Kepware Products for Windows 95™ ,98™, 2000™, NT™, And XP™

KepserverEx Client Connectivity Guide

For Kontron Czech Aspic 3.30

KTSM-00026

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32 Bit KepserverEx Connectivity Guide

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Introduction to KepserverEx

KepserverEx is a 32 bit windows application that provides a means of bringing data and information from a wide range of industrial devices and systems into client applications on your windows PC. KepserverEx falls under the category of a "Server" application. It is very common to hear the term "client/server application" in use across many software disciplines and business segments. In the industrial market, it has usually come to mean the sharing of manufacturing or production data between a variety of applications ranging from human machine interface software and data historians, to large MES and ERP applications.

Regardless of the business segment served, client/server applications have one thing in common: a standardized method of sharing data. In the industrial segment, many client/server technologies have been developed over the last ten years. Initially, some of these technologies were proprietary. In many cases these proprietary client/server architectures were in wide use but remained unavailable to third party applications. Early in the development of windows, Microsoft provided a generic client/server technology called DDE or Dynamic Data Exchange. DDE did provide a basic architecture that would allow many windows applications from a wide range of vendors to share data, but there was one problem. DDE was not designed for the industrial market. It lacked much of the speed and robustness desired in an industrial setting. However, this did not stop DDE from becoming a dominant client/server architecture, largely due to its availability in most windows applications. In time, variations on Microsoft's DDE were developed by some of the leading vendors in the market. These variations addressed some of the speed and reliability issues of DDE but many people in the industrial segment agreed that a better system needed to be developed.

With the advent of 32 bit Operating Systems, and the use of Ethernet to provide communications between devices, there was a need for quicker and cleaner data transfer between software applications. This is where OPC saw its birth into the industry.

OPC (OLE for Process and Control) servers provide a standardized method of allowing multiple industrial applications to share data in a quick and robust manner. The OPC server provided in this package has been designed to meet the demanding requirements found in the industrial environment.

This OPC server has been designed as a two-part program. The primary component provides all of the OPC and DDE connectivity as well as the user interface functions. The second part is comprised of plug-in communications drivers. This two-part design allows you to add multiple communications options to your SCADA application while utilizing a single OPC server product thus reducing your learning curve as your project grows.

OPC technology reflects the move from closed proprietary solutions to open architectures that provide more cost-effective solutions based on established standards.

Accessing KepserverEx

A Windows based client application must be used to view data from the KepserverEx application. In this section we will cover the basics of connecting a number of common OPC clients to KepserverEx. While we cannot possibly cover every client application that exists, we believe that after reviewing this document you should be able to deal with most client applications.

The intention of this section is to show connectivity to KepserverEx. It is assumed that you have already either configured your KepserverEx application by selecting the appropriate driver and settings or you have run the Simulator demo (Simdemo.opf) which is included with KepserverEx. For simplicity, the Simdemo project will be used for all examples contained in this section.

Before beginning any of the examples, start the KepserverEx application by selecting it from your Start Menu or from its desktop icon. Once the server is loaded, use the File|Open command to

load the “Simdemo” project. The KepserverEx application is always active once you have opened an existing project or configured at least one channel and device in a new project. After you have selected a project, in this case the Simdemo project, KepserverEx will automatically load this project when an OPC client application invokes KepserverEx’s OPC server component.

Users have always had the ability to create what we refer to as “user defined tags” in their KepserverEx application. Prior to OPC, defined tags gave a DDE application designer the ability to create a label for device data. Assume register 1000 contained the value of parts made, without defined tags a DDE application would have directly accessed register 1000. Using defined tags a label can be created like “PartsMade”. Now the DDE application could access the data via this new label, removing the machine level knowledge from the client application and keeping it at the server level where it belongs. This label, while useful for DDE is a necessity for OPC clients. For OPC clients, defined tags take on a greater role. Like the DDE example, defined tags allow you to create labels for your device data and keep the configuration of those tags in the server. OPC clients have a major advantage over DDE clients. OPC clients can browse the defined tags you create in your KepserverEx application, which allows you to simply point and click on a tag to add it to your OPC client project.

OPC Tag Browsing allows you to see a list of the defined tags you have created in your KepserverEx application, directly within your OPC client application.

For more information on defined tags see the “Designing a Project” section of the KepserverEx help file, which can be accessed from the Help/Contents menu selection of the KepserverEx application.

Using KepserverEx Drivers

Part of the innovative design of Kepware’s OPC/DDE Server Technology is the separation of the Hardware Protocol Driver from the Server Technology. This separation allows the user to use one or more drivers in the server at the same time. Each driver has its own help file which provides information on devices supported, communications parameters, cabling, addressing, and error messages.

The driver help file should contain all of the information you will need to connect your device to the PC so that the server can communicate with it. If the server cannot communicate with the device, be sure to check the error messages and look up their meaning in the help file.

