



ICONICS V10.85

What's New

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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 were picked to give the best examples for what could be tested and used in this release. Each feature includes a brief description, benefits the user or developer will receive from the feature as well as some use cases and examples.

Recommendations

ICONICS suggests that anyone viewing this document should 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 there is a feature you've been informed of by an ICONICS representative is not available that should be please email us as soon as possible so we can verify the feature and timing.

Components

ConverterWorX

TrendWorX to Hyper Historian

Description

Conversion from TrendWorX32 and TrendWorX64 Loggers into Hyper Historian is now permitted for configuration and data.

Benefits

For customers upgrading from GENESIS32 or wanting to move to the Hyper Historian from 64-bit configurations the process is now simpler and quicker.

Use

Using ConverterWorX to convert TrendWorX32 Logger configurations and data requires the export of data from a 32-bit system via the ConverterWorX Exporter. In the interface users can right-click and add a folder to the New Project to link MDB file configurations to the Exporter. Once exported the files should be moved to a 64-bit machine and Imported using the ConverterWorX user interface (located under ICONICS Tools or searchable). Use the ConverterWorX button in the ribbon menu to link exported files moved to the current machine.

For TrendWorX64 Logger files, there is a new icon on the ribbon of the 64-bit Importer that will allow inclusion of those files for conversion to Hyper Historian.

EarthWorX

3D Terrain Mapping

Description

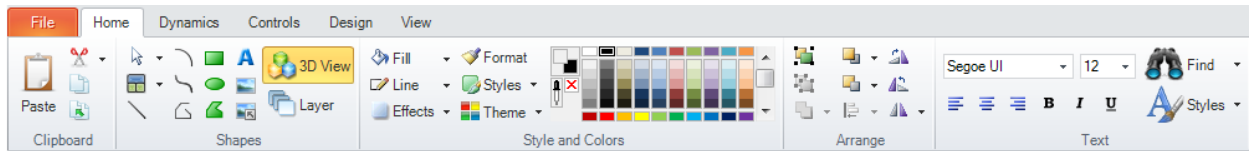
EarthWorX 3D Terrain Mapping combines the power of EarthWorX GEO-SCADA mapping with the flexible Terrain Primitive of GraphWorX64 3D Viewers. Allowing users to select a region of the globe for mapping GraphWorX64 will convert and optionally texture the map into a 3D Terrain using an ICONICS hosted elevation database. Users will need to be connected to the internet to generate the terrain, but can then disconnect.

Benefits

3D Terrain Mapping will allow developers to add a level of realism to 3D content. The optional texture mapping of the map content itself will also allow better contextualization of data. Showing not only objects on the maps, but changes in terrain.

Use

Users will need to add a 3D Terrain Primitive to a 3D View in GraphWorX64. Users can find the 3D View Control in the Home tab of the Ribbon Menu in GraphWorX64.



Once the 3D View is added and the contextual 3D Ribbon replaces the normal Ribbon users will see the Terrain Primitive. Adding one to the display will allow the user to see the Properties in the Property Grid. The property Elevation Bitmap has a new option to select from EarthWorX.

Once users click on this option a new dialog will open with an EarthWorX map to zoom and pan to the region desired. Once selected a few options will allow users to customize the terrain. Selecting to apply the map as a texture will take whatever map type the users has shown and convert it to an image to overlay the top of the terrain.

To obtain a Bing Maps Key you can go to <http://www.bingmapsportal.com/> and log in with your Microsoft account or Windows Live ID. In the left-hand menu choose to "Create or View Keys" and enter the requested details. Next be sure to use the **Basic Key** (not the Trial Key). Click Submit and you will have a functional Bing Maps Key for Terrain Mapping.

The process will then take a few minutes as it communicates with the ICONICS hosted server to gather the elevation data.

Note: For best results reduce the height of the terrain once created to ensure a realistic result.

Energy AnalytiX

Meter Rollover

Description

To better handle Energy AnalytiX Meter Rollover Scenarios a few changes have been made.

Benefits

User will see better interoperation between Energy AnalytiX and onsite meters.

Use

Two Configuration XML settings have been implemented, first `<add key="handleMeterReset" value="true"/>` enables or disables automatic meter reset scenario. Second, `<add key="rolloverThresholdValuePercent" value="85"/>` specifies the threshold value for all meters, where if the previous value is less than say 85% of rollover value, Energy AnalytiX will not treat the decrease in meter value as a rollover case.

In runtime, if the `handleMeterReset` option is set, Energy AnalytiX will look into the Cumulative and Cumulative with Rollover meter counter types. If at any point in time it detects that the current meter value is less than the previous meter value, it will try to use the configuration settings to see if it is a rollover scenario or meter reset scenario.

For Workbench-SL configuration there is a new field in the Energy Meter configuration form which applies to meters with Cumulative or Cumulative with Rollover Counters. If the Reset Threshold is non-zero Energy AnalytiX will handle the meter fluctuation scenario on top of the meter reset scenario.

The screenshot shows the 'Configure Meter Data' window. It has two main sections: 'Required Meter Data' and 'Meter Consumption Tags'. In the 'Required Meter Data' section, 'Meter Type' is set to 'Electric' and 'Utility Source' is set to 'Electric Source'. In the 'Meter Consumption Tags' section, 'Tag Name' is 'Electric Meter Type III', 'Data Source Type' is 'Tag', 'Value Type' is 'Cumulative', 'Scan Rate (s)' is 180, 'Data Source' is '@sim64:Double.Random(60,0,1200,0).V', 'Rollover Value' is 2500, 'Units' is 'kWh', 'Integration Type' is 'Seconds', and the 'Enable' checkbox is checked. The 'Reset Threshold' field is highlighted with a red rectangle and contains the value 0.

Table Maintenance Options

Description

Dedicated table maintenance options have been added to accommodate cases for daily summaries, hourly summaries as well as meter staging data within Energy AnalytiX.

Benefits

Along with a better configuration experience, users may now maintain lower resolution data for longer periods of time, while higher resolution data can be kept for a shorter term.

Use

Dedicated options, per group of tables, have been added to Energy AnalytiX. Labels used in Workbench-SL have been clarified for better user experience.

By default Energy AnalytiX will maintain meter staging data for one month. Application performance is increased by reducing the amount held to one month as the meter staging data is not used once processed by Energy AnalytiX.

The Table Maintenance configuration interface can be found under General Options in Energy AnalytiX as shown in the figure below.

× General Options

General Options

Settings Analytics Properties Table Maintenance External Data Processing Historical Data Distributed Asset Catalog

	Table Category	Delete Older Records	Months	Days	Hours
>	External Data Staging Tables	☒	12	0	0
	Meter Data Staging Tables	☒	1	0	0
	Data Logging Tables	☒	12	0	0
	Base Summary Tables	☒	12	0	0
	Hourly Summary Tables	☒	36	0	0
	Daily Summary Tables	☒	36	0	0
	Diagnostic Tables	☒	2	0	0
	Auditing Tables	☒	12	0	0

Facility AnalytiX

Fault Rules

Description

Facility AnalytiX includes over 300 preconfigured fault rules for the most popular types of Building Automation equipment. Each fault incorporates a rule, associated cost calculations, required points, description, and is completely parameterized so that you can cater it to your specific needs.

Benefits

Preconfigured Fault Rules allow users to move quickly into continuous commissioning while they utilize pre-made rules or subtle changes to create powerful and predictive tools. Customizing existing Fault Rules saves time and gets applications up and running faster.

Use

Found within Workbench-SL under the Equipment Classes portion of the tree will have a number of pre-made classes to use. Each will already have FDDWorX Fault Rules associated with them. For example, selecting the Chiller item will show the 6 preconfigured Fault Rules associated with a Chiller (e.g., Failed Closed Isolation Valve Fault). The rule and points/tags required will also be listed in the Description. Connecting the related values will allow the Fault Rule to be executed.

