduleWorX64 Control is included in a graphics display, a user can access it via MobileHMI or a web browser. Specific to mobile and web, users can double-click (or right-click) an event to edit the start time, end time, or value.

The **General** tab is used to view properties of an individual schedule such as the effective period and schedule output. The **Weekly** tab will show a calendar view of the weekly recurring schedule. The **Holidays** tab allows users to add holiday exceptions. The **Exceptions** tab allows users to view, add, remove, or edit exceptions. The **Preview** tab will combine weekly schedules, holidays, and exceptions to show the configured schedule in a calendar view. The **Runtime** tab allows users to create and manage overrides and view the current status of their schedules.

Exceptions supersede weekly schedules and holidays, while override supersede exceptions, weekly schedules, and holidays.



## IoTWorX

### Additional Keywords for Custom Encoder

#### Description

IoTWorX configurations now have additional keywords available for Custom Encoders. These keywords can be used to customize the IoT JSON messages. These new keywords include:

- %ACCESSRIGHTS%
- %LOWRANGE%
- %HIGHRANGE%
- %DESCRIPTION%
- %FORMAT%

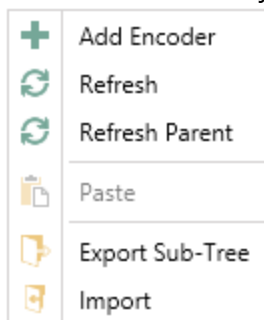
- %UNITS%
- %MEMBER%

## ***Benefits***

More customization of the JSON-formatted messages coming from the gateway.

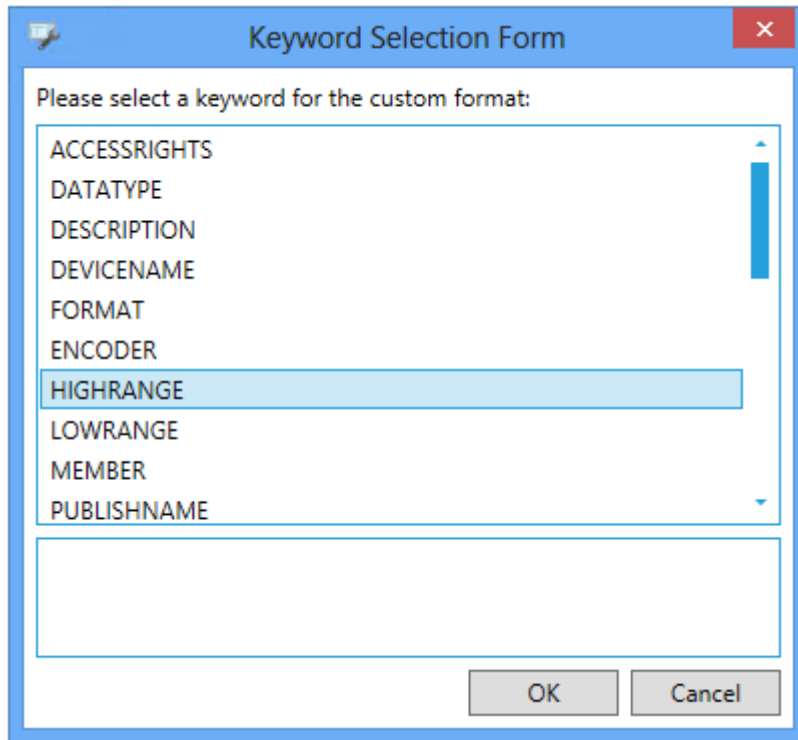
## ***Use***

1. Launch Workbench.
2. Navigate to **Custom Encoders** (IoTWorX > Custom Encoders) in the Project Explorer.
3. Add an encoder by right-clicking Custom Encoder and selecting **Add Encoder**.



4. Double click on the new encoder to open the Project Details window. Within the “General Settings” section, navigate to the **Value Format** field. From here, a user can add new keywords by clicking on the **Add keyword** text.

