



OPC DA Driver Agent Help

*OPC Data Access Driver Agent
for OPC Servers*

Version 9

OPC DA DRIVER AGENT HELP

For OPC Data Access Servers

Version 9

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INTRODUCTION

The Cyberlogic OPC Server provides OPC Data Access, Alarms & Events and XML Data Access functions, and has a modular structure that supports a variety of industrial devices and communication networks. The various communication subsystems, which we call driver agents, are plug-ins that you can easily add as required. As a result, the server maintains a set of common features, but has the flexibility to allow additional features as required by the specific driver agent.

The OPC DA Driver Agent is one of these plug-in modules. It allows the Cyberlogic OPC Server to communicate to other OPC DA servers. This may be done whether the other OPC servers are on the local system or on another computer on the network, and may also be done regardless of the brand of OPC servers used.

The OPC DA Driver Agent is included with the following Cyberlogic OPC products:

- MBX OPC Enterprise Suite
- DHX OPC Enterprise Suite
- OPC Crosslink, OPC Crosslink Premier and OPC Crosslink Enterprise Suites
- OPC Datacenter and OPC Datacenter Premier Suites

The OPC DA Driver Agent allows you to configure the Cyberlogic OPC Server as an OPC data concentrator and to set up redundant OPC servers. And configuring the OPC DA Driver Agent is just as easy as configuring an ordinary OPC server to communicate with a PLC.

Note

This document includes only the information that is specific to the OPC DA Driver Agent. For information on the common features of the Cyberlogic OPC Server, refer to the [Cyberlogic OPC Server Help](#).

Compatibility and Compliance

The OPC DA Driver Agent is part of Cyberlogic's family of OPC products. A Cyberlogic OPC Server with the OPC DA Driver Agent can communicate not only with other Cyberlogic OPC servers, but also with any OPC Foundation compliant server from any other supplier. All specification levels, including OPC Data Access 3.0, 2.05a and 1.0a, are supported.

Cyberlogic OPC products provide full compliance with the OPC Foundation specifications for:

- Data Access 3.0, 2.05a and 1.0a
- Alarms & Events 1.1
- XML Data Access 1.0
- Data Access Automation 2.02

These products are tested for compliance to the OPC specifications using the latest test software from the OPC Foundation. All Cyberlogic OPC products are certified for compliance by the OPC Foundation's Independent Testing Laboratory. In addition, they are tested annually for interoperability with other OPC products at the OPC Foundation's Interoperability Workshops.

WHAT SHOULD I DO NEXT?

The links below will take you directly to the section of this manual that contains the information you need to configure, use and troubleshoot the OPC DA Driver Agent.

This document describes only the features specific to the OPC DA Driver Agent. For information on the common features of the Cyberlogic OPC Server, refer to the [Cyberlogic OPC Server Help](#).

Learn How the OPC DA Driver Agent Works

If you are not familiar with the way that the OPC DA Driver Agent obtains data from other OPC Servers, you should begin by reading the [Theory of Operation](#).

Read a Quick-Start Guide

First-time users of the OPC DA Driver Agent will want to refer to the [Cyberlogic OPC Server Help](#) for a quick-start guide, which walks through a typical configuration session, step-by-step.

Get Detailed Information on the Configuration Editors

Experienced users who want specific information on features of the configuration editors will find it in the [Configuration Editor Reference](#) section.

Verify That It's Working or Troubleshoot a Problem

If you have already configured the server, you should verify that it operates as expected. Refer to the [Validation & Troubleshooting](#) section for assistance. In case of communication problems, this section also provides problem-solving hints.

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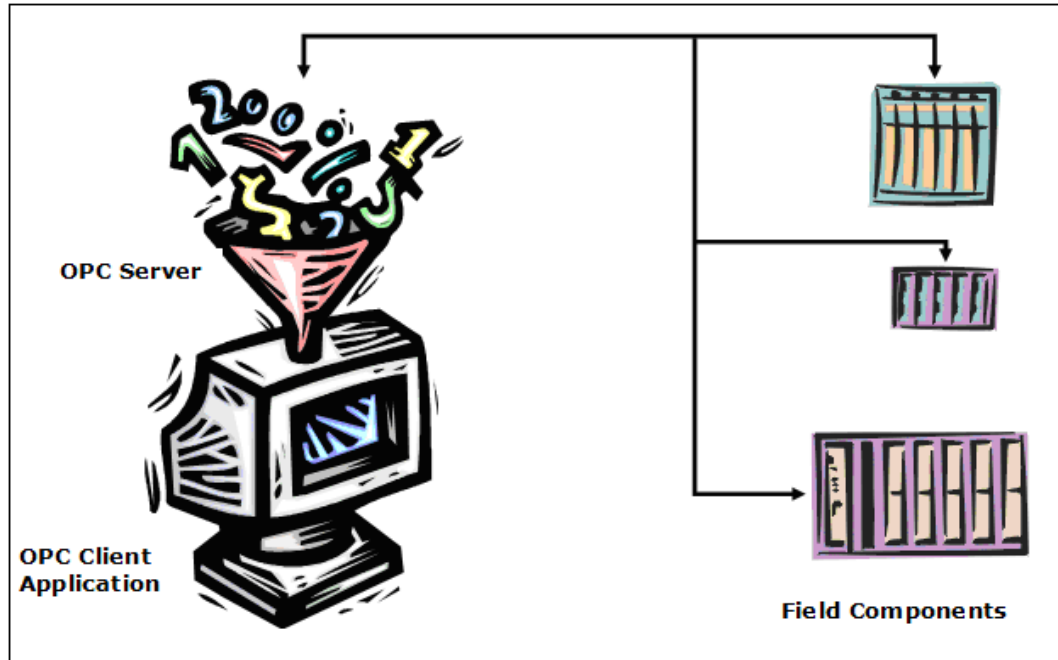
The content of this document is also provided in PDF format. PDF files can be viewed using the Adobe® Reader program, and can also be used to print the entire document.

Contact Technical Support

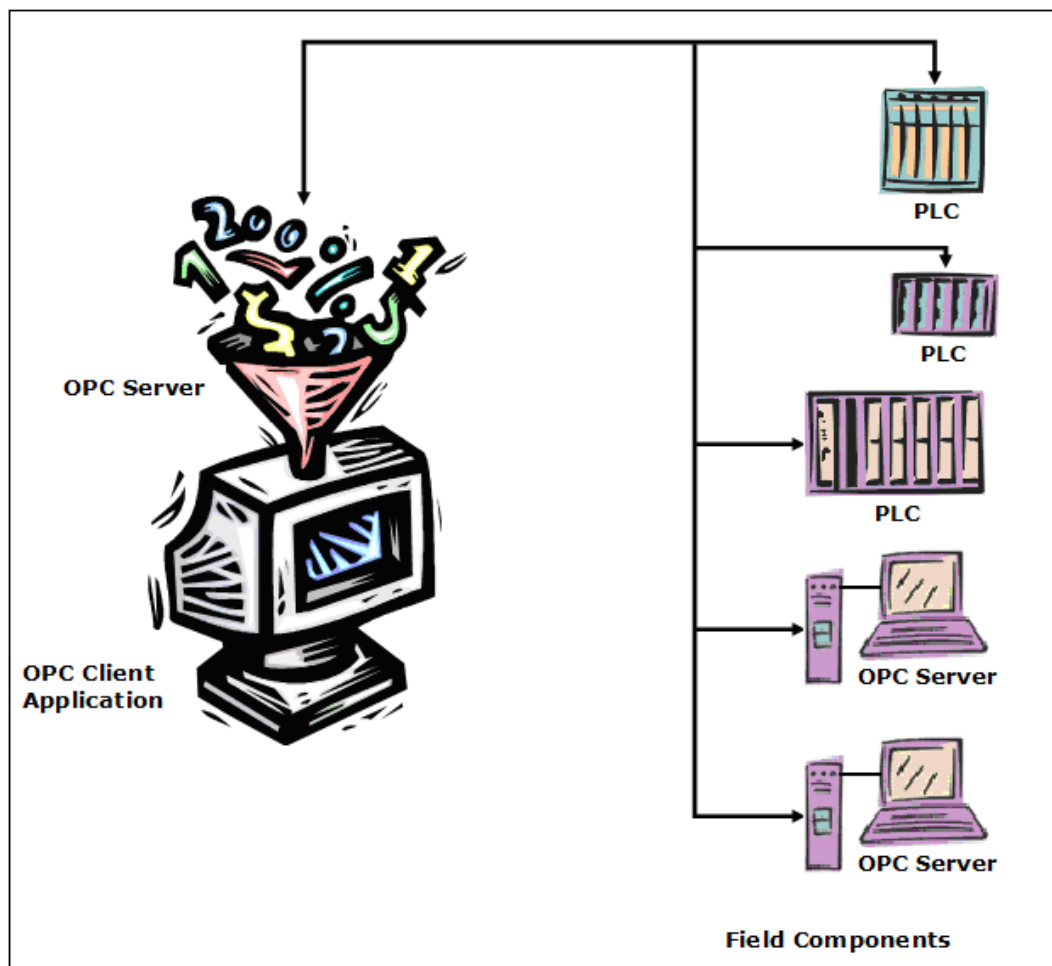
To obtain support information, open the Windows **Start** menu and go to **Cyberlogic Suites**, and then select **Product Information**.

THEORY OF OPERATION

This section will familiarize you with the main features of the Cyberlogic OPC Server as they relate to the OPC DA Driver Agent. Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of the common features of the Cyberlogic OPC Server. If you are new to OPC or the Cyberlogic OPC Server, we strongly recommend that you read the OPC Tutorial first. You will find it in the Help section of your product installation.



The basic function of an OPC server is illustrated in the figure above. The server obtains data from field components and presents it, in a standard way, to OPC client applications. Typically, these field components are PLCs or similar devices, and the various driver agents are plug-in software modules that accommodate the differences in communication and data handling for the different families of controllers.



The OPC DA Driver Agent is an optional plug-in module for Cyberlogic’s OPC Server that treats other OPC servers like field components and communicates with them just as other driver agents communicate with PLCs. And, just as other driver agents allow you to set up groups of redundant PLCs, the OPC DA Driver Agent allows you to set up groups of redundant OPC servers.

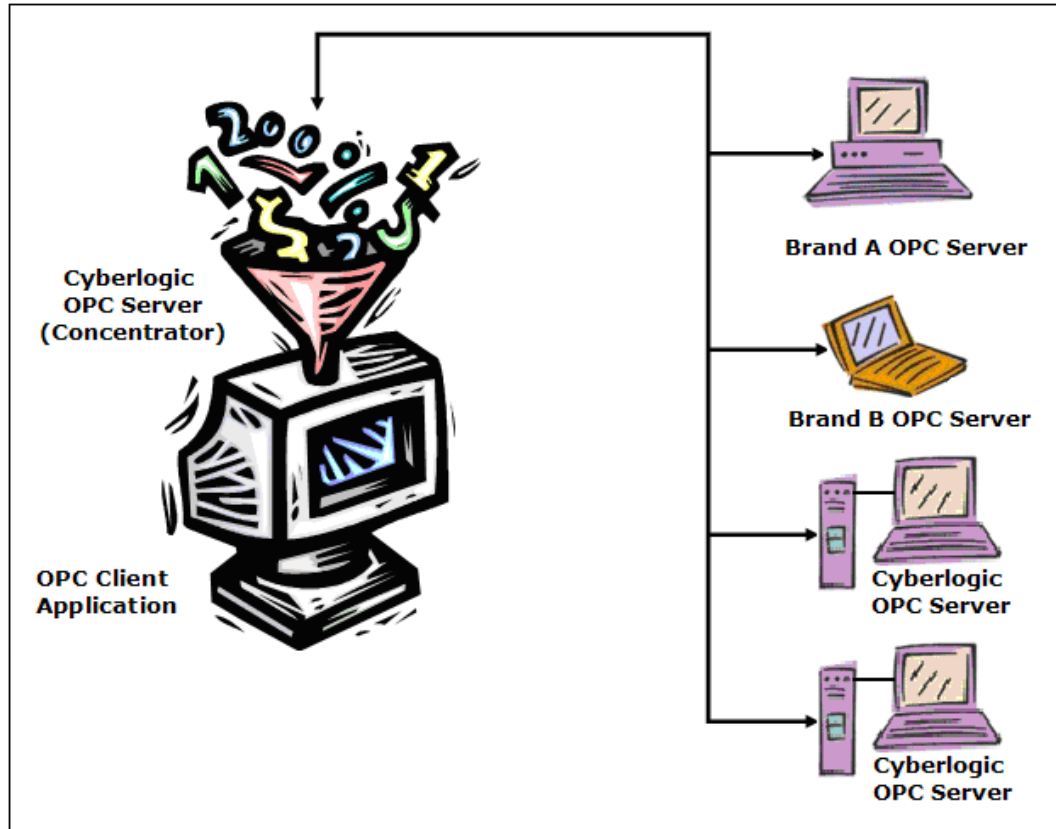
This is made possible by the device-level redundancy that is a standard part of Cyberlogic’s OPC Server. When configuring a device, you can associate an unlimited number of OPC servers with that device, in a prioritized list. This list tells your OPC server the order that it should use to try to communicate with the listed data sources. If the OPC server at the top of the list is not available, the next one on the list—and then the next, and so on—will be tried until communication can be established. Once communication is established, the data from that device will be available to all OPC client software applications that wish to use it.

OPC DA Driver Agent Examples

There are many ways that the OPC DA Driver Agent can be used in your OPC server configuration. This section gives examples of two of them. Keep in mind that you are not limited to just these simple setups. They can be combined to create, for example, a data concentrator that obtains its data from multiple groups of redundant OPC servers.

OPC Data Concentrator

A Cyberlogic OPC Server can connect to several other OPC servers, providing a single access point for all of the data.



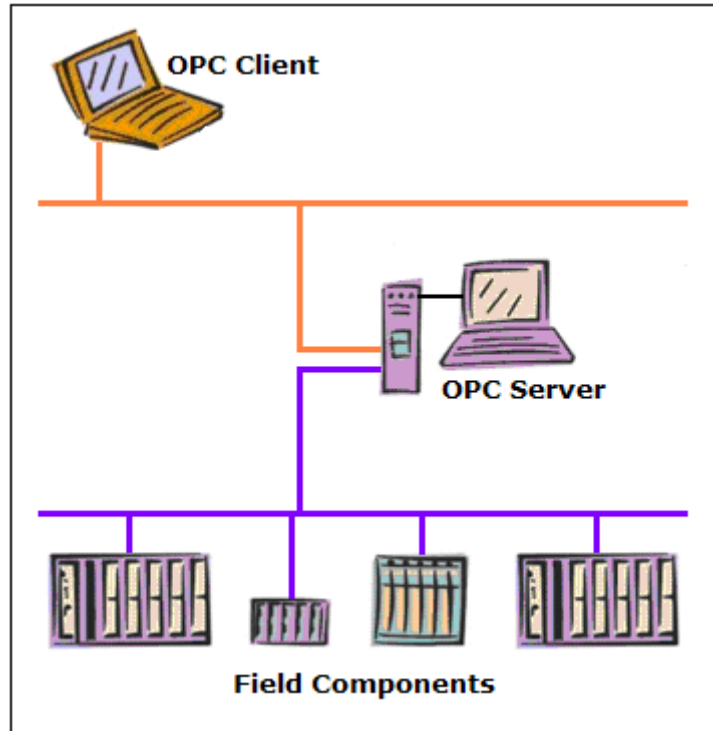
Suppose your facility has several OPC servers, perhaps of different brands, gathering data from various areas of your plant. It is possible for the client software to connect to each of these servers to obtain the data it needs. However, it may simplify the client configuration to instead have a single OPC server get the data from all of the other servers. Now the clients need only to connect to this data concentrator to get all of the information they need.

Such a system will avoid the complications involved in having to connect every client to every server. It allows the data to be organized in an orderly and consistent way in the data concentrator, even if the individual OPC servers are of different brands and were configured by different people at different times. If conversions, range limits or simulations are needed, they can be applied on a single server, rather than being configured many times on several different servers.

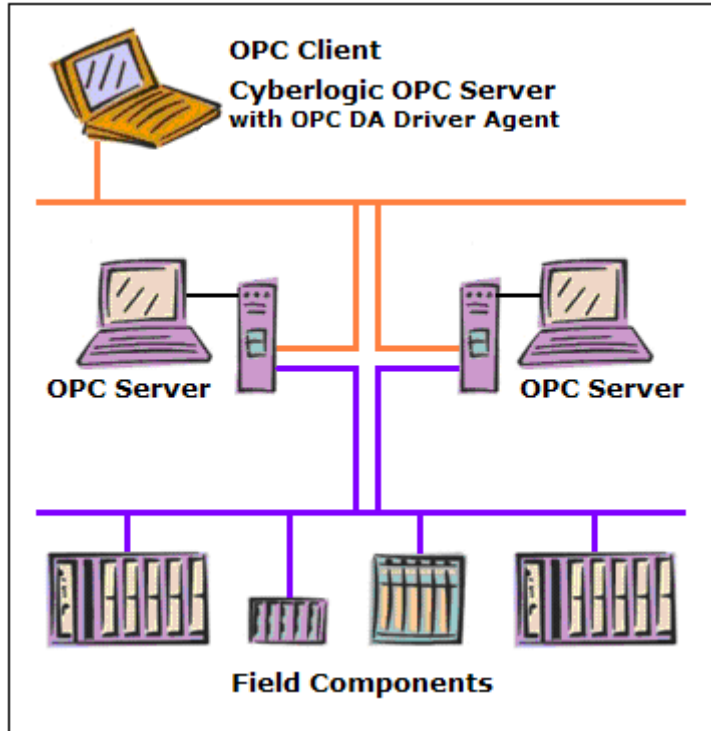
Another benefit of the OPC data concentrator setup is that it can allow servers to provide data to clients even if their spec levels do not match. For example, suppose your client software requires OPC DA 3.0, but it needs to obtain data from a server that is compliant only to 2.05a. Normally, this would not be possible. But a Cyberlogic OPC Server with the OPC DA Driver Agent can obtain data from a DA 2.05a compliant server and can provide data to a DA 3.0 compliant client. By passing the data through the Cyberlogic OPC Server, you can effectively upgrade the compliance level of your other OPC software.

Server Level Redundancy

Critical applications may require you to have a backup OPC server on line and ready to take over if the primary server fails. Cyberlogic's OPC Server provides this capability and, unlike other redundant server products, allows you to configure an unlimited number of backup servers.



In the configuration shown above, the OPC server is a single point of failure. If that computer fails or is shut down for any reason, the client will lose all access to data until the server is restored to operation.

