# **Siemens SIMATIC Connectors**

# WinCC Real-time values

This connector is used to get real time values from WinCC via the WinCC OPC Server.

# Prerequisites

#### Verify Communication

From the Simatic program group, open Simatic Net, OPC Scout.



Connect to the WinCC OPC Server listed by double clicking on it.

- Select Group, Add Group
- Enter Group Name, click OK
- Select Item, Add Item
- Browse and select the data points to read

If at any point you experience an issue with this client, contact Siemens technical support to troubleshoot and correct these issues.

# **Remote Communications**

If XLReporter is not installed on the same machine as WinCC, the workstation must also have the OPC core components installed. To determine if the core components are installed verify the following file exists:

- C:\Windows\SysWow64\OPCEnum.exe (64-bit OS)
- C:\Windows\system32\OPCEnum.exe (32-bit OS)

If the components are not installed, then they are provided in the XLReporter installation folder under *\_repairtools\OPC*. Alternatively, these can be downloaded from <u>www.opcfoundation.org</u>.

#### **Server Settings**

To connect to WinCC remotely both the machine where the server is running and the machine where the client is running must have matching Windows user accounts and the client must be logged in with a matching account.

In addition, on the machine with WinCC, certain DCOM settings must be enabled. For details on what DCOM settings to enable, see <u>OPC and DCOM: 5 Things You Need to Know.</u>

#### Windows Firewall

If the Windows Firewall is enabled on the machine where WinCC is running TCP Port 135 must be opened for remote clients to connect.

# Connector

To configure the connector to **WinCC Real-time values**, from the **Project Explorer** select **Data**, **Connectors**.

- Click Add
- Select Siemens SIMATIC, WinCC Real-time values
- Click **OK**

onnector Name	WinCC_DA_1	
lescription		
Primary Server		
Name	OPCServer.WinCC	
Node		✓ local
		Test Connection
Secondary Serve	er OPCServer.WinCC	
Secondary Serve	ar OPCServer.WinCC	√ local
Secondary Serve Name Node	or OPCServer,WinCC	✓ local Test Connection

#### **Primary Server**

These settings define the **Name** and **Node** of the OPC DA server. Typically, the **Name** is defaulted correctly. If the WinCC server is on the local machine, leave **local** checked, otherwise uncheck, and specify either the name or IP address of the machine where WinCC is running.

Use the Test Connection button to verify a connection to the server.

#### **Secondary Server**

These settings define the (optional) secondary WinCC to connect to if a connection to the **Primary** Server fails.

#### Settings

For information on the specific settings, see the DATA CONNECTIVITY, OPC document.

# Verify Data Communication

To verify communication to WinCC OPC-DA, open the **Project Explorer** and select the **Tools** tab. Launch the **System Check** application.

• Click Add

⊒- WinCC_DA		^	SYS_SECOND	
🕂 Mixer			SYS_MINUTE	
i Extruder			SYS DAY	
🕀 Reactor			SYS_MONTH	
Water Stations			SYS_YEAR	
Production				
. Wave Simulation				
User Defined				
●・押出機		~		
ems				
Vame	Description			
SYS SECOND	Svetem eeconde			
SYS MINUTE	System minute			
SYS HOUR	System hours			
SYS DAY	System day		>	
SYS_MONTH	System month			
SYS_YEAR	System year		<	
		F		
			>>	
		I P		
		>		

- Choose the WinCC OPC-DA connector from the dropdown list,
- Click the pushbutton ([...]) next to Items to open the Tag Browser window.
- Select one or more tags, click **OK**.

System Check			
File Edit Tools			
Connector General			
🛉 🖶 Add 🧹 Modify	🗡 🔀 Delete 🛛 🔛 Clear	Start	
Connector	Source	Description	Value
WinCC_DA	SYS_SECOND	System seconds	7
WinCC_DA	SYS_MINUTE	System minute	44
WinCC_DA	SYS_HOUR	System hours	9
WinCC_DA	SYS_DAY	System day	22
WinCC_DA	SYS_MONTH	System month	1
WinCC_DA	SYS_YEAR	System year	2020
<			
Clear			
			Initialise Server and Items (ms) Open Server and items (ms) : 2 Read Server items (ms) : 0 Update display (ms) : 0

• Click **Start** to verify the communication

# WinCC Historical values

This connector is used to get historical values from WinCC via the WinCC OPC HDA Server.

# Prerequisites

### Verify License

The WinCC OPC HDA server provided in the WinCC Connectivity Pack or as part of the Open PCS 7 installation.

#### **Connectivity Pack**

On the WinCC machine, the Siemens WinCC Connectivity Pack license must be installed to access the OPC HDA server on that machine. This can be verified in the License Manager.

