Woodhead
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DeviceNet OPC Data Access Server

User Guide

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This document applies to the DeviceNet OPC Data Access Server.

At Woodhead, we strive to ensure accuracy in our documentation. However, due to rapidly evolving products, software or hardware changes occasionally may not be reflected in our documents. If you notice any inaccuracies, please contact us (see Appendix B of this document).

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Hardcopies are not controlled.

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Preface

Preface Sections:

- Purpose of this Guide
- Conventions

Purpose of this Guide

This guide contains technical and product-related information on the OPC Data Access Server for the Woodhead DeviceNet family of interface cards.

This OPC Data Access Server complies with specifications 2.05a and 3.0 of the OPC Foundation, allowing you to access devices on your DN network from any OPC client application via one or more cards.

Conventions

This guide uses stylistic conventions, special terms, and special notation to help enhance your understanding.

Style

The following stylistic conventions are used throughout this guide:

Bold indicates field names, button names, tab names, executable files, and options or selections

Italics indicates keywords (indexed) or instances of new terms and/or specialized words that need emphasis

CAPS indicates a specific key selection, such as ENTER, TAB, CTRL, ALT, DELETE

`Code Font` indicates command line entries or text that you'd type into a field

Underlining indicates a hyperlink

">" delimiter indicates how to navigate through a hierarchy of menu selections/options

"0x" indicates a hexadecimal value

Terminology

The following special terms are used throughout this guide:

Deadband An area of signal range where no action occurs. A value change greater than the deadband percentage will cause the exception limit to be exceeded and the new value to be used.

OPC OLE for Process Control

Topic Represents a data source available through the OPC server

Special Notation

The following special notations are used throughout this guide:

Warning

Warning messages alert the reader to situations where personal injury may result. Warnings are accompanied by the symbol shown, and precede the topic to which they refer.

Caution

Caution messages alert the reader to situations where equipment damage may result. Cautions are accompanied by the symbol shown, and precede the topic to which they refer.

Note

A note provides additional information, emphasizes a point, or gives a tip for easier operation. Notes are accompanied by the symbol shown, and follow the text to which they refer.

1

General Information

Chapter Sections:

- OPC Overview
- OPC Server Highlights
- Limitations

1.1 OPC Overview

The Woodhead DeviceNet package contains high-level software interfaces that allow you to access network data. Using these interfaces, client applications can manipulate data independently of card access management and communication.

OPC: What is it?

OPC is a communication standard based on OLE/COM technology, a special means of exchanging data between MS-Windows applications. The COM model ensures interoperability between software components developed by different publishers. This interoperability is independent of the development languages used. COM can be considered as a software bus, playing a Plug and Play role between software modules.

The OPC Foundation publishes and maintains specifications for the automation industry. These specifications are intended to provide maximum interoperability between control/ command/supervision applications, industrial facilities (APIs, sensors and actuators) and office-based management applications.

OPC Data Access is one such specification. It describes all the objects and interfaces that every OPC Data Access server must implement to expose data to client applications. These applications can then access the data using generic methods, on a one-off (synchronous or asynchronous query) or event-related (subscription) basis.

For more information on OPC specifications, you can visit the OPC Foundation website: http://www.opcfoundation.org.

1.2 OPC Server Highlights

The DeviceNet OPC Server ("DnOpcServer.exe") has the following characteristics:

General Characteristics

- Complies with OPC Data Access Custom Interface Specifications 2.05a and 3.0
    - Can be used easily from any application incorporating an OPC client interface (supervision applications, communication ActiveX components and applications written in C or C++)
- May be used locally (from a client application on the same machine) or remotely through DCOM (from a client application on another machine over the network)
- Is compatible with Windows 2000 SP4 (minimum), Windows XP SP2 (minimum) Windows 2003 Server, and Windows Vista environments
- May be used as a simple executable file or in the form of a Windows NT service

DeviceNet Functionality

- The OPC server allows the user to work simultaneously with one or more DeviceNet cards
- When used with a card configured as a master/scanner, the OPC server will allow access to the following DeviceNet data:
    - I/O data of scanner-configured client connections to devices
- When used with a card configured as a server, the OPC server will allow access to the following DeviceNet data:
    - I/O data of the configured server
- The master/scanner and server functions can be used simultaneously

Additional Capabilities

- Items exposed by the OPC server are declared in the configuration console during network configuration. The console generates default item names and parameters automatically. It is then possible, if necessary, to modify the parameter settings of these items to:
    - Rename them
    - Change their type
    - Define their limiting values (for non-Boolean items)
    - Specify a particular format (BCD, signed, etc.)
- The OPC server is installable and usable in a stand-alone way (without the presence of the configuration console on the same PC). However, configuration files generated from the console will be needed to start the OPC server
- If required, the OPC server has a complete diagnostic environment, allowing you to examine the connections' internal organization (OPC clients, requested tags, etc.), to spy on a particular item and to create traces
- The server can operate in "Offline" mode if necessary (i.e. if the card is missing).
  This mode allows you to browse items and define all of the connections in your client application under development

1.2.1 Supported Objects and Interfaces

OPCServer	**2.05a**	**3.0**
IUnknown	Required/supported	Required/supported
IOPCServer	Required/supported	Required/supported
IOPCCommon	Required/supported	Required/supported
IConnectionPointContainer	Required/supported	Required/supported
IOPCItemProperties	Required/supported	N/A
IOPCBrowse	N/A	Required/supported
IOPCServerPublicGroups	Optional /Not supported	N/A
IOPCBrowseServerAddressSpace	Optional/supported	N/A
IOPCItemIO	N/A	Required/supported
OPCGroup		
IUnknown	Required/supported	Required/supported
IOPCItemMgt	Required/supported	Required/supported
IOPCGroupStateMgt	Required/supported	Required/supported
IOPCGroupStateMgt2	N/A	Required/supported
IOPCPublicGroupStateMgt	Optional/Not supported	N/A
IOPCSyncIO	Required/supported	Required/supported
IOPCSyncIO2	N/A	Required/supported*(2)
IOPCAsyncIO2	Required/supported	Required/supported
IOPCAsyncIO3	N/A	Required/supported*(2)
IOPCItemDeadbandMgt	N/A	Required/supported
IOPCItemSamplingMgt	N/A	Optional/supported*(1)
IConnectionPointContainer	Required/supported	Required/supported
IOPCAsyncIO	Optional/ Not supported	N/A
IDataObject	Optional/ Not supported	N/A

*(1): IOPCItemSamplingMgt is supported, but buffering is not.

