EcoStruxure™
Geo SCADA Expert 2022

Software for Telemetry and Remote SCADA

Release Notes

May 2023 Update

Schneider Electric

Contents

Welcome

Welcome to EcoStruxure Geo SCADA Expert 2022.

Licenses

Licensed users upgrading to this release will require a new license file available from customer support. This is required for both server and client licenses.

Support

Please refer to this page for support information:

https://community.se.com/t5/Geo-SCADA-Knowledge-Base/Geo-SCADA-Expert-Support/ba-p/279117

Important Setup Advice

1. Please remember that if you are upgrading Geo SCADA Expert Server on the same PC as Virtual ViewX Server, you must **upgrade both before using them**. Similarly, if you uninstall Virtual ViewX Server you must also uninstall and reinstall Geo SCADA Expert Server for it to work successfully.
2. Geo SCADA Expert 2022 will **not install on Windows 10 Home**.

New Features

For further information on new features please consult the context-sensitive help (available via the F1 function key) and the Schneider Electric Exchange SCADA and Telemetry Knowledge Base website, available at:

https://community.se.com/t5/Geo-SCADA-Knowledge-Base/Resource-Center-Home/ba-p/279133

Device Protocol Support

MQTT Sparkplug B Driver

This addition to the suite of Geo SCADA Expert drivers is an extension to the MQTT driver for it to use Sparkplug B payloads and topics.

The driver supports the following item types:

- A new MQTT Broker that includes functionality specific to Sparkplug B
- A Group on which the name of the group within the namespace is configured
- Edge of Network (EoN) Node and Devices
- Analog, Digital, String and Time points

The functionality of the driver follows Geo SCADA Expert conventions and also shares functionality with the Proof-of-Concept Sparkplug driver available in DDK form on the Schneider Electric Exchange website. This includes the ability to retain the birth message from the device and then create points automatically from the metric details contained within the birth message. The operation of this differs in that there is a database method on both EoN Node and Devices named **Create Points from Birth Metrics**. Database groups will be created when metrics use the slash '/' character to create a hierarchy.

A property **BirthMetricsChanged** allows EoN Node and Devices to indicate whether the Birth Metrics have changed. The PropertySet property within Birth messages can be used to map Sparkplug metric properties into a Geo SCADA Expert point configuration property.

A Geo SCADA Expert system can start up after a device has established connections with the MQTT broker. Therefore, the MQTT Sparkplug B driver is able to send a Rebirth command to EoN Nodes at start-up. There is a configuration setting on the EoN Node item for this.

Birth message content is stored for each EoN Node and Device and is available with a Method call, allowing programs within Geo SCADA Expert and external to it to read and analyze the source configuration.

For more information about the driver, see the MQTT Sparkplug B Driver Guide in the help, specifically: 'Introduction to the MQTT Sparkplug B Driver', and the series of configuration topics.

SCADAPack Modbus Realflo Driver

The SCADAPack Modbus Realflo driver has been extended to support Realflo firmware version 7.10. This includes support for:

- 20 Flow Runs (using SCADAPack x70 devices)
- E + H Promass 300 support

SCADAPack x70 Driver

Context Menus and Queries

New context-sensitive menus and System Queries have been added to provide lists of database items that relate to SCADAPack x70 Configuration items.

The System Queries are:

- SCADAPack x70 Confguration Objects
- SCADAPack x70 Devices
- SCADAPack x70 DNP3 Remote Devices
- SCADAPack x70 I/O Modules
- SCADAPack x70 Modbus Point Scanners
- SCADAPack x70 Modbus Server Devices
- SCADAPack x70 Object Browsers

The context-sensitive menus have been linked to relevant item types. For example, a **Display Configuration Objects** pick action has been added to the SCADAPack x70 Device.

Terminology

We have made changes to terminology for this driver, using inclusive terms. For example, 'slave' is now 'server'. These changes affect database item descriptions such as in the **Create New** menu and Database Schema in the software. They also impact product documentation.

Schneider Electric is committed to replacing problematic language in our code, applications, and documentation. This is a large task and will be implemented over several releases. In this release we have changed the following terms for only the SCADAPack x70 driver.

- Modbus Master/Client is now Modbus Client.
- Modbus Slave/Server is now Modbus Server.
- Modbus master is now Modbus client.
- Modbus slave is now Modbus server.
- DNP3 slave or DNP3 slave station is now DNP3 outstation.
- DNP3 master or DNP3 master station is now DNP3 controlling station.
- HART master is now HART client.
- Master key is now Passphrase System Key (presently limited to the context of securing the configuration files used for DNP3 Secure Authentication).
- IP Whitelist is now IP Firewall.

- IEC 60870-5-104 Master is now Controlling Station.
- IEC 60870-5-104 Slave is now Controlled Station.
- DNP3 Device Profile file names "SCADAPack xxxx Master DNP3 Device Profile" are now "SCADAPack xxxx Client DNP3 Device Profile".
- DNP3 Device Profile file names "SCADAPack xxxx Slave DNP3 Device Profile" are now "SCADAPack xxxx Outstation DNP3 Device Profile".
- DNP3 Device Profile content referencing Master and Slave have been updated where possible. Some terms have been maintained for backward compatibility with XSLT files from the DNP3 Users Group.
- Folder paths for DNP3 device profiles now use Client and Outstation terminology.
- Folder path references in documentation for DNP3 device profiles now use Client and Outstation terminology.

Server Feature Changes

OPC UA Server

Geo SCADA Expert can now serve OPC UA data. It makes this available using an underlying technology from AVEVA named 'PCS'. The Geo SCADA Expert OPC UA server supports the "Data Access" specification (part 8).

The configuration for this feature is found in the Server Configuration tool. You can enable or disable the service, select the web port and choose to allow anonymous access.
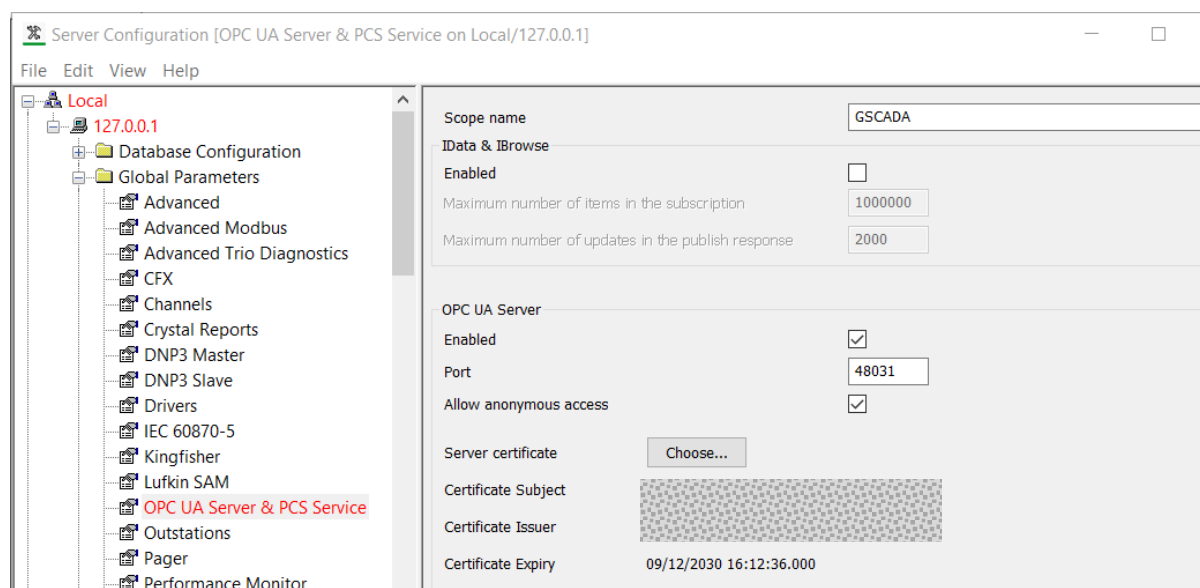
OPC UA Server Performance

The OPC UA Server may exhibit performance issues when a client rapidly requests many tag subscriptions within a short time. Improvements to this behavior will be made in future Geo SCADA Expert updates.

Client Feature Changes

## Virtual ViewX Server with Windows Server 2022 Support

Support for the Virtual ViewX component include Windows Server 2022.

There are changes to the configuration in the 'Broker' tab of the Virtual ViewX Manager. Please open the Manager and review the settings for your environment.

Full Virtual ViewX

This Geo SCADA Expert 2022 version contains a new Virtual ViewX feature. You can change the mode of operation of a Virtual ViewX Server and allow users to make configuration changes through their web clients. Of course, the user accounts must have permissions to do this.

