PowerSCADA Expert v. 8.2 with Advanced Reporting and Dashboards

Installation Guide

7EN02-0394-00

03/2017

PowerSCADA
Expert

truxureWare™

Safety information

Important information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this signal word.

Please note

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Safety precautions

During installation or use of this software, pay attention to all safety messages that occur in the software and that are included in the documentation. The following safety messages apply to this software in its entirety.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use the software for critical control or protection applications where human or equipment safety relies on the operation of the control action.
- Do not use the software to control time-critical functions because communication delays can occur between the time a control is initiated and when that action is applied.
- Do not use the software to control remote equipment without securing it with an authorized access level, and without including a status object to provide feedback about the status of the control operation.

Failure to follow these instructions can result in death or serious injury.

WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure the software, as this can lead to inaccurate reports and/or data results.
- Do not base your maintenance or service actions solely on messages and information displayed by the software.
- Do not rely solely on software messages and reports to determine if the system is functioning correctly or meeting all applicable standards and requirements.
- Consider the implications of unanticipated transmission delays or failures of communications links.

Failure to follow these instructions can result in death, serious injury, equipment damage, or permanent loss of data.

WARNING

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Change default passwords to help prevent unauthorized access to device settings and information.
- Disable unused ports/services and default accounts to help minimize pathways for malicious attackers.
- Place networked devices behind multiple layers of cyber defenses (such as firewalls, network segmentation, and network intrusion detection and protection).
- Use cyber security best practices (for example: least privilege, separation of duties) to help prevent unauthorized exposure, loss, or modification of data and logs, or interruption of services.

Failure to follow these instructions can result in death, serious injury, and equipment damage.

Contents

Introduction

About This Guide

Purpose

This document is a guide for installing PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards. It describes the installation process and optional components which can be installed in each environment, either on a single workstation, or on a network.

The configuration section provides an overview of using PowerSCADA Expert in a Local Area Network (LAN), a Wide Area Network (WAN), and as a Web Server.

Maintaining System Currency

After you install and configure PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards and deploy it as your production system, it is very important that you keep your software up to date. Schneider Electric will periodically publish updates in the form of service releases, hot fixes, or advisories relating to safety, security, and functionality of PowerSCADA Expert.

Dynamic-point count licensing

In earlier versions of PowerSCADA Expert, multiple tags that share the same I/O device address were counted as a single I/O point. This was calculated at compilation time and the compiler reported the number I/O points used in a project. This was referred to as the Static Point Count. Any other tags used in super genies, read/written to via CTAPI, ODBC, DDE, TagRead() and TagWrite() were counted at runtime and referred to the Dynamic Point Count. Thus, the total I/O point count was equal to Dynamic Count plus Static Count, which was calculated at runtime.

However, from version 7.0 forward, the compiler does not generate any static point count any more. PowerSCADA Expert counts I/O device addresses dynamically at runtime. This includes tags used by alarms, trends, reports, events, pages, in Super Genies, use of the TagRead() and TagWrite() Cicode functions, or read or written to using DDE, ODBC, or the CTAPI. A particular variable tag is only counted towards your point count the first time it is requested. That is, even though you may have configured a certain tag on a particular page in your project, unless you navigate to that page and request the data, the variable tag will not be counted towards your point count.

Note the following methods used in calculating point counts:

- I/O point count is now tag based not address based. For example, two tags that use the same PLC address will be counted twice. If two trend tags use the same variable tag, it will be counted once. The same applies to alarms.
- For the multi-process mode, each server component will accumulate its own point count. The server component point count is the count added up from each server component - if two server components use the same tags, say alarm and trend, the tags will not be counted twice when the point count gets totaled, each unique point is counted once only.
- For the multi-process mode, the client component will also accumulate its own point count including super genie and CTAPI tags.
- For the multi-process mode, the machine point count will be the point count on the client component or the point count added up from each server component,

whichever is bigger. For example, if the total point count for each server component is 100, and the client component point count including CTAPI and super genies is 95, the kernel "General" window will show 100. If the client component point count reaches 120 later and the server component point count still remains 100, the kernel "General" window will show 120. In PowerSCADA Expert 7.3,0 a special case was introduced; if the server point count is greater than 500, the client component point count is disregarded

- Reading properties of a tag with TagGetProperty() will cause that tag to be included in the point count, even if the value is not read.

- Writing to local variables or disk IO variable tags via OPC etc will also increase the point count. For example, if you use an OPC client to write to a local variable, each local variable will be counted once, the first time it is used.

With the release of 7.30, further changes to licensing point count were included, with the introduction of the "One License" product licensing method.

