GENESIS64
Setting up XML-DA Servers

APPLICATION NOTE

August 2014

Description: Guide to set up IIS 7 and DCOM to properly run OPC XML-DA Servers.
OS Requirement: Windows 7 x64 / Windows Server 2008 x64 / Windows Server 2008 R2 x64
General Requirement: .NET Framework v1.1 with SP1 installed, Microsoft SOAP Toolkit v3.0 installed.

Introduction

Due to the major changes in IIS 7 (introduced with Windows v6 operating systems), the user has to manually set its properties and settings to be able to connect to an OPC XML-DA Server from any client. They are also required to set up DCOM manually. This application note aims to help you set up IIS 7 and DCOM to run OPC XML-DA Servers to provide OPC data to clients.

Requirement

Microsoft .NET Framework v1.1 with SP1 needs to be installed on the machine where you want to have XML-DA Server running. Please refer to the Microsoft Download Center to download installation packages.

Installation/Configuration

To properly run OPC XML-DA Server on the newer operating systems, you have to do the following steps in the following order:

1. Install Web Server (IIS) + IIS 6 Management Compatibility Tool from Management Tools. In Server 2008, go to Server Manager and under Roles right-click Web Server (IIS) and Add Role Services as shown in Figure 1.

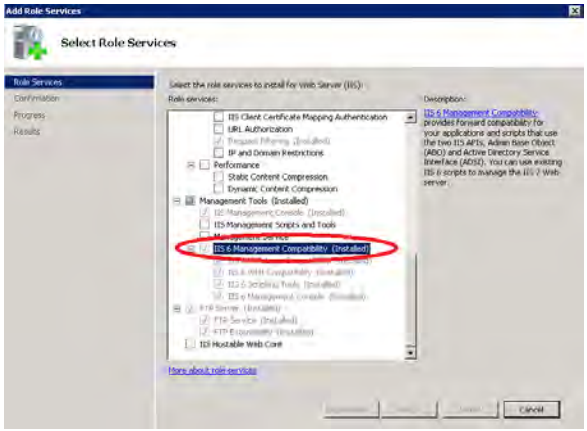

Figure 1 - Installing IIS 7 + IIS 6 Management Compatibility Tool

If you are using Windows 7, open the Control Panel, go to Programs and Features and then click "Turn Windows features on or off". From here you can find IIS 6 Management Compatibility. Select it and press OK.

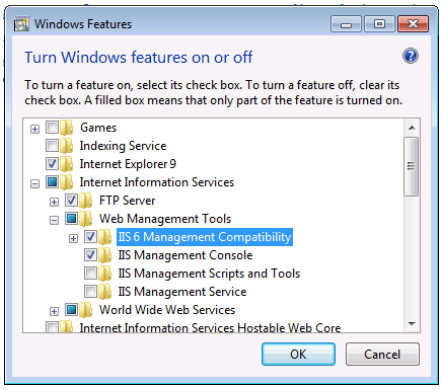

Figure 2 - Installing IIS 7 + IIS 6 Management Compatibility Tool

2. Install .NET Framework v1.1 and update it with SP1 (download package "NDP1.1sp1-KB867460-X86" from Microsoft Download Center).
3. Install an OPC Server with enabled XML-DA support (ICONICS Simulator v3.12, ICONICS Modbus Ethernet OPC Server, etc.).

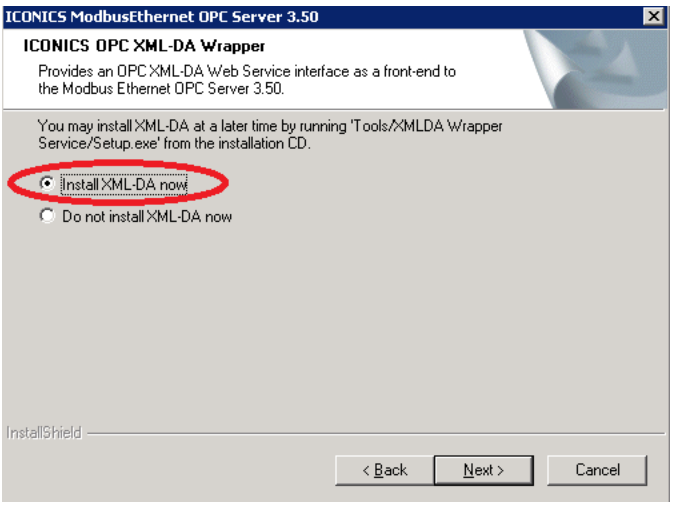

Figure 3 - Enabling OPC XML-DA support

4. Reconfigure IIS 7 (see details below).
5. Properly set up DCOM permissions for OPC Server (see details below).

Reconfiguring IIS 7

After successful installation of .NET Framework v1.1 + SP1 and XML-DA enabled OPC Server, follow the steps below to reconfigure IIS 7.