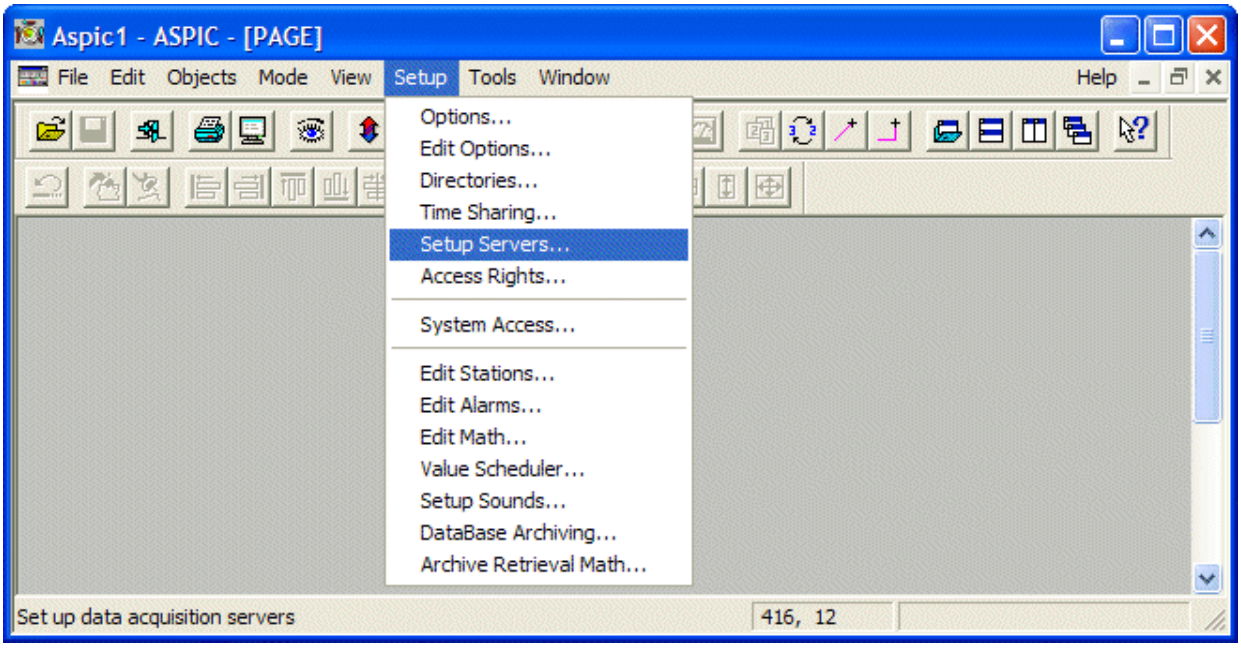
Kontron’s ASPIC 3.30 as an OPC Client

Connect to KepserverEx from ASPIC 3.30

The following steps will show you how to create an OPC connection to the KepserverEx from the ASPIC 3.30. The ASPIC 3.30 version used in this example is *3.36.06.08*.

Setup the Connection to the OPC Server

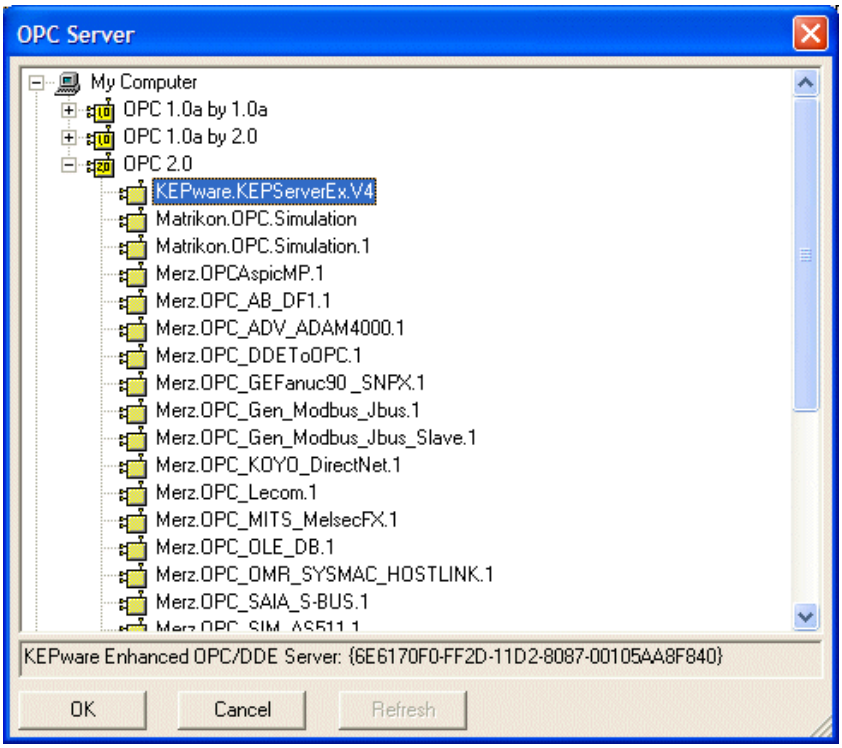
1. Start **Aspic 3.30** from the Start menu.
2. Select **Setup/Setup Servers…** from the menu. The **Servers Setup** dialog opens.