These are listed below:

- If a given tag is used by both, say, trend and alarm servers each server reports actual tags used (Cluster.TagName), so the same tag is not counted twice.

- A new INI parameter has been added to control IP addresses aging. It is used to indicate how long to reserve a license for a given IP address in cases when a remote client connection is lost. This does not apply to FULL licenses. The parameter is [General]LicenseReservationTimeout.

- In previous versions there was a single point count within the licensing model, now there are multiple point counts as a pair of values: License Type – Point Limit.

Installation Description

Before you begin the installation of PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards, you need to decide which components you want to install. This is determined by the functionality you want the installation to support.

After you have decided on the PowerSCADA Expert environment, and any additional standalone components that you want to install, refer to *Installation Requirements* on page 10. Use that information to ensure that your hardware and system software meet the requirements for your selected installation.

After you progress through the preliminary dialogs of the installation interface, you will be requested to begin selecting the components that you want to install. The options that the installation interface will present to you are described below.

Core Components

The installer provides a list of options to help you select the appropriate components during installation. Depending on the options that you check, the next dialog will have default selections recommended for installation. You may accept the default components, or select the ones of your choice on the components selection screen which is displayed after you click Next on the Installation Profiles dialog.

The options are:

- Runtime Environment
- Configuration and Development Environment
- Sentinel Driver
- Schneider Electric License Manager

The **Runtime Environment** option will select Runtime, Sentinel Driver, and Communications Drivers for installation. It is an installation which will install the runtime components for both a Server and Client. Such an installation will include runtime infrastructure files, Client and I/O Server, Alarm Server, Trend Server and Reports Server.

Select this option if this is an installation of PowerSCADA Expert which will act as a server to service a number of client installations.

The **Configuration and Development Environment** option installs the design-time configuration environment. Users who have sufficient security privileges can set up graphics pages, create reports, etc. The configuration tools include: PowerSCADA Studio, Application Config Utility, IO Device Manager, Project Setup, Project Backup/Restore and the PowerSCADA Runtime Environment.

Deployment Client: installs the Deployment Client component, which allows projects to be deployed to this machine remotely.

Deployment Server: installs the Deployment Server component, which allows projects to be administered, versioned, and deployed to other remote Deployment Client machines from this machine. The server has the ability to roll out project changes to the various computers in your project.

The **Sentinel Driver** option will install the USB sentinel driver, which allows you to use a physical USB dongle to license PowerSCADA Expert.

The **Schneider Electric License Manager** option will install the license manager, which enables software-based PowerSCADA Expert licensing.

Add-ons Installation

Once you have selected the components that you want to install, the next dialog allows you to select any Add-ons that you wish to use in your installed system..

The options are:
- Project DBF Add-in for Excel™
- PowerSCADA Expert Web Server for IIS
- PowerSCADA Expert Reporting
- PowerSCADA Expert Profile Editor
- PowerSCADA Expert LiveView
- PowerSCADA Expert EWS Server

The **Project DBF Add-in for Excel** option will install an Add-In for Microsoft™ Excel. When this Add-In is loaded into Excel, it allows you to browse, open, edit and save PowerSCADA Expert .dbf files in the correct format. This is only available for selection if Microsoft Excel 2007 or above is installed on the computer. Otherwise, it is visible but is deselected and disabled.

The **PowerSCADA Expert Web Server for IIS** option will install a Web Server running on Microsoft Internet Information Service (IIS). The Web Server performs the server-side functionality of a Web Service to the Web Client. As well as facilitating communication, it directs a client to the graphical and functional content of a PowerSCADA Expert project and the location of the runtime servers. This information is stored on the Web Server when a PowerSCADA Expert project is deployed. A Web Server can contain multiple deployments.

Note: If the Web Server and PowerSCADA Expert runtime server are set up on different machines, and it is not possible to establish a trust relationship between them, the two machines need to be on the same domain so that the Web server can access the directory on the PowerSCADA Expert server that's hosting the web deployment files. If, conversely, a trust relationship can be established between the Web Server and the PowerSCADA Expert server, they can be on different domains as long as the Web server has read access to the project folder on the PowerSCADA Expert server.

The **PowerSCADA Expert Reporting** option will install the basic PowerSCADA Expert reports.

The **PowerSCADA Expert Profile Editor** installs the Profile Editor tool, which gives you the ability to create tags, device types, devices, and projects outside of the PowerSCADA Studio environment.

The **PowerSCADA Expert LiveView** option installs LiveVIew, a tool that you use to create table templates for real-time system readings.

Installation Requirements

This section describes the requirements for hardware, operating system software and system configuration prior to installing PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards and any of its components.

