

**EcoStruxure™**

# **Geo SCADA Expert 2019**

(ClearSCADA)

Software for Telemetry and Remote SCADA

Release Notes

November & December 2022 Update

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# Welcome

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Welcome to EcoStruxure Geo SCADA Expert 2019.

## Licenses

All users upgrading to this release will require a new license file available from customer support. This is required for both server and client upgrades. Additional changes to licensing for WebX and Virtual ViewX may be required, as described in the chapter on Virtual ViewX below.

## Support

Please refer to this page for support information

<https://tprojects.schneider-electric.com/telemetry/display/CS/ClearSCADA+Support>

# New Features

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For further information on new features please consult the in-product F1 help and the SCADA and Telemetry Resource Center web site, available at:

<https://tprojects.schneider-electric.com/telemetry/dashboard.action>

## A New Name

We are proud to give ClearSCADA a new name – "EcoStruxure Geo SCADA Expert" is the new full product name, but we'll use the name "Geo SCADA Expert" in most documentation, and the name "Geo SCADA" for brevity when we need it.



While there have been far-reaching product and documentation changes to implement this name change, we have taken specific actions to minimize disruption during system upgrades. These include:

- The program installation location and data directories are staying the same:
  - 64 bit: C:\Program Files\Schneider Electric\ClearSCADA
  - 32 bit: C:\Program Files (x86)\Schneider Electric\ClearSCADA
  - Data: C:\ProgramData\Schneider Electric\ClearSCADA
- The default database file names are staying the same:
  - E.g. 'ClearSCADADData0001.dat'
- System registry keys are staying the same
  - HKEY\_CURRENT\_USER\SOFTWARE\Schneider Electric\ClearSCADA

- HKEY\_LOCAL\_MACHINE\SOFTWARE\Schneider Electric\ClearSCADA
- Executable filenames are staying the same
  - Libraries for COM automation
  - Libraries for .Net Programming
  - Libraries for the Driver Development Kit
  - Database Server, Drivers and Tools executables
  - API names and identifiers
- Mobile Apps remain with the same 'ClearSCADA Mobile' name for the present time.
  - The Mobile Server changes name, but the database file containing the server and client configuration will remain in the same location for ease of continuity, at:

"C:\ProgramData\Schneider Electric\ClearSCADA\MobileConfig.sdf".

## Associated changes

The installation menu screen is changed, but the same installers are run from each link.



Note that there is no longer a separate 'Prepare' step for Virtual ViewX and therefore this link is no longer on the installation menu.

## A New Web Interface

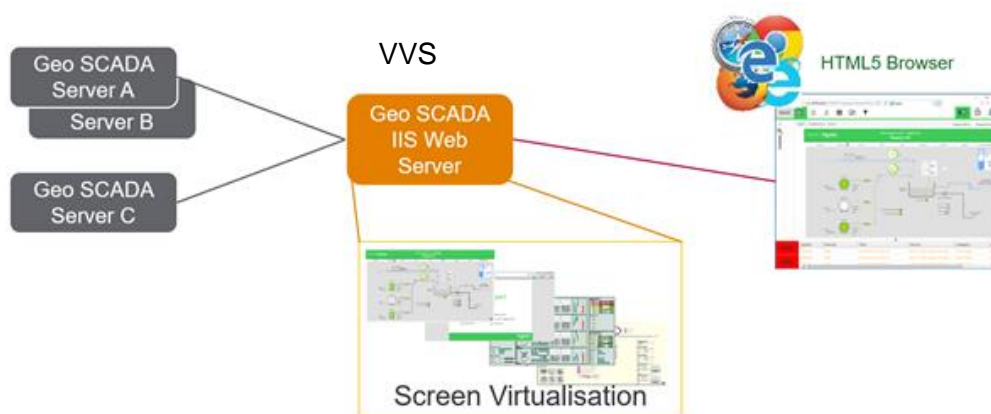
Even more significant than the name changes, we have developed a new way to get to Geo SCADA Expert from a web browser. In fact, most up-to-date HTML5 compatible web browsers can be used.

We are also giving this a new name; "Virtual ViewX". This is because you can now have much of the power of ViewX via the web.

In this release we are presenting Virtual ViewX with most ViewX features except:

- Configuration. Users cannot configure mimics or other objects. But users will be able to edit a trend and save it to their favorites or to their Operator Documents store.
- Administration. Users cannot create or modify users or start/stop the server.
- Multi-display. ViewX limits the display to the confines of the browser.
- Display size. The Virtual ViewX server defines the resolution available for clients.

## How It Works



The Geo SCADA Virtual ViewX Server (VVS) uses a screen virtualization technology to render ViewX content on the web browser. Each new Virtual ViewX user is given a private ViewX instance, logged in to their Geo SCADA user account. Consequently, the web server must have enough resources to run these Virtual ViewX instances for the number of users it is licensed for, and it may be necessary to distribute Virtual ViewX users differently from WebX.

The following is a guide to the resources needed. This is a guide and not a guarantee of performance.

- We recommend that in addition to operating system memory requirements (approximately 3Gb), you allocate 200 MB RAM per client, or more for complex mimic displays.
- We recommend one core per two ViewX clients up to 10, and one core per three ViewX clients beyond 10, with a minimum of four cores for a server.
- We recommend a minimum network connection for the server of 100 Mbps, with 1 Gbps preferred for servers hosting over 15 clients.



- An SSD drive for the operating system, Program Files and Log file locations is recommended.
- A modern (2018+) CPU of 2.5GHz or faster is recommended, and there will be a better user experience with greater CPU speed. A server-side graphics accelerator may increase performance.

Performance of Virtual ViewX may be affected by mimic complexity, user activity and the amount of displays shown.

A second session for a user (for example, a second tab or browser started on the same client) will count as a separate VVX Client for performance purposes, although it is included within the license of a single client.

Please refer to the Hardware Recommendations of product help and the Resource Center for further details.

## Architecture

When using a Windows Server operating system, the Virtual ViewX Server uses the Microsoft IIS web server as its foundation. This allows you to take advantage of its security features and management tools. When using Windows 10 the Virtual ViewX Server provides the web connection directly.

The Virtual ViewX web server can be on a separate Windows host from the Geo SCADA Expert server. We recommend for security and performance that a separate server (physical, virtual or cloud) is used for the web server and that this uses a server operating system.

Like ClearSCADA 2017 R3 WebX, the Virtual ViewX web server can connect to multiple and redundant Geo SCADA servers. However, note that all Geo SCADA servers must be software version 2019 or above, and cannot be older (i.e. ClearSCADA), nor be set to emulate older versions.

The Virtual ViewX Server is supported on a subset of the Windows versions supported for Geo SCADA Server. These are:

- Windows 10 (64 bit)
- Windows Server 2019
- Windows Server 2016
- Windows Server 2012 R2

## Licensing

Virtual ViewX is licensed differently from WebX and will require you to have new licenses. However, the Schneider Electric licensing staff will be able to transfer WebX licenses for Virtual ViewX on request, in whole or in part, for supported users of Geo SCADA, subject to terms and conditions.

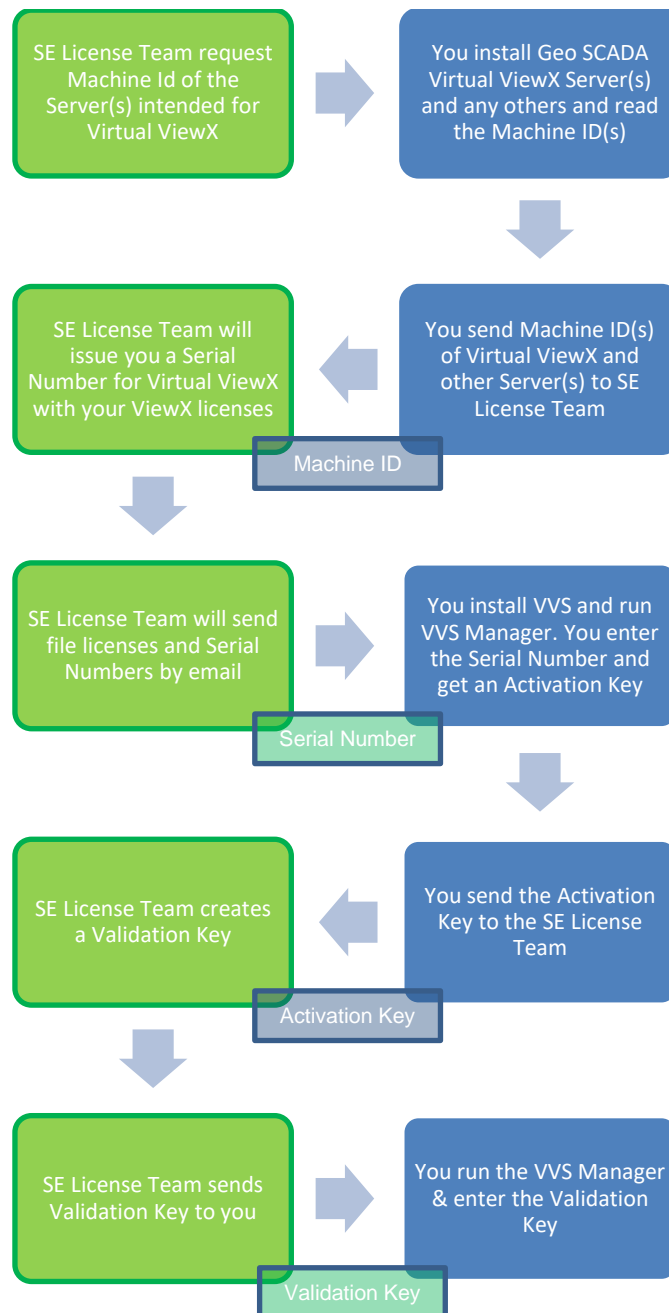
Note that you will continue to have the current WebX facility licensed within your servers until the next license change, because the WebX licenses transferred to Virtual ViewX will be withdrawn when new licenses are issued for those in annual support.

The original WebX facility (available directly from the Geo SCADA server) will be withdrawn in a future version of Geo SCADA yet to be determined. The server's web port will continue to provide web services to ViewX for scripting and to EcoStruxure Web Services beyond this point.

There are two changes needed for Virtual ViewX licensing:

- a) The Virtual ViewX Server itself requires a **Virtual ViewX Web Server** license. This is a single license for connection to multiple systems. It can be an existing dongle if the intended server already has one or will be a file license. The Schneider Electric licensing team will assist with this process. They can be reached at [orderstrss@se.com](mailto:orderstrss@se.com). The Schneider Electric licensing team will require a Machine Id for the server if a file license is used (recommended).
- b) The Virtual ViewX Web Server will need to be licensed for the correct number of Virtual ViewX client users. This is a separate software-based process from the existing ClearSCADA system and does not involve dongles or license files.

The latter process (b) for the Virtual ViewX Web Server requires a different licensing method and does not use the Machine Id. You will be provided with a Virtual ViewX Serial Number which you install, then you respond back with an Activation Key, and finally the Schneider Electric licensing team will provide you with a Validation Key. Refer to the following diagram showing each step:



There is a VVS manager option to 'self-validate' over the internet. Connecting SCADA systems to the internet is not recommended. We recommend that all licenses are registered offline via the SE Licensing Team.

## The Installation and Licensing Process

### Install Phase

As stated above, we advise you to install the Virtual ViewX Server on a separate PC. Install from the Geo SCADA 2019 physical DVD or the downloaded ISO image.

An installation video is available – find a link to this on the Resource Center:

<https://tprojects.schneider-electric.com/telemetry/display/CS/How-To+Videos>

But note that the Prepare step is no longer required.

The installation is initiated from the installer menu screen:

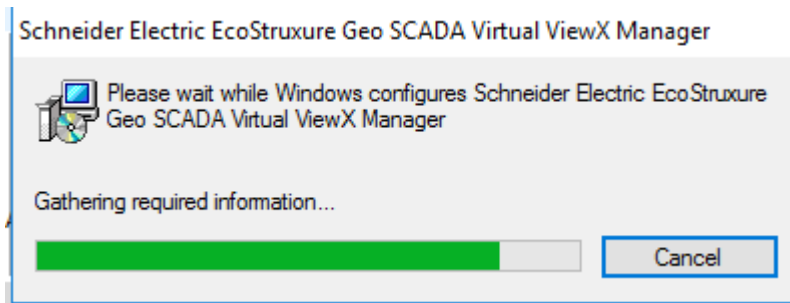


**Note: If you are upgrading ClearSCADA to Geo SCADA and installing Virtual ViewX on the same host, you must first uninstall WebX (if using ClearSCADA 2017 R2 or R3) or uninstall ClearSCADA (if using prior versions).**

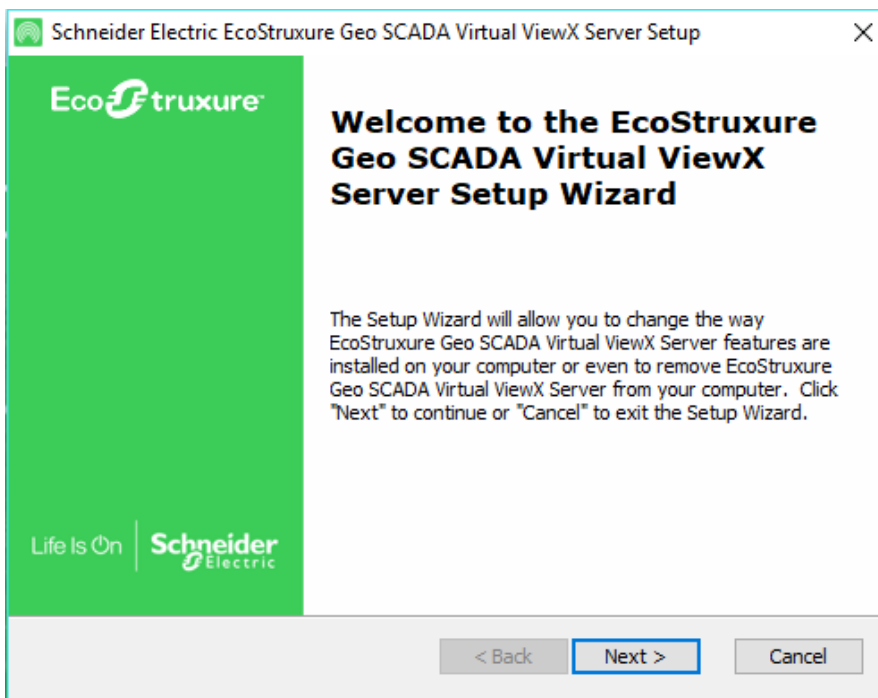
**Note: If you are upgrading a Windows 10 Virtual ViewX installation the previously used IIS server port 85 will conflict with the Virtual ViewX server port. For Virtual ViewX to be used you will need to either remove IIS or just disable the Virtual ViewX server port 85 within the IIS Manager application.**

Please ensure that your server has at least two processor cores available. This is often necessary for the installer to complete successfully. This is usually the case on physical hardware, but you may need to set up a virtual machine or cloud instance to have two or more cores available.

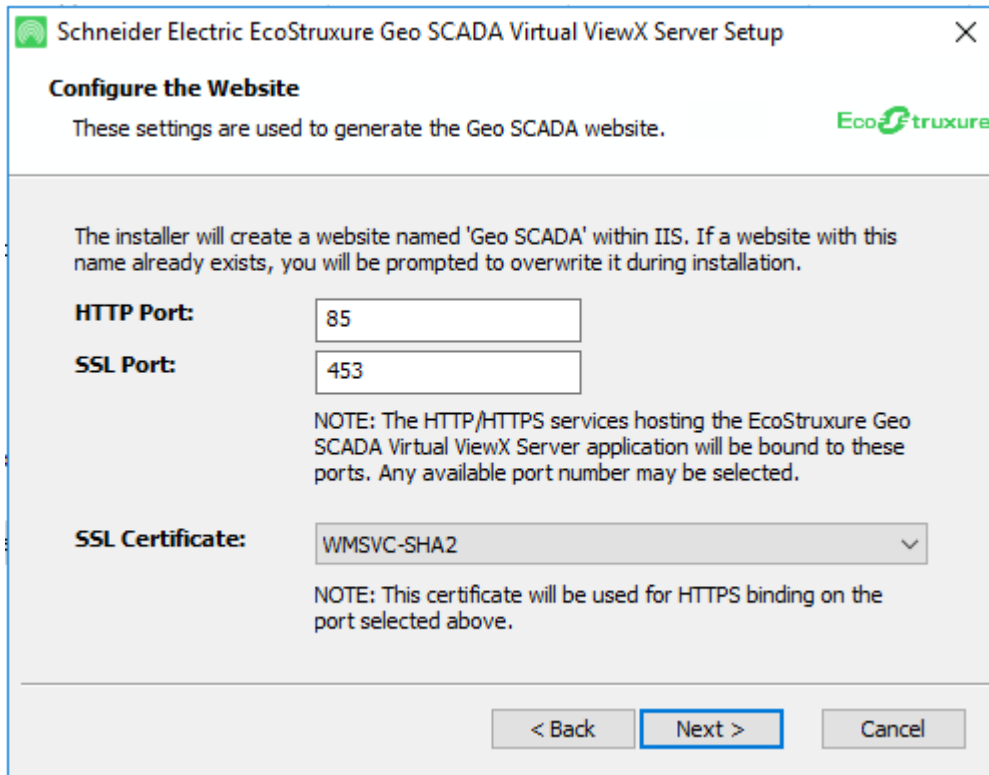
Clicking on the setup link will first install the prerequisites. The installer starts immediately and will not request confirmation.