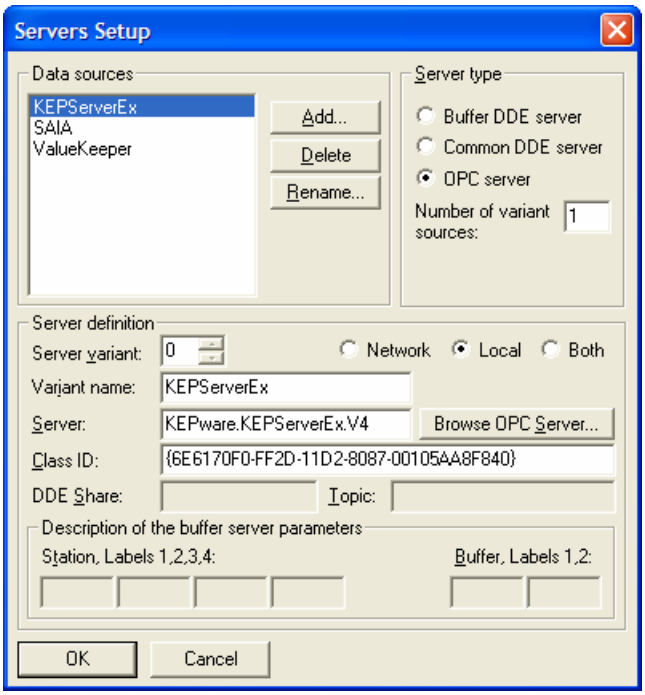
3. Press the **Add…** button and enter the OPC Server name in the edit dialog.

4. In the **Server type** section select the OPC Server.

5. Press the **Browse OPC Server...** button. Browse the list of installed OPC Servers and select the OPC Server you want to access OPC items from.
   If the server is installed on another computer in a local network, browse the other computer. You need to set up DCOM for this remote connection.
   If required, OPC Server supports the DA 1.0, and 2.0 OPC specifications. Choose the communication along **OPC 2.0**. Select the OPC Server from the list, and press **OK**.