*(2): Writing of timestamp and quality is not supported.

Note

OPC specification DA 3.0 allows the quality and timestamp of items using interfaces IOPCItemIO, IOPCSyncIO2 and IOPCAsyncIO3 to be written. However, the OPC server does not implement these functions. It rejects them with an OPC_E_NOTSUPPORTED error, as defined in the specification.

1.3 Limitations

- While operating, the OPC server is treated as the only master/scanner running on the DeviceNet network, and as such, prevents other applications from accessing the card. In addition, the OPC server re-initializes the DeviceNet interface card(s) and network at startup. Therefore,
    - If another application is already connected to one or more DeviceNet cards, those cards will be unable to go online. If no cards are able to go online, the OPC Server will start in "Offline" mode" (no real access).
    - If the OPC server is already running, another application can be started in read-only access mode, and the Woodhead DeviceNet Diagnostic tool can be started and used in Monitoring Mode.
- The text items returned by the OPC server and the entire graphical interface (diagnostic, log files, etc.), are only in English
- The OPC server does not support OPC DA specification 1.0a, which is considered obsolete

2

Accessing Data

Chapter Sections:

- Connecting to the Server ProgID
- Accessing OPC Server Data
- Data Naming Principle
- Supported Items
- Predefined System Topic Items
- Predefined “Device” and “Server” Topic Items
- “Device” and “Server” Topic Data Items
- Browsing ItemIDs
- Timestamping Data Items
- Item Quality

2.1 Connecting to the Server ProgID

The OPC server is identified using its ProgID (program identifier):

"Woodhead.DnOpcServer"

2.2 Accessing OPC Server Data

To access data from an OPC client, the specification provides three methods:

Method	Comments
Event-related	The client subscribes to a group in order to be notified, on an event-related basis, of changes to item values. Only the active points of the changed group are returned to the client. The group refresh rate determines the minimum period between two transmissions of values.
Synchronous	The client asks explicitly for an item to be read or written. The client remains blocked during request processing.
Asynchronous	The client asks explicitly for an item to be read or written. The call is non-blocking. The result of the read or write is subsequently returned.

In application packages that are themselves OPC clients, the client typically manages data access methods in a fashion that is hidden from the user. If this is not the case, the following considerations should be taken into account:

- The event-related mode generates minimal traffic between the server and the client, as only changed item values are returned. It is thus the most efficient of the three modes.
- In asynchronous mode, if requests are made faster than the server can process them, they are queued. If too many queries are queued, requests may be refused.

2.3 Data Naming Principle

The OPC specification stipulates that the client application should reference a variable using a string of characters named *ItemID*. In this OPC server, the OPC ItemID concatenates a *topic name* and an *item name*:

- The topic name defines the variable location.

  There are three types of topic names, representing different kinds of data sources:

  - “Device” topics represent the devices configured on the DeviceNet network (master/scanner operation of the card). The names of these topics can be specified in the configuration console.
  - The “Server” topic represents a DeviceNet card used as a local slave/server. The name of this topic can be specified in the configuration console.
  - The “System” topic symbolizes the OPC server itself and allows access to internal server data (state, general metrics).

- The item name designates the variable itself.

  For “Device” or “Server” topics, the item name is used to define the requested item and is specified in the configuration console. Some predefined item names also allow access to the status or metrics relevant to the topic.

Notes

- In the string referencing the item, the delimiter is a period, “**.**”.
- The OPC specification also allows the client to use an AccessPath, which the OPC server does not require. However, if it is not void, it will be concatenated with the ItemID string supplied by the client to create the ItemID used by the server. For example, if the client supplies an AccessPath string of "TOPIC" and an ItemID string of “ITEM”, the server will use the string TOPIC.ITEM as the ItemID.

2.4 Supported Items

Topic Name	Item Name	Comments
System (predefined)	State StateStr StateMsg ItemCount ActiveItemCount ErrorCount (predefined)	Diagnostic and control variables for the server. Refer to Section 2.5, Predefined “System” Topic Items.
"Device" Topic (configured for each device on the network in the configuration console)	Status StatusError StatusLastError ItemCount ActiveItemCount ErrorCount (predefined)	Diagnostic and control variables for the device. Refer to Section 2.6, Predefined “Device” and “Server” Topic Items.
	<All configured items> (declared in the configuration console)	I/O data of the device. Refer to Section 2.7, "Device” and “Server” Topic Data Items.
"Server" Topic (configured for the local slave/server in the configuration console)	Status StatusError StatusLastError ItemCount ActiveItemCount ErrorCount (predefined)	Diagnostic and control variables for the local slave/server. Refer to Section 2.6, Predefined “Device” and “Server” Topic Items.
	<All configured items> (declared in the configuration console)	I/O data of the local slave/server. Refer to Section 2.7, “Device” and “Server” Topic Data Items.