FDDWorX

Fault State Tracking

Description

Fault State Tracking has been implemented in the FDDWorX Engine. The tracking logs when the fault incident becomes active and when the fault returns to normal allowing routines to calculate "in-fault" duration for that incident.

Benefits

Providing better clarity in the lifecycle of faults, the new Fault State Tracking will allow for better understanding of the source of issues and the conditions leading up to fault.

Use

Using a few faults and a few symptoms without other automatic alarms the Fault State Tracking can be tested. To do this use a GraphWorX64 display to trigger fault/symptom alarms manually. Users should see the alarms appear within AlarmWorX64. To see the fault logging which is at the core of Fault State Tracking users should navigate to the FDD_FAULT_INC2 Log Table in Microsoft SQL Server. Faults will appear in this log roughly 60 seconds after they appear in AlarmWorX64.

Users can verify that the system detects the correct combination of active symptoms (that were manually triggered earlier). When the fault returns to normal another entry will be made in the fault log indicating the alarm has returned.

This process will perform even if there are no configured Diagnostics for the asset in question.

GraphWorX

Bulk Publishing

Description

The first phase of the Bulk Publishing features have been implemented and include the ability to publish multiple independent files and use a reduced publishing model built to allow faster publishing.

Benefits

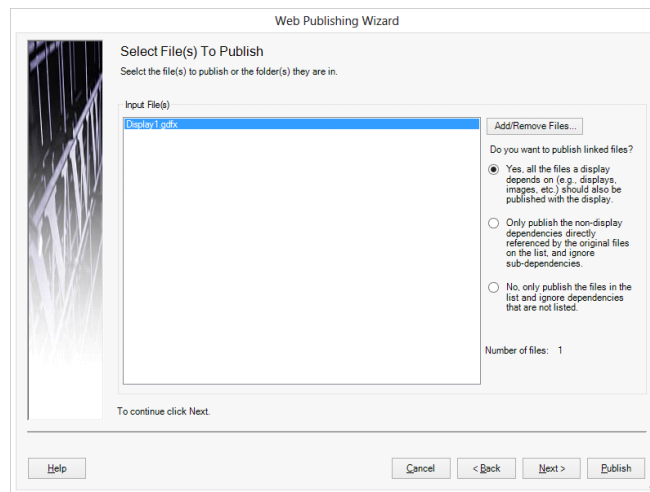
Bulk Publishing allows Integrators and Customers to publish multiple displays or projects from different locations at once and allows for users to repeat publishing using saved settings in as little as two clicks (one to open the publishing wizard and one to confirm).

Use

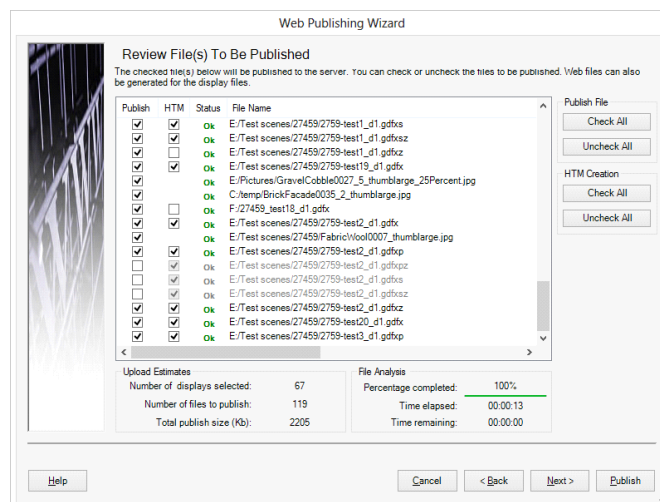
First, one or more files can now be published using the wizard whether or not files are located in different partitions they can be interdependent and published simultaneously. The wizard automatically detects the differences in partition locations and adjusts the publishing folder structure to cope with the

disparity. Users can also select the name of the folders (e.g., Desktop, MobileHMI, and WebHMI) where different types of files are going to be published within the server destination. These subfolders are independent of each other and can be moved around without compromising the contents of the other folders.

An update to the File Selection Page allows users to select folders or multiple files to add to the list of files to publish. Filters can be applied when selecting a folder so that only desired types of files are added to the publish list (where previously users would have to parse the list themselves by selecting each file within the whole list). Options remain for publishing all linked files, only non-display dependencies (like images) or to publish only the selected files as seen in the figure below.



Once the files are selected the user can review the list of files to be published based on the selected list and the publishing settings (such as to include dependencies). The user can uncheck any files that may have been included due to these settings. The page (shown in the figure below) also gives estimates for the amount of space to be consumed on the server based on the files and publishing settings selected.



Once the files have been decided, the user is presented with the options for publishing location and user credentials much like those used in the past. Finally the user will reach the publishing screen which has

been divided into two stages: processing and publishing, each on their own tab. Once published users still have the option to select HTM files to open in the Internet Explorer. For this the user should be placing the files (based on the Location screen) in the following directory: [C:\Program Files\ICONICS\GENESIS64\WebSites\PubDisplay](#) (if the user is utilizing the default settings for localhost).

The second main feature of Bulk Publishing allows files to be published in a reduced number of clicks by selecting the publish button at the bottom right corner of the dialog during the Wizard process. The button is enabled from the second screen the user is presented with and then throughout the process afterwards. It uses the previous settings to publish the display and if no credentials or location was saved with the previous publishing settings, the publishing processes stops at the appropriate step and allows the user to enter them. Once this is run through once the subsequent paths will be much quicker even reducing it to a single click once inside the user interface.

Camera Control

Description

A number of updates have been made to the Camera Control to allow for better Pan, Tilt and Zoom (PTZ) control and better stability. Audio and Motion Detection have also been tested to trigger alarms.

Benefits

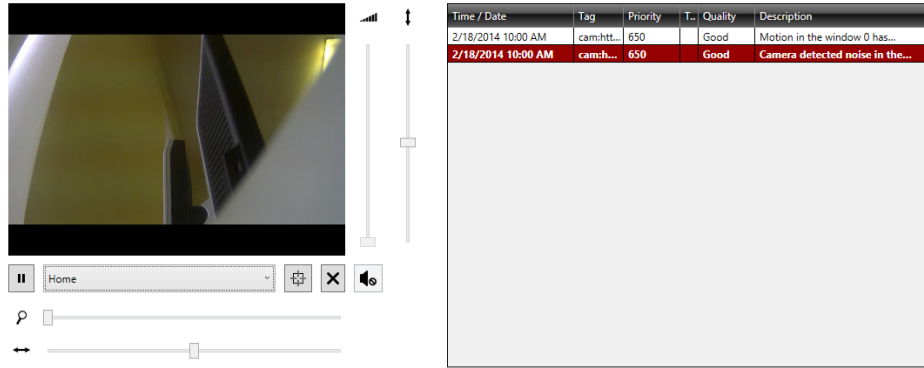
Improving PTZ functionality was a key element preventing some users from utilizing the full potential of cameras to augment HMI displays. This update will allow more remote control in the GraphWorX64 interface and ensure better functionality with newer operating systems like Windows 8.1.

Use

Many cameras have the ability to save PTZ Presets that dictate the coordinates the camera needs to point in a certain direction. It's now possible to create and delete these presets through the Camera Control. This will allow users to navigate to a certain view and save for later use. Presets are saved on each camera.

Security cameras can sometimes appear upside down or mirrored, but with new functionality users have the ability to flip the picture horizontally and vertically as well as compensate for the flip in the PTZ controls. `FlipImageHorizontally` and `FlipImageVertically` have been added to the Properties of the Camera Control for this purpose. Pan and Tilt controls can also be flipped using the `FlipPan` and `FlipTilt` Properties to allow for easier operator interaction for feeds that are always flipped.