These requirements will vary subject to the components of PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards that you intend to install on any computer. Refer to *System Hardware* on page 10 and *System Software* on page 11 to determine the components that you want to install. These sections identify the basic hardware and system software requirements, as well as requirements specific to each particular component.

Before you begin to install PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards, it is important that you install the latest updates from Microsoft® for your operating system and system software. Also see the Operating System Matrix that shows the operating systems that are compatible with various versions of PowerSCADA Expert.

System Hardware

NOTE: The minimum and recommended hardware requirements have changed in this release. Upgrading customers should load test their system as part of their upgrade procedure to ensure that the hardware in use is adequate for the needs of their system.

The following tables list the computer hardware requirements for the PowerSCADA Expert "All Core Components" installation and all optional components.

Description	Minimum Specifications
Processor	Intel Pentiuim
Processor Speed	4 cores @ 2.0 GHz for a server or 2 cores @ 3.0 GHz for Clients
Random Access Memory (RAM)	8GB for Servers 4GB for Clients
Network Speed	1GB
Available Disk Space	100BG
Grapnics Adapator	1024 x 768 pixel resolution, with 128MB of VRAM.

NOTE: In PowerSCADA Expert, we recommend that you set screen resolution at 1024 by 768 pixels or higher.

NOTE: In PowerSCADA Expert, you need to increase system resources (both memory and number of available cores) in the following circumstances:

- When running a large number of tags on a server (> 100,000)
- When running multiple clusters on the same machine
- Your system has a high rate of change of data (either IO or alarms)
- Your graphics pages contain a large number of alarm count calls (more than 500 per page).

System Software

The following table indicates the system software that is needed on any computer onto which you want to install the PowerSCADA Expert All Core Components installation and all optional components. Note that there is an operating system matrix table that follows. It shows the operating system compatibility for each version of PowerSCADA Expert.

Product Name	Minimum System Software
All Core Components	**Operating System** Windows 8 or Windows Server 2012 R2 or Windows 7 with Service Pack 1(32 Bit and 64 Bit) or Windows Server 2008 R2 with Service Pack 1 (32 Bit and 64 Bit) Microsoft .NET Framework 4.6.1 (installed with PowerSCADA Expert if not already installed). Microsoft .NET Framework 4.6.1 is required by "Schneider Electric License Manager" and "Schneider Electric Software Update" if using Windows Server 2012. Internet Explorer Version 9.0 or greater. - Windows 7, 32- and 64-bit: Internet Explorer version 11 - Windows 8, 32- and 64-bit, Internet Explorer version 10 - Windows 2008 R2 SP1, Internet Explorer version 11 - Windows Server 2012, Internet Explorer version 10 A Local Area Network (LAN) if you want to have multiple clients access a remote server. If running under virtualization with VMWare, the minimum system requirement is VMWorkstation 6.03 and later.
Schneider Electric License Manager	As for All Core Components.
PowerSCADA Expert web server	As for All Core Components with the addition of a LAN running TCP/IP and Microsoft Internet Information Services (IIS). See Microsoft ISS on the next table.
PowerSCADA Expert web client	Internet Explorer version 8 or greater (32-bit only)
Product Documentation	As for All Core Components
Project DBF Add-in for Excel	As for All Core Components, and Microsoft Excel 2007 or later. Microsoft Excel 2013 (32-bit only)

Note: Use an NTFS file system on the target drive for the Web Server software, otherwise you won't have effective access to the necessary Windows security settings (that is, the Folder Properties dialog will not have a Security tab). If you are currently using a FAT/FAT32 system, convert the drive to NTFS before installing the Web Server software.

Operating System Matrix

	PowerSCADA Expert Version			
	8.2[1]	8.1/ 8.0 SR1[1]	7.40	7.30
Windows Server 2016	X	O	O	O
Windows 10	X	X[2]	O	O

	PowerSCADA Expert Version			
	8.2[1]	8.1/ 8.0 SR1[1]	7.40	7.30
Windows Server 2012 R2	X	X	O	X[3]
Windows 8.1	X	X	O	X[3]
Windows Server 2012	X	X	X	X
Windows 8	X	X	X	X
Windows Server 2008 R2	X	X	X	X
Windows 7	X	X	X	X
Windows Server 2008	O	X	X	X
Windows Vista	O	O	X	X

X = supported

O = not supported

Notes:

1: PowerSCADA Expert 8.2 = Citect 2016;

PowerSCADA Expert 8.1 and 8.0 SR1 = Citect 2015.

2: CitectSCADA 2015 Service Pack 1 must be installed for Windows 10 compatibility.