This new setting is not enabled by default. Enable Full Virtual ViewX by removing the '/limited' command line option in the Virtual ViewX Manager application.
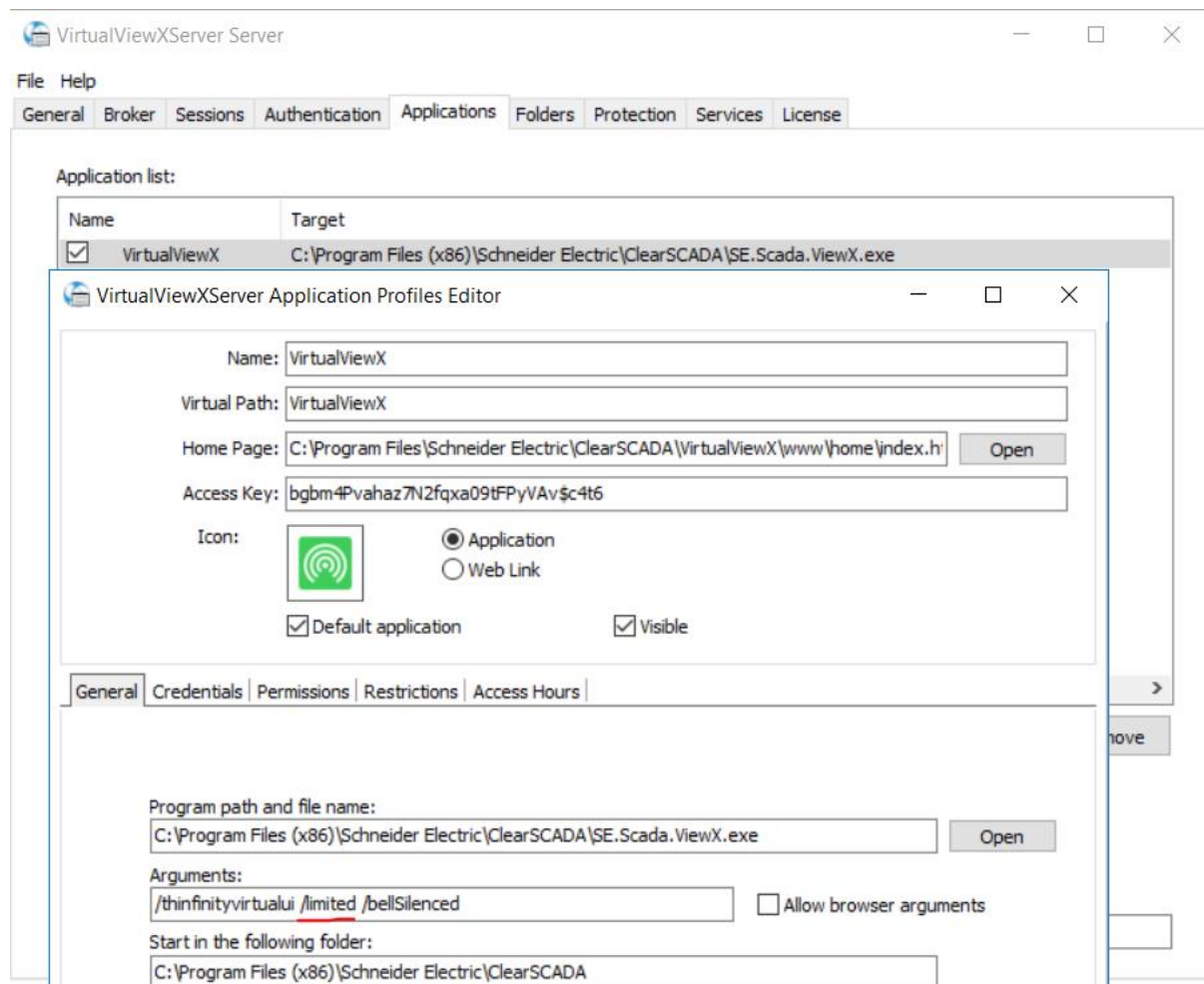
Find this by selecting the **Applications** tab and double-click to open the 'VirtualViewX' application setting. Remove the text '/limited' from the **Arguments** field.

Once you have done this, users logging in to Virtual ViewX on that server will have configuration capability, if they have the user permissions to do so.

Virtual ViewX File Operations

When a Virtual ViewX user accesses file operations (such as .sde configuration import and export), Virtual ViewX will prompt for file access through the web browser, allowing the operation to be completed.

Virtual ViewX Permission Restrictions

The **Permission Restrictions** section of the Server Configuration tool now includes separate restrictions for Virtual ViewX. The restrictions for Original WebX are now combined with those for Virtual ViewX in Operator mode (ViewX using the '/limited' command line option).

Events
Exclusive Control
External Authentication
File Access
File Upload
Location
Logging
Mobile
Partners
Permission Restrictions
Printing
Search Settings
Security
System Calls
System Status
Version Emulation
WebX
gistry

Virtual ViewX user denied permissions

Control	Annotate History	Configure
Override/Release	Modify History	
Acknowledge Alarms	Validate History	
View Alarms	Disable Points	
Remove Alarms	Disable Alarms	
Manual Redirection	Disable Controls	
✓ Unacknowledge Alarms	✓ Off/On Scan	
✓ Assign Alarm Responsibility	Switch Line	
Edit Notes	Diagnostics	
Retrieve Data	✓ Cancel Request	
Promote	Exclusive Control	
Tune Limits	Manage Excl. Ctrl	

WebX/Operator ViewX user denied permissions

Control	Annotate History	Configure
Override/Release	Modify History	
Acknowledge Alarms	Validate History	
View Alarms	Disable Points	
Remove Alarms	Disable Alarms	
Manual Redirection	Disable Controls	
Unacknowledge Alarms	Off/On Scan	
Assign Alarm Responsibility	Switch Line	
Edit Notes	Diagnostics	
Retrieve Data	Cancel Request	
Promote	Exclusive Control	
Tune Limits	Manage Excl. Ctrl	

User Account Access Type

A user's access type controls the interfaces that a user is able to use. The access type '**Web**' now includes access from Virtual ViewX as well as Original WebX.

Mapping Enhancements

ArcGIS Map Source Authentication

A **Map Source** of type 'ArcGIS' can be set up for retrieval from an authenticated source.

Enter the username and password into the Map Source form.

Display Polygon Regions as Map Set Layers

When a Region is defined as a GeoJSON polygon outline, it can be displayed as a layer on a Map Set. The Map Set now has a configuration field to link it to multiple Regions.
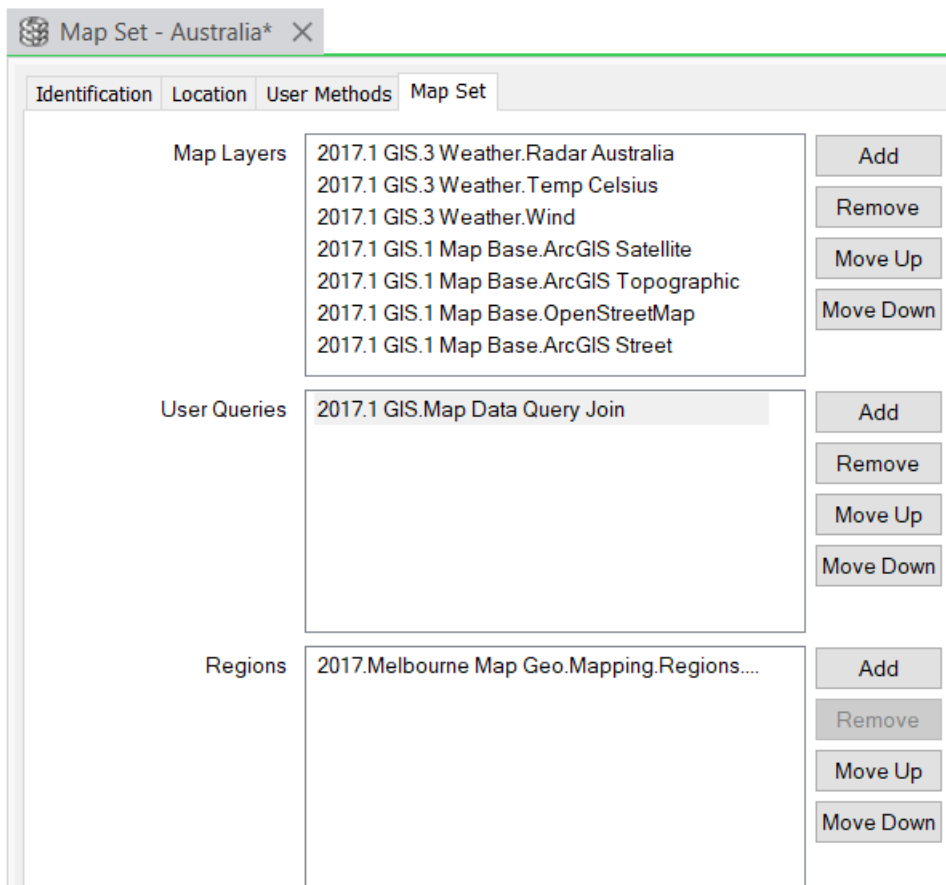
The Regions are displayed by default and can be deselected on the map's Layer menu, where they are listed alongside Map Layers.
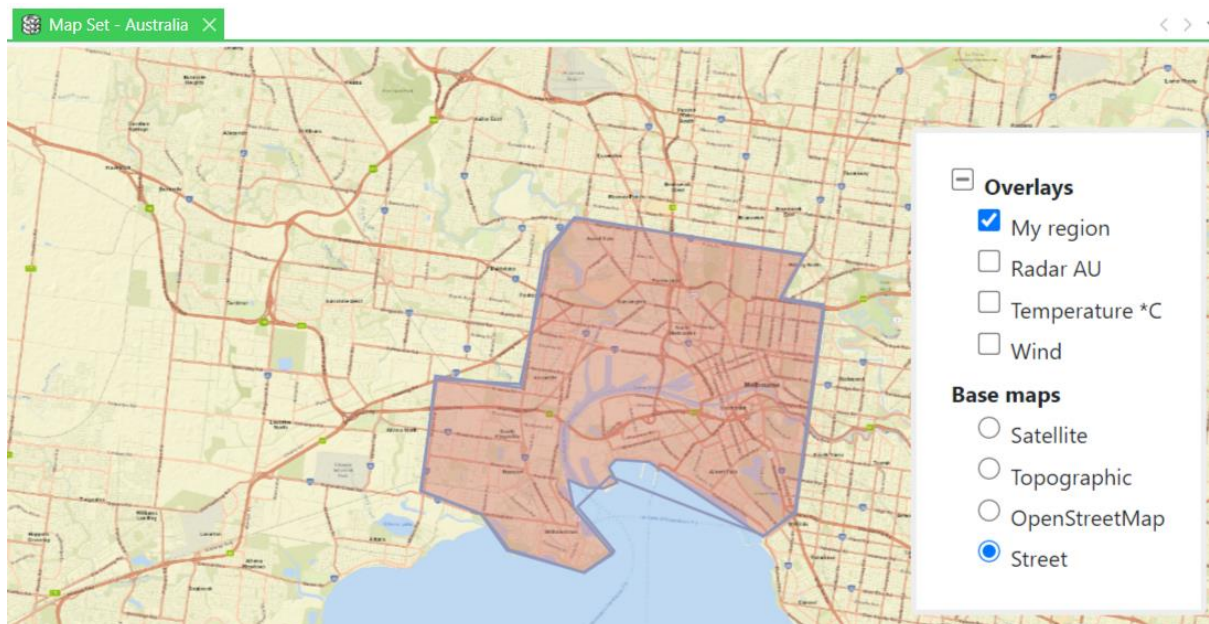
The line characteristics, fill color, fill opacity and layer name that appears in the Layer menu can be configured in the GeoJSON properties of the Region. Here is an example showing the header of the GeoJSON property:

```
{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "properties": {
        "stroke": "#9297b9",
        "stroke-width": 2,
        "stroke-opacity": 1,
        "fill": "#d07171",
        "fill-opacity": 0.4,
        "name": "My region"
      },
      "geometry": {
        "type": "Polygon",
        "coordinates": [
          [
            [
              -1.69189453125,
```

