EcoStruxure™

Process Expert

Supervision Participant Services

User Guide

Eco truxure®
Process Expert

Schneider Electric

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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 documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this 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 a hazardous situation which, if not avoided, **will result in** death or serious injury.

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

⚠ **CAUTION**
CAUTION indicates a 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.

Please Note

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

About the Book

Document Scope

This document describes the interactions with AVEVA Plant SCADA, the Supervision Participant, when displayed within EcoStruxure Process Expert for the engineering and maintenance of systems.

It is written for users who are familiar with the engineering of systems by using EcoStruxure Process Expert and AVEVA Plant SCADA.

Validity Note

This document is valid for EcoStruxure Process Expert 2021 or later. It supersedes any previous version.

Related Documents

Title of documentation	Reference number
EcoStruxure™ Process Expert - Security Deployment Guide	EIO0000004234 (eng)
EcoStruxure™ Process Expert User Guide	EIO0000001114 (eng)

You can download these technical publications at https://www.se.com/myschneider, *Document Downloads* section.

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Presentation

AVEVA Plant SCADA as Supervision Participant

Interacting with Plant SCADA

AVEVA Plant SCADAcan be opened from within EcoStruxure Process Expert and act as the Supervision Participant.

Most of the time, the software manages interactions between the platform and Plant SCADA automatically in the background. However, in the refinement stage, the Plant SCADA user interface is displayed, allowing you to perform the necessary tasks to complete the system engineering life cycle.

In addition, during the deployment and execution stages, you work with Plant SCADA to complete the deployment started from the software and to access runtime services.

NOTE: After you close a Supervision Participant window, it may take a few moments for the corresponding processes to end in the background. During this time, a busy icon is shown in the notification panel and/or **Supervision Project Browser** and you cannot use the Participant.

Working with Several Clients

NOTE: When one or more users work on components of the same system simultaneously (for example, Participant projects, the application, project containers, topological entities), locking mechanisms may restrict certain concurrent actions (see EcoStruxure™ Process Expert, User Guide). In such case, check the **Notification Panel** (see EcoStruxure™ Process Expert, User Guide) for details.

Scope of the Services

This manual describes the scope of the interactions with Plant SCADA and the limitations related to the use of Plant SCADA as a Participant within the software.

Information on how to perform the different tasks is only provided when the subject is not covered by the Plant SCADA help. Refer to the help for the other tasks.

Troubleshooting

If the system server closes or stops abnormally, Plant SCADA processes may not be stopped and you may not be able to use Supervision Participant services after you restart the system server. In such case, end the corresponding processes (see EcoStruxure™ Process Expert, Installation and Configuration Guide) manually first.

Opening the Plant SCADA Help

Access the help of Plant SCADA by selecting **Help** from the menu of the different windows when open.

Also, you can access its help when Plant SCADA is closed by clicking the **?** icon (see EcoStruxure™ Process Expert, User Guide) in the client toolbar.

Using AVEVA Plant SCADA Separately

Overview

You can use AVEVA Plant SCADA that is installed by EcoStruxure Process Expert as standalone application once you have released it.

While AVEVA Plant SCADA standalone is open, you cannot open Supervision Participant windows in EcoStruxure Process Expert.

> **NOTE:** The Supervision Participant projects that are managed by EcoStruxure Process Expert are not visible when you open AVEVA Plant SCADA in standalone mode. You only see those that you have deployed to the computer.

> **NOTE:** From the engineering client, you can also launch the runtime, page 30 on the local computer with the Supervision project that is active.

Opening AVEVA Plant SCADA Standalone

Only one instance of AVEVA Plant SCADA can run at a time on the computer. The following table describes the steps to open Plant SCADA as standalone application on a computer on which an engineering client is installed.

Engineering client state	How to open AVEVA Plant SCADA standalone
Open	Click the **Release Supervision Participant** button in the toolbar of the engineering client and wait for the action to complete. Then, open AVEVA Plant SCADA by using the Windows Start menu. > **NOTE:** Supervision Participant windows must be closed (for example, Supervision project refinement or page editing windows).
Closed	Use the AVEVA Plant SCADA entries in the Windows Start menu.

> **NOTE:** On a computer on which only the system server is installed, you cannot release AVEVA Plant SCADA. Therefore, you can open it as standalone application only when the system server is not running.

Changes to Included Projects Managed by EcoStruxure Process Expert

If you make changes to an included project that is present in the content repository of EcoStruxure Process Expert by using AVEVA Plant SCADA in standalone mode, the changes are discarded when you perform an action on the Supervision project by using the engineering client.

Performance Considerations

Improving Data Acquisition Performance

To help improve performance, subscribe data that is accessed from Cicode by using the *TagSubscribe* and *SubscriptionGetValue* functions rather than acquiring data with direct reads.

Plant SCADA automatically subscribes tags needed by the Supervision project components, such as pages, alarm servers, and trend servers.

Refer to the Plant SCADA help for more information.

NOTE: If you do not use subscription-based data access, you can configure the *BLOCK* parameter to help improve data throughput between the I/O server and the I/O device. Refer to the Plant SCADA help for more information.

OFS Server Configuration Parameters

In the OPC Factory Server (OFS) configuration file that it creates (see EcoStruxure™ Process Expert, User Guide), the software sets the communication parameter *QuickSetActive* to *True* to improve performance.

For information on setting values of other parameters, refer to *OFS Server Configuration* in the Plant SCADA help.

Supervision Participant Services in the System Engineering Life Cycle

Overview

This chapter provides information to help you use Plant SCADA in general and more specifically when performing tasks of the refinement stage.

General Information

Working Inside Plant SCADA

Overview

When working inside Plant SCADA acting as a software Participant, some menus and commands may not be available or cannot be used.

Floating Window Mode

The Plant SCADA windows open as floating window. You can embed (see EcoStruxure™ Process Expert, User Guide) it in the client.

Data Conversion

Conversion of the Duration Data Type

The software converts the *D* (days) component of the Duration data type into hours and adds the value to the *hh* (hours) component so that the duration can be read by Plant SCADA.

For example, EcoStruxure Process Expert converts *1.5:10:25.00* into *29:10:25.00*.

> **NOTE:** For information on the Duration data type that the software uses, refer to *Software Capabilities*, Supported Data Types (see EcoStruxure™ Process Expert, User Guide).

Refinement Stage

Refining the Supervision Project

Getting Here

For information on how to get here, refer to Refining the Supervision Project (see
EcoStruxure™ Process Expert, User Guide).

Plant SCADA User Interface

The following figure shows an example of the **AVEVA Plant SCADA Studio**
window, which opens after selecting the **Refine** command for project *Supervision_
1*. The window is shown restored down.
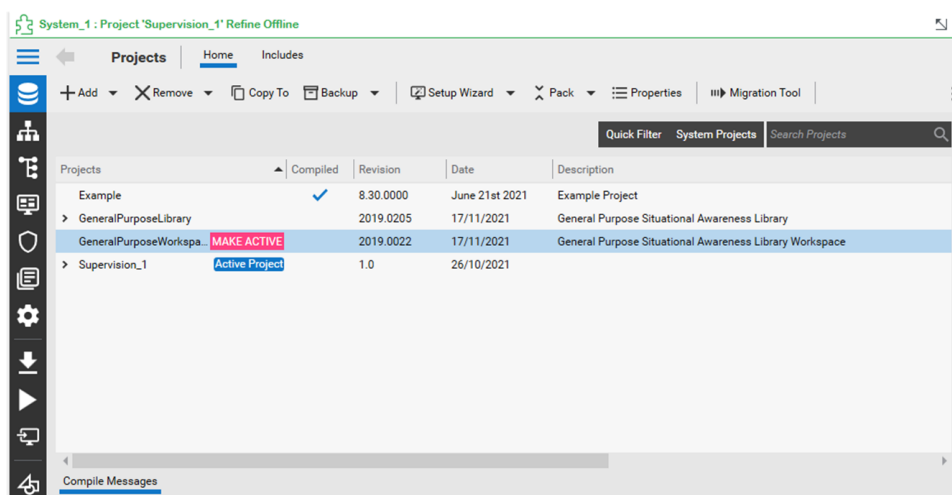
NOTE:

The following actions cannot be performed from the above window:

- Opening **Graphics Builder** by clicking its icon in the toolbar.
- Opening existing Supervision pages by clicking **Visualization > Pages**.

Instead, edit a Supervision page, page 19 from the **Containers** pane of the
Assignment Editor in the **Project Explorer**.

Scope of Services

The refinement of a Supervision project by using Plant SCADA Studio allows you
to view project data created by the generation process and modify elements of the
project within the described limits. For example, you can add users and roles,
page 17, which will be deployed to station nodes as part of the Supervision project
rather than creating them locally after deployment.

> **NOTE:** You must save changes in Plant SCADA Studio before closing the
> Participant window to be able to preserve them.

Limitations

Refining a Supervision project makes the project inconsistent at the platform level.
For example, a variable tag that you add cannot be seen in the tag container of the
Supervision Participant project in the **Project Explorer**.

Modifications to project data that has been generated by facets assigned to this
Supervision project may be overwritten when you generate these facets again if
their status is **Out Of Date**. For example, if you modify an advanced alarm tag that
is generated by a Supervision facet assigned to the Supervision Participant
project and later, the status of this facet changes to **Out Of Date**, when you
generate the project in the **Project Explorer**, your modification is undone.

This applies to data that you modify in Plant SCADA Studio by using the following
menus and submenus:

- **Projects > Includes**
- **Equipment**
- **Variables**
- **Trends**
- **Alarms >**
  - **Digital Alarms**
  - **Time Stamped Alarms**
  - **Advanced Alarms**
- **Vizualization >**
  - **Reports**
  - **Runtime Parameters**
- **Security >**
  - **Roles**
  - **Users**
- **Topology >**
  - **I/O Devices** (applies only to properties (see EcoStruxure™ Process Expert, User Guide) that are exposed in the **Project Explorer**)
  - **Boards**
  - **Ports**
  - **Clusters**
  - **Network Addresses**
  - **Alarm Servers**
  - **Trend Servers**
  - **Report Servers**
  - **I/O Servers**

Similarly, modifications in the UIMessag.dbf data base file may also be overwritten by a subsequent generation.

Further, the software does not save the following:

- Changes to Include projects. Changes are discarded once you stop the system server. You need to perform changes outside of the software by using Plant SCADA.
- New projects that you create.

Access Control Management

By default, the software creates one user for the Supervision project with the following properties:

- **User Name**: *viewonly*
- **Role Name**: *Esx Viewer*
- **Password**: *viewonly*
- **Comment**: *password is viewonly*

The *Esx Viewer* role is configured with the following properties:

- **Privileges**: 0
- **View Areas**: 1..250
- **Allow RPC**: *False*
- **Allow Exec**: *False*
- **Manage Users**: *False*

For more information, refer to chapter Access Control (see EcoStruxure™ Process Expert , Process Supervision Services User Guide).

Integrating Changes to Include Projects

After modifying an include project and adding/replacing the include project in the content repository, you need to integrate the changes made to the include project to the Supervision project so that they are available from the runtime. Proceed as follows.

Step	Action
1	Right-click the Supervision project that uses the include project and select **Refine**.
2	In the **AVEVA Plant SCADA Studio** window, click **Visualization > Pages > Update Pages** and click **OK**.
3	Once the update is complete, save changes and close the Participant window.

NOTE: To perform small changes in an include project (for example, a Genie), you can use the **Templatize Genie** command (see EcoStruxure™ Process Expert , Global Templates Reference Manual) in the **Facet Editor** instead.

Exporting and Importing Tags

Before importing a CSV file that you have created by using the **Export All** command during Supervision project refinement, you must remove all the tags that have been created by the Supervision facets that are assigned to the tag container of this project. Otherwise, when you import the CSV file (**Import All** command), these software-generated tags will be created as duplicates and when you generate and build the Supervision project thereafter, an error is detected.
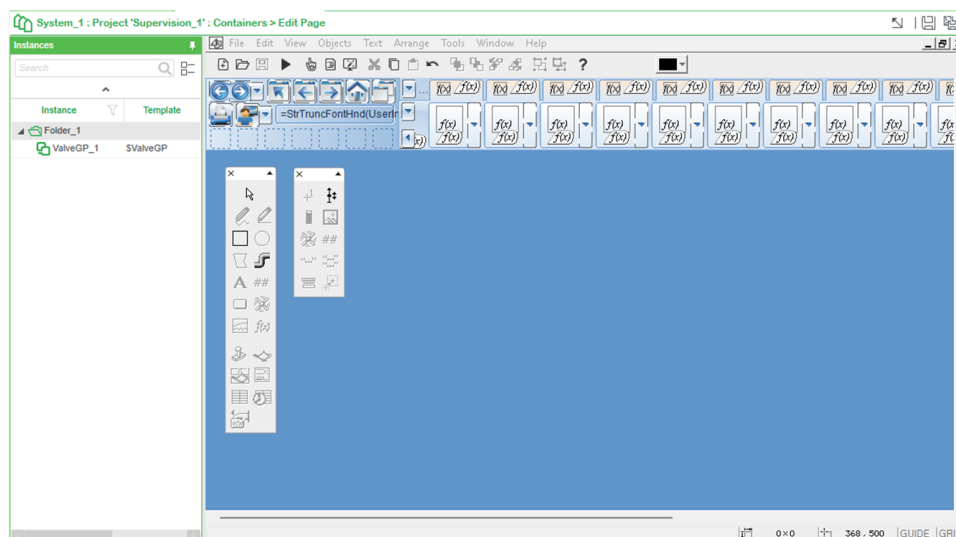
Editing Supervision Pages

Getting Here

For information on how to get here, refer to Editing Supervision Project Pages (see EcoStruxure™ Process Expert, User Guide).

Plant SCADA User Interface

The following figure shows an example of the Plant SCADA **Graphics Builder** and the EcoStruxure Process Expert **Instances** browser pane, which open after selecting the **Edit** command for a Supervision page. The window is shown restored down. The page that opens may vary.

Scope of Services

When editing a Supervision page, you need to add Genies to the page. In runtime, this allows you to:

- Monitor the associated instance.
- Open the faceplate associated to the Genie, for example, to view maintenance information, acknowledge alarms, or control the process.
- View alarms by equipment hierarchy.
- Use runtime navigation services (see EcoStruxure™ Process Expert, Runtime Navigation Services , User Guide).

Editing a Supervision page allows you also to:

- Add graphical objects to the page to represent the process.
- Copy-paste, page 21 graphical objects and Genies on the same or different pages that you open for editing one after the other.

  Limitations apply to Genies that you paste, page 19.

- Add, remove, and configure Wonderware InBatch ActiveX controls, page 21.

  NOTE: You can edit several pages of a same Supervision project simultaneously. The pages open in the same Supervision Participant window.

Limitations

- After you add a Genie to a page, you can edit Genie parameters and metadata (properties). Doing so may have an impact when you interact with the Genie during operation and/or when you access runtime navigation services (see EcoStruxure™ Process Expert, Runtime Navigation Services , User Guide).

Before editing Genie data, refer to the help of the EcoStruxure Process Expert libraries.

• Work only in pages that you have opened from the **Containers** pane.

Viewing the Equipment Hierarchy

Settings that you need to configure to view the equipment hierarchy on a page vary depending on the library that you are using.

Refer to the help of the EcoStruxure Process Expert libraries for details.

Instances Browser Pane

The **Instances** browser pane lets you select the instances whose Genies you want to add to the page.

Instances are shown by representing the folder structure of the application. Alternatively, you can switch to grid view, which shows a list of instances.

The Genies that are included with each application template are described in the help of the EcoStruxure Process Expert libraries.

You can refine the display of instances by using the following filters.

Filter	Description
Assigned (check box)	When selected, displays only the instances that are assigned to the Supervision project. Otherwise, displays the instances that exist in the application and contain at least one Genie. The check box is selected by default.
Search field	Enter an instance or folder name (or partial name), to limit the list of displayed instances and folders to those having an identifier that contains your entry.

Adding Genies

To add a Genie to a page that you are editing, proceed as follows.

Step	Action
1	If several pages are open, make the page that you want to work on the active page. **NOTE:** When several pages are open and maximized, you can check the name of the page that is active and make another page active by using the **Window** menu.
2	From the **Instances** pane, drag the selected instance to the page. **Result:** A list opens, which shows the Genies that are available for this instance.
3	Select a Genie from the list. **Result:** The Genie is shown on the page. **NOTE:** Adding the first Genie to a page the first time may take a moment.
4	Reposition the Genie by dragging it, if required.
5	Click either button in the toolbar of the Supervision Participant window: to save changes only in the active window. to save changes in all open windows. **NOTE:** If you have made changes in several pages, clicking the **Save All** button completes the save operation faster.
6	Close the Supervision Participant window.

NOTE: If you add the same Genie of one instance several times to the same page:

- The Genie appears on the page as many times as you have added it.
- The Supervision facet encapsulating the Genie appears only once in the **Assignments** pane of the corresponding page of the Supervision project.

See also the topic describing how to paste Genies.

Pasting Genies On a Page

To paste a Genie that is already added to a page, which is open on the same or a different page, proceed as follows.

Step	Action
1	To paste a Genie on a different page, open the page by using the **Edit** context menu command in the **Containers** pane. **Result:** The second page opens in the same Supervision Participant window. **NOTE:** When several pages are open and maximized, you can check the name of the page that is active and make another page active by using the **Window** menu in the Supervision Participant window.
2	Right-click the Genie and select **Copy**. **NOTE:** Verify that you have saved the page before copying the Genie so that its metadata is up-to-date.
3	Right-click the page and select **Paste**. **Result:** The Genie appears on the page.
4	Right-click the pasted Genie and select **Properties...**. **Result:** The **Genie Properties** dialog box opens.
5	In the **Metadata** tab, edit, at least, the _PSX_InstID_ property with the identifier of the instance that you want the Genie to be associated to. **NOTE:** If you do not want to modify the instance-Genie association, do not edit the property.
6	Save your changes by clicking the **Save** or **Save All** button in the Supervision Participant window and close the window. **Result:** The facet encapsulating the Genie that you have pasted appears in the **Assignments** pane of the corresponding page in the **Project Explorer**. **NOTE:** If you have made changes in several pages, clicking the **Save All** button completes the save operation faster.

NOTE:

- The limitations that apply to added Genies also apply to Genies that you paste, page 19.
- If you paste the same Genie of one instance several times to the same page without editing its metadata:
  - The Genie appears on the page as many times as you paste it.
  - The Supervision facet encapsulating the Genie appears only once in the **Assignments** pane of the corresponding page of the Supervision project.

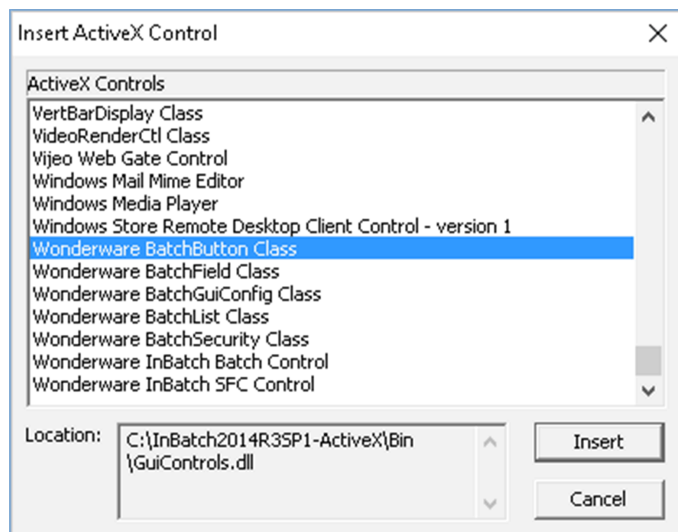## Using Wonderware InBatch ActiveX Controls

The InBatch ActiveX controls let you exchange data between the Supervision client and the InBatch server in runtime.

To access these controls while you are editing a Supervision page, click **Edit > Insert ActiveX Control...** in the menu bar of the **Graphics Builder**.

To use these controls in runtime, you need to install them on the computer to which you deploy the Supervision project. You can do this, for example, by installing the Wonderware Inbatch Remote Runtime Client. Further, you need to

configure the InBatch server separately. Refer to the help of Wonderware InBatch
for more information.

The following figure shows the selection of InBatch ActiveX controls that are
available when you edit a Supervision page.

NOTE: InBatch ActiveX needs to be selected during installation of the
engineering client (see EcoStruxure™ Process Expert, Installation and
Configuration Guide). The controls are the version that is included with
Wonderware InBatch 2014 R3 SP1.

NOTE: You need to enter the server name (**Host**) manually in the properties of
the control. For information on other configurations that are required for
InBatch ActiveX controls, refer to their help. The help is accessible from the
properties window of the controls.

Editing Advanced Project Settings

Getting Here

For information on how to get here, refer to Editing Advanced Supervision Project Settings (see EcoStruxure™ Process Expert, User Guide).

Plant SCADA User Interface

The following figure shows an example of the **Computer Setup Editor** tool, which opens after selecting the **Advanced Settings** command for a Supervision project. The window is shown restored down.
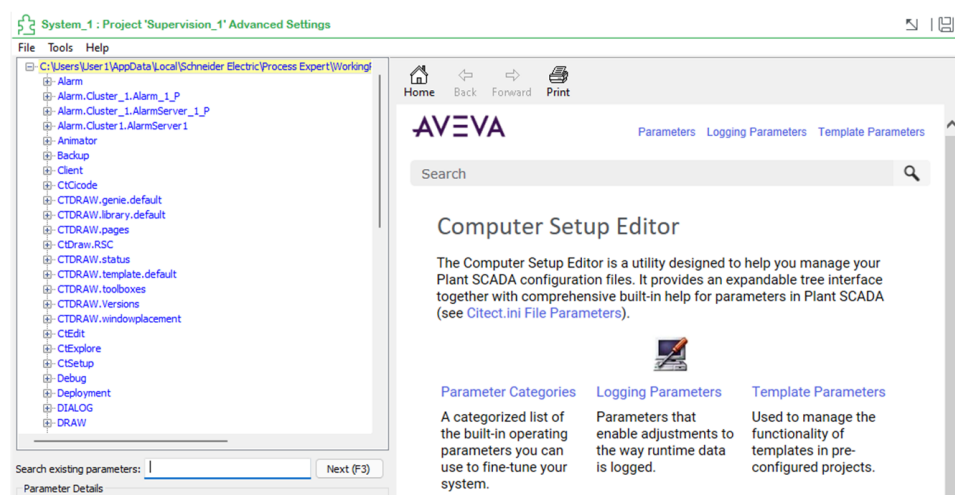
Scope of Services

The command allows you to modify parameters of the *citect.ini* file, page 30 by using the **Computer Setup Editor** tool of Plant SCADA.

This is the file that is copied to the *%SoCoDeploy%\Users\<Project identifer>* folder when you deploy the Supervision Participant project. For details about the folder location, refer to the topic describing how to prepare for deployment, page 25.

This step is optional.

Deploying Supervision Projects

Overview

This chapter describes how to prepare the computer for deployment, and restore the deployed Supervision Participant project.

Preparing for Deployment

Target Computer Setup

Before proceeding with the deployment, set up each target computer as follows:

- Install the necessary software (see EcoStruxure™ Process Expert, Installation and Configuration Guide) according to the configuration of the station node that represents the computer.

  For example, if you have created the **OFS** and Supervision services on the station node that represents the computer running the operation server and you are using the OPCUA driver, install on it OPC UA Server Expert and the Supervision server.

- Create the following shared folders on computers represented by station nodes depending on their configuration in the topology.

Shared folder	Service present in the station node
SoCoDeploy	**Supervision**
SoCoOfsDeploy	**OFS** (with OFSOPC driver)
SoCoOpcUaDeploy	**OFS** (with OPCUA driver)

Enabling the Connection to the Shared Folders

So that the software can copy the necessary files to the target computers, the system server must be able to connect to each target computer through the Ethernet network.

Once you have created the shared folders, if you have allowed only local users to access them, to enable the connection, you need to connect from the computer on which the system server is installed once, manually, to each target computer. Do this by using the Windows® **File Explorer** and entering the IP address of the target computer in the address bar (for example, \\192.168.0.90). When prompted, enter the appropriate credentials for the target computer. Verify that you can access the SoCoDeploy and SoCoOfsDeploy or SoCoOpcUaDeploy shared folders in read/write mode.

NOTE: When sharing a folder, restrict access by giving permissions only to the user who needs to access the folder. For example, the user who is logged on to the system server computer.

Creating the SoCoDeploy Shared Folder

By sharing the AVEVA Plant SCADA X folder (where *X* represents the version that is installed, for example, 2020 R2) as the SoCoDeploy folder, you only need to restore Plant SCADA project files the first time you deploy them. When you deploy a project file again, it is extracted automatically to the folder of the same name inside the .

To create the SoCoDeploy shared folder on a computer, proceed as follows.

Step	Action
1	Verify that AVEVA Plant SCADA software is installed on the computer. **NOTE:** On a computer on which only the system server is installed, you cannot release, page 9 AVEVA Plant SCADA. Therefore, you can open it as standalone application only when the system server is not running.
2	Browse to the AVEVA Plant SCADA X folder. The folder is located at the path C:\ProgramData (for a default Windows® 10 installation). **NOTE:** ProgramData is a hidden folder.
3	Right-click the folder, and select **Properties**. **Result:** The **Properties** dialog box of the folder opens.
4	Click the **Sharing** tab.
5	Click **Advanced Sharing**.
6	In the **Advanced Sharing** dialog box, select **Share this folder**.
7	In the field **Share name**, enter `SoCoDeploy`.
8	Click **Permissions**. **Result:** The **Permissions for SoCoDeploy** dialog box opens.
9	Select the appropriate settings to grant read/write permission to the folder only to the user who needs to access it. This is the user who is logged on to the system server computer. **NOTE:** The user who is granted permission needs to be in the same or a linked domain. **NOTE:** Additional steps are required and restrictions apply, page 27 when the system server startup mode is set to *Auto*.
10	Click **OK**.
11	Click **Apply** and **OK** in the **Properties** dialog box. **Result:** The SoCoDeploy folder is now shared on the computer.

Creating the SoCoOfsDeploy and SoCoOpcUaDeploy Shared Folders

To create the SoCoOfsDeploy or SoCoOpcUaDeploy shared folder on a computer on which OPC Factory Server or OPC UA Server Expert is installed respectively (that is, the computer acting as I/O server), proceed as follows.

Step	Action
1	• When using the OFSOPC driver: ◦ Browse to the 3.xx.0.0 folder, where *xx* depends on the version that is installed (for example, 3.60). The folder is located at the path C:\ProgramData\Schneider Electric\OFS (for a default Windows® 10 installation). • When using the OPCUA driver: ◦ Browse to the 2.xx.0.0 folder, where *xx* depends on the version that is installed (for example, 2.00). The folder is located at the path C:\ProgramData\Schneider Electric\EcoStruxure OPC UA Server Expert (for a default Windows® 10 installation). **NOTE:** ProgramData is a hidden folder.
2	Right-click the folder, and select **Properties**. **Result:** The **Properties** dialog box of the folder opens.
3	Click the **Sharing** tab.
4	Click **Advanced Sharing**.
5	In the **Advanced Sharing** dialog box, select **Share this folder**.
6	In the field **Share name**, enter the following name: • When using the OFSOPC driver: `SoCoOfsDeploy` • When using the OPCUA driver: `SoCoOpcUaDeploy`
7	Click **Permissions**. **Result:** The **Permissions for <folder share name>** dialog box opens.
8	Select the appropriate settings to grant read/write permission to the folder only to the user who needs to access it. This is the user who is logged on to the system server computer. **NOTE:** The user who is granted permission needs to be in the same or a linked domain. **NOTE:** Additional steps are required and restrictions apply, page 27 when the system server startup mode is set to *Auto*.
9	Click **OK**.
10	Click **Apply** and **OK** in the **Properties** dialog box. **Result:** The folder is now shared.

Allowing Access to Shared Folders with System Server Auto-Start Enabled

When the system server startup mode (see EcoStruxure™ Process Expert, Installation and Configuration Guide) is set to *Auto*, the system server cannot access and deploy to the shared folders if you have granted permission to a specific user (remote or local).

You need to grant **Full Control** permission to the system server computer instead. You can do so in the **Sharing** tab of the folder properties. Click **Advanced Sharing... > Permissions > Add... > Object Types...**, select **Computers**, and select the system server computer. Both computers must be on the same or linked domains.

In Addition, you need to configure the shared folders and the *User* subfolder of the SoCoDeploy folder as follows:

• In the **Security** tab of folder properties, click **Advanced** and add the system server computer with **Full Control** permission.

• In the **Sharing** tab, click **Share...** and verify that the system server computer is listed with **Full Control** permission.

NOTE: If you are not able to select the system server computer to grant permissions, you need to set the startup mode to manual.

Restoring Supervision Projects

Prerequisites

Deploy (see EcoStruxure™ Process Expert, User Guide) the built Supervision Participant project to the station nodes of the system representing the operation server and operator stations.

Restoring the Supervision Project

To restore the Supervision Participant project on computers where it is deployed, proceed as follows.

Step	Action
1	From the Windows® Start menu, click **AVEVA Plant SCADA > Plant SCADA Studio**. **Result: Plant SCADA Studio** opens. **NOTE:** If an engineering client is installed the computer, you need to release, page 9 the Supervision Participant before you can open **Plant SCADA Studio**.
2	Click the arrow next to **Backup** in the toolbar of **Plant SCADA Studio** and select **Restore**. **Result:** The **Restore Project** dialog box opens.
3	In the **Restore from** section, browse to the included project file (.ctz) that you had deployed and click **Open**. By default, the file is located in the *User* subfolder of the shared AVEVA Plant SCADA X folder, page 26.
4	In the **To** section, select **New project**.
5	Click **OK** and confirm the creation of the Supervision project folder. **Result:** Plant SCADA restores the selected file.
6	Repeat steps 2 to 5 by selecting in step 3, from the same location, additional included projects and the Supervision project file (.ctz).

NOTE: For information on restoring the deployed Supervision Participant project, refer to the Plant SCADA help.

Executing Supervision Projects

Executing the Deployed Supervision Project

Prerequisites

Deploy the Supervision project locally on each computer.

In case of a first deployment, also restore the project locally.

> **NOTE:** If the EcoStruxure Process Expert system server or an engineering client is installed the computer, you need to release, page 9 the Supervision Participant before you can open **Plant SCADA Studio**.

Supervision Participant Project Compilation

Supervision projects that are deployed to computers by EcoStruxure Process Expert are already compiled by using the Supervision Participant.

For information on the version of Plant SCADA that is installed with EcoStruxure Process Expert, refer to the topic that describes Supervision software requirements (see EcoStruxure™ Process Expert, Installation and Configuration Guide).

Computer Setup Files

By default, when Plant SCADA starts, it reads values from the *citect.ini* file that is located in the *%SoCoDeploy%\Config*, page 26 folder on the local computer.

To use the *citect.ini* file that is generated and deployed by EcoStruxure Process Expert, you can select either method:

- Copy the deployed file from the *%SoCoDeploy%\Users\<Project identifer>* to the *%SoCoDeploy%\Config* folder.
- Modify the command line of Plant SCADA to use the file deployed to the *%SoCoDeploy%\Users\<Project identifer>* folder. For details, refer to *Using an Alternative INI file* in the Plant SCADA help.

OPCUA Driver Security Configuration

When using the OPCUA driver, verify that the security configuration of the driver is appropriate in order to establish a secure connection between the driver and the OPC UA server.

For details, refer to *Security Configuration*, *OPCUA Driver* in the *Driver Reference Help* of the Supervision Participant.

Launching AVEVA Plant SCADA Runtime From the Engineering Client

The **Run Supervision Client** command of the engineering client lets you execute the deployed Supervision project on the local computer. For a first deployment, the prerequisites, page 30 must be satisfied, the **Computer Setup Wizard** completed, and the project compiled locally by using AVEVA Plant SCADA.

Command location	Description
Supervision project executable context menu (see EcoStruxure™ Process Expert, User Guide)	Launches the Plant SCADA runtime locally with the corresponding Supervision project after you confirm the command.
Engineering client toolbar (see EcoStruxure™ Process Expert, User Guide)	Launches the Plant SCADA runtime with the Supervision project that is set as active on the local computer after you confirm the command.

Executing a Deployed Supervision Project for the First Time

To execute the deployed Supervision project on an operator station, proceed as follows.

Step	Action
1	From the Windows® Start menu, click **AVEVA Plant SCADA > Computer Setup Wizard**. **Result:** The **Computer Setup Wizard** window opens.
2	For information on completing the computer setup process, refer to the Plant SCADA help.
3	From the Windows® Start menu, click **AVEVA Plant SCADA > Plant SCADA Runtime Manager**. **Result:** The **Runtime Manager** window opens and the runtime environment starts.
4	For information on starting the Supervision project, refer to the Plant SCADA help.

Executing a Supervision Project After a Subsequent Deployment

Depending on the type of changes that you have deployed, you may need to reload project pages, or reload or restart servers.

Refer to the Plant SCADA help for information on the impact of changes to the Supervision project:

- Client-side changes.
- Server-side changes.

Updating the OFSOPC and OPCUA Configuration Data After a Subsequent Deployment

When you make a modification to the Supervision Project that has an impact on the service or communication mapping (for example, changing the controller or the I/O device in the communication mapping), the configuration data contained in the corresponding OFSOPC or OPC UA configuration file (.xml) (see EcoStruxure™ Process Expert, User Guide) is updated when you build the project (see EcoStruxure™ Process Expert, User Guide).

When you deploy this modification, the updated OFSOPC/OPC UA configuration file is deployed to the station node but the new configuration data not automatically loaded to the corresponding configuration tool. You need to perform this step manually.

To load the updated configuration data in the OFS or OPC UA Server Expert Configuration Tool, proceed as follows.

Step	Action
1	On the computer on which the updated configuration file has been deployed, open the corresponding configuration tool.
2	Click **File > Open archive**. **Result:** The **Open** dialog box opens.
3	Browse to the shared folder, page 27 that corresponds to the protocol used.
4	Select the updated configuration file and click **Open**. **Result:** The aliases are shown in the user interface.
5	Click **File > Save Configuration**.
6	Close the configuration tool.

Glossary

A

application interface:

Mechanism that allows sharing data and manage dependencies between 2 instances/references.

The *application interface* allows you to link:

- applications instances/references to each other
- topological instances/references to each other

application link:

Links describing connections between instances of the application that are made by using application interfaces. The **Links Editor** allows you to create and edit such links.

application template:

Global Template contained in the Global Templates library that models an object of the application of a system and its associated functions. The template encapsulates the necessary Participant capabilities.

Application templates are instantiated and can be configured to create the application of a system.

application:

The *application* models the complete functionality provided by the system through an application folder structure and instances of application templates.

area:

The *area*, when referring to access control, defines a topological, functional, or another user-based rule to restrict access in the scope of an automation system.

audit trail:

The *audit trail* records the following information for a given period:

- Who accesses a computer system.
- Which operations are performed.

B

binding:

The *binding* is the key mechanism that establishes relations between the following items of the facet and composite templates:

- Parameters
- Interfaces
- Elements

built Participant project:

The *built Participant project* is a generated, optionally refined, and built project, which is created by the corresponding Participant and that exists at the platform level in the form of an executable.

For example, files with *.stu* and *.ctz* extensions that are represented by Control and Supervision executables respectively are built Participant projects.

C

cardinality:

The *cardinality*, in the context of the interface model, is the number of connections that are supported by the objects playing the other role of the interface model.

communication channel:

A *communication channel* is the logical representation, at the platform level, of communication between controllers or between a controller and devices.

For example, a controller I/O scanner row is modeled by a *communication channel* for Modbus TCP communication in the executable of the Control project.

communication interface:

Mechanism that allows sharing data and manage dependencies between 2 instances or references.

Communication interfaces allow the platform to link topological instances/ references at the logical level (for example, I/O scanner, OPC Factory Server, Supervision I/O devices).

communication link:

Links describing logical connections between topological instances that are made by using communication interfaces.

For example, the communication link between 2 controllers exchanging data.

communication mapping:

The *communication mapping* process defines the communication aspects of a logical Participant project after being mapped to the topology.

composite template:

The *composite template* combines the capabilities of 1 or more facet templates, each encapsulating functionalities provided by one software Participant, and/or of other *composite templates*.

composite:

The *composite* is an instance of a composite template.

constituent encapsulation:

Process that is performed by using the **Facet Editor** and that allows you to:
- Select constituents that are created with a software Participant.
- Optionally, modify constituents inside the corresponding Participant.
- Include the selected constituents inside a facet template.

constituent:

Set of data provided by a software Participant, which can be global or local.

contents repository:

The *contents repository* is a global storage provided by the platform to manage global constituents and other files, such as Participant projects, used by the libraries and the systems.

D

deferring mechanism:

Mechanism that allows you to make available in the composite template that is at the highest level optional element selections, parameters, and/or interfaces of its references.

deployed Participant project:

A *deployed Participant project* is a built project that has been transferred to a controller or other entity of the topology acting as an engine, and that you can execute.

DFB type:

The *derived function block type* is a programming language element that consists of:

- A data structure definition partitioned into input, output, public, and internal variables.
- A set of operations written in IEC 61131 programming languages to be performed upon the elements of the data structure when an instance of the function block type is started.

E

EcoStruxure Process Expert:

Third generation name of the software platform. Formerly, StruxureWare Process Expert then, EcoStruxure Hybrid DCS.

element:

Element is the term that is used to describe the contents of templates at the next lowest level as well as the contents of interface models:

- For facet templates, elements are the constituents that the facet encapsulates.
- For composite templates, elements are:
  ◦ Facet references
  ◦ Composite references
- For interface models, elements are the data that is shared. See *interface elements*.

You can define properties and rules for elements during the Global Templates definition stage.

engine:

An *engine* is the projection of the hardware and software defined in the topology that is able to execute the deployed Participant project.

engineering client:

EcoStruxure Process Expert client connecting to the system server that you use to engineer and maintain systems. It can run on the system server and/or an engineering station.

engineering station:

The *engineering station* is a computer running an EcoStruxure Process Expert engineering client to design, and maintain systems that exist on the server to which the engineering client connects.

executable:

The *executable* is a project component that represents the built Participant project. It contains the mapping information.

execution domain:

Property of the executable of a Participant project, which serves as a filter for selecting the scope of applicable services.

For example, it is used to define the boundaries for runtime navigation services or to restrict the exchange of data through peer to peer communication between projects that have executables with the same execution domain.

F

faceplate:

The *faceplate* is a component of a Supervision genie that provides a user interface to interact with the object that it represents.

facet element:

The *facet element* is the contents that can be accessed at the system level. Depending on the type of facet template, such elements can be either:

- The visible part of the constituents stored in the facet templates.
- A set of data defined by the facet template.

facet template:

The *facet template* is the smallest available template that encapsulates a specific capability provided by 1 software Participant only.

facet:

The *facet* is an instance of a facet template.

G

genie:

Animated graphic that is assigned to Supervision pages and that represents functionalities of instances of the application during operation.

Genies are encapsulated in Supervision facets.

global constituent:

Set of data provided by a software Participant that is a common resource referenced by several Global Templates. Global constituents are stored in the contents repository.

Global Templates:

Global Templates encapsulate one or more functions that can be customized and reused in any system created with EcoStruxure Process Expert. They are stored in the Global Templates library.

H

hardware mapping:

The *hardware mapping* process links the logical projection of the hardware that is defined in the application and assigned to projects to the hardware defined in the topology of the system.

For example, linking Control variables representing I/O signals to I/O channels of an I/O module.

HMI:

Abbreviation for *human machine interface*. It is a graphical operator interface for industrial equipment.

I

I/O:

Abbreviation for *Inputs/Outputs*.

IEC:

The *International Electrotechnical Commission* is a non-profit and non-governmental international standard organization that prepares and publishes international standards for electrical, electronic, and related technologies.

instance element selection:

The *instance element selection* is a mechanism of the instantiation stage that allows you to customize an instance by selecting services that are provided by the template that the instance uses.

instance parameter:

Instance parameters are properties of the elements of an instance that you may be able to customize.

instance:

Abbreviation for object instance. It is the result of the instantiation of a template.

instantiation naming convention:

The *instantiation naming convention* defines the naming strategy that the platform applies when you create instances.

interface element:

Represents the data that will be shared through an interface. Interface elements are defined during in the interface definition. Interface elements can be transformed by the interface by using expressions.

interface link:

Links describing logical connections between instances that are made by using interfaces.

The following types of links exist:

- Physical links
- Communication links
- Application links

Each type of link is made by using the corresponding interface (physical, communication, or application interface).

interface model:

The *interface Model* is a type of template that is available in the Global Templates library and that you can configure.

interface:

The *interface* is a reference, inside a composite or facet template, of an interface model. Interfaces are exposed by the facets of an instance, allowing you to make different types of links with other instances to share data.

In the context of the template definition, interfaces are a mechanism to define the links between references by declaring compatibility and/or requirement rules.

L

local constituent:

Set of data that is provided by a software Participant, encapsulated inside a facet template but not used at the system level. The local constituent is used to generate the contents of the logical Participant project. An example is Control Participant code that is encapsulated in a Control facet template.

logical Participant project:

The *logical Participant project* is a generated and refined project, which is created by the Participant but, which is not associated to the topology.

NOTE: The refinement of the project is optional.

M

mapping interface:

Mechanism that allows sharing data between two facets.

Mapping interfaces allow you to perform the hardware mapping. It is the process whereby you link facets assigned to projects to facets representing the hardware defined in the topology through matching mapping interfaces that these facets expose.

MES:

The *Manufacturing Execution Systems* is a control system for managing and monitoring work-in-process in a factory plant.

N

network variable:

The *network variable* is a peer to peer communication mechanism allowing you to share data between 2 or more Control projects.

O

object template:

An *object template* is a generic term that covers several reusable templates such as facet or composite templates.

OFS:

Abbreviation for OPC Factory Server.

operation client:

An EcoStruxure Process Expert client connecting to the system server that you can use during runtime to monitor and troubleshoot a system.

operator station:

The *operator station* is a computer running a Supervision client software.

P

Participant services:

Participant services are the functions provided by a software Participant when interacting with EcoStruxure Process Expert.

peer to peer communication:

Peer to peer communication is a data exchange mechanism between 2 or more Control projects, which uses the I/O scanner function of the controller acting as client.

physical (interface) link:

Links describing logical connections between topological instances that are made by using physical interfaces.

For example, the connection of a controller to an Ethernet network.

physical connection:

Link between topological entities representing the physical connections between controllers, station nodes, devices, and communication networks.

physical interface:

Physical interfaces allow the platform to link, at a physical level, topological instances to model the topology of the system.

platform:

Abbreviation for system platform. Represents the services that are provided by EcoStruxure Process Expert apart from the software Participants.

privilege:

Defines groups of functions that are provided by an application and granted to users through access control.

project container:

The *project container* is an organizational structure of a project to organize the facets that are assigned to it. Such a structure models the ones managed by the corresponding software Participant, and that are visible at the system level.

project facet:

Facet that is assigned to a project.

project:

Component of a system associated to a software Participant. Its structure contains elements that are managed by the software participant.

R

redundant controller:

Generic term that is used to refer a Quantum Hot Standby controller and/or an M580 redundant controller.

reference:

Defines facet and composite templates, which are contained inside other facet or composite templates in order to distinguish templates, which are used in the composition of other templates from the highest level templates, such as control modules.

role:

The *role* can have 2 different meanings,

- For access control:

  The *role* groups functionalities to grant different levels of user rights, which combine areas and privileges to fulfill a set of services.

- For interface models:

  The *role* defines the 2 sides of an interface, role A and role B.

runtime navigation services:

Describes the complete set of functionalities that are provided by EcoStruxure Process Expert operation client in runtime, such as process monitoring, viewing of instance information, diagnostics.

S

service mapping:

The *service mapping* links the execution capabilities of a project represented by the executable to an engine of the topology.

For example, it can link:

- The I/O server of a Supervision project to a station node representing the operation server.
- The executable of a Control project to a controller.

service:

In the context of projects, the *project service* is an organizational structure of a project to organize the execution capabilities. It models the structures that are managed by the corresponding software Participant, and that are visible and configured at the system level.

In the context of templates, a *service* represents a functionality provided by a Participant under the form of a facet referenced by the template.

software Participant:

An external tool that is installed on the computer and collaborates with the platform. For example, the Control Participant.

software:

Refers to EcoStruxure Process Expert.

station node:

A *station node* represents a computer that can act as an engine to execute a Control project by using software emulating a simulator, or a Supervision project by using Supervision software.

subnet mask:

A 32-bit value that indicates the number of available host addresses on a subnet, which uses TCP/IP knowing that the first and last addresses are reserved (for example, subnet mask 255.255.192.0 allows 317 addresses for classless devices). It also indicates whether addressing is classful or classless. For classful addressing, it indicates the class of the network (for example, 255.255.255.0 is the subnet mask for class C networks).

Supervision client:

Client connecting to the Supervision server that provides runtime services to operate and monitor automation systems. The client runs on an operator station and/or operation server.

Supervision server:

Server running on the operation server or on the system server, and that provides runtime data to Supervision clients.

system engineering life cycle:

The *system engineering life cycle* represents the stages to engineer a system in EcoStruxure Process Expert.

system server:

EcoStruxure Process Expert server that hosts:

- The software Participants
- The database containing template libraries and system data

The system server manages requests from the EcoStruxure Process Expert clients.

system:

Models a physical automation system.

The system consists of the following components:

- Topology
- Application
- Participant projects

T

topological entity:

A *topological entity* is the representation of piece of hardware infrastructure.

For example, a controller.

topology:

Models the hardware and software infrastructure of a system through topological folders and entities.

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T

U

As standards, specifications, and design change from time to time,
please ask for confirmation of the information given in this publication.

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