

Reporting from WinCC/PCS 7

XLReporter generates Excel based reports from the SIMATIC WinCC/PCS 7 server's real time data, historical archive and alarm archive interface.

The purpose of this document is to describe how to interface **XLReporter** to the WinCC/PCS 7 Server.

Process Data

XLReporter can take snapshots of the process values and add them to an existing report worksheet, periodically or on event. To prevent excessive build-up of information in a single worksheet, new workbooks and worksheets can be created automatically.

XLReporter gets real time data from WinCC/PCS7 through the OPC Server provided.

Before you Begin

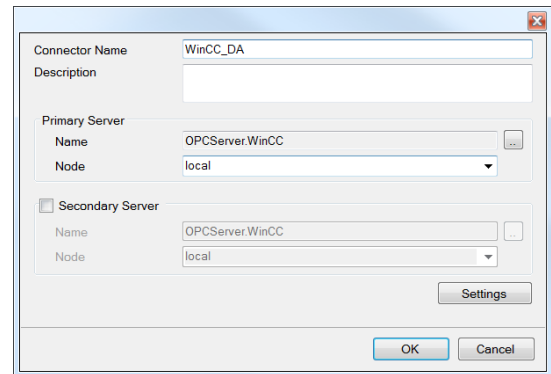
In order for **XLReporter** to communicate with Wincc/PCS7, the machine where **XLReporter** is installed must also have the OPC core components installed. The OPC core components are provided in the tools folder of the **XLReporter** install CD or from www.OPCFoundation.org.

If **XLReporter** is installed on a PC that is remote to WinCC/PCS 7 then a number of settings need to be configured on both the server and client machines. This includes having matching Windows user accounts (with matching passwords) on both machines and enabling DCOM on the machine where WinCC/PCS 7 is installed.

For a detailed explanation of the requirements for remote access, please read the OPC Training Institute document *OPC_and_DCOM_5_things_you_need_to_know* that is provided in the Tools folder of the **XLReporter** install CD or from www.SyTech.com.

Creating a Real Time Data Connector

To connect **XLReporter** to real time values in WinCC/PCS 7, you will first need to create a **Connector**. To do this, open **XLReporter's Project Explorer**, and open **Connectors** from the **Data** tab. In **Connectors**, select **Add**, and select **Siemens SIMATIC**, then either **WinCC** or **PCS 7 Real-Time values**.



WinCC Real Time Connector

Connectors for WinCC/PCS 7 require a **Primary Server**. If the **Primary Server** is on a remote machine, the **Node** must be specified. The **Node** can be selected from the drop down list or manually entered as a machine name or IP address.

To connect to WinCC/PCS 7 select the appropriate server based on the table below:

Product	OPC Server Name
WinCC	OPCServer.WinCC (WinCC Single Station, Server and Client)
PCS 7 Operator System (OS)	OPCServer.WinCC (PCS 7 Single Station, Server and Client)
Open PCS 7	PCS7.OPCDA Server (Open PCS 7 Station)

Verifying the Real Time Data Connector

To verify that the **Data Connector** is functional, open **XLReporter's Project Explorer**. From the **Tools** start the **System Check** application and select the **Connector** tab.

Select **Add**, choose your WinCC/PCS 7 Connector from the dropdown list, and click the pushbutton [...] next to **Items** to open the **Tag Browser** window.

Select one or more tags and verify that they update with the current value using **Start** in the **System Check** window.

Historical Data

With process data stored in a historian, the variety of reports that can be produced by **XLReporter** increases many fold.

In addition to raw values, informative metrics such as run times and statistics are obtained by simply selecting the tags and time frame of interest. e.g. hourly average, maximum and minimum for each hour of the day.

WinCC/PCS7 provides an OPC-HDA Server interface that clients, such as **XLReporter**, can use to retrieve historical information.

Creating a Historical Data Connector

From **XLReporter's Project Explorer**, open the **Data** tab, select **Connectors**, and then **Add**. Choose **Siemens SIMATIC**, then either **WinCC Historical Values** or **PCS 7 Historical Values**.

Connectors for the WinCC/PCS 7 historian require a **Primary Server**. If the **Primary Server** is on a remote machine, the **Node** must be specified. The **Node** can be selected from the drop down list or manually entered as a machine name or IP address. To connect to WinCC/PCS 7 select the appropriate server based on the table below:

Product	OPC HDA Server Name
WinCC	OPCServerHDA.WinCC.1
PCS 7 Operator System (OS)	OPCServerHDA.WinCC.1
Open PCS 7	PCS7.OPCHDA Server.1

Verifying the Historical Data Connector

Create a **Connector Group** to verify that data can be retrieved from the connector. **Connector Groups** are designed in **Project Explorer, Tools, Connector Groups**. Select your WinCC/PCS 7 connector, and then select **Add**. Select the **Type** and click **OK**.