For more information, see 'Example Polygon Regions' and 'Associate Regions with a Map Set' in the help. Both topics are in the Mapping and Geographic Information Guide.

There are websites to help you edit a region yourself, such as https://geojson.io

This editor lets you set the locations of the polygon vertices and the properties including the colours and region name.
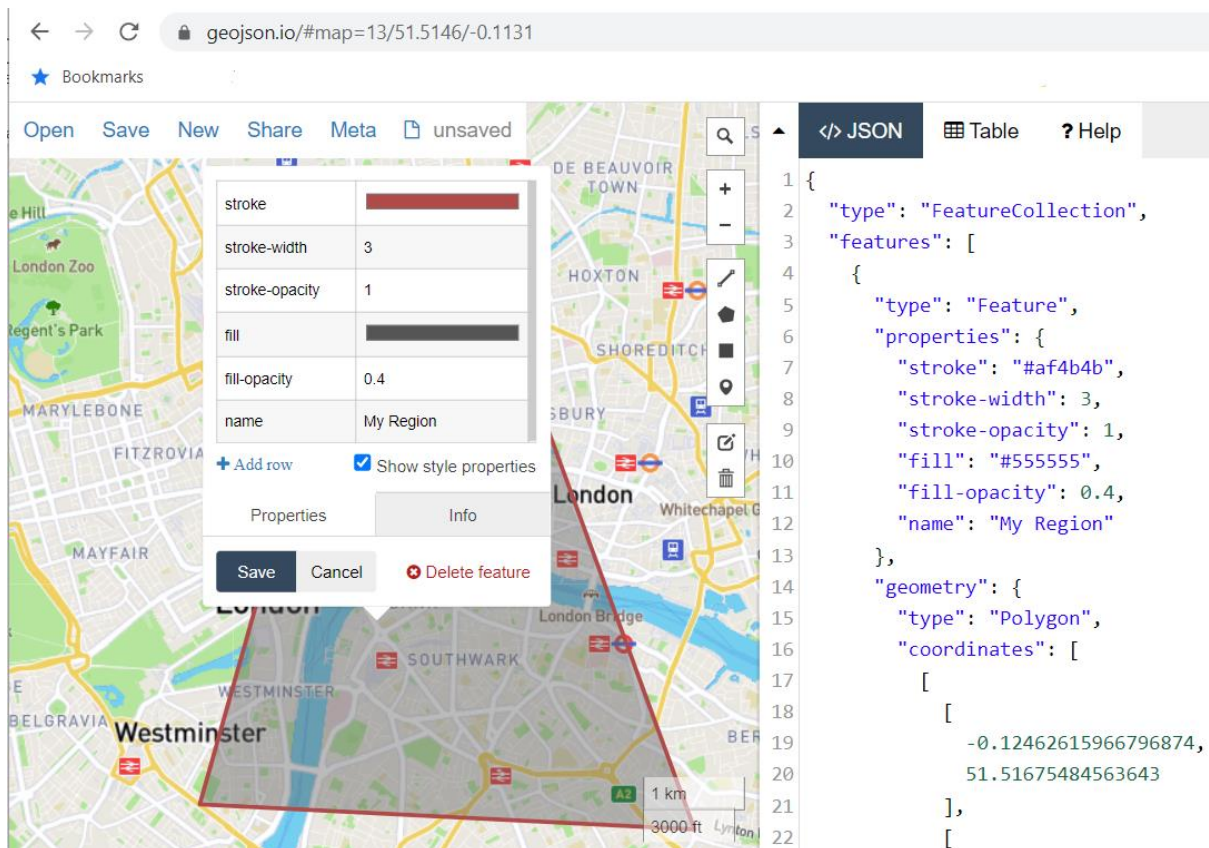
Map Query Symbol Enhancements

The shape of markers and a new text label that remains visible all of the time can now be controlled by the SQL that is used to display dynamic content. For example, the new column names are in bold below:

```
SELECT FullName, gislocation->latitude, gislocation->longitude,
    Foreground, Blink, Background,
    'SQUARE' AS MarkerShape,
    'S' AS MarkerText,
     0 AS MarkerTextColor,
     65280 AS MarkerTextOutline,
     15 AS MarkerTextSize,
     0 AS MarkerTextOffset,
    'mimic.alarm' AS DefaultAction,
    CurrentValue AS MarkerSize FROM CPointAlgManual
```

The shapes available are **Square**, **Triangle**, **Diamond** and **Circle**. The text offset is a vertical offset (positive or negative) from the center of the symbol, and the text is horizontally centered. The text can include any **Unicode** character.

The **MarkerSize** SQL column property is a floating-point number that is mapped to the size of the marker ranges from zero to 100, where 10 is the default size. The scale is linear, so that zero will be an invisible point, 10 is the current size today and 100 is 10 times the current size. If it is greater than 100, the value is capped at 100, and if less than zero, the value is set to zero.
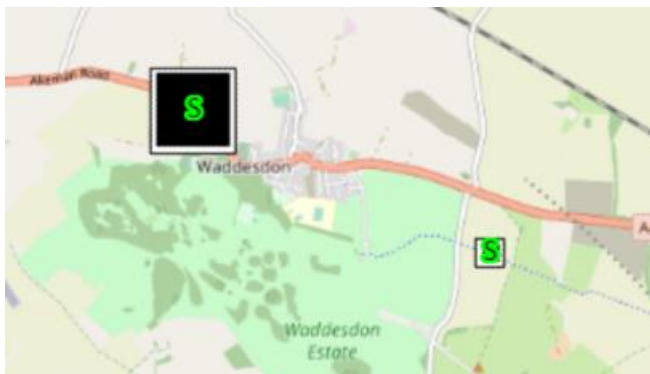
If the marker size is zero, then the marker text could be used as the primary indicator of a location. A new SQL function has been added to return a character from a code to simplify this and allow programmatic choice of character. For example, use:

```
        CHAR( 127981 ) AS MarkerText
```

This will return an emoji: 🏭

Use the UTF-32 / HTML Entity decimal value for the Unicode number.

Map Query Refresh

By default, queries on maps are run when the map is opened, when the map is moved or zoomed and every minute. We have added a property to the User Query to slow the query refresh rate, in minutes (zero will not refresh).

Map Symbol Default Action

A map symbol has a right-click action that displays the full context-sensitive menu for that database item. An operation is now available as a left-click action. By default, one of the following display operations is carried out when the user left-clicks a map symbol:

- Display Alarm Mimic
- Display Help Mimic
- Display Alarm List
- Display Event List

One action from the above is performed (in the order listed above), depending on the configuration of the item. For example, if a Help Mimic is configured but not an Alarm Mimic, then the Help Mimic is displayed.