2.5 Predefined "System" Topic Items

Item	Type	Description
State	VT_I2 read-only	Binary status indication of the OPC server operating mode: 0: The OPC server is Online 1: The OPC server is Offline Refer to Section 4.1, Online and Offline Mode.
StateStr	VT_BSTR read-only	Indication, in ASCII form, of the OPC server operating mode: "ONLINE": The OPC server is Online "OFFLINE": The OPC server is Offline Refer to Section 4.1, Online and Offline Mode.
StateMsg	VT_BSTR read-only	Indication, in ASCII form, of the OPC server operating mode's explanation. Possible values for ONLINE mode: • "DnOpcServer OK, %s card(s) detected" Possible values for OFFLINE mode: • "Card %s not detected" (Card %s is not present) • "Connection Impossible for card %s: exclusive access right denied" (Another application is already connected to card %s with write access rights) • "Connection Impossible for card %s: Card In Use" (Another application is already connected to card %s) • "Access denied for card %s. Software protection issue" (Card %s does not authorize use of the OPC server) • "Configuration file(s) not found" (At least one necessary configuration file is not present) • "Impossible to connect to the Card %s : Status" (An error occurred during connection to the card(s) or during re-initialization)
ItemCount	VT_UI4 read-only	Number of items (both active and inactive) added to the OPC server by all clients.
ActiveItemCount	VT_UI4 read-only	Number of active items added to the OPC server by all clients.
ErrorCount	VT_UI4 read-only	Number of times the device connection status has changed from OK to fault.

2.6 Predefined “Device” and “Server” Topic Items

Item	Type	Description
Status	VT_UI1 read-only	Binary status of the connection between the device or server and the item. The status is set based on StatusError. Possible values: 192: OK, Active 128: OK, Idle 0: fault
StatusError	VT_UI1 read-only	Binary status error type indication of the connection between the device or server and the item. The status is read directly from the DN card DPM, using the Status Code field in the Device Status Table for a device, or the Server Status Block for a server. To understand the meaning of this byte, refer to the relevant Firmware Reference Guide.
StatusLastError	VT_UI1 read-only	Binary status error type indication of the last bad connection between the device or server and the item.
ItemCount	VT_UI4 read-only	The number of items (both active and inactive) added to the server by all clients for the relevant topic.
ActiveItemCount	VT_UI4 read-only	The number of active items added to the server by all clients for the relevant topic.
ErrorCount	VT_UI4 read-only	The number of times the device or server status has changed from OK to fault.

2.7 “Device” and “Server” Topic Data Items

Note

Item names useable in the OPC server are set in the configuration console. For more specific information, consult the configuration console manual.

When device items are declared in the configuration console, the console generates default names and parameters automatically. It is then possible, if necessary, to modify the items' parameter settings to:

- Rename them:
    - The following characters are not allowed:

      : . & é "‘ (- è ç à) = + } °] @ \ ` | [{ ~ ² < > ? / § ! µ * ^ ¤ £ ù % ‘space’ ‘nothing’

    - Names must have fewer than 32 characters.
- Resize them. The following types may be used, as a simple variable or table:

<table>
<tr><th>Variable</th><th>Default Canonical Type</th></tr>
<tr><td>Boolean</td><td>VT_BOOL or VT_ARRAY | VT_BOOL</td></tr>
<tr><td>Byte</td><td>VT_UI1 or VT_ARRAY | VT_UI1</td></tr>
<tr><td>16-bit word</td><td>VT_I2 or VT_ARRAY | VT_I2</td></tr>
<tr><td>32-bit word</td><td>VT_I4 or VT_ARRAY | VT_I4</td></tr>
<tr><td>IEEE floating point value</td><td>VT_R4 or VT_ARRAY | VT_R4</td></tr>
</table>

- Define limiting values (for non-Boolean items):
    - The limiting values will be used for calculating the deadband.
    - The values are also taken into account by the quality states returned when a limit is exceeded.
    - If no particular value is specified, the default values for the data type are used.

- Specify a particular format (depending on the data type):
  - BCD: allows the item to be processed as a value in BCD format.
  - Signed: allows, if necessary, the item's default canonical type to be changed, specifying that the data is signed.
  - Unsigned: allows, if necessary, the item's default canonical type to be changed, specifying that the data is unsigned.

Note

Data items can be used:

- In networks where the card is the master/scanner. In this case, the output items can be read and written.
- In the server. In this case, the output items can be read and written. Output variables correspond to the input data of the remote master, and vice-versa.

2.8 Browsing ItemIDs

The OPC server supports browsing (interface IOPCBrowseServerAddressSpace (optional) of specification DA 2.05a and IOPCBrowse of specification DA 3.0). This allows client applications to search available items in the OPC server addressing space, supplying a list of valid ItemIDs.

The client application can use the browsing functionality even when the OPC server is offline (no card access).

Note

The OPC server addressing space is structured in hierarchical fashion: topic > name.

2.9 Timestamping Data Items

A timestamp indicates the last time the variable's value was changed, as detected by the server. If the client makes two successive read operations in synchronous or asynchronous mode with respect to a given variable, the returned timestamp may be identical if the value has not changed in the meantime.

2.10 Item Quality

A quality state is associated with each item returned to the client.

The following table indicates the various quality states used by the OPC server:

Quality			Meaning
Dec	Hex	Binary	
0	0x0000	0000 0000	The data element's quality is poor. The returned value is not useable.
20	0x0014	0001 0100	The data element's quality is poor. The returned value matches the last known value of good quality.
24	0x0018	0001 1000	The data element could not be read or written, following a communication problem between the facilities and the server. The value of the returned data element is not useable.
32	0x0020	0010 0000	The data element is waiting for a first event-related return.
64	0x0040	0100 0000	The data element's quality is undetermined. The returned value is not useable.
192	0x00C0	1100 0000	The data element has been read correctly and any conversions have been successfully executed.
193	0x00C1	1100 0001	The data element's value is less than the minimum configured value. However, the data element's value is correct and useable.
194	0x00C2	1100 0010	The data element's value is greater than the maximum configured value. However, the data element's value is correct and useable.