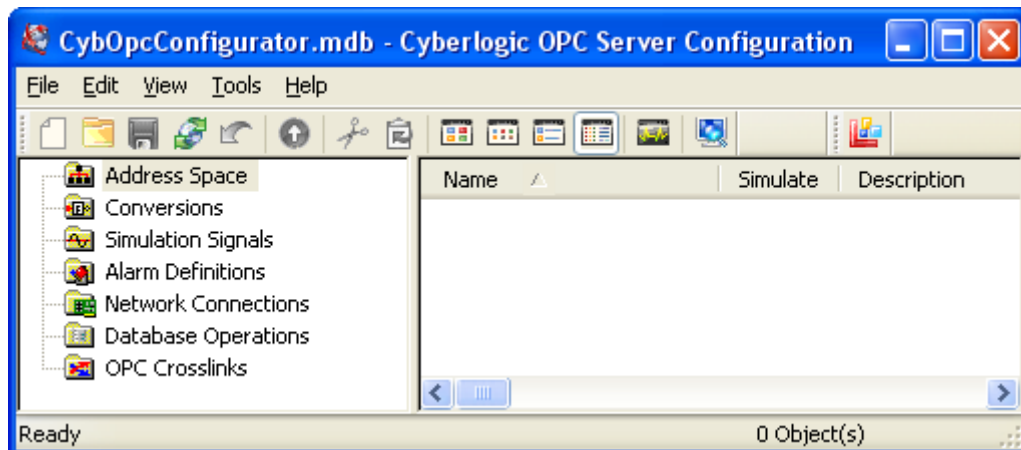


If you install the Cyberlogic OPC Server with the OPC DA Driver Agent on the client system and set up two identical servers, the server on the client system can treat them as a redundant pair. Both servers can be associated with a single device, which will use the primary server to obtain data. If that server should fail, the data access will automatically switch to the other server.

You are not restricted to just two servers. Cyberlogic's OPC Server allows you to associate an unlimited number of servers with a single device, so you can have two, three, four or more backup servers.

Main Server Features

We will now look at the main features of the Cyberlogic OPC Server, as they relate to OPC DA Driver Agent communication.



When you open the Cyberlogic OPC Server Configuration editor, you will find several main trees. These trees represent the main areas that you will configure. Note that some are for premium features that may not be part of the product you have installed, so they will not appear in your configuration. The trees are:

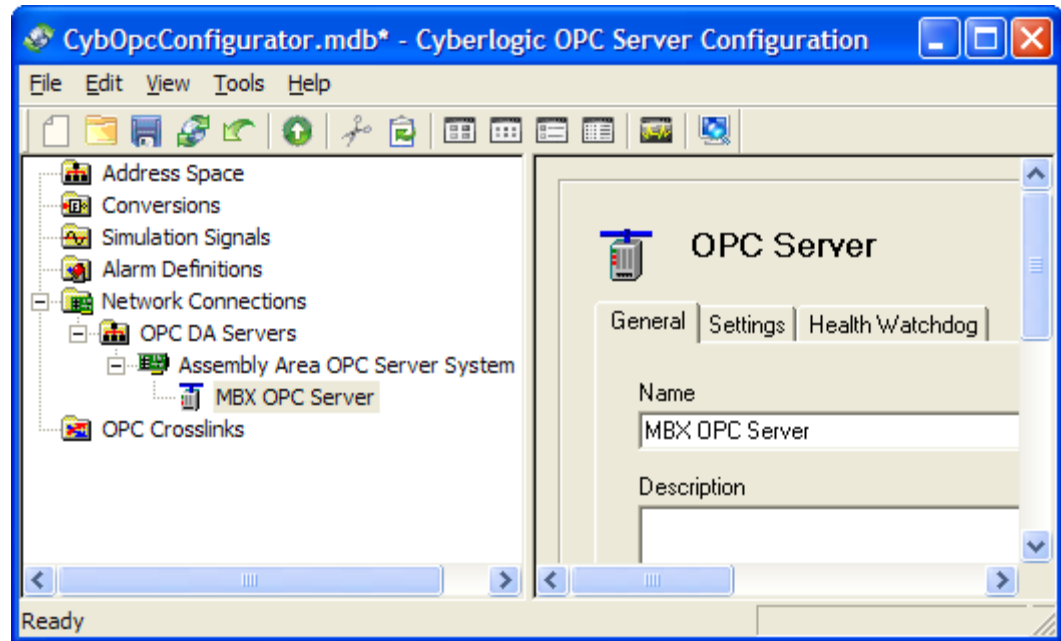
- The [Address Space Tree](#) is required for most configurations. Here you will create and organize the data items that will be available to the client application, and you will define how they are updated with new information.
- The Conversions Tree is optional. In it, you can define formulas that can be used to convert raw data values obtained from the field equipment into a form that is more useful to the client. For example, you can change a transducer's voltage value into a pressure value in psi. Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of this tree.
- The Simulation Signals Tree is optional. If you want to be able to use simulated data item values instead of real values, you can create various types of simulated data functions in this tree. Simulations are often useful for troubleshooting client applications. Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of this tree.
- The Alarm Definitions Tree is another optional tree. It is used when you will interface to Alarms & Events clients. This tree allows you to define the desired alarm conditions and specify what information should be passed as they occur and clear. Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of this tree.
- The [Network Connections Tree](#) is required for all configurations. This is where you select the networks and interface devices you will use, and configure each of the field components as nodes on those networks.
- The Database Operations Tree is part of the logging feature, which is a premium feature. If this tree is in your product, you can use it to configure databases and data logging operations. Refer to the [Data Logger Help](#) for a full discussion of this tree.
- The OPC Crosslinks Tree is part of OPC Crosslink, which is a premium feature. If this tree is in your product, you can use it to configure data transfers between PLCs, between OPC servers and between PLCs and OPC servers. Refer to the [OPC Crosslink Help](#) for a full discussion of this tree.

The following sections describe these operational features of the server. Because the Network Connections Tree is normally configured first, we will start there.

Network Connections Tree

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of this tree.

The network connections tree is where you designate the computers and OPC servers you want to connect to.



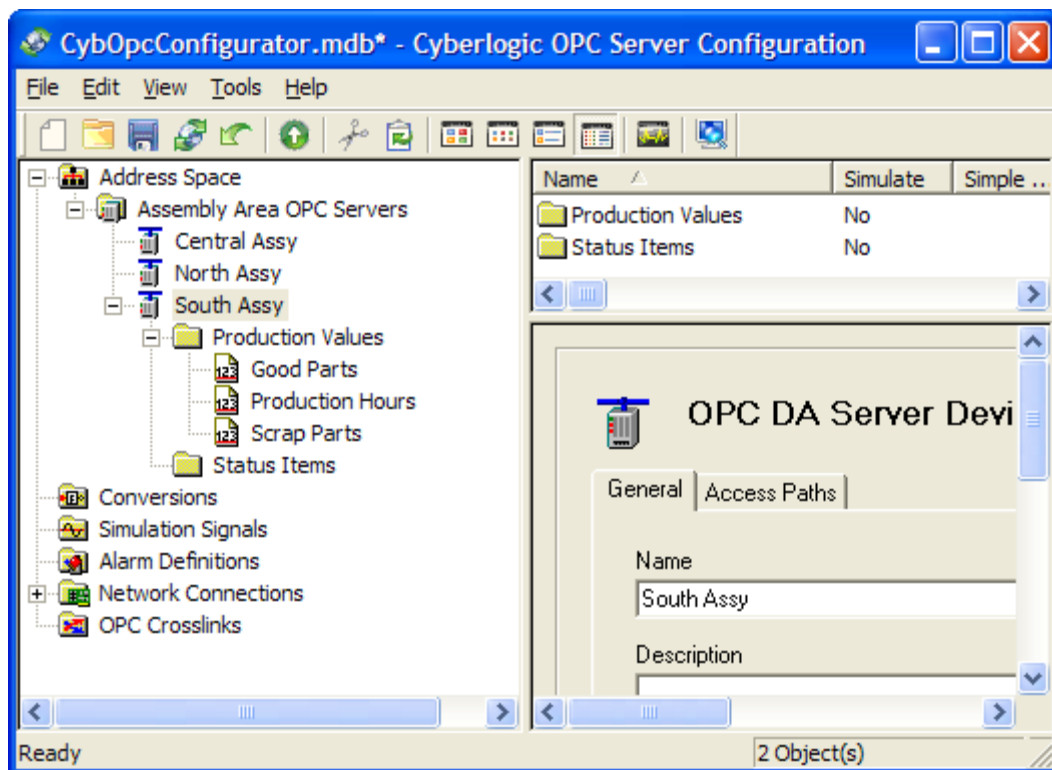
The configuration of the network connections tree for the OPC DA Driver Agent is somewhat different than for other driver agents. Instead of selecting a network device and a PLC, you will select a computer and an OPC server.

The server then allows you to treat the connected OPC servers in the same manner as network nodes. When you configure the [Address Space Tree](#), you can create access paths to the OPC servers, thereby allowing an address space device to represent an OPC server.

Address Space Tree

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of this tree.

The address space tree allows you to organize the data items in a way that makes sense for your project. You can group and name related data items regardless of where they exist in the physical devices.



The branches of the tree are device folders, devices and folders. These establish how the data items are organized. For OPC DA Driver Agent configurations, the devices represent source OPC servers and the data items are tags within these servers.

Access Paths

An access path is a logical connection to an OPC server. These connections link the data items in an address space device with their values in an OPC server that was previously defined in the Network Connections tree.

Each OPC server device in the address space can have a list of associated access paths. If there are more than one, the access path at the top of the list is the primary access path, and the rest are backups. It is this ordered list of access paths that allows you to configure redundancy at the OPC server level.

You can create and edit access paths on the device's [Access Paths Tab](#).

Data Items

A data item represents a data item in the OPC server you wish to access. It is identified by its ItemID, which may be entered directly or selected by browsing. To simplify the configuration of large numbers of data items, a DirectImport feature allows you to import all or part of an OPC server's configured addresses with just a few mouse clicks.

Conversions Tree

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of this branch.

Simulation Signals Tree

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of this branch.

Alarm Definitions Tree

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of this branch.

OPC Crosslinks Tree

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion of this branch.

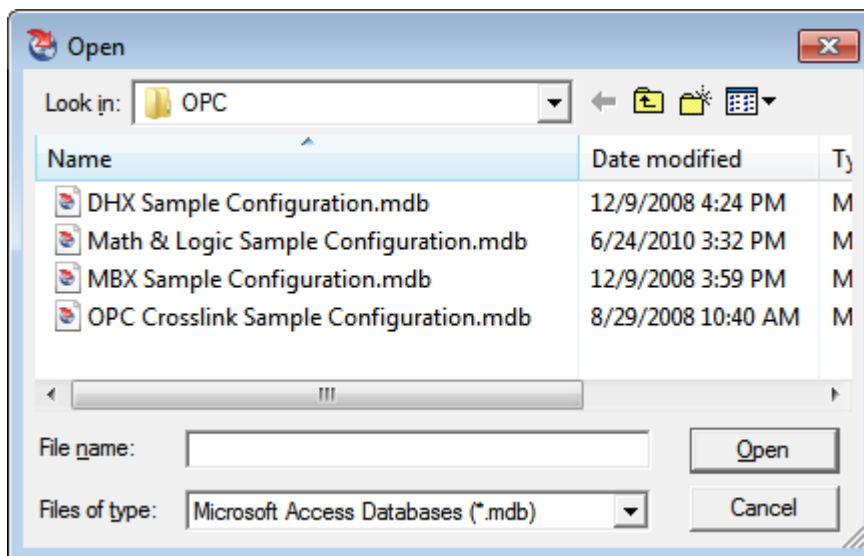
QUICK-START GUIDE

Before you can use the OPC server, you must configure it by using the OPC Server Configuration Editor. Every server requires configuration of the Network Connections tree, and most users will want to configure the Address Space tree. The remaining trees (Conversions, Simulation Signals, Alarm Definitions and OPC Crosslinks) are optional features used by some systems.

Sample Configuration Files

The default installation of all Cyberlogic OPC Server Suites includes a set of sample configuration files. These samples will help you to understand how to configure the OPC server for your project. In addition, the OPC Math & Logic sample provides you with numerous sample programs that you can modify and use in your system.

To open a sample configuration file from the OPC Server Configuration Editor, open the **File** menu and then select **Open Sample...**



A browse window will open to allow you to select the configuration file you want. The available choices will depend on which OPC products you have installed.

The default location of the files is:

C:\Program Files\Common Files\Cyberlogic Shared\OPC.

Step-By-Step Example

For a step-by-step guide through a typical configuration session, refer to the [Cyberlogic OPC Server Help](#). After you have created the basic OPC DA Driver Agent configuration using that procedure, the [Configuration Editor Reference](#) will explain the details of how to edit your configuration.

CONFIGURATION EDITOR REFERENCE

Before you can use the OPC server, you must configure it by using the OPC Server Configuration Editor. Every server requires configuration of the Network Connections tree, and most users will want to configure the Address Space tree. The remaining trees (Conversions, Simulation Signals, Alarm Definitions and OPC Crosslinks) are optional features used by some systems.

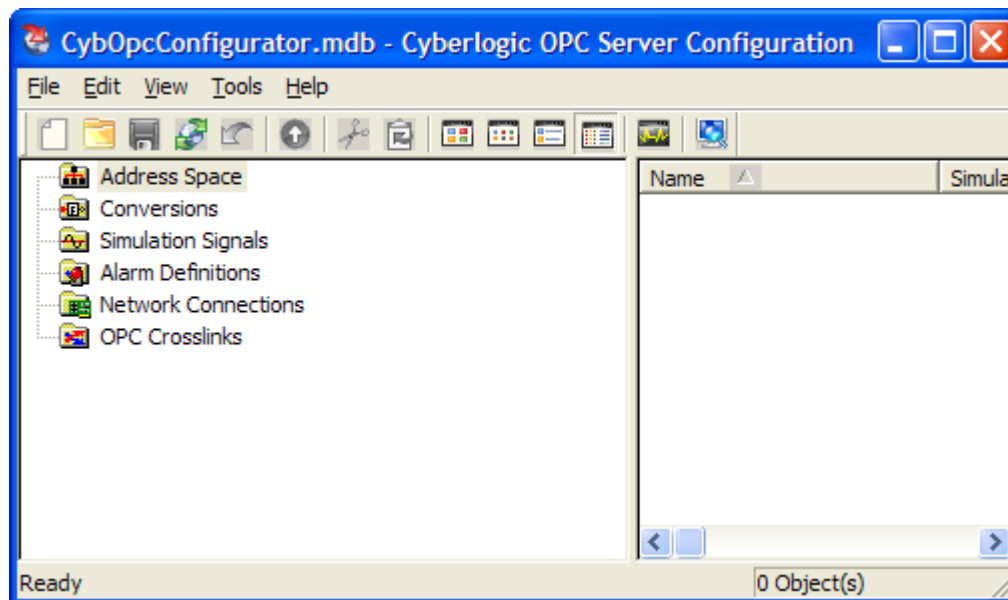
This section provides a detailed description of each of the configuration editor features as they relate to the OPC DA Driver Agent. If you are a new user and want a procedure to guide you through a typical configuration session, refer to the [Cyberlogic OPC Server Help](#) for a quick-start guide.

The Cyberlogic OPC Server Configuration Editor allows the user to create and modify the configuration file used by the runtime module. It is needed only to generate configuration files and is not otherwise required for the operation of the runtime module.

Caution!

After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.

To launch the editor from the Windows **Start** menu, go to **Cyberlogic Suites**, then open the **Configuration** sub-menu, and then select **OPC Server**.



The left pane of the main workspace window includes the six main configuration trees. Two of these, the [Network Connections](#) and [Address Space](#) trees, are described in detail here, followed by a section on [Saving and Undoing Configuration Changes](#).

For a discussion of the Conversions, Simulation Signals, Alarm Definitions and OPC Crosslinks trees and other important configuration topics including Configuration

Import/Export, Editor Options and Connecting to OPC Client Software, please refer to the [Cyberlogic OPC Server Help](#).

Network Connections

The OPC DA Driver Agent is a plug-in software module that permits the Cyberlogic OPC Server to communicate with other OPC DA servers. You can do this by configuring appropriate connections to computers and OPC servers in the [Network Connections Tree](#).

Within the Network Connections tree, the OPC DA Servers folder contains two levels of branches: computers and OPC servers. A computer may be the local computer or any other computer accessible over a network. An OPC server is a configured OPC server program that is running on the configured computer. These may be Cyberlogic OPC Servers or any other brand of server that complies with the OPC Foundation's Data Access specifications.

Creating and Deleting

There are two ways to create the computers and OPC servers: automatic and manual.

Caution!

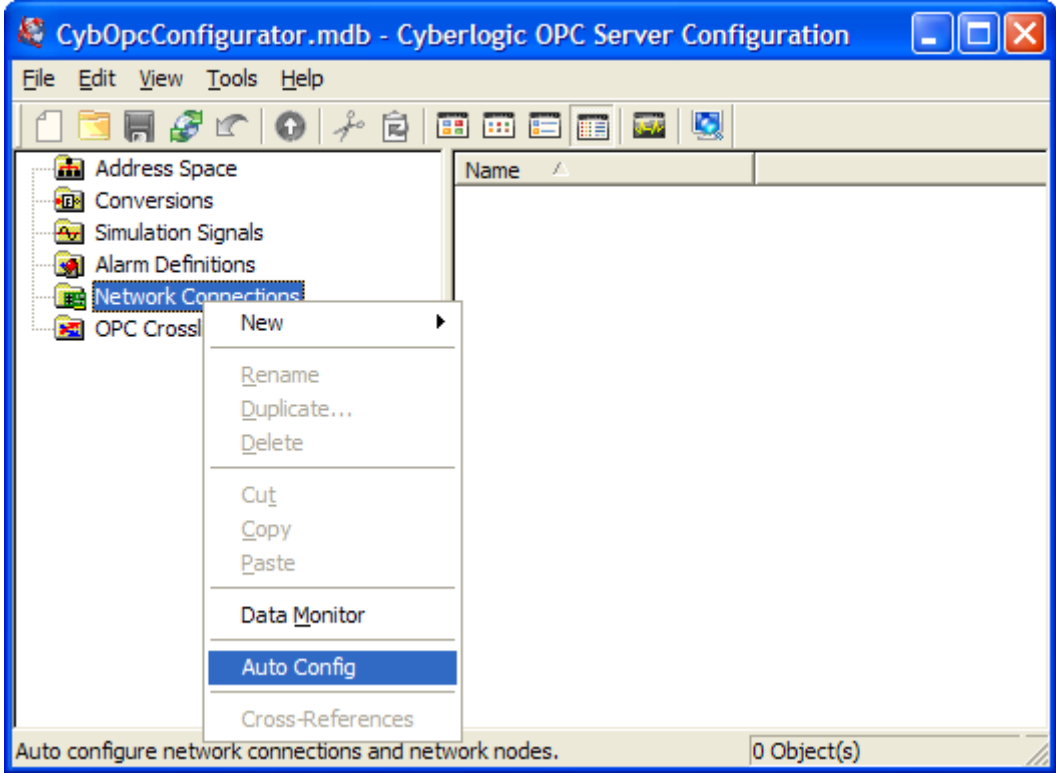
After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.