#### **Open PCS 7**

If Open PCS 7 is installed, configured, and licensed, the OPC HDA server on the Open PCS 7 machine can be accessed by **XLReporter** either on the Open PCS 7 machine itself or remotely from another machine on the network.

#### Verify Communication

Communication between the OPC server and an OPC client must be verified. Siemens provides an OPC HDA client to test with. Copy the **SampleClientHDA.exe** file from the folder *Siemens\WinCC\documents\english* and paste it somewhere on the machine.

Double-click **SampleClientHDA.exe** to start.

Set Server Name to OPCServerHDA.WinCC.1 and click Connect.

Click **Browse** to open the **Browse Dialog** window.

The easiest way to get a list of tags is to set **OPCHDA\_BROWSETYPE** to *OPCHDA\_FLAT*. Choose each tag to test by selecting it and clicking **Add**. When complete, click **Done** to return to the **HDA Client** window.

Click **Show Items** to display the selected tags in the left pane window. Click **Validate Items** then **Get Item Handles** to register these tags with the server.

Enter the **Start Time** and **End Time**. Note this is in UTC(Universal Time Clock) and click **Read Raw**. The raw values for each selected tag will appear on the left along with a timestamp and quality.

To read processed data, click **Aggregates**, select the appropriate aggregate (e.g., maximum, minimum, etc.). and click **Read Processed**. One minute calculations between the start and end time should appear for each selected tag.

If the client does not respond as described contact Siemens technical support to troubleshoot and correct these issues.

# **Remote Communications**

If XLReporter is not installed on the same machine as WinCC, the workstation must also have the OPC core components installed. To determine if the core components are installed verify the following file exists:

- C:\Windows\SysWow64\OPCEnum.exe (64-bit OS)
- C:\Windows\system32\OPCEnum.exe (32-bit OS)

If the components are not installed, then they are provided in the XLReporter installation folder under *\_repairtools\OPC*. Alternatively, these can be downloaded from <u>www.opcfoundation.org</u>.

#### Server Settings

To connect to WinCC remotely both the machine where the server is running and the machine where the client is running must have matching Windows user accounts and the client must be logged in with a matching account.

In addition, on the machine with the OPC HDA server, certain DCOM settings must be enabled. For details on what DCOM settings to enable, see <u>OPC and DCOM: 5 Things You Need to Know</u>.

#### Windows Firewall

If the Windows Firewall is enabled on the machine where WinCC is running **TCP Port** *135* must be opened for remote clients to connect.

# Connector

To configure the connector to **WinCC Historical values**, from the **Project Explorer** select **Data**, **Connectors**.

- Click Add
- Select Siemens SIMATIC, WinCC Historical values
- Click OK

WinCC Historical valu	ies	×
Connector Name Description	WinCC_History_1	
Primary Server		
Server Name	OPCServerHDA.WinCC.1	•
Node		local
		Test Connection
Secondary Serve	r	
Server Name	OPCServerHDA.WinCC.1	
Node		
		Test Connection
		Settings
		OK Cancel

#### **Primary Server**

These settings define the **Name** and **Node** of the OPC HDA server. Typically, the **Name** is defaulted correctly. If the server is on the local machine, leave **local** checked, otherwise uncheck, and specify either the name or IP address of the machine where server is running.

Use the **Test Connection** button to verify a connection to the server.

#### **Secondary Server**

These settings define the (optional) secondary historian to connect to if a connection to the **Primary** Server fails.

#### Settings

For information on the specific settings, see the **DATA CONNECTIVITY, OPC** document.

# **Data Group**

The following describes the historical data group settings specific to the **WinCC Historical Values** connector.

**Group Types** 

📄 Select Group Type 🛛 🗙
Summary Values from Server
Summary Values from XLReporter
◯ Raw Values
◯ Raw Text
◯ Sampled Values
◯ Live Values
O Custom Values
Base on
 dolank>
OK Cancel

The following group types are available:

### Summary Values from Server

This group type retrieves summary calculations directly from the historian. The following calculations are available:

- Interpolated
- Average
- Maximum
- Time of Maximum
- Minimum
- Time of Minimum
- Range
- Standard Deviation
- Variance
- Total
- Count
- Raw Average
- Start Value
- End Value
- Delta Value
- Regression Slope
- Regression Constant
- Regression Deviation
- Duration Good
- Duration Bad
- Percent Good
- Percent Bad
- Worst Quality

#### Summary Values from XLReporter

This group type retrieves sampled values from the historian and performs calculations on those samples for reporting.

By default, summary values are calculated time weighted, and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

#### **Raw Values**

This group retrieves values logged to the historian between the start and end time specified.