Then it will present a welcome page for the main part of the installer. Click Next to proceed.



If you are running a server operating system, then the IIS web site will be created. You are asked to enter the ports to be used here. We recommend the defaults. The port selections made below can be modified after installation of Virtual ViewX by using the IIS Manager's 'Bindings' configuration.



For the server operating system, the SSL Certificate section is used to specify a self-signed or publicly signed certificate to be used for the SSL port connections by IIS. If the server has no public certificate installed or has not previously generated a self-signed key (for example, from a previous installation of Virtual ViewX or IIS WebX) then no certificate can be selected and the installation process will create a new self-signed certificate using the machine name. We recommend that you:

- a) obtain a public certificate from a certification authority,
- b) install using 'Manage Computer Certificates' Control Panel app, and;
- c) configure IIS to use it by selecting the IIS Manager's 'Bindings' configuration.

If you are running the Windows 10 operating system, then the Virtual ViewX Manager application can be used later to configure certificates.

On commencing installation, the main part of Virtual ViewX is installed and several progress dialogs are shown. This can take several minutes as advised. On completion of this installation, please restart the server if requested. A restart may warn that a user is logged in, this is normal.

After restart the following items can be typically seen in the installed programs on the computer, dependent on operating system:

- IIS 10.0 Express
- IIS URL Rewrite Module 2 (Micro
- IISSetup (Schneider Electric)
- Schneider Electric EcoStruxure Geo SCADA Virtual ViewX Server
- Microsoft Application Request Routing 3.0

There will be a Geo SCADA Expert 2019 entry if this is also the SCADA server. The **Virtual ViewX Server** is the main software added when you install, so remove this and reinstall to repair the installation if required.

The IIS pre-requisites installed by Virtual ViewX may also be used by other web server applications so should not be removed unless you are sure that there are no other IIS web server applications using them. (The program 'IISSetup' is an artefact of the IIS installation process and can be safely removed).

For Windows 10 operating system there is a single service installed. This should be running, and you should check this in the Services applet:

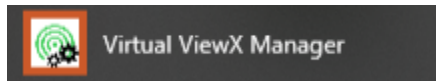
- Thinfinitly VirtualUI Server

On Windows Servers there are two separate services:

- Thinfinitly VirtualUI Broker
- Thinfinitly VirtualUI Gateway

## Licensing Phase

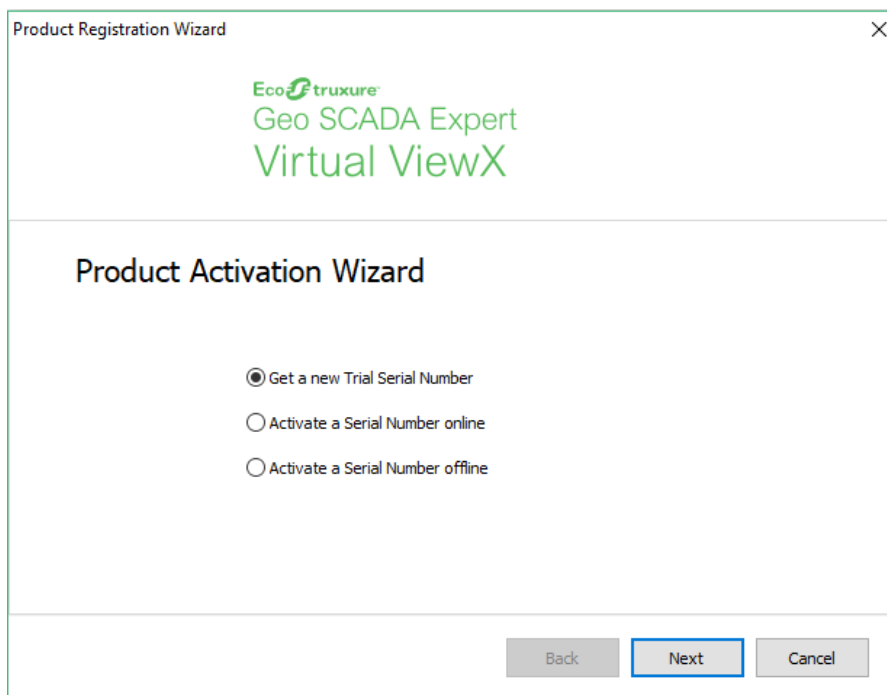
Start the licensing process for Virtual ViewX by selecting from the Start Menu: 'Virtual ViewX Manager':



This will enter the Product Activation Wizard.

There are three options:

**Note:** If you are installing the Virtual ViewX server on a Windows Server operating system, be aware that the installation and setup process creates a user 'VirtualUI' with the 'Remote Desktop' privilege. This may be blocked on servers belonging to an Active Directory Domain, or in some other installations, causing failure of the 'Thinfinity Virtual UI' Service. If this is the case, you will find that the licensing process will fail. See the section below 'Virtual ViewX uses Windows Users'.



The options are described here:

### Get a new Trial Serial Number

This process allows you to get a 1 month trial for Virtual ViewX. You will need to enter your name and your email address to receive activation details. The server must be internet-connected for this process to work. The email address is used to receive registration details sent to you.



## Activate a Serial Number online

This process allows you to activate Virtual ViewX using a Serial Number received from Schneider Electric. The server must be internet-connected for this process to work. The email address is not used in the process, so can be any valid address.

**NOTE: We recommend you do not license Virtual ViewX using this method.** Doing so will result in incomplete recording of license activation details and support may be more difficult to provide.

## Activate a Serial Number offline

We recommend this option for licenses purchased from or upgraded by Schneider Electric.

This process allows you to activate Virtual ViewX using a Serial Number received from Schneider Electric via a Validation Key you exchange for an Activation Key with the SE Licensing Team. You will first need to enter the Serial Number to generate the Activation Key on the server. The server need not be internet-connected for this process to work.

Product Registration Wizard

Ecostruxure  
Geo SCADA Expert  
Virtual ViewX

**Register Serial Number**

Enter the Serial Number to generate an offline activation key

Serial:

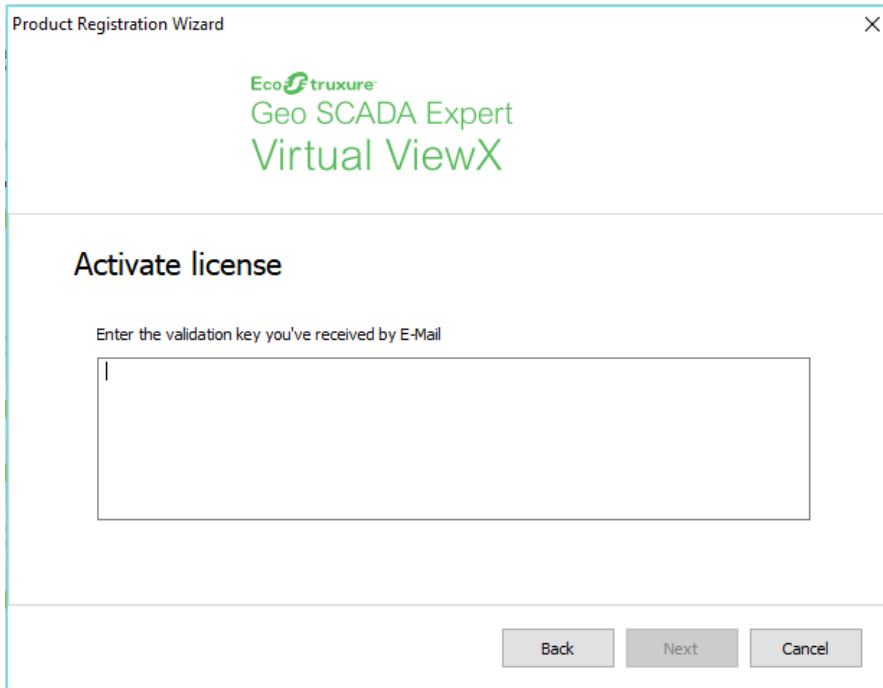
Activation Key:

Generate Activation Key

Back Next Cancel

Once you have an Activation Key in the dialog box shown above, email it to the Schneider Electric Licensing Team which can be reached at [orderstrss@se.com](mailto:orderstrss@se.com).

Once you have received communication containing the Validation Key, the Next button will take you to the Activation dialog.



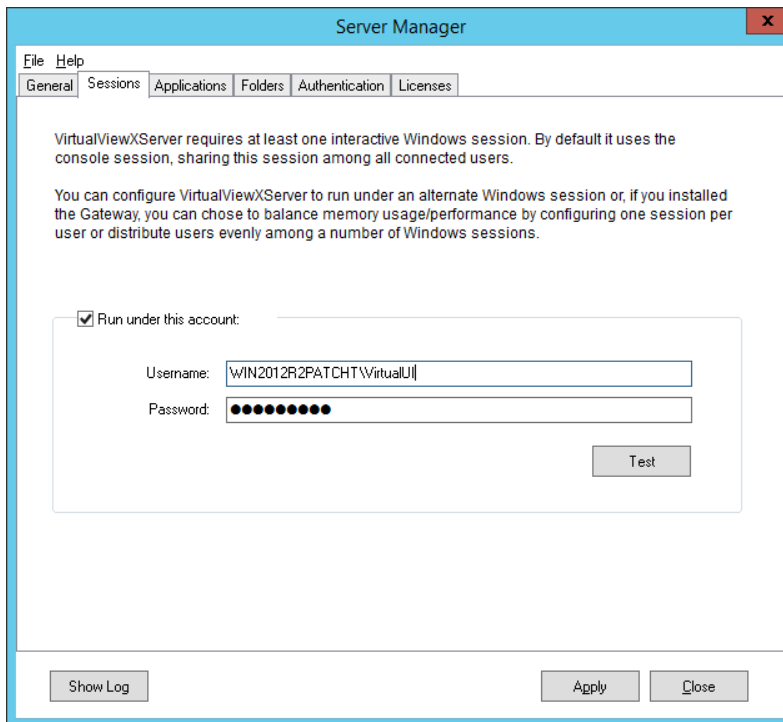
If some time passes between generation of the Activation Key and receipt of the Validation Key, there is no issue. Just restart the Virtual ViewX Manager.

On receipt of the Validation Key, enter it into the relevant box. You can then view the available and used licenses with the tabs in this manager application. The Validation Key is long and needs to be entered without additional line breaks or spaces.

## Virtual ViewX uses Windows Users

Installation will create the following users:

- a) If using Windows Server, a user account used to run the Windows Service. Named 'VirtualUI'. This user requires the 'Remote Desktop' privilege. If the installer is blocked from creating this account with 'Remote Desktop' privilege then you may need to create a new user with this privilege, cancel the licensing dialog to get to the setup dialogs, go to the Sessions tab (as in the image below) and enter your manually-created user into this form:



If you clear the 'Run under this account' check box, then Virtual ViewX will only be able to run under the account of the logged-in Windows user on the main desktop. (Which will be the case for Windows 10 installations). The 'VirtualUI' user needs access to these folders:

- C:\Program Files\Thinfinity\VirtualUI
- C:\ProgramData\Cybele Software\Thinfinity\VirtualUI
- C:\Users\Public\Documents\Cybele Software
- C:\Program Files (x86)\Schneider Electric\ClearSCADA

b) For Windows 10 and Windows Server, a user account used by the IIS web server to run the Virtual ViewX processes. This account is called 'VVXLocalUser'. It needs to be a member of the 'Users' group, and have access to:

- C:\Program Files (x86)\Schneider Electric\ClearSCADA

Both of these users are created with settings such that their passwords are complex, random and do not expire.

## Virtual ViewX Server Addresses

The new Virtual ViewX Server is hosted by default using the web ports 85 and 453 (the latter on Windows Server and with a self-signed certificate). On Windows 10 only one web port can be selected, and by default port 85 is used.

Users therefore need to enter either of the following URLs depending on whether unencrypted or secure communications are used.

`http://<server address>:85`

`https://<server address>:453`

We recommend that you disable the mappings to ports which are not to be used and install a fully signed certificate. We recommend that you use secure communications and obtain a public security certificate.

You may need to make your selection(s) of ports available through Windows Firewall or other firewalls.

## Coexistence with other Web Servers and Services

The Original WebX server built into the database server of ClearSCADA is still part of the product and is available in Geo SCADA. It will be retained for further major releases but will eventually be removed. However, its web services (SOAP and REST) will continue to be available beyond that for some time. Its port numbers default to 80 and 443 on the Geo SCADA servers.

The new IIS WebX server released originally on ClearSCADA 2015 and which uses IIS as its foundation can similarly continue to be used with this version of Geo SCADA when installed on a separate server but must be installed from the ClearSCADA 2017 R3 media. It will continue to be supported for the lifetime of ClearSCADA 2017 R3. Its port numbers default to 85 and 453, and the web URL is /WebX

- IIS WebX **cannot** be used on the same host as Virtual ViewX.
- IIS WebX **cannot** be used on the same host as Geo SCADA 2019
- The Virtual ViewX server cannot be used on the same host as a different version of ClearSCADA (Geo SCADA).

If you are upgrading ClearSCADA to Geo SCADA and installing Virtual ViewX on the same host, you must first uninstall IIS WebX (if using ClearSCADA 2017 R2 or R3) or uninstall ClearSCADA (if using prior versions of IIS WebX).

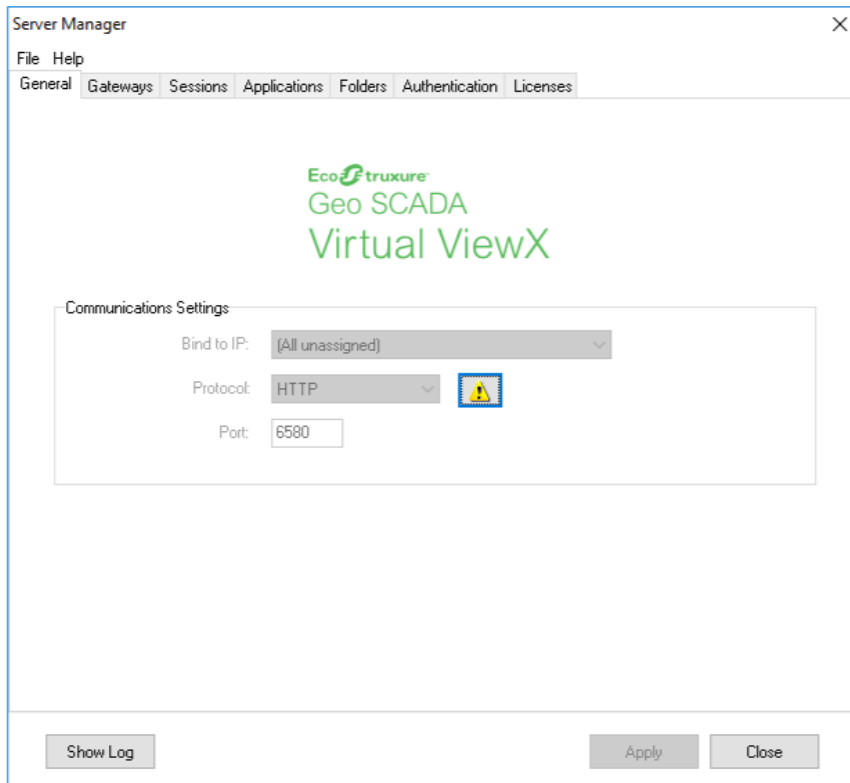
Virtual ViewX server can coexist with (the same version of) Geo SCADA on one host, but for performance and security reasons we recommend separation.