The new functionality for Motion and Audio Detection will allow alarms to be triggered based on movement or noise above normal levels. Tested extensively on an Axis M5014 (for Motion and Audio) and the Planet ICA-HM126 (for Motion) the Open Network Video Interface Forum (ONVIF) standard is used to create Event Subscriptions for motion and noise. Other cameras using the ONVIF standard and supporting these subscriptions should function, but need thorough testing before reliable use. The interface and camera alarms are shown in an example below.



File Permissions

Description

In order to allow tighter security for configuration there are now new permissions allowed for GraphWorX64 display configuration. Global Security Settings will provide behavioral compatibility with pre-v10.85 versions.

Benefits

Allowing very specific control over what is and what is not allowed for configuration will create a more secure application and development environment.

Use

There are a number of different use cases to consider, but to summarize the following changes and results are listed below.

- Loading a display while in Runtime Mode
 - Main GraphWorX Window
 - No Read, Modify or Create: Custom File Access Denied Screen
 - Read, No Modify: Display Loads, Configuration Mode Disabled
 - Read and Modify: Display Loads, Configuration Mode Enabled
 - Embedded GraphWorX Viewer
 - No Read: Custom File Access Denied Screen
 - Read, No Modify: Display Loads
 - Read and Modify: Display Loads
- Loading a display while in Configuration Mode
 - Main GraphWorX Window
 - No Read, Modify or Create: Security Denied, New File, Security Message
 - Read, No Modify: Security Denied, New File
 - Read and Modify: Display Loaded
 - No Create: Can Only Save to Existing Filename
 - Create: Can Save to any Filename
 - Embedded GraphWorX Viewer
 - No Read: Gray Screen with "File Access Denied"
 - Read, No Modify: Display Loads

- Read and Modify: Display Loads
- Permission Change while a display is already loaded in Runtime Mode
 - Main GraphWorX Window
 - Read to No Read: Custom File Access Denied Screen
 - No Read to Read: Previously Denied Display Reloaded
 - Read and Modify to Read, No Modify: Display Remains, Configuration Disabled
 - Read, No Modify to Read and Modify: Display Remains, Configuration Enabled
 - Embedded GraphWorX Viewer
 - Read to No Read: Custom File Access Denied Screen
 - No Read to Read: Previously Denied Display Reloaded
 - Read and Modify to Read, No Modify: Display Remains
 - Read, No Modify to Read and Modify: Display Remains
- Permission Change while a display is already loaded in Configuration Mode
 - Main GraphWorX Window
 - Read to No Read: Security Denied Message, New File, Security Message
 - User is prompted to save changes if permission allows
 - Only happens if connection to Security is still valid
 - No Read to Read: No Action
 - Read, Modify, Create to Read: Display Remains, Saving Disabled, Message
 - Read to Read, Modify, Create: Display Remains, Saving Enabled
 - Read, Modify, Create to Read, Create: Display Remains
 - Saving Disabled for Existing Files (Modify)
 - Saving Enabled for New Files (Create)
 - Read, Create to Read, Modify, Create: Display Remains, Saving Enabled
 - Read, Modify, Create to Read, Modify: Display Remains
 - Saving Enabled for Existing Files (Modify)
 - Saving Disabled for New Files (Create)
 - Read, Modify to Read, Modify, Create: Display Remains, Save Enabled.
 - Embedded GraphWorX Viewer
 - Read to No Read: Gray Screen with “File Access Denied”
 - No Read to Read: Previously Denied Display Reloaded
 - Read and Modify to Read, No Modify: No Action
 - Read, No Modify to Read and Modify: No Action

Kinect

Description

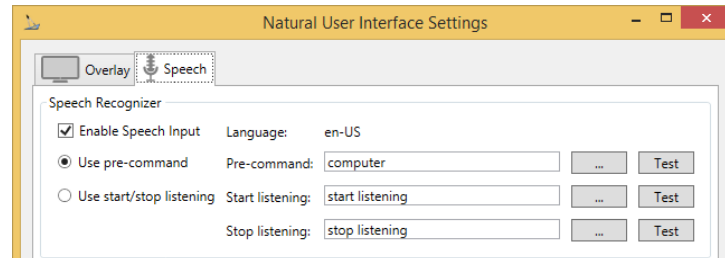
Updates to the Kinect interface for use with 10.85 include Windows 8.1 Compatibility, a new configurator, speed improvements and speech recognition updates.

Benefits

Support for both Kinect versions has been added for better usability. Configuration and performance have been updated to allow for better responsiveness and improved operation.

Use

From the custom installation the Kinect SDK can be added to any GENESIS64 installation. Once installed Kinect related options will appear in the Ribbon Menu for GraphWorX64. New configuration forms and updates to existing ones will allow for better use. A new ability to use Start and Stop Listening commands is available as an alternative to pre-commands for Voice Recognition.



Popup Windows

Description

Popup Windows now allow finer control on where they appear in relation to the user object selection or mouse location.

Benefits

For good user interface design popups can be a vital tool to help guide the user to more details or control, but not clutter the original display. Better control of where popup windows appear will allow users to design more natural interfaces for user guidance.

Use

The available options and outcomes are listed below for reference.

- **Manual:** Window is positioned at explicitly specified Top/Left coordinates.
- **Center Screen:** Window is positioned centered on the screen.
- **Center Owner Window:** Window is positioned centered to the parent window that opened this window.
- **Below Object:**
 - *Align Left:* Window is positioned below the object that opened the window (with the left edge of the window horizontally aligned to the left side of the object).
 - *Align Center:* Window is positioned below the object that opened the window (with the window horizontally centered to the object).
 - *Align Right:* Window is positioned below the object that opened the window (with the right edge of the window horizontally aligned to the right side of the object).
- **Right of Object:**
 - *Align Top:* Window is positioned to the right of the object that opened the window (with the top edge of the window vertically aligned to the top of the object).
 - *Align Center:* Window is positioned to the right of the object that opened the window (with the window vertically centered to the object).
 - *Align Bottom:* Window is positioned to the right of the object that opened the window (with the bottom edge of the window vertically aligned to the bottom of the object).
- **Above Object:**
 - *Align Left:* Window is positioned above the object that opened the window (with the left edge of the window horizontally aligned to the left side of the object).

- *Align Center*: Window is positioned above the object that opened the window (with the window horizontally centered to the object).
- *Align Right*: Window is positioned above the object that opened the window (with the right edge of the window horizontally aligned to the right side of the object).
- **Left of Object:**
 - *Align Top*: Window is positioned to the left of the object that opened the window (with the top edge of the window vertically aligned to the top of the object).
 - *Align Center*: Window is positioned to the left of the object that opened the window (with the window vertically centered to the object).
 - *Align Bottom*: Window is positioned to the left of the object that opened the window (with the bottom edge of the window vertically aligned to the bottom of the object).
- **Center Object**: Window is centered over the object that opened the window.
- **Mouse Point:**
 - *Left, Top*: Window's Left/Top is positioned at the current mouse pointer location.
 - *Left, Center*: Window's Left/Vertical-Center is positioned at the current mouse pointer location.
 - *Left, Bottom*: Window's Left/Bottom is positioned at the current mouse pointer location.
 - *Right, Top*: Window's Right/Top is positioned at the current mouse pointer location.
 - *Right, Center*: Window's Right/Vertical-Center is positioned at the current mouse pointer location.
 - *Right, Bottom*: Window's Right/Bottom is positioned at the current mouse pointer location.
 - *Center, Top*: Window's Horizontal-Center/Top is positioned at the current mouse pointer location.
 - *Center*: Window is centered over the current mouse pointer location.
 - *Center, Bottom*: Window's Horizontal-Center/Bottom is positioned at the current mouse pointer location.

GridWorX

Viewer Control

Description

A new integration allows the GridWorX Control to be fully consistent between technologies and add a number of new features including: reporting, printing, grouping, sorting and row blinking. A new OPC Details Grid will allow the use of a grid for OPC tags, placing tags in rows and details for that tag within the columns in the grid.