#### **Group Settings**

#### Setup Tab (Summary Values for XLReporter)

	Columna	Time Period	Filtom						
occup	countris	nine renod	riners						
			D	escription					
				L					
			F	Retrieval					
			F	Retrieval					
			F	Retrieval Retrieva	al Mode	Sampled Values	~		
			F	Retrieval Retrieva Rate (se	al Mode ecs)	Sampled Values	v		

The **Retrieval** settings define how data is retrieved for the calculations selected for the group. The following settings are available:

Retrieval Mode

This setting defines how data is retrieved from the historian. Both *Sampled Values* and *Raw Values* are available where *Sampled Values* uses the *Interpolated* calculation.

• Rate

The interval (in seconds) that sampled values are retrieved from the historian.

• Lead Time The amount of time (in seconds) to retrieve data before the start time.

### Verify Data Communication

XLReporter retrieves data from the Data Connector using a History Group.

From the XLReporter Project Explorer select, Tools, Connector Groups.

Select your WinCC Historical Values connector and then select Add.

- Set the **Type** to *Raw Values* and click **OK**.
- On the **Columns** tab of the group, select the tag **Name**(s).
- Select **Preview**, pick a *Start* date and click **Refresh**.

# WinCC Advanced Historical Values

This connector is used to get historical values logged to a database by WinCC Advanced.

### Connector

To configure the connector to **WinCC Advanced Historical values**, from the **Project Explorer** select **Data**, **Connectors**.

- Click Add
- Select Siemens SIMATIC, WinCC Advanced Historical values
- Click **OK**

#### **Primary Database**

This setting defines the connection where the WinCC Advanced is configured to  $\log$  to. Use the browse button [...] to define the database connection.

#### Table

Once the database connection is established, the Table containing the data can be selected.

#### Settings

The **Settings** button opens the **Settings** dialog that defines characteristics of the database that are used to retrieve data.

Typically, these settings are defaulted correctly for the Primary Database.

If queries timeout, increase the Client Wait Time.

The delimiter and timestamp settings are typically filled in automatically for the database and can be modified for other databases.

The **Date/Time Storage** settings define how timestamps are stored in the database. Using this setting the timestamps are manipulated when data is retrieved so that local timestamps are submitted in and returned.

Many databases require the Date format to be **YYYY-MM-DD** so that no interpretation needs to occur based on the Region settings of the Windows Operating System. It is recommended to always have this option checked.

# **Data Group**

The following describes the historical data group settings specific to the **WinCC Advanced Historical Values** connector.

#### **Group Types**

The following group types are available:

#### Summary Values from XLReporter

This group type retrieves sampled values from the database and performs calculations on those samples for reporting.

By default, summary values are calculated time weighted, and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

#### **Raw Values**

This group retrieves every value logged to the database between the start and end time specified.

### **Custom Values**

This option opens the Database Group builder where a query can be configured to retrieve data from any table in the database.

### **Group Settings**

# Setup Tab

#### **Retrieval (Summary Values for XLReporter Group)**

The **Retrieval** settings define how data is retrieved for the calculations selected for the group. The following settings are available:

- Retrieval Mode
   This setting defines how data is retrieved from the historian. For WinCC Advanced, only *Raw Values* are available.
- Lead Time

The amount of time (in seconds) to retrieve data before the start time.

# **Verify Data Communication**

XLReporter retrieves data from the Data Connector using a History Group.

From the XLReporter Project Explorer select, Tools, Connector Groups.

Select your WinCC Advanced Historical Values connector and then select Add.

- Set the **Type** to *Raw Values* and click **OK**.
- On the **Columns** tab of the group, select the tag **Name**(s).
- Select **Preview**, pick a *Start* date and click **Refresh**.

# **PCS7** Real-time values

This connector is used to get real time values from PCS7 via the PCS7 OPC Server.

# Prerequisites

#### **Verify Communication**

From the **Simatic** program group, open **Simatic Net**, **OPC Scout**.



Connect to the PCS7 OPC Server listed by double clicking on it.

- Select Group, Add Group
- Enter Group Name, click OK
- Select Item, Add Item
- Browse and select the data points to read

If at any point you experience an issue with this client, contact Siemens technical support to troubleshoot and correct these issues.

# **Remote Communications**

If XLReporter is not installed on the same machine as the PCS7, the workstation must also have the OPC core components installed. To determine if the core components are installed verify the following file exists:

- C:\Windows\SysWow64\OPCEnum.exe (64-bit OS)
- C:\Windows\system32\OPCEnum.exe (32-bit OS)

If the components are not installed, then they are provided in the XLReporter installation folder under *\_repairtools\OPC*. Alternatively, these can be downloaded from <u>www.opcfoundation.org</u>.

#### Server Settings

To connect to PCS7 remotely both the machine where the server is running and the machine where the client is running must have matching Windows user accounts and the client must be logged in with a matching account.

