OPC Server Machine Configuration

General Information

For remote OPC Server operation, server must be running under Windows XP Pro, Windows Server 2003, Windows Vista (Business & Ultimate), Windows 7 (Professional & Ultimate), or Windows Server 2008.

This document refers to Automated Solutions Modular OPC Server throughout. If you are using Automated Solutions Modbus or Modbus/TCP OPC Server, simply substitute the appropriate file name:

- Automated Solutions Modular OPC Server: Asopc.exe
- Modbus OPC Server: Asmbseropc.exe
- Modbus/TCP OPC Server: Asmbtcpopc.exe
- Acromag Modbus/TCP OPC Server: Acmbtcpopc.exe

Two components require configuration in order to operate properly:

1. Automated Solutions OPC Server (Asopc.exe)
2. OPC Server Browser (OpcEnum.exe)

Changes to Default DCOM settings could result in insufficient security for other DCOM enabled applications and should be reviewed and approved by your system/security administrator.

This document is divided into the following sections:

[Domain Configuration](#)

[DCOM Configuration](#)

[Windows Firewall Configuration](#)

[OPC/DCOM Additional Settings](#)

Domain Configuration

OPC Server and OPC Client PCs are members of the same domain

Proceed to section titled DCOM Configuration.

OPC Server and OPC Client PCs are members of two different domains

When you have multiple domains, settings in both domains must be made so that Domain A trusts users from Domain B and vice versa.

For DCOM to work properly, trust must be established on both domain controllers. Refer to Microsoft Windows Server documentation for information on how to setup trusts between domains.

Once the trusts have been setup on your domain controllers, proceed to section titled DCOM Configuration.

OPC Server and OPC Client PCs are not members of a domain

In the following section, Windows refers to Windows XP or higher; Windows 9x and ME are not supported.

If your Windows PCs are not members of a domain, then they are running as standalone machines. Every Windows PC has its own local database of trusted users regardless of whether it is a member of a domain. When a Windows PC is not a member of the domain, the ONLY user accounts it will trust are those it finds in its local security database.

If you attempt to connect to a remote server and are receiving an "Access Denied" or similar error, you are experiencing permission issues between the two PCs.

To alleviate the permission issue, all you need to do is create the EXACT SAME user account names AND passwords on BOTH PCs.

To verify proper permission settings, go to Network Neighborhood, browse from PC A to PC B and try to connect to PC B.

Once permissions are setup properly, you should proceed to section titled DCOM Configuration.

DCOM Configuration

Use these instructions to configure DCOM for OPC Servers running under Win XP, 2000, or NT 4.0.

OPC Server DCOM Configuration consists of three steps:

Step 1: Configure Default DCOM Settings

Step 2: Configure OPC Server DCOM Settings

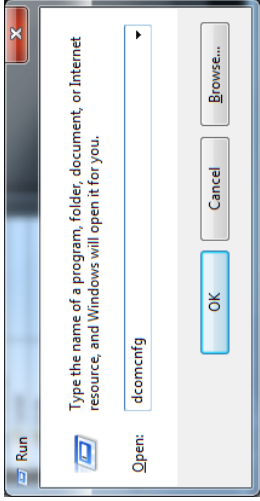Step 3: Configure OPC Server Browser DCOM Setting

The dialogs shown in the configuration instructions are captured from a Windows 7 system. For other Windows versions, the steps are essentially the same, however the look and feel of the dialogs may be slightly different.