Further control over this action is possible by using the SQL query column **DefaultAction**. If this column is used and evaluates to the text of a menu choice that would be displayed on the full context-sensitive menu, then that menu choice is actioned. If you want to use a language-independent name for commonly used menu actions, then the following equivalents are available:

- 'Display Alarm View' = 'mimic.alarm'
- 'Display Help View' = 'mimic.help'
- 'Display Alarms' = 'alarms.self'
- 'Display Events' = 'events.self'
- 'View Status' = 'executemethod.statusself'
- 'Notes' = 'executemethod.notesself'
- 'Acknowledge Alarm' = 'executemethod.accept'
- 'Acknowledge with comment' = 'executemethod.acceptwithcomment'

System Changes

Geo SCADA Mobile Server

The Geo SCADA Mobile Server uses a small database to store device information. This has been changed from a Microsoft SQL database to a simpler file store. When upgrading the Geo SCADA Mobile Server, the data in the SQL database needs to be moved to the new file store using a new data transfer utility. After installing or upgrading the Geo SCADA Mobile Server and on first running the Mobile Configurator tool, you will be prompted to find and run the utility.

The transformation tool is on the installation disk. You need to browse to 'Tools' folder.
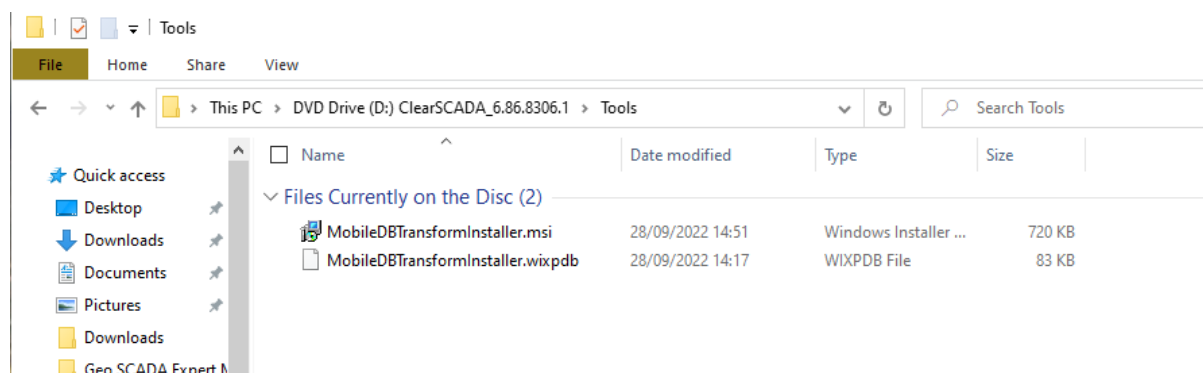
The tool is **installed** using the MSI file.
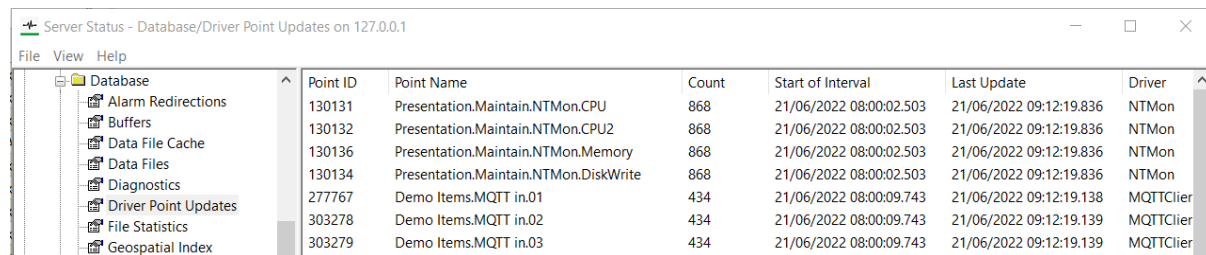
Then it should be executed from:

C:**Program Files**\\Schneider Electric\\Geo SCADA Expert Mobile Database Transform SSCE\\MobileDBTransform.exe (64 bit application)
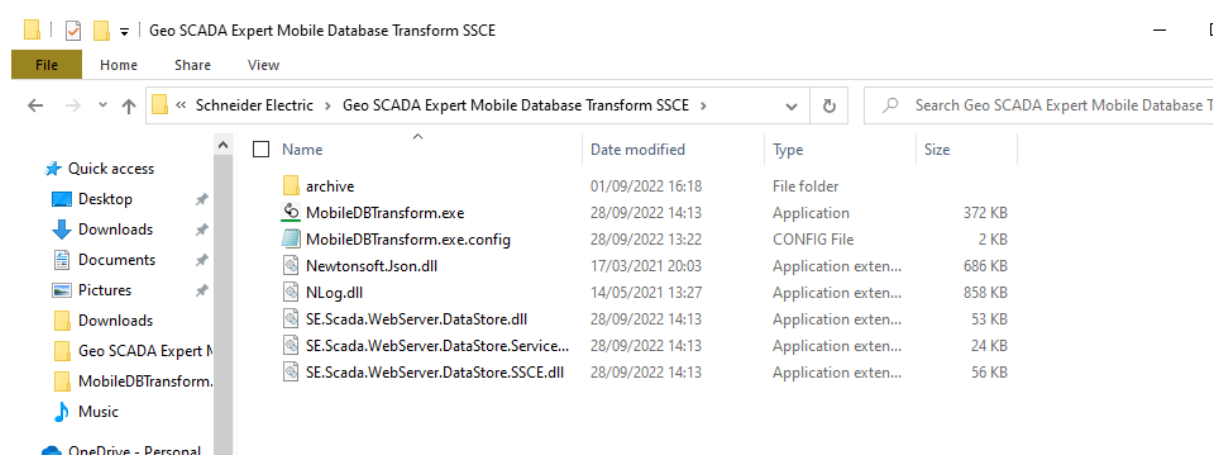
Server Status Tool

We have added a **Start of Interval** column to the **Driver Point Updates** section of the Server Status tool so that you can see when the point update counts start.

Telnet

For security reasons the Telnet facility on database server logging and driver process logging is no longer available.

Support for monitoring communication on a channel via Telnet is still available, but access is restricted to the server PC unless the relevant setting is selected:
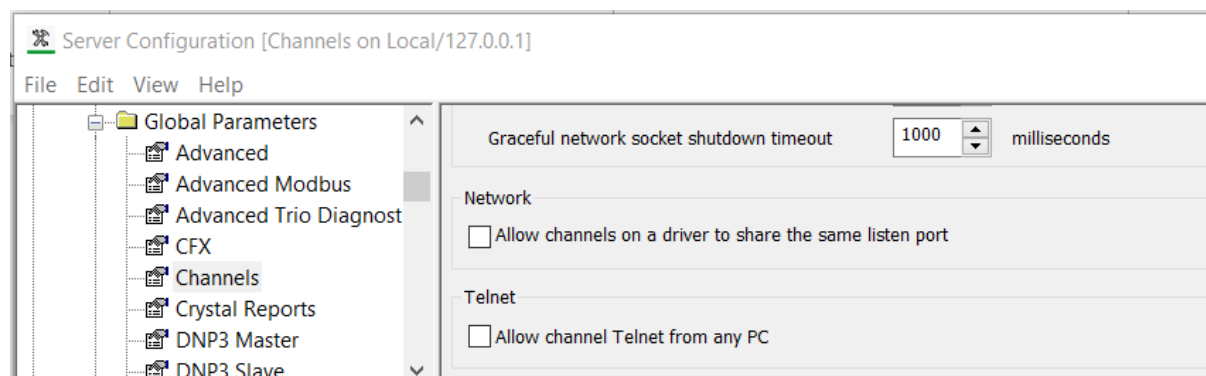
External Authentication

Prefix to Usernames

A prefix can now be added to the username of users that have been created automatically as part of the external authentication feature. A configuration setting for this has been added to the **External Authentication** section of the Server Configuration tool.
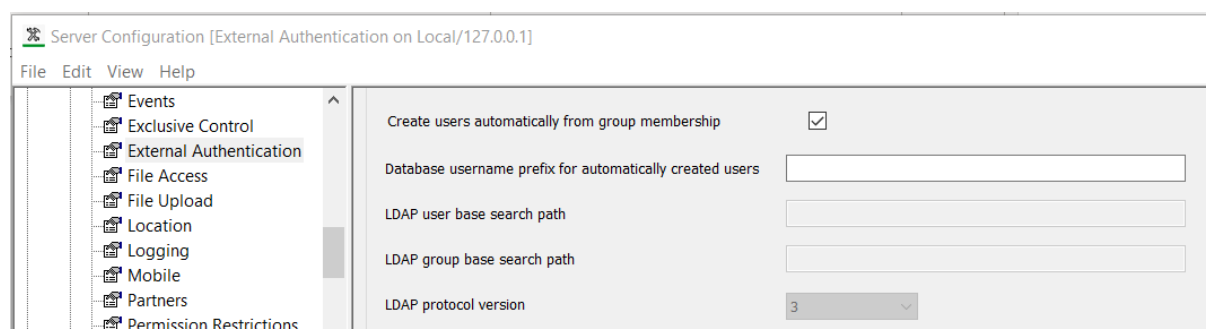
LDAP Protocol Version

The version can be configured on the **External Authentication** section of the Server Configuration tool. Version 3 will be used by default. Version 2 was used before this release.