Benefits

By aligning ICONICS GridWorX Controls to better suit all client types users won't have to worry that features they use on the desktop won't be available on web and mobile clients. New user options for displaying and manipulating data in Runtime will help operators parse data to find the information they need.

Use

While multiple updates can be found below, one of the most popular will be the updated use of OPC tags in GridWorX. OPC tags can now be shown as rows of data allowing the columns beside the tag to be populated with details like name, value, timestamp, quality, description and more. OPC tag arrays can be visualized in the same way with each new entry occupying a new row within the GridWorX Viewer. To utilize this new feature users just need to create a new *Tag Details* Subscription and add the desired tags.

Another change that allows for faster searching is the default behavior of the grouping has changed so that when grouped the GridWorX Viewer will collapse all groups to allow for quick discovery of the anticipated category. The behavior can be changed in the *Property Grid* by changing the binary property value of `AutoExpandGroups`.

Conditions have been enhanced within the GridWorX Viewer to allow users to configure rows to blink a chosen color and at a chosen rate. The conditions take advantage of shared functionality with the AlarmWorX64 Viewer.

It is also now possible to update multiple cells at once in the GridWorX Viewer. Multiple rows can be deleted at once and multiple Updates, Inserts and Deletes can be done at once and then the user can click on the *Apply* button on the toolbar or context menu of the viewer. To delete multiple rows the *Selection Mode* needs to be changed to “Multiple” or “Extended”. Once this is done clicking *Delete* will remove multiple rows.

Other self-explanatory features available in this version are:

- Printing Support – via GridWorX Viewer Runtime Menu
- Keypad Data Input – for insert and update operations
- Word Wrapping and Trimming – within GridWorX cells
- Virtual Fields – allow columns generated as the result of expressions
- Sorting Groups by Count – to enable sorting by the number of items in a group
- Quick Filtering – via funnel-shaped button on column headers

SPC Charting

Description

SPC Charting has been added to the GridWorX Viewer due to the nature of GridWorX to not be a time-based trend, but independent chart. The configuration has been simplified to allow three levels of configuration via Wizard for beginners, Configurator for semi-advanced users and the Property Grid for advanced users looking for a simple grid based list of properties. SPC Charts will be limited to WPF and Silverlight implementations.

Benefits

The GridWorX Viewer implementation will help simplify the process of SPC configuration as well as limit the amount of Viewers that need configuration. Using the shared control will also allow for a higher level of integration with database or OPC data.

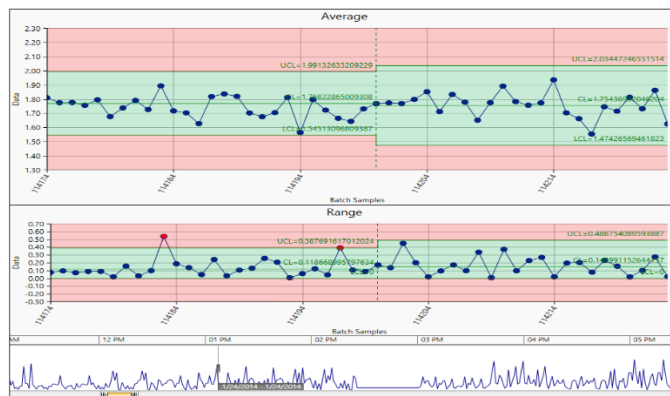
Use

Within the GridWorX Viewer Control users can add an SPC Chart through the Wizard by right-clicking the Tab and choosing the Add SPC Chart (Wizard) option. The wizard automatically sets titles for Average and Range charts, similar properties and connects charts to the History Overview for navigation. The Wizard includes steps for common options (e.g., tag and chart types), timings (e.g., time limits and data logging) and layout settings (e.g., colors and line thickness).

Tabs for configuration include the *Chart and Axis* tab where users can configure ranges, grid lines, tick marks, labels and visibility. The *Series* tab is configuration for data sources, control limits, specification limits, timings, markers, areas and colors.

The Property Grid includes both basic and advanced properties, but allows full color customization, message customization and allows placeholders in the cursor to show dynamic data (e.g., timestamps or alarms).

Below you'll find an example of what a SPC Chart in the GridWorX Viewer could look like, but as noted above there is a high level of customization that can be achieved.



Hyper Historian

Hyper to Hyper Technology for Data Merging

Description

Hyper to Hyper technology is a powerful new feature that enables users to aggregate and merge data from any plant historian server. Hyper Historian servers can now exchange data hierarchically with other Hyper Historian servers or with third-party historians as well. Trigger these data exchanges on a schedule or manually on demand, regardless of whether the server is located on premise or in the cloud. This enables remote access to the most critical information with maximum flexibility and control. Hyper Historian will see improvements to the Hyper to Hyper connections, allowing for tiered approaches to data.

Benefits

Allowing for merging of data between Hyper Historian instances enables large geographically separated offices to merge data to a single source or utilize Microsoft Azure to aggregate data for web dashboards, while keeping local control.

Use

Through OPC UA, OPC HDA and ICONICS Point Managers, any plant historian can now communicate data through the Platform Services FrameWorX Server into Hyper Historian. The process is modular and can

be broken up into parts which enables cloud integration and geographically separated systems. For non-Hyper Historian servers manual triggers are supported for synchronization, but for Hyper Historian more complex triggers exist. Enhanced data synchronization is also permitted when dealing with a Hyper to Hyper merge. Detection of changes can be run after synchronization as well to ensure data quality.

The basic data flow will be comprised of a source (any plant historian) using OPC UA, OPC HDA or Point Manager based communication to send information to the Platform Services FrameWorX Server to deliver data to Hyper Historian. Hyper Historian will employ a data synchronization module that will interact with Event Triggers (used to execute synchronization) and a Hyper Historian Logger Plugin dispatcher that will use information on when the last information was read. The enhanced synchronization will support the possibility to detect changes done after the last synchronization. This will be supported only in the Hyper Historian to Hyper Historian case, but not with synchronization from 3rd party historian servers (which will be done manually).

Hyper Historian for Azure

Description

Hyper Historian for Azure provides the ability to collect data from any device and securely stream it to the cloud for long-term storage and analysis. Hyper Historian's Cloud Collector serves as the on premise appliance to store and forward data from the plant floor to a public or private cloud.

Benefits

This feature reduces IT costs with simple setup and minimal maintenance requirements, allowing customers to infinitely grow their application based on the changing needs of their business. Customers can now leverage Microsoft's public, private, or hybrid cloud infrastructure to increase collaboration and efficiency without compromising security.

Use

To configure Hyper Historian to run on Microsoft Azure users will need to go to the "Advanced" tab in the Platform Services configuration and "Enable Reporting to Server(s) in Azure or DMZ." Using the Server URL or NET.TCP format of the URL to continue the configuration on the server by setting up the standalone collector. In the collector settings the Protocol should be set to "Use Local FrameWorX Server as Mediator." Then the Hyper Historian Collector can be started. On the Azure Virtual Machine the Azure Portal needs a specified Endpoint for HTTP Port 80 (9778 for NET.TCP). Once tags have been entered and the Logger has been started Hyper Historian will log data to Azure. For more information view the **Running Hyper Historian in the Cloud** Help topic.

Installation

Silent Installation

Description

Users can now provide a file with domain, user and SQL information at the beginning of the installation to allow it to run in the background.

Benefits

Users no longer have to be in front of the computer to make sure the installation continues and configures. This should speed up Virtual Machine installations as well due to the lack of oversight needed for the installation to complete.

MobileHMI

AppHub Upgrades

Description

A number of additions to the AppHub will allow users to access QR Code functionality in HTML5 (but will require an updated App from the various stores), enhanced Asset Navigator functionality and create hierarchical layouts.