3

Setting OPC Server Parameters

Chapter Sections:

- Setting General OPC Server Parameters
- Configuring Topics and Items

3.1 Setting General OPC Server Parameters

The OPC server supports options that can be set in the configuration console (**OPC Server Parameters** in the Configuration Description Area). Additional options appear when the console is switched to Expert mode.

Option	Mode	Description
Enable Server Diagnostic View	Normal	Enables the context menu of the taskbar icon, which allows the graphical diagnostic environment to start.
Deadband Range	Expert	Specifies the way in which the OPC server interprets the PercentDeadband parameter for calculating the deadband. By default, the server considers the value received to be between 0 and 100. Refer to Section 5.2, Deadband.
Boolean Compliant to 2.05	Expert	Specifies the format used by the OPC server for Boolean items. Checked: The format complies with OPC specification 2.05a and higher (-1; 0). Unchecked: The format does not comply with OPC specification 2.05a: (1; 0).

3.2 Configuring Topics and Items

Useable topic and item names are set in the configuration console. Consult the Configuration Console documentation for more details.

Note

Certain predefined topics and/or items cannot be renamed.

4

Starting the OPC Server

Chapter Sections:

- Online and Offline Mode
- Using the OPC Server without the Configuration Console
- Using the OPC Server as a Windows NT Service

4.1 Online and Offline Mode

When the OPC server is started, it attempts to connect to the hardware interfaces, reinitialize the network and detect any operational anomalies. It will then operate in either Online or Offline mode.

4.1.1 Online Mode

In Online mode, the OPC server is in normal operational condition, meaning that it can properly access the DeviceNet network associated with one or more cards.

4.1.1.1 Initializing the Network at Startup

Each time the OPC server is started, it will try to initialize the DeviceNet card(s). To this end, it uses the configuration files generated by the configuration console.

Initialization requires that no other application be connected to the card when the OPC server starts, otherwise, those cards will be unable to go online. If no cards are able to go online, the OPC Server will start in Offline mode.

Notes

- When the OPC server is running, it is possible to start another application in read-only access mode, and the Woodhead DeviceNet Diagnostic tool can be started and used in Monitoring Mode.
- Initialization occurs when the OPC server starts up and not on first connection to a client application. It is thus possible to control the moment of initialization, either by starting the OPC server manually (simple executable), or by using the OPC server's NT service form in Automatic Start-up mode.

4.1.2 Offline Mode

After starting up, the OPC server is switched automatically into Offline mode if it cannot establish a connection with at least one of the DeviceNet cards. This can occur for any of the following reasons:

- **Card not present**

  One of the configuration cards is not present or is not detected.

- **Another application is already connected to the DeviceNet card**

  The OPC Server cannot re-initialize the network. Close all applications using the card.

- **Protection problem**

  The card does not have licensing rights for use with the OPC server.
  Run “ViewerKeyDn3” to verify your rights, and then consult with your vendor.

- **Configuration file not present**

  At least one configuration file is not present in the configuration folder. When the Console is used on another computer, please transfer the configuration (see the Configuration Console documentation).

- **Invalid configuration file**

  The configuration is invalid and therefore prevents the DeviceNet card from going online.

- **Scanner error**

  An error has occurred in the scanner DLL while attempting to detect, open, configure, or go online with a DeviceNet card.

While operating in Offline mode, the OPC server allows the following behaviors:

- OPC clients can connect to the server normally
- Items can be browsed and added within the client applications
- All items corresponding to network data will be returned with poor-quality states

Notes

- The OPC client application can determine the operational mode of the OPC server using System.State, System.StateStr and System.StateMsg.
- If the OPC server was started in Offline mode, it is no longer possible to switch back to Online Mode without stopping and restarting the server.

4.2 Using the OPC Server without the Configuration Console

The OPC server can be installed and used on a machine where the network configuration console is not present. However, to allow the network and names of useable topics and items to be configured, there must be a configuration console on the machine.

The server relies on configuration files generated by the console to initialize the network and expose the appropriate items. These files must be present for the OPC server to operate normally. To transfer a configuration file to the OPC server station:

1. In the Configuration Console, go to **File > Export**. This enables the active configuration to be copied to another PC or physical media.

2. On the other computer, restore the exported configuration files to the DeviceNet software default configuration folder. For Windows 2000 and XP, this folder is typically "C:\Program Files\SST\DeviceNet\DN3\Console\CONFIG\Config01". For Windows Vista, it is typically "C:\ProgramData\SST\DeviceNet\DN3\Config\Config01".

4.3 Using the OPC Server as a Windows Service

To use the OPC server as a Windows service, it is recommended that client applications be successfully used with it in normal mode prior to service mode:

By default, the OPC server installation does not use service mode. To use this mode, go to **Start > Run** and enter `DnOpcServer -service`. To switch back to executable mode, go to **Start > Run** and enter `DnOpcServer -regserver`. You will need administrator rights to enter these commands. For Windows Vista, set the DnOpcServer.exe application to "Run as Administrator" if you are using the OPC server in service mode, which can be set within the file properties. If you later change it back to executable mode, uncheck "Run as Administrator".

Note

To switch the OPC server from executable mode to service mode and vice versa, you must verify that the OPC server is stopped before using the above commands. Otherwise, the commands will have no effect.

Note

In service mode, the diagnostic environment cannot be activated.

5

Advanced Functions

Chapter Sections:

- Managing OPC Groups
- Deadband

5.1 Managing OPC Groups

The OPC client creates groups to organize the data it needs to access. A group may contain numerous variables.