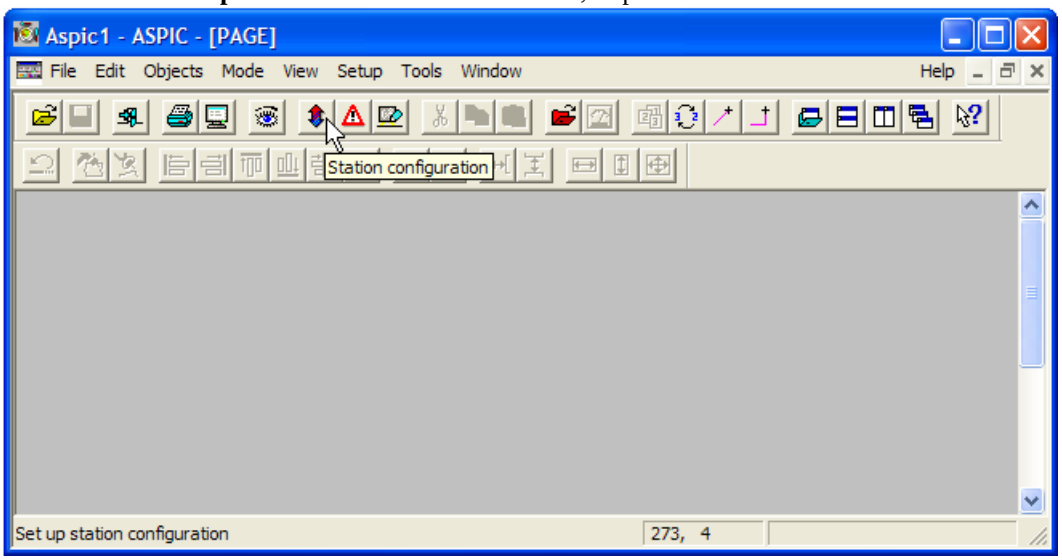


6. Now, you have the connection to OPC Server properly set. Press **OK** to confirm the setup.

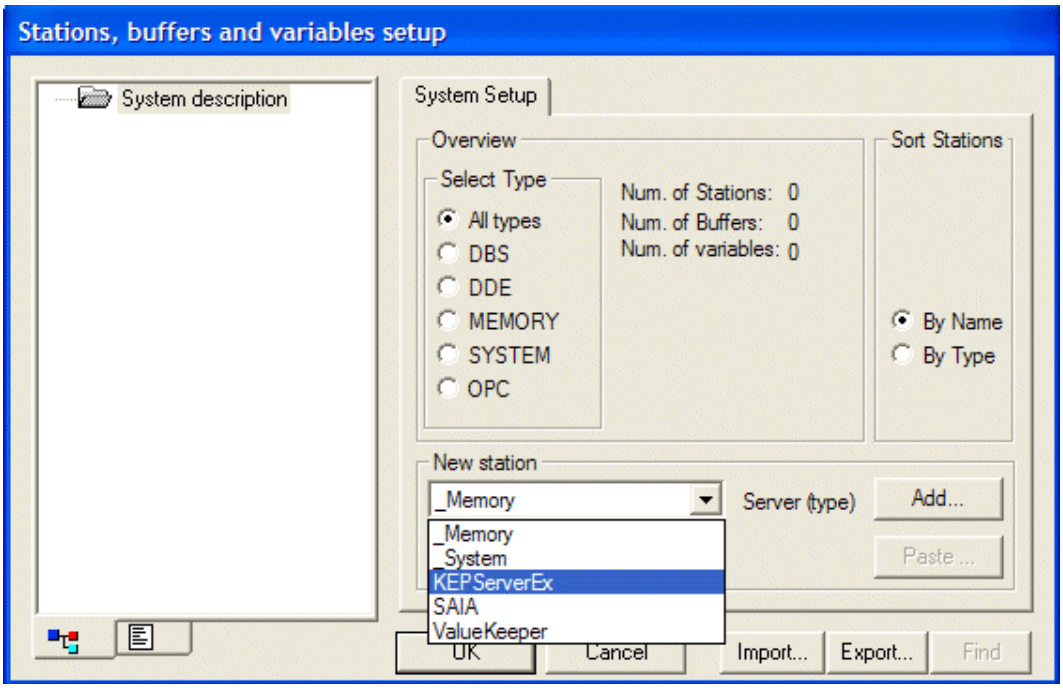


Connection of OPC items from the OPC Server

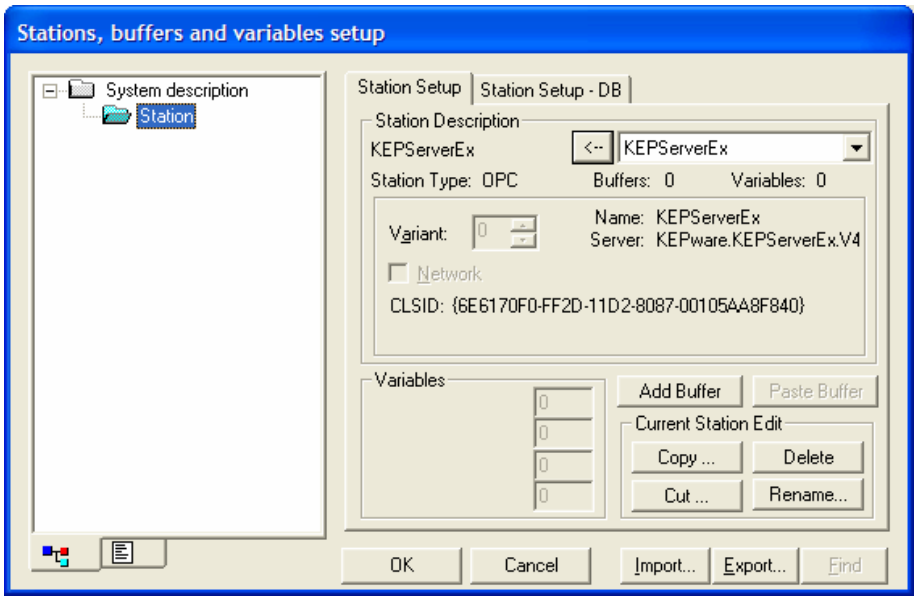
1. Select **Setup/Edit Stations…** from the menu, or press  button on the toolbar.



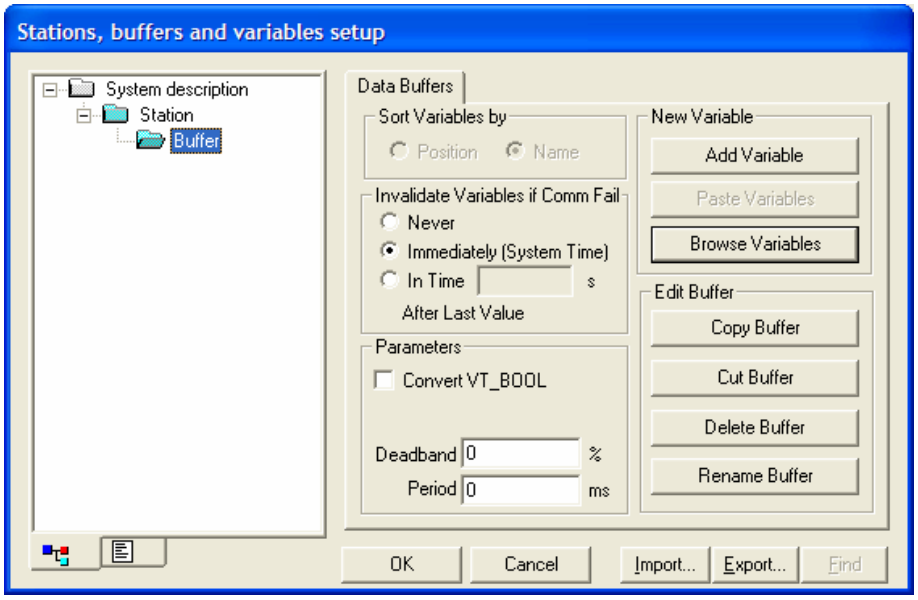
2. The **Stations, buffers and variables setup** dialog will open.
3. In the dialog, choose the type of new station according to the OPC Server's name (created in the 3rd step) and create the new station of this type by using the **Add…** button. Enter the new station's name in the edit dialog.