Benefits

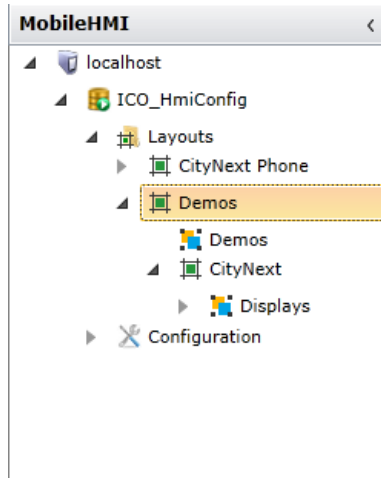
With the two main technologies behind MobileHMI coming closer together in the feature set, customers benefit from easier setup and faster duplication to multiple devices with features previously limited to desktop or computer-based web displays.

Use

Support for Quick Response Codes (QR Codes) has been added to the HTML AppHub to allow users to link directly to GraphWorX64 or MobileHMI displays.

The Asset Navigator has been added as a control supported by the HTML5 implementation of MobileHMI. There are no specific differences with the current implementation within MobileHMI. The configuration can be achieved in Workbench-SL through the AssetWorX provider.

It is now possible in MobileHMI to configure tiles to open pages of groups and tiles (sub-layouts). This allows for a hierarchical navigation structure unavailable in the past. Complex projects with many displays can now benefit from a better organization. Each layout can now have a number of sub-layouts, configured as children, and utilize a new command type that allows user to navigate between layouts.



HTML5 EarthWorX

Description

EarthWorX is now available in MobileHMI displays intended for use on iOS and Android devices.

Benefits

While previous iterations would simply submit a placeholder into HTML5-based displays, use of EarthWorX is now extended to more devices.

Use

EarthWorX can be used normally in GDFXP displays, but users will see that in 10.85 EarthWorX Viewer Controls are now responsive and complete in the HTML5 implementation of MobileHMI where previously only Windows users were able to access EarthWorX via MobileHMI.

Platform Services

BACnet

Description

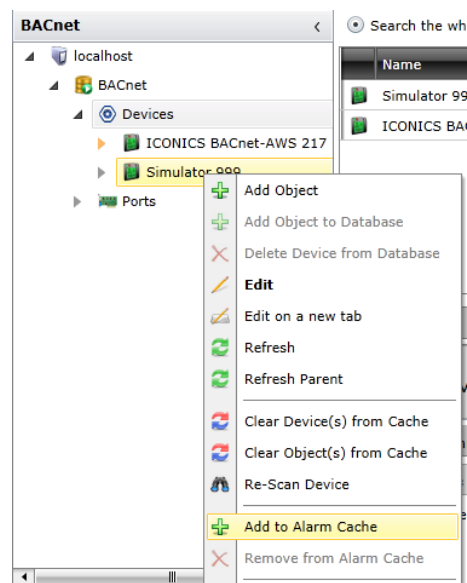
Many BACnet updates have been included in 10.85 to allow for greater customization and use of BACnet points. Additions like BACnet Alarming (through Alarm Cache and persistence of subscriptions) and Automatic Time synchronization are major, while improvements to network and device discovery will allow for smoother operation.

Benefits

Numerous features for new and old BACnet users alike allow for greater integration of BACnet data, easier configuration and enhanced quality for OPC DA and OPC UA DA data.

Use

BACnet Alarming has been added to the Platform Services. Consisting of a number of new features, BACnet Alarming uses persistent subscriptions which allow users to subscribe to notifications classes even when no client is connected. This allows users to the display current state of alarms with all information necessary when the client connects. When users scan for a device they now have the option to add or remove it to or from the BACnet Alarm Cache which is depicted in the figure below (the default is user-defined, but can also be set to add devices to the BACnet Alarm Cache upon discovery).



The BACnet Alarm Cache Client Configuration consists of the user subscribing to either the BACnet root, device or to a specific notification class. The BACnet Alarm Cache Runtime will subscribe to all notification classes in devices added to the cache and unsubscribed when devices are removed. Auto-discovery of notification classes that reside in the BACnet Address Space is implemented to make this easier.

Automatic Time Synchronization is now available. Previously this action was a manual operation triggered from Workbench-SL. There is a new section of the Device Settings form in Workbench-SL that contain configuration options. Users can enable and disable the feature, change the time interval, set UTC or local time and list recipients. Adding recipients can be done via selecting the type, instance (and object type – device), network number and MAC address.

Support has been added for users to add multiple foreign devices with the same network adapter or port. Foreign devices such as BACnet Broadcast Management Devices (BBMDs) can be added into the BACnet Configuration using the same NIC.

BACnet Trends and history events are now read using asynchronous communication to avoid issues when BACnet devices are offline or inaccessible due to a timeout error. The asynchronous read prevents problems with offline devices and has no impact on other communications.

Cloud Connector for Windows Azure

Description

The Cloud Connector for Windows Azure now supports secure connection via the HTTPS protocol.

Benefits

Users will benefit from tighter security for cloud deployments to secure intellectual property, data and ICONICS content.

Use

Because it can be complicated to enable or disable HTTP or HTTPS, both protocols are always supported, even if the developer does not plan to use them.

HTTPS requires a certificate to be installed in the Azure service prior to installing Cloud Connector for Windows Azure or the service will reject the installation package. If you need to create a new Azure service, it is a good idea to do so before creating the certificate, because the URL in the certificate must match the URL of the Azure service and the URL you want may not be available.

The following steps are a high level overview of how to setup HTTPS communications with a certificate.

1. Create Azure Service – Using the Azure Management Portal the user will need to specify a URL which is necessary to create a self-signed certificate.
2. Get a Certificate – The certificate subject name must match the URL of your Cloud Connector for Windows Azure. Certificates can be gained from a certification authority that references a customer domain (*.cloudapp.net will not be accepted). For testing purposes a self-signed certificate can be created.
 - a. Run `C:\Program Files\ICONICS\GENESIS64\InstCert>makecert -n "CN=icocloudconnector.cloudapp.net" -sr LocalMachine -ss My -r -sky exchange -pe -sk MarkContainerName`
 - b. This will generate a certificate in the Local Machine\Personal store
3. Export Certificate - Using the Microsoft Management Console to access the new certificate (under Console Root > Certificates > Personal > Certificates)
 - a. Export with a Private Key to a PFX File with a password.
4. Upload Certificate to Azure – Before uploading the installation package update use the Certificates menu to upload the certificate exported to the PFX file.
5. Modify .CSCFG and Upload – Modify the certificate thumbprint in the .CSCFG file to match the thumbprint of your certificate (should be long alphanumeric code with no spaces and all uppercase). Once the modification is done, upload the installation package and the .CSCFG file to Azure.

Upload a package.

This will create a new **production** deployment.

DEPLOYMENT LABEL

CloudConnector

PACKAGE

FwxServerCloudApp.cspkg FROM LOCAL FROM STORAGE

CONFIGURATION

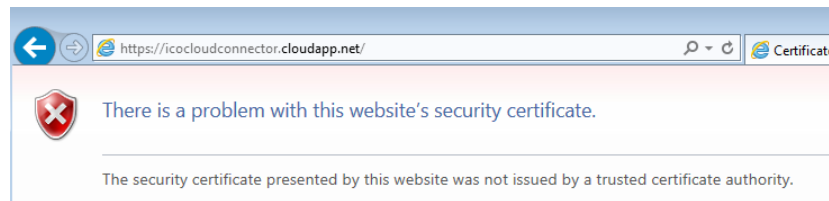
ServiceConfiguration.Cloud.cscfg FROM LOCAL FROM STORAGE

☐ Deploy even if one or more roles contain a single instance. ?

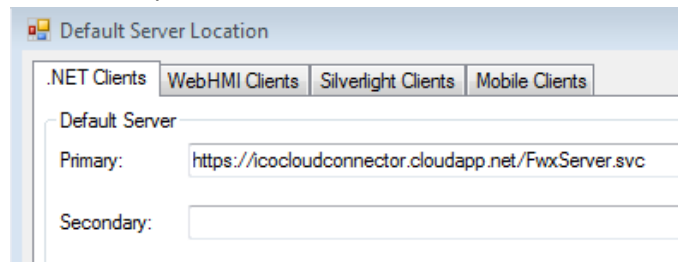
☒ Start deployment

6. Test – With a certificate issued by a Certification Authority the process is complete. With a self-signed certificate the following steps must be taken.

