New User Interface

A new User Interface has been developed for SCADA Expert ClearSCADA 2014 R1, which will replace the current client user interface included with previous ClearSCADA releases. New features include:

- The Toolbar has been replaced by a Ribbon interface, which also includes a user-customisable Quick-Access Toolbar for frequently used functions.
- The multi-document interface has been improved providing tabs for all open documents, allowing for quick switching.
- Tabs can be dragged from their default location and ‘snapped’ for simpler window layout management, including horizontal and vertical alignment.
- Asynchronous communications and document handling for improved performance so the User Interface will remain interactive when loading documents across slow network connections.
- Recent document history is provided for quick document recall.
- The multi-monitor interface has been completely redesigned, now supporting up to 16 separate displays.
- Refreshed database icons compatible with colour-blindness.
- Ability to require user confirmation on shutdown.

Important Changes to Operating System Support

- The new User Interface is not compatible with Windows Server 2003, although the ClearSCADA server is still compatible with this Operating System.

Features Removed from the User Interface

- Inactivity Shutdown.
- ViewX minimal mode.
- Mimic Overview (Navigation).
- Configurable Tooltip Delay.
- Customizable appearance of the Mimic and standard Object menus.
- Customizable Status Display font.
- Ability to Open/save a Mimic/Trend/Plot from/to disk.
- View of System Tables from Queries Explorer.
- Import/Export of Operator Documents
Simplified Development and Maintenance

Simplified Internal Point Calculations

New internal calculation points have been defined allowing for the combination or transfer of data between database points without the complexity of using a separate logic program. These point calculations use the familiar mimic ‘expression’ interface to define the required calculation and support a variety of execution trigger conditions, and data quality and timestamp generation options.

Bulk Modification of Historic Data

ClearSCADA 2014 R1 provides an interface to allow direct modification of a range of historic values for multiple traces via the existing trend viewer. A new interface is provided to configure the modification which can be implemented either via the application of a formula (multiplier and offset) or replacement of data with static values.

Bulk Edit Tool

ClearSCADA 2014 R1 includes a new Bulk Edit Tool to simplify the management and application of widespread changes to the database.

This tool provides an intuitive graphical user interface to browse the database and select just the individual object(s), and properties of those object(s), that should be exported to a Microsoft Excel® spreadsheet file for editing. Once in MS Excel, the selected properties can be manipulated as required and saved, and simply re-applied to the ClearSCADA database via the Bulk Editing interface which produces a detailed log of the import process for confirmation. The Bulk Edit Tool interface also provides quick and simple access to directly modify the configuration of multiple objects at once without the need for MS Excel®.

The Bulk Edit tool also provides an interface for the modification of Template Property Overrides, where these can be adjusted directly, or exported to MS Excel® when more detailed configuration is required.

NOTE: This utility is intended to facilitate large-scale changes to a ClearSCADA database. Schneider Electric recommends that all changes are performed within an offline development environment before making them on a live production system. As a general-purpose utility which is new to ClearSCADA, it may be that some database changes will raise errors. If you have any feedback on how the Bulk Edit Tool can be improved in functionality or error handling, we welcome your input on the ClearSCADA Bulk Edit Tool forum at: http://telemetry.schneider-electric.com/id3/forum/
Automated Data Visualization Management

A new Data Set has been created (like a Table or Grid) that works in conjunction with your templates to automatically include new data as it’s available, removing need for any manual maintenance that might be required when Data Grids are used for this purpose.

By including individual row objects (called a “Data Set Row”) within templates and linking these to an overall Data Set, ClearSCADA provides a self-maintaining table that automatically expands to include rows from new template instances are created.

Applications include:

- Metering Grid, for upstream Oil & Gas site summary information
- General Site Lists, automatically maintaining as new sites are added to the system
- Data Consolidation, for reporting or data extraction

Enhanced Security

Enhanced Firewall and NAT Support

ClearSCADA 2014 R1 enhances interoperability in a firewalled installation by providing configurable listen ports for database configuration activities that involve a browse of the server (e.g. browsing to find an OPC tag reference). All web links served from ClearSCADA are relative so the ClearSCADA server address can be masked behind a NAT (Network Address Translation) device.

Restricted access to Sensitive System Information

ClearSCADA 2014 R1 provides increased security of critical assets, restricting access to the IP Address and Node Name information for servers and clients within the Event Journal relating to server synchronization, workstation connections and logon failures where sensitive information is replaced with asterisks for under-privileged users. Similarly, ClearSCADA restricts visibility of sensitive IP Address information associated with individual database items (e.g. IP-connected field devices), where asterisks are shown in place of the sensitive data within mimics, lists, status displays and configuration forms.