Other Items to Note

OPC Factory Server Move

This change was implemented in Geo SCADA Expert 2021 and is included here as a useful reminder for those using Geo SCADA Expert 2022.

This tool is no longer on the ISO or ZIP distribution with Geo SCADA Expert. When you click the link on the installer menu you will be taken to the Schneider Electric for this product.

An OPC Factory Server license is included. To activate it please install with these instructions: https://community.exchange.se.com/t5/Geo-SCADA-Knowledge-Base/Installing-Geo-SCADA-Expert/ba-p/382465

Bulk Edit Tool Move

This change was implemented in Geo SCADA Expert 2021 and is included here as a useful reminder for those using Geo SCADA Expert 2022.

This tool is no longer on the ISO or ZIP distribution with Geo SCADA Expert. It is available from the 'Tools and Samples' page in the Knowledge Base on the Schneider Electric Exchange website. It is linked from the following link:

https://community.exchange.se.com/t5/Geo-SCADA-Knowledge-Base/Tools-amp-Samples/ba-p/279123

.NET Client API Change

In the .Net Client API the **IServer** connection method requires a new parameter to configure Connection settings. Refer to the example here:

```
ClearScada.Client.Advanced.IServer AdvancedConnection;
ClearScada.Client.Simple.Connection SimpleConnection;
var node = new ClearScada.Client.ServerNode("127.0.0.1", 5481);
SimpleConnection = new ClearScada.Client.Simple.Connection("MyApplication");
try
{
        SimpleConnection.Connect(node);
        // Add new connection settings for Geo SCADA 2022
        var ConSet = new ClientConnectionSettings();
        AdvancedConnection = node.Connect("MyApplication", ConSet);
}
catch (CommunicationsException)
{
        // Handle connection errors
        return false;
}
```

Security

WebX and Web Services Ports

This functionality was new in Geo SCADA Expert 2021 and is included here as a useful reminder for those using Geo SCADA Expert 2022.

The Geo SCADA Expert installer installs and configures Microsoft Internet Information Server (IIS) to act as a reverse proxy for Geo SCADA Expert server's internal web server. This increases the security of the web services used by ViewX scripting and by original WebX. (The settings also impact the port used for accessing the Database Schema. See in the help: 'Access the Database Schema' in the Database Guide.)

This part of the setup is mandatory for the Geo SCADA Expert Server.
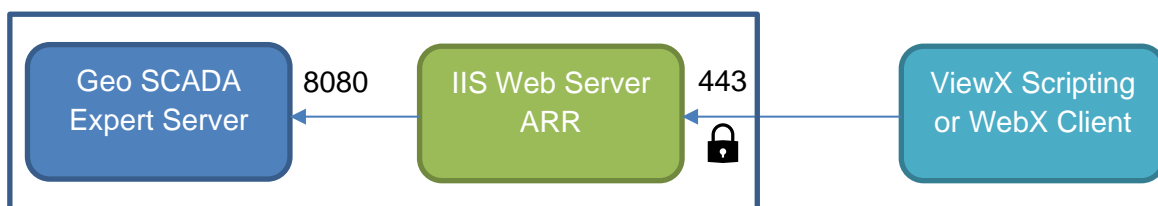
The IIS setup uses an Application Request Routing (ARR) module to direct web service calls to the Geo SCADA Expert server. The Geo SCADA Expert installation prerequisites include both IIS and ARR modules and set up a website:
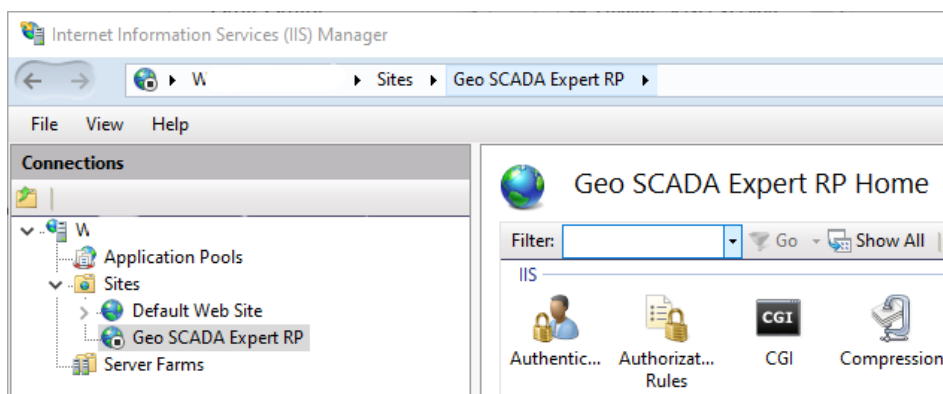
The IIS reverse proxy connects to the Geo SCADA Expert server's **Listen Port**. A revised set of properties are included for **WebX** settings in the Server Configuration Tool, in which you can set up the **Local Proxy** and **Network Proxy** settings. The **Network Proxy** is not usually required unless you have an additional proxy/firewall between the server and clients.

Local Proxy

The local proxy itself is configured in IIS but the settings in the Server Configuration Tool are used to inform the Geo SCADA Expert server of the current IIS configuration.

Because of this change, the internal web server's 'Listen' port will now default its HTTP port to 8080 and will disable its HTTPS port. The HTTPS port can be re-enabled if desired but

will only support TLS 1.1. Both internal HTTP and HTTPS ports will by default only be available for connection (binding) from localhost clients and will not be available externally to the server.
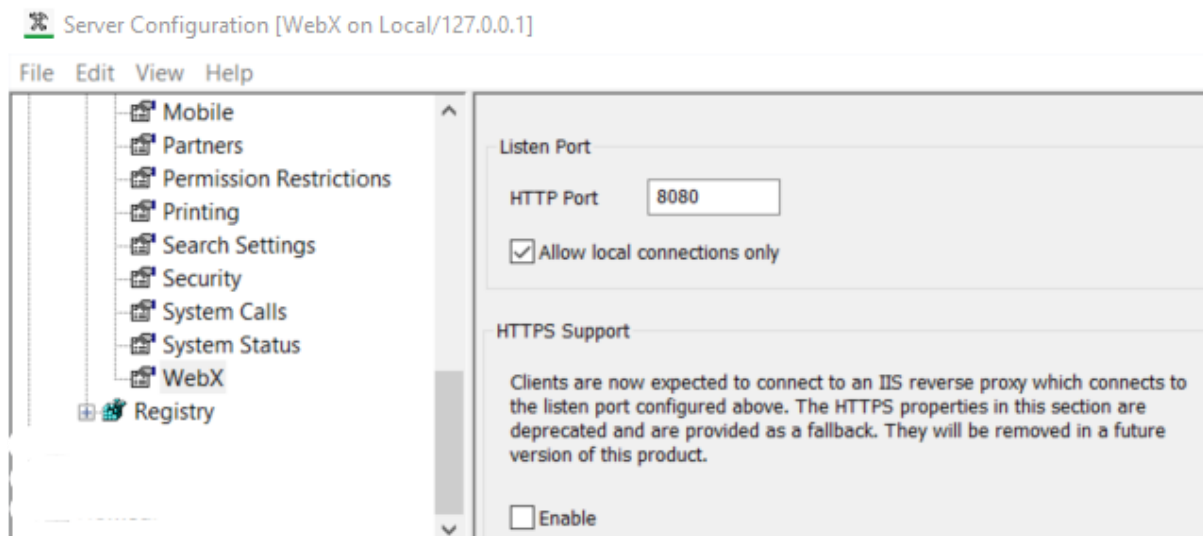
The IIS reverse proxy will offer HTTPS connections on port 443 by default, and optionally can be configured for HTTP connections.
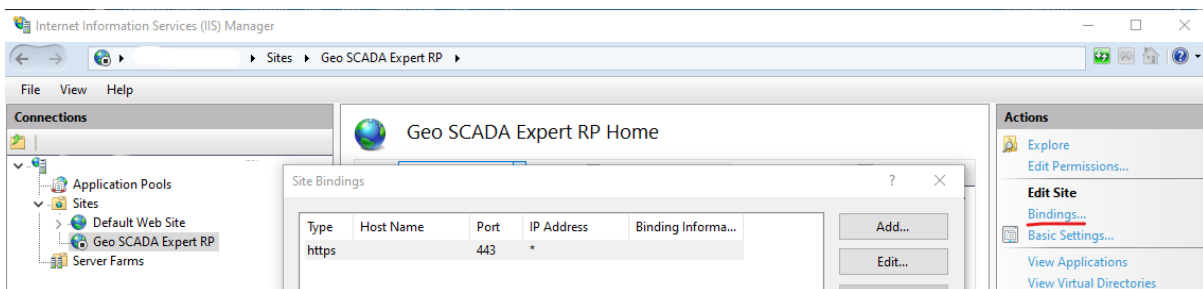
The Geo SCADA Expert server must be aware of the port(s) offered by the IIS server, and these are configurable in the **Local Proxy** area of the **WebX** section of the Server Configuration Tool (see in the help: 'Configuring Security and Connection Settings for Original WebX Clients' in the Guide to Security). This is required for ViewX to be advised of the web port(s) to be used for Mimic script access.
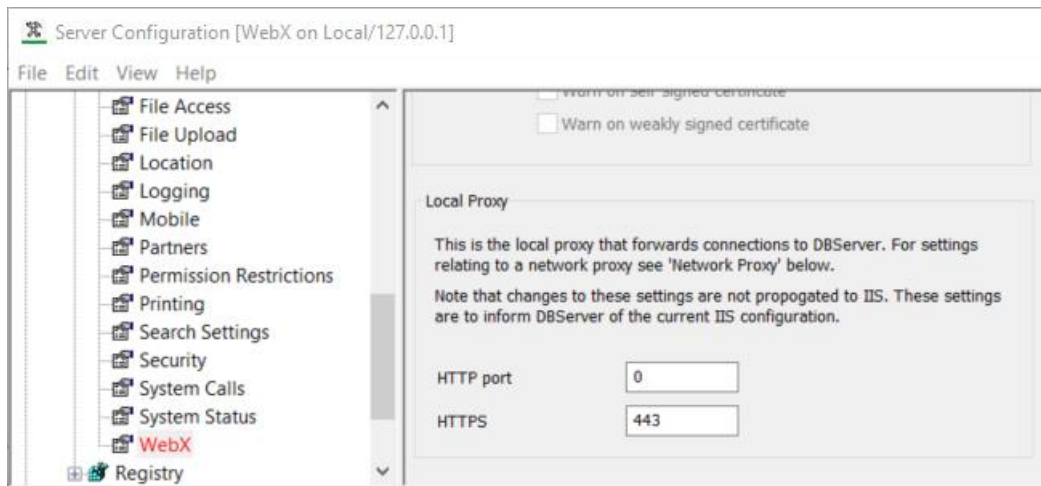
The Server Status Tool shows the ports that the Geo SCADA Expert server is using and, for information, the ports that are set up for the local proxy.