Automatic Configuration

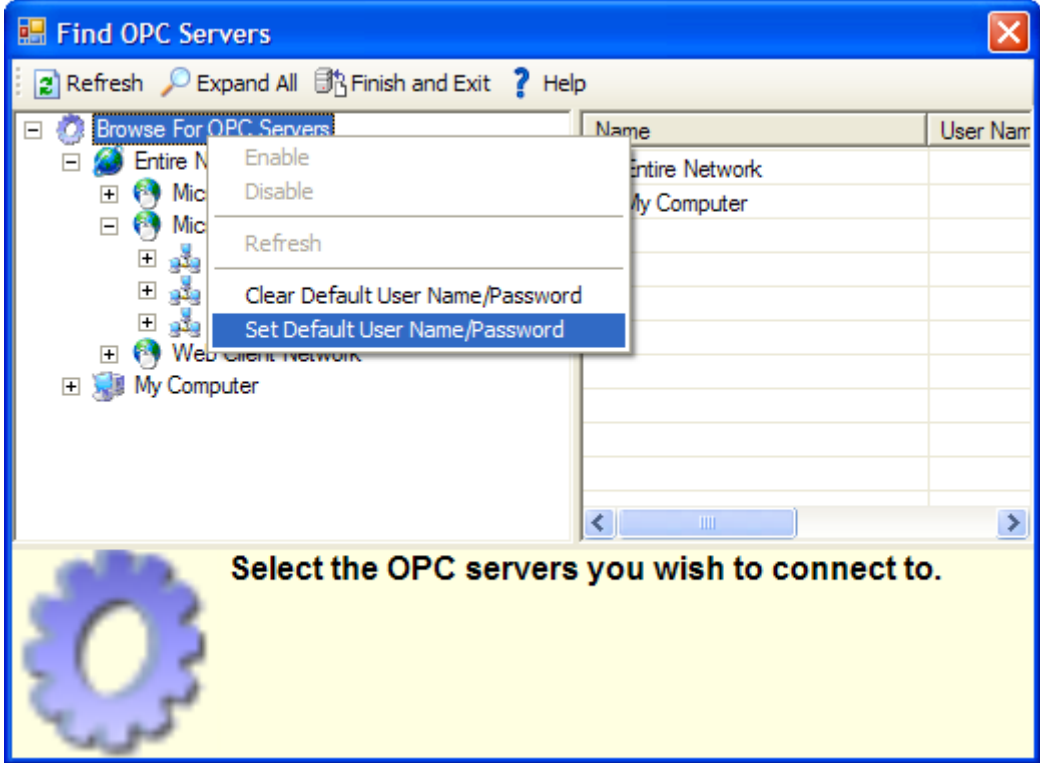
The simplest method of configuration is automatic configuration. The automatic configuration feature scans for computers and OPC servers that you can select for configuration.

Full Automatic Configuration

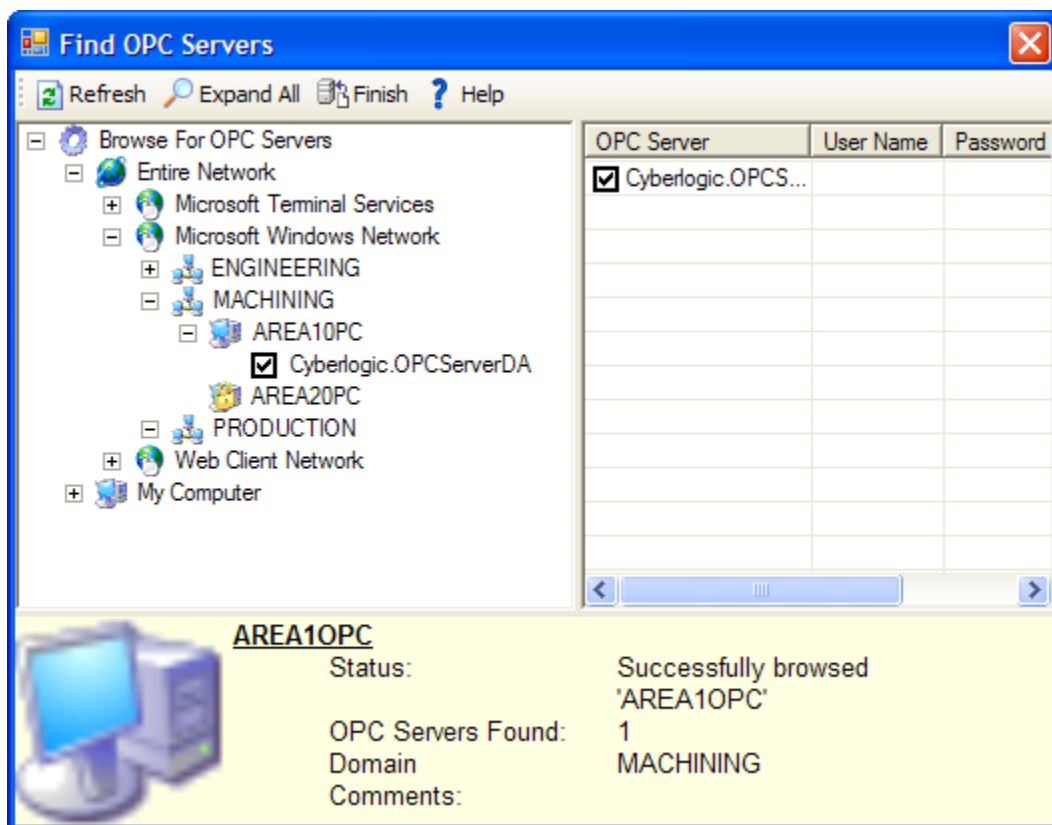
This is the most common automatic configuration procedure. It not only finds all of the computers and OPC servers available to the OPC DA Driver Agent, but also detects network connections and network nodes associated with the devices you have configured for other driver agents, such as MBX and DHX.



To do this, right-click on the **Network Connections** root folder and select **Auto Config** from the context menu.



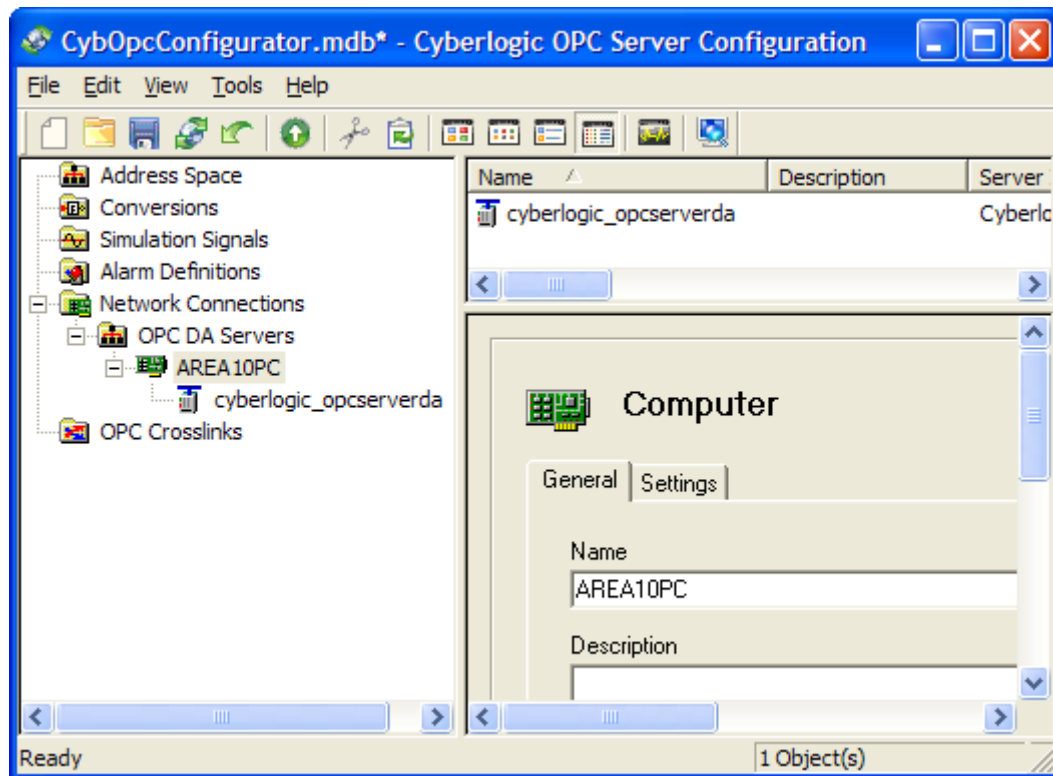
When the Find OPC Servers window opens, you can right-click on the **Browse For OPC Servers** branch and select **Set Default User Name/Password**. This will allow you to enter a user name and password that will be used when connecting to the configured computers. You will be able to override this for individual computers, if you wish.



You then simply browse through the tree, selecting the desired computers. As you open each branch, the editor will scan for available computers and OPC servers.

Note If you click the **Expand All** toolbar button, the editor will search for OPC servers on all of the available networks and computers. Depending on your network configuration, this may take a very long time.

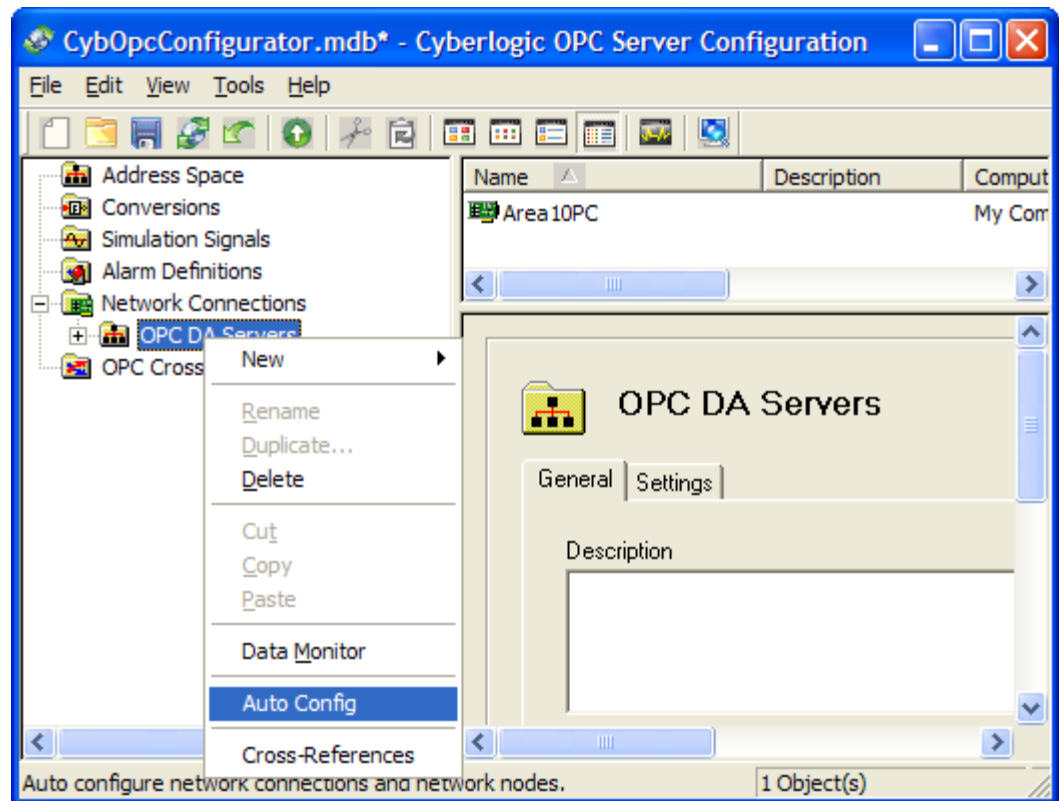
When you have selected all of the servers you want to configure, click the **Finish** button.



The computers and OPC servers will now be shown in the tree.

Automatic Configuration of Only Computers and OPC Servers

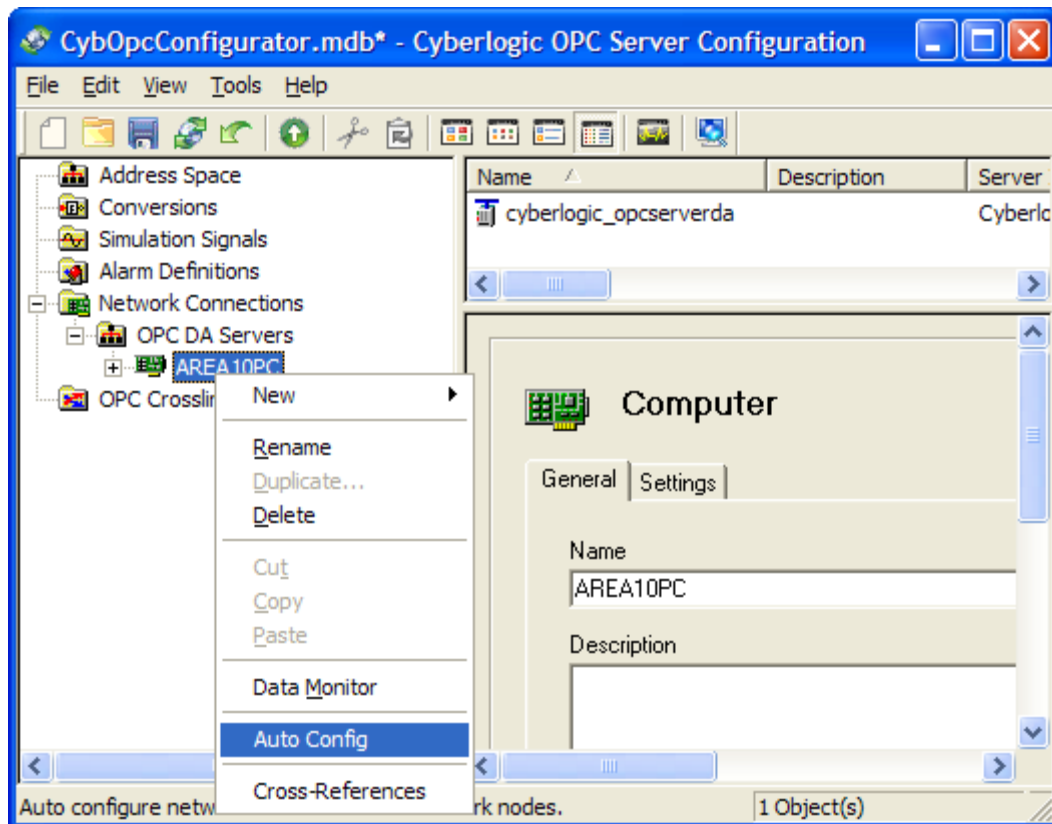
After an OPC DA Servers folder has been created, you can automatically find all of the computers and OPC servers without scanning for other types of network connections. Typically, you would do this if you want to connect to an OPC server that was added to the network after you initially configured the system.



Right-click the **OPC DA Servers** folder and select **Auto Config** from the context menu.

Automatic Configuration of Only OPC Servers

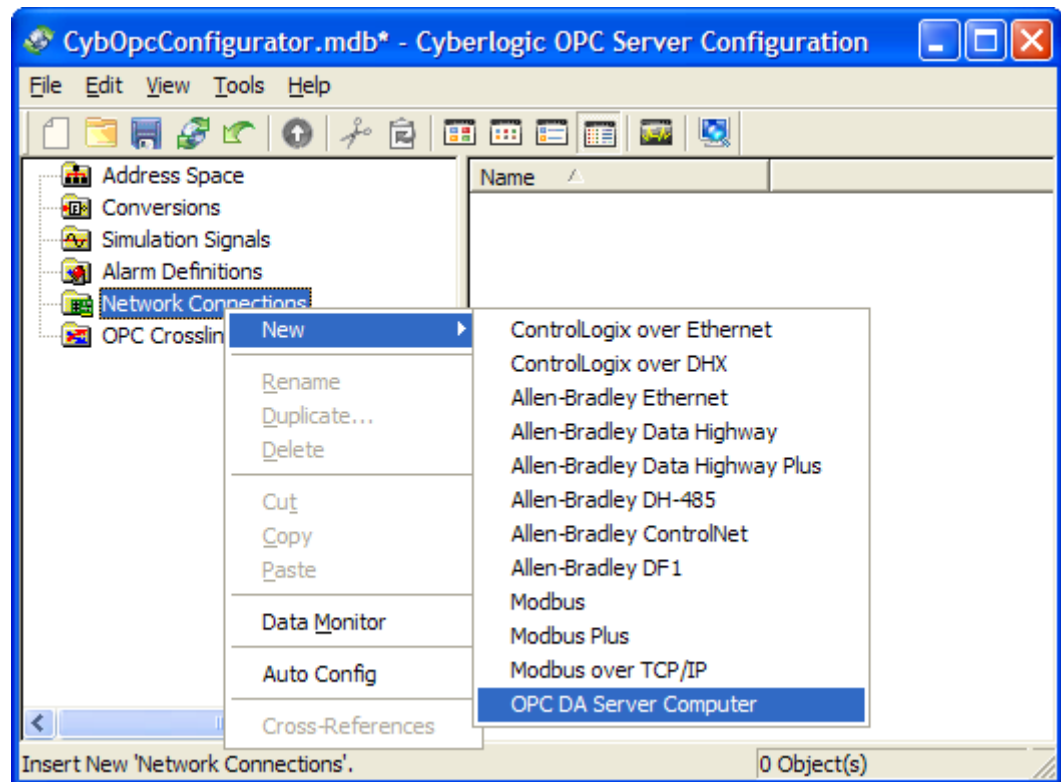
After computer has been configured, you can automatically find and configure all of its OPC servers. You might do this, for example, if you install new OPC server software in a computer after it is initially configured.



Right-click the specific computer and select **Auto Config** from the context menu.