1. Open the IIS 7 console by pressing WIN+R buttons and running command **"inetmgr"** (without quotes).
2. Go to the very top level in the tree control on the left-hand side.
3. Open **"ISAPI and CGI Restrictions"** in the "IIS" section of the window.
4. Allow ASP.NET v1.1.4322 by double-clicking a row and in the opened dialog window check the 'Allow extension path to execute' checkbox as shown on Figure 4.

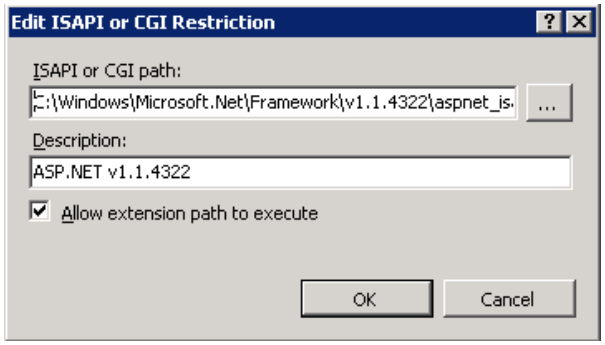

Figure 4 - Allowing ASP.NET v1.1 under ISAPI and CGI Restrictions

5. Go back to the very top level of the left-side tree again and open 'ISAPI Filters' in IIS Area.
6. Add new ISAPI Filter there, name it 'ASP.NET 1.1' and for the executable enter: *C:\Windows\Microsoft.NET\Framework\v1.1.4322\aspnet_filter.dll*
7. Now expand Sites → Default Web Site in the tree control and select your XML-DA Server (Simulator-XML-DA, ModbusEthernet-XML-DA, etc.).
8. Open Basic Settings by clicking the option in the Action pane on the right-hand side.
9. In the dialog window, click on the 'Select…' button for the Application Pool and change it to ASP.NET 1.1. Confirm all changes.
10. Go back to the level of your XML-DA Server and select Authentication.
11. Enable 'Anonymous Authentication'.
12. Press WIN+R to bring up the run command dialog and restart IIS by running the 'iisreset' command (without quotes).

Setting up DCOM Permissions

To ensure that the server starts automatically when an OPC client application requests data from the OPC XML-DA server you have to set lower restrictions level in default DCOM setting. To properly set up DCOM, please refer to the application notes *GENESIS32 - DCOM on Windows XP and Server 2003 in a Domain* and *GENESIS32 - DCOM on Windows XP and Server 2003 in a Workgroup*, where the settings are similar to those in the newer operating systems.

> **NOTE:** There's a bug in IIS 7 that does not save all settings sometimes. After the restart, please try to connect any client to the XML-DA server. If it does not connect, please check all IIS 7 and DCOM settings again. Also do not forget to properly set up the firewall.

Browsing

OPC XML DA Servers do not support discovery and as such users would have to manually type the URL address of the OPC XML DA server every time they wanted to connect to an OPC item coming from the OPC XML-DA server. To avoid this inconvenience, users can enter the OPC XML-DA Server URL to the Favorites folder (under OPC Servers) of GENESIS64 and reuse it at any time when browsing or connecting to OPC data.