When setting DCOM configuration and testing OPC Server for remote connectivity, it is recommended that Windows Firewall be temporarily disabled. After connectivity has been established, Windows Firewall should be re-enabled with exceptions to allow for OPC Server connectivity.
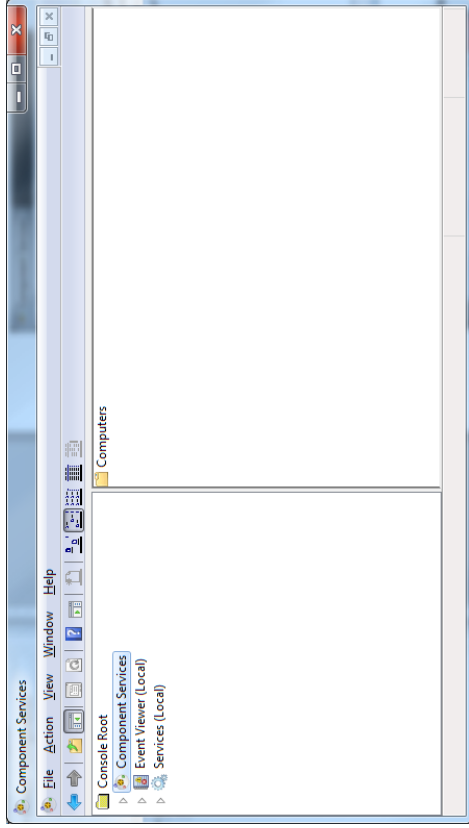
Step 1: Configure Default DCOM Settings
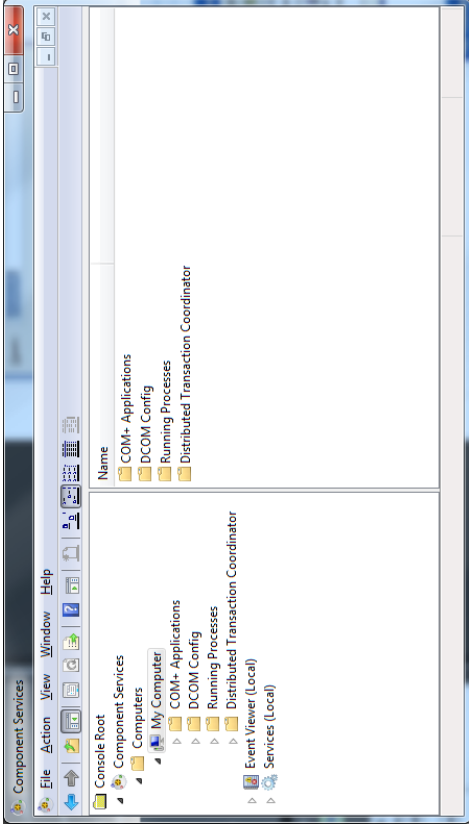
Run DCOM Configuration Tool

1. Open a Run prompt

2. In the 'Open:' list box, type in 'dcomcnfg'

Run

Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.

Open: dcomcnfg

[OK]   [Cancel]   [Browse...]

3. Click the [OK] button.

4. The Component Services dialog will appear

5. Navigate down the Component Services branch in the tree view until the 'My Computer' branch is selected.

Component Services

File   Action   View   Window   Help

Console Root
- Component Services
  - Computers
    - My Computer
      - COM+ Applications
      - DCOM Config
      - Running Processes
      - Distributed Transaction Coordinator
- Event Viewer (Local)
- Services (Local)

Name
COM+ Applications
DCOM Config
Running Processes
Distributed Transaction Coordinator

6. Click the Properties icon on the toolbar or right-mouse click on 'My Computer' and select 'Properties…' from the popup menu to display the 'My Computer Properties' dialog. The 'My Computer Properties' dialog will appear.

Configure Default Properties Tab

1. Select the 'Default Properties' tab.

My Computer Properties

Default Protocols		COM Security		MSDTC
General	Options		Default Properties	

☑ Enable Distributed COM on this computer

☐ Enable COM Internet Services on this computer

Default Distributed COM Communication Properties

The Authentication Level specifies security at the packet level.

Default Authentication Level:

Connect	▸

The impersonation level specifies whether applications can determine who is calling them, and whether the application can do operations using the client's identity.

Default Impersonation Level:

Identify	▸

Security for reference tracking can be provided if authentication is used and that the default impersonation level is not anonymous.

☐ Provide additional security for reference tracking

Learn more about setting these properties.