The Web Port will not work without a Certificate

The IIS Reverse Proxy setup does not automatically set up an SSL certificate, and the web proxy will not work until this is done. You can do this in the IIS Manager tool if you already have a certificate to add. This image shows the configuration dialog boxes:
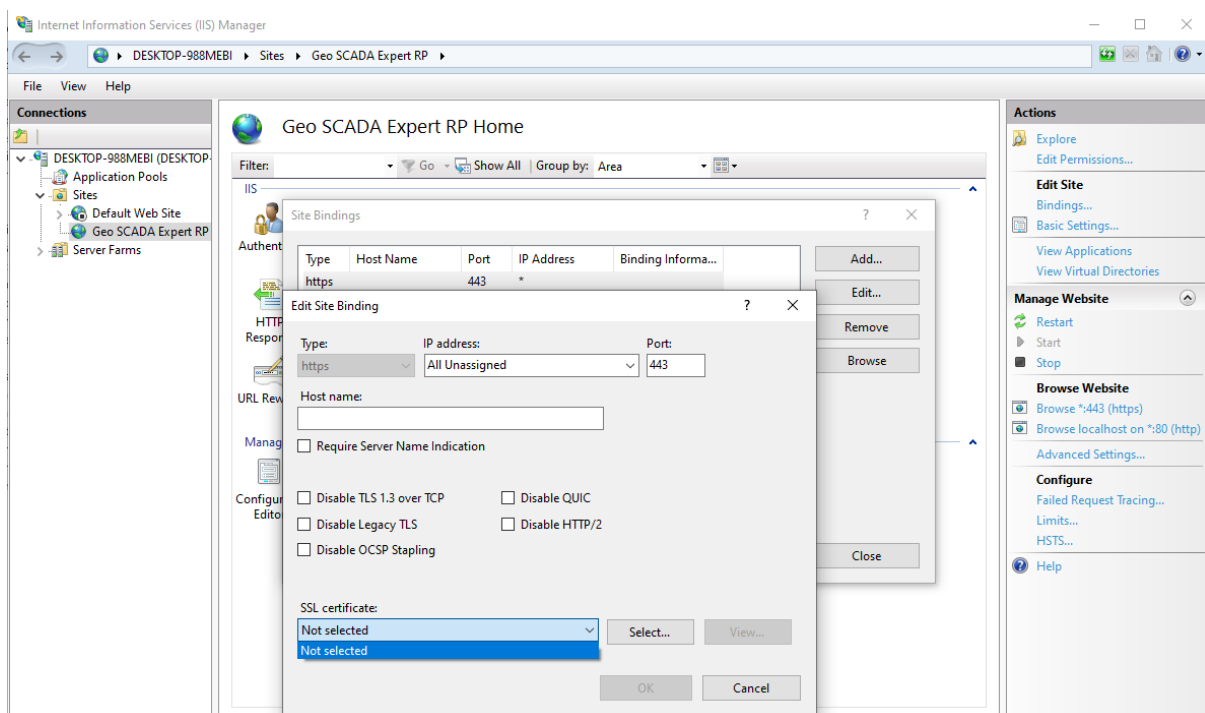
If you do **not** have a certificate, then you can perform one of the following:

- Ignore the Reverse Proxy, disable it and configure the Geo SCADA Expert Server's web port number(s) to match the **Local Proxy** settings.
- Configure the Reverse Proxy to be available on port 80 and add this to the **Local Proxy** settings. While this will not be secure, it would allow you to test the Reverse Proxy function.

The following screen images show how to set up the second option:

Configure the Reverse Proxy for Unencrypted Communication

In the **WebX** section of the Server Configuration tool:
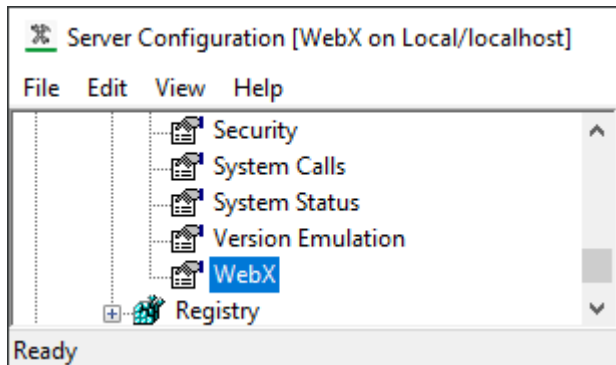
Use the default setting for the **HTTP Port**:
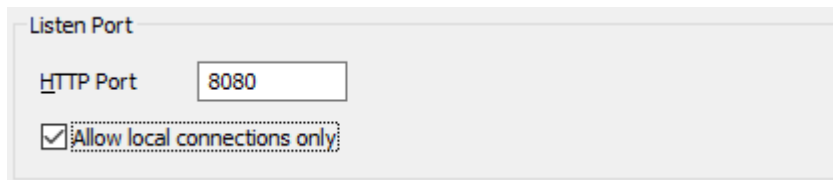
Configure the **Local Proxy** ports to 80 and 0. These inform ViewX of where to find the web server at this port.
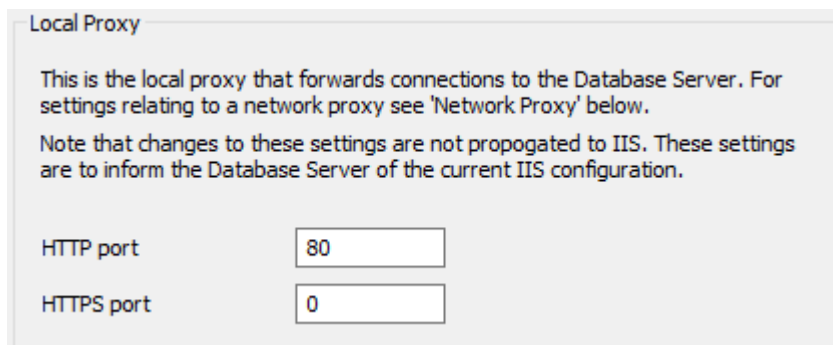
In the **Internet Information Services (IIS) Manager**'s tool (found in the **Start** menu in Windows, in the 'Windows Administrative Tools' folder):

1. Find the Site 'Geo SCADA Expert RP' in the **Connections** tree.
2. In the **Actions** pane on the right, select the **Bindings** option.
3. Select the **Add** button and configure a binding named 'localhost' on port 80.
4. Select **OK** and restart the web server in the 'Manage Website' section.
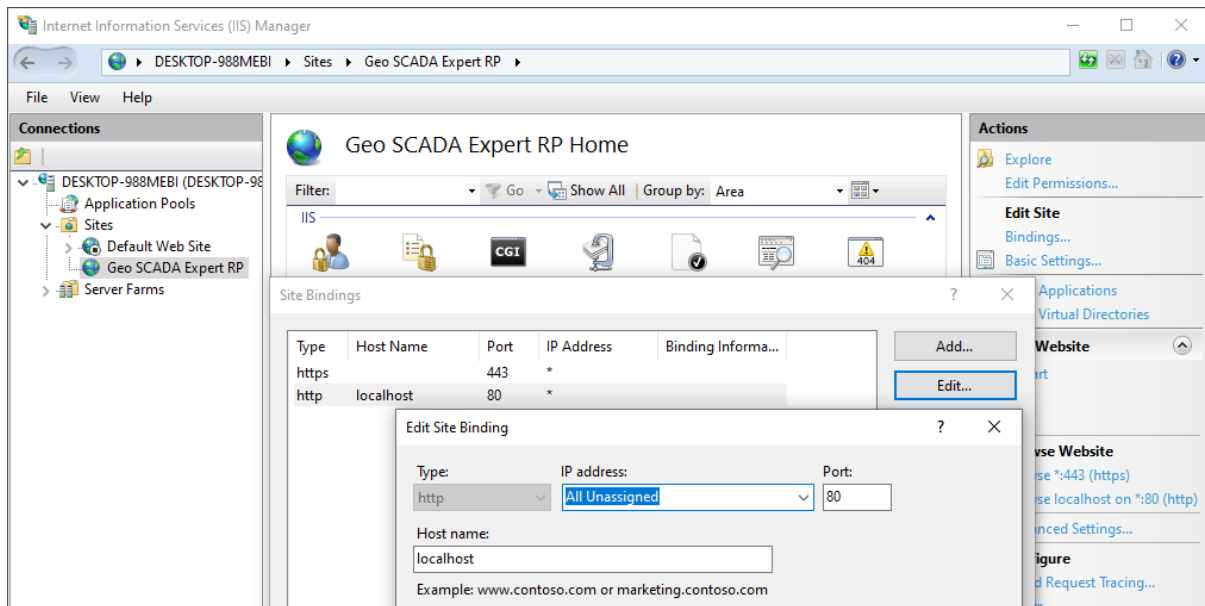
Client Certificate Checks