## Basic Setup of Virtual ViewX

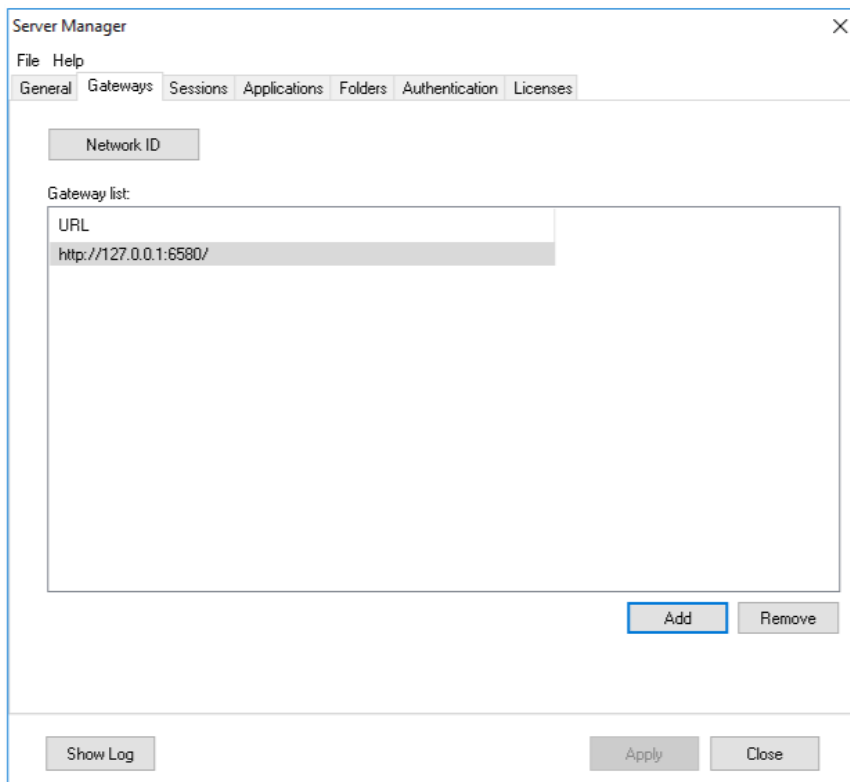
The Virtual ViewX Manager application has several tabs for setup. However, the default settings are correct for normal usage. The Manager has a series of tabs for various settings. Some are described here. For more detail refer to product documentation.

## Virtual ViewX Manager on a Server Operating System

The first tab labelled 'General' will contain read-only settings:



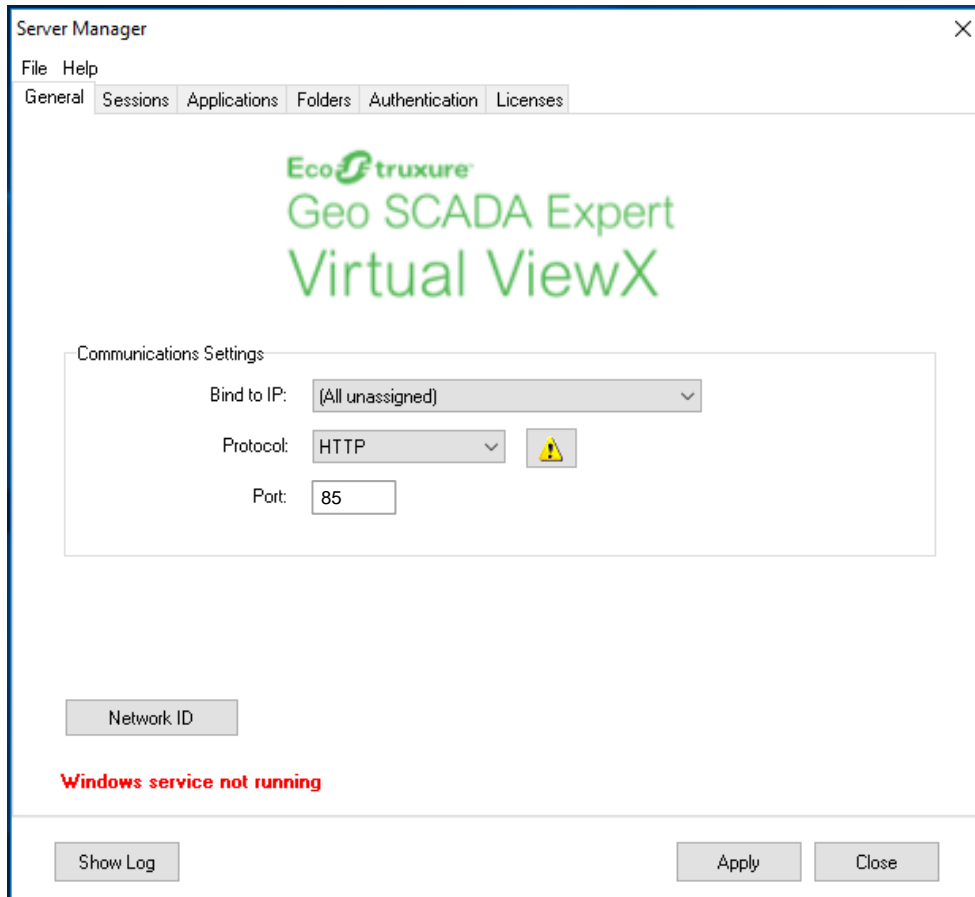
These settings are superseded by those on the next tab labelled 'Gateways':




The port indicated on this page of the Server Manager (port 6580) is for internal use and is not to be altered. Use of this port is only required on the web server host, and can be restricted by firewall.

## Virtual ViewX Manager on Windows 10 Operating System

The port in the dialog box below will be 85 by default.



Note that if you see the red warning as above 'Windows service not running', please locate the service in the Services control panel applet and start it.

 Thinfinity VirtualUI Server

Running Automatic

Local System

## Licensing Status

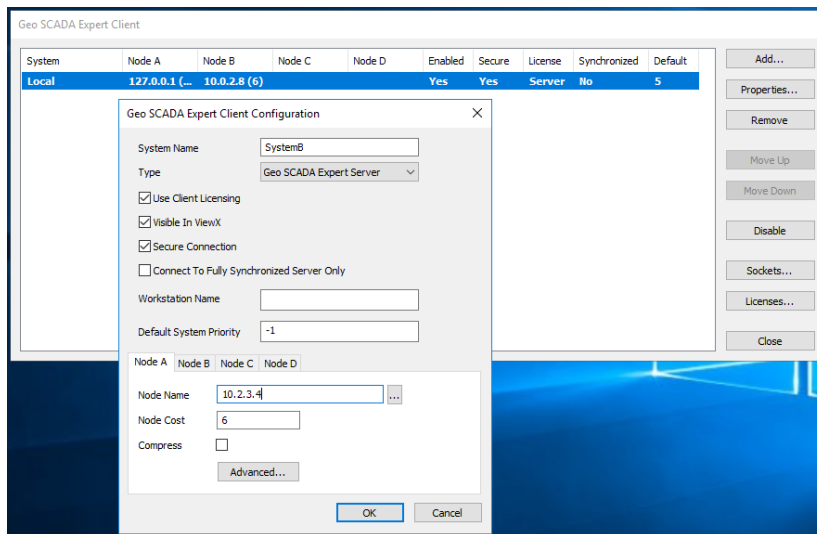
The last tab indicates the license status and allows you to monitor license usage. There is also a button to enable the removal of the license from the host. You will need to use this if you wish to transfer licenses to another host, but please contact the License Team when required.

## Client Connection Setup

The Virtual ViewX server will need to be configured on the web server node so that each client can reach the Geo SCADA server. Use the Configure Connections tool as you would


set up any client, with multiple systems and multiple servers per system. The Geo SCADA servers must all be version 2019 or later. The settings file for connections remains the same:

C:\ProgramData\Schneider Electric\ClearSCADA\System.XML



## Logging in to Virtual ViewX

As a final step before testing, you should restart the service:

 Thinfinity VirtualUI Server

Running Automatic

Local System

Connect your web browser to the server. The web address needed by the browser will default to the following:

http://<server address>:85

or (if using Windows Server):

https://<server address>:453

Enter your Geo SCADA username and password into the login box. The server will start an instance of Virtual ViewX and present that on the browser. You are logged in to any of the servers configured in the 'Configure Connections' stage. When logging out, the Virtual ViewX session will be ended and you will be logged out of all servers.

## The Virtual ViewX Environment

Virtual ViewX has the capabilities of ViewX but without configuration or administration facilities. This means that users previously used to WebX can now take advantage of operational ViewX capability such as floating windows, trend editing, operator documents, search etc.

## ViewX User Registry

Some mimic and mimic script configuration access local PC registry settings using the 'REGISTRY' expression. For example, these might be used by applications to set

workstation-specific colors or layer selections. To facilitate Virtual ViewX, for which multiple instances may be executing on the same host, we have moved these settings from the registry to the database and associated them with the logged in user, dynamically saved to the database. Therefore, the local PC registry will no longer be read by ViewX, and a user will share these 'registry' settings on sessions when logged in to different devices. This affects both Virtual ViewX and ViewX.

## ViewX Local Settings

Some ViewX settings are retained in files specific to Windows Users. These settings are those set in the Options menu or are set from the last run session, and include:

- Some Guest user properties
- Fonts and sizes
- Inactivity logout and shutdown settings
- Alarm banner column size and order

The behavior of these settings is different for Virtual ViewX. The Options menu item on Virtual ViewX is not enabled.

The setting for the maximum number of windows permitted is capped at 5, and the flash rate is also slowed to 1 second.

Virtual ViewX will read the settings files on the web server, but not write them back at the end of a session. To set these for Virtual ViewX:

- Run the full ViewX program on the web server, using the Start menu or Desktop icon. Then edit the options and set alarm banner column sizes. Then logout.
- Copy the two settings files from the logged-in user's AppData folder into the Virtual ViewX user's folder. The Virtual ViewX user name is: VVXLocalUser.

The settings files are located at:

```
C:\Users\VVXLocalUser\AppData\Local\Schneider Electric\ClearSCADA\ViewX  
Global Settings.dat
```

and

```
C:\Users\VVXLocalUser\AppData\Local\Schneider Electric\ClearSCADA\ViewX Head  
1 Settings.dat
```

## Microsoft Internet Information Server (IIS) Configuration (Windows Server)

### Bindings

After installation the Virtual ViewX ports and certificate settings can be altered using the IIS Configuration administration tool. Please refer to the installation documentation for details.



## **Application Pools**

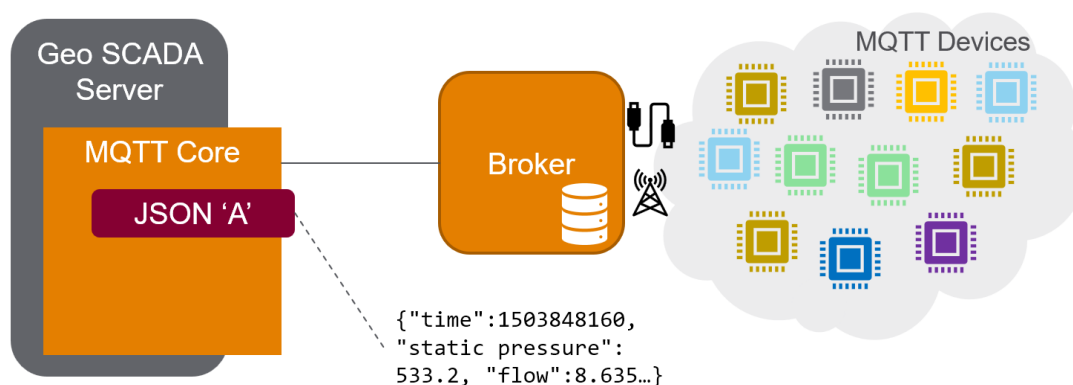
These settings are used by IIS to provide segregation for each web site for security and other reasons. The Application Pool used for Virtual ViewX is named 'ClearScadaAppPool', unchanged from IIS WebX. The pool for Geo SCADA Mobile is also unchanged and is 'ClearScadaMobileAppPool'.

## MQTT Driver

The newest driver added to Geo SCADA is for the MQTT protocol. MQTT is a very different protocol from SCADA communications such as DNP3 and Modbus. MQTT is a way of moving data between multiple field devices and masters using a 'Broker' – a kind of message buffer and router.

The license for this driver is included in the server automatically, and it is installed by default.

MQTT is becoming more prevalent in 'Internet of Things' applications, particularly for smaller devices in larger numbers. The MQTT standard does not specify the meaning of message content. Therefore, we have implemented a plug-in architecture for protocols, and created the first driver using a simple text protocol using 'JSON'.



The broker is not included in Geo SCADA 2019, that is external software which is available from various sources including Open Source software. Common brokers available for download include:

Eclipse Mosquitto™ - <https://mosquitto.org/>

RabbitMQ - <https://www.rabbitmq.com/>

Mosca - <https://github.com/mcollina/mosca>

Schneider Electric cannot endorse a particular broker.

Features of the Geo SCADA MQTT Driver include:

- MQTT 3.1 and 3.1.1 Support
- User/password authentication
- TLS (Transport Layer Security)

The above features will be common to different plug-in drivers. The first payload Extension Driver is for a JSON format. This is simple and can be output from a device or some other software system.

The box on this page describes the format.

## **JSON Format 'A' Data**

### **Topic**

The topic equates to an 'id' of an RTU, e.g. ABC123, or EAST/Site2

There are two message formats, 'Periodic' and 'Alarm'. They are very similar.

### **Periodic Format**

Example

```
{
  "time": 1555490024,
  "Pressure A": 123.456,
  "Pressure B": 543,
  "Door Status": 1
}
```

"time" is an integer - unix epoch time in seconds. All other names/values are pairs of point identifications and their values.

The point identification is a configurable property of a point - not necessarily the point name, so it can be different from the name. For analogues, the value is any valid JSON number, including exponents, e.g. 1e-005 For digitals, the value is 0 or 1 only, for 1 bit points. There are also counters, for which the value must be an integer.

### **Alarm Format**

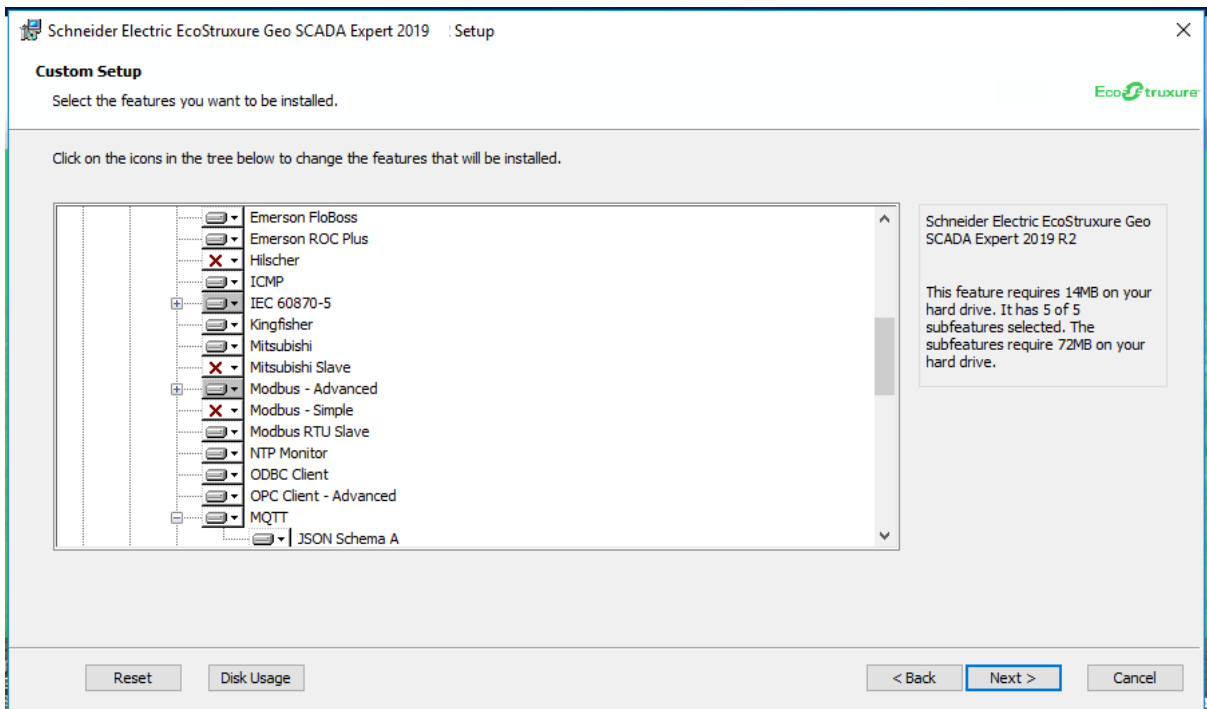
Example

```
{
  "time": 1555490025,
  "Pressure A": 123.456,
  "status": "high"
}
```

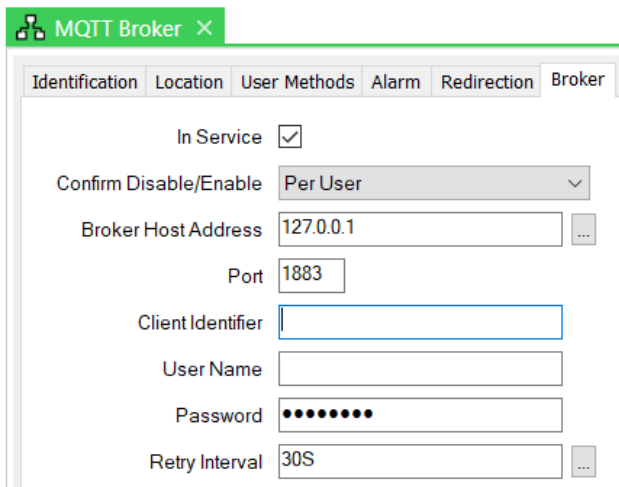
"time" is as above. The second property is the point identification its value. The third property "status" is notionally the alarm state name, but the driver ignores this property.

