

Application Note

No. 12

Product: Softing OPC Easy Connect

Keywords: OPC Server, Redundancy

Problem: How to configure redundant server connections

Solution:

Initial situation:

An OPC client application is connected to multiple redundant OPC servers which simultaneously communicate with a physical device (eg PLC). Both OPC servers determine the same data from the PLC. In case of a failure in one of the server connections the OPC client application should automatically switch to the other redundant server connection.

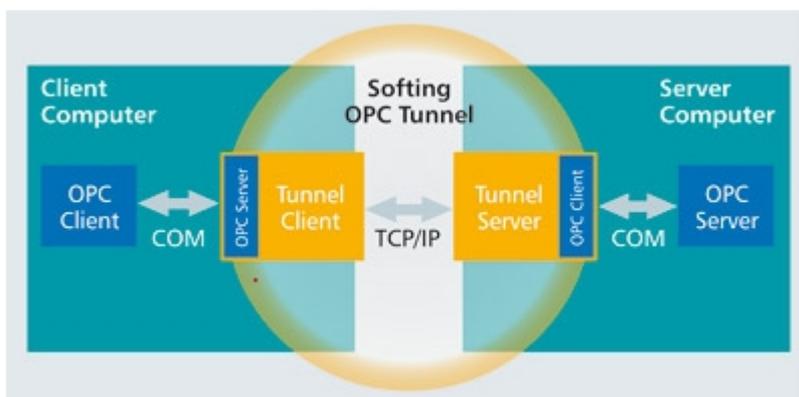
This automatic switching is not implemented in the Softing products. The implementation of the redundancy mechanism must be made in the client of the customer.

However, if the used OPC client application implements a redundancy mechanism, then it is possible to configure redundant server connections via Softing's OPC Tunnel.

OPC Tunnel

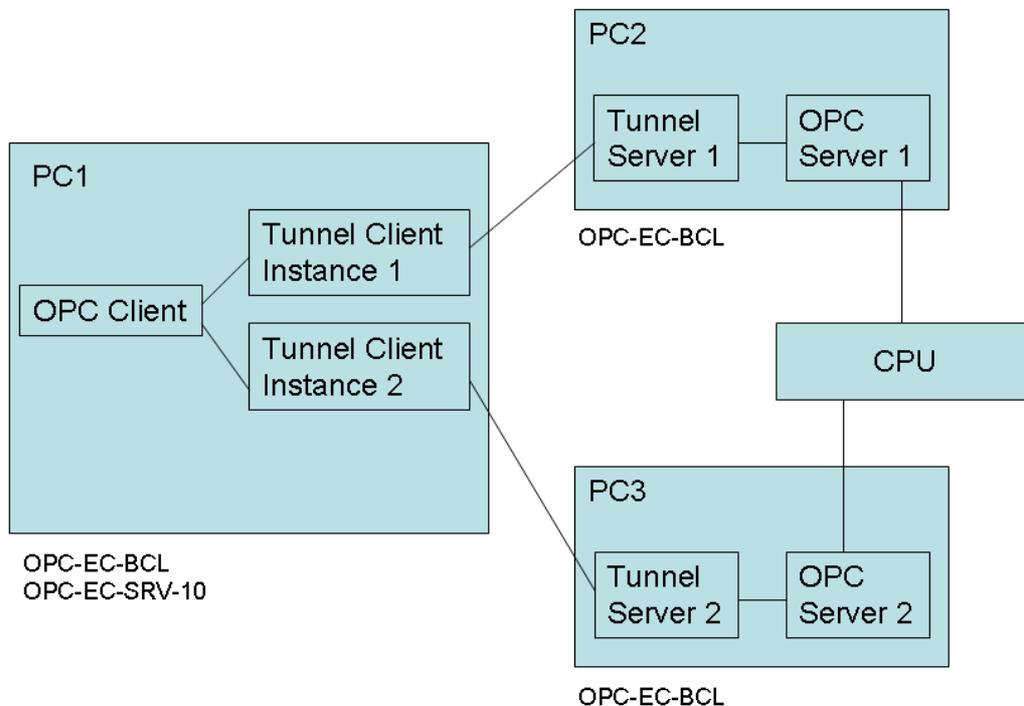
The OPC Tunnel is part of Softing's OPC Easy Connect Suite; a collection of OPC middleware products that simplify OPC communications.