Please note that with Geo SCADA Expert 2022, Geo SCADA Expert 2021, and with later releases of Geo SCADA Expert 2020, you can configure the Server to direct the ViewX client whether to check for certificates. The configuration for this is in the **Security** area of the **WebX** section of the Server Configuration Tool.
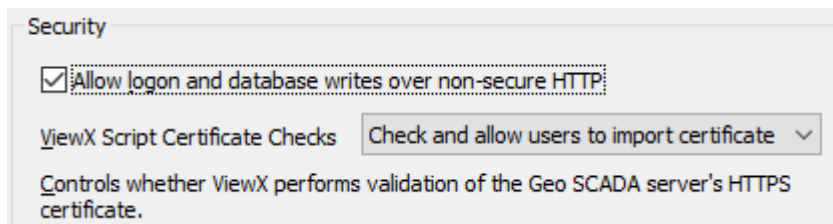
For more information, see in the help: 'Database Web Server Connection Problems' in the Server Status Tool Guide.

Installation

Supported Operating Systems

Windows Server 2022 is supported.

Windows 11 is supported.

Windows 10 and 11 Home editions are not supported.

For information about the operating systems that Geo SCADA Expert supports, see in the Help 'Operating Systems' in the Installation Guide.

Recent Updates

Preparation Required before Upgrading

Always read this section as additions and modifications to the notices may occur each month, as further updates are made to the product. These preparation activities may change.

Each item of preparation is likely to have a specific impact and be dependent upon the actual drivers and functionality used in the customer's system. If there is a specific concern about an item of preparation and whether it affects your system, please contact your Schneider Electric support representative.

DNP3 Frozen Counter Point Issue, December 2022 Onwards

The following Caution notice affects customers who utilize the DNP3 driver and specifically have DNP3 Frozen Counter Point configuration defined in their system. It is applicable to the installation of Geo SCADA Expert 2022 and later Updates, to upgrade from Geo SCADA Expert 2021 October 2022 installations and earlier versions.
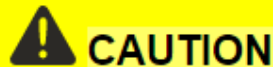
POTENTIAL INTEGRITY ERRORS RESULTING IN AN UNOPERATIVE SYSTEM FOLLOWING UPGRADE

<u>Before upgrading to Geo SCADA Expert 2022, or later, and you have the DNP3 driver installed,</u> ensure that you check that the Point Number of any DNP3 Frozen Counter Points match the Point Number of their parent Counter Point. An integrity error will be raised after upgrade if the point numbers do not match.

Failure to follow these instructions can result in an inoperable system, injury or equipment damage, which will cease operation of the Geo SCADA Expert server.

DNP3 driver: Added a missing integrity error if a DNP3 Frozen Counter point's point number does not match its parent counter point's point number. **Before upgrading, check for existing configuration issues with DNP3 Frozen Counter points to avoid the possibility of integrity errors, which will cease operation of the Geo SCADA Expert server.**

Integrity problems with DNP3 Frozen Counter Points can be found using SQL prior to upgrading the servers: **Please ensure the SQL command is executed by a user with sufficient privileges to access all DNP3 configuration in the system.**

```
SELECT
        CDNP3FROZENCOUNTER.ID, CDNP3FROZENCOUNTER.FULLNAME,
        CDNP3FROZENCOUNTER.POINTNUMBER, CDNP3COUNTER.FULLNAME
FROM
        CDNP3FROZENCOUNTER JOIN CDNP3COUNTER ON
        CDNP3FROZENCOUNTER.PARENTPOINTID = CDNP3COUNTER.ID
WHERE
        CDNP3FROZENCOUNTER.POINTNUMBER <> CDNP3COUNTER.POINTNUMBER
```

Any listed DNP3 Frozen Points' configuration will need to be corrected. The point number field is read-only, so cannot be directly modified. To fix this error in the frozen counter point requires the configuration open in ViewX and for it to be resaved. This will automatically update the point number to the correct value.

The SQL needs to be re-executed to confirm the misconfiguration no longer exists in the database.

Resolved Customer Issues - May 2023 Update

- ViewX Logic compilation: A backward compatibility issue with connection to an older Geo SCADA Expert server as been corrected. The 'Configure Extended Logic' feature defaults to enabled when the ViewX is connected to an older Geo SCADA server.
- Installer: Changed the minimum Windows version from Windows 8.1 / Windows Server 2012 R2 to Windows 10 (version 1607) / Windows Server 2016. Installation on older versions of Windows is blocked.
- [CSUP-13243] Client API: Fixed a potential crash with the use of CCustIFSCX::MoveCopyObject() and (by extension) ScxV6Object::Copy() against a Geo SCADA Standby server.
- [CSUP-13371] Crystal Reports: Fixed an issue that was preventing reports being exported to email.
- Sparkplug B Driver: Geo SCADA no longer processes Sparkplug B metric values with the field IsNull=True as a value of 0.
- [CSUP-13357] Sparkplug B Driver: OPC Quality changes on a Sparkplug Group are now propagated to their child EoN Nodes. OPC Quality changes on a Sparkplug B EoN Node are now propagated to their child devices and points. OPC Quality changes on a Sparkplug B Device are now propagated to their child points.
- [CSUP-13406] ViewX Mapping/Geo SCADA Mobile: User Queries may support Unicode characters in the display name.
- [CSUP-13222] ViewX: Resolved an occasional crash that related to Unadvise and closure of Advise links.
- [CSUP-13326] Geo SCADA Mobile: Improved the validation of the web server's licence. Improved the stability and performance of Geo SCADA Mobile.
- [CSUP-13396] Geo SCADA Expert server: Fixed an unhandled exception that could cause a server crash on start-up of the server. This was triggered by a database item with a template property override that related to a driver that was not installed.
- [CSUP-13393] ViewX: Improved the updating of Lists. When the displayed List's query is notified of modified data, the improvement means that a List and screen update will only occur if the corresponding query rows are visible onscreen.
- [CSUP-13406] ViewX Maps: The legend on Maps has been rationalized and Map query performance improved. User Queries displayed on a map that specify the Marker Shape will no longer have the shape displayed in the legend. If a User Query reports an error it will be displayed to the user during a brief popup notification on the map each time the query is run.
- [CSUP-13395] MQTT SparkplugB: Updated the Display Groups query on the SparkplugB Broker to include the standard default entries.
- [CSUP-13327, CSUP-11368] Geo SCADA Expert server: A previous improvement, made under CSUP-11368, optimised the Check Integrity request so its processing periodically relinquished the Database Read Lock. This fix returns the Check Integrity request's processing to run on a Worker Thread, to avoid affecting other client connections.
- [CSUP-13387] ViewX: Fixed a crash that could occur when invoking the 'App.OpenWindow' method from Global Script via the 'OnMessageReceived' function

(this is a script function that ViewX automatically calls when using the 'Notify User' functionality).