The consequence of the "status" property is that no points can be identified by the string "status". "time" is also a reserved word.

To use the driver, first ensure it is installed (it will install and be licensed alongside the other drivers in the product).



Then create a 'Broker' object to retain the broker settings. The broker may have user authentication and security certificates. A simple configuration to a local broker is as follows.



Create a 'Device' object to represent a collection of points sharing the same topic – the 'topic prefix'. The topic prefix may include a hierarchy, such as East/MyDevice1 in this case.

JSON A Device 1 X

Identification Location User Methods Alarm Redirection MQTT

In Service

Confirm Disable/Enable Per User

Broker MQTT.MQTT Broker ... [Go To](#)

Topic Prefix East/MyDevice1

Reported time offset from UTC 0 ...

Finally create points which are linked to the device, and use a tag name to identify them within the JSON content.

JSON A Analog 1 X

Identification Location User Methods Alarm Redirection Point Historic Analog Point Master Station Alarm Limits

In Service

Confirm Disable/Enable Per User

Device MQTT.JSON A Device 1 ... [Go To](#)

Tag Name Analog1

For testing the MQTT driver you might use utilities which are part of the broker, or other test code to send a message. For example, with mosquitto the mosquitto\_pub utility can be used.

For testing you may use a web page such as [www.epochconverter.com](http://www.epochconverter.com) to create a time stamp, which must be an integer.

```
mosquitto_pub -h 127.0.0.1 -p 1883 -t /East\MyDevice1 -m "{\"time\":1559225529, \"Analog1\":12.3}"
```

Alternatively, you may test with Node-RED, which provides drag and drop configuration.

We strongly recommend using network-connected Geo SCADA Expert drivers such as MQTT in a private network, or if used over the public internet, a VPN. We also recommend using valid SSL certificates to initiate secure connections and encrypt the data that is transmitted over the network.

# Other Enhancements

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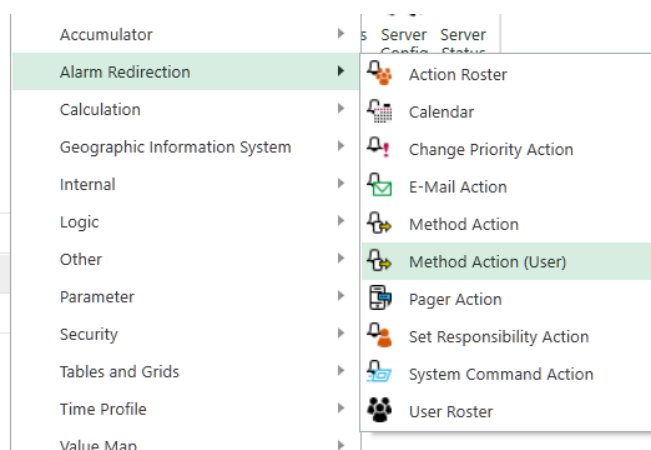
## Alarm Redirection – User Method Action

Geo SCADA alarm redirection is a very flexible system for allowing the system to take actions when objects change their alarm state. The capabilities for redirecting individual or groups of alarms and for filtering by many different characteristics are extensive.

There are two main kinds of action which can be taken – those where a specific user is targeted (such as SMS/Text/Pager and Email redirection) and those which are targeted generally (such as a Windows Command, an Object Method or Severity escalation).

The additional functionality for Geo SCADA 2019 is a new Object Method redirection which can be configured and targeted at specified users and user groups. This new redirection type enables customers and integrators to design such extensions as a Voice alarm announcement using the Twilio web service.

The new object is found in the Create New ... Alarm Redirection context menu:



The object has configuration fields which combine the user-targeted alarm redirections and an object's method with parameters. These include:

1. the inhibit action, so that the redirection can be enabled depending on logged-on state.
2. The redirection scheme, enabling actions for a user or group, or redirecting dependent on the alarm and the user's geographical areas.
3. The selection of object for action, and the method to be executed. The parameters within the method can include trip codes to include alarm information, and this also includes any information from the user object.

### Example

An example to demonstrate this feature is illustrated here. The output remains within Geo SCADA as event logging, so the example is used only to describe setup.

1. First create a user to target the redirection, we will add the voice capability so that the telephone number of the user can be set up. (An alternative may be to use the Pager ID and configure a dummy Pager Service):

2. And:

3. The User ID and the PIN can be used by your application which connects to voice capabilities, as described later.
4. Then create a Logic program which the redirection can execute. This can accept the alarm parameters including the user's name and telephone number. Set the Execution Interval to 0 seconds, so that the program will only run when executed from the redirection.

```

PROGRAM HandleAlarmLogic
(* Configure Method on the redirection as:
Execute('%ACookie%', '%ASeverity%', '%ASource%', '%AMessage%', '%ACategory%',
    '%ACondName%', '%ASubCondName%', '%ASubCondActiveDateTime%', '%N',
    '%rUserId.Name%', '%rUserId.ContactConfig.VoicemailNumber%') *)
VAR_INPUT
    Cookie:           DINT;
    Severity:         STRING;
    Source:           STRING;
    Message:          STRING;
    Category:         STRING;
    ConditionName:    STRING;
    SubConditionName: STRING;
    SubConditionActiveDT: DT;
    Server:           STRING;
    UserName:         STRING;
    UserVoicemailNumber: STRING;
END_VAR
VAR
    Parameters: STRING;
END_VAR
METHOD
    LogEvent AT %M(Test method action for users.LogInterfaceEvent): DT, DINT,
    STRING;
END_METHOD
Parameters := CONCAT( DINT_TO_STRING(Cookie), ',', Severity, ',', Source,
    ',', Message, ',', Category, ',', ConditionName, ',', SubConditionName,
    ',', DATE_AND_TIME_TO_STRING(SubConditionActiveDT), ',', Server,
    ',', UserName, ',', UserVoicemailNumber );
LogEvent( NOW(), 1, Parameters);
(* SYSTEM( 'c:\myalarmprogram.exe ' + Parameters); *)
END_PROGRAM

```

- The first comment within this logic advises the parameters to be used on the redirection. The second shows how to run an external program based on the parameters. The external program may be the initiator of the voice call. Alternatively, the program could be based on a driver written using .Net with the Geo SCADA Driver Development Kit, and the database Method executed will be coded within that driver.
- Finally create one of the new Method Actions for users, and set up as follows:

- The Method name and parameters can be copied as a single line from the first comment within the Logic program.
- Finally add this new alarm redirection to the group/folder containing alarms to be redirected. In the simplest case this will redirect all raised alarms to the executing Logic, but filters for severity, time, region etc can be added here:

- When an alarm is raised within the group or sub-groups, the Logic will be executed, in this case to log an event:

Severity	Time	Source	Message	User	Category
Low	12/06/2019 10:58:16.777	Test method action for users	195446.Medium,Test method action for users.Analog Point,State changed from Normal to High High, value is 99.00 (Current data),Point State,AnalogueValue1,HighHigh,12-06-2019 09:58:16.094,WTGBLVSE047934L,steveo,07972 036980		Logic - Interface Event
Low	12/06/2019 10:58:16.095	Test method action for users.Method Action (User)	Method Execute on object "Handle Alarm Logic" executed successfully		Logic - Alarm Redirection
Low	12/06/2019 10:58:16.095	Test method action for users.Analog Point	Alarm "12/06/2019 10:58:16.094 State changed from Normal to High High, value is 99.00 (Current data)" redirected to "Method Action (User)"		System - Alarm Redirection
Medium	12/06/2019 10:58:16.094	Test method action for users.Analog Point	State changed from Normal to High High, value is 99.00 (Current data) - Alarm raised		System - Point State
Low	12/06/2019 10:58:16.094	Test method action for users.Analog Point	Hand controlled to 99.00		System - Action

- The text of the event is: 195446,Medium,Test method action for users.Analog Point,State changed from Normal to High High, value is 99.00 (Current data),Point State,AnalogueValue1,HighHigh,12-06-2019 09:58:16.094,WTGBLVSE047934L,steveo,07972 036980



Notes:

1. The security settings of the user targeted by the redirection are used to determine whether the database Method can be executed. In this case, using Logic, users must have 'Control' permission on the Logic program initiated by the redirection.
2. When executing a SYSTEM command, you may wish to choose delimiters between parameters which are not found within alarm information.

## Integration with Voice Telephony Services

When integrating these alarm redirection features with external software, you have the power to create a customized solution which can send your choice of messages to users. You are also able to use the Voicemail User ID and PIN to allow users to authorize actions such as acknowledging an alarm. The User ID and PIN are numeric codes which a user can enter on a telephone keypad, and these are in effect the login credentials for the user to cause alarm acknowledgement.

A sample integration showing how these features can be used to direct voice alarms to internet-based voice dialing services will be added to the Geo SCADA Resource Center online. We provide this code only as a sample and do not warrant its operation. The comments within the presentation and code files explain some actions you may need to take to secure it within your environment.

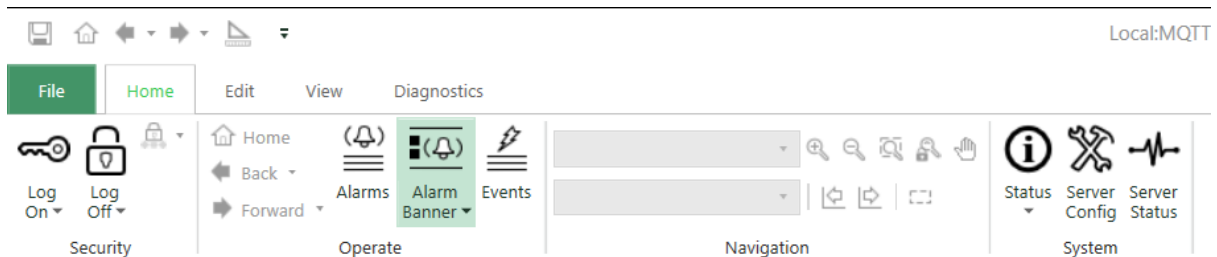
The example code is available on GitHub at:

<https://github.com/ClearSCADA/notify>

# ViewX

## Changes to the UI

We have added ribbon access to Server Status and Server Configuration Tool. The ViewX ribbon menu has two new buttons for starting these tools. Note that for these buttons to be available from the ViewX ribbon, the tools must be installed on the client (or server if this instance of ViewX is installed on the server). Also note that an administrative login to the tools themselves is still required.



We have added filtering support to the Display References window in ViewX. We also allow usage of the cursor keys to expand/collapse nodes in the Display References window, improved display of truncated text within the Display References window when scrolling and prevented nodes in the Display References window from being expanded/collapsed when the server is offline.

# Programming

## Using Scripts with SQL Queries on Mimics

We have extended the scripted properties available on lists within mimics. These enable the data values in the first column of the list to be read after the click. Properties are `Current1stColDataStr` for a string column and `Current1stColDataInt` for integer data. Previously it would have been necessary to read the row number of the clicked list, then re-run the query from script to check which row data was selected. These new properties allow script to be more efficient. For example, add a query to a mimic with the SQL `SELECT DESCRIPTION FROM CSEVERITY`. Then add a script pick action which includes:

```
MsgBox "You clicked row " & _  
    Mimic.Layers("New Layer").Item("Lst_1").CurrentRowIndex & _  
    " Text " & _  
    Mimic.Layers("New Layer").Item("Lst_1").Current1stColDataStr
```

## Deleting Historic Data

The historic data for points can be deleted selectively. This is by using the object methods attached to the `CHistoryBase` aggregate database class. The schema exposes these methods:

Name	Display Name	Description	Privilege	Arguments
DeleteValue	Delete Value	Permanently delete a value at a specified time.	System Admin	<ol style="list-style-type: none"><li>1. Timestamp (Time) : Timestamp of historic value to be deleted.</li><li>2. HistoricSourceType (Byte) : Source of History, 1 = Raw, 2 = Modified, 3 = Both.</li><li>3. Comment (String) : Comment to be logged with the event.</li></ol>
DeleteValues	Delete Values	Permanently delete values within a time range.	System Admin	<ol style="list-style-type: none"><li>1. StartTime (Time) : Start time of the region of data to be deleted.</li><li>2. EndTime (Time) : End time of the region of data to be deleted.</li><li>3. HistoricSourceType (Byte) : Source of History, 1 = Raw, 2 = Modified, 3 = Both.</li><li>4. Comment (String) : Comment to be logged with the event.</li></ol>

Note that administrator access is required for these methods. An example of their use within VB script is as follows:

```
sub doDelete
  Set s = Server.FindObject("Test His Delete.New Analog Point")
  utcOffset = 1/24 'For convenience, edit this to 1/24 for BST or use your own offset

  oneSec = 1/24/3600
  t = Now - utcOffset - oneMin

  s.Interface.Historic.InsertValue t, 1.0, 192, 2
  s.Interface.Historic.ModifyValue t, 2.0, 192, "modify to 2"
  s.Interface.Historic.DeleteValue( t, 1, "Delete raw only")

  s.Interface.Historic.InsertValue t + oneSec * 5, 5.0, 192, 2
  s.Interface.Historic.ModifyValue t + oneSec * 5, 6.0, 192, "modify to 6"
  s.Interface.Historic.DeleteValue( t + oneSec * 5, 3, "Delete both")

  s.Interface.Historic.InsertValue t + oneSec * 10, 11.0, 192, 2
  s.Interface.Historic.ModifyValue t + oneSec * 10, 12.0, 192, "modify to 12"
  s.Interface.Historic.InsertValue t + oneSec * 11, 11.5, 192, 2
  s.Interface.Historic.ModifyValue t + oneSec * 11, 12.5, 192, "modify to 12.5"
  s.Interface.Historic.DeleteValues( t + oneSec * 8, t + oneSec * 12, 3, "Deletes both")
end sub
```

## Client API

The .Net Client API call to make an advanced connection to the database has gained a new parameter which specifies limited functionality. This prevents the connection from gaining administrator and configuration privileges. The old connection call can still be used but will issue a compiler warning. The new function is:

```
public ClearScada.Client.Advanced.IServer Connect(string clientName, bool
limitedClient);
```

## Drivers

### WITS-DNP3 Driver

The Worldwide Industrial Telemetry Standards driver which extends DNP3 has been enhanced. This driver is available only as a licensed addition to Geo SCADA Expert.

We added a separate historic data filter for end of period data to give more control of what data is stored by WITS points. This option was added to WITS Integrator, State Counter, State Runtime and Counter points. We also fixed end of period reset of WITS counter points not resetting point to zero.

## Licensing

Both file and dongle licenses now include a SiteId, which is a 6-digit reference number used by our technical support team to identify customers. This Id is shown on the Server Status tool's General page, the Server Icon's License Details form and on database log files. This number has no other functionality.

## Logging and Diagnostics

We have improved the database diagnostic information available through the Server Status and snapshot files:

- Added link ID to lock name for server links.
- Modified the Read/Write lock diagnostics page in Server Status so that the Read and Write lock diagnostics are now on separate pages. Each page is now sorted by the highest lock consumer (by percentage) to quickly identify what is using the lock.
- Changed format of link logging to make it clear what link to the link ID is from and allow for improved external tool processing.
- Improved CServerLink::HandleRequest lock information in snap shot files and log files so that it now includes a description rather than a number.