2. Select 'Connect' from the 'Default Authentication Level' dropdown list.

3. Select 'Identify' from the 'Default Impersonation Level' dropdown list.

OK   Cancel   Apply

Configure Default Protocols Tab

1. Select the 'Default Protocols' tab.

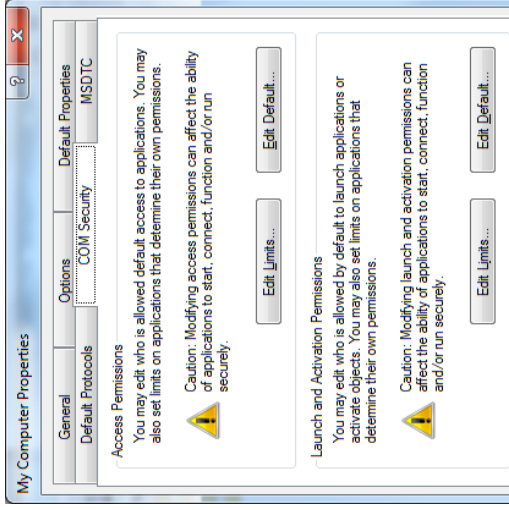Learn more about setting these properties.

OK   Cancel   Apply
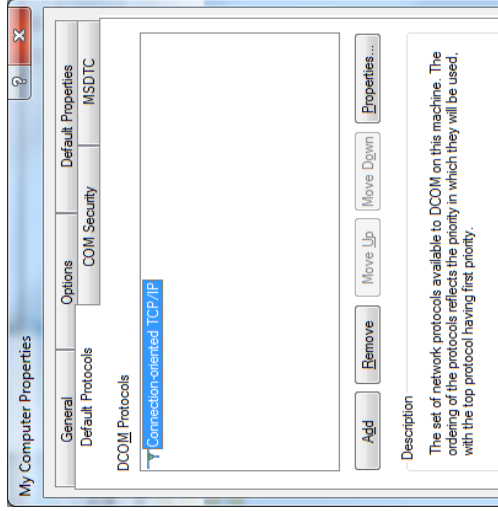
2. It is not necessary to make changes here for OPC, however, to minimize the DCOM timeout delay, you should move 'Connection-oriented TCP/IP to the top and remove unused protocols.

Configure COM Security Tab

1. Select the 'COM Security' tab.

Learn more about setting these properties.

OK   Cancel   Apply

2. In the 'Access Permissions' section, click the 'Edit Default' button.

Here you will set who will have access to OPC Servers and the OPC Server Browser on this machine.

3. Configure access permissions.

To allow very broad access you could add the domain group 'Everyone'.

Or, if you would rather not allow access to Everyone, create a domain group and add all logins that will be allowed to access OPC Servers and the OPC Server Browser, then add the group to the 'Group or user names' list.

4. Configure for local and/or remote access.

If remote OPC Clients will access the server, ensure that 'SYSTEM' is listed in the 'Group or user names' list box with the 'Allow' check box checked for 'Local Access' and 'Remote Access'. If not, click the [Add]

button, and then add 'SYSTEM'.

If local OPC Clients will also access the server, also include 'INTERACTIVE'.

5. Click the [OK] button.

6. In the 'Launch Permissions' section, click the 'Edit Default' button.

Here you will set who can launch OPC Servers and the OPC Server Browser on this computer.

7. Configure launch permissions.

To allow very broad access you could add the domain group 'Everyone'.

Or, if you would rather not give launch permission to Everyone, create a domain group and add all logins that will be allowed to launch OPC Servers and the OPC Server Browser, then add the group to the 'Group or user names' list.