Designed as a "DCOM bypass," the OPC Tunnel allows reliable, high-performance communication between OPC components on networked computers. The OPC Tunnel installations on the client side and the server side communicate via a TCP/IP connection. In this way, the data that is exchanged between client and server applications are "tunnelled" over TCP/IP; bypassing DCOM completely.



Configuration of redundant server connections:

This document discusses how to implement the configuration depict in the picture below.

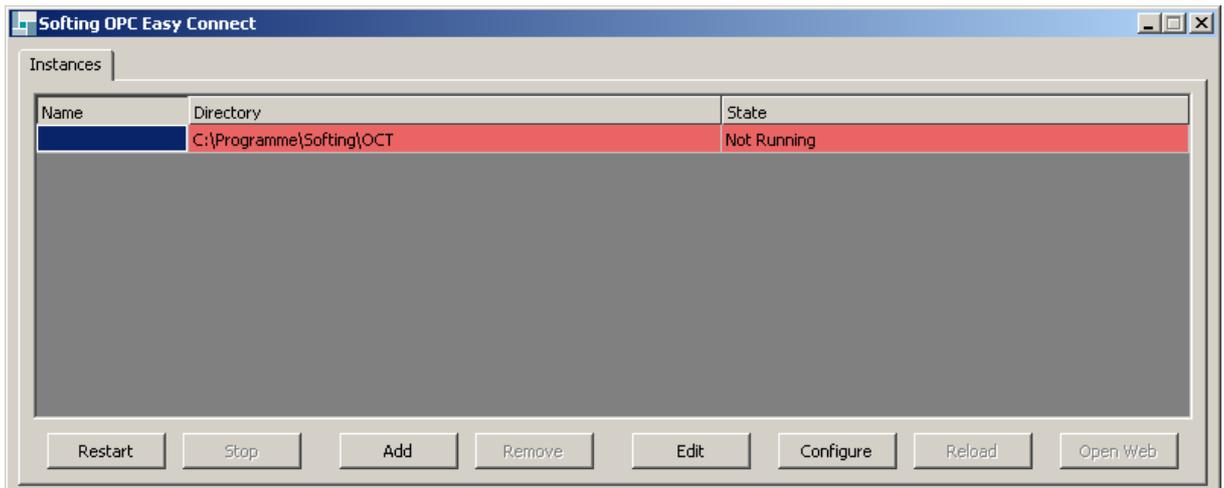


For our purpose, the OPC Tunnel is installed on all computers. Two instances of the OPC Tunnel will be used on the client side on PC1. The name of the first instance is left empty and cannot be changed. The second instance will get a unique name (OCT-2).

- 1.) First we **configure a Server-side Tunnel on PC2**. Go to PC2 and double click on the system tray icon of the OPC Easy Connect:



In the Tray application select the instance and press the “Configure”-Button.