3: CitectSCADA 7.30 Service Pack 1 must be installed for Windows 8 and Windows Server 2012 compatibility.

IIS Requirements for PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards

The PowerSCADA Expert installer enables the IIS versions/features automatically:

Operating System	IIS Version
Windows Server 2012 R2	8.5
Windows 8.1	8.5
Windows Server 2012	8.0
Windows Server 2008 R2 SP1	7.5 (You need to enable this on Windows features.)

IIS Component	Features to Enable
Management Tools	IIS Management Console IIS6 Management Compatibility —IIS6 Metabase and IIS6 Configuration compatibility IIS Management Services
Application Development	ASP ISAPI Extensions
Security	Requrest filtering Windows Authentication

The Installation Process

You can install PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards as a new product only.

Note: Back up your existing projects then uninstall prior versions before installing v8.2, as PowerSCADA Expert does not support different versions running side-by-side. These files include LiveView templates; reporting configurations (such as email addresses); and Profile Editor custom tags, device types, profiles, and units (in the Program Data folder).

Note: Remove existing Floating License Managers installations before installing the new version.

Before proceeding with the installation of PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards and optional components, refer to *Installation Requirements* on page 10, to verify that you have the necessary hardware on the target computer to support the installation. Also refer to *Installation Description* on page 8. That section explains the installation process and options.

The system software requirements are listed in the Software Prerequisites section.

After you decide which components of PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards you want to install, see *The Installation Process* on page 1 to begin installation.

To modify files after you install PowerSCADA Expert, you will need to re-run the installation.

Installation Steps

You can install PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards as a new product, only. You must uninstall any earlier version before you begin.:

Follow these steps to perform a new installation of PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards.

Do not have Windows Update running when you install PowerSCADA Expert.

To begin the installation, place the PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards DVD in the DVD drive of y our computer (or launch the installation media). If you have autorun enabled, the initial Setup dialog will display. If this does not occur, use Windows Explorer to navigate to the root directory of the DVD. Then click MainSetup.exe to display the Setup dialog.

When you begin the installation, if any required system software is not detected, you must install it before you can begin the PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards installation. For example, if you have not yet installed .NET Framework 4.6.1, you will be prompted to install it first.
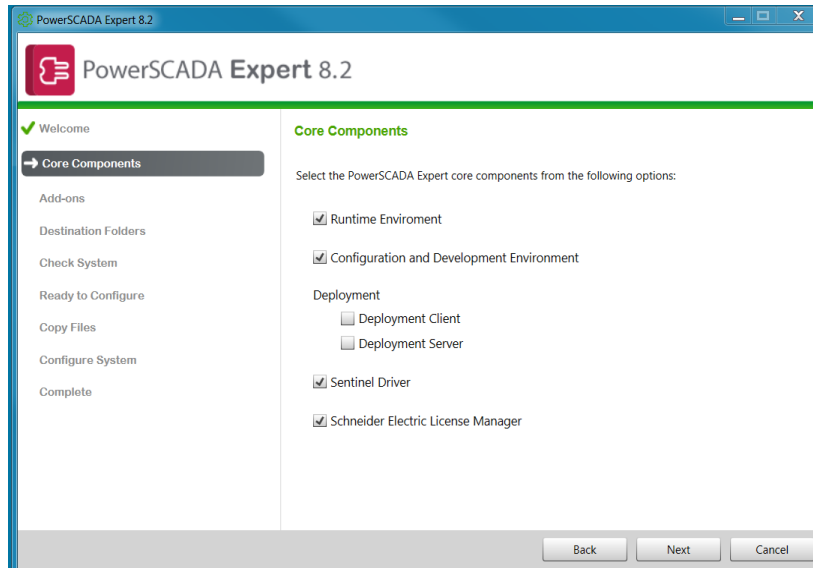
If you have not yet installed .NET Framework 4.6.1, you are prompted to install it. Click OK at the message and the installer closes.