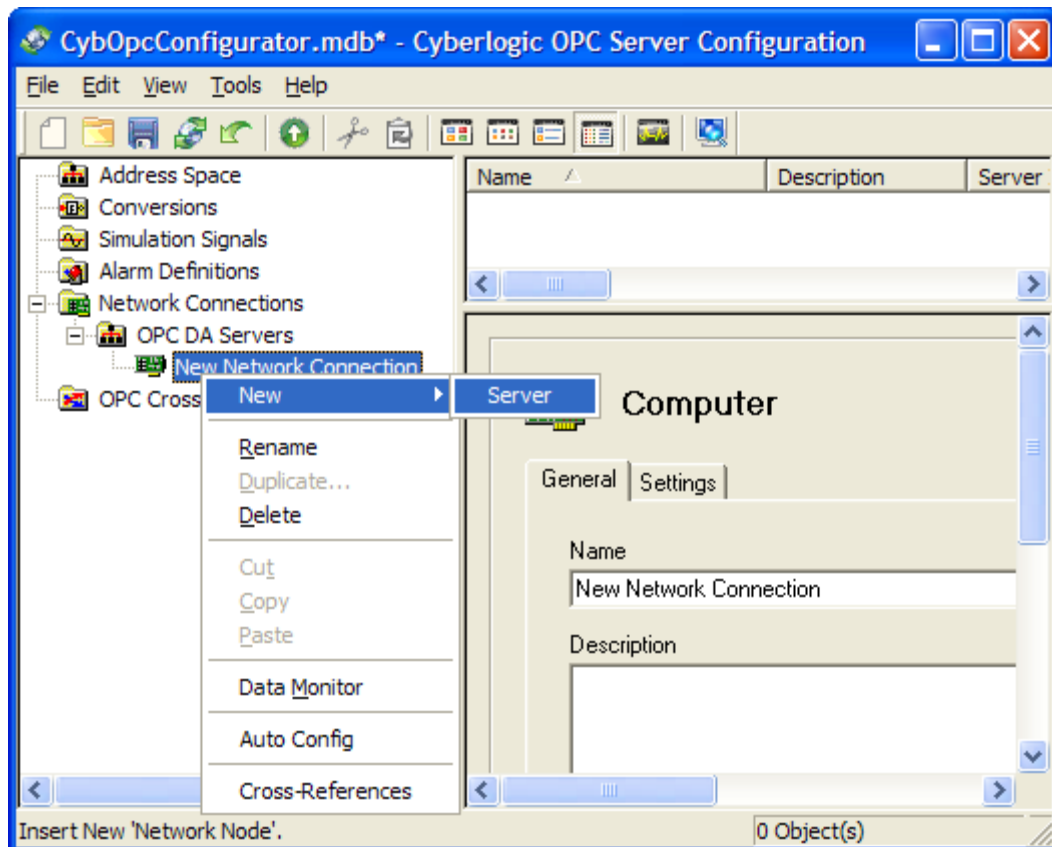
Manual Configuration

You may prefer to configure your communications manually. This method may be quicker if you have only one or a few OPC servers to configure and you know where they are located on your network.



Right-click on the **Network Connections** root folder and select **New** from the context menu, and then select **OPC DA Server Computer**.

The editor will create the OPC DA Servers folder and a computer.



Right-click on the computer branch and select **New** from the context menu, and then select **Server**. The editor will create a new OPC server.

Deleting

To delete the OPC DA Servers folder, a computer or an OPC server, select it and press the **Delete key**, or right-click on it and select **Delete** from the context menu.

Deleting the OPC DA Servers folder will also delete all computers and OPC servers.

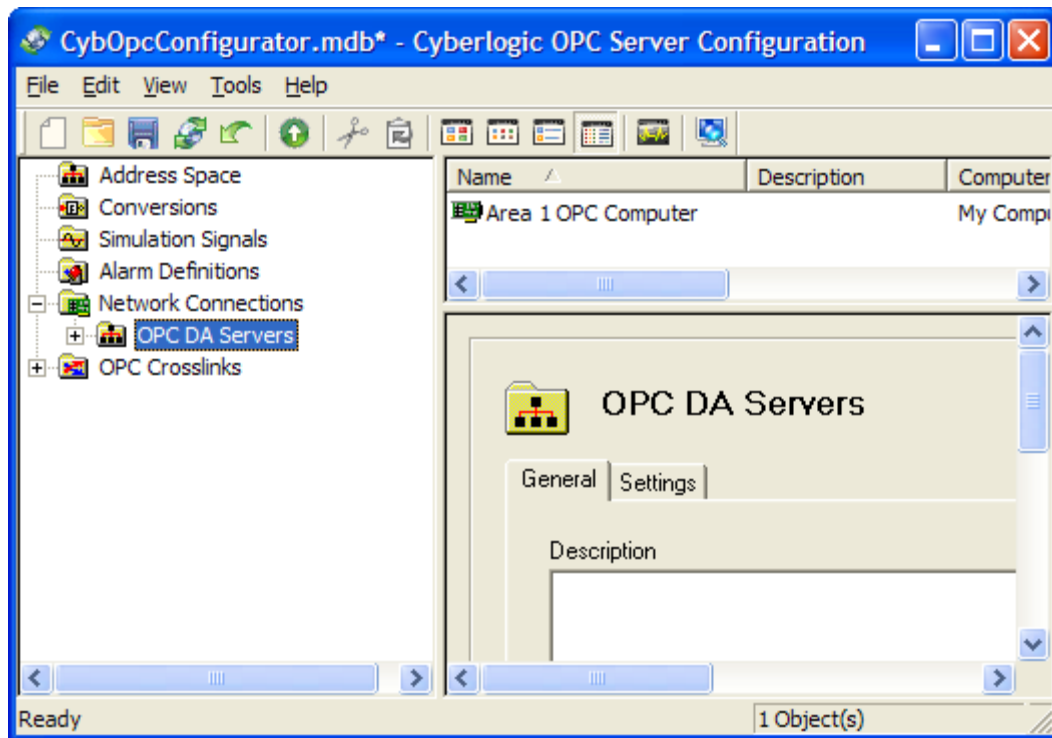
Deleting a computer will also delete all of its OPC servers.

Note

You cannot delete an OPC server that is used as part of an access path for a device. If you wish to delete an OPC server that is in use, right-click on it and select **Cross-References** to obtain a list of devices that use the OPC server. You must then edit those devices to remove the access path that contains the OPC server you want to delete.

Editing the OPC DA Servers Folder

Select the **OPC DA Servers** folder, and the configuration screen will appear on the right side of the editor.

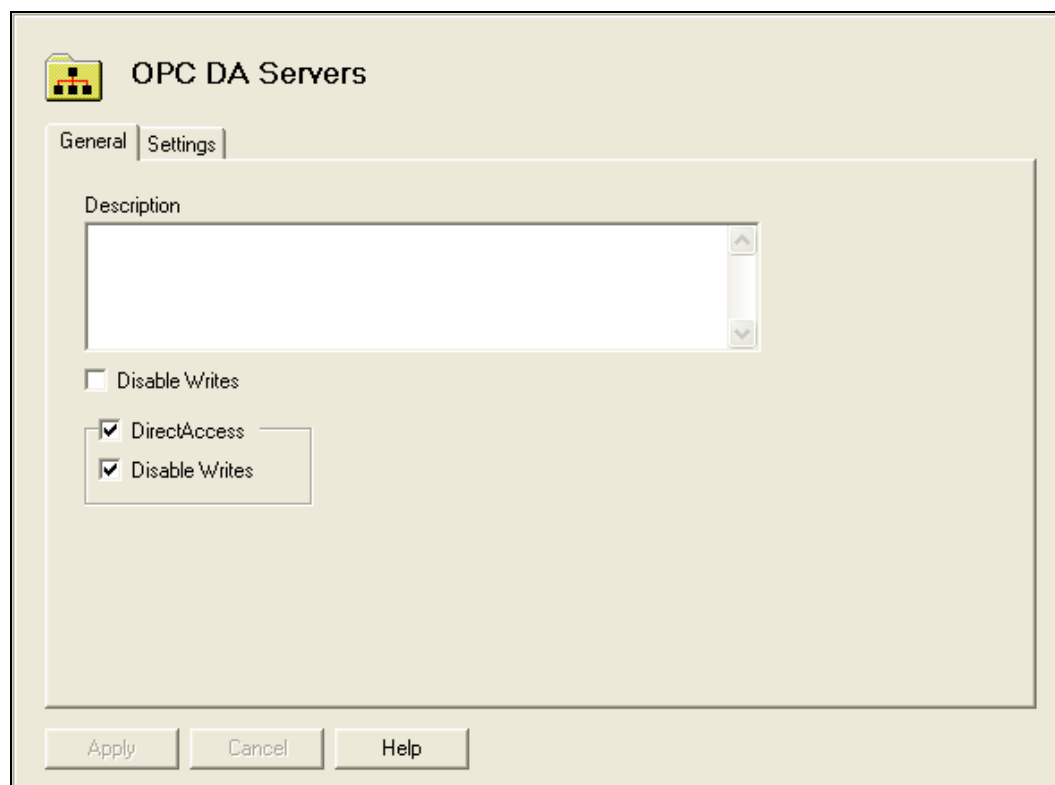


The OPC DA Servers configuration has two tabs: General and Settings.

Caution!

After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.

General Tab



Description

This optional field can be used to describe the OPC DA Servers driver agent. It can be up to 255 characters long.

Disable Writes

If this box is checked, it will not be possible to write data to any of the connected OPC servers.

The default state is unchecked, enabling writes.

DirectAccess

If this box is checked, the user is permitted to configure [DirectAccess](#) to the connected OPC servers.

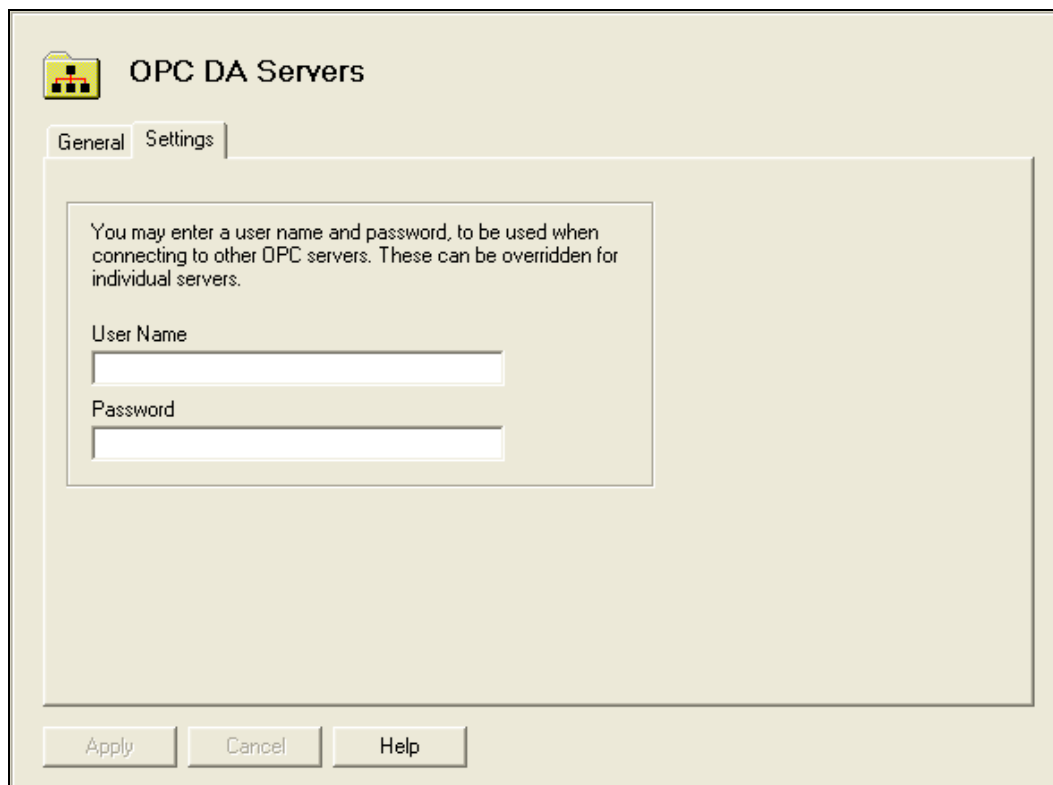
The default state is checked, allowing DirectAccess.

DirectAccess Disable Writes

If this box is checked, it will not be possible to write data via DirectAccess to any of the connected OPC servers. This does not affect writes through configured data items.

The default state is checked, disabling DirectAccess writes.

Settings Tab



User Name

This is an optional field. Enter the default user name that you want to use when connecting to computers and OPC servers. This entry can be overridden for individual computers and OPC servers.

If you are working with workgroup computers, they need not be in the same workgroup, but you must specify a user name and password that is valid for the computer you are connecting to. If you do not specify a user name and password here, you must do so at the computer or OPC server level.

If you are connecting to a computer that is in a domain, you can optionally specify the desired domain name. To specify a domain, enter it in the form <DomainName>\<UserName>. If you specify just the user name, the server will assume you are operating within the local computer's domain.

Password

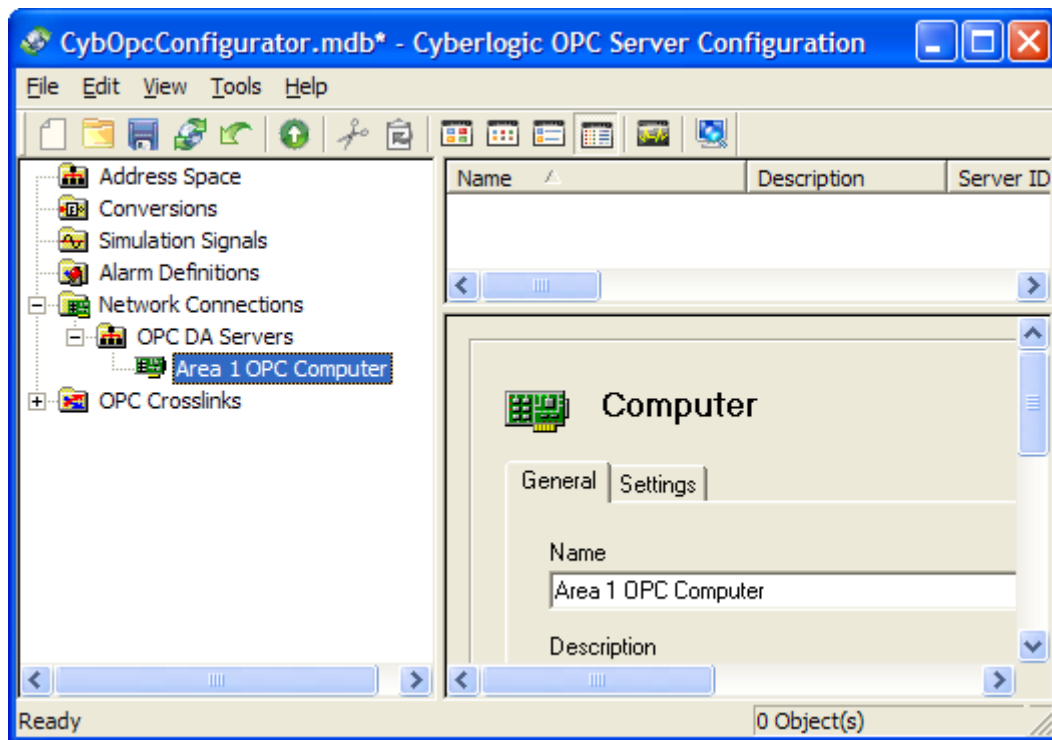
This is an optional field. Enter the default password that you want to use when connecting to computers and OPC servers. This password can be overridden for individual computers and OPC servers.

Note

To maintain system security, the user name and password that you enter here are stored in a secure way.

Editing Computers

Once you have created computer in the OPC DA Servers folder, simply select it and the configuration screen will appear on the right side of the editor.



The Computer configuration has two tabs, General and Settings.

Caution!

After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.

General Tab

The screenshot shows a dialog box titled "Computer" with a computer icon. It has two tabs: "General" and "Settings". The "General" tab is active and contains the following fields and controls:

- Name:** A text box containing "Area 1 OPC Computer".
- Description:** A text box.
- Disable Writes:** An unchecked checkbox.
- DirectAccess:** A checked checkbox.
- Disable Writes:** A checked checkbox.

At the bottom of the dialog are three buttons: "Apply", "Cancel", and "Help".

Name

The name identifies the computer. It can be up to 50 characters long, may contain spaces, but must not begin with a space. It also must not contain any periods.

Description

This optional field further describes the computer. It can be up to 255 characters long.

Disable Writes

If this box is checked, it will not be possible to write data to any of the OPC servers on this computer.

The default state is unchecked, enabling writes.

Note If the Disable Writes checkbox is grayed-out, it indicates that writes have already been disabled at a higher level.

DirectAccess

If this box is checked, the user is permitted to configure [DirectAccess](#) to the OPC servers on this computer. The default state is checked, allowing DirectAccess.

Note If the DirectAccess checkbox is grayed-out, it indicates that DirectAccess has already been disabled at a higher level.

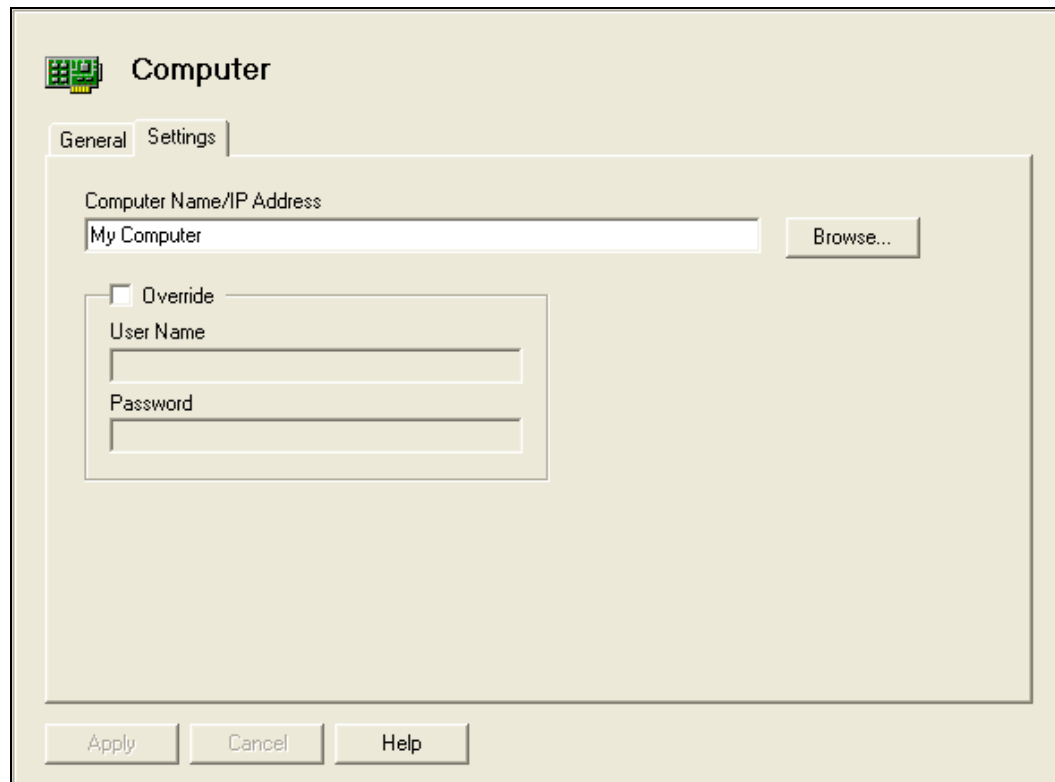
When DirectAccess is enabled, a _Status folder will appear under this computer in the client browser window. For more information on this folder and the status items it contains, refer to the [Cyberlogic OPC Server Help](#).