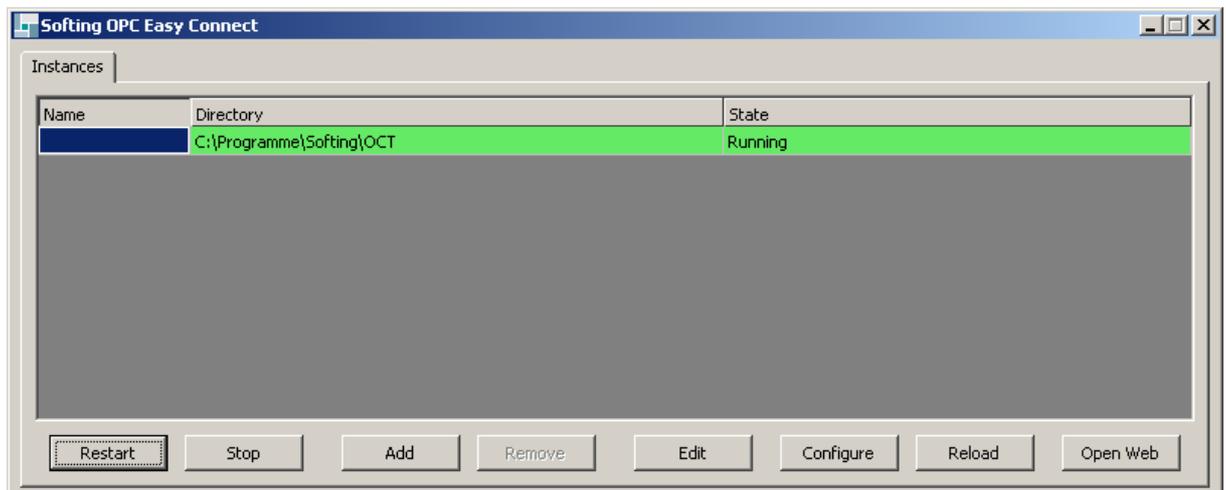


Clicking the “Configure” button opens the Project Wizard. Please enter the following settings in each step of the Project Wizard (you find the title of the dialog in the dialog caption):

Dialog Title	Settings
Product	Select “OPC Tunnel” and press Next>
OPC Tunnel	Select “Server side” and press Next>
Tunnel Server	OPC Tunnel IP Port 56765 is suggested.
System	IP Port 8090 is suggested.
Server Connections	Press the button “Add Server Connection”
Connection Type	Select “DA Server”
DA Server Connections	Select from the local Data Access server list your first (redundant) OPC Server
Provide Items	Live the default settings
Server Connection Test	Press “Connection Test” to check, if the selected local OPC Server can be started. Then press Finish
Server Connections	Press Finish

The Wizard will display the following message: “The project contents will be deleted. Do you want to create a new project?” Click on “Yes” and exit the OPC Easy Connect configurator.

Double click on the system tray icon of the OPC Easy Connect, select the instance, and press the “Restart” button to activate the Tunnel Server instance with your settings on PC2.



- 2.) Repeat the previous steps on PC3 to **configure the second redundant Server-side Tunnel**. The IP Port will be automatically set by the Project Wizard. Please don't change the default setting. Since the redundant OPC servers are installed on different computers, the OPC Tunnel IP port can be set the same on both PCs to "56765".



Note:

In case the two redundant OPC servers are installed on the same computer you also need to configure two OPC Tunnel instances and each OPC Tunnel IP port must be set differently!

- 3.) Next, the **two Client-side Tunnel instances need to be configured on PC1**. Double-click the icon in the taskbar of the OPC Easy Connects on PC1:



Select the instance and press the "Configure"-Button. Please enter the following settings in each step of the Project Wizard:

Dialog Title	Settings
Product	Select "OPC Tunnel" and press Next>
OPC Tunnel	Select "Client side" and press Next>
System	IP Port 8090 is suggested. Take this and press Next>
Server Connections	Press the button Add Server Connection
Connection Type:	Select "Tunnel DA Server" and press Next>
OPC Tunnel DA/AE Server	Enter the computer name or the IP-Address from PC2 and take the suggested OPC Tunnel IP Port 56765. Press Next>
Provide Items	Live the defaults
Server Connection Test	Press "Connection Test" to check, if your Tunnel Client can connect the OPC Server on PC2. Then press Finish

Server Connections	Press Finish
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Save your settings and exit the OPC Easy Connect configurator.

Next create the second Tunnel Client instance in the OPC Easy Connect Tray. Press the “Add” Button, enter the name of the second instance (OCT-2) and click on the “OK” Button. Select this newly created instance and press the “Configure” Button.