1. Install .NET Framework 4.6.1, then launch the installer again.

    When all required software is installed and you launch the Mainsetup.exe, you see the Welcome screen:
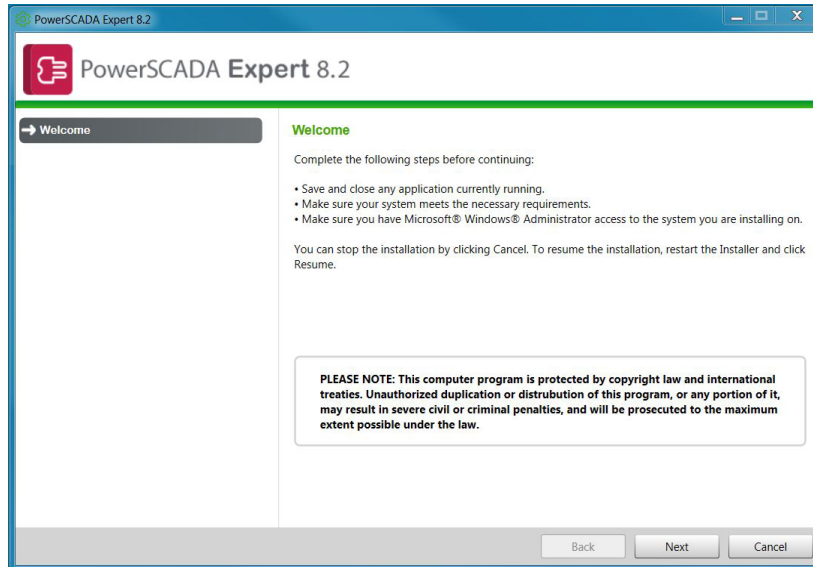
2. Click **Next** to display the **Core Components** dialog:

3. From the list, select the component(s) that you want to install. Options are:
    — Runtime Environment
    — Configuration and Development Environment
    — Sentinel Driver
    — Schneider Electric License Manager

    For a description of each component, see *Core Components* on page 8.

4. Make sure the correct components are checked. Click Next to display the **Add-ons** dialog:
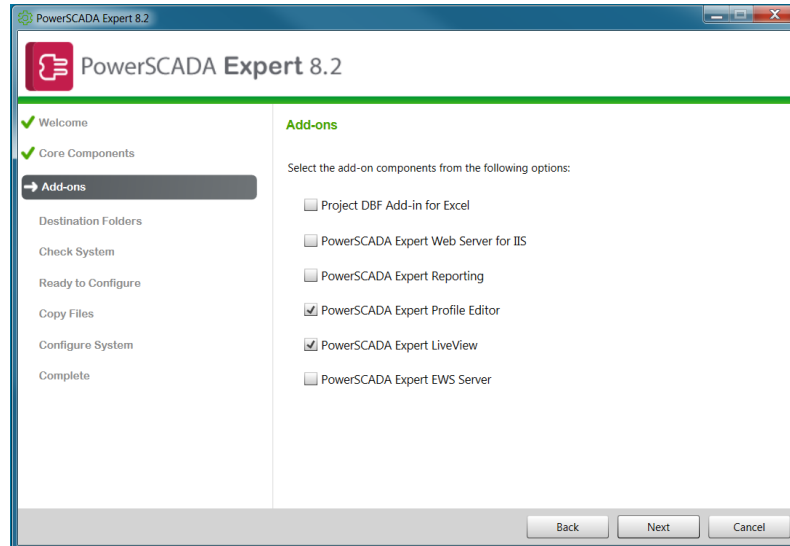
The Add-ons dialog allows you to select additional components for your installation.

The Project DBF Add-in for Excel can only be selected if Microsoft Excel 2003, 2006, 2010, or 2013 is installed on the computer.

For a list of the add-on components, see *Add-ons Installation* on page 9 on page 1.

5. Click Next to display the **Destination Folders** dialog:
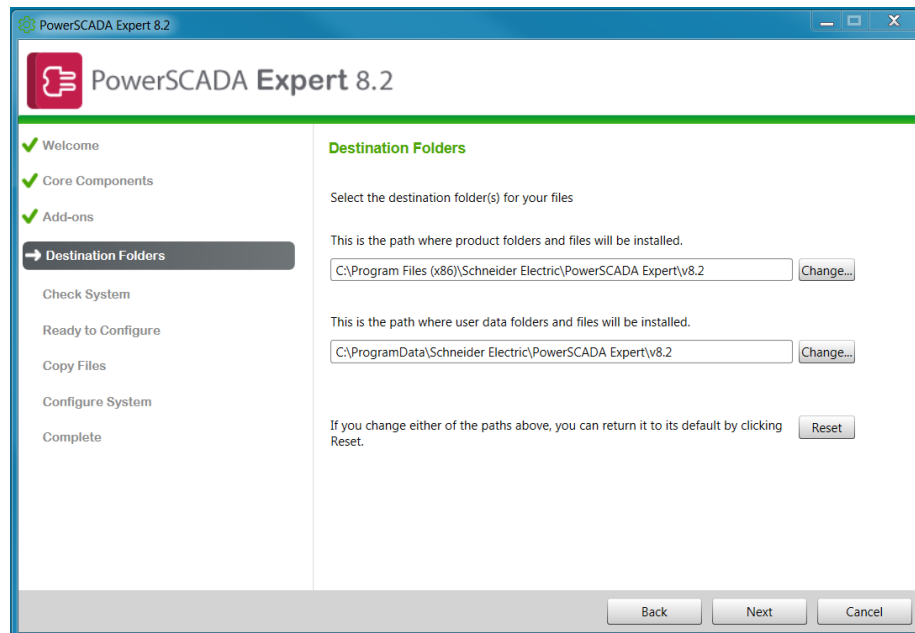
This dialog identifies the folders into which the program files you have selected will be installed.