# Recent Updates

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## Resolved Customer Issues – November & December 2022 Update

- ViewX: Prevented an application crash that would occur if an attempt was made to close a modal dialog that had already been closed. This could happen if a programmatic close operation occurred after the user had clicked a button to close the dialog.
- [CSUP-13139] ViewX/Geo SCADA Expert web server: Resolved an issue that affected Mimic scripts that called the CheckAccess function on a database item. The call would display a diagnostic message if the requested privilege was disabled. The function now correctly returns False instead.
- [CSUP-13139] ViewX/Geo SCADA Expert web server: The GetPrivileges SOAP request has been updated to allow three subsets of privileges to be selected (All, EnabledOnly, DisableOnly), with EnabledOnly being the default. The response now indicates which privileges are enabled.
- [CSUP-13161] Geo SCADA Expert Server: Improved the Lock Usage Statistic's High and High High detection. A severity of None is now available, to switch off the LUS alarm.
- [CSUP-12918] Advanced Drivers: Fixed the processing of an automatic switch line on a shared outstation. This resolves an issue that could stall communication with the outstation. This could previously occur when heartbeating detected another, preferred line had become healthy, or some download configuration requests.
- [CSUP-12766] ViewX: Fixed an issue where shared, embedded Mimics would all show the same value if the connection between ViewX and the server was lost.
- ViewX: Previously, there was a small possibility of a ViewX deadlock or crash occurring if a Mimic document was closed while its Mimic Scripts were still executing. This has now been fixed.
- ViewX: Improved Mimic Script debugging, to ensure that the window focus between the Design Mode of the Mimic and the editing of the Mimic Script code is more intuitive.
- WITS Driver: Fixed validation of point state actions for all WITS point types. Previously, these validation diagnostic messages were reported against the wrong database field.
- [CSUP-13160] Advanced Drivers: Fixed the controlling of multiple points via an SQL UPDATE command. Previously only the first point was controlled with the specified value, all the other points were controlled to zero/empty string.
- [CSUP-12903] Geo SCADA Expert server: Prevented a possible server crash when a point that is configured to export to eDNA Historian does not have the expected OPCHDA attributes configured.

## Resolved Customer Issues – September & October 2022 Update

- [CSUP-13118] Historic Trends: Fixed an issue with historic Trends in which the quality filter was not applied correctly to modified values. Now only the modified values that

have a quality that matches the quality filter configured for the historic Trend are displayed.

- Geo SCADA Expert Database: Improved the security when accessing a linked database item via a reference to that item. For example, using the de-reference operator in SQL queries and trip sequences in alarm redirection actions and alternative names.
- ViewX: Improved the workflow when editing Mimics and Mimic Scripts.
- [CSUP-13136] IEC 60870-5 Driver: Fixed the handling of IEC 60870-5-104 logical outstations. The issue applied when initiating communications by sending an unsolicited message via an existing connection to the logical outstation's parent outstation. Previously, this could cause the outstation to become 'stuck' within the driver.
- [CSUP-13063] Fixed advanced driver's handling of a 'remote' network outstation sending an unsolicited message (via its parent outstation, e.g. a SCADAPack RTU used for DNP3 routing) to initiate comms with Geo SCADA, but the message is sent via the wrong parent outstation (so is from the wrong IP address), but is accepted due to 'Accept Connections from any Host' being enabled on the channel. This could cause the outstation to become stuck in the 'Disconnected' state.
- ViewX: Fixed a crash that could occur if a document is closed before it has completed its asynchronous initialization.
- DNP3 (eNET) Driver: Fixed a driver crash that can occur if an eNET outstation's Board Type is changed quickly.
- [CSUP-13074] Advanced drivers, Advanced EWS driver: Previously, the the driver's point processing was not fully initialised and could lead to a server crash when the invalid point update is received. The initialization of the driver has been corrected. In addition, the handling of quality-only updates has been enhanced. Derivation of Advanced EWS driver point states should no longer result in undefined states.
- [CSUP-13089] Geo SCADA Server: Added a check when querying a Data Set table to prevent a potential crash. Previously a crash could occur when a Data Set row's configuration became invalid, such as when containing an invalid expression in a cell.
- Advanced Drivers: Fixed the advanced drivers' network channels and their outstations' Comms Statistics. For all drivers the statistics are updated at the rate specified in the channel's scan parameters.
- [CSUP-13041] Geo SCADA Server: Cosmetic correction to database diagnostic logging, relating to the logged use of ISCXBrowse::List() and ISCXBrowse::ListEx() automation methods.
- Geo SCADA Server: When an invalid object ID is received when reading configuration, previously this could occasionally lead to crash in the server. This has been fixed.

## Resolved Customer Issues - August 2022 Update

- Erratum March 2022: Updated the Advanced OPC driver, simple OPC driver and Alarm and Event printer to be compatible with the DCOM security hardening that has been introduced by Microsoft. (KB5004442, made in response to CVE-2021-26414.)
- Geo SCADA Server: Fixed an issue that could lead to a crash in the server when invalid object ID is received when reading configuration.
- CSUP-13073 Crystal Reports Driver: Fixed exporting to an Excel spreadsheet when using a constant column width so that the correct width is used.

- Geo SCADA Server: Fixed a server crash that could occur when advising interest for an SQL query that has not been executed.
- Server Status: Fixed a bug that affected .NET client tag subscriptions, such that all LinkIds (under OPC/.NET Tags) were incorrectly shown as L00#00.
- CSUP-13004 Virtual ViewX: Text in configuration forms is now selectable and copyable when running in /limited mode.
- CSUP-12897 Geo SCADA Expert server: Fixed a database server crash that previously occurred when querying a Data Set table for specific row(s). The crash occurred due to one of the following: a queried row did not exist in the result set (but was associated with a different Data Set); a row had invalid configuration; or the Data Set was in a Group Template but Group Templates were not included in the result set.
- CSUP-13039 SQL Export driver: The choice of Locale of an SQL Export object is now used to select the language of messages used in the export's output.
- ViewX: Fixed a crash that could occur on exit of ViewX if alarms were disabled for the Guest user and ViewX was shutdown without another user logging on.
- CSUP-12190 Crystal Reports driver: Fixed a crash that could occur when saving a Crystal Report if the user no longer had permission to write the changes to the database object.
- Geo SCADA Expert server: Fixed a database server crash that could occur when loading a database and the Server Configuration tool's 'System Configuration | Alarms' category's 'Disable Alarms' option was set to 'Variable Duration'.

## Resolved Customer Issues - July 2022 Update

- CSUP-12705 Geo SCADA Expert server SQL processing: Previously, the use of the dereference operator to access an aggregate's array field did not work. This fix ensures that such referenced aggregates' array fields can be accessed as a whole array of values or accessed as a specific index in the array. SQL clients that support arrays and those that do not are handled consistently, as though the array field was accessed directly from projecting the aggregate in its own SQL table.
- CSUP-13001 Virtual ViewX: Improved the authentication of Virtual ViewX clients that are attempting to connect via a slow connection.
- CSUP-13006 ViewX: Previously, with a ViewX client that was connecting to multiple systems, one of the system's
- Alarm Banners might not reliably establish a connection to a Geo SCADA Expert server. This issue only occurred if the Guest settings in ViewX prevented the viewing of alarms. This issue has been fixed.
- CSUP-12977 ViewX: Fixed an exception that could occur when setting the page orientation before printing an embedded list (or an embedded Alarms List).
- CSUP-12995 ViewX: Closing a Mimic document and the sequence of releasing resources has been improved. Previously, closing a Mimic may occasionally have caused a crash if a Mimic Script was running.
- CSUP-12995 ViewX: Improved the parsing of pick action parameters to better support database objects or instances with names that contain parentheses.
- CSUP-12932 ViewX: Updating an SQL animation property using scripting now causes the execution of the updated SQL regardless of whether the SQL statement has



changed. Previously, updating the SQL animation property with the same SQL statement did not cause a re-execution of the SQL.

- CSUP-12961 ViewX: Prevented a possible hang on closing ViewX. This could occur if the closure occurred while ViewX was polling a Geo SCADA Expert server.
- Server Configuration tool: Minor improvement to the Global Parameter's Wonderware Alarm Provider page.

## Resolved Customer Issues - June 2022 Update

- CSUP-12909 SCADAPack x70: Improvements have been made to enable users to resolve configuration errors relating to Unsolicited Events (DNP3 only). This improvement affects the Alarm Limit-RTU Event-'Enabled Unsolicited', Value Deviation-'Unsolicited Events' and Out Of Range Limits-'Unsolicited Events' options for SCADAPack x70 analog configuration objects, and Event Attributes-'Unsolicited Events' for SCADAPack x70 counter and digital configuration objects.
- Geo SCADA Mobile: Fixed an issue that could occur when using Geo SCADA Mobile to access the system if the User's account did not have its Location Source set as Dynamic. Previously, the access via Geo SCADA Mobile could cause intermittent connection errors and impact other users of Geo SCADA Mobile. Updating the Geo SCADA Expert server and its Mobile Companion component will deploy this fix - there is no need to update the Geo SCADA Mobile server or mobile apps.
- CSUP-12950 DNP3 driver: Security Fix - Secure authentication responses containing an invalid Authentication Session Key Status (g120v5) from a faulty outstation are handled correctly.
- CSUP-12954 ViewX: Fixed an issue with viewing content on a full-screen Alarm Banner. This issue only occurred after opening ViewX, if the guest user did not have privileges to view alarms, and then a privileged user logged onto the system. The full-screen Alarm Banner now updates correctly.
- CSUP-12928 FloBoss driver: Updated the controls for Digital points to ensure that the requested value is changed when controlling a single bit in a bit field.
- CSUP-11071 ViewX Scripting: Correction to the script interface for Forms. Ensure the correct values are returned when using any of the following properties:
  - Group box Width
  - Group box Height
  - Edit box Width
  - Edit box Height
  - Edit box MaxLength
  - Query Width
  - List Columns
  - List Rows
  - Query Height

## Resolved Customer Issues - May 2022 Update

- [CSUP-12780] Advanced Drivers: Corrected the Reset Comms Stats on Advanced Driver Outstations to ensure the current communication statistics are consistently persisted by the driver while the Reset Comms Stats request is being processed.

- ViewX: Fixed unhandled 'AccessDenied' exception that could occur when opening the Server Configuration tool from ViewX. Previously, if ViewX was running non-elevated (without administrative privileges) and a second attempt was made to activate the Server Configuration tool, which was already running as minimized, this may have caused a ViewX crash. This is now fixed.
- [CSUP-12901] Geo SCADA Expert server: Fixed the SQL Query processing for queries that include a reference to a parent Group's Location aggregate field, for example PARENTGROUPID->PARENTGROUPID->GEOPOSITION. This fix ensures such references in SQL queries no longer crash the Geo SCADA Expert server.

## Resolved Customer Issues - April 2022 Update

- CSUP-12874: ViewX: Fixed the occasional ViewX application hangs that were typically seen when closing Mimics and Mimic navigation. The ViewX handling of Mimic closure and application shutdown has been enhanced to fix the additional edge cases.
- CSUP-12884: Resolved an issue that affected the Geo SCADA Web Server's processing of SOAP requests for database methods that had array type arguments (xsi:type='ArrayOfAnyType'). Previously, if an entry in the array was empty the server would incorrectly reject the SOAP request. This has now been fixed.
- [CSUP-12861] Fixed a bug introduced by the solution to CSUP-12616. The bug in the Bulk Edit Tool caused the value of a scalar integer to be exported incorrectly, affecting Severity and some other configuration fields.
- SCADAPack Modbus Realflo driver: Removed duplicate configuration error messages on Realflo Flow Runs when updating flow run properties.
- [CSUP-12797] Geo SCADA Expert Server: Resolved an issue that occurred during the processing of long duration SQL queries. The query is now aborted if configuration or data changes have occurred that prevent the completion of the query's processing, and the client receives a response of 'Aborted', to indicate the temporary failure. The client might need enhancing to retry the query - it is not an implicit, automatic retry.
- [CSUP-12851] Mimics: With a Mimic on which a script is being debugged, a 'Stop Debugging' confirmation dialog box is shown when a user attempts to close that Mimic.
- [CSUP-7641] Server Configuration tool: The correct Client Type is now presented when you edit an entry in the Client Access Control List. The list is in Security settings in the System Configuration branch of the tool.
- [CSUP-11920] WebX Trends: Fixed an issue that stopped WebX from displaying a Trend of a digital point's value when the Trend included a state name on the Y axis and one or more of the state descriptions was blank.
- [CSUP-12675] There were scenarios when a false uncommanded change alarm was being raised after successfully controlling an output point that had 'Update Point on Successful Action' enabled.
  - Fixed the Advanced OPC driver's handling of successful point controls when the OPC DA server reports additional information (for example, the additional information indicates that the value is clamped).
  - Fixed the 'Update Point on Successful Action' feature for output points in the IEC 61850 driver.

- [CSUP-12832] ViewX: Fixed an issue that could occasionally cause ViewX to hang. This only occurred whilst a modal dialog box was active and an internal purging of stored embedded Mimics was occurring.

## Resolved Customer Issues - March 2022 Update

- Erratum March 2022: Updated the Advanced OPC driver, simple OPC driver and Alarm and Event printer to be compatible with the DCOM security hardening that has been introduced by Microsoft. (KB5004442, made in response to CVE-2021-26414.)
- [CSUP-12640] Advanced OPC and Simple OPC drivers: Enhanced the security of connections to a remote OpcEnum service. The specified Windows credentials will now be used to authenticate a connection to the OpcEnum service on a remote machine. This also affects automatic OPC DA version detection (in the Advanced OPC driver), browsing for server ProgIDs, browsing for item IDs (tags), browsing for properties (in the Simple OPC driver) and browsing for access paths (in the Advanced OPC driver).
- Simple OPC driver: Fixed the browsing for item IDs (tags) and properties when using private security on the OPC DA server.
- [CSUP-12832] Fixed issues with ViewX occasionally hanging when using the App.OpenWindowOnHead and App.NavigateOnHead script functions.
- [CSUP-10168] Fixed a problem with locale-specific processing of the SQL LOWER() and UPPER() functions.
- ViewX: Corrected the occasional miscalculation of scroll bar metrics. These are now calculated for the list document once the document window size is known.
- [CSUP-12531] Fixed the DNP3 WITS driver, to correctly support WITS 3.0 logged data files (version 4), including related quality flags.
- SCADAPack Modbus Realflo driver: Corrected the writing of Hexanes+ Combined configuration on AGA 8 Realflo devices.

## Resolved Customer Issues - February 2022 Update

- [CSUP-11966] Fixed a bug that occasionally caused an exception when trying to navigate to a document and there is a problem with the URI (for example, when the URI is too long)
- [CSUP-12392] Fixed issues with ViewX occasionally hanging when using the App.OpenWindowOnHead and App.NavigateOnHead script functions.
- [CSUP-12828] Prevented possible application hangs within ViewX relating to the following scenarios:
  - Closing a Mimic containing scripting errors after interacting with the script error control at the top of the Mimic display.
  - The Embedded Mimic Cache performing a periodic purge of Mimics whilst a scripted form dialog is active.
  - Using the script 'SetBusy' method to update the application status bar.
- [CSUP-12799] Fixed potential access violation in ViewX when opening a new document or navigating to an existing document.
- [CSUP-12799] Fixed potential application hang in ViewX when using scripting to open a new document or navigate to an existing document.

- SCADAPack Modbus Realflo driver: Corrected the re-configuration of Hexanes+ Individual Contributions for AGA 8 Realflo devices.
- [CSUP-12758] Mimic script: Prevented a possible application hang when using the App.NavigateOnHead method.
- [CSUP-12746] Corrected a problem with a Pick Menu repeatedly appearing when a menu item has been selected from a nested Pick Menu.
- Value Maps: Fixed an issue that the cleared Value Map entries in the event list, when the Value Map is in a Template Instance and there is no property override on the DocumentContent property.
- DNP3 driver: Fixed an issue that occasionally caused a DNP3 outstation to stall within the driver after a cold reset. This included a cold reset when downloading configuration to an outstation (WITS and SCADAPack E) and when downloading firmware (WITS, SCADAPack x70 and SCADAPack E).
- DNP3 / Advanced drivers: Fixed an issue that could occur when merging network connections between outstations. Previously, one or more of the outstations on the merged connection could stall.
- [CSUP-12290] Added a snapshot interval (minutes) and reset counters (true/false) to the database snapshot log file headers.
- [CSUP-12290] Added a new section to the Server Configuration tool, to enable the configuration of database snapshots settings. The new section is: System Configuration | Logging | Snapshots.
- [CSUP-12684] Ensured that floating windows remain above their parent container when loaded via a user favorite.
- [CSUP-12686] User Registry: Fixed an issue with high CPU usage that was caused by ViewX monitoring for user registry changes.
- [CSUP-12686] User Registry: Fixed a crash that occurred when displaying Mimics that contained expressions with User Registry values.
- [CSUP-12686, CSUP-12728] Mimic Scripting, User Registry improvements:
  - Added locking support to the User Registry collection to support concurrent access attempts by multiple scripts (or other COM clients)
  - Reverted to supporting only string and 32-bit signed integer types for the User Registry values. This is in line with the original mechanism that utilized the Windows Registry.
  - Improved the reporting of updates of User Registry values to a ViewX client.
- [CSUP-12716] Simple OPC driver: Fixed a bug with the formatting of displayed unsigned integer values on the Point Statistics status attribute.
- CSUP-12716: The localized string resources have been updated to match the American English resources.
- CSUP-12716: Simple OPC driver: Fixed the displaying of large unsigned values.
- CSUP-12534: Advanced Drivers: Fixed the handling of enabling and disabling - and other similar types of configuration changes - of a channel that is associated with a shared outstation. Prior to this fix, the driver might have re-initialized heart-beating on the inactive channel, causing the channel to stall within the driver.
- CSUP-12616: Updated the Bulk Edit Tool to support configuration changes to the FilterAreaOfInterestIds.