DirectAccess Disable Writes

If this box is checked, it will not be possible to write data via DirectAccess to any of the OPC servers on this computer. This does not affect writes through configured data items. The default state is checked, disabling DirectAccess writes.

Note If the DirectAccess Disable Writes checkbox is grayed-out, it indicates that DirectAccess writes have already been disabled at a higher level.

Settings Tab



Computer Name/IP Address

Identify the computer you want to connect to by entering its network name or IP address in this field.

Browse...

Click this button to browse the network for available computers. Use My Computer to select the local computer.

Override

Click this field to override the default user name and password you want to use when connecting to this computer. The default user name and password are defined on the [Settings Tab](#) of the OPC DA Servers folder.

User Name

When the Override box is checked, enter the user name to be used to access this computer. This entry can be overridden for individual OPC servers.

If you are working with workgroup computers, they need not be in the same workgroup, but you must specify a user name and password that is valid for the computer you are connecting to. If you do not specify a user name and password here, you must do so at the OPC DA Servers folder or OPC server level.

If you are connecting to a computer that is in a domain, you can optionally specify the desired domain name. To specify a domain, enter it in the form <DomainName>\<UserName>. If you specify just the user name, the server will assume you are operating within the local computer's domain.

Password

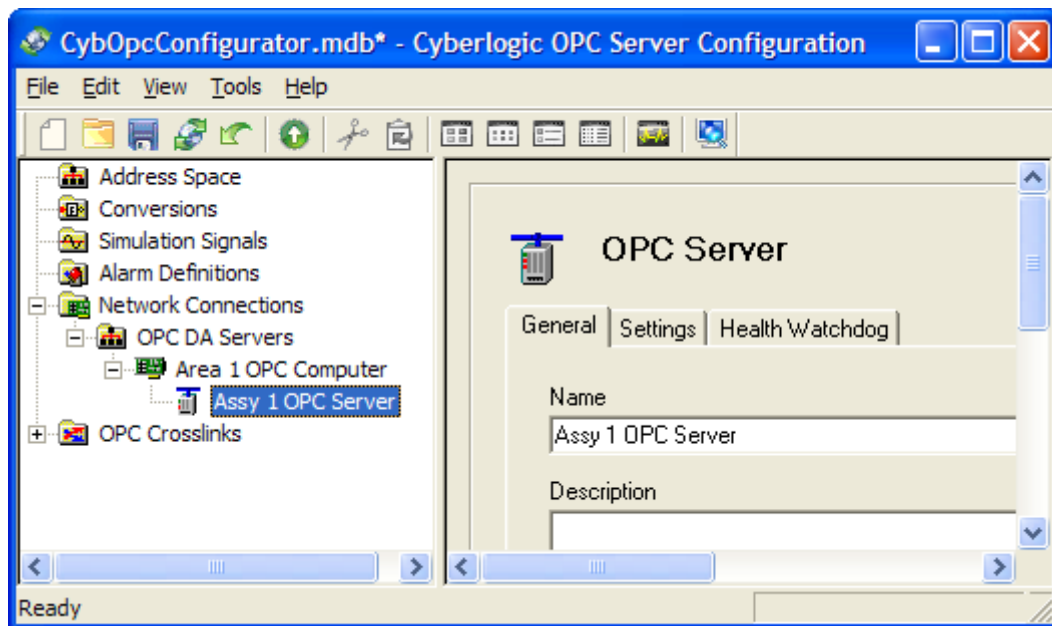
When the Override box is checked, enter the password to be used to access this computer.

Note

To maintain system security, the user name and password that you enter here are stored in a secure way.

Editing OPC Servers

Once you have created an OPC Server, simply select it and the configuration screen will appear on the right side of the editor.

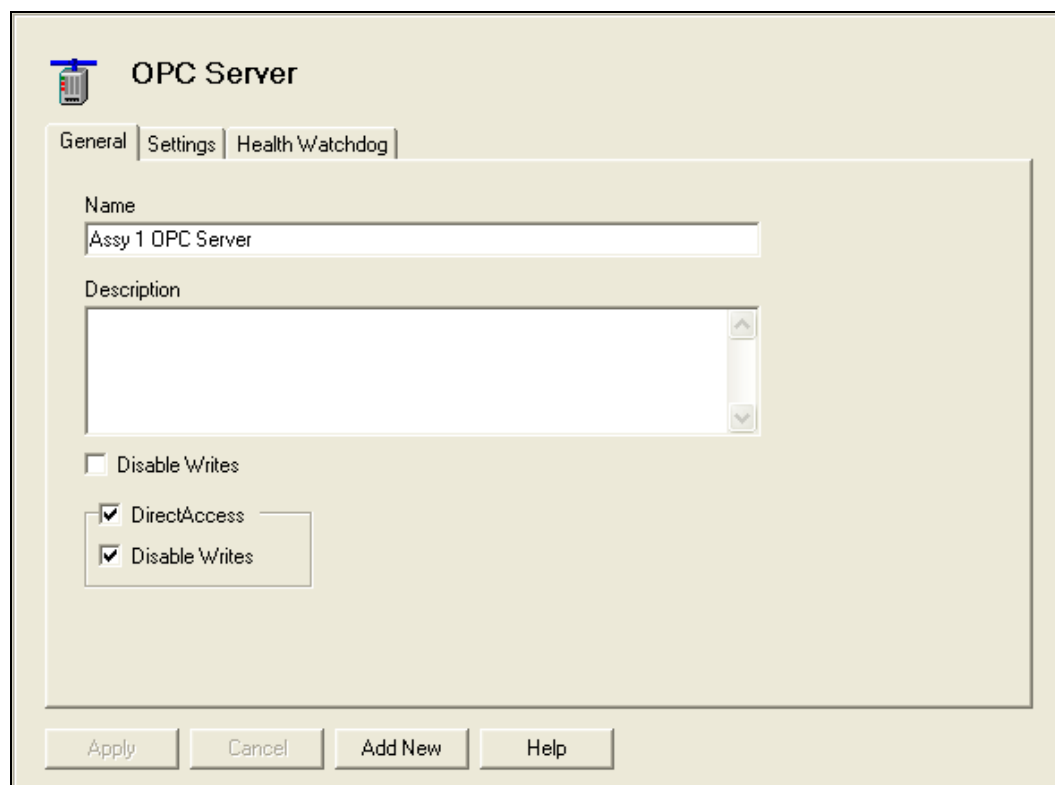


The OPC Server configuration has three tabs, General, Settings and Health Watchdog.

Caution!

After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.

General Tab



Name

This is a “friendly name” for the OPC server. It can be up to 50 characters long, may contain spaces, but must not begin with a space. It also may not contain any periods.

Description

This optional field further describes the OPC server. It can be up to 255 characters long.

Disable Writes

If this box is checked, it will not be possible to write data to this OPC server. The default state is unchecked, enabling writes.

Note If the Disable Writes checkbox is grayed-out, it indicates that writes have already been disabled at a higher level.

DirectAccess

If this box is checked, the user is permitted to configure [DirectAccess](#) to this OPC server. The default state is checked, allowing DirectAccess.

Note

If the DirectAccess checkbox is grayed-out, it indicates that DirectAccess has already been disabled at a higher level.

When DirectAccess is enabled, a _Status folder will appear under this OPC server in the client browser window. For more information on this folder and the status items it contains, refer to the [Cyberlogic OPC Server Help](#).

DirectAccess Disable Writes

If this box is checked, it will not be possible to write data via DirectAccess to this OPC server. This does not affect writes through configured data items. The default state is checked, disabling DirectAccess writes.

Note

If the DirectAccess Disable Writes checkbox is grayed-out, it indicates that DirectAccess writes have already been disabled at a higher level.

Settings Tab

The screenshot shows the 'Settings' tab of the OPC Server configuration window. It contains several input fields and checkboxes. The 'Server Name/CLSID' field is set to 'Cyberlogic.OPCServerDA'. The 'OPC DA Spec Level' is set to 'OPC DA 3.0'. The 'Read/Write Timeout' is '10 sec' and the 'Reconnect Delay' is '30 sec'. There is an 'Override' section with 'User Name' and 'Password' fields. A 'Connection Guard' section is also visible, which is currently unchecked, with a '1.0 min' timeout. At the bottom, there are buttons for 'Apply', 'Cancel', 'Add New', and 'Help'.

Server Name/CLSID

This field identifies the OPC server you are connecting to.

Browse...

Click this button to open browse window that will let you pick the OPC server you want to use.

Note

The OPC server converts the Server Name into a so called CLSID identifier, to connect to the selected OPC server. Since some servers do not expose their user friendly name, it is possible to enter their CLSID instead. The CLSID string has to follow this format:
{c200e360-38c5-11ce-ae62-08002b2b79ef}

Test Connection

Click this button after you have configured the settings for the server. The driver agent will try to connect to the selected server, and will give you a diagnostic message if the connection cannot be made.

OPC DA Spec Level

This drop-down selection allows you to choose the OPC DA specification level you wish to use for the connection. You may select a specific level or indicate that the driver agent should use the best level available from the connected server.

Read/Write Timeout

Here you can specify the timeout to be used for read and write operations. If the target OPC server fails to respond to a read or write request within the specified time, the request will be terminated.

You may select a value between one second and ten minutes. The default is ten seconds.

Reconnect Delay

If a connected OPC server wishes to shut down, it will send a notification to all attached clients, including the OPC DA Driver Agent, so that they can disconnect in an orderly manner. This setting allows you to select the amount of time that the driver agent will wait before attempting to reconnect to that server. This delay keeps the driver agent from reconnecting to the server before it has had a chance to complete the shutdown.

You may select a value between one second and ten minutes. The default is 30 seconds.

Override

Click this field to override the default user name and password you want to use when connecting to this computer. The default user name and password are defined on the [Settings Tab](#) of the OPC DA Servers folder or on the [Settings Tab](#) of the Computer.

User Name

When the Override box is checked, enter the user name to be used to access this OPC server.

If you are working with workgroup computers, they need not be in the same workgroup, but you must specify a user name and password that is valid for the computer you are connecting to. If you have not specified a user name and password at the OPC DA Servers folder or OPC server level, you must do so here.

If you are connecting to a computer that is in a domain, you can optionally specify the desired domain name. To specify a domain, enter it in the form <DomainName>\<UserName>. If you specify just the user name, the server will assume you are operating within the local computer's domain.

Password

When the Override box is checked, enter the password to be used to access this computer.

Note

To maintain system security, the user name and password that you enter here are stored in a secure way.

Connection Guard

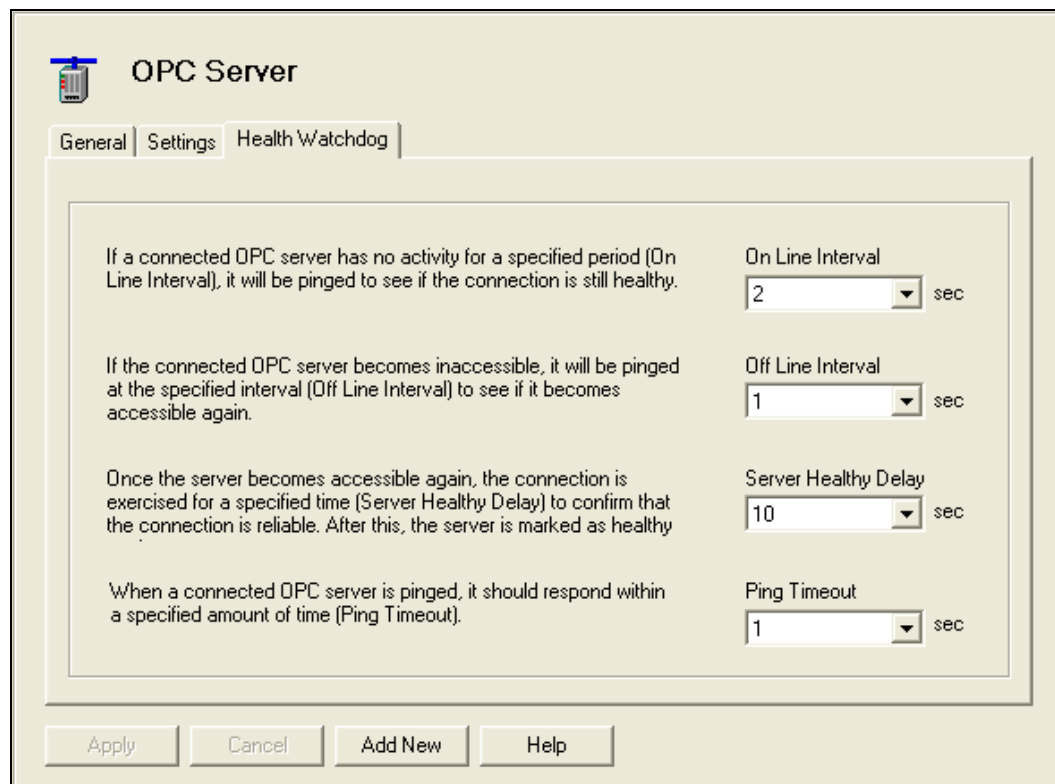
When this box is checked, the OPC DA Driver Agent will drop the connection to the OPC server if the server stops responding. You must specify the time that the driver agent will wait before it disconnects. The default is one minute.

This feature is enabled on a per-server basis. It is not needed with all OPC servers, and it will reduce overall communication performance, therefore the connection guard should be disabled unless it is needed.

Health Watchdog Tab

The Cyberlogic OPC Server monitors the health of the connection to the connected OPC servers. If there is no communication for a long time, the server is pinged to see if it can still communicate. If it cannot, the connection is re-checked until communication is reestablished. Once a failed connection is reestablished, the connection is exercised until it is confirmed that the connection is reliable. After this, the connected OPC server is marked as healthy again.

The Health Watchdog tab allows you to configure the time intervals associated with these tests.



On Line Interval

You may select a value in the range of 1-60 seconds or None.

If there is no traffic to a healthy OPC server for the specified length of time, the server will be pinged to verify that it is still online. Selecting None disables the health monitoring.

Off Line Interval

You may select a value in the range of 1-60 seconds.

Once communication to an OPC server has failed, it will be pinged at this interval to determine whether it can communicate.

Server Healthy Delay

You may select a value in the range of 1-60 seconds.

Once communication to an unhealthy OPC server is re-established, the communication must stay active for this length of time before the OPC server is again considered to be healthy. It is then returned to service.

Ping Timeout

You may select a value in the range of 0.25 to 60 seconds.

This specifies the amount of time within which the connected OPC server is expected to respond to a ping.

Address Space

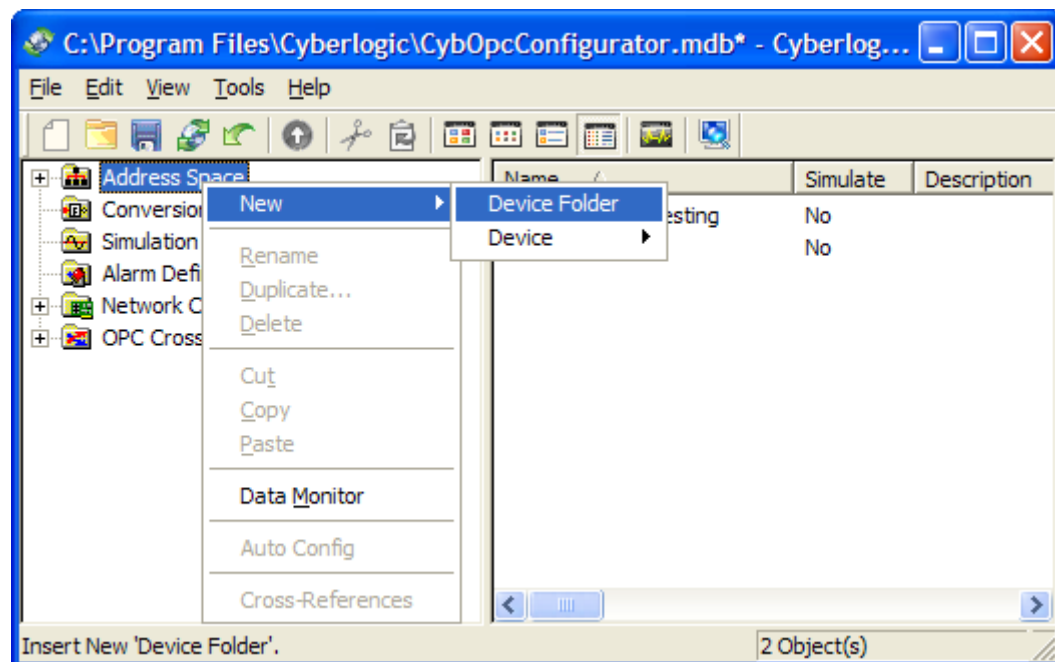
The [Address Space Tree](#) describes the hierarchical address structure of the Cyberlogic OPC Server. The branches of the tree are [Device Folders](#), [Devices](#) and [Folders](#). Its "leaves" are [Data Items](#). The intent of this structure is to permit the user to organize the data items into logical groups.

Device Folders

A device folder groups devices and other device folders. You can place a device folder directly under the Address Space root folder or under another device folder, up to four levels deep.

Caution! After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.