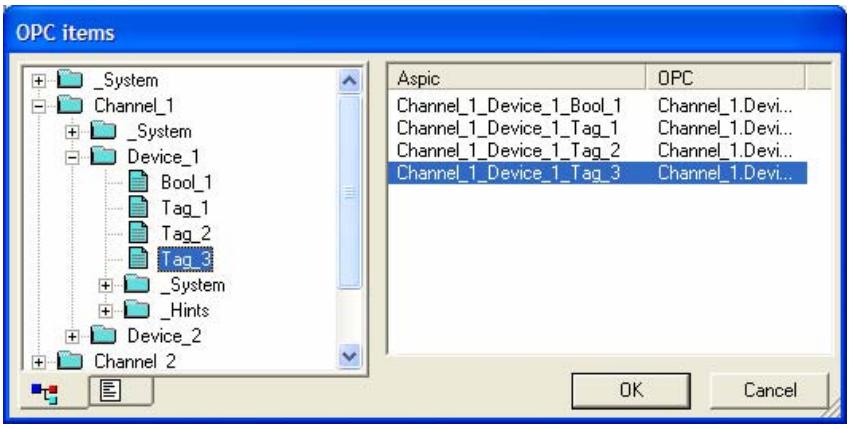
4. In the tree structure, select the created station and its **Station Setup** tab.
5. Press the **Add Buffer** button and create a new data buffer.



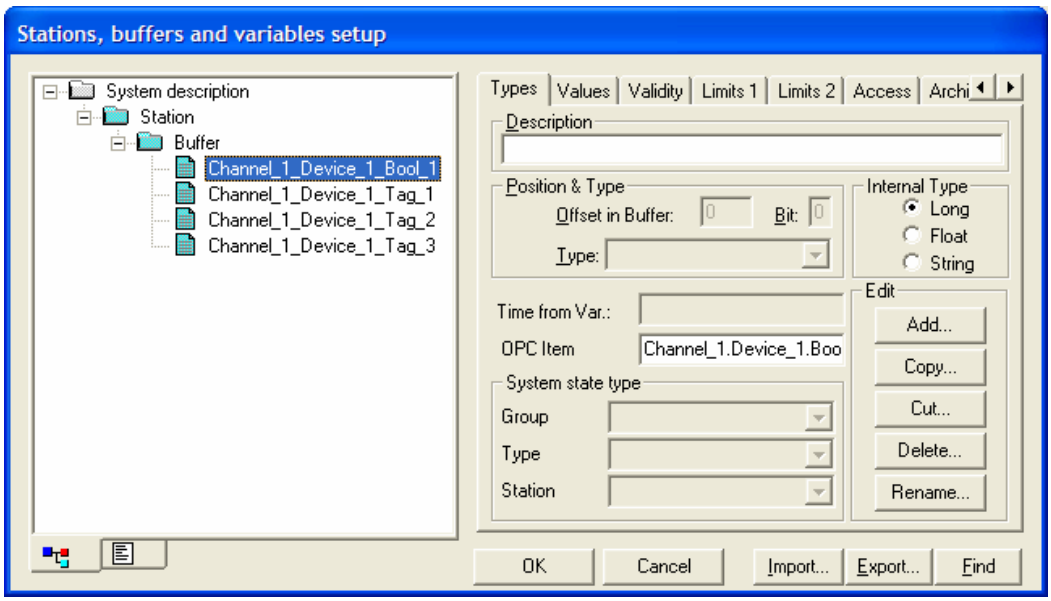
6. In the tree structure, select the created buffer and press the **Browse Variables** button in the **Data Buffers** tab.



7. A dialog for browsing the OPC Server configuration opens.
8. The list of OPC items from the OPC Server configuration is located at the left side of the dialog. Double click on the name of OPC item to add it to the Aspic configuration.