- Connect to the Azure service via HTTPS with Internet Explorer. There will be a warning because the certificate is self-signed (thus it is not trusted), but continue.



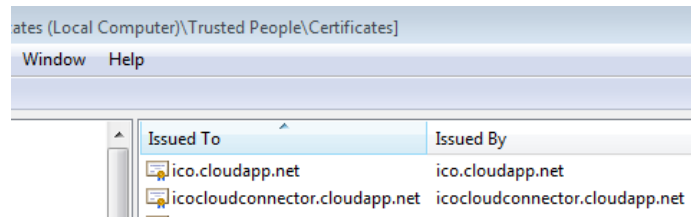
- Set the Cloud Connector as your Default FWX Server:



- When attempting to start GraphWorX64, the system will not connect to Cloud Connector at first because the (self-signed) certificate is not trusted. This will be indicated by the following error messages in the TraceWorX log:

72	Error	SecurityNegotiationException : Could not establish trust relationship for the SSL/TLS secure channel with authority 'icocloudconn...
75	Error	WebException : The underlying connection was closed: Could not establish trust relationship for the SSL/TLS secure channel. -..
78	Error	AuthenticationException : The remote certificate is invalid according to the validation procedure.

- To enable trust, put the **public key** of the certificate into Trusted People store. To get public key, export it from the certificate in Personal store into a .CER file (with All Tasks – Export..., use the default settings). Then import the public key into the Trusted People store (with All Tasks – Import)



- Note that the certificate imported into Trusted People does not have the little key on its icon. This indicates the certification does not contain private key.

Expressions

Description

As part of a phased approach to introducing new expressions to the central expression engine a number of Date/Time Expressions have been added.

Benefits

For greater control of time and date functions in expressions, the list below would allow many users to manipulate tags beyond current control.

Use

The following is a list of functions and parameters that can be used to enhance or alter dates and times within ICONICS products.

- Daily Functions
 - **today()**
 - Returns the current day with the time portion set to 12:00:00AM
 - **noon(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns the specified DateTime with the time portion set to 12:00:00PM
 - **yday()**
 - Returns date for the preceding day with the time portion set to 12:00:00AM
 - **mintime()**
 - Gets the smallest possible value for a DateTime
 - **maxtime()**
 - Gets the smallest possible value for a DateTime
 - **isdst(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns true when the given DateTime is within the Daylight Saving Time range for the current time zone. Returns false when the given DateTime is in UTC time (true if Daylight Saving Time, false otherwise).
- Converting UTC and Local Timestamps
 - **toutc(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)

- Description: Returns value in UTC time provided a local time.
 - **tolocal(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns value in local time provided a UTC time.
- Returning a Numerical Value for Day, Week, Month or Year
 - **weekday(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical value from 0-6 (0:Sunday, 1:Monday, 2:Tuesday, 3:Wednesday, 4:Thursday, 5:Friday, 6:Saturday).
 - **day(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical value from 1-31 based on the month.
 - **yearday(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical value from 1-366 based on the year.
 - **month(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical value from 1-12 based on the month.
 - **year(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical, 4-digit value based on the year up to 9999.
 - **hour(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical value from 0-23 based on the hour.
 - **minute(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical value from 0-59 based on the minute.
 - **second(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical value from 0-59 based on the second.
 - **dayseconds(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical value from 0-86399 based on the second within the scope of an entire day.
 - **millisecond(DateTime)**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns a numerical value from 0-999 based on the millisecond.
- Return Relative Day of a Period
 - **bday(DateTime) – Beginning of Day**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns the specified DateTime with the time set to 12:00:00 AM
 - **bweek(DateTime) – Beginning of Week**
 - Parameter: DateTime (default time value set against 12 hour clock)

- Description: Returns the first day of the week with the time portion set to 12:00:00 AM. The first day of the week is defined as Sunday. To get Monday as the first day of the week use: bweek(dateTime) + fromdays(1).
- **bmonth(DateTime) – Beginning of Month**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns the specified DateTime with the time set to 12:00:00 AM
- **byear(DateTime) – Beginning of Year**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns the first day of the year with the time portion set to 12:00:00 AM.
- **ewweek(DateTime) – End of Week**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns the last day of the week (Saturday) with the time portion set to 12:00:00 AM.
- **emonth(DateTime) – End of Month**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns the last day of the month with the time portion set to 12:00:00 AM.
- **eyear(DateTime) – End of Year**
 - Parameter: DateTime (default time value set against 12 hour clock)
 - Description: Returns the last day of the year with the time portion set to 12:00:00 AM.

SNMP v3

Description

SNMP support has been extended to Version 3. ICONICS now supports all SNMP versions (1, 2 and 3).

Benefits

Providing new security features and a wider support for devices, supporting SNMP v3 allows ICONICS to connect to all SNMP-enabled devices.

Project Reporting

Reporting Services Configuration

Description

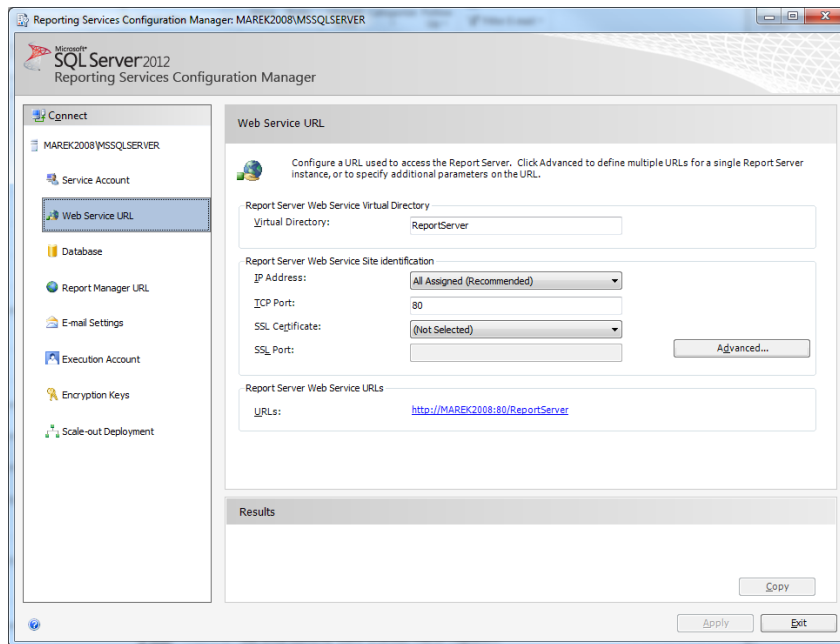
Users are required to configure Reporting Services within SQL Server. The following steps will help you do so.

Use

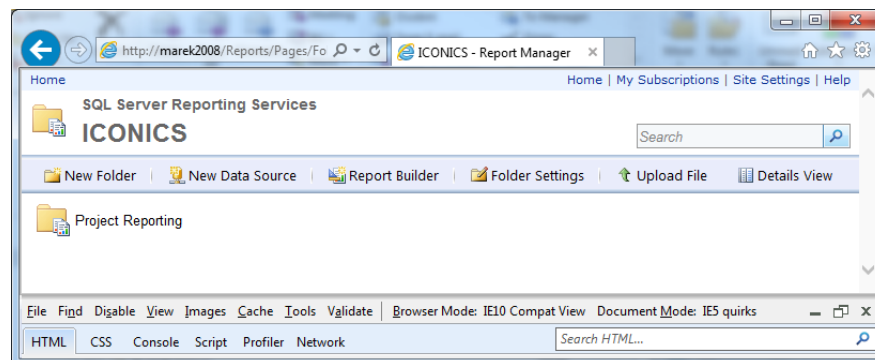
1. The installation will install Reporting Services for the user. If SQL was pre-installed users can search the Computer or Start Menu for *Reporting Services Configuration Manager* (SQL Server

2008, 2008 R2, 2012) or *SQL Server 2014 Reporting Services Configuration Manager* (SQL Server 2014) to see if Reporting Services is installed. If not, please install using the SQL Server Installation.