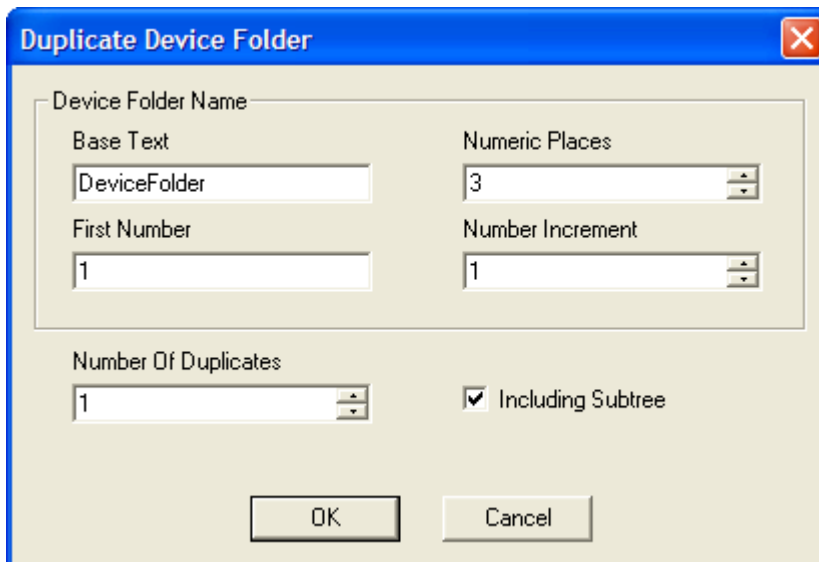
Creating a New Device Folder



Right-click on the Address Space root folder or an existing device folder. Select **New** and then **Device Folder** from the context menu.

Duplicating a Device Folder

To speed up the creation of similarly-configured device folders, you can create multiple device folders in a single operation by duplicating an existing one. To do this, right-click on an existing device folder and select **Duplicate...** from the context menu.



The above dialog box opens. You must specify how the duplicates are to be named by entering values for the **Base Text**, **First Number**, **Numeric Places** and **Number Increment** fields. To generate names for the duplicated device folders, the editor begins with the base text and appends a number to it. The first duplicate uses the selected First Number value with the specified number of digits. This number is then incremented by the specified number for each of the remaining duplicates.

As an example, if Numeric Places is 3 and First Number is 2, the number 002 will be appended to the base text.

Use the **Number Of Duplicates** field to specify the number of device folders you wish to create. If you want to duplicate all branches within the original device folder, check the **Including Subtree** checkbox.

Deleting a Device Folder

To delete an existing device folder, select it and press the **Delete** key, or right-click on the device folder and select **Delete** from the context menu.

General Tab

The screenshot shows a 'Device Folder' dialog box with the following fields and controls:

- Title:** Device Folder
- Tab:** General
- Name:** Main Assembly Operations
- Description:** (Empty text area)
- Simulate:** (unchecked)
- Disable Writes:** (unchecked)
- Buttons:** Apply, Cancel, Add New, Help

Name

The Name identifies this device folder. It can be up to 50 characters long, may contain spaces, but must not begin with a space. It also may not contain any periods.

Description

This optional field further describes the device folder. It can be up to 255 characters long.

Simulate

Checking this box enables data simulation for all data items found at this level or below. This provides a quick way to switch between real and simulated data for a large number of data items. Refer to the [Cyberlogic OPC Server Help](#) for a full discussion about simulating data.

Note

If the Simulate checkbox is grayed-out, it indicates that simulation has already been selected at a higher level.

Disable Writes

Checking this box disables write requests for all data items found at this level or below. By default, this box is not checked and writes are enabled.

Note

If the Disable Writes checkbox is grayed-out, it indicates that writes have already been disabled a higher level.

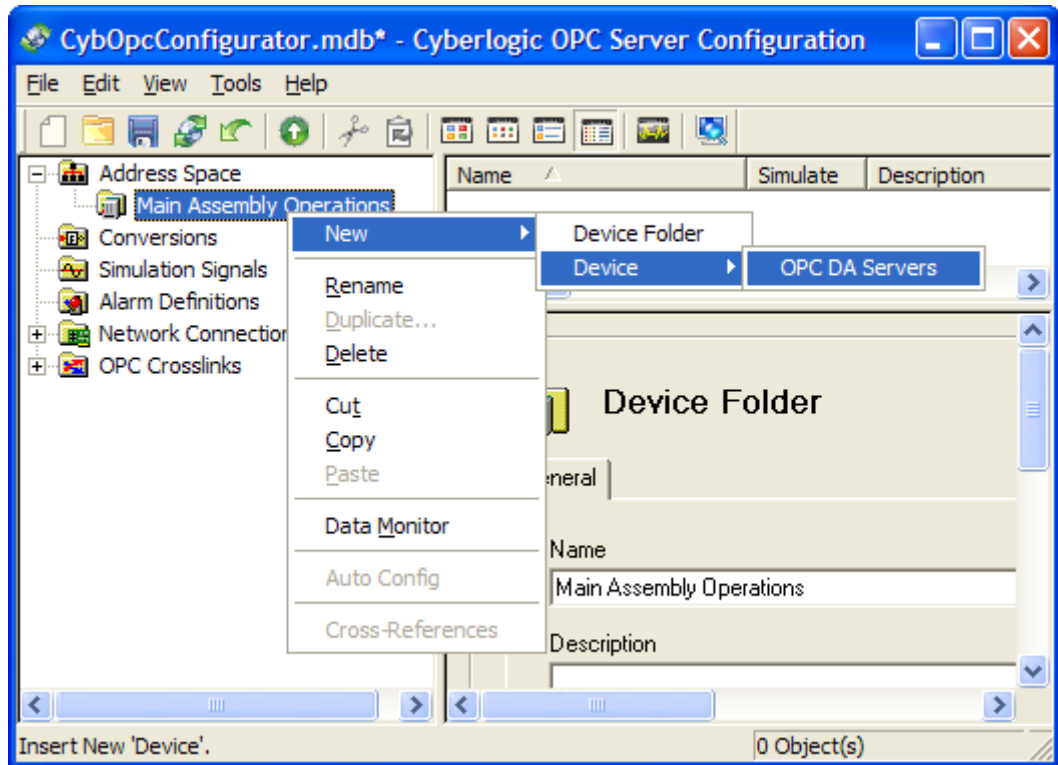
Devices

A device in the address space represents a source of data to which the server communicates. For the OPC DA Driver Agent, this data source will be an OPC server or a group of OPC servers. You can place devices directly in the Address Space root folder or in a device folder. In addition to its device-specific functionality, a device operates as a folder. It can contain folders and data items.

Caution!

After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.

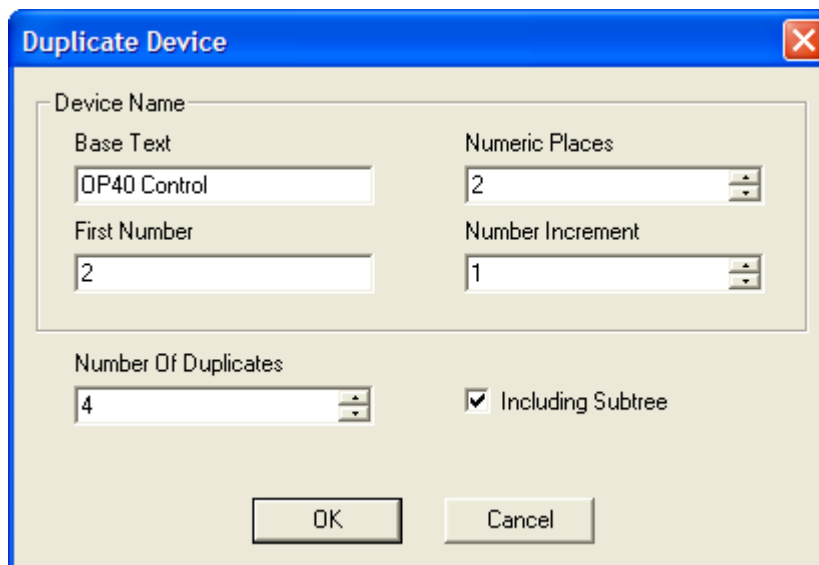
Creating a New Device



Right-click on the Address Space root folder or an existing device folder. Select **New** and then **Device** and then **OPC DA Servers** from the context menu.

Duplicating a Device

To speed up the creation of similarly-configured devices, you can create multiple devices in a single operation by duplicating an existing one. To do this, right-click on an existing device and select **Duplicate...** from the context menu.



The above dialog box opens. You must specify how the duplicates are to be named by entering values for the **Base Text**, **First Number**, **Numeric Places** and **Number Increment** fields. To generate names for the duplicated devices, the editor begins with the base text and appends a number to it. The first duplicate uses the selected First Number value with the specified number of digits. This number is then incremented by the specified number for each of the remaining duplicates.

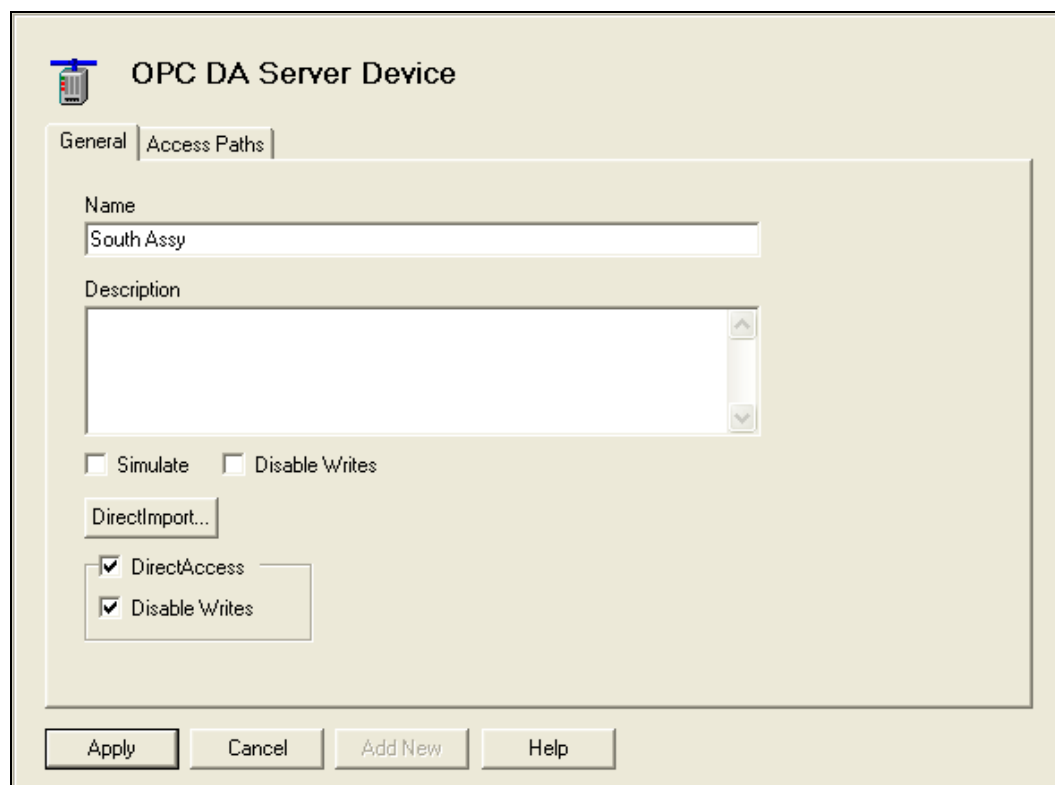
As an example, if Numeric Places is 3 and First Number is 2, the number 002 will be appended to the base text.

Use the **Number Of Duplicates** field to specify the number of devices you wish to create. If you want to duplicate all branches within the original device, check the **Including Subtree** checkbox.

Deleting a Device

To delete an existing device, select it and press the **Delete** key, or right-click on the device and select **Delete** from the context menu.

General Tab



Name

The name identifies the device. It can be up to 50 characters long, may contain spaces, but must not begin with a space. It also may not contain any periods.

Description

This optional field further describes the device. It can be up to 255 characters long.

Simulate

Checking this box enables data simulation for all data items on this device. This provides a quick way to switch between real and simulated data for a large number of data items. Refer to the [Cyberlogic OPC Server Help](#) for a full discussion about simulating data.

Note If the Simulate checkbox is grayed-out, it indicates that simulation has already been selected at a higher level.

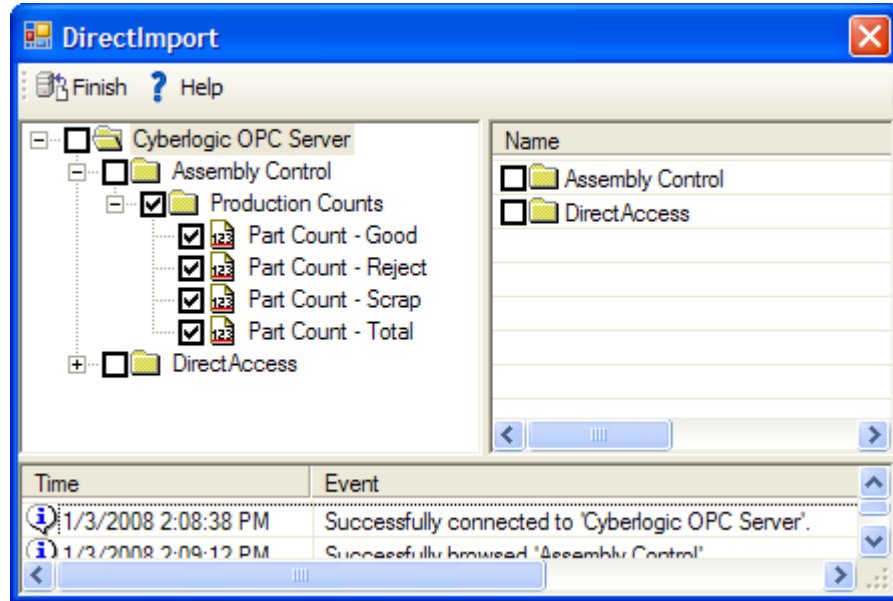
Disable Writes

Checking this box disables write requests for all data items found at this level or below. By default, this box is not checked and writes are enabled.

Note If the Disable Writes checkbox is grayed-out, it indicates that writes have already been disabled a higher level.

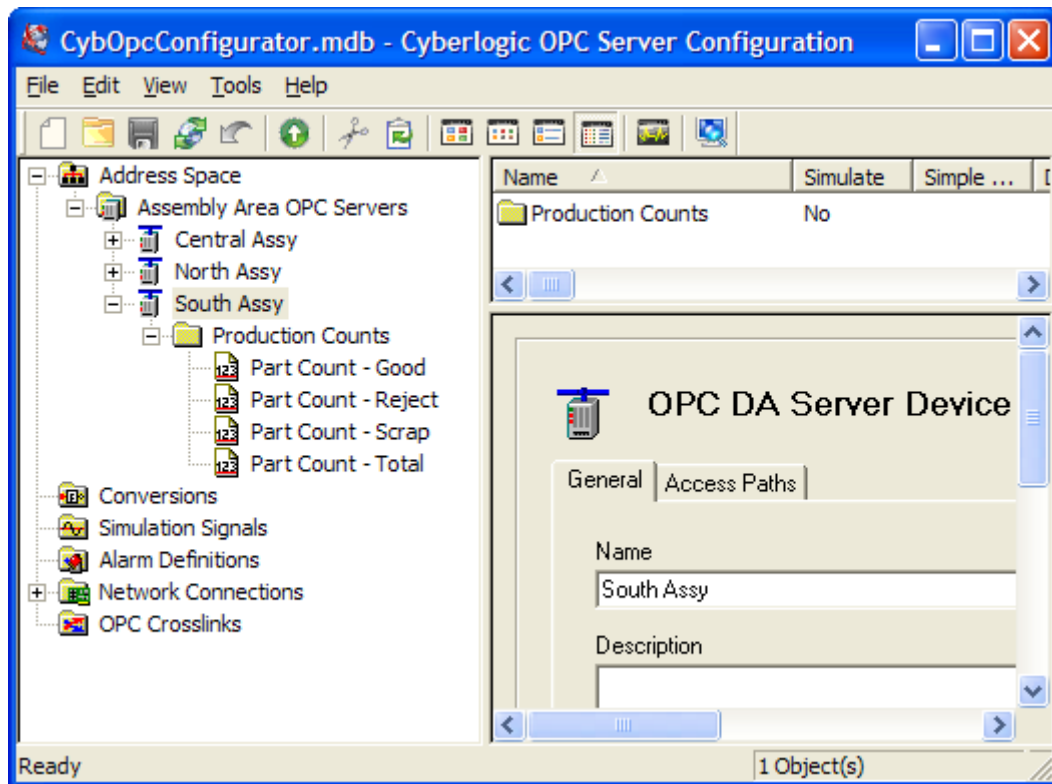
DirectImport

Click this button to import data items and folders from the OPC servers listed on the [Access Paths Tab](#).



The DirectImport window will show you the OPC server you will import from. All of the data items in that OPC server will be shown, arranged in folders just as they are in that server's address space. You can browse through that server, using the check boxes to select the folders and data items you wish to import.

After you have made all of your selections, click **Finish and Exit**.



The folders and data items you selected will be imported into the Address Space tree. The data items that were configured in the OPC server you imported from will be ready for use.

Caution!

You may perform a DirectImport from any device or any folder within a device. DirectImport will try to arrange the folders and data items using the same structure as they have in the OPC server from which you are importing.

However, the Cyberlogic OPC Server allows no more than four levels of folders within a device. If the DirectImport would result in more than four levels of folders, then the imported structure will be flattened to fit it into the available number of levels.

DirectAccess

If this box is checked, the user is permitted to configure [DirectAccess](#) to the OPC DA servers associated with this device. The default state is checked, allowing DirectAccess.

When DirectAccess is enabled, a `_Status` folder will appear under this device in the client browser window. For more information on this folder and the status items it contains, refer to the [Cyberlogic OPC Server Help](#).