- CSUP-12546: Improved the accuracy of the historian memory usage diagnostics by including the overhead of the C++ Standard Template Library (STL) containers that are used internally by the historians to store the data.

## Resolved Customer Issues - December 2021 Update

- [CSUP-12303] Logic: Repaired the restarting of the Logic driver so that all the logic programs being scheduled at the time of stopping the driver are considered for restarting when the Logic driver is restarted. Logic programs can be re-configured or deleted while the driver is stopped, and this re-configuration correctly influences which logic programs restart when the Logic driver is restarted.
- [CSUP-12633] Simple Modbus driver: Fixed a crash in the Simple Modbus driver that occurred when a full scale value is a very large number on an analog point and percentage of span deadband is used.
- [CSUP-12642] Fixed an issue with synchronizing database data files in hot-standby systems, which affected entire file transfer only. Occasionally this file transfer could result in a file being in a permanently locked state, which then prevented them from being flushed to disk. A new Server Status Tool page "Database \ Data Files" has been added, which provides insight into the data files including their disk lock state.
- [CSUP-12419] Simple Drivers and DDK Drivers: A correction has been implemented to avoid configuration changes to an out-of-service analog, digital or counter point from re-raising an acknowledged alarm. Updating of the state of the point must wait until the point is back in-service. (While ensuring Out-of-Service points' alarms can be acknowledged and cleared.)
- Server Status Tool: Corrected the Write Lock diagnostics for the Longest Write Lock Wait and Longest Write Lock Time in Server Status Tool and Snapshot files.
- [CSUP-12614] Corrected the validation of Object Identifiers in the SNMP driver to ensure that there are checks for leading dot characters.
- [CSUP-12615] Correction made to prevent ViewX from opening a document window alongside an inset window.
- ViewX: Fixed a scenario in which a potential access violation exception could occur when navigating between Mimics within ViewX.
- [CSUP-12560] Implemented improvements to prevent bad Dynacard data from being uploaded. A card with zero values no longer triggers a 'subscript out of range' exception.
- [CSUP-12494] ViewX: Ensured that any Mimic script is closed and deallocated before the Mimic itself is closed. This also applies to Mimic navigation operations.
- [CSUP-12527] ViewX: Ensured that all controls on an object properties form are disabled when the form is opened in read-only mode.
- [CSUP-12524] Virtual ViewX: Ensured that the App.Head and Head() scripting functions always return zero, when called from within the context of Virtual ViewX.
- SCADAPack x70: Changed the default device configuration options for a SCADAPack x70 device to match RemoteConnect.
- SCADAPack x70: Changed the maximum Modbus register quantity for a SCADAPack x70 Modbus point scanner from 4000 to 1000 (to match RemoteConnect).

## Resolved Customer Issues - October 2021 Update

- [CSUP-12577] Advanced Modbus driver: Fixed the reading of a string from a Modbus Holding Register.
- [CSUP-12505] A correction to processing of Mimic TrendSpec Hyperlinks. Repaired the navigation to a Trend if the "Format" part of the link contains a "#". These links now correctly navigate to the Trend.
- [CSUP-12582] Advanced EWS driver: A correction to prevent a server crash when Advanced EWS points have updated point values with Invalid IDs.
- ViewX: A fix to prevent an exception within ViewX when using a Mimic pick action to navigate to a new document.
- IEC 60870 driver: Stop continuous set clock commands when the IEC 60870 client is configured to set the clock in local time with DST and the host machine is set to UTC time.

## Resolved Customer Issues - September 2021 Update

- ViewX forward compatibility fixed, so that ViewX can correctly update a user profile when communicating with a Geo SCADA Expert 2021 or newer server.
- [CSUP-12452] Fixed PSTN channel time zone validation when using 'Fixed Offset from UTC' time zone.
- [CSUP-12482] Fix to ensure that digital points that utilize persistence do not produce unnecessary historical records during the persistence period. This will prevent a problem of excessive historical logging of polled values.
- [CSUP-12491] .NET API extended. Changed the method GetNamedUserRegistry to return an IDictionary. This allows a user with admin privileges to extract the entire registry for a specific user.
- OPC driver fix, to ensure that when converting from a Simple OPC Point to an Advanced OPC Point, the Tag Name is appropriately assigned to the Item ID of the Advanced OPC Point.
- [CSUP-12463] Improved splitting of plain text emails that are over 1000 characters long.

## Resolved Customer Issues - August 2021 Update

- Geo SCADA Web Server's handling of SOAP requests improved, to be more robust.
- Fixed Crystal Reports runtime upgrade on Virtual ViewX.
- [CSUP-12429] Added missing serialization for Advanced OPC analog point 'TunedTime' and 'TunedUser' database fields.
- ViewX: Fixed an exception scenario that could occur when attempting to open a Crystal Reports document.
- [CSUP-12464] ViewX: Fixed an exception scenario that could occur when using a script to display the Help documentation.
- ViewX: Simplified and improved the alarm sounder and redrawing of flashing content within ViewX.
- [CSUP-12418] ViewX: Fixed an exception scenario that could occur when exporting a mimic with an embedded list, which specifies a value for the 'Register For Interest' field.
- Geo SCADA Server: Fixed a bug that allowed alarm redirections to get stuck in a loop.



- [PDEV-2171] A Pager Driver improvement to allow a user sent SMS Alias Command to include trailing spaces, and still be recognised.
- Upgraded SAP Crystal Reports runtime to SP30. (Note: Microsoft Visual C++ 2005 runtime is no longer required and so can be uninstalled if not required by any other applications.)

## Resolved Customer Issues - July 2021 Update

- [CSUP-12330] ViewX traces corrected, to ensure a new line style of 'dashed line' is correctly used to update a trace.
- SCADAPack x70: Corrected the validation of the SCADAPack x70 analog event deviation deadband and the validation of all event deviation types.
- SCADAPack x70: Added missing validation to SCADAPack x70 Terminal Server serial port 'TCP Port Number' and 'TCP Listen Port Number' fields. Port zero is not valid.
- SCADAPack x70: Implemented database validation for 'Unsolicited (DNP3 Only)' for SCADAPack x70 Digital, Analog and Counter configuration objects.
- [CSUP-12391] Added header file, 'TestServices.h', to OEM-SDK.
- MQTT: Fixed error in creation of MQTT JSON Device. Ensured that the distinction between a modified device configuration and a created device configuration is correct.
- MQTT: Fixed race condition in MQTT driver, when a failed connection from Geo SCADA to the MQTT broker is re-established.
- Geo SCADA Server: Fixed problem with invalid DBRef in a Template parameter expression.
- [CSUP-12362] Corrected the display of system status information in ViewX.
- [CSUP-12321] Fixed issues with Alarm Redirection Method Action.

## Resolved Customer Issues - June 2021 Update

- [CSUP-12309] Improved the .NET DBCClient handling of localhost re-use of local port by source and end points' TCP Socket. The client no longer crashes and the advise action is now included in ViewX Session logging.
- [CSUP-12259] NTMon scanning fixed to recover from remote Windows host restarts.
- [CSUP-12255] Legacy WebX Link timeout corrected to allow 30-second timeouts.
- [CSUP-12310] Improved the handling of the system listeners within ViewX.
- [CSUP-12236] ViewX: Updated the embedded mimic cache such that mimics that contain embedded historic trends (either directly, or indirectly via nested embedded mimics) are purged automatically once they are no longer referenced.
- [CSUP-11876] Changed App.WorkstationName to use the default system if called from global script.
- [CSUP-12272] Improved the logging of critical errors and exceptions. Changed the LogFileBase registry key to be used 'as is' and not process it as a filename.
- [CSUP-12326] Fixed crash when 'Template Instance' integrity check active when a Template Instance has a Variable that is not in its corresponding Group Template. A specific integrity check error is now raised.
- [CSUP-12320] Fixed quick filter edit and quick filter. Removed menu options that were doing nothing in ViewX.

- [CSUP-12278] Correction to ensure that GeoRegion handles long GeoJSON strings correctly. The maximum limit is now a 33,554,432-character string.
- [CSUP-11876] Added a client-side scripting property to get the Workstation Name of the client, or an empty string if not configured. (Accessible via animations as WorkstationName() and in scripts as App.WorkstationName.)
- [CSUP-12162] Fixed ViewX client connections that specify a system with a space in the name. These connections are now handled correctly when parsing Startup Documents from the StartupConfiguration.xml
- SCADAPack x70: Changed the 'Initialization String', 'APN String' and 'Dial Prefix' maximum length validation for SCADAPack x70 device PPP\TCPIP serial port with PPP modem to match RemoteConnect.

## Resolved Customer Issues - May 2021 Update

- [CSUP-12307] Prevented ViewX crash when attempting to perform a Quick Filter on an event list that is already filtered by ID.
- SCADAPack x70: Changed the 'PAP/CHAP Username' and 'PAP/CHAP Password' maximum length validation for SCADAPack x70 device serial port to match RemoteConnect.
- [CSUP-12285] Moved layers menu options on a mimic to the top of the context menu.
- Fixed a bug that caused an integrity check failure when converting an instance of a template which contains Simple OPC objects.
- [CSUP-12277] Corrected resources for Map Set validation errors which were causing a server crash when there was a duplicated Map Source or User Query associated with the Map Set.
- [CSUP-12291] Fixed advanced driver crash after receiving a request for a point/pulse action which is not synced with the database.
- SCADAPack x70: Fixed validation of DNP3 static group for SCADAPack x70 counter objects where object's source is a Modbus scanner with operation mode 'read/write'.
- [CSUP-11873] Added error logging when preloading a data table's data file and it fails to load the data file.
- SCADAPack x70: Corrected SCADAPack x70 DNP3 Channel Receive Timeout database field to be 16-bit integer (not 32-bit integer).
- SCADAPack x70: Removed incorrect validation error when SCADAPack x70 IP whitelist is empty and IP whilstlist is enabled. This is valid configuration as there is always an entry in the IP whitelist for USB IP interface.
- [CSUP-12223] Fixed ViewX crash when copying to clipboard.
- [CSUP-12218] Updated DNP3 WITS Counter Point property form to correctly display discontinuity drop-down.
- [CSUP-12263] Added necessary files for Test Services into OEM-SDK kit.
- [CSUP-12226] ViewX Log off correction: Prevented the 'No user is logged on to the system ...' message from appearing in the Log Off dialog whilst a log off operation is in progress.



## Resolved Customer Issues – April 2021 Update

- [CSUP-12219] Corrected ViewX scripting problem with the App.Head function sometimes returning the wrong value.
- [CSUP-12254] Improved the reliability of the house-keeping operations within ViewX. Operations that are intended to be run in the foreground are no longer run asynchronously.
- [CSUP-12243] Minor correction to high event count warnings.
- SCADAPack x70 'Modbus Store and Forward' field validation corrected, it is only validated if the field is enabled.
- [CSUP-12188] Fixed advanced driver synchronised timers handling of clock changes. Previously timer could be missed when clock jumps forward. This affected SNMP driver polling, causing polls to be missed.
- [CSUP-12194] Fixed crash in DNP3 Driver in the case when it was using incorrect Database Object IDs. Improved DNP3 Driver database object management to avoid incorrect Database Object IDs.
- SCADAPack x70 'Device Listen Port' default corrected for modbus slave device to match RemoteConnect. Changed the 'Device Listen Port' and 'Default Scan Rate' and 'Timeout' validation for SCADAPack x70 modbus slave device to match RemoteConnect.
- [CSUP-12239] Prevented ViewX crash when opening logic programs which have invalid breakpoints.
- [CSUP-12148] Fixed IEC 60870 Slave Driver so that timestamps reported in an interrogation response now obey the time zone setting of the channel instead of always being in UTC.
- [CSUP-12214] Modified Advanced Modbus driver to correctly skip digital points referencing bits within a register when the register is invalid and the Modbus device returns an error.
- Modified Query Processor (SQL) processing logic when updating object properties from an SQL query to consider whether configuration, data or dynamic properties have changed before marking configuration, data or dynamic as changed. Previously it was marking them as changed if they were included in the SELECT statement regardless of whether they had changed.
- [CSUP-12041] Prevented SCADAPack x70 configuration download unless an RTZ file has been uploaded or imported.
- [CSUP-12192] Fixed ViewX crash which happened while setting a filter in an embedded list showing events.

## Resolved Customer Issues –March 2021 Update

- [CSUP-12206] Corrected Search Database feature make sure it copes correctly with objects being deleted while the search is being run. Fixed a small memory leak if the search is searching the full database name. Improved database lock usage so lock is given up when needed.
- [CSUP-12182] Reverted change of Geo SCADA's Permission Restriction handling of data client requests. If a data client reports as ViewX it will obey the ViewX Permission Restrictions.

- [CSUP-12036] Fixed Trace on Trend displaying wrong value when Trace Style is StepLast and a line is being drawn between a point above or below the trace viewing area and a point inside the trace viewing area.
- [CSUP-11748] Fixed problem with broken embedded mimics not updating unless ViewX is restarted.
- [CSUP-12174] Simatic S7: Ensure Reconnect ISO-over-TCP connections correctly attempted. New connections are either fully created, ready for the next poll, or cleanly fail. Reconnection will succeed when the device finally becomes available.
- Fixed Advanced EWS Driver crash when browsing Current Data Id for an EWS Point. Corrected EWS Browsing of System Status.

## Resolved Customer Issues –February 2021 Update

- [CSUP-12152] Fix Advanced OPC driver crash when group/item request fails with 'server in wrong state' or 'group in wrong state' errors
- [CSUP-11798] Fixed problem with the 'Max Windows' warning dialog not showing the details of already open documents.
- [CSUP-11963] Added logging of the monitor configuration to ViewX. This supersedes the existing 'MonitorOrigin' tool.
- [CSUP-12141] Corrected ViewX Head() function problem. could be incorrect following a Mimic.Navigate / Hyperlink operation.
- [CSUP-12118] Fixed ViewX crash when there is an attempt to access the User Registry with a null or empty name.
- [CSUP-12104] Prevented ViewX crash when confirming a database method with an out of range index.
- Fixed problem with Query lists display in Web Favorites.
- Changed the default 'Set Time' and 'Poll Type' for SCADAPack x70 DNP3 slave device to match RemoteConnect.
- Changes to support later updates to the Messages Window
- [SUP-11463] Fixed problem with versioning and dynamic data in eDNA Historic Export.
- [CSUP-11463] Added reporting of bad Geo SCADA Standby-to-eDNA connections. Removed some unapplicable fields from the eDNA form.
- Corrected the handling of logon/connected/disconnected events within the Messages Window.
- [CSUP-12100] Fixed Trace on Trend displaying wrong value.
- Improved the reliability of displaying the message indicator adjacent to a user object in Database Explorer
- [CSUP-11999, CSUP-12024, CSUP-12068] - Ensured that the Mimic\_Load and Mimic\_Navigate events occur when a mimic is opened within a secondary window in ViewX.
- [CSUP-11999, CSUP-12024, CSUP-12068]- Fixed problem where a hyperlink on a mimic would not work as expected if the mimic was opened via a favorite into a secondary window.
- [CSUP-11999, CSUP-12024, CSUP-12068]- Fixed problem where the back and next pick actions would not work as expected if the mimic was opened via a favorite into a secondary window.

- Improved WebFavourite handling of invalid input more robust.
- Changed the 'OutstationIdUpdateTime' description for SCADAPack x70 I/O modules, SCADAPack x70 configuration objects.
- [CSUP-12078] Prevented ViewX crashing when closing a mimic that is running a script.
- [SUP-11463] Added facility to Flush eDNA cache when server goes Standby.
- Updated eDNA library API to version 19.02.0100.
- [CSUP-9377] Removed Filter and Quick Filter from list context menu if the column is an aggregate.
- Changed the 'Alert Set Time Deadband' and 'Alert Clear Time Deadband' validation for SCADAPack x70 configuration objects.
- [CSUP-12098] Prevent exception in DNP3 driver when downloading config to x70
- [CSUP-12098] Fix memory leak in DNP3 device download.