5. This will launch the “Keyword Selection Form” window. The new keywords can be added to the “Value Format Field”.



6. The JSON message format can now be used for an IoT application.

## Export IoT Configuration to Multiple Gateways

### **Description**

Users can now create templates for IoT configurations that can be exported to multiple IoT gateways.

### **Benefits**

IoT templates will allow users to configure multiple IoT gateways using identical configurations simultaneously.

### **Use**

1. Launch Workbench.
2. Navigate to **Device Templates** (IoTWork > Device Templates) in the Project Explorer.
3. Templates are simple configuration databases. Templates hold generic configurations for one or more gateways. In this example, “Default Template” is used to store the configuration for three gateways. This template is what

determines the Gateway Group.

The screenshot displays a configuration window for an IoT gateway group. At the top, the 'Full Path' is 'ICONICS-IOT' and the 'Name' is 'Gateways1'. The 'Storage Settings' section includes a 'Connection String' field with the value 'DefaultEndpointsProtocol=https;AccountName=robertov;AccountKey=' and a 'Folder' field with the value 'gateways'. The 'IoT Subscriber Connection' section shows a 'Connection' dropdown set to 'IOT-ROBERTO' and a 'Configuration Template' dropdown set to 'Default Template'. The 'Registry Management' section contains a table with columns 'In Group', 'Device Name', and 'Status'. The table lists three devices: Birmingham (Bad - Timeout), Genoa (Good), and Seattle (Good). A link '+ Click here to add new item' is located above the table.

Full Path: *ICONICS-IOT* [DEVICE GROUP] [GATEWAYS1]

Name: Gateways1

**Storage Settings**

Connection String: DefaultEndpointsProtocol=https;AccountName=robertov;AccountKey:

Folder: gateways

**IoT Subscriber Connection**

Connection: IOT-ROBERTO

Configuration Template: Default Template

**Registry Management**

| In Group                            | Device Name | Status        |
|-------------------------------------|-------------|---------------|
| + Click here to add new item        |             |               |
| <input checked="" type="checkbox"/> | Birmingham  | Bad - Timeout |
| <input checked="" type="checkbox"/> | Genoa       | Good          |
| <input checked="" type="checkbox"/> | Seattle     | Good          |

- Users can now publish this configuration to the gateways. Right-click on the gateway group and select **Generate Device Configuration**.
- The configuration will be exported from the template (which is a SQL database) and imported in a special .lpkgx package. The package is uploaded in cloud storage.
- To initiate, click on **Deploy Devices Configuration**. A command is sent to the gateway to download the .lpkgx file. The gateway then downloads the file, installs it, and the configuration is now updated.

## MQTT Communications via WebSockets

### Description

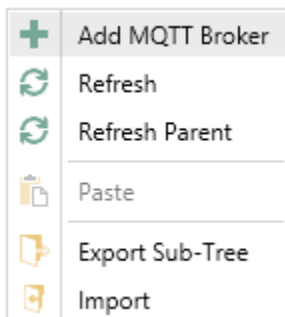
MQTT communications are now available when using WebSockets. This communication protocol is supported on Windows 8+ operating systems. The combination of MQTT via WebSockets allows bidirectional communication from client to server even within a browser. This will allow IoT communications in the form of mobile web applications and push notifications.

### Benefits

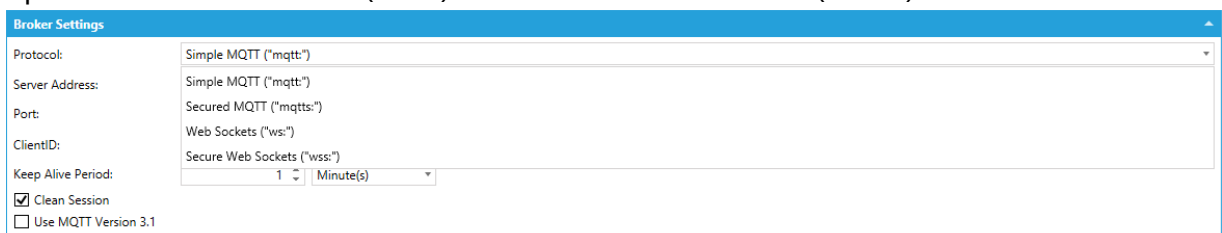
MQTT communications offer users an additional communication option for IoTWorX users. MQTT is important when utilizing a constrained device over a volatile network. This also will allow IoT communications even when using web browsers. Additionally, since WebSockets communicate by default using port 80 or 443, it will not require special rules to communicate within firewalls.