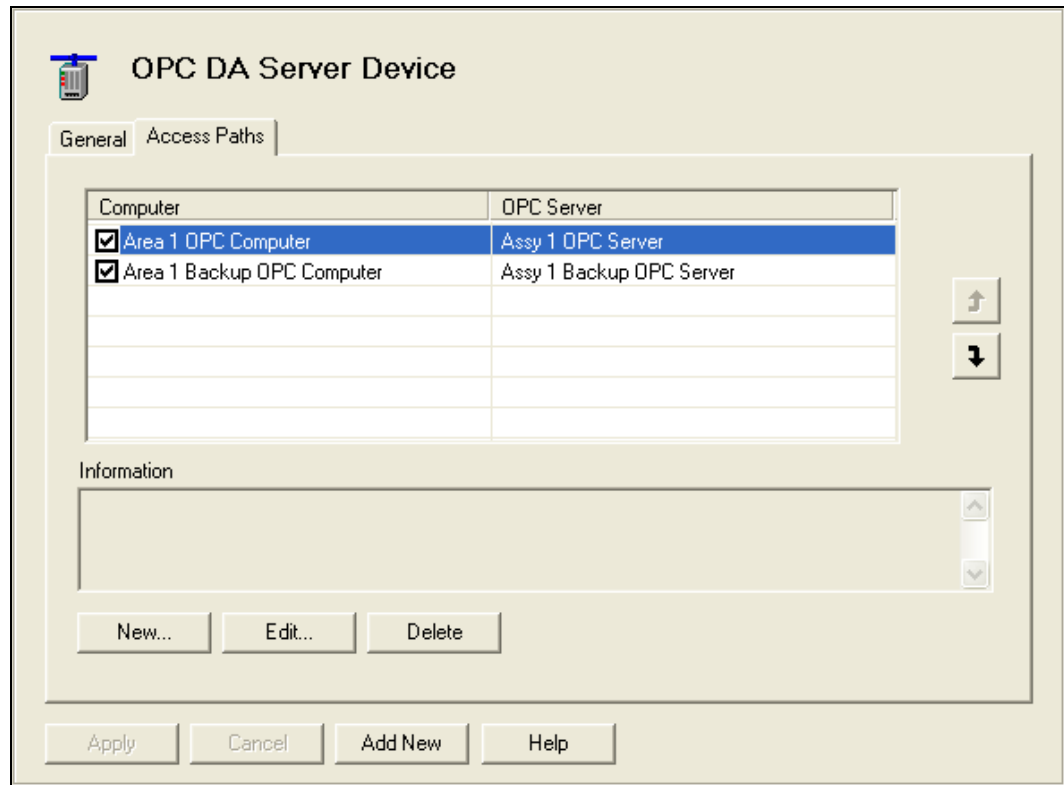
DirectAccess Disable Writes

If this box is checked, the server will not write data via DirectAccess to any of the OPC DA servers associated with this device. This does not affect writes through configured data items. The default state is checked, disabling DirectAccess writes.

Access Paths Tab

Each device has an associated list of access paths. Depending upon your network configuration, the access paths may include multiple paths to the same OPC server, paths to different OPC servers or some combination of the two. The access path at the top of the list is the primary access path; the rest are backups. If the current access path fails or is disabled, the server switches to the highest access path that is available and enabled.

Note If you wish to use DirectImport, you must first configure one or more access paths for the device.



Enable Checkbox

To the left of each access path is a checkbox that, when checked, enables the access path. The server uses only enabled access paths.

Computer

The Computer column displays the computer associated with the access path.

OPC Server

The OPC Server column displays the OPC DA server associated with the access path.

Priority (Up and Down) Arrows

The server assigns priority to the access paths from top to bottom, with the access path at the top having the highest priority. Use the up and down arrows on the right side of the list box to adjust the priorities as needed.

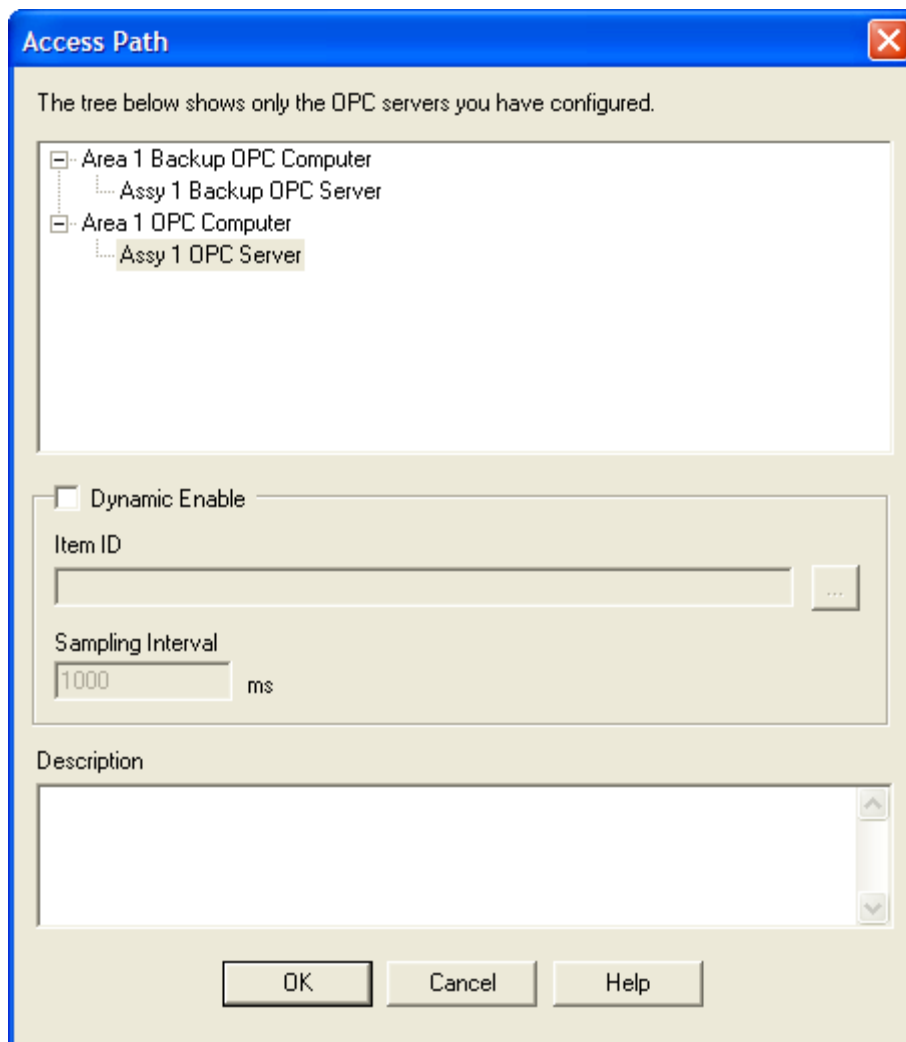
Information

If dynamic enable is configured for the highlighted access path, the enable data item will be shown here. In addition, if a description was entered for the access path, it will be displayed here.

This information is edited on the Access Path dialog box, described below.

New...

Click the **New...** button (or right-click inside the list window and select **New...** from the context menu) to create a new access path. The Access Path dialog box opens.



Select the OPC server for this access path.

If you check the Dynamic Enable box, you can specify an Item ID that will be used to control the enable status of the access path. Enter a data item or DirectAccess item ID in the box, or click the browse button to the right of it to browse for the desired item. You can use a Math & Logic item, if you wish. The Sampling Interval allows you to specify how often the enable item should be checked.

If the value of the enable item is false (Boolean false or a register value of 0), then the access path will be disabled. If the value is true (Boolean true or a nonzero register value), then the access path will be enabled.

You can also enter an optional description text of up to 255 characters.

Click **OK** when you are done.

Edit...

To modify an existing access path, select it and click the **Edit...** button (or right-click on the access path and select **Edit...** from the context menu). The Access Path dialog box opens.

Modify the current selections and click **OK** when you are done.

Delete

To delete an existing access path, select it and click the **Delete** button (or right-click and select **Delete** from the context menu).

Folders

A folder logically groups data items and other folders. You can place folders directly under devices or under other folders, up to four levels deep.

Caution!

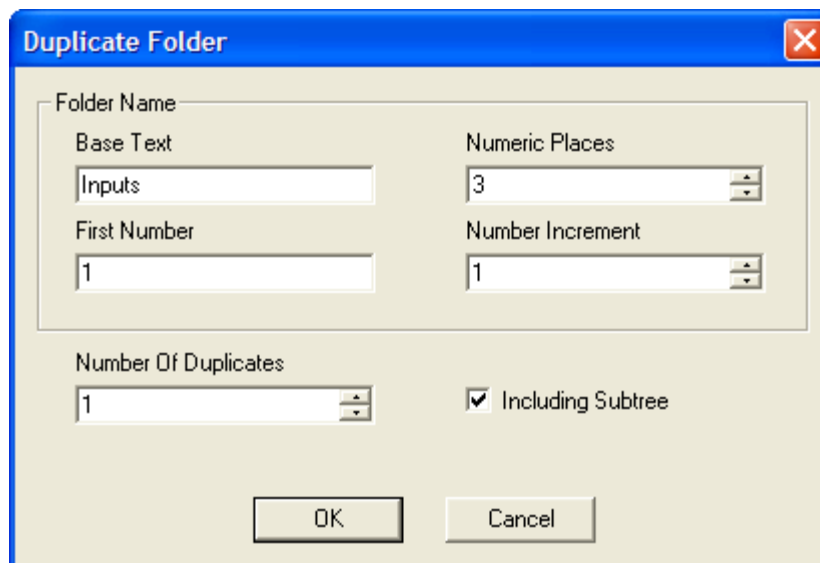
After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.

Creating a New Folder

Right-click on an existing device or folder, and select **New** and then **Folder** from the context menu.

Duplicating a Folder

To speed up the creation of similarly-configured folders, you can create multiple folders in a single operation by duplicating an existing one. To do this, right-click on an existing folder and select **Duplicate...** from the context menu.



The above dialog box opens. You must specify how the duplicates are to be named by entering values for the **Base Text**, **First Number**, **Numeric Places** and **Number Increment** fields. To generate names for the duplicated folders, the editor begins with the base text and appends a number to it. The first duplicate uses the selected First Number value with the specified number of digits. This number is then incremented by the specified number for each of the remaining duplicates.

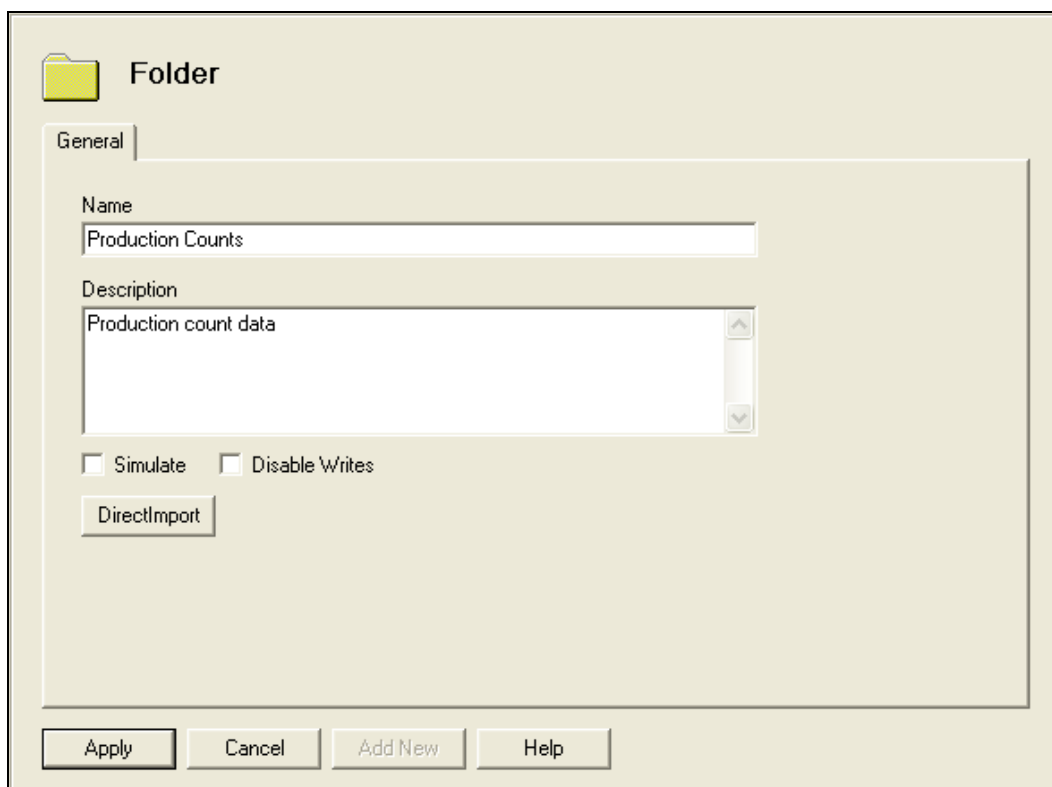
As an example, if Numeric Places is 3 and First Number is 2, the number 002 will be appended to the base text.

Use the **Number Of Duplicates** field to specify the number of folders you wish to create. If you want to duplicate all branches within the original folder, check the **Including Subtree** checkbox.

Deleting a Folder

To delete an existing folder, select it and press the **Delete** key, or right-click on the folder and select **Delete** from the context menu.

General Tab



Name

The Name identifies this folder. It can be up to 50 characters long, may contain spaces, but must not begin with a space. It also may not contain any periods.

Description

This optional field further describes the folder. It can be up to 255 characters long.

Simulate

Checking this box enables data simulation for all data items found at this level or below. This provides a quick way to switch between real and simulated data for a large number of data items. Refer to the [Cyberlogic OPC Server Help](#) for a full discussion about simulating data.

Note If the Simulate checkbox is grayed-out, it indicates that simulation has already been selected at a higher level.

Disable Writes

Checking this box disables write requests for all data items found at this level or below. By default, this box is not checked and writes are enabled.

Note If the Disable Writes checkbox is grayed-out, it indicates that writes have already been disabled a higher level.

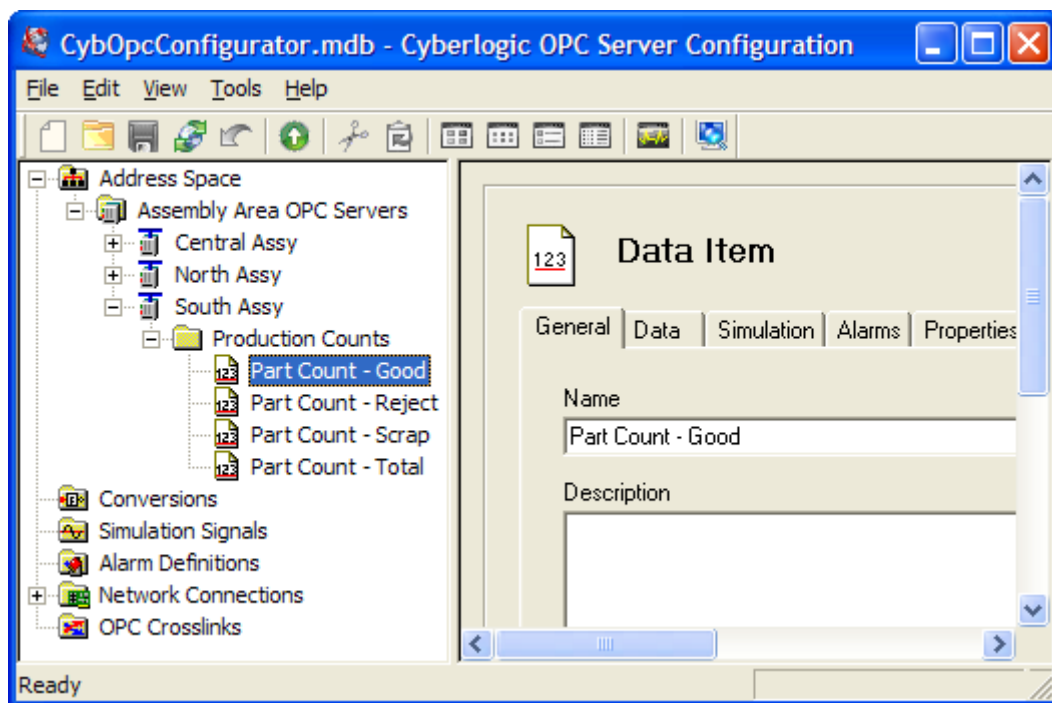
DirectImport

Click this button to import data items from an OPC server. For a detailed description of how to use this function, refer to the [DirectImport](#) discussion in the Devices section.

Data Items

A data item represents a data item in the connected OPC server. Those data items typically represent registers or bits in a PLC or other physical device.

Caution! After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.



Creating a New Data Item

Right-click on an existing device or folder, and select ***New*** and then ***Data Item*** from the context menu.

Deleting a Data Item

To delete an existing data item, select it and press the ***Delete*** key, or right-click on the data item and select ***Delete*** from the context menu.

General Tab

The screenshot shows a 'Data Item' dialog box with the following fields and controls:

- Title Bar:** Document icon with '123' and the text 'Data Item'.
- Tabs:** 'General', 'Data', 'Simulation', 'Alarms', 'Properties'.
- Name:** Text box containing 'Part Count - Good'.
- Description:** Text box containing 'Assembly Control\Production Counts\Part Count - Good'.
- Options:**
 - Simulate
 - Disable Writes
- Buttons:** 'Apply', 'Cancel', 'Add New', 'Help'.

Name

The Name identifies the data item. It can be up to 50 characters long, may contain spaces, but must not begin with a space. It also may not contain any periods.

Description

This optional field further describes the data item. It can be up to 255 characters long.

Simulate

Checking this box enables data simulation for this data item. Refer to the [Cyberlogic OPC Server Help](#) for a full discussion about simulating data.

Note

If the Simulate checkbox is grayed-out, it indicates that simulation has already been selected at a higher level.

Disable Writes

Checking this box disables all write requests for this data item. By default, this box is not checked and writes are enabled.

Note

If the Disable Writes checkbox is grayed-out, it indicates that writes have already been disabled a higher level.

Data Tab

Item ID

This is the Item ID of the data in the connected OPC server.

Browse...

Click this button to open a window that will let you browse the connected OPC servers to locate the desired data item.

OPC Access Path

If the OPC server you are connecting to uses OPC Access Paths, you can check this box and enter the desired access path in the field.

This feature is optional and any entry here will be ignored by OPC servers that do not support it.

Canonical Data Type

This selection specifies the default variant format (VT_XXX) in which the data will be sent to OPC clients. Each OPC client can request data in any variant format and consequently override the Canonical Data Type setting.

The most common selection is Default, in which case the original canonical data type is used.

Use Conversion

Check this box to indicate that the selected conversion should be applied to the data before the value is stored in the data item cache. You must select one of the previously-configured [Conversions](#) from the drop-down box.

Simulation Tab

Data Item

123

General | Data | **Simulation** | Alarms | Properties

Select the signal you wish to use when the value for this Data Item is simulated. You may choose one of the simulation signals you configured, a Fixed Value, or an Echo function that simply returns the last value written to the Data Item.

Signal
 Fixed Value

Value
 221

Apply Cancel Add New Help

Signal

If you enabled simulation on the General tab or at a higher level, you may choose to simulate the data item value with one of the previously-defined [Simulation Signals](#), a fixed value or an echo of the last value written to the item.