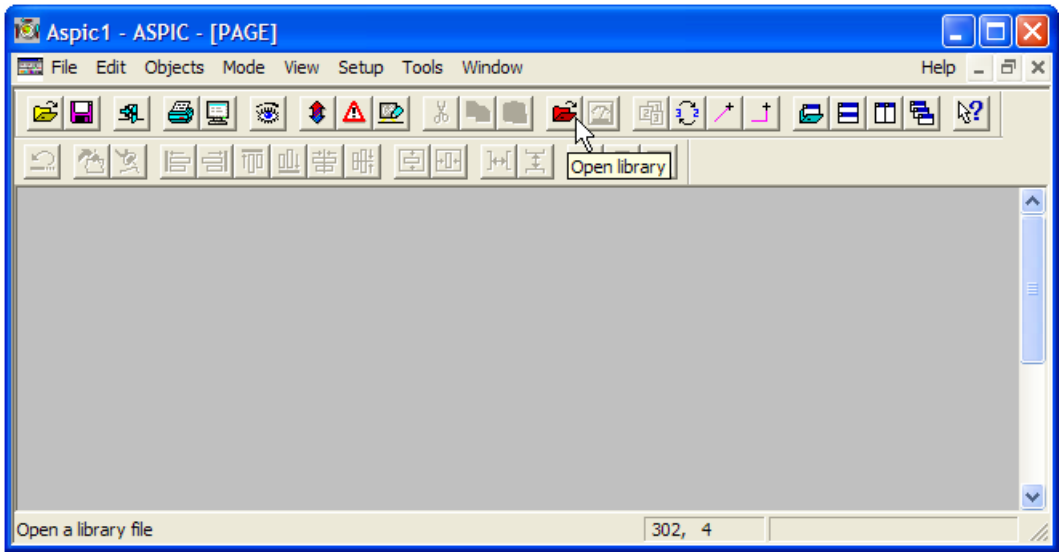
9. Selected OPC items will be added to the Aspic application configuration and their **OPC Item** property will be automatically set to the proper value (due to the structure of the server's configuration – e.g. KEPServerEx: *channel_name.device_name.tag_name*).



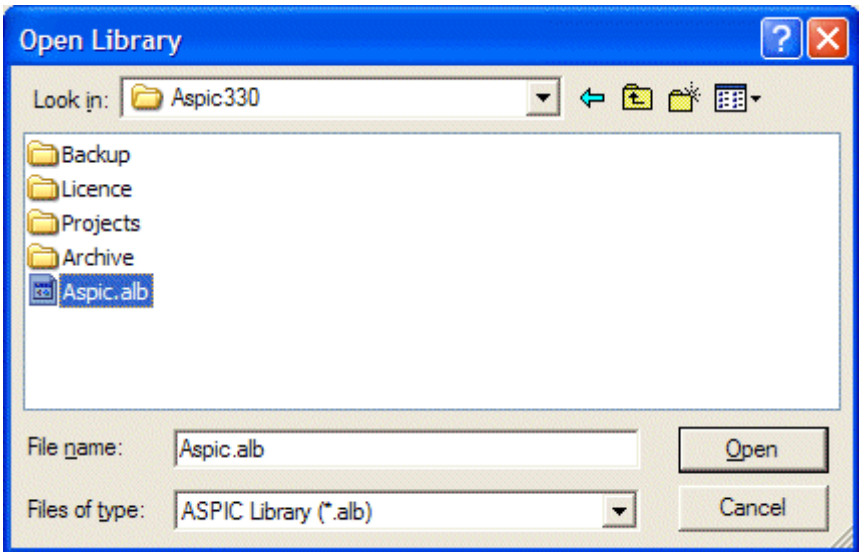
You have successfully connected the OPC items from the OPC Server to the Aspic program. Once the visualization has been started, the Aspic will start the OPC Server with the registered configuration, and it will start communications for the connected OPC items.

Connection of Variable to the Monitoring Object

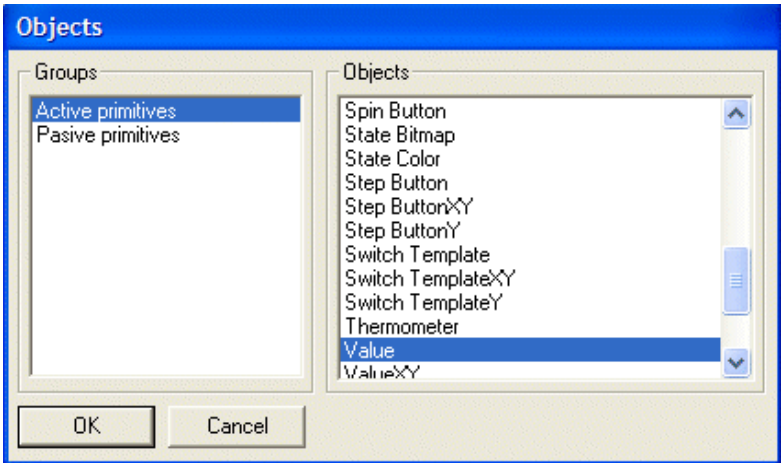
1. Select **File/Open Library...** in the menu or press the  button on the toolbar.