- [CSUP-13302] SCADAPack x70 Driver: Fixed several possible false positive validation errors on SCADAPack x70 Device Configuration Objects. These could occur when the logic time zone was 'Local Time with Daylight Saving Time'.
- [CSUP-13362] OPC UA Driver: Fixed a scenario that could lead to the driver crashing when repeatedly switching a subscription between servers, such that a second switch request is made before the previous request has completed. Improved the event messages logged:
  - When a switch server request duplicates a previous request, for example switch from A to B, followed by another switch from A to B before first request has completed.
  - When a switch server request attempts to switch to the current server, for example switch from A to A.
  - When a subscription switches server after a successful switch server request (as opposed to an automatic switch on failover).
- OPC UA Driver:
  - Fixed the 'Switch Server' pick action on OPC UA subscription so it doesn't unconditionally fail.
  - Fixed the 'Refresh' pick actions on OPC UA points and subscriptions so arguments are validated correctly.
  - Fixed a driver crash when an OPC UA server is cleanly shutdown and then restarted.
  - Fixed the 'Display Subscriptions' pick action on OPC UA servers so that it works with subscriptions that have multiple servers.
  - Added missing 'Source', 'Last Updated' and 'Quality' attributes to OPC UA server's Status display.
  - Corrected the OPC UA driver's diagnostic logging options to remove duplicate and unapplicable options.
- ViewX: Fixed a scenario in which a crash could occur because of an unhandled exception when updating user location during a server changeover.
- [CSUP-13214] Server Icon tool: Fixed a possible crash of the Server Icon when the server is unresponsive.
- [CSUP-13361] OPC UA driver: The state of the connection to the OPC UA server is now available as a property.
- [CSUP-13260] DNP3 Driver: Fixed the DNP3 client outstation to block stopping comms whilst waiting for a solicited or unsolicited application confirm. This prevents an invalid unsolicited response being sent to the DNP3 server.
- SCADAPack x70 Driver: Corrected the property form fields relating to unsolicited events (for example 'Value Deviation \ Unsolicited Events (DNP3 Only)' field) to ensure that fields are not disabled when a SCADAPack x70 Configuration Object is not associated with a Device Configuration Object.
- SCADAPack x70 driver: Ensured that the validation checks of a SCADAPack x70 configuration object that has DNP3 unsolicited events enabled is consistent with the Remote Connect tool's validation when the object has no device and therefore we cannot determine whether the device allows unsolicited events.

- [CSUP-13336] Advanced Trio Diagnostic driver: Disabled the historic aggregate on String points as these do not support historic values.
- [CSUP-13305] Advanced OPC Driver: Fixed a potential driver crash that could occur when repeatedly switching a group between servers, such that a second switch request is made before the previous request was completed. Improved the event messages logged:
  - When a switch server request duplicates a previous request, for example switch from A to B, followed by another switch from A to B before first request has completed.
  - When a switch server request attempts to switch to the current server, for example switch from A to A.
  - When a group switches server after a successful switch server request (as opposed to an automatic switch on failover).

Resolved Customer Issues - March 2023 Update

- MQTT/IEC 61850/OPC UA drivers: Updated OpenSSL to version 1.1.1t.
- [CSUP-13312] Historian Diagnostics: Improved the collection of historian diagnostics for the Event Journal, Alarm Summary and Config Changes streams, so that the collection temporarily releases the database read lock when a write lock is pending.
- [CSUP-13328, CSUP-13333] ViewX: Fixed a regression bug that could previously result in the scripting EXISTS() function not always returning the expected result when the database items were parameters or indirect tags.
- [CSUP-13311] Geo SCADA Expert Standby Server: Fixed a crash that could occur on a standby server when proxying a request (such as an OPC DA Write) to the main server. The crash could occur if the main server processes the request before the standby server has completed initializing the request. The likelihood of this happening is low as normally the time that the main server takes is usually long enough for the standby to have finished the initialization.
- Geo SCADA Expert: Corrected the buffer size when reading the Install Location from the registry when opening installed files.
- [CSUP-13286, CSUP-12873] Logic driver: The limitation of not allowing an Indirect Variable as an input to a Logic program with an Execution Method of 'On Input Processed' has been removed. Previously, misconfiguring a Logic program with an Indirect Variable input could result in an integrity error.
- ViewX: Fixed the Shutdown action in the ViewX System Status dialog (accessed from the Root Group's 'Status' pick action).
- [CSUP-13294] ViewX: Fixed an issue that previously prevented successful Zoom Box selection on Trends.
- [CSUP-13077] ViewX performance improvement: The memory footprint of the application has been reduced. The caching of GDI+ objects, associated with the drawing of content on-screen, has been removed. GDI+ objects are now created 'on demand' and are deallocated once no longer needed.
- [CSUP-13077] ViewX shutdown improvements:
  - Fixed a COM reference count inconsistency that previously prevented an Alarm Banner instance from being deallocated on application exit.

- o Ensured that all system listeners are explicitly disconnected on application exit. The system listener's disconnection invokes an unadvise operation for any sink interface that are associated with the listener.
- Server Configuration tool: The 'Security | User Accounts' page's 'Voicemail PIN Length' has been renamed to 'PIN Length'.
- [CSUP-13105] DNP3 WITS driver: Added support for a WITS shared outstation to be configured with one direct connection (for example, serial) and one network connection.
  - o Added support for WITS direct outstations in a switched outstation set, to be configured with one direct connection and one network connection.
  - o Added a validation error if the total number of direct and network connections exceeds the maximum number (either one or two) for the type of WITS outstation (direct, switched or shared).
  - o Added full support for reconfiguring of a WITS outstation's network type (none, single or dual) based on the quantity of WITS network connections being imported or uploaded.
  - o Added missing validation for an outstation in a shared outstation set that has one network channel and one non-network channel where the shared outstation is fixed on the non-network channel but has a network connection.
- [CSUP-13208] Geo SCADA Historian: The load time of historic files with out-of-sequence data has been improved for situations in which the historic file contains records with a repeated time sequences. This reduces the likelihood of a Geo SCADA Expert Watchdog timeout occurring if out of sequence data has been received.
- ViewX: Corrected the handling of moving document Database Items. Previously the 'Locate in Database Explorer' failed when invoked for an open document that had been moved in the database. The locate operation used the document's original location to search the Database Explorer and would fail to locate it. Additionally, the ToolTip, the 'List All Documents' ribbon command and the application caption bar previously displayed the original location of the moved document too.
- ViewX: Ensured that when exporting data from a list to a file, the correct character encoding is used.
- [CSUP-13209] Alarm Suppression: Fixed a problem that caused an Integrity Check failure when a point with Alarm Suppression 'By Expression' active processed a point update and the quality of its current value changed to 'Last Known Value'.
- [CSUP-13166] Geo SCADA Server Expert: Improved the performance of the interest thread. The performance of the processing of value changes and the determination of which clients need to be informed of these updates has been improved. This performance improvement should noticeable for systems with many ViewX clients connected that display many Mimics with large collections of OPC tags subscribed.
- [CSUP-13251] SNMP Manager Driver: Fixed an issue with the handling of Traps or Inform messages that contained non-displayable octet strings or IP Addresses. The SNMP Manager driver has been updated so they are processed and displayed correctly in String points.
- Virtual ViewX: Corrected the installation of the Virtual ViewX server to ensure that the log files are correctly placed, rather than in the root of the C drive. Additionally, corrected the name shown in Virtual ViewX Manager title bar. Corrected the path to the icon for Virtual ViewX Server applications.

- Geo SCADA Expert server: Updated the SDE Version for the Geo SCADA Expert 2022 Release.
- [CSUP-13226] Geo SCADA Expert server: Fixed an issue that allowed web requests to the server to be processed before initialization of the server had completed. The issue affected EcoStruxure Web Services (EWS) and in some rare cases this caused the initializing server to crash. Now, any EWS requests that are received before the server is ready to process them receive a HTTP 500 Error response. (EWS drivers' client connections are not affected.)

Resolved Issues in Geo SCADA Expert 2022, not included in the Geo SCADA Expert 2021 December 2022 Release

- [CSUP-12766] ViewX: Fixed an issue where shared, embedded mimics would all show the same value once the connection between ViewX and the Geo SCADA server is lost.
- [CSUP-13160] Advanced Drivers: Fixed an issue in which attempts to control multiple points with an SQL UPDATE command would fail. For example, the SQL: "UPDATE CeNETBinaryOut SET CurrentValue = 1". Previously only the first point was controlled with the specified value and all of the other points were controlled to zero or an empty string.
- [CSUP-13149] SCADAPack x70 driver:
    - Fixed a Geo SCADA database server crash after SCADAPack x70 DNP3 points/pulse actions with associated configuration objects are converted to another DNP3 type (SCADAPack E, Generic or WITS points/pulse actions).
    - Fixed a Geo SCADA database server crash after DNP3 counter points with associated DNP3 frozen counters are converted to SCADAPack x70 DNP3 counter points.
    - Ensured that a validation error is reported when the configuration object associated with a SCADAPack x70 DNP3 pulse action has DNP3 disabled.
    - Fixed the validation of the DNP3 static group of the configuration object associated with SCADAPack x70 DNP3 pulse actions. "Pulse Action (NULL)" requires group 10, "Pulse Action (Trip)" requires group 12 (trip) and "Pulse Action (Close)" requires group 12 (close). Similarly, fixed the filtering of the reference browser for "SCADAPack x70 Object" database fields on forms.
    - Updated the validation error reported when the DNP3 static group of the configuration object associated with a SCADAPack x70 DNP3 point/pulse action does not match (e.g. a binary output point with a binary output (group 12) static group).
- [CSUP-13172] Geo SCADA server: Fixed a crash that could occur when an outgoing advise connection (using the legacy protocol) is created and immediately disconnected.
- [CSUP-13156] ViewX/.NET API: Resolved a possible hang when processing an event message from a server while also processing a disconnect from the same server.
- [CSUP-13056, CSUP-13068] ViewX: Fixed a crash when editing the script for a mimic within a template and one or more instances of the template already exist in

the system. Also fixed a crash when copying or deleting items within the Database Explorer.

- [CSUP-12419] Fixed the Simple Driver and DDK Driver to avoid configuration changes to an out-of-service analog, digital or counter point from re-raising an acknowledged alarm. Updates of the state of the point must wait until the point is back in-service. (This ensures that Out-of-Service points' alarms can be acknowledged and cleared.)