2. Run the *(SQL Server 2014) Reporting Services Configuration Manager*
3. On the *Web Service URL Tab* make a Virtual Directory called “ReportServer” and click apply (even if the text is already visible).

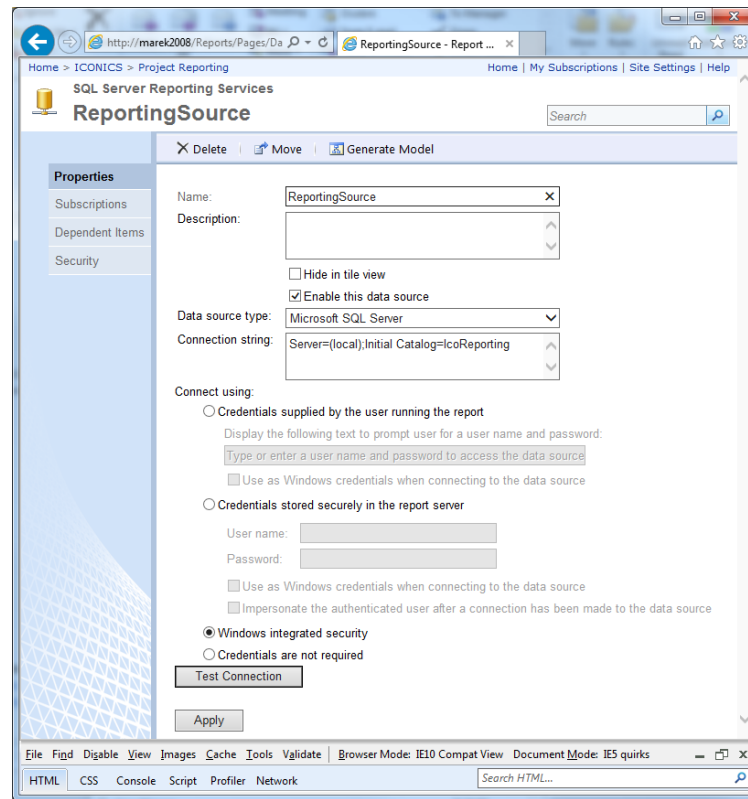


4. On the *Database Tab* click on “Change Database” and create a database for Reporting Services.
5. On the *Report Manager URL Tab* make a Virtual Directory called “Reports” and click apply (even if the text is already visible).
6. Select the URL underneath the Virtual Directory field to open the *Report Manager*.
7. Once in the *Report Manager* Create a New Folder called **ICONICS**, open it and create a sub-folder called “Project Reporting”



8. Create a new Data Source called “ReportingSource”
 - a. Note: from here you can launch the *Report Builder* which will open the RDL file editor. Users are able to modify **ICONICS** reports or create new ones. By default Reports are located in *ProgramData\ICONICS\Reporting*.

9. Set up the Data Source to point to the “IcoReporting” Database.



10. Reporting Services is now configured! Open Workbench-SL to try out the feature.

Project Reporting Use and Configuration

Description

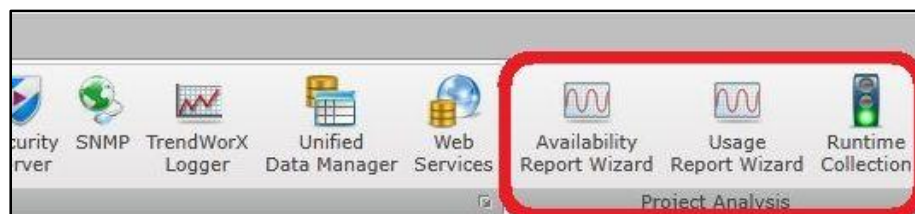
Project Reporting is a new development tool that will enable data source analysis and reporting for applications.

Benefits

The tool will allow users to detect what points are being used in their project, helping identify good and bad quality data.

Use

Reporting tools are located in Workbench-SL in the Project Analysis part of the Projects menu in the ribbon bar:



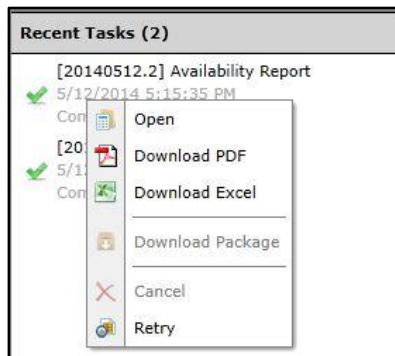
There are three types of available reports, each with a different goal listed below.

- The **Availability Report** searches across all selected providers and collects tags and tag properties of each available item that is exposed in the server or point manager address space.
- **Usage Reports** work similar to input collectors and parsers for all available objects. This means it will parse and describe all input strings, numbers and tags used in every item in the currently active configuration of the particular provider including expressions and global aliases.
- **Runtime Collection** is a feature for monitoring the newly subscribed tags, collecting their available information (point name, point URL, which application uses this tag, name of the server that hosts the application, object name, usage, file name and application name) putting them to appropriate database and finally generate a user friendly report.

Note: Before beginning, please make sure all prerequisites (e.g., SQL Reporting Services – see section above) are installed and sufficient SQL server access rights are assigned to the user who is going to utilize Project Reporting.

Availability Reports

1. In Workbench-SL start the “Availability Report Wizard” - read the initial screen and click Next
2. In the General Settings dialog you can
 - a. Delay the reporting task and check if the task should occur every day
 - b. Select the desired report from the predefined report templates
 - c. Check the data validation
3. In the next dialog you can select from which providers the report should be generated (only the currently active configurations will be used for data collection). Click Finish when done.
4. Now the availability report will begin processing and its current status is displayed in the Recent Tasks panel on the right side of Workbench-SL.



5. When completed you can right-click on the report and select if you want to
 - Open it in Workbench-SL directly
 - Download the report in PDF format
 - Download in Excel format
 - Retry/Rerun the report

Usage Reports

1. In Workbench-SL start the “Usage Report Wizard”, read the initial screen and click Next
2. In the General Settings dialog you can

- a. Delay the reporting task and check if the task should occur every day
 - b. Check if generating a report is desirable at the end of this task
 - i. If so, the report template must be selected from the drop-down list
3. The next dialog enables/disables the configuration databases scanning for the selected providers. Click next when done.
4. In following dialog you can enable/disable a feature for scanning running displays and collecting all the used tags from them. Click next when done.
5. Last dialog configures the validation of collected tags. Here you can
 - a. Define the “Tags count in a batch” and “Timeout” for validation
 - b. Enable/Disable possibility to exported the validation results to a separate file
 - c. Decide whether to include (or not) validation results to the generated report
6. Click finish to complete this section.
6. Now the availability report starts being processed and its current status is displayed in the Recent Tasks panel on the right side of Workbench-SL
7. When completed you can right-click on the report and select one of the actions described above

Runtime Collection

In Workbench-SL start the “Runtime Collection” report traffic light which will start looking for the subscribed tags since the collections started. Note that the previously subscribed/resolved tags will not be collected until a re-subscription of those points occurs.