8. Configure for local and/or remote Launch.

If remote OPC Clients will be allowed to launch OPC Servers and the OPC Server Browser, ensure that 'SYSTEM' is listed in the 'Group or user names' list box with the 'Allow' check box checked for 'Local Access' and 'Remote Access.' If not, click the [Add] button, then add 'SYSTEM'.
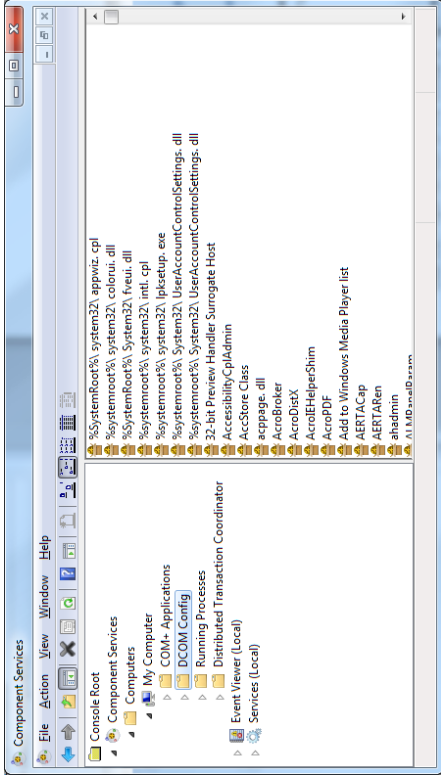
If local OPC Clients will also be allowed to launch OPC Servers and the OPC Server Browser, also include 'INTERACTIVE'.
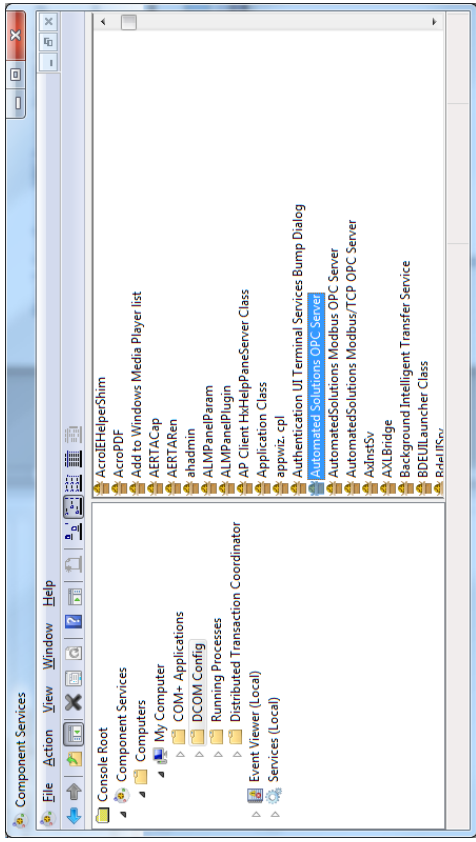
9. Click the [OK] button.

Step 2: Configure OPC Server DCOM Settings

Open Automated Solutions OPC Server Properties

1. From the Component Services dialog, navigate down the tree view until the 'DCOM Config' branch is selected.

Component Services

Console Root
Component Services
  Computers
    My Computer
      COM+ Applications
      DCOM Config
      Running Processes
      Distributed Transaction Coordinator
Event Viewer (Local)
Services (Local)

%SystemRoot%\system32\appwiz.cpl
%systemroot%\system32\colorui.dll
%SystemRoot%\System32\fveui.dll
%systemroot%\system32\intl.cpl
%systemroot%\system32\lpksetup.exe
%systemroot%\System32\UserAccountControlSettings.dll
%systemroot%\System32\UserAccountControlSettings.dll
32-bit Preview Handler Surrogate Host
AccessibilityCplAdmin
AccStore Class
acppage.dll
AcroBroker
AcroDistX
AcroIEHelperShim
AcroPDF
Add to Windows Media Player list
AERTACap
AERTARen
ahadmin
ALMDanalParam

2. Select 'Automated Solutions OPC Server' in the list view

3. Click the Properties icon on the toolbar or right-mouse click on 'Automated Solutions OPC Server' and select 'Properties…' from the popup menu to display the 'Automated Solutions OPC Server Properties' dialog.

Automated Solutions OPC Server Properties

General | Location | Security | Endpoints | Identity

General properties of this DCOM application

Application Name: Automated Solutions OPC Server

Application ID: {EC9DD3E1-A737-11d6-830C-0050DA2CCA1A}

Application Type: Local Server

Authentication Level: Default

Local Path:

Learn more about setting these properties.

OK

Cancel

Apply

Configure General Tab

1. Select the 'General' tab.
2. Select 'Default' from the 'Authentication Level' dropdown list.
3. Authentication level will default to 'Connect' since we set the Default Authentication Level to 'Connect' earlier.

Configure Location Tab

1. Select the 'Location' tab.
2. Check the 'Run application on this computer' check box.
3. Uncheck all other check boxes

Configure Security Tab

1. Select the 'Security' tab.
2. For Launch Permissions we recommend that you check the "Use Default' option.

If you use the 'Customize' option, ensure that adequate OPC Server users and/or groups are added.