On the **Columns** tab of the group, select the tag **Name** and **Calculation** for each tag in the group.

On the **Time Period** tab, select the **Start Time**, **End Time** and **Interval** for the group. By default this is set to one hour intervals over the current day.

The **Preview** pushbutton at the upper-left of the history group display can be pressed to preview the result of the current configuration.

Date	FLOW01	FLOW02	FLOW03	FLOW04
10/1/2013	71.2474484761556	64.4929216066996	32.4819314320882	65.688044611613
10/1/2013 1:00:00 AM	66.2536696697591	53.1530425389608	34.8991117477417	60.1344185811271
10/1/2013 2:00:00 AM	78.7583703359868	66.9880634489596	33.7002785962676	59.737679799398
10/1/2013 3:00:00 AM	71.6823314668748	54.3723214609078	31.9870604515076	64.7320778930605
10/1/2013 4:00:00 AM	66.1845688083737	57.8811047954816	35.0655181884766	73.2726847330273
10/1/2013 5:00:00 AM	78.0985364279158	75.8515464525402	37.535506804257	82.4242508777647
10/1/2013 6:00:00 AM	72.5651188823242	61.0702749252319	45.949956889334	85.9774213155111
10/1/2013 7:00:00 AM	76.1162672234935	63.2644505614653	52.1044570287069	90.6483674456787
10/1/2013 8:00:00 AM	60.9478355234782	77.509205754598	51.887963414917	86.8526187896728
10/1/2013 9:00:00 AM	77.3452765146891	50.089004703715	42.6466134514298	78.9162787856454
10/1/2013 10:00:00 AM	78.5410754538993	69.8882724761963	67.147685508728	89.612583658973
10/1/2013 11:00:00 AM	64.9920135498047	61.8963741938273	68.3762368118096	62.1899630142212
10/1/2013 12:00:00 PM	66.6623261769613	59.0080349832952	71.7531196994238	59.242639541626
10/1/2013 1:00:00 PM	77.966978015544	60.440482395744	76.0119204202289	61.799915767607
10/1/2013 2:00:00 PM	66.6261160532633	46.4779631932577	76.7051423390706	66.9683601379395
10/1/2013 3:00:00 PM	59.684287705852	56.9785511930648	55.9398724238078	78.24383074444205

Preview

Preview displays the data exactly the same way it will be written into the report

Alarm Data

Data from the WinCC/PCS 7 alarm archives can be accessed through the **WinCC/PCS 7 Alarms Connector** interface provided by **XLReporter**.

Creating an Alarms Connector

In **Project Explorer, Data, Connectors**, create a new connector by selecting **Add, Siemens SIMATIC, WinCC/PCS 7 Alarms**.

For **Primary Database**, select **Other (OLEDB/ODBC)** and click **Build**. This launches the **Data Link Properties**.

Under the **Provider** tab, select **WinCC OLEDB Provider for Archives**.

Under the **Connection** tab, specify the **Data Source**, and **Initial Catalog** to use.

The **Data Source** depends on what type of software application that is installed. Use the table below to determine:

Connection	Node	Data Source Name
Connectivity Pack	Local	.\WinCC
Connectivity Pack	Remote	<i>ComputerName</i> \WinCC
Open PCS 7	Remote	<i>SymbolicComputerName</i> ::\WinCC

ComputerName is the physical computer name where the alarms database is installed and *SymbolicComputerName* is the symbolic name configured within PCS 7 or WinCC for the (redundant) Servers where the alarm database is residing.

The **Initial Catalog** is manually entered and specific to the installation. This value is stored in the **@DataSourceNameRT** tag on the server where the alarm database resides. This tag can be viewed in the **System Check** of the **Project Explorer** so it can be noted and entered into the initial catalog field.

In the **Advanced Tab**, verify that the **ReadWrite** checkbox is **unchecked**.

Once these parameters are configured, the alarm database is now accessible. It contains two tables which are relevant for processing alarm data:

- **AlarmView** - The AlarmView table returns individual alarm records from the database.
- **AlarmHitView** - The AlarmHitView table returns alarm summary information.

In the connector settings window, select which **Table** to use as the default in the connector, along with that table's **Date/Time Column(s)**.