In addition, individual users can be restricted from having visibility of the server node IP Address information within the Database and other Explorers (OPC, Queries, Area of Interest, OPC Data and OPC Historic).

Support for Internet Explorer 11

ClearSCADA 2014 R1 includes support for Microsoft Internet Explorer 11.

Internet Explorer 11 should be run in Compatibility Mode when connecting to a WebX Server to ensure all ClearSCADA components are displayed correctly.
Enhanced Operational Intelligence

Integrated Interface to Hydraulic Modeling

Aquis is a Schneider Electric software application that uses real-time data to analyze and track the current situation of a distribution network enabling operators to make better and smarter decisions and to optimize production and enhance the bottom line.

ClearSCADA 2014 R1 provides optimization of system operation, enabling integration of an external Aquis installation into ClearSCADA. This will allow SCADA users the ability to display screens from Aquis within ViewX and interact with the Aquis installation.

In addition, the Schneider Electric EcoStruxure Web Services (EWS) Driver has been enhanced to support interoperability with Aquis, providing access to current, historic and simulated forecast data from the Aquis Modelling Environment which can be visualized and used within the ClearSCADA Host System.

3D Plotting

ClearSCADA adds another dimension to trending with the XYZ Plot; a new type of trend that allows you to monitor the relationships between multiple sets of historic values at periodic time intervals. The configuration of each XYZ Plot provides a 3D graphical representation of sets of historic values, with the z-axis providing the 'depth' in the form of a timeline.

This new plot provides enhanced visualization and operation of pressure/flow profile in pipeline or liquid distribution applications, where the consistent 'structure' of the curve allows simplified historic comparison and detection of abnormal conditions.

Enhanced PLC Integration

ClearSCADA 2014 R1 delivers an update to the bundled version of OPC Factory Server to V3.50 which is simpler to use than previous versions and provides increased performance. This can be installed by enabling the checkbox for the OPC Factory Server in the pre-requisites screen during the installation.

A new advanced OPC driver extends beyond the current simple OPC driver implementation providing enhanced performance, n-level redundancy, support for time-stamped data, and more polling and communications options. The Advanced OPC driver supports communication with OPC servers via OPC DA version 1, 2 and 3 and supports OPC version auto-detection.

Driver for SCADAPack 50 (SP50) Wireless Data Logger

ClearSCADA 2014 R1 provides integrated connectivity to the new SCADAPack 50 Wireless Data Logger; a cost effective way to deploy monitoring systems for assets that are widely dispersed where power and network access is either not available or prohibitively challenging. The SCADAPack 50 remote units monitor the process inputs and store data at configured intervals, periodically transmitting this data to the ClearSCADA Host over a GSM network using SMS.
Enhancements to DNP3 Driver for new SCADAPack E RTU

ClearSCADA 2014 R1 enhances its fully integrated DNP3 Extension driver to include support for the new SCADAPack 530/535E; a cost-effective high end RTU providing everything you’ve come to expect from the SCADAPack E range of Smart RTUs with an optimal ratio of performance to power consumption. The new SCADAPack 530/535E RTU also provides high density I/O, 3x Ethernet Ports, 4x Serial Ports and 2x USB Ports, and an embedded 3G/LTE Socket Modem.

Driver for T-Box RTU

ClearSCADA 2014 R1 provides native connectivity to the T-Box range of RTUs from CSE Semaphore allowing access to Analog (I/O), Digital (I/O), String and Historic Analog data from the T-Box RTU via both chronologies and sampling tables, and also includes support for historic retrieval of T-Box Alerts. This driver provides an enhanced level of versatility catering for both the Numerical and Station Name addressing schemes implemented within T-Box Device Networks, supporting a variety of communications paths including Ethernet, Serial, and PSTN.

Enhancements to SNMP Driver

ClearSCADA 2014 R1 delivers enhancements to the current SNMP implementation to provide support for version 2 (including asynchronous notification functionality - traps and informs) and version 3 of which integrated security is a major component. In addition, the implementation will include an SNMP ‘device’ component to which points are associated, allowing more efficient configuration of SNMP communications as all points can be configured to inherit the device’s communication options.
Important Changes to Upgrade Strategy

As a result of the changes to the ViewX User Interface for ClearSCADA, the strategy for upgrading to ClearSCADA 2014 R1 from previous versions has been modified. Adhering to the previous strategy of upgrading ViewX clients prior to the ClearSCADA server will result in these upgraded clients being unable to communicate with the system until the server is upgraded to ClearSCADA 2014 R1.