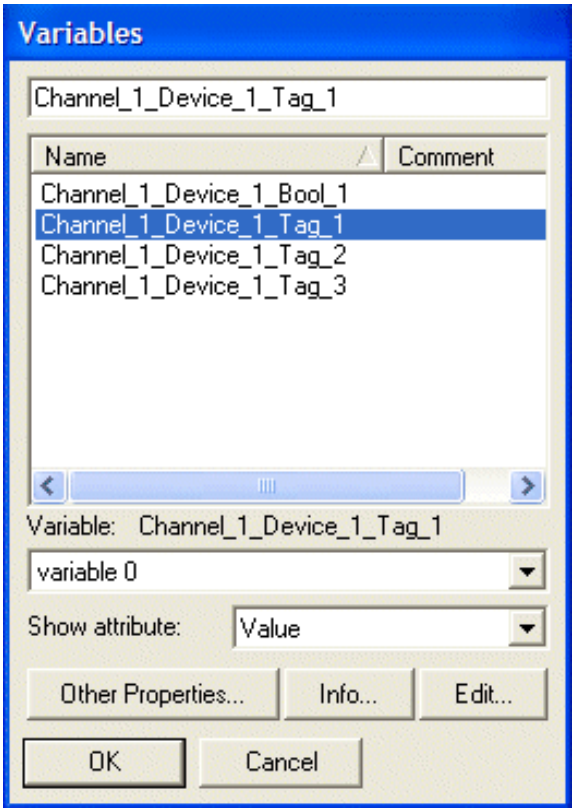
2. The standard dialog for selecting visual object library (*Aspic.alb*) will be displayed.



3. In the **Objects** dialog from the **Groups** pane, select **Active primitives** and then select the **Value** object in the Objects pane of dialog.

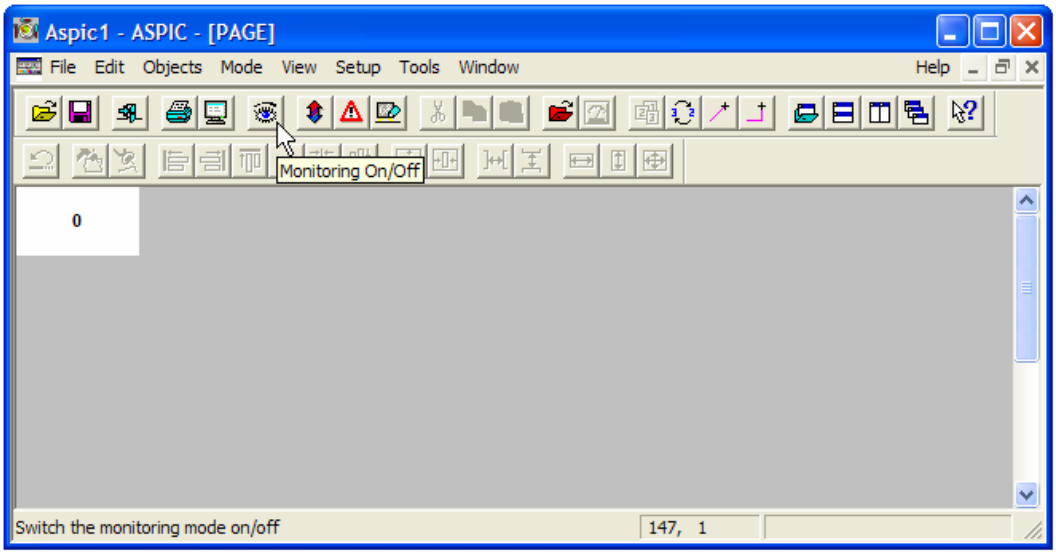


4. A new object will appear in the top left corner of the monitoring page. Double-click the object, and connect the required variable in the **Variable** dialog.