Verifying the Alarms Connector

To verify the functionality of the **Connector**, create a **Connector Group** from **Project Explorer, Tools, Connector Groups**. In **Connector Groups**, select your WinCC alarms connector, and select **Add**.

Under the **Columns** tab, select any of the available Columns from the alarm database.

Under the **Time Period** tab, select the **Start Time**, **End Time** and **Interval** for the group. By default this is set to the first 60 values over the current day.

Under the **Filters** tab, specify filtering to limit the type or amount of alarms returned. You can filter based on any available column in the selected table/view. This includes filtering on time period, alarm type, tag name, etc.

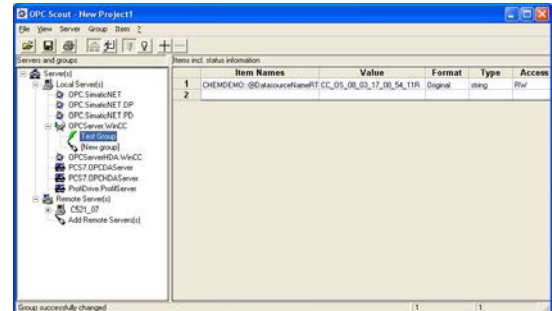
Preview at the top-left of the database group display can be used to preview the result of the current configuration.

Troubleshooting – Real Time Data

If you are experiencing issues connecting to or retrieving data from WinCC/PCS7 with **XLReporter**, you can use OPC Scout provided by Siemens to test the OPC server.

OPC Scout is opened from the **Simatic** program group under **Simatic Net**, **OPC Scout**.

Once opened, connect to the PCS7 or WinCC OPC Server listed by double clicking on it. If the connection is successful, a new window prompts to create a new group. Enter **Group Name** and click **OK**.



OPC Scout

To add tags to this group, double-click group or select **Item**, **Add Item**. This opens the OPC Navigator window.

Select tags by moving them from the left pane to the right pane by clicking on the right arrow [→]. After selection is complete, click **OK**.

All of the selected tags appear along with their values, and other information.

If at any point you experience an issue with this client, it is an indication that there is something wrong with the WinCC/PCS7 server, since now two OPC clients have demonstrated issues.

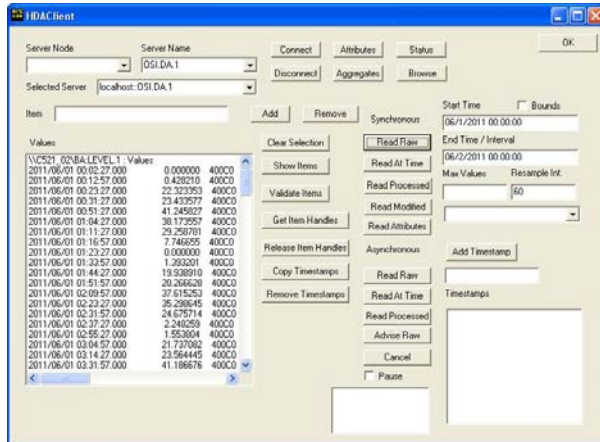
At this point, contact Siemens technical support to troubleshoot and correct these issues.

Troubleshooting – Historical Data

If you are experiencing issues connecting to or retrieving data from WinCC/PCS7 historian with **XLReporter**, a generic OPC-HDA test client is provided to test the WinCC/PCS7 OPC-HDA Server.

This client is available from the Tools folder of the **XLReporter** installation disk and can be downloaded from www.SyTech.com.

To open, double-click **SampleClientHDA.exe**. This opens the **HDA Client** window.



HDA Client

To connect to an OPC-HDA server and retrieve historical tag values, select the **Server Name** and click **Connect**. Click **Browse** to open the **Browse Dialog** window.

Choose the desired tags from the window and click **Add** after each selection. When complete, click **Done** to return to the **HDA Client** window.

Click **Show Items** to display the selected tags in the left pane window. Select each tag and click **Validate Items** then **Get Item Handles**.

Enter the **Start Time** and **End Time**. Note this is in UTC(Universal Time Clock) as well as the **Resample Interval**.

To read raw values, click **Read Raw**. The data appears in the left window.

To read processed data, click **Aggregates**, select the appropriate aggregate (e.g., maximum, minimum, etc.) and click **Read Processed**. The data appears in the left window.

If at any point you experience an issue with this client, it is an indication that there is something wrong with the WinCC/PCS7 OPC-HDA server, since now two OPC-HDA clients have demonstrated issues. At this point, contact Siemens technical support to troubleshoot and correct these issues.