The recommended strategy for upgrading to ClearSCADA 2014 R1 is to upgrade the ClearSCADA server(s) first, followed by any remote clients. Previous versions of ViewX will provide remote clients with continued connectivity with ClearSCADA before and after the upgrade to ClearSCADA 2014 R1, after which time these clients can be upgraded to ClearSCADA 2014 R1.

It is recommended that all ViewX clients be upgraded to ClearSCADA 2014 R1 following successful upgrade of the server(s).

**NOTE:** Supported client versions include ClearSCADA 2010 R3, ClearSCADA 2013 R1 and ClearSCADA 2013 R2 (and corresponding Service Packs for each version). ViewX clients prior to ClearSCADA 2010 R3 will not be able to connect to a ClearSCADA 2014 R1 server.

Removal of Integrated PLC Driver

ClearSCADA software previously had an option of an integrated Kepware Technologies KEPServerEX4 PLC driver; however with the evolution of ClearSCADA this integrated PLC driver suite previously is no longer available within ClearSCADA 2014 R1 or future versions.

To ensure the continuous, long-term operation of your system we recommend that you migrate to an external installation of KepServerEX5 (Kepware’s latest version) prior to the upgrade to ClearSCADA 2014 R1. This migration will require the conversion of any existing PLC database objects into corresponding OPC database objects, for which a documented procedure and software tool has been prepared and will be provided free of charge from Schneider Electric on request.

An upgrade to ClearSCADA 2014 R1 should be performed only after all PLC database objects have been migrated to corresponding OPC database objects.
User Interface

Performance of Locate… Operations

Databases that have an excessive number of objects, or objects within a flat database hierarchy, may experience delays when attempting to execute one of the following:

- Locate in Database Explorer
- Locate in OPC Explorer
- Locate Template
- Locate in Template

These delays may cause ViewX to display a ‘busy’ icon while this action is performed, but should remain responsive for further user input. Once the executed action is complete, the respective Database or OPC Explorer will display the target object.

Command Line Parameters

The command line parameter “/head:<n>” has been removed. This has been replaced by “/instance:<n>” for multiple instances, and with “/startup:<file.xml>” for enhanced multi-monitor functionality, where <file.xml> is the location of a startup configuration file.

More information on the improved multi-monitor support can be found within the ClearSCADA 2014 R1 online help guide under: Core Reference > Client Administration > Client Administration Guide - Launch a ViewX Client on a Multi-Monitor Setup.

Maximum Windows Limitation

ViewX now enforces a maximum limit of 100 open windows. Any system previously configured for 0 (and hence unlimited) windows will now be set to 100. Attempts to exceed the configured limit will result in normal Maximum Window behaviour requesting a user to close an existing window to proceed.

Time Format Symbols

The following time format symbols are no longer supported in ViewX due to their inconsistency with the .NET Time Format. This does not impact the operation of the ClearSCADA Server or the validity of any time/date formatting, but any use of the following time format symbols should be removed to ensure correct display of date/time to the user:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Presentation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>e</td>
<td>day of week (1~7)</td>
<td>(Number)</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>day of year</td>
<td>(Number)</td>
<td>189</td>
</tr>
<tr>
<td>F</td>
<td>day of week in month</td>
<td>(Number)</td>
<td>2</td>
</tr>
<tr>
<td>w</td>
<td>week in year</td>
<td>(Number)</td>
<td>27</td>
</tr>
<tr>
<td>W</td>
<td>week in month</td>
<td>(Number)</td>
<td>2</td>
</tr>
<tr>
<td>k</td>
<td>hour in day (1~24)</td>
<td>(Number)</td>
<td>24</td>
</tr>
<tr>
<td>K</td>
<td>hour in am/pm (0~11)</td>
<td>(Number)</td>
<td>0</td>
</tr>
</tbody>
</table>
**User Specific Settings**

When upgrading from previous versions of ClearSCADA any user-specific ViewX display settings will be lost. This includes, but is not limited to; layout of Toolbars, width/visibility of the Database and other Explorers, and the position of the Alarm Banner.

**Regional Localization Settings**

This initial release of ClearSCADA 2014 R1 contains full support for English language only.

Existing installations with user localization settings other than English will be presented with a mixture of English and non-English language after upgrading to ClearSCADA 2014 R1. It is recommended that users with multi-language or non-English language installations do not upgrade to ClearSCADA 2014 R1 until full language localization is available within the first Service Pack.

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1 These Release Notes for ClearSCADA 2014 R1 contain information on new features that are also available within ClearSCADA 2013 R2.