ReportWorX Express

Standalone Installation

Description

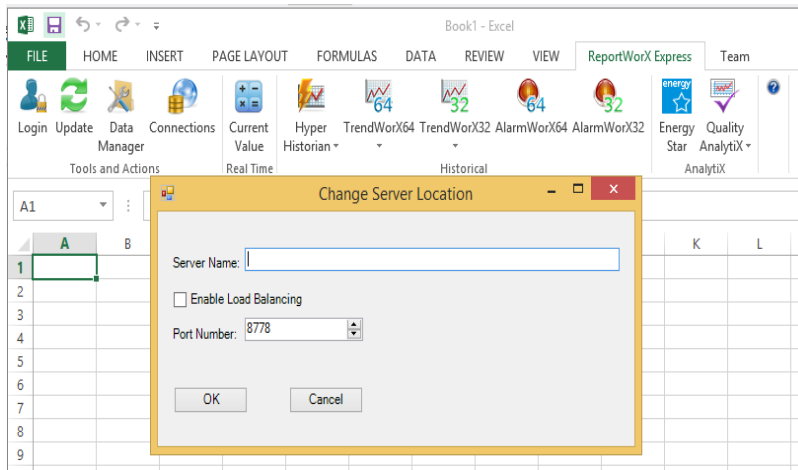
The ReportWorX Express standalone installation is a light weight install that is able to connect to remote and non-default FrameWorX Servers.

Benefits

Previously ReportWorX Express required a full install of one of the ICONICS products to run, but with the standalone installation users can now install ReportWorX Express on client machines and without the need for Microsoft SQL Server or Internet Information Services (IIS). By selecting a remote FrameWorX Server users are now freed from previous restrictions.

Use

In the case of the ReportWorX Express standalone installation users will have access to a new dialog via a new “Connections” button in the *Tools and Actions* section of the ReportWorX Express Ribbon Menu. The dialog will appear (similar to the figure below) to allow user input for Server Name, Load Balancing and Port Number.



Parameter Browser

Description

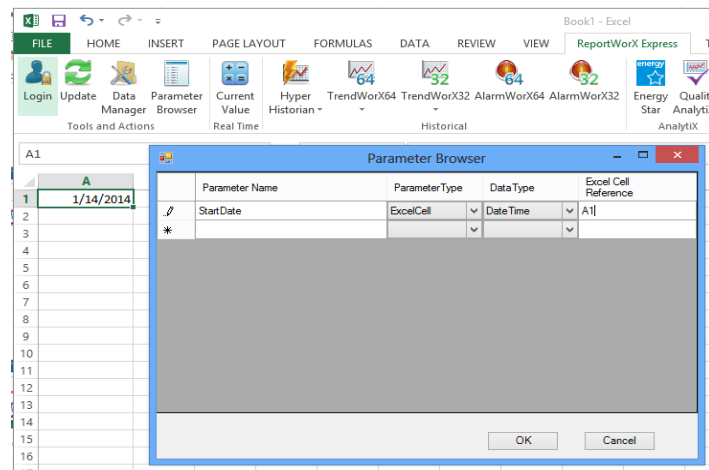
ReportWorX Express now allows the use of cell references as parameters.

Benefits

For first-time and power users of Microsoft Office Excel the use of other cells in simple or complex equations is widespread. ReportWorX Express now allows users to add depth to their reports by allowing them to specify Parameters as distinct references to specific cells within their worksheet. While uses are infinite some quick suggestions include the ability to aggregate totals, averages or even multi-parameter concatenations for use in reports.

Use

Users can access the Parameter Browser from the *Tools and Actions* section of the ReportWorX Express Ribbon Menu. A dialog will be presented for the user to name, categorize and reference the parameter to an Excel Cell (e.g., A1 as in the figure below).



For example, Parameters can also be used in Historical Aggregate Values by selecting the *Parameter* option for the **Start Date Type** and then specifying the desired Parameter (e.g., *Start Date* from the image below) for the **Start Date**.

Historical Aggregate Values

Please click on the Output Cell Range Button to select a range

Data Source Tag:

Output Cell Range:

Start Date Type:
Parameter

Start Date:
StartDate

Range Collision Detection

Description

ReportWorX Express will now detect data source overlap to help with report creation.

Benefits

To prevent mistakes in configuration the feature will alert users when their data sources will conflict. This feature will also help users to learn the user interface quicker by telling them when they are trying to create a report that won't operate well.

Use

The Range Collision Detection is a passive feature that does not require users to interact with it directly. A few notes on the use will indicate how the detection will function. The update will detect if two ranges for different data sources overlap and if they do prompt the user with a warning to accept the change they are trying to make or cancel it. For data sources without a fixed number of rows like Hyper Historian, TrendWorX64, TrendWorX32, AlarmWorX64, AlarmWorX32, Energy AnalytiX, and Quality AnalytiX, ReportWorX Express now detects if there are existing data sources below the selected range. If yes, the user is prompted with a warning to accept or cancel the changes. Finally, the top 3 rows are marked with comments to indicate that they are reserved for identification (e.g., Data Type, Tags).

ScheduleWorX

Workbench-SL Provider

Description

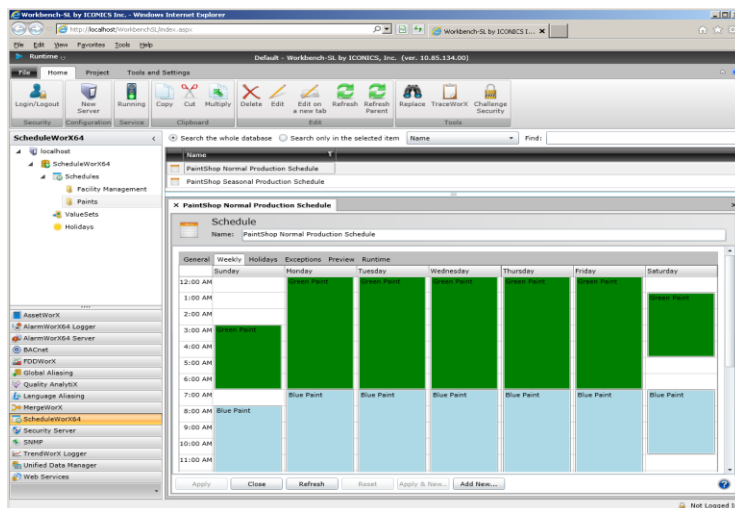
As part of a continuing effort to offer configuration of all providers in Workbench-SL, ScheduleWorX has been added to the list of available products.

Benefits

The addition of ScheduleWorX will allow users to remotely and centrally configure providers for GENESIS64 in one place.

Use

Workbench-SL can be opened via the Start Menu (Windows 7, all Windows Server OS) or by typing “Workbench-SL” (Windows 7/8/8.1) to launch the Workbench in the default Web browser. It’s also available by simply typing <http://<serverName>/WorkbenchSL/index.aspx> in a URL bar of a Web browser.



Configuration Tabs and Actions:

- General Tab
 - Enable or Disable Schedules
 - Set Scan Rates
 - Set Effective Periods for the Schedule
 - Assign the Value Set that is Controlled by the Schedule (and Default Value)
- Weekly Tab
 - Define Regular Weekly Events
- Holiday Tab
 - Define Holiday Date Handling
- Exceptions Tab
 - Assign One-time or Recurring Events
- Runtime Tab
 - View Schedule Status
 - Override Schedules (Temporary or Indefinite Overrides)
 - Clear an Override



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World Headquarters

100 Foxborough Blvd.
Foxborough, MA, USA, 02035
Tel: 508 543 8600
Email: us@iconics.com
Web: www.iconics.com

Czech Republic

Tel: 420 377 183 420
Email: czech@iconics.com

Italy

Tel: 39 010 46 0626
Email: italy@iconics.com

Germany

Tel: 49 2241 16 508 0
Email: germany@iconics.com

Netherlands

Tel: 31 252 228 588
Email: holland@iconics.com

France

Tel: 33 4 50 19 11 80
Email: france@iconics.com

UK

Tel: 44 1384 246 700
Email: uk@iconics.com

Australia

Tel: 61 2 9727 3411
Email: australia@iconics.com

China

Tel: 86 10 8494 2570
Email: china@iconics.com

India

Tel: 91 22 67291029
Email: india@iconics.com

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