In addition, on the machine with PCS7, certain DCOM settings must be enabled. For details on what DCOM settings to enable, see <u>OPC and DCOM: 5 Things You Need to Know.</u>

### Windows Firewall

If the Windows Firewall is enabled on the machine where PCS7 is running TCP Port 135 must be opened for remote clients to connect.

# Connector

To configure the connector to **PSC7 Real-time values**, from the **Project Explorer** select **Data**, **Connectors**.

- Click Add
- Select Siemens SIMATIC, PSC7 Real-time values
- Click **OK**

Connector Name	PCS7_DA_1	
Description		
Primary Server		
Name	PCS7.0PCDAServer	
Node		🗹 local
		Test Connection
Secondary Serv	PCS7.0PCDAServer	
Secondary Serv Name Node	PCS7.0PCDAServer	✓ local
Secondary Serv Name Node	PCS7.0PCDAServer	local Test Connection

#### **Primary Server**

These settings define the **Name** and **Node** of the OPC DA server. Typically, the **Name** is defaulted correctly. If the PCS7 server is on the local machine, leave **local** checked, otherwise uncheck, and specify either the name or IP address of the machine where PCS7 is running.

Use the Test Connection button to verify a connection to the server.

#### **Secondary Server**

These settings define the (optional) secondary PCS7 to connect to if a connection to the **Primary Server** fails.

#### Settings

For information on the specific settings, see the DATA CONNECTIVITY, OPC document.

# **Verify Data Communication**

To verify communication to PCS7 OPC-DA, open the **Project Explorer** and select the **Tools** tab. Launch the **System Check** application.

- Click Add
- Choose the PCS7 OPC-DA connector from the dropdown list,
- Click the pushbutton ([...]) next to Items to open the Tag Browser window.
- Select one or more tags, click **OK**.

Click **Start** to verify the communication

# **PCS7** Historical values

This connector is used to get historical values from PCS7 via the PCS7 OPC HDA Server.

# Prerequisites

### Verify License

The PCS7 OPC HDA server provided in the WinCC Connectivity Pack or as part of the Open PCS 7 installation.

#### **Connectivity Pack**

On the historian machine, the Siemens WinCC Connectivity Pack license must be installed to access the OPC HDA server on that machine. This can be verified in the License Manager.

#### **Open PCS 7**

If Open PCS 7 is installed, configured, and licensed, the OPC HDA server on the Open PCS 7 machine can be accessed by **XLReporter** either on the Open PCS 7 machine itself or remotely from another machine on the network.

#### Verify Communication

Communication between the OPC server and an OPC client must be verified. Siemens provides an OPC HDA client to test with. Copy the **SampleClientHDA.exe** file from the folder *Siemens\WinCC\documents\english* and paste it somewhere on the machine.

Double-click **SampleClientHDA.exe** to start.

Set Server Name to PCS7.OPCHDAServer.1 and click Connect.

Click **Browse** to open the **Browse Dialog** window.

The easiest way to get a list of tags is to set **OPCHDA\_BROWSETYPE** to *OPCHDA\_FLAT*. Choose each tag to test by selecting it and clicking **Add**. When complete, click **Done** to return to the **HDA Client** window.

Click **Show Items** to display the selected tags in the left pane window. Click **Validate Items** then **Get Item Handles** to register these tags with the server.

Enter the **Start Time** and **End Time**. Note this is in UTC(Universal Time Clock) and click **Read Raw**. The raw values for each selected tag will appear on the left along with a timestamp and quality.

To read processed data, click **Aggregates**, select the appropriate aggregate (e.g., maximum, minimum, etc.). and click **Read Processed**. One minute calculations between the start and end time should appear for each selected tag.

If the client does not respond as described contact Siemens technical support to troubleshoot and correct these issues.

# **Remote Communications**

If XLReporter is not installed on the same machine as the PCS7, the workstation must also have the OPC core components installed. To determine if the core components are installed verify the following file exists:

- C:\Windows\SysWow64\OPCEnum.exe (64-bit OS)
- C:\Windows\system32\OPCEnum.exe (32-bit OS)

If the components are not installed, then they are provided in the XLReporter installation folder under *\_repairtools\OPC*. Alternatively, these can be downloaded from <u>www.opcfoundation.org</u>.

#### **Server Settings**

To connect to PCS7 remotely both the machine where the server is running and the machine where the client is running must have matching Windows user accounts and the client must be logged in with a matching account.

In addition, on the machine with the OPC HDA server, certain DCOM settings must be enabled. For details on what DCOM settings to enable, see <u>OPC and DCOM: 5 Things You Need to Know</u>.