In application packages that are themselves OPC clients, the client typically manages data access methods in a fashion that is hidden from the user. If this is not the case, the following considerations should be taken into account:

- Group level is where the client application can set the refresh rate.
- The application can activate or deactivate a group (i.e. authorize or prohibit feedback of event-related data in relation to all of the groups' data).
- Deadband can be managed at group level. OPC specification DA 3.0 allows deadband to be set for each item through the IOPCItemDeadbandMgt interface. This replaces or cancels any deadband that may have been configured at group level.

Note

Some client applications set the group refresh rate to 0 (to return data as quickly as possible). This can affect the server and client's data flow scale, undermining the system's general performance. The OPC server must therefore use a minimum refresh rate of 25 ms (minimalUpdateRate of the OPC specification).

Note

To support OPC specification DA 3.0, the OPC server implements optional interface IOPCSamplingMgt. This allows a sampling period to be defined for each item. The server will then sample the item, using the period configured in relation to it. The item's notification "callback" will be sent using only the period configured for the group.

5.2 Deadband

The client application can specify a *deadband* at either of the following levels:

- Group level: the server assigns the deadband to all group items.
- Item level: the server assigns a specific deadband to each item (specification 3.0 only).

This parameter indicates the minimum percentage change needed to send the item's value to the client application. It affects only the event-related information feedback mode.

Not all OPC clients set this parameter in the same manner. Therefore, the OPC server allows each configuration's range to be defined:

- 0 and 100 (1% = 1). This option is the default and matches the OPC specification.
- 0 and 1 (1% = 0.01).

Deadband requires that the relevant variable be analog and that it have a maximum and minimum value, enabling a change percentage to be calculated. The item's value will be sent to the client application if:

> absolute value (last value fed back – current value) > pPercentDeadband * (max value - min value)

The maximum and minimum value may be set within the configuration console (except for predefined items). If no particular configuration has been made, it is defined based on its type:

Item	Value Range
VT_UI1	0 to 255
VT_I1	-128 to 127
VT_UI2	0 to 65535
VT_I2	-32768 to 32767
VT_UI4	0 to 4294967295
VT_I4	-2147483648 to 2147483647
VT_R4	–3.4e+38 to 3.4e+38
VT_R8	-1.79e+308 to 1.79e+308

6

Diagnostic Interface

Chapter Sections

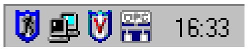
6.1 Overview of Diagnostic Interface

By default, the OPC server has no graphical interface. However, when used as a traditional application (simple executable), the server can build a complete diagnostic environment, allowing the OPC's internal behavior to be analyzed.

Note

The diagnostic interface is not available when the server is used as a Windows NT service. If necessary, it can be changed back to a simple executable.

After the server has started (as an executable), an icon appears in the taskbar (if allowed by the DCOM security criteria):



By default, this icon has no context menu. To activate the context menu, follow these steps:

1. In the Configuration Console, open the OPC Server Parameters dialog box.
2. Select **Enable Server Diagnostic View**.

A context menu will be displayed when you right-click the mouse on the taskbar icon. You can now:

- Display the diagnostic environment (Diagnostic menu command).
- Close the server (Exit menu command).

As the interface consumes resources, it must not be activated during operational phases.
The interface allows:

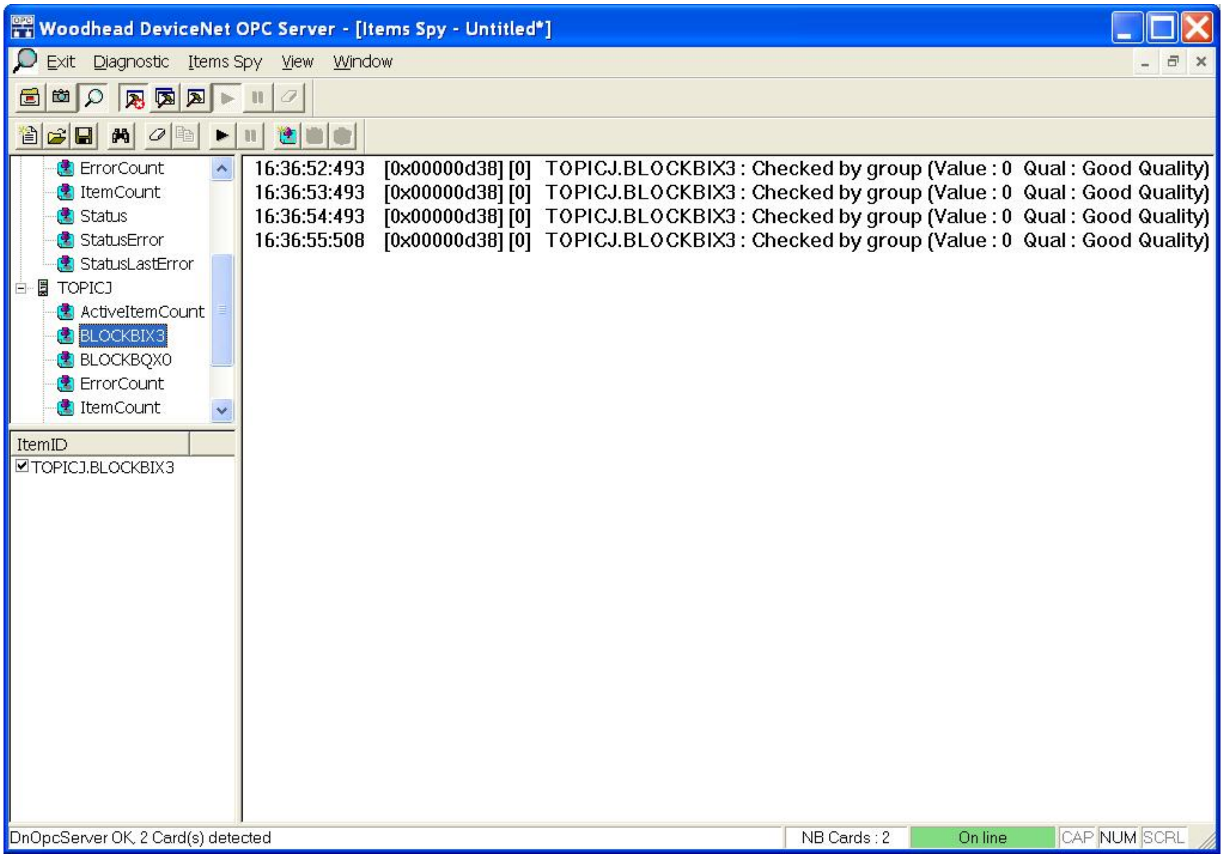
- Files to be generated that can be used automatically by **DumpLogger.exe**. These files contain configuration and communication settings data.
- Traces to be displayed and a log file (dnopcserver.log) to be generated, enabling the server's general behavior to be checked, along with communication with the client applications.
- Spying on item-related events, via a trace file (dnopcserverspy.log).