### Use

1. Launch the Workbench.
2. Navigate to **MQTT Brokers** (Internet of Things > MQTT Brokers) in the Project Explorer.
3. Select an existing MQTT Broker or create a new one. To create a new MQTT Broker, right-click on MQTT Brokers in the Project Explorer and select **Add MQTT Broker**.



4. Within the Broker Settings section, a user can specify new protocols. These new options are Web Sockets ("ws:") and Secure Web Sockets ("wss:").



5. Select a protocol. The remaining form should be filled out accordingly, like any other broker.

## Node Configuration for IoT Providers

### ***Description***

Users can now store multiple IoT configurations in a single database, using IoT nodes to manage each configuration with the corresponding device or equipment. Each configuration can now be used for multiple IoT gateways and stored in a single location.

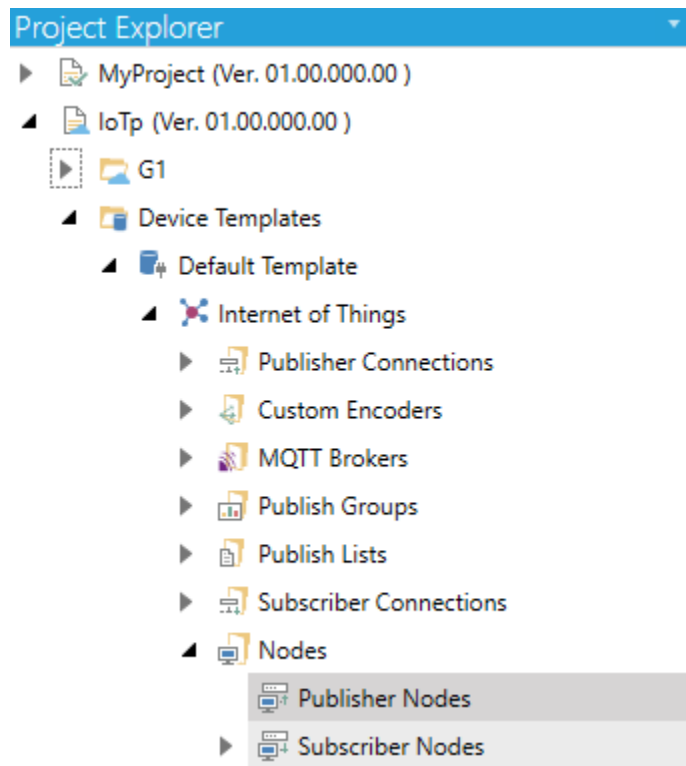
### ***Benefits***

Previously, IoTWorX users were required to build an individual configuration per gateway. This required a database dedicated to each gateway with associated configuration. Node configuration allows users to create all configurations in a single database. This also reduces configuration time by allowing users to use the same configuration for multiple gateways. Publishers and subscribers both may leverage nodes.

### ***Use***

1. Launch the Workbench.
2. Navigate to IoT Nodes in the Device Template of an IoT project (IoT Project > Device Templates > Default Template > Internet of Things > Nodes) in the Project Explorer. Within this option, users can configure both Publisher Nodes

and Subscriber Nodes.



3. Select Publisher Nodes to open the Publisher Nodes form. A user can associate a specific device with a specific Publisher Connection. Then, after generating the device configuration (see section Export IoT Configuration to Multiple Gateways), only the relevant publisher connections are included in the export file for that device.
4. The same process can be applied to Subscriber Nodes.



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