6. To change folder locations, click the Change buttons and browse to the preferred location. If you change the default paths, you can return it to the default setting by clicking Reset.

7. Click Next to display the **Check System** dialog:
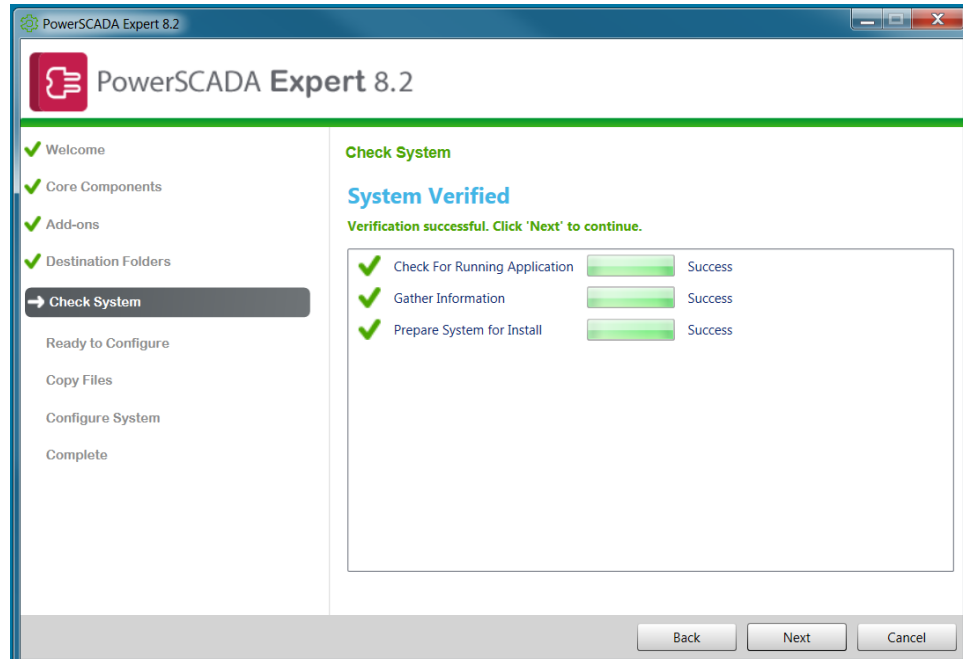
This dialog tells you whether the installation will be successful.

8. If you see "Unsuccessful configuration," you can view a log file that will show when the installation stopped. To view this file, click **Open Log** on the right side of the screen. Note the files that need to be corrected, and correct them in the order they are presented. After you make the corrections, click **try again** in the middle of the screen. Repeat this step, as necessary, until all problems are solved.

9. When "Unsuccessful configuration" is replaced by "System Verified," click Next to display the **Ready to Configure** dialog.
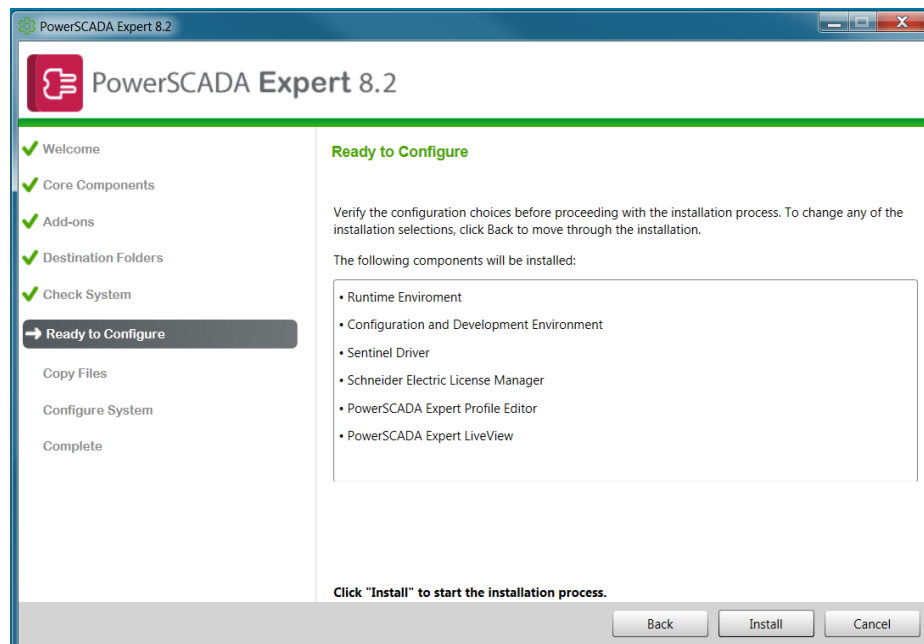
10. Review the list, to be sure that you are satisfied with the installation configuration. To change any of the items, click Back to return to the screen where it was selected.