General Commands

Icon	Description
🗔	When you press this button, dumpOPC.xml is created in the current configuration folder. **DumpLogger.exe** is launched and immediately loads the .xml file, displaying the items and groups managed by the OPC server. This view is static. To update it, the command must be run again. Double-clicking one of the objects in the tree displays a dialog box that allows a list of the object's internal properties to be displayed.
📷	When you press this button, dumpTopic.xml" is created in the current configuration folder. **DumpLogger.exe** is launched and immediately loads the .xml file, displaying the topics that are configured and useable within the OPC server.
🔍	Allows a list of items to be spied on. Refer to Section 6.2, Spy View.
✖	Closes the diagnostic environment's message area.
🗔	Activates the message area, displaying all messages in a single window. Refer to Section 6.3, Message View.
🗗	Activates the message area, using several display windows, each containing different message categories. Refer to Section 6.3, Message View.
?	Displays application-relevant information.

6.2 Spy View

This view is divided into three parts. The top-left window contains a tree view that allows the various accessible data elements to be viewed. The bottom-left window shows the list of items to be watched. The right-hand window displays the event messages associated with the listed items.



```
16:36:52:493   [0x00000d38] [0]   TOPICJ.BLOCKBIX3 : Checked by group (Value : 0  Qual : Good Quality)
16:36:53:493   [0x00000d38] [0]   TOPICJ.BLOCKBIX3 : Checked by group (Value : 0  Qual : Good Quality)
16:36:54:493   [0x00000d38] [0]   TOPICJ.BLOCKBIX3 : Checked by group (Value : 0  Qual : Good Quality)
16:36:55:508   [0x00000d38] [0]   TOPICJ.BLOCKBIX3 : Checked by group (Value : 0  Qual : Good Quality)
```

DnOpcServer OK, 2 Card(s) detected

Spying on an Item

1. In the browser, select the item to be watched.

2. Drag-move the item from the tree view to the list below (bottom-left window).

3. If necessary, change the item's name (press F2) and select it via the checkbox.

4. Start the watch by clicking ▶. Once this button is clicked, you can no longer modify the items being watched. However, it is still possible to add items to the list and modify those which are not active.

5. The watch may be stopped by clicking ⏸.

Note

The **Logger parameters…** command in the Diagnostic menu allows all messages displayed in the view to be saved in DnOpcServerSpy.log, located in the configuration folder. These parameters also apply to DnOpcServer.log.

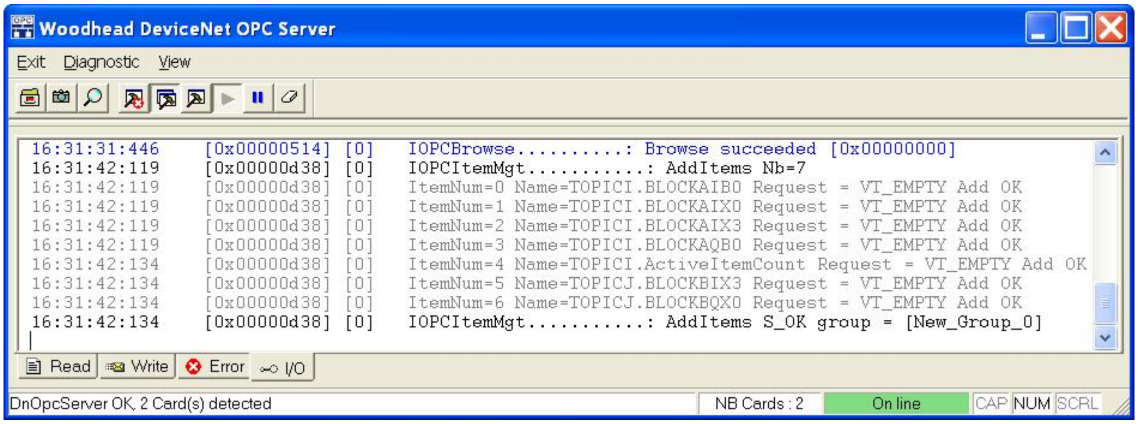
Available Commands

Icon	Description
📄	Creates a new list of items to watch. If there is already a list and it has not been saved, a message appears.
📂	Opens a previously saved list of items to be watched. If there is already a list and it has not been saved, a message appears.
💾	Allows the active list of watched items to be saved to disk.
🔍	Searches for a string of characters in the current window. It is case-insensitive.
▶	Deletes all messages in the message display window.
📋	Copies selected text from the message window to the clipboard, where it can be pasted into any other text file.
▶	Puts all selected items in the list under watch.
❚❚	Stops watching all items.
➕	Adds the selected item from the tree to the list.
✖	Deletes the selected item from the list.
✓	Selects the item (or items) to be watched.