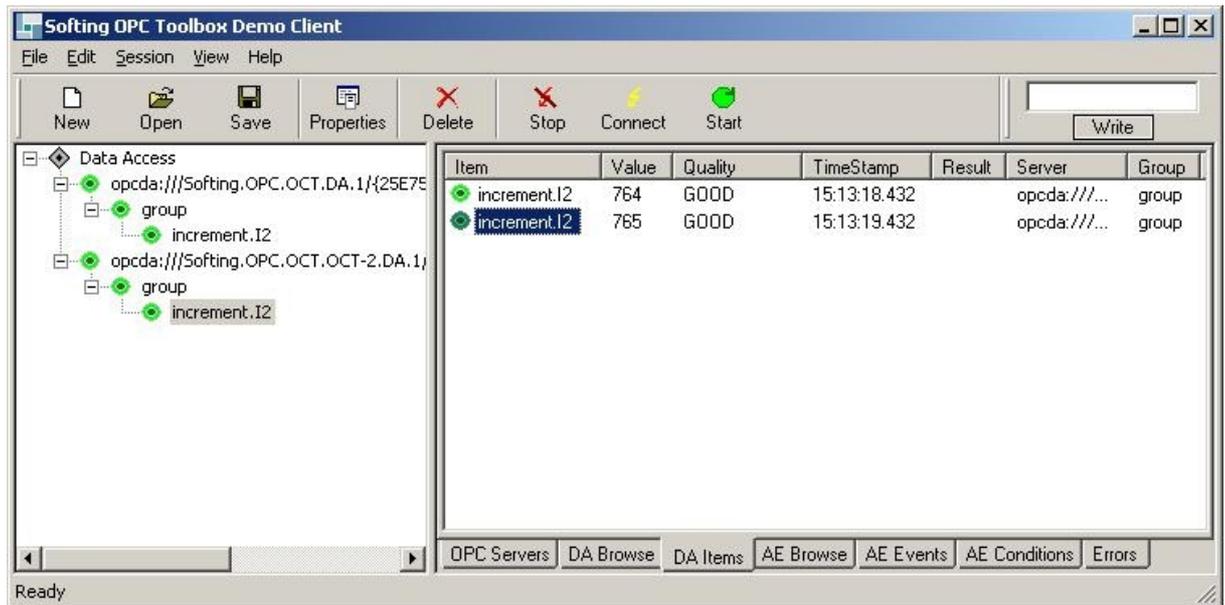
Please enter the following settings in each step of the Project Wizard:

Dialog Title	Settings
Product	Select “OPC Tunnel” and press Next>
OPC Tunnel	Select “Client side” and press Next>
System	IP Port 8091 is suggested. Take this and press Next>
Server Connections	Press the button Add Server Connection
Connection Type:	Select “Tunnel DA Server” and press Next>
OPC Tunnel DA/AE Server	Enter the computer name or the IP-Address from PC3 and take the suggested OPC Tunnel IP Port 56765. Press Next>
Provide Items	Live the defaults
Server Connection Test	Press “Connection Test” to check, if your Tunnel Client can connect the OPC Server on PC3. Then press Finish
Server Connections	Press Finish

Save your changes and exit the Configurator.

In the Tray application select the first instance and press the “Restart” button. Then select the second instance and start (or restart) it as well.

- 4.) The Softing OPC Toolbox Demo Client contains no true redundancy mechanism, but it is a good tool for testing the two OPC Tunnel configurations. However, you cannot test the automatic transfer from one server to another server with the Softing OPC Toolbox Demo Client. This has to be tested with the OPC Client that supports the redundancy mechanism.



Note:

If the name spaces of the two redundant OPC servers differ (e.g. different manufacturer), a user can modify the name space of both OPC servers via the filter functionality of the OPC Tunnel. The filter allows a user to configure (rename) the visible OPC item names (attribute "ItemID") as needed using the filter mechanism, but the attribute value of "ServerItemID" may not be changed!

Licensing of the OPC Tunnel:

You need the basic Easy Connect Suite license (OPC-EC-BCL) for all three computers. In addition, you will need one server extension license (OPC-EC-SRV-10) for PC1, since two simultaneous server connections are used on this computer.



Note:

The basic license of Softing's Easy Connect Suite only supports one server connection at a time.