3. For Access Permissions, we recommend that you check the 'Use Default' option.

If you use the 'Customize' option, ensure that adequate OPC Server users and/or groups are added.

4. For Configuration Permissions we recommend that you use the value that the dialog defaulted to.

If you use the 'Customize' option, ensure that adequate OPC Server users and/or groups are added.

Configure Endpoints Tab

1. Select the 'Endpoints' tab.

It is not necessary to make changes here for OPC, however, to minimize the DCOM timeout delay, you should move 'Connection-oriented TCP/IP to the top and remove unused protocols.

Configure Identity Tab

1. Select the 'Identity' tab

Automated Solutions OPC Server Properties

General | Location | Security | Endpoints | Identity

Which user account do you want to use to run this application?

○ The interactive user.

◉ The launching user

○ This user.

    User:

    Password:

    Confirm password:

    Browse...

○ The system account (services only).

Learn about setting these properties.

[OK] [Cancel] [Apply]

2. User account selection depends on the intended operation of the OPC Server PC.

There are two options for DCOM Servers:

- Attended Operation

  Requires a user to be logged into the PC.

- Unattended Operation

  Allows the OPC Server to be launched from a local or remote OPC Client. The OPC Server runs under a specified user account and does not require a user to be logged into the PC.

The table below describes user account options

Account	Description
This user	Use this setting for unattended or attended operation
	If there will not be anyone logged-on to the PC where the OPC Server is running, we recommend that you select the 'This user' option and specify a user name and password. This will allow the OPC Server to start with no one logged onto the PC.
	You can also use this option if someone is logged on to the PC.
	If this option is selected and the server is started locally, the User account must have Admin privileges to make OPC Server configuration changes.
The interactive user	Use this setting for attended operation
	In general, we recommend using the 'This user' option discussed above. With this option, when a remote OPC Client launches the server, the server will not show up on your taskbar.
	Alternately, if a user will always be logged-on to the PC where the OPC Server is running, you can select 'The interactive user' because there will be an interactive user under which to run the OPC Server.

	If 'The interactive user' option is selected, when a remote OPC Client launches the server, the server will show up on your taskbar.
	If either option is selected and the server is started locally, the logged-in user must have Admin privileges to make OPC Server configuration changes.
The launching user	Do not use this setting.

In the example below, 'This user' is specified, the user name is 'OPC_USER' and the user domain is 'DOMAIN1'.

Automated Solutions OPC Server Properties

| General | Location | Security | Endpoints | Identity |

Which user account do you want to use to run this application?

- ○ The interactive user.
- ○ The launching user.
- ● This user.

User: `DOMAIN1\OPC_USER` [Browse...]

Password:

Confirm password:

- ○ The system account (services only).

Learn more about setting these properties.

3. After configuring a user account, click the 'OK' button.

Step 3: Configure OPC Server Browser DCOM Settings

The OPC Server enumeration service allows local or remote OPC Clients to enumerate (browse) OPC Servers on a PC. OPCEnum.exe is the OPC Server Enumerator service name. OPCEnum.exe was developed by the OPC Foundation.

To configure OPC Server Enumerator, follow the instruction in Step 2: 'Configure OPC Server DCOM Settings', except substitute 'OpcEnum' for 'Automated Solutions OPC Server'

Windows Firewall Configuration

When setting DCOM configuration and testing OPC Server for remote connectivity, it is recommended that Windows Firewall be temporarily set to 'Off'.

After connectivity has been established, Windows Firewall should be re-enabled with OPC-specific exceptions added to allow for OPC Server connectivity.

If Windows Firewall is permanently set to 'Off' on your system, you can skip this section.

Configuring Windows Firewall

Administrative rights are required to perform the following steps.