6.3 Message View

This view allows application execution details to be displayed. It is activated using the following three buttons:

Icon	Description
	Closes the message area.
	Displays the area by incorporating all messages in the same window.
	Displays the area by separating the messages into three tabs: • **Read**: displays a message whenever the server is about to acquire a data element from the network. • **Write**: displays a message whenever the server sends a data element to the network. • **Error**: displays a message whenever an error occurs (syntax error, incorrect conversion of a value, etc.).



```
16:31:31:446     [0x00000514] [0]   IOPCBrowse..........: Browse succeeded [0x00000000]
16:31:42:119     [0x00000d38] [0]   IOPCItemMgt...........: AddItems Nb=7
16:31:42:119     [0x00000d38] [0]   ItemNum=0 Name=TOPICI.BLOCKAIB0 Request = VT_EMPTY Add OK
16:31:42:119     [0x00000d38] [0]   ItemNum=1 Name=TOPICI.BLOCKAIX0 Request = VT_EMPTY Add OK
16:31:42:119     [0x00000d38] [0]   ItemNum=2 Name=TOPICI.BLOCKAIX3 Request = VT_EMPTY Add OK
16:31:42:119     [0x00000d38] [0]   ItemNum=3 Name=TOPICI.BLOCKAQB0 Request = VT_EMPTY Add OK
16:31:42:134     [0x00000d38] [0]   ItemNum=4 Name=TOPICI.ActiveItemCount Request = VT_EMPTY Add OK
16:31:42:134     [0x00000d38] [0]   ItemNum=5 Name=TOPICJ.BLOCKBIX3 Request = VT_EMPTY Add OK
16:31:42:134     [0x00000d38] [0]   ItemNum=6 Name=TOPICJ.BLOCKBQX0 Request = VT_EMPTY Add OK
16:31:42:134     [0x00000d38] [0]   IOPCItemMgt...........: AddItems S_OK group = [New_Group_0]
```

DnOpcServer OK, 2 Card(s) detected | NB Cards : 2 | On line | CAP | NUM | SCRL

To stop messages from being traced, select **Diagnostic > Output View > Stop Messages**, and to resume tracing, select **Restart Messages**. Both commands act on all message windows at the same time. Upon stopping or resuming, a message appears in each window. **Clear Output View** deletes all messages in the visible window. Other tabs' messages are not affected by this command.

Note

All messages issued by the server between a stop (Stop Messages) and start (Restart Messages) are lost.

Note

The **Logger parameters…** command in the Diagnostic menu allows all messages displayed in the view to be saved in DnOpcServer.log, located in the configuration folder. These parameters also apply to DnOpcServerSpy.log.

A

Appendix

Appendix Sections:

- Developing an OPC Client
- Using the OPC Server with DCOM

A.1 Developing an OPC Client

A.1.1 Development Context

Many applications include OPC client functionality as standard. However, you can also develop your own OPC client, using the development tool of your choice. This section is intended solely to supply basic development details.

Development can be classified in two main categories:

- Development using the custom interface.

  This interface can be used with C/C++ languages. Its use requires complete knowledge of the OPC Data Access specification, OPC mechanisms in general and OLE/COM mechanisms.

- Development using the Automation DLL.

  This interface is intended for fast development tools such as VB, Delphi, offices tools, etc. It constitutes an additional automation layer of the custom interface, useable in C/C++ languages. To use it, you must be completely familiar with the Data Access Automation Interface specification and of OPC mechanisms in general. This DLL is not supplied in the package. If necessary, the source can be obtained from the OPC Foundation.

ProgID and CLSID

The OPC server is identified using its ProgID (program identifier) and CLSID (class identifier), recorded in the computer's *registry database* during installation.

The CLSID is the single and universal identifier of the server and it is independent of its version. The ProgID is a string of characters translated from the CLSID using the *registry database*.
It is a legible CLSID synonym.

ProgID: Woodhead.DnOpcServer

CLSID: {25014d79-50ed-480a-b39d-0e4061933354}

A.1.2 Developing a Client in C and C++

The OPC server supports access through the OPC Custom Interface and is based on specifications 2.05a and 3.0 of the OPC Foundation.

These specifications describe in detail different interfaces and the role of the methods they expose. The purpose of this section is to describe particular features related to the development of an OPC client in C++, for use with the OPC Data Access Server.

A.1.2.1 Creating an OPCServer Object

To access the OPC server, the client application must:

1. Initialize the COM library.
2. Obtain the CLSID from the OPC server's ProgID.
3. Create an OPCServer object.
4. Call one or more OPCServer object functions.
5. Release the used interfaces.

This code example follows the above steps (for legibility, error cases are not handled):

```
//Step 1: Initialize the COM library
HRESULT hr;
hr = CoInitialize(NULL);

//Step 2: Obtain the CLSID from the ProgID
CLSID clsid;
hr = CLSIDFromProgID((L" Woodhead.DnOpcServer "),&clsid);

//Step 3: Create the OPCServer object and obtain the first interface
(here IOPCServer)
IOPCServer* pServer;
hr = CoCreateInstance(clsid,NULL,
CLSCTX_LOCAL_SERVER,IID_OPCServer,(void**)&pServer);

//Step 4: Call one of the functions of the interface.
…
pServer->GetStatus(…);
…

//Step 5: Release the interfaces
pServer->Release();
UnInitialize();
```

A.1.2.2 Creating an OPCGroup Object

The client creates a group by calling the IOPCServe**r** interface's **AddGroup** method, which belongs to the OPCServer object. This object contains the following parameters:

Name	Description
szName	Group name. If this is not supplied, the server generates a unique name (in the form of New_Group_x, where x is an incremental number).
dwRequestedUpdateRate	Refresh period requested by the client. The period actually accepted by the server will be returned in pRevisedUpdateRate.
dwLCID	This parameter is not used.
pPercentDeadBand	This parameter only allows item values to be returned when their percent change matches or exceeds the specified number. Refer to Section 5.1, Managing OPC Groups.