11. Click Install to continue with the installation.

Progress bars and additional installation screens display during the installation.

The Citect IDEwindow aunches briefly to continue updating files. It will close automatically.

When configuration is complete, the **Configure System** screen displays:
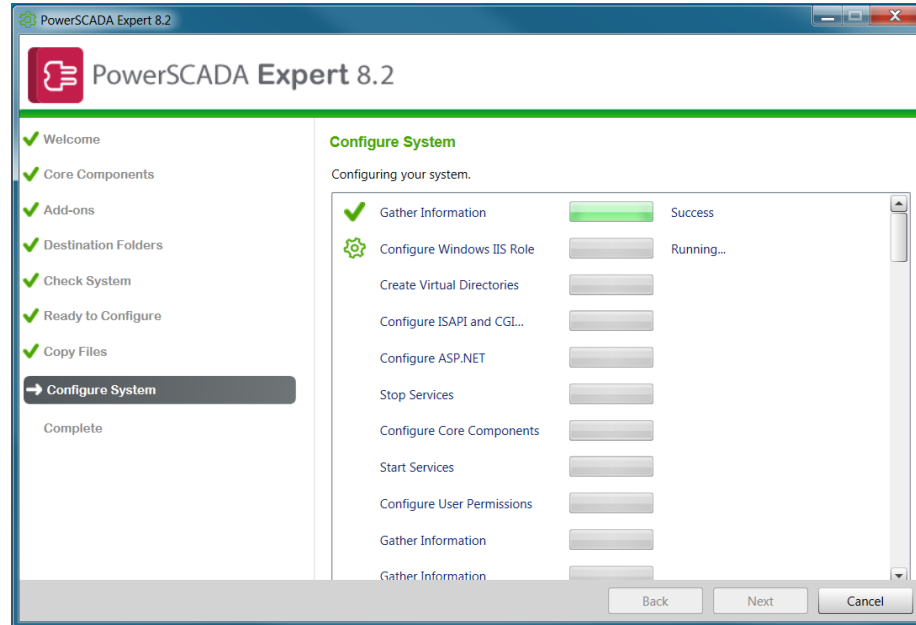
12. Click Next.

The **Complete** screen displays, showing that the installation has successfully completed:
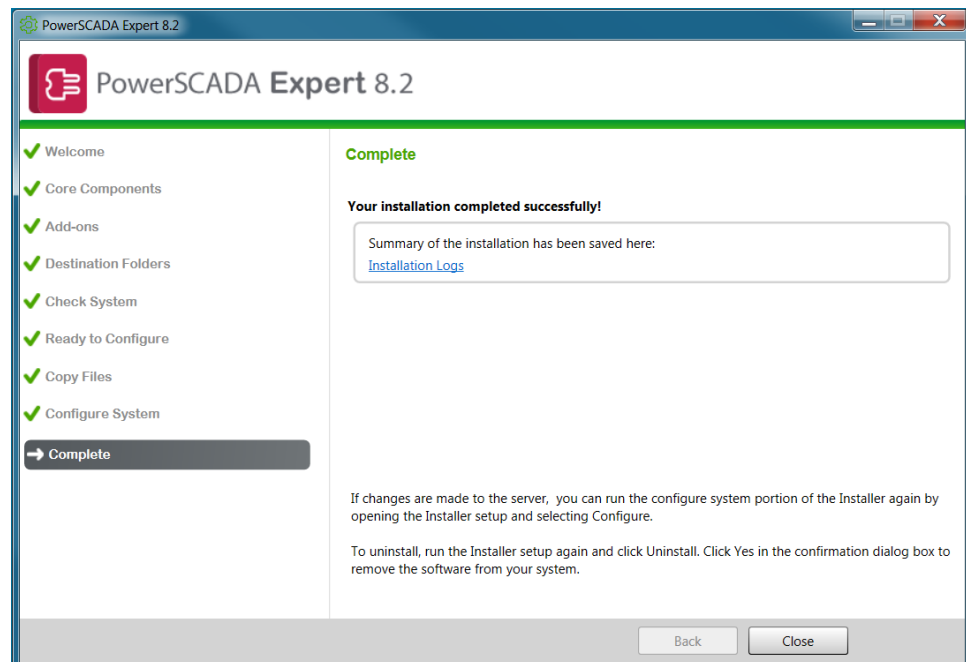
13. Click Close.

