

Reporting from KEPServerEX

XLReporter generates Excel based reports from Kepware's KEPServerEX real time data and historical archive.

The purpose of this document is to describe how to interface **XLReporter** to the KEPServerEX.

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 KEPServerEX through the OPC DA or OPC UA servers provided.

Before you Begin

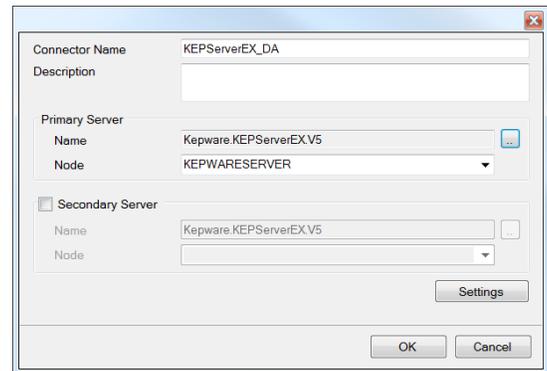
In order for **XLReporter** to communicate with KEPServerEX, the machine where **XLReporter** is installed must also have the OPC core components installed. The OPC core components are provided in the tools folder of the **XLReporter** install CD or from www.OPCFoundation.org.

If **XLReporter** is installed on a PC that is remote to KEPServerEX and you are connecting to the OPC DA server, 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 KEPServerEX, 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**. For the OPC DA server select **Kepware**, then **KEPServerEX Real-Time values (OPC DA)**.

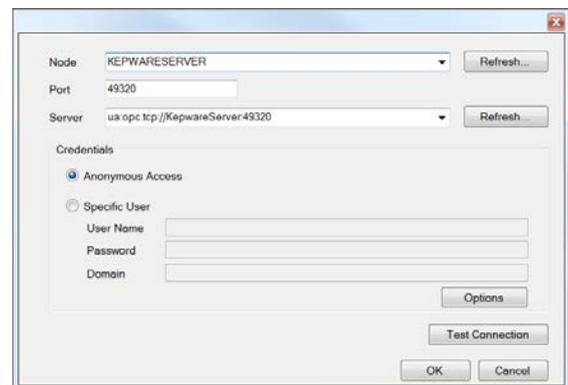


KEPServerEX Real Time (OPC DA) Connector

Connectors for KEPServerEX OPC DA 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.

For the OPC UA server select Kepware, then **KEPServerEX Real-Time values (OPC DA)**.

Connectors for KEPServerEX OPC UA require a **Primary Server**. Click the browse button [...] to define.



KEPServerEX Real Time (OPC UA) Connector

If KEPServerEx is running on a remote machine, set **Node** to the name of that machine.

The KEPServerEX OPC UA server settings can be accessed by right-clicking the KEPServerEX icon on the system tray and selecting **OPC UA Configuration**.

The **Port** number for the KEPServerEX server by default is 49320. This can be viewed under the **Server Endpoints** tab by modifying the endpoint you wish to connect to.

The **Server Name** drop down contains a list of all the available servers. This can be identified in the server settings under the **Server Endpoints** tab. Note, there may be multiple names listed that start with this endpoint. Select the one that matches the security settings of the server.

When testing the server connection, after trusting the server certificate the connection may still fail. If so, in the KEPServerEX OPC UA Configuration Manager, go to the **Trusted Clients** tab. There you should see the **Client Name** *XLReporterOPC.UA* with a **URI** that contains the name of the machine where **XLReporter** is installed. If this client has a red X, select it and click **Trust**. Now test the connection again and it should pass.

Verifying the Real Time Data Connector

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

Select **Add**, choose your KEPServerEX 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.

KEPServerEX provides an OPC-HDA Server interface to the Local Historian 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 **KEPServerEX**, then **KEPServerEX Local Historian**.

Connectors for the KEPServerEX Local 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.

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 KEPServerEX Local Historian 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 1:00:00 AM	66.2536956697591	53.1530425209008	34.989111747417	60.1344195511271
10/1/2013 2:00:00 AM	78.75837033363968	66.9680634488596	33.7002785682678	59.7737879793388
10/1/2013 3:00:00 AM	71.6023514666748	54.3720221460978	31.9870654515676	64.7205777883056
10/1/2013 4:00:00 AM	66.18456880838737	57.8811047564816	35.0655181884766	73.2772684733073
10/1/2013 5:00:00 AM	78.0585364278158	75.9515464528402	37.52050884257	82.4242586771647
10/1/2013 6:00:00 AM	72.5651188823242	61.0702749252319	46.5499566889334	88.9774213155111
10/1/2013 7:00:00 AM	76.1162672224935	63.2840405914653	52.1044570287059	90.6483974467607
10/1/2013 8:00:00 AM	60.9476355234782	77.505005754588	51.897953414917	86.8526187896728
10/1/2013 9:00:00 AM	77.3452705146891	50.059004703715	62.6665134516298	78.9163791035454
10/1/2013 10:00:00 AM	78.541072463893	69.8882724761563	67.167685508728	65.612038368873
10/1/2013 11:00:00 AM	64.592013549047	61.0963741938273	68.3750268118286	62.1898630142212
10/1/2013 12:00:00 PM	66.6823261769613	59.0880548832662	71.7831196984238	59.242639541626
10/1/2013 1:00:00 PM	77.5869768015544	60.4444882357544	76.0119204203289	61.7999157676807
10/1/2013 2:00:00 PM	66.626116052633	46.4779631932577	76.7051422390706	68.9683601379395
10/1/2013 3:00:00 PM	59.6842877705892	56.9785511830648	55.8398724238078	78.24383074444205

Preview

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

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 KEPServerEX OPC DA server with **XLReporter**, you can use the OPC Quick Client provided by Kepware to test the OPC server.

OPC Quick Client is opened from the **KEPServerEX Configuration** application by selecting Tools, Launch OPC Quick Client.

Once opened, every tag is available under the KEPServer branch at the top.

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

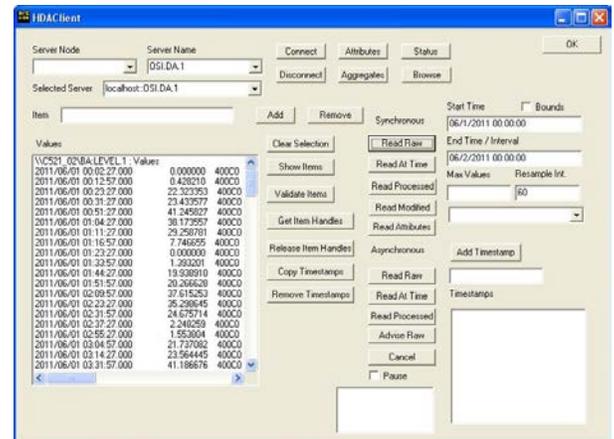
At this point, contact Kepware technical support to troubleshoot and correct these issues.

Troubleshooting – Historical Data

If you are experiencing issues connecting to or retrieving data from KEPServer Local Historian with **XLReporter**, a generic OPC-HDA test client is provided to test the 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 KEPServerEX Local Historian OPC-HDA server, since now two OPC-HDA clients have demonstrated issues. At this point, contact Kepware technical support to troubleshoot and correct these issues.