Value

When simulation is enabled and the Signal field is set to Fixed Value, the data item will be set to this value.

Alarms Tab

The screenshot shows a dialog box titled "Data Item" with a tabbed interface. The "Alarms" tab is selected. A checkbox labeled "Generate Alarms" is checked. Below this checkbox is a text area containing the following text: "To generate alarms for this Data Item, you must first configure an appropriate limit or digital alarm. Normally, you should use a limit alarm for analog data and a digital alarm for Boolean data. You can then select that alarm below and specify a prefix to the alarm messages that are generated. The prefix text identifies the data item associated with the alarm." Below the text area are two input fields: a text box labeled "Message Prefix" and a dropdown menu labeled "Alarm" with the selected option "<Not Assigned>". At the bottom of the dialog are four buttons: "Apply", "Cancel", "Add New", and "Help".

Generate Alarms

If this box is checked, the server will test the alarm conditions for this data item, generating alarms as appropriate.

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion on creating and using alarms.

Message Prefix

Enter the text for the first part of the alarm message. The second part will be the body text of the specific alarm that is generated.

Alarm

Select one of the previously-defined [Alarm Definitions](#) to serve as the alarm template for this data item.

Properties Tab

In addition to the main data item properties—value, quality and timestamp—the OPC specification includes several optional properties that your client application may use. This tab allows you to set these data item properties. These properties are static and do not change while the server is running.

The screenshot shows a 'Data Item' configuration window with the following elements:

- Window title: Data Item (with document icon '123')
- Tabs: General, Data, Simulation, Alarms, Properties (selected)
- Fields:
 - Engineering Units: []
 - Open Label: []
 - Close Label: []
 - Default Display: [] ...
 - BMP File: [] ...
 - HTML File: [] ...
 - Sound File: [] ...
 - AVI File: [] ...
- Color Selection:
 - Foreground Color: [Red swatch]
 - Background Color: [Blue swatch]
- Checkbox: Blink
- Buttons: Apply, Cancel, Add New, Help

Engineering Units

This is OPC property ID 100. It specifies the engineering units text, such as DEGC or GALLONS. It can be up to 50 characters long.

Open Label

This is OPC property ID 107, and is presented only for discrete data. This text describes the contact when it is in the open (zero) state, such as STOP, OPEN, DISABLE or UNSAFE. It can be up to 50 characters long.

Close Label

This is OPC property ID 106, and is presented only for discrete data. This text describes the contact when it is in the closed (non-zero) state, such as RUN, CLOSE, ENABLE or SAFE. It can be up to 50 characters long.

Default Display

This is OPC property ID 200. It is the name of an operator display associated with this data item. It can be up to 255 characters long.

BMP File

This is OPC property ID 204. It is the name of a bitmap file associated with this data item, for example C:\MEDIA\FIC101.BMP. It can be up to 255 characters long.

HTML File

This is OPC property ID 206. It is the name of the HTML file associated with this data item, for example <http://mypage.com/FIC101.HTML>. It can be up to 255 characters long.

Sound File

This is OPC property ID 205. It is the name of the sound file associated with this data item, for example C:\MEDIA\FIC101.WAV. It can be up to 255 characters long.

AVI File

This is OPC property ID 207. It is the name of the AVI file associated with this data item, for example C:\MEDIA\FIC101.AVI. It can be up to 255 characters long.

Foreground Color

This is OPC property ID 201. Click on the box and select the foreground color used to display the item.

Background Color

This is OPC property ID 202. Click on the box and select the background color used to display the item.

Blink

This is OPC property ID 203. Check this box to indicate that displays of the item should blink.

Conversions

The raw data associated with data items may be process values from instruments. In most cases, these measurements are not expressed in engineering units. To simplify operations on the data, the Cyberlogic OPC Server allows you to associate a conversion with each data item.

A user can define many different conversions. A number of data items can then use each conversion. As a result, the user need not define the same conversion many times over.

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion.

Simulation Signals

The server can simulate the data for each of the data items according to a predefined formula. This makes it easy to perform client-side testing without the need for a physical device.

A user can define many different types of simulation signals. A number of data items can then use each such signal. As a result, the user need not define the same simulation signal many times over.

The server can generate the following types of simulation signals:

- Read count
- Write count
- Random
- Ramp
- Sine
- Square
- Triangle
- Step

Each signal has parameters that define properties such as amplitude, phase and number of steps.

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion.

Alarm Definitions

The Cyberlogic OPC Server supports the OPC Alarms and Events specification, permitting it to generate alarms based on the value of data items.

The user may define many different alarm conditions. A number of data items can then use each such condition. As a result, the user need not define the same alarm condition many times over.

There are two categories of alarms: digital and limit. Digital alarms are normally used with Boolean data items and limit alarms are normally used with numeric data items, but both types of alarms may be used with either data type. Alarms cannot be used with string or array data items or with bit fields larger than 64 bits.

Refer to the [Cyberlogic OPC Server Help](#) for a full discussion.

Note

Configuring alarms is meaningful only if your client software also supports the OPC Alarms & Events specification. Consult your client software documentation to see what specifications it supports.

Database Operations

In addition to providing data to OPC clients in real time, the Cyberlogic OPC Server can store it in a database. The feature that does this is called Data Logger. Once the data is logged, it is available to any application that can access that database. It need not be an OPC client application.

Refer to the [Data Logger Help](#) for a full discussion.

OPC Crosslinks

OPC Crosslinks allow you to transfer data from an OPC server or PLC to other OPC servers or PLCs. The data item you read from is called the crosslink input. You may write this to any number of data items, and these are called crosslink outputs.

Refer to the [OPC Crosslink Help](#) for a full discussion.

Saving and Undoing Configuration Changes

The Cyberlogic OPC Server Configuration Editor keeps track of recent configuration changes. Until you save these changes, you can revert to the previously-saved configuration. The editor supports two types of save operations. The standard Save operation saves the changes without updating the server or the connected clients. The Save & Update Server operation saves the changes and also updates the server and all connected clients.

Caution!

After you edit the configuration, you must open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** toolbar button, for the changes you have made to take effect. Otherwise, the server will still be running with the old configuration.

Saving Configuration Changes Without Updating the Server

To save the configuration without updating the server, open the **File** menu and select **Save**, or click the **Save** button on the toolbar. The changes will be saved but the server will still be running with the old configuration.

Saving Configuration Changes and Updating Server

To save the configuration and update the server, open the **File** menu and select **Save & Update Server**, or click the **Save & Update Server** button on the toolbar.

Undoing Configuration Changes

To undo configuration changes and revert to the previously saved configuration, open the **File** menu and select **Undo Changes**, or click the **Undo Changes** button on the toolbar.

Configuration Import/Export

The Import/Export feature allows you to export the configuration data to text file format and import configuration data from these exported files and also from comma separated values files from other vendors' OPC servers and programming software.

For details on this important feature and instructions in its operation, refer to the [Cyberlogic OPC Server Help](#).

Options

The editor has several options that may be set to adjust the operation of the editor to suit your preferences and to set security levels as needed for communication with client software. For a full discussion, refer to the [Cyberlogic OPC Server Help](#).

VALIDATION & TROUBLESHOOTING

The following sections describe features that will help you to verify and troubleshoot your server's operation. The [Data Monitor](#) and [Cyberlogic OPC Client](#) allow you to view the data as it is received by the server. The [DirectAccess](#) feature lets you look at data values even if they have not been configured as data items. The [Event Viewer](#) may provide important status or error messages. Finally, there is a list of [OPC DA Driver Agent Messages](#) to assist in your troubleshooting.

Data Monitor

The Data Monitor lets you monitor the values and status of the data items. Its use is described in detail in the [Cyberlogic OPC Server Help](#).

Cyberlogic OPC Client

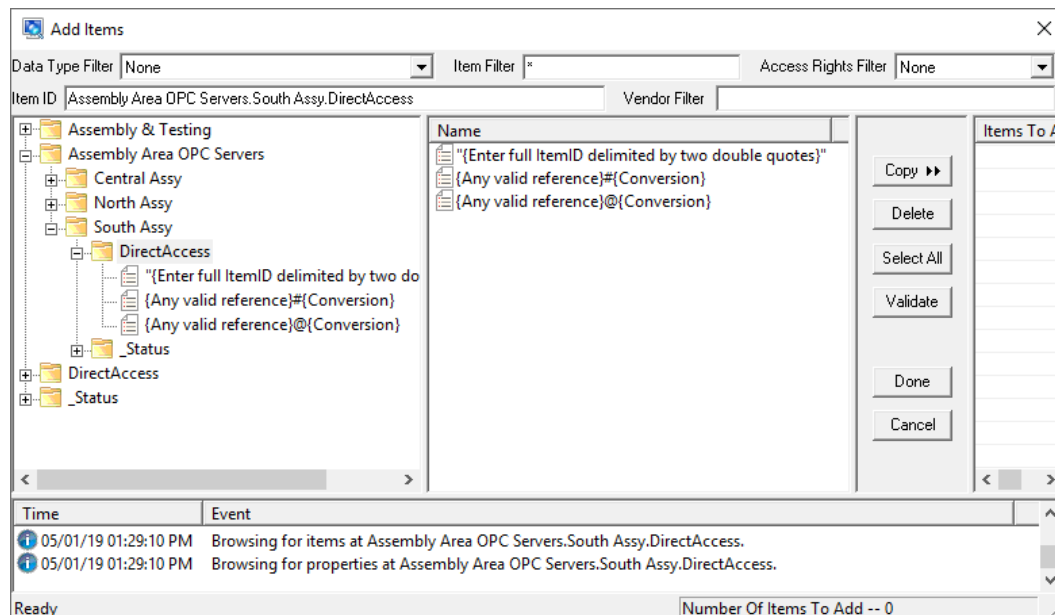
The Cyberlogic OPC Client is a simple OPC Data Access client that lets you see how the server interacts with a client and lets you test its response to various loads. Its use is described in detail in the [Cyberlogic OPC Server Help](#).

DirectAccess

At run time, in addition to the user-configured branches, the Cyberlogic OPC Server dynamically creates DirectAccess branches in its address space. These are created for both OPC DA servers and devices.

DirectAccess allows read and write operations. However, for extra security, write operations are disabled by default. If writes are permissible, they can be enabled on a server-by-server basis as part of the OPC DA server configuration, and on a device-by-device basis as part of the device configuration.

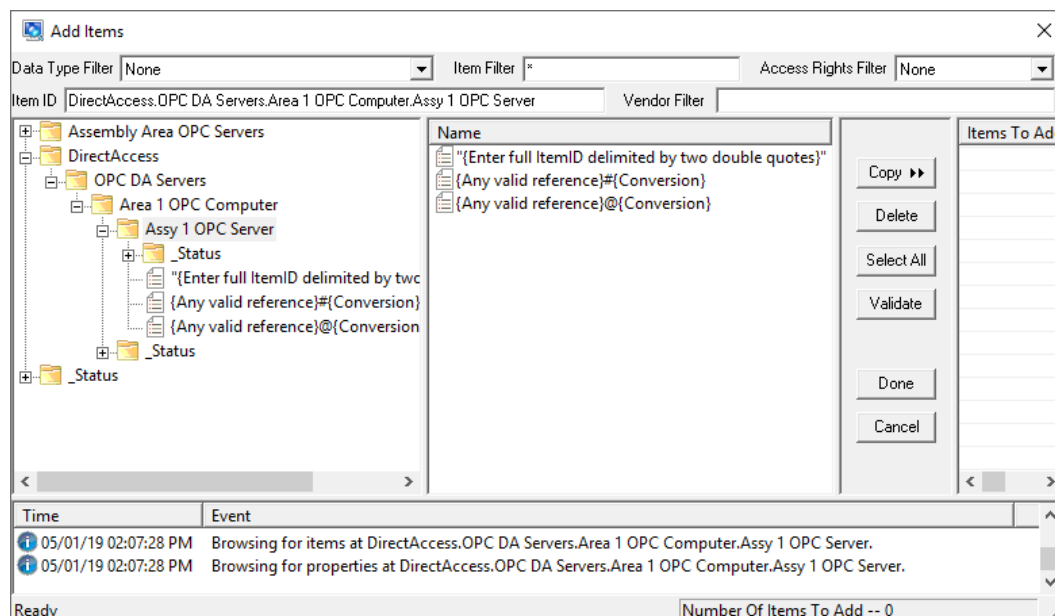
Device DirectAccess



Each device in the address space will contain all of its configured data items, plus a DirectAccess branch, as shown in the example above. This branch will appear only for devices that have DirectAccess enabled. OPC clients can then use this branch to access any item in the device by directly specifying its ItemID.

In the DirectAccess branch for a device, the Cyberlogic OPC Server provides a hint to help you properly enter the ItemID for items that may exist on the selected device. For more details on using these hints, refer to the [Address Hints](#) section.

OPC DA Server DirectAccess



DirectAccess to OPC DA servers is achieved through a branch called DirectAccess at the root of the address space. This branch acts like a device folder that contains all of the configured OPC servers.

As you can see in the example above, the OPC DA Servers branch contains its configured servers. However, only servers that enable DirectAccess are present. OPC clients can then use this branch to access any data item in any configured OPC DA server by directly specifying its address.

For OPC DA servers in the DirectAccess branch, the Cyberlogic OPC Server provides a hint to help you properly enter the ItemID for items that may exist on the selected device.

Address Hints

In the example above, {Enter full ItemID delimited by two double quotes} is the ItemID hint.

Therefore, to access a data item called *TotalParts* in a device called *Prod* using DirectAccess to the OPC Server, you would edit the Item ID field at the top of the dialog box to read:

DirectAccess.OPC DA Servers.Area 1 OPC Computer.Assy 1 OPC Server."Prod.TotalParts"

To access the same data item using DirectAccess to the device, you would edit the Item ID to read:

Assembly Area OPC Servers.South Assy.DirectAccess."Prod.TotalParts"

Here is a brief explanation of the other address hints:

{Any valid reference}#{Conversion}

This form allows you to apply a previously configured data conversion to a raw register value in order to convert it into a form that is more useful to the client. When the conversion name is preceded by a # sign, the canonical data type for the requested data will always be VT_R8 (64-bit floating point). Here is an example:

Assembly Area OPC Servers.South Assy.DirectAccess."Prod.TotalParts"#100%

In the above example, the *100%* is the name of the conversion.

{Any valid reference}@{Conversion}

This form allows you to apply a previously configured data conversion to a raw register value in order to convert it into a form that is more useful to the client. When the conversion name is preceded by an @ sign, the canonical data type will match the data type of the requested register. Here is an example:

Assembly Area OPC Servers.South Assy.DirectAccess."Prod.TotalParts"@P200

In the above example, the *P200* is the name of the conversion.

Note

If the Item ID you wish to use already contains a double-quote mark, you must replace it with a double double-quote.

Event Viewer

During startup and operation, the Cyberlogic OPC Server may detect problems or other significant events. When a noteworthy event is detected, the server sends an appropriate message to the Windows Event Logger. You can view these messages using the Windows Event Viewer. Its use is described in detail in the [Cyberlogic OPC Server Help](#).

For an explanation of the error messages that may be logged by the OPC DA Driver Agent, refer to the [OPC DA Driver Agent Messages](#) section.

OPC DA Driver Agent Messages

This section shows Error Log messages that can be generated by the OPC DA Driver Agent (*OpcDriverClassSrv* in the Source column). The main Cyberlogic OPC Server module can also log error messages (*CybOpcRuntime* in the Source column). For a list of these messages, refer to the [Cyberlogic OPC Server Help](#).

Registration DLL failed to load. The I/O operations of the server have been disabled. Reinstall the product.

The installation program should have copied this DLL into the Windows system32 directory. Reinstall the product.

Registration verification failed. The I/O operations of the server have been disabled. Reinstall the product.

The server could not access the registration information, which is gathered and stored during the installation process. Reinstall the product.

Memory allocation error in <function name>. Close some applications. Add more memory to your system. Contact the manufacturer's technical support.

The specified function failed to allocate the needed memory. This is a fatal error. If you are running low on memory, close some applications or add more memory to your system. If the problem continues, contact technical support for more information on a possible solution.

Unexpected error in <function name>. Please contact the manufacturer's technical support.

Indicates a possible programming bug in the server. Contact technical support for more information on a possible solution.

Unexpected error in <function name> (Error code = <error code>). Please contact the manufacturer's technical support.

Indicates a possible programming bug in the server. Contact technical support for more information on a possible solution.

Memory allocation error in <function name>. The server may not operate correctly. Close some applications. Add more memory to your system. Contact the manufacturer's technical support.

The specified function failed to allocate the needed memory. The server will continue to operate, but some functions may not work. If you are running low on memory, close some applications or add more memory to your system. If the problem continues, contact technical support for more information on a possible solution.

This is a <hours>-hour promotional copy of the OPC DA Driver Agent. The Cyberlogic OPC Server started at <start time> and the agent will stop at <stop time>.

This is a time-limited installation of the software. After the stop time, the driver agent will not allow any further I/O operations.

The Cyberlogic License Server failed to respond with valid license information. The I/O operations of the DHX driver agent have been disabled. Contact the manufacturer's technical support.

The driver agent experienced a problem when it tried to contact the Cyberlogic License Server. If the license server is not running, start it and then try restarting the OPC server. If the license server is already running, contact Cyberlogic Tech Support.

This is a promotional copy of the OPC DA Driver Agent. The server will operate for <time limit> hours.

This is a time-limited version of the Cyberlogic OPC Server. For information on upgrading to the full version, contact your Cyberlogic distributor or visit Cyberlogic's website at www.cyberlogic.com.

This is a promotional copy of the OPC DA Driver Agent. The allowed operation time has expired. The I/O operations of the server have been disabled.

This is a time-limited version of the OPC DA Driver Agent and the allowed operation time has expired. For information on upgrading to the full version, contact your Cyberlogic distributor or visit Cyberlogic's website at www.cyberlogic.com.

Error encountered while decrypting user password at OPC Servers level. Please re-enter new password. Defaults to no password.

The default Password for all computers and OPC servers entered on the Settings tab of the OPC DA Servers folder is corrupted. It needs to be re-entered.

Error encountered while decrypting user password at network connection <computer name>. Please re-enter new password. Defaults to no password.

The Password entered on the Settings tab of the Computer folder is corrupted. It needs to be re-entered.

Error encountered while decrypting user password at network node device <OPC server name>. Please re-enter new password. Defaults to no password.

The Password entered on the Settings tab of the OPC Server folder is corrupted. It needs to be re-entered.