To add an entry to the Favorites folder, manually edit the IcoSetup64.ini file (stored by default in C:\ProgramData\ICONICS) and add the following section to the end of the text file:

```
[FWXSERVER\XmlDaServers]
url=http://servername/Simulator-XML-
DA/ICONICS.SimulatorOPCDA.asmx
```

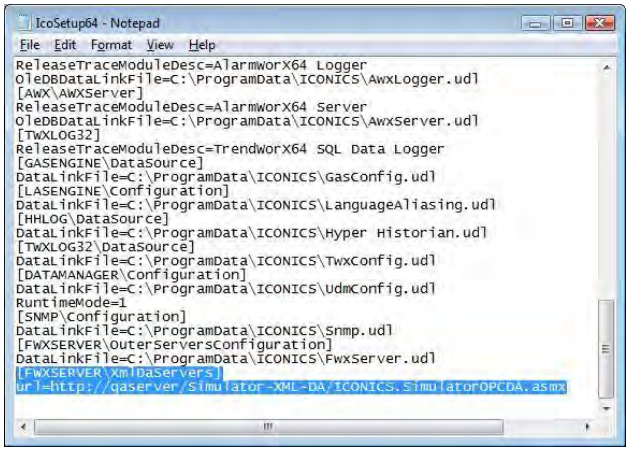

Figure 5 - Setting up OPC XML-DA Servers

> **NOTE:** There is no GUI to add/remove OPC XML DA Servers yet.

The OPC XML-DA Server then appears in the Favorites folder and - when available - it will be possible to browse its internal structure. Note that favorite entries defined by previous versions (stored in the Registry) will appear in the same folder.

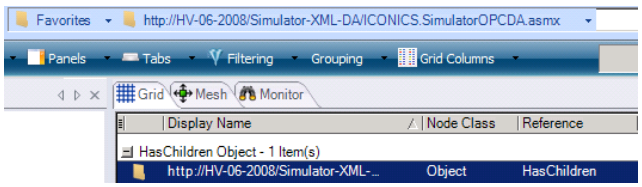

Figure 6 - Displaying OPC XML-DA Servers

Connecting to OPC items

First you can use the standard OPC data connection via the GENESIS64 Data Browser.

If you decide to enter the OPC connection path manually, the same syntax rules that hold for any OPC items from OPC DA servers also apply to OPC items from OPC XML-DA servers.

If you plan on re-using connections from previous versions of GENESIS32, do not forget to add an '@' (at) character to the beginning and '.Value' to the end of the OPC item name

Example of a valid OPC XML-DA item connection syntax:

GENESIS32:
`http://servername/Simulator-XML-DA/ICONICS.SimulatorOPCDA.asmx#Numeric.Sine`

GENESIS64:
`@http://servername/Simulator-XML-DA/ICONICS.SimulatorOPCDA.asmx#Numeric.Sine.Value`

Testing OPC XML-DA in Internet Browser

If you followed all of the steps above correctly you should be able to test if OPC XML-DA Server responds via web. Follow these steps:

1. Run Internet Explorer from Start → All Programs → Internet Explorer.
2. Enter the following URL in the address bar in Internet Explorer and press enter. You should see output similar to Figure 7.

Example:
`http://servername/ModbusEthernet-XML-DA/ICONICS.ModbusEthernetDA.asmx`

where:
- *Servername* = Computer where OPC XML-DA Server is installed.
- *ModbusEthernet-XML-DA* = Name of the Application which is created in IIS.
- *ICONICS.ModbusEthernetDA* = OPC Server ProgID.

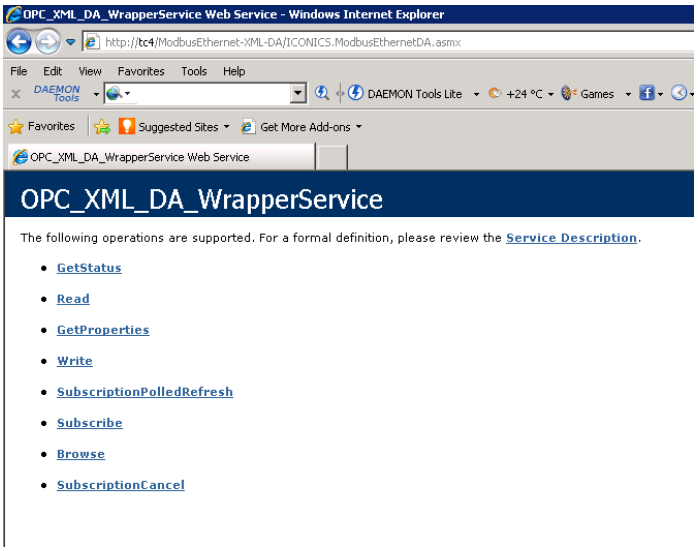

Figure 7 - Testing OPC XML-DA Server in Internet Browser