A.1.2.3 Managing Items

The client creates items by calling the **IOPCItemMgt** interface's **AddItem** method, which belongs to the **OPCGroup** object. Each item represents a connection to a physical variable. The client describes the relevant variable via an **OPCITEMDEF** structure.

The fields of this structure are as follows:

Name	Description
szAccessPath	Not actually used by the OPC server. If this field is used, its content will be concatenated to that of the item (szItemID), to form the item name.
szItemID	String of characters referencing the item.
bActive	Indicates the item's state of activation at the time of its creation.
hClient	Reference to a handle the client wishes to associate with the item.
dwBlobSize	The OPC server does not use the "blob" mechanism.
pBlob	The OPC server does not use the "blob" mechanism.
vtRequestedDataType	The data type requested by the client. A value of VT_EMPTY will use the default type (the server's canonical datatype).

Notes

- When a new item is added to a group via the **AddItems** method, the OPC server automatically determines the variable's canonical type and returns it to the OPCITEMRESULT structure's **vtCanonicalDataType** field.

- If there is no specific requirement, it is recommended that the client application always pass the VT_EMPTY value to the **vtRequestedDataType** field, allowing the server to determine the variable type.

A.2 Using the OPC Server with DCOM

A.2.1 Introduction to DCOM

What is DCOM?

COM objects, such as the OPC server, do not necessarily have to be on the same computer as the client. With DCOM (distributed COM), a client can create and use COM objects both on its own system and other machines. This allows an application's components to be distributed across the network.

The COM Library

A client does not address an object directly to start it or to use it, but goes through the COM library. This library forms part of the operating system, managing the registry database for all of the system's known COM objects.

Transparency

The local use of COM objects via DCOM or COM is transparent to the client. Through the COM library, the operating system manages the object and determines where it must be instanced, according to the configuration associated with the object.

A.2.2 Installation

When implementing the OPC solution in DCOM, you will need to do the following:

- Establish a "server station", which contains the OPC server. The server will be accessible from either a local OPC client (running on the machine), or a remote OPC client (running on another machine).
- Establish a "client station", which queries a remote station

Establishing a "Server Station"

The OPC server is installed by checking the relevant option during installation. After installation, the server can be accessed from any OPC client running on the local machine. To ensure that this works, try to connect to the server via the OPC client utility.

Establishing a "Client Station"

The DeviceNet OPC server software package includes DnOpcServer.reg, which allows the server to be registered in the registry database's client station, allowing it to be configured in the dcomcnfg utility.

To register the OPC server, double-click on DnOpcServer.reg.

A.2.3 Configuring the Windows Firewall (for Windows XP SP2 and Vista)

By default, the Windows Firewall is set to “On”, which provides your computer with the highest level of protection. If you are having difficulty configuring your system for an OPC client/server connection, you may want to temporarily turn off the Windows Firewall while diagnosing the problem.

> **Note**
>
> If your computer is sufficiently protected behind a corporate firewall, it may be appropriate to permanently turn off the Windows Firewall. When the firewall is turned off, the settings described below are not required.

To configure the Windows Firewall, follow these steps:

1. Go to the Windows Firewall settings, which can be opened from the Windows Control Panel.

2. Select the **Exceptions** tab and do the following:

   - Add all OPC client and server applications to the exception list. For in-process OPC clients and servers that use DLL or OCX files, add the EXE applications that call the in-process client or server to the exception list instead. If an application does not appear in the Add a Program list, you can use the **Browse** button to find the executable.

   - Add the Microsoft Management Console, **mmc.exe** and OPC Enumeration utility **opcenum.exe** applications to the exception list, both of which are typically located in the Windows\System32 folder.

   - Make sure that the File and Printer Sharing service is checked in the exception list.

3. Add a port to the exception list. This is needed to initiate DCOM communications and allow for incoming echo requests. Define the port with a name of “DCOM”, using a TCP port number of 135.

A.2.4 Configuring DCOM

The "DCOMCNFG" Program

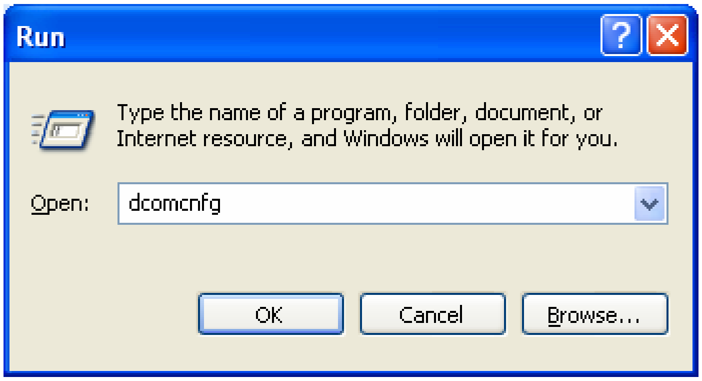
Before a client can use a COM object on another machine, the COM object properties must be configured on both the client and remote machines. DCOM and the COM objects are configured using **dcomcnfg**, which is supplied with the system. The DCOM machine default settings must be specified on the computer where the OPC client and/or server resides. Additionally, DCOM must be configured for individual OPC servers and also for the OPC Enumeration utility program, **opcenum.exe**.

Note

If you change the DCOM security parameter settings, you will need to restart the system before the changes take effect.

A.2.4.1 Configuring DCOM Machine Default Settings for Use with OPC

Start the DCOM Configuration program by going to **Start** > **Run…** and entering `dcomcnfg` in the dialog box that appears..