Open Windows Firewall Application

1. Open Control Panel
2. Run "Windows Firewall" applet.
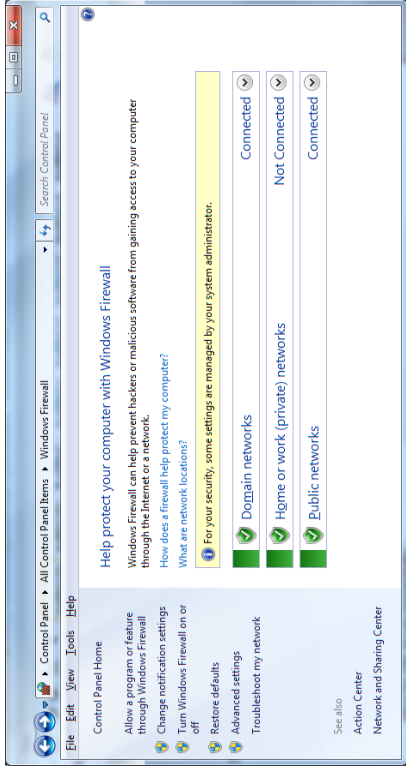
3. Click the 'Change Settings' button, this will enable the 'Allow another program...' button.

4. Click 'Allow Another Program' button

Windows Firewall ▸ Allowed Programs ▾ | Search Control Panel

File Edit View Tools Help

Allow programs to communicate through Windows Firewall

To add, change, or remove allowed programs and ports, click Change settings.

What are the risks of allowing a program to communicate?

🛡 Change settings

ⓘ For your security, some settings are managed by your system administrator.

Allowed programs and features:

Name	Domain	Home/Work (Pri...	Public	Group Policy
☐ Media Center Extenders	☐	☐	☐	No
☑ Microsoft Office Outlook	☑	☐	☑	No
☑ Microsoft Office Outlook	☑	☐	☐	No
☑ Microsoft OneNote	☑	☐	☐	No
☐ Microsoft Outlook	☐	☐	☐	No
☐ Microsoft Outlook	☐	☐	☐	No
☑ Microsoft SharePoint Workspace	☑	☑	☑	No
☑ Microsoft SkyDrive	☑	☐	☐	No
☑ MiniHMI	☑	☑	☑	No
☑ MiniHMI Example Application	☑	☐	☐	No
☐ Netlogon Service	☐	☐	☐	No
☑ netsession_win.exe	☑	☑	☑	No

Remove

Details...

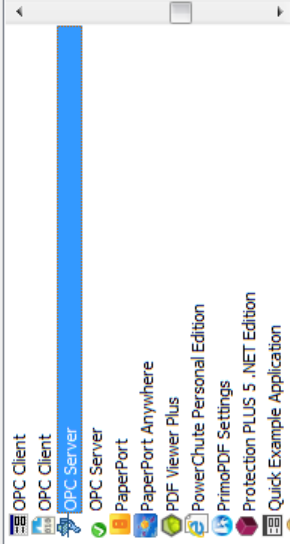Allow another program...

OK   Cancel
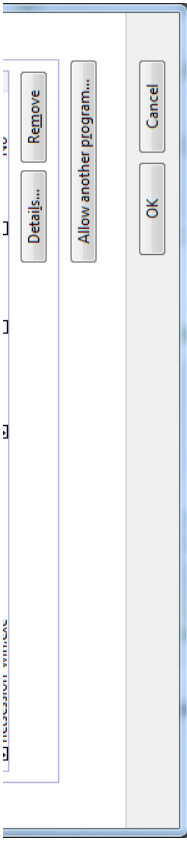
5. In the 'Add a Program' dialog, select 'OPC Server' from the list if present.

Add a Program

Select the program you want to add, or click Browse to find one that is not listed, and then click OK.

Programs:

- OPC Client
- OPC Client
- OPC Server
- OPC Server
- PaperPort
- PaperPort Anywhere
- PDF Viewer Plus
- PowerChute Personal Edition
- PrimoPDF Settings
- Protection PLUS 5 .NET Edition
- Quick Example Application

Path: C:\Program Files (x86)\Automated Solutions\(

Browse...

What are the risks of unblocking a program?

You can choose which network location types to add this program to.

Network location types...

Add   Cancel

If 'OPC Server' is not present, click the Browse button and add it manually.

Default file locations:

32-bit Windows: "C:\Program Files\Automated Solutions\OPC\Asopc.exe"
64-bit windows: "C:\Program Files (x86)\Automated Solutions\OPC\Asopc.exe"

6. Click the [OK] button.

Windows XP SP2 and Higher Users Additional Settings

Refer to this document for additional settings required for Windows XP SP2 or higher

Using OPC via DCOM with XP SP2