You can now launch and use PowerSCADA Expert 8.2 with Advanced Reporting and Dashboards

See "Activate Software Licenses" below for information on activating floating license keys.

See "Launch PowerSCADA Expert" for instructions on launching the PowerSCADA Expert product.

Activate Software Licenses

NOTICE

LOSS OF COMMUNICATION

- Be sure to activate product and component licenses prior to the expiry of the trial license.
- Ensure that you activate sufficient licenses for the servers and devices in your system..

Failure to follow these instructions can result in loss of data.

After your order is processed, you will receive an entitlement certificate by email. It lists the activation ID(s) that you need to activate your software.

When you receive the activation ID(s), use the Schneider Electric Floating License Manager (Start >All Programs > Schneider Electric > Floating License Manager to activate your license(s). Refer to the Floating License Manager help file (click Help in the upper right corner of the Floating LIcense Manager application) for directions.

If you experience problems activating your licenses, contact the Software Registration Center. Click **Help > Support** in Schneider Electric Floating License Manager for contact information.

Launch PowerSCADA Expert

1. To launch PowerSCADA Expert,, click Start > All Programs > Schneider Electric > PowerSCADA Expert 8.2 > Citect IDE.

   You can begin creating projects now. Some new features that you can use are:

   I/O Device Manager: In the Schneider Electric Config Tools (Start > All Programs > Schneider Electric > PowerSCADA Exzpert 8.2 > Config Tools), use the I/O Device Manager to either import/manage multiple devices from a CSV file or to manage a single device through the I/O Device Manager wizard.

   Project Setup: You access this feature from the Config Tools, too. This tool provides the steps you follow to rapidly deploy a project.

Configuration

In all but the smallest system, PowerSCADA Expert will need to operate over a Local Area Network (LAN) or a Wide Area Network (WAN).

You can use TCP/IP with PowerSCADA Expert. PowerSCADA Expert supports scalable architecture, which lets you initially implement PowerSCADA Expert on a single computer, or over a small network, and then expand the system later without changing your existing hardware, software, or system configuration.

Using PowerSCADA Expert on a LAN adds more flexibility to the system, and coordination within large plants can be more easily achieved. You can control and monitor autonomous areas within the plant separately, and interrogate the whole plant using any PowerSCADA Expert computer on the network if you want.

In any of these scenarios there are basic configurations that you have to make for the successful operation of your PowerSCADA Expert system. The configuration steps are described in this chaptersection.

Configuring Communications Over a WAN

You can configure your system for use with wide area networks (WANs).

Using a Wide Area Network (WAN) is configured in much the same way as using a LAN, with several additional considerations:

1. That the PCs on the WAN can see each other.
2. That appropriate security precautions (such as a VPN) are used when connecting networks over a potentially public link (such as the Internet).
3. Performance of the connections is appropriate to the data being transferred.
4. Reliability of the connection is appropriate to the requirement for access.

Demo Mode

You can run PowerSCADA Expert without the hardware key in demonstration (Demo) mode. Demonstration mode lets you use all PowerSCADA Expert features normally, but with restricted runtime and I/O.

The following demonstration modes are available:

- 15 minutes with a maximum of 50,000 real I/O.
- 10 hours with a maximum of 1 dynamic real I/O. This is useful for demonstrations using memory and disk I/O. PowerSCADA Expert starts in this mode if no hardware key is available. If the system detects that you are using more than 1 real I/O point at runtime then it will swap to the 15 minutes demo mode.
- **Note**: Writing to any tag through DDE, CTAPI, or ODBC will cause that tag to contribute to the dynamic point count even if it is a memory or disk I/O point. So if you write to more than 1 point through these interfaces it will swap to the 15 minute demo mode.
- 8 hours with a maximum of 42,000 real I/O. This is only available through special PowerSCADA Expert Integration Partners (CIP) keys.

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This product must be installed, connected, and used in compliance with prevailing standards and/or installation regulations. As standards, specifications, and designs change from time to time, always ask for confirmation of the information given in this publication.

7EN02-0394-00   03/2017

Replaces 63220-100-200J1, dated 03/2016