## Resolved Customer Issues –January 2021 Update

- [SUP-11368] Improvements to Database Integrity checks. Full Integrity check now utilises a Database Read Lock for the actual checks and relinquishes the lock for write access. Incremental, background checks now occur under a Database Read Lock and using a separate background thread, to avoid blocking other background activities.
- [SUP-12065] Corrected handling of unicode characters in map queries.
- [SUP-12067] Ensured that Trend X-axis doesn't disappear.
- [SUP-11797] Allowed payload with no timestamp for MQTT JSON Schema A message. Allowed fractional seconds in timestamp for MQTT JSON Schema A message.
- Updated Virtual ViewX to hide the alarm banner by default.
- [SUP-11701] Fixed Advanced OPC driver crash when an asynchronous read/write completes in the middle of cancelling the asynchronous operation.
- [SUP-11952] Fixed Crystal reports not downloading from Virtual ViewX on export.
- Fixed issue with Modbus Store and Forward table, add and edit dialogue width for SCADAPack x70.
- [SUP-11882] Updated automatic Y-axis scaling for displayed trends.

## Resolved Customer Issues –December 2020 Update

- [SUP-11971] Fixed potential ViewX crash when using SetRegistry while displaying a mimic that uses a registry reference in an animation expression.
- [SUP-11446] Corrected Last Modified User and Version details for an object in a template instance which has been converted between two templates both containing the object.
- [SUP-11844] Corrected database browsing activities to detect underlying changes to parent browsing object, to avoid server crashes.
- Fixed ViewX crash when cancelling adding a trace to a trend.
- Fixed ViewX crash when navigating away from a Crystal Report.
- [SUP-10552] Main-standby initial synchronisation logging on Main improved. Spamming, per Historic point objects' QueryHistoric logging removed and replaced with a single, per Main-Standby 'Query Historic Life' phase of the initial sync, and will summarise the result for all historic streams.

- [SUP-11636] Fixed exception when dragging a document window that doesn't support the script Head() method (e.g. a map source) between containers in ViewX.
- Extended backup during upgrade to save the Archive Index file.
- [SUP-11940] Prevented ViewX from disconnecting from a DMZ server when updating a users registry settings.
- [SUP-11957] Added verbose logging option to Backup.
- [SUP-12008] For Virtual ViewX, disallowed resultset copying over a certain (configurable) size.
- [SUP-12006] Fixed problem with Logic Programs consuming memory unnecessarily.
- Fixed problem with spurious menu separator line in Mimic context menu.
- Added Zoom and other sundry menu items to ViewX Mimics, matching right click menu on WebX.
- [SUP-12000] Removed incorrect IIS restart warning when changing / disabling WebX ports in Server Configuration.
- [SUP-11990] Added command line option to ViewX to allow users to force software rendering.
- [SUP-11976] Fixed Quality tags triggering logic input change detection.
- [SUP-11536] Added more information to the Integrity Check Reporting of Alarm Source Map errors.
- [SUP-11802] Added checks for duplicated Severity Priority at startup of Geo SCADA main server, DBServer.
- Added command line option to allow projects teams extra Virtual ViewX configuration options.
- Improved the Virtual ViewX web portal login form, to be resizable for smaller screens. Resized ViewX security dialog.
- [SUP-10883] Registered 64bit DBClient on install. Facilitates other 64bit client's ODBC database connections etc.
- [SUP-11636] Improved the ViewX scripting performance, by improving the 'Head()' function. The cached value is now calculated when the document is first displayed and when moved between containers. At all other times, the cached value is returned.
- [SUP-11773] Fixed server crash when the Server\SSL\_MinimumSupportedProtocol registry setting exists and contains an invalid protocol.

## Resolved Customer Issues – October 2020 Update

- [SUP-11563] Fixed QP crash observed during Data Table query execution while the table is synchronising to a Standby server.
- Updated ViewX menu ribbon to minimize on startup and on user login when virtualized.
- [SUP-11859] Fixed intermittent problem where ViewX would leave the 'access denied' icon adjacent to the system node in Database Explorer after performing a changeover.
- Fixed a problem when converting a simple EWS scanner to an advanced EWS group and it automatically converts the points attached to the scanner. It shouldn't do this if the point is in an instance that is controlled by a template.
- [SUP-11051] Fixed a problem when converting a simple OPC scanner to an advanced OPC group and it automatically converts the points attached to the scanner. It shouldn't do this if the point is in an instance that is controlled by a template.

- [SUP-11883] Fixed Server ignoring the independent enable alarm registry setting on startup.
- Security issue addressed.
- [SUP-10736] Correct importing of template instance. Group conversion to template instance, once template becomes available and subsequent import actioned, has been corrected to ensure SearchMap updates occur.
- Updated the Mobile Web Server's request for App client credentials to specify Server Type as 'Geo SCADA' and default Alarm Acknowledgement for Geo SCADA branding.
- [SUP-11133] Updated OEM SDK with client-side libraries (including 'Telerik' utility library)
- [SUP-11899] Included archive index file in backup of database.
- [SUP-11900] Added security patch for Virtual ViewX to installation.
- [SUP-11698] Fixed server crashing when processing transactions that contain property overrides for objects in instances inside templates.

## Resolved Customer Issues – September 2020 Update

- [SUP-10921, SUP-11530] SCADAPack E Configuration fixes
  - Corrected validation of 2 and 3 bit digital with Modbus mapping configuration to allow valid configuration to be generated.<br/>
  - Added validation for overlapping Modbus mapping when mapping 2 Modbus registers to a single DNP3 analog point<br/>
  - Added checks for different Modbus Operation, Scan Rates and Timeouts when creating the Modbus mapping for the configuration file.
  - Corrected generation of Modbus Mapping when some points have configuration errors.
- [SUP-11593] Security improvement to QueryPad.
- [SUP-11751] Fixed the display of floats in ViewX dialog box.
- [SUP-10774] Extended the repair functionality for Template-Instance to fix up usage of invalid DBRefs.
- [SUP-11659] Restored PIC 190 to the list of PICs offered for a Q series Trio radio.
- Fixed problem with invalid database references in a Template parameter expression.
- Added an integrity check to catch invalid DBRef usage in template expressions.
- Improvements to ViewX logging.
- Improvement to prevent a possible server crash when Realflo Gas Run is configured for AGA11 calculations.
- [SUP-11794] Fixed a problem with the use of script method GetRegistry() when a default argument is not supplied.
- Prevented server crash if SCADAPack Realflo liquid flow run is saved without being linked to an outstation or when the outstation referenced by the flowrun is deleted.
- [SUP-11760] Stability improvement. ViewX Alarm Node housekeeping is no longer a background thread activity.

## Resolved Customer Issues – August 2020 Update

- Licensing upgraded to improve the handling of remaining runtime and license expiry.

- Resolved issue where ViewX's global script connection would not be closed, causing server shutdown to be delayed.
- [SUP-11809] Fixed advanced driver PSTN channels that are using a TCP/IP connection type. Modem was never polled after successful TCP connection which then prevented any calls from taking place, as modem status was unknown.
- [SUP-11664] Added validation to DNP3 file transfer maximum block size reported by outstation so that file transfers fails 'cleanly' if block size is invalid.
- [SUP-11486] Improved performance of the Select Properties dialog.
- [SUP-11687] Added option to Bulk Edit Tool to ignore blank cells from excel file on import.
- Prevent crash in Bulk Edit tool if the excel file is open when importing.
- [SUP-11788] Prevent ViewX connection exceptions sometimes crashing the application.
- [SUP-11726] Prevented offline nodes from blocking Virtual ViewX logon to standby servers.
- [SUP-11390] Fixed configuration download to WITS-DNP3 outstation where a new bulk configuration file (BCF) changes the supported WITS version.
- [SUP-11697] Added transparency to chart area background in ViewX and WebX.
- [SUP-11694] Fixed error in evaluating empty database object expressions triggered by Template Property Overrides in ViewX.

## Resolved Customer Issues – July 2020 Update

- [SUP-11744] Added missing *Display Current Trend* option to SCADAPack x70 DNP3 points.
- [SUP-11717] Fixed multiple application layer timeout handling, so that resets occur after successful retries.
- [SUP-11219] Improved Server Configuration tool's handling of online life of historic streams, to indicate the impact of the Protected Permanent Standby feature's incremental increasing of online life.
- [SUP-11729] Fixed DNP3 driver crash when an outstation has non-sequential data set descriptor IDs. Prevented DNP3 driver from communicating with a WITS-DNP3 outstation that doesn't define health-check data set prototype or descriptor.
- [SUP-11642] Fixed help display when PSTN Connection Types dialog is active on Server Config tool.
- [SUP-11702] Alarm Severity Acknowledge/Unacknowledge metadata improved.
- [SUP-11651] Fixed issue where the SNMP driver could lose comms with an agent that changed its engine ID on restart.
- [SUP-11486] Speed improvement implemented, when adding property overrides to a large template.
- [SUP-11709] Correction implemented to avoid Geo SCADA to send messages to remote eNET outstations that are not marked as Master Station Addressable.
- Improvement to ensure that an event is not logged when a template instance is repaired during import, but ensure an explicit repair logs an event.
- Improvement to ensure Realflo event 10191 displayed correctly.
- [SUP-11643] Fixed bug in the Pager Driver's Channel that prevented display of its State and IO Logging enumerations in schema.



- ViewX Stability Improvement: fixed intermittent exception triggered by clicking the Refresh Button in the View Status dialog.
- ViewX Stability Improvement: Prevented multiple refresh requests from happening at the same time when using the View Status dialog
- [SUP-11760] Fixed ViewX Alarms subsystem problem with disconnection and failure occurring simultaneously.
- [SUP-11732] Fixed ViewX inactivity timeout occurring while a window containers was in a 'maximized' state.
- [SUP-11286] ViewX Startup Configuration: The 'initial documents' defined in the startup configuration file are now opened once a connection is first established to the corresponding system.
- [SUP-11656] ViewX pie charts now show a key entry for items with a value of 0 if there is also a label to go with them.
- [SUP-11724] Improvement to allow style attributes to be added to tooltips on maps.
- Now preventing properties overridden by an expression from being removed by Bulk Edit tool.
- [SUP-11725] Modified 'Edit Y Axis' dialog on trends so that it no longer applies value formatting to the Minimum and Maximum values on the dialog. It will show them just as numeric values.
- [SUP-11696] Correct spelling error in Server Status General Page re. dump files.
- [SUP-10909] Correction to prevent .Net API SetPropertyOverrides from editing properties overridden as expressions.
- Correction to prevent .Net API SetPropertyOverrides from only partially removing expressions.
- Correction to prevent Abstract Flow runs from being created in templates.
- [SUP-11617] Removed the diagnostic logging of registry calls when reading from the local cache in ViewX.
- Fixed server crash when a realflo run was set to reference an abstract flowrun as a Coriolis meter.
- [SUP-11231] Fixed .Net API from not resetting an instance properties value when an override is removed from the template.
- Fixed the displaying of abstract Flow Runs in templates.
- Corrected support for 6 Digit addressing in Realflo input point address.
- [SUP-10682] Prevention of ViewX Workstation lock-out on Change-Over. Ensure Provisional Logon of SCX Manager links does not result in a Workstation registration.
- [SUP-10682] Expedient mechanism 'Disconnect Workstation Name' associations from a server. The intention is that stuck workstation associations which can occur during a Main server Change-over can be released, allow re-use of the workstation name by other Client Ids (different Session Id or another network address).

## Resolved Customer Issues – June 2020 Update

- Modified release note for the March list to read as follows: Virtual ViewX – Upgraded Thinfinity Virtual UI OEM to version 2.6.0.21, fixes issues with multiple clients connecting into Virtual ViewX server. This resolves a security vulnerability reported

by Cybele, reference CVE-2020-13171. This fix is included within the March 2020 and later updates including this one.

- [SUP-11634] Ensured that time units are displayed when formatting display of a time period, even when the time period is 0 seconds.
- [SUP-11521] Updated thread handling to prevent potential crashes when using group favorites.
- [SUP-10936] Added note to all analog and counter points next to the Tune Limits option to highlight any active tuning will continue after tuning is disabled and must be manually removed.
- [SUP-9306] Fixed issue which could result in a server crash on a standby if certain server configuration parameters are changed. These include 'Allow channels on a driver to share the same listen port' on Global Parameters/Channels, 'Validate Unique Flow Computer ID' in Global Parameters/RealFlo and 'Disable Alarms Is Independent' on Alarms configuration.
- [SUP-11409] Allowed Geo SCADA to install when Windows Firewall is disabled.
- [SUP-11080] Corrected logic in SCADAPack x70 driver so that point config objects which are not attached to an outstation config object are shown in the x70 DNP3 Point/Pulse objects when they don't have an outstation associated with them.
- [SUP-10774] Extended the repair functionality for Template-Instance to fix up the type of template expression variables that have got out of synch between Template and Template-Instance.
- Ensured that the type of a template expression variable (aka parameter) in a template instance is synched with that of its template.
- [SUP-10774] Added Integrity check to Template Instance to check that the Parameter Type in the Instance matches the Parameter Type in the Template.
- [SUP-11244] Outstation and other reference fields will now display the end of the value by default.
- [SUP-11237] Updated WebX filter menu to correctly display filter text.
- [SUP-11599] Ensure ViewX Mimic Navigation lists layers, groups, and leaf items within those layers and groups, all in alphabetical order. Restoring original ViewX behavior.
- Fixed ViewX crash when a location update is received whilst a server changeover is in progress.
- [SUP-11571, SUP-11604] Prevented ViewX crash when closing a mimic with a view configured.
- [SUP-11526] DMZ connected ViewX not displaying Homepage and object properties. Correct retrieval of UserProfile and Read Object capability restored on DMZ Standby server. Added extra DB diagnostic to identify unsupported Post Requests from DMZ.
- Fixed upgrade failure of Virtual ViewX on Windows Server.
- [SUP-11576] Fixed issue with Mobile Companion application exiting when database server becomes unavailable.

## Resolved Customer Issues – May 2020 Update

- Changed PIN dialog no longer asks for unused current PIN.



- Updated GetUserDetails and GetUserPIN in DBClient API and renamed to GetUserSecurityRules and GetUserPINRules respectively to better match their functionality.
- ViewX: added thread-safe access to the interop document to help prevent exceptions when the document is closed.
- [SUP-10741, SUP-10817] Filtered PICs offered with a Q Series Trio radio.
- [SUP-11231] Ensured that template expressions are re-evaluated when the Name and FullName of the Template or Template Instance change.
- [SUP-11290] Updated TagName property of Simple OPC Points to enable property override by default in template.
- [SUP-11324] Updated DNP3 Outstations to disable PromoteOnDisplay when loading the configuration.
- [SUP-10770] Resolved issue where having multiple logic programs that access unavailable linked tables could cause the watchdog timer to terminate the server during startup.
- [SUP-11179] Prevented crash in RealFlo driver when Gas Flow calculation is overridden in an instance.
- [SUP-10804] Fixed problem with trends sometimes plotting data outside the visible area.
- [SUP-11543] Improved scripting and COM automation reliability within ViewX
- Modified Mobile WebServer logging, either from XML configuration or the code configuration of NLog.
- Added back in support for Windows 10 in VirtualViewX.
- [SUP-11544] Updated product name branding in the error message displayed in ViewX when Crystal Reports isn't installed.
- [SUP-11438] Modified DNP3 driver so that it reads the outstation's clock used to timestamp static data as the first object of an integrity poll request. This is to ensure the timestamp returned is as close as possible to when the static data is snapshotted, otherwise if the integrity poll response spans multiple application fragments there might be a significant deviation between the two. For WITS outstations this could result in a point having the wrong state if a WITS state change event has an earlier time than the static data from the previous response.
- [SUP-11491] Fixed SCADAPack x70 Outstation 'Background' does not reflect 'DownloadRequired' after server restart.
- [SUP-11513] Fixed SCADAPack x70 outstation that is in a template not copying IP whitelist, IP routing table and DNP3 routing table to matching object in template instances when creating a new instance.
- [SUP-11318] Fixed preloaded data tables so that they remain loaded on standby server after the entire data file is synchronized from the main server.
- Fixed DNP3 Slave communication port does not include serial ports with the port function set to PPP/TCPIP for SCADAPack 57x device.
- [SUP-11261] Fixed a bug whereby SCADAPack E historic profile traces can disappear if the limit in the profile does not change.
- Updated Thinfinity VirtualUI to 2.6.0.24
- Automated setup of VirtualUI Session user.
- Upgraded Thinfinity Virtual UI OEM to version 2.6.0.22.

## Resolved Customer Issues – March 2020 Update

- For the Map View, ensured that F5 (=> Refresh) works even when the browser control has focus.
- Added F5 keypress to reload maps in ViewX.
- [SUP-11440] ViewX: fixed an issue where an export to a prior SDE version would sometimes fail to complete.
- [SUP-11355, SUP-11404] Added support for using a separate, top-level window to render help content within ViewX.
- Warm Synchronization of failed whole-granule transfers has been corrected. Previously, if a whole, new granule transfer failed, it was possible that it would not be resent. Other aspects of the warm synchronisation, e.g. resending record updates, are unaffected.
- [SUP-11434] Virtual ViewX - Upgraded Thinfinity Virtual UI OEM to version 2.6.0.21, fixes issues with multiple clients connecting into Virtual ViewX server. This resolves a security vulnerability reported by Cybele, reference CVE-2020-13171.
- [SUP-11448] Fixed SNMP driver DNS lookup retry timeout so that the configured timeout is applied (previously was 1000 times configured timeout). Fixed SNMP driver DNS lookup retry so that each device / point is retried in turn (previously retried first device / point repeatedly).
- [SUP-11412] Modified DNP3 driver to handle failure to read device attributes, data set prototypes and data set descriptors from a WITS outstation subsequently resulting in data sets (e.g. point state changes) being discarded due to unknown data set ID. If the driver fails to read any of these objects, then it will now keep retrying until either it succeeds, or comms fails (including exceeding maximum failed transaction attempts).
- [SUP-11484] Fixed loading unshared mimics from embedded mimic cache.
- [SUP-11417] Fixed ClearSCADA Server crash that was caused by deleting a group instance inside a template. The group instance contained a SCADAPackx70 device and a subgroup which contained SCADAPackx70 configuration objects that referenced the device.
- [SUP-11469] Fixed layout of forms for Normal state point state alarm fields on WITS analog, integrator, ROC and runtime points to prevent fields from overlapping
- Implemented historic life midnight op for SCADAPack x70 DNP3 outstation configuration download logs, this will ensure old logs will get deleted when it reaches the end of the historic life.
- [SUP-11471] Fixed minor UI typos on SCADAPack 57x device.
- [SUP-11437] Fixed handling of inbound IP connection on a shared outstation's other channel so that the outstation switches lines instead of transferring the new connection to the outstation's current channel. Fixed handling of receiving an unsolicited message from a new shared outstation on an existing IP connection when merging connections and message is received on the new outstation's other channel. The new connection was being rejected instead of just switching lines. Fixed authentication failure when a DNP3 shared outstation with heartbeating receives an unsolicited message on its other channel whilst the IP connection is failed, after transitioning from heartbeating to full comms.

- [SUP-10458] Corrected an error which could lead to an exception in ViewX when Mimics have their references patched following a change in the database hierarchy.
- 25719 ViewX now reloads the global script as part of a user logon change. This ensures the global script runs in accordance with the current user permissions.
- 25782 Fixed exception in ViewX when exporting a database to a prior version.

## Resolved Customer Issues – February 2020 Update

- [SUP-11287] Modified Advanced Modbus Translator so that it can handle 6-digit register addresses. A new switch '/SIXDIGIT' has been added to control the behavior. Also fixed a crash which would occur if there was an invalid timestamp in the data to be translated.
- [SUP-11167] Ensured the Alarm Bell sounds if needed for an embedded Alarm List without having to ensure an Alarm Banner is visible.
- Fixed issue where ViewX could become unresponsive whilst interacting with an object properties document.
- [SUP-11380] Virtual ViewX now always logs users out on inactivity.
- Virtual ViewX user is no longer added to a group on creation.
- [SUP-11391] Set ViewX runtime directory at startup to always match where it is installed to.
- Corrected Method Dialogs in ViewX so that they reject negative numbers if parameter is an unsigned number.
- [SUP-10458] Fixed ViewX crash when saving a mimic after removing some parameters.
- [SUP-11412] Updated "Unknown data set ID" alarm/event in DNP3 driver for additional clarity and advice.
- Prevented possible crash when ViewX is shutting down.
- Removed double free of lock in NetFx Event Subscription when scanning for changes, which could have caused unexpected behavior of Geo SCADA Server.
- [SUP-11316] Added a more appropriate message for a "raised-cleared" alarm. A raised-cleared alarm can occur when reading out of sequence logged data.
- [SUP-11264, SUP-11162] Made sure ViewX Script connections are always licence exempt and execution always against correct user permissions.
- [SUP-11162] Corrected the Script Library audits which occur during Logoff and Logon of users. Specifically, instances in which the initial user has no access to the script library.
- [SUP-11199] Advanced EWS Driver. Fixed possible driver crash when configuration is changed. Prevented memory leak when taking group of service. Added additional driver logging.
- Fixed NullReferenceException in ViewX when started in SilentRunning.
- [SUP-11360] Fixed integrity check failure involving SCADAPack x70 DNP3 Slave.
- Improved docking window focus/activation after a floating window is closed. Prevented Ctrl-Tab from causing ViewX to lose focus if an Alarm Banner is active in a Secondary Container. Prevented Ctrl-Tab (and arrow keys) from affecting the content of an active interop'd document (e.g. mimics, object properties) whilst the document switcher is open.

- Ensured mimics are added to ViewX's embedded mimic cache when they are dragged from the Database Explorer and dropped onto an open, editable mimic.
- [SUP-11114] Stopped Comms Statistics in the Outstation view dialog showing negative numbers for a counter when the counter has exceeded 2147483648. Also fixed the same problem for the display of comms statistics database fields.
- Corrected a problem within ViewX whereby clicking on a document tab to activate a document would sometimes fail to restore focus.
- [SUP-11352] Prevented an unhandled exception from occurring in ViewX when a server advise is initiated for an unadvised link.
- Prevented other tool windows from docking alongside an Alarm Banner when loading a Super Favorite.
- [SUP-11091] Corrected handling of window activation when modal dialogs are displayed.
- Reinstated exception handling when loading the Quick Access Toolbar layout from user settings. The exception handler loads the default buttons for the Quick Access Toolbar.
- Improved the serialization of the Quick Access Toolbar items in ViewX. Used the same technique that is used for serializing tool window layout.
- Moved as many Virtual ViewX prerequisites as possible to install after the initial setup dialog is displayed.
- Changed Virtual ViewX setup to install Thinfinity VirtualUI OEM as part of main installation.
- Virtual ViewX can now download files that would be opened by Windows system commands from Mimic scripts in ViewX. Registry settings control what file types can be downloaded from Virtual ViewX. Certain file types (e.g. EXE) are blacklisted and cannot be changed.

## Resolved Customer Issues – January 2020 Update

- [SUP-11144] Corrected validation of SCADAPack x70 Modbus slave device.
- The local Windows user 'VVXLocalUser' created for Virtual ViewX has been changed so that its password will no longer auto-expire.
- [SUP-11148] Fixed issue where a "suppressed visible" alarm will retain some attributes, such as its response, after being acknowledged and cleared.
- Fixed ViewX crash when attempting to display a non MFC document.
- Fixed crash in ViewX when using COM interface to delete objects on a mimic.
- Moved some of the ViewX house-keeping routines to a background thread to help improve overall UI responsiveness.
- [SUP-11351] Fixed bug that affects conversion of mapped SCADAPack x70 configuration point to unmapped point via template.
- [SUP-11366] Fixed **ParentGroupName** database field so it shows the correct parent name and not an empty string.
- [SUP-7071] Added 'WITS Files Only' DNP3 WITS Import/Upload mode where no points or profiles are created or updated.
- [SUP-11357] Fixed DNP3 driver so that a network channel will accept a connection from an outstation that is for a different DNP3 master than the outstation set the

channel is attached to (and then transfer the connection to the correct channel). This was broken in ClearSCADA 2017 R2.

- [SUP-11062] Fixed 'write lock required' server exception when a configuration changes historic granule becomes overactive or an historic write error occurs, whilst raising text alarm to report issue.
- [SUP-11107] When an outstation's network settings specify a host name then all UDP datagrams are now sent to this address regardless of which IP address datagrams are being received from. However, if no host name is specified the driver continues to send messages to the IP address that the last datagram was received from.
- [SUP-10953] Permanent Standby servers will now interrupt incremental synchronization when a Main server is shutdown/demoted, to avoid unnecessary delays to new Main on busy systems.
- [SUP-11348] Corrected issue with ViewX document tabs not always scrolling into view when a document is opened.
- Made sure the primary head is active upon startup when ViewX is configured to use multiple heads.
- Fixed intermittent crash when saving object properties within ViewX.
- General Virtual ViewX fixes most around appearance and re-drawing.
- [SUP-9115] Fixed server crash when converting an instance within a template instance to be a different template.
- [SUP-11173] Prevented Database integrity errors when changing point configuration of SCADAPack E Points mapped to Modbus Scanners.
- [SUP-10720] Fixed error in handling update time of SCADAPack E Modbus slave's SlaveName field. Fixed error in validation of SCADAPack E Modbus slave's DigitalControlPoints and AnalogStatusPoints.
- [SUP-11280] Fixed problem with DNP3 Outstation queued for creation pending deletion of remote outstation.
- Fixed ViewX crash when attaching FBD variables to a function block with an EN input enabled.
- Fixed clients displaying product name in method argument descriptions.
- Fixed Script exception in ViewX when working with mimic layers via the COM interface.
- Fixed ViewX crash when removing views on a mimic then changing the current view.
- Fixed ViewX COM interface exception caused by attempting to connect a variable to a nonexistent input in Function Block Diagrams.
- Fixed ViewX COM interface exception caused by closing all documents of a specific type.
- [SUP-11193] Reinstated header files in ViewX logs.
- [SUP-10907] Corrected conversion of templates which contain abstract objects, when instance object does not derive from the abstract class.

### Resolved Issues not included in ClearSCADA 2017 R3

- [SUP-10535] Improved ViewX support for multi-monitor configurations. This will make screen positioning more repeatable. The ViewX StartupConfiguration.xml allows you

to define the monitor origins via the new 'MonitorOrigin' attribute. This supersedes the existing 'Monitor' attribute (which can be removed; if left in the file, it will be ignored). 'MonitorOrigin' is defined as a point attribute (x,y). The Resource Center has further details at:

<https://tprojects.schneider-electric.com/telemetry/display/CS/ViewX+Multiple+Monitor+Setup>.

For example:

```
<SecondaryWindowContainer Name="Head 2" MonitorOrigin="-1920,327"  
LegacyHead="2" DisplayMode="Maximized" ReapplyOnLogOn="true"  
AlarmBannerDisplayState="DockedBottom" />
```

- [DEV-14400] Database files and log files created by DBServer and utilities that run as system/admin now have restricted ACLs so that only administrators can access them. Several default paths have been changed to accommodate this. Specifically, database logs, web server certificates, and crash dumps are now in subfolders of their old locations. The change in certificate location means that a pending certificate/key install will not be maintained across an upgrade. We recommend completing the certificate install before upgrading.
- [DEV-14094] Removed support for ASB Framework Services.
- [DEV-14439] Changed instances of ViewX to share the same log file but add the instance name to identify them. If no instance is set then "Default" is used.
- [TFS20405] Ensured the Zoom drop-down box on the ViewX ribbon can be accessed.
- [TFS19838] Changed the 'Protected Permanent Standby' default setting for all historic types. The default is now 'disabled' for first-time installs and any system's Hot Standby server which has an historic type still at the default, out-of-box settings.
- [DEV-14094] Removed support for ASB Framework Services.
- [DEV-14445, DEV-14446] Ensured License Server starts on install + stops on upgrade then restarts.
- [DEV-14409, SUP-10854] Added configuration change logging for change to TypeName and TypeDesc fields when an object is converted to a different type.
- [DEV-14402, SUP-10904] When editing a data grid in ViewX that has no fields a default field is automatically added to the data grid called "Field1". However, if the data grid already had rows (e.g. by setting RowCount property to non-zero) then saving the data grid with just the default field would lead to an 'end of file' exception when trying to load the data grid. Fixed ViewX data grid editor to prevent it from saving such a data grid into the database.
- [DEV-14287] Prevented crash in ViewX when using a system command that contains spaces. Prevented System Commands from launching in Virtual ViewX.
- [DEV-14337] Fixed server crash when parsing an invalid dynamic tag.
- [DEV-14186, DEV-14187] Disabled the context menu for the 'Display References' window whilst the server is shut down. Ensured the region icon is drawn at the correct size when used within the 'Display References' window.
- [DEV-13923] ViewX maps will now work regardless of ViewX runtime directory.
- [DEV-14140] Reworked the Display References window to use the Actipro libraries.
- [DEV-14161] Corrected updating of 'EvtSeqNumberClear' on a suppressed alarm.
- [DEV-14072] Fixed license error logging in DBServer.

- [DEV-12882] Protected ViewX in case all registry entries for exportable SDE versions are removed.
- [DEV-13431] E-mail Re-direction text updated with American English spellings.
- [DEV-14035] Removed support for SSL v3 from the web interface. TLS v1.0 is now the minimum supported protocol. Removed support for RC4 and MD5 based SSL cipher suites from the web interface. AES and SHA-1 are now the required algorithms.
- [DEV-14046] Fixes for Advanced EWS Driver. Added State and CurrentServer data fields on Group object. Points quality flags follow associated group state. Corrected area of interest for alarms on digital points. Added State, last update time and Current Server to groups view info dialogue.
- [DEV-14034] Updated tool tip for Password Expiry in Server Configuration.
- [SUP-10656, DEV-14031] ViewX users are now forced to change password if it will expire in the next 24 hours. New minimum setting for Password expiry for users is 30 days. 0 still disables the expiry.
- [DEV-14020, SUP-10305] Corrected algorithm for determining whether DNP3 analog points (including WITS and SCADAPack) are overrange or underrange when the outstation reports a floating-point value with the DNP3 OVER\_RANGE object flag set. NB. For status points the driver can't determine whether the point is overrange or underrange unless the matching 'real' point also exists as status points have no range of their own. NB. The algorithm will only work correctly if the range configured in the database is correct (i.e. matches the range defined in the outstation).
- [DEV-13981] Corrected revalidation of x70 outstations when firmware is imported to an x70 firmware object. It will now only revalidate outstations that reference the firmware object in question. Prevent x70 firmware objects unnecessarily saving the firmware image to database load/save streams. x70 and SCADAPack E firmware objects now report a more accurate allocated memory size.
- [DEV-13983] Fixed WebX ruler on trends for traces with an offset.
- [DEV-13983] Added missing description of COMMON\_END\_SECURE\_SESSION command in server log.
- [DEV-13983] Fixed ViewX ruler on trends for traces with an offset.
- [SUP-10647, DEV-13976] Added ViewX support for right click on touch screens with a long press for documents e.g. mimics, trends, lists.
- [DEV-13908] Resolved issue causing incorrect parsing of doubles entered in object configuration fields.
- [DEV-13876] Fixed saving Guest user 'Minimum Banner Rows' and 'Banner Filter Timeout' settings in ViewX. Bug only affects 6.81.6957 onwards.
- [DEV-10124] Mitigated Server deadlock when turning off Alarm Summary.
- [DEV-13652] Resolved memory leak when importing SVG images in ViewX.
- [DEV-10124] Mitigated Server deadlock when turning off Event Journal.
- [DEV-13833] Corrected order of elements in OPCXMLDA GetStatus response.
- [DEV-10458] Prevented Guest user access to ViewX Options.
- [DEV-13694] Remove obsolete TCP/IP tuning button from Client Configuration tool.
- [DEV-13437] Improved ServerStatus 'Alarm Summary Searches' documentation linkage added.
- [DEV-13704] Corrected ownership of floating document windows in ViewX.



- [DEV-13532, SUP-9976] Added new server settings to "System Configuration\File Access" section of server configuration tool for controlling access to local files on the server via database methods that take a file as an argument. These new settings default to disabled and therefore will need to be changed to restore access to local files (if required) when upgrading.
- [DEV-13433] Fixed Ad-hoc Trends in ViewX not obeying the option "Show Alarm Limits".
- [DEV-13512, DEV-10311, SUP-9191] Added help link to Wonderware Historian tag name prefix and aggregate suffix.
- [DEV-13494] Added 30 second timeout to new 'RenameTag' method on Wonderware Historian objects.
- [DEV-113450] Stopped Advanced Drivers failing UDP Channels on receiving an ICMP port unreachable message on a listen port.
- [DEV-12826] Changed ViewX to unpack help files to a location appropriate to the product.
- [DEV-11870] Fixed ViewX not cleaning up advise links on connection failure.
- [DEV-13396] Prevented floating windows created via the float command on the context menu from hiding behind the main ViewX window.
- [SUP-10293, DEV-13382] Added display name to the header information for Queries in Mobile to allow user custom names.
- [DEV-13362] Enabled splitter on Mobile Configurator.
- [DEV-13348] Corrected behavior of User Pattern object Security tab so that fields other than Inactivity Logout are always disabled.
- [DEV-13341] Updated User object security tab password strength labels to match server config tool.
- [DEV-13237] Added Geospatial Index help link to Server Status tool.