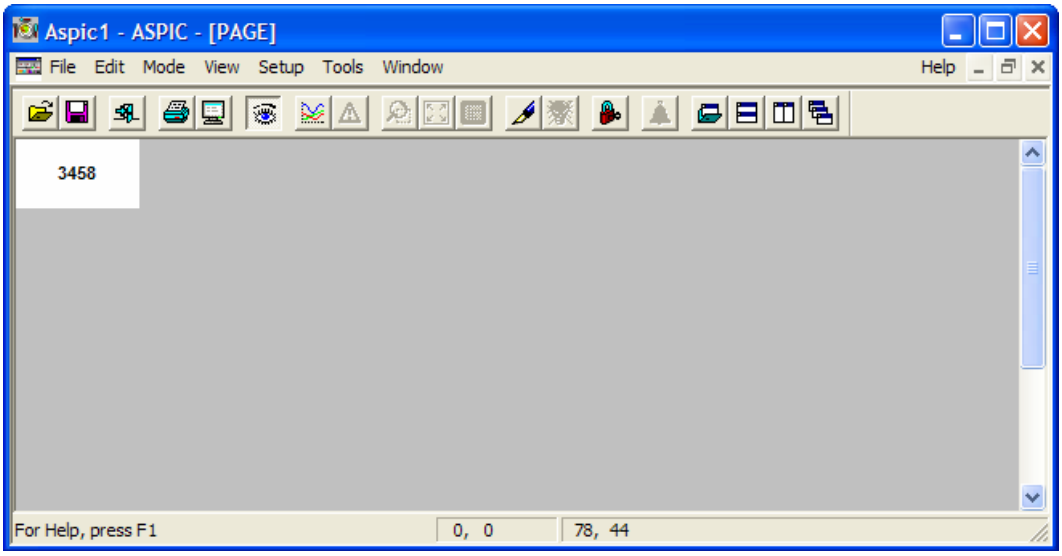


Switch to the Monitoring Mode and Check OPC Connection

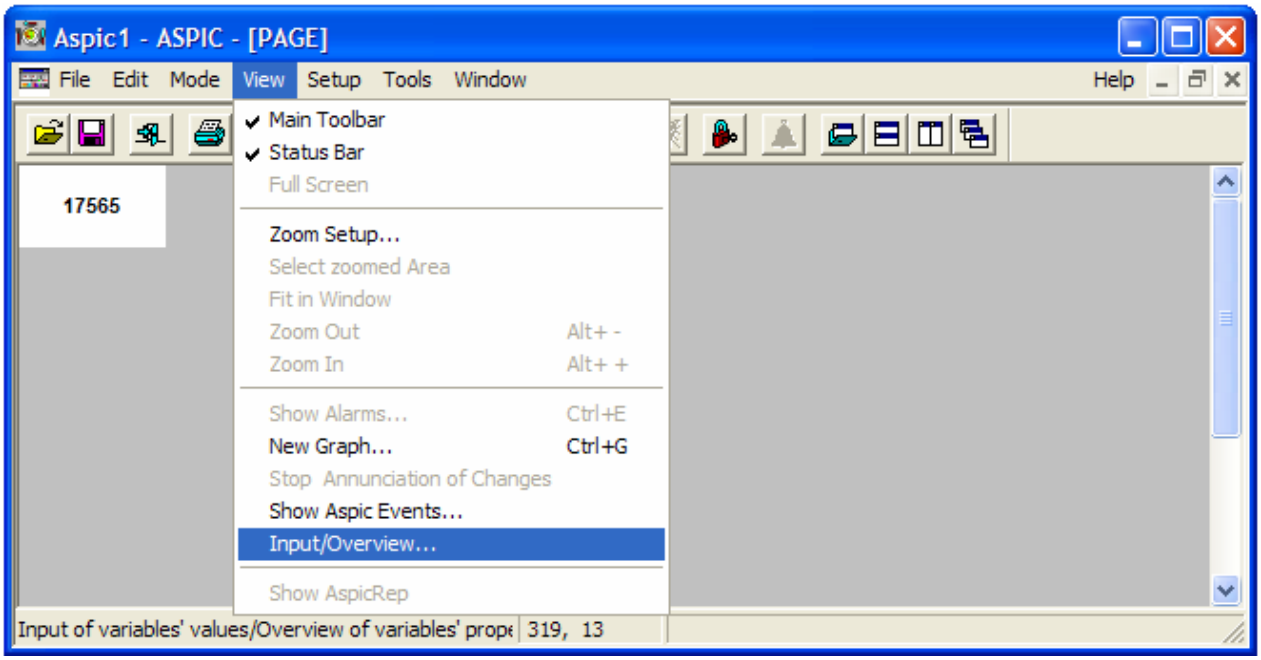
1. You can switch into **Monitoring Mode** using the item **Mode/Monitoring** in the menu, or press the  button on the toolbar.



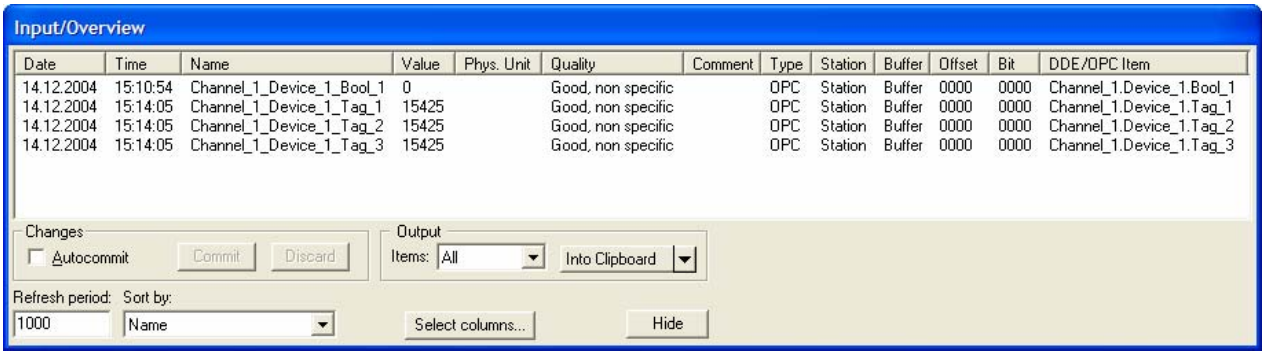
2. Starting the **Monitoring mode** starts communications with the OPC Server. Active object shows current values of its variable.



3. It is also possible to open a window for displaying of all variables and their properties. Select **View / Input/Overview...** in the menu.



4. An **Input/Overview** dialog with all communicated variables will be opened.



5. At this time you have a good OPC connection to the KepserverEx. You should see a **Quality** of "Good" in the **Input/Overview** dialog for the tag, and a **Value** that is incrementing very quickly.

Using Kepware's OPC Quick Client

Kepware provides an OPC client application for testing purposes with each installation of KEPServerEX. For more information on Kepware's **OPC Quick Client**, please see the OPC Quick Client help file.

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