#### Windows Firewall

If the Windows Firewall is enabled on the machine where PCS7 is running **TCP Port** *135* must be opened for remote clients to connect.

### Connector

To configure the connector to **PCS7 Historical values**, from the **Project Explorer** select **Data**, **Connectors**.

- Click Add
- Select Siemens SIMATIC, PCS7 Historical values
- Click **OK**

PCS7 Historical values         Connector Name       PCS7_History_1         Description			
Connector Name PCS7_History_1 Description Primary Server Server Name Node PCS7.OPCHDAServer.1 Ical Test Connection Connection Ical Test Connection Ical Test Connection Ical Ical Ical Ical Ical Ical Ical Ical	PCS7 Historical values		×
Primary Server Server Name PCS7.0PCHDAServer.1 Node I local Test Connection Server Name PCS7.0PCHDAServer.1 Node I connection Settings Settings Off	Connector Name Description	PCS7_History_1	
Server Name PCS7.OPCHDAServer.1 local Test Connection Secondary Server Server Name PCS7.OPCHDAServer.1 Node Voto Connection Settings Off	Primary Server	L	
Node local Test Connection Secondary Server Server Name PCS7.0PCHDAServer.1 Node local Test Connection Settings Off	Server Name	PCS7.0PCHDAServer.1	
Test Connection       Secondary Server       Server Name       PCS7.0PCHDAServer.1       Node       Iccal       Test Connection       Settings	Node		✓ local
Secondary Server Server Name PCS7.0PCHDAServer.1 Node Ical Settings Off			Test Connection
Server Name PCS7.0PCHDAServer.1 Node Iccal Test Connection Settings	Secondary Server		
Node local Test Connection Settings	Server Name	PCS7.0PCHDAServer.1	
Test Connection Settings	Node		🖌 local
Settings			Test Connection
OK			Settings
UK Caric			OK Cancel

#### **Primary Server**

These settings define the **Name** and **Node** of the OPC HDA server. Typically, the **Name** is defaulted correctly. If the server is on the local machine, leave **local** checked, otherwise uncheck, and specify either the name or IP address of the machine where server is running.

Use the **Test Connection** button to verify a connection to the server.

#### Secondary Server

These settings define the (optional) secondary historian to connect to if a connection to the **Primary Server** fails.

#### Settings

For information on the specific settings, see the DATA CONNECTIVITY, OPC document.

# **Data Group**

The following describes the historical data group settings specific to the **PCS7 Historical Values** connector.

**Group Types** 

📄 Select Group Type	×
<ul> <li>Summary Values from Server</li> </ul>	
Summary Values from XLReporter	
◯ Raw Values	
◯ Raw Text	
◯ Sampled Values	
◯ Live Values	
◯ Custom Values	
Base on	1
 dank> <	
OK Cancel	

The following group types are available:

### Summary Values from Server

This group type retrieves summary calculations directly from the historian. The following calculations are available:

- Interpolated
- Average
- Maximum
- Time of Maximum
- Minimum
- Time of Minimum
- Range
- Standard Deviation
- Variance
- Total
- Count
- Raw Average
- Start Value
- End Value
- Delta Value
- Regression Slope
- Regression Constant
- Regression Deviation
- Duration Good
- Duration Bad
- Percent Good
- Percent Bad
- Worst Quality

#### Summary Values from XLReporter

This group type retrieves sampled values from the historian and performs calculations on those samples for reporting.

By default, summary values are calculated time weighted, and values are propagated based on the last known value. However, to change this so that summary values are calculated strictly on the data returned check **use raw values**.

#### **Raw Values**

This group retrieves values logged to the historian between the start and end time specified.

#### **Group Settings**

Setup Tab (Summary Values for XLReporter)

Retrieval         Retrieval         Retrieval         Rate (secs)         30         Lead Time (secs)         30	ummary Values XLR (PCS)	_History_1)		
tup Columns Time Period Fitters  Description  Fetteval  Retreval  Retreval  Adde Sampled Values  Rate (secs) 30  Lead Time (secs) 30	Edit Preview			
Retrieval       Retrieval       Retrieval       Rate (secs)       30       Lead Time (secs)	ID Columns Time Region	Eltern		
Retrieval         Retrieval Mode       Sampled Values         Rate (secs)       30         Lead Time (secs)       30	Coldnins Time Fellou	Tikolo		
Retrieval Retrieval Mode Sampled Values ~ Rate (secs) 30 Leed Time (secs) 30				_
Retrieval Retrieval Mode Sampled Values Rate (secs) 30 Lead Time (secs) 30		Description		
Retrieval Retrieval Mode Sampled Values ✓ Rate (secs) 30 Lead Time (secs) 30				
Retrieval Retrieval Mode Sampled Values ✓ Rate (secs) 30 Lead Time (secs) 30				
Retrieval     Sampled Values     ✓       Rate (secs)     30				
Retrieval Retrieval Mode Sampled Values ~ Rate (secs) 30 Lead Time (secs) 30				
Retrieval Mode Sampled Values ~ Rate (secs) 30 Lead Time (secs) 30				
Retrieval Retrieval Mode Sampled Values ✓ Rate (secs) 30 Lead Time (secs) 30				
Retrieval Retrieval Mode <u>Sampled Values</u> ✓ Rate (secs) <u>30</u> Lead Time (secs) <u>30</u>				
Retrieval Mode Sampled Values ✓ Rate (secs) 30 Lead Time (secs) 30				
Retrieval     Sampled Values     v       Rate (secs)     30				
Retrieval Mode     Sampled Values     ✓       Rate (secs)     30		Retrieval		
Rate (secs)     30       Lead Time (secs)     30		Petriaval Mode	Compled Values	
Hate (secs) 30 Lead Time (secs) 30			Sampled values *	
Lead Time (secs) 30		Rate (secs)	30	
		Lead Time (secs)	30	

The **Retrieval** settings define how data is retrieved for the calculations selected for the group. The following settings are available:

Retrieval Mode

This setting defines how data is retrieved from the historian. Both *Sampled Values* and *Raw Values* are available where *Sampled Values* uses the *Interpolated* calculation.

• Rate

The interval (in seconds) that sampled values are retrieved from the historian.

• Lead Time The amount of time (in seconds) to retrieve data before the start time.

# **Verify Data Communication**

XLReporter retrieves data from the Data Connector using a History Group.

From the XLReporter Project Explorer select, Tools, Connector Groups.

Select your PCS7 Historical Values connector and then select Add.

- Set the **Type** to *Raw Values* and click **OK**.
- On the **Columns** tab of the group, select the tag **Name**(s).
- Select **Preview**, pick a *Start* date and click **Refresh**.

# WinCC/PCS7 Alarms

This connector is used to get alarms from WinCC or PCS7 via the WinCC OLEDB Provider.

# Prerequisites

#### Installation

#### **Connectivity Pack**

The WinCC Connectivity Pack must be installed on the machine where the server is logging alarms. The license can be verified in the **SIMATIC Automation License Manager** from the **SIMATIC** program group.

If **XLReporter** is not installed on the machine where the server is logging, the WinCC Connectivity Pack **must also** be installed on the machine where **XLReporter** is installed.

#### **Open PCS 7**

If Open PCS 7 is installed, **XLReporter** must be installed on the same machine to retrieve alarm data from any WinCC/PCS 7 station configured within Open PCS 7. The license can be verified in the **SIMATIC Automation License Manager** from the **SIMATIC** program group.

#### Name

When retrieving alarm data, the **Name** of the server is required as part of the setup. This depends on 1) the PC where the alarms are being logged 2) if the Connectivity Pack or the Open PCS 7 interface is used.

The **Name** contains either the computer name (Connectivity Pack) or a symbolic name (Open PCS 7). This is determined by opening the **WinCC Explorer** on the machine where the alarms are being logged.



Expand **OS**, select **Server data**, right click, and choose **Configure**.



The symbolic column shows the **Symbolic Name**, and the physical column shows the **Computer Name**.

#### Database

When retrieving alarm data, the **Database** name is required as part of the setup. This can be found as the value of stored in the @*DatasourceNameRT* tag.



This value can be read using the OPC Scout application provided by SIMATIC and available from the SIMATIC program group. Expand Server(s) and double click either the WinCC OPC Server (OPCServer.WinCC) or the PCS 7 OPC server (PCS7.OPCDAServer).

- Enter a Group Name.
- Click **OK**.

The group should now appear as a branch under the OPC server. Double click the group name to open the OPC Navigator. Browse into the **Internal Tags** and select **@DatasourceNameRT** and click **OK**. This should now appear in OPC Scout along with the **Value**.

Since this value is required later, make a copy on the clipboard.

#### **Verify Connectivity**

To verify access to the alarm data a connection must be made to the WinCC OLE DB provider and a query run. There are many applications that can test this. The following describes using Microsoft Excel.

Note the WinCC OLE DB provider is a 32-bit driver to verify with Excel, Excel must be 32-bit.

• Open Microsoft Excel.

Hom	ne In:	sert Page	Layout	Formulas	Data	Review	View 🖓
cess eb xt	From Oth Sources	ner Existin	g N ions Qu	Vew Jery + Co Rec	w Queries m Table ent Sources	Refresh All •	Connections
Get		From SQL Se Create a conr Table or Pivo	r <b>ver</b> nection to tTable rej	o a SQL Server port.	table. Impor	t data into	Excel as a
_		From Analysi Create a conr into Excel as a	s Service nection to a Table or	es o a SQL Server r PivotTable re	Analysis Serveport.	vices cube	. Import data
	ĥ	From Window Create a conr Import data in	ws Azure nection to nto Excel	e <b>Marketplac</b> a Microsoft as a Table or	e Windows Azu PivotTable re	ire DataMa port.	arket Feed.
		From OData Create a conr Table or Pivo	Data Fee nection to tTable rep	e <b>d</b> o an OData Da port.	ita Feed. Imp	ort data in	to Excel as a
		From XML D Open or map	a <b>ta Impo</b> a XML fi	ort le into Excel.			
		From Data Co Import data fo and OLEDB.	onnectio or an unli	<b>n Wizard</b> isted format b	by using the D	)ata Conn	ection Wizard
	<b>A</b>	From Micros Import data fr and ODBC. Fr	oft Quer or an unli unctional	<b>y</b> isted format k lity is limited f	by using the N or compatibi	/licrosoft ( lity in prev	Query Wizard

• Under the **Data** tab, in the **Get External Data** section, click **From Other Sources** and select **From Data Connection Wizard**.

Data Connection Wizard	?	×
Welcome to the Data Connection Wizard This wizard will help you connect to a remote data source.		
What kind of data source do you want to connect to? Microsoft SQL Server Microsoft SQL Server Analysis Services Windows Azure Marketplace Data Feed ODBC DSN Microsoft Data Access - OLE DB Provider for Oracle Other/Advanced		
Cancel < Back Next >	F	inish

In the Data Connection Wizard select Other/Advanced and click Next.

In Data Link Properties,

Prov	/ider	Connection Advanced All	
Se	elect ti	he data you want to connect to:	
[	OLE	DB Provider(s)	^
	Micr Micr	osoft OLE DB Provider for DTS Packages osoft OLE DB Provider for Indexing Service	
	Micr	osoft OLE DB Provider for Internet Publishing osoft OLE DB Provider for ODBC Drivers	
	Micr	osoft OLE DB Provider for OLAP Services	
	Micr	osoft OLE DB Provider for Oracle	
	Micr Micr	osoft OLE DB Provider for SQL Server	
	MSE	JataShape	
	SQL	DB Provider for Microsoft Directory Services Native Client	
	SQL	Server Replication OLE DB Provider for DTS	
	Win	E Versioning Enlistment Manager Proxy Data Source CC OLEDB Provider for Archives	
	/		~
l			
		<u>N</u> ext>>	

- Under the **Provider** tab select *WinCC OLEDB Provider for Archives*.
- Click Next.

Provider	Connection	Advanced All
Specify	the following I	to connect to this data:
1. En	er the data so	purce and/or location of the data:
[	ata Source:	CHEMDEMO::\WinCC
L	ocation:	
2. En	er information	to log on to the server:
(	⊖ Use <u>W</u> inda	ows NT Integrated security
(	Use a spece	cific user name and password:
	User <u>n</u> ame	¢
	Password:	
	🔽 <u>B</u> lank p	assword 🔲 Allow <u>s</u> aving password
3. En	er the jnitial c	atalog to use:
[	CC_OS_08_0	3_17_08_54_11R 🗨
		<u>I</u> est Connection

• Under the **Connection** tab, specify the **Data Source**. It is essential that the **Data Source** is set correctly based on Interface and location of the Alarm server relative to the machine connecting from:

Interface	Alarm Server	Data Source
Connectivity Pack	Local	.\WinCC
Connectivity Pack	Remote	Computer Name\WinCC
Open PCS 7	Local or Remote	Symbolic Computer Name::\WinCC

Where *Computer Name* and *Symbolic Name* are the **Name** captured from the WinCC Explorer (see **Name** section above). The example here demonstrates a connection with the Open PCS 7 interface.

• For the **Initial Catalog**, use the **Database** name retrieved from the **@DatasourceNameRT** value (see **Database** section above).

Provider	Connection	Advanced All	
Netw	ork settings		
Imper	sonation level:		
P <u>r</u> ote	ction level:	✓	
Other		)	
Conn	ect <u>t</u> imeout:	0 seconds.	
A <u>c</u> ce	ss permissions:	<ul> <li>Pead</li> <li>ReadWrite</li> <li>Share Deny None</li> <li>Share Deny Read</li> <li>Share Deny Write</li> <li>Share Deny Write</li> <li>Share Exclusive</li> </ul>	

- Under the Advanced tab, uncheck the ReadWrite checkbox.
- Click OK.

If the message appears "Test connection failed because of an error setting the window handle property..." click **Yes** to continue. Accept any other error or warning that may appear.

#### In Data Connection Wizard,

- From the list of tables select *AlarmView*.
- Click Next.
- Set a File Name.

- Check Save password in file.
- Click Finish.

In Import Data leave the defaults and click the Properties button.

In Connection Properties, under the Definition tab,

- Check **Save Password**.
- Change **Command type** to *SQL*.
- Set Command text to: *ALARMVIEW:SELECT* \* *FROM AlgViewENU WHERE DateTime* >= 'Yesterday' AND *DateTime* <= 'Today' ORDER BY DateTime ASC

Where *Yesterday* and *Today* are timestamps for yesterday and today in the format *YYYY-MM-DD HH:mm:ss*. For example, if testing on January 2<sup>nd</sup>, 2020, the query would be: *ALARMVIEW:SELECT \* FROM AlgViewENU WHERE DateTime* >= '2020-01-01 00:00:00' *AND DateTime* <= '2020-01-02 00:00' ORDER BY DateTime ASC

- Click OK.
- Click **Yes** to any warning message that appears.
- Click **OK** back in the **Import Data** window.

If there are issues or no data is returned, contact Siemens technical support to troubleshoot and correct.

# Connector

To configure the connector to **WinCC/PCS7** Alarms, from the **Project Explorer** select **Data**, **Connectors**.

- Click Add
- Select Siemens SIMATIC, WinCC/PCS7 Alarms
- Click **OK**

WinCC/PCS7 Alarms		x
Connector Name Description	WinCC_Alams_1	
Primary Database		
Туре	Generic	
Data Source	.\WinCC	
		Settings
	(	OK Cancel

#### **Primary Database**

This setting defines the connection to the WinCC Alarms database. Use the browse button [...] to define the connection.

Database Connect			x
Siemens WinCC	Connection name	WinCC/PCS 7 Alams	
•	Data source	Connectivity Pack	~
	Computer Name		🗹 local
	Database	CC_OS_08_03_17_08_54_11R	
			Test Connection
			Cancel

#### Data source

This defines how to connect to the alarms server. This depends on what is installed and licensed. It can either be *Connectivity Pack* or *Open PCS7*.

#### **Computer Name/Symbolic Computer Name**

The name of the machine where the alarm server is located.

If **Connection** is *Connectivity Pack* and the alarm server is on the local machine, check local. Otherwise uncheck local and specify the physical name of the machine.

If **Connection** is *Open PCS7*, this should be set to the Symbolic Computer Name where the alarm server is running.

#### Database

The name of the WinCC alarm database. This value can be read from the @*DatasourceNameRT* system tag in **WinCC**. Use **System Check** to read this value.

### Data Group

The following describes the historical data group settings specific to the WinCC/PCS7 Alarms connector.

#### **Group Types**

📄 Select Group Type	×
O Summary Values from Server	
Summary Values from XLReporter	
Raw Values	
◯ Raw Text	
◯ Sampled Values	
O Live Values	
◯ Custom Values	
Base on	
 dolank>   	
OK Cancel	

For WinCC/PCS7 Alarms the following group types are available:

#### **Raw Values**

This group retrieves every value logged to the alarm server between the start and end time specified.

#### **Custom Values**

This option opens the Database Group builder where a query can be configured to retrieve data from any table available in the database connected to by the connector.

#### **Group Settings**

#### Setup Tab

P Columns Time Period	Filters			
	Description			
	Database			
	Definition	Specific	~	
	Table A/iew	Tables V	ews	
		AlamView-ENU	$\sim$	
	Date Column	DateTime	~	
		Date includes Time		
	Time Column		~	
	Betrieval Mode	Raw Values	~	
	D. ( )	30		
		- 204		

#### Database

These settings define where the alarm data for group is retrieved.

#### Table/View

The Table where the alarm data comes from. There are 2 basic tables: *AlarmView* and *AlarmHitView* that are available in different languages.

*AlarmView* which returns individual alarm records and *AlarmHitView* which returns a summary of alarm information.

#### **Date Column**

The column containing the timestamp. For any selected table, the **Date Column** should be *DateTime*.

#### **Filters** Tab

If the **Perform by Server** option is checked, any filter configured in this tab is put into the *WHERE* clause of the query sent to the database to retrieve data for the group. Otherwise, the configured filtering is performed by the reporting engine after the values are returned. It is recommended to leave this setting checked as the performance is much better.

# **Verify Data Communication**

XLReporter retrieves data from the Data Connector using a History Group.

#### From the XLReporter Project Explorer select, Tools, Connector Groups.

Select your *WinCC/PCS7 Alarms* connector and then select Add.

- Set the **Type** to *Raw Values* and click **OK**.
- On the **Columns** tab of the group, select the tag **Name**(s).
- Select **Preview**, pick a *Start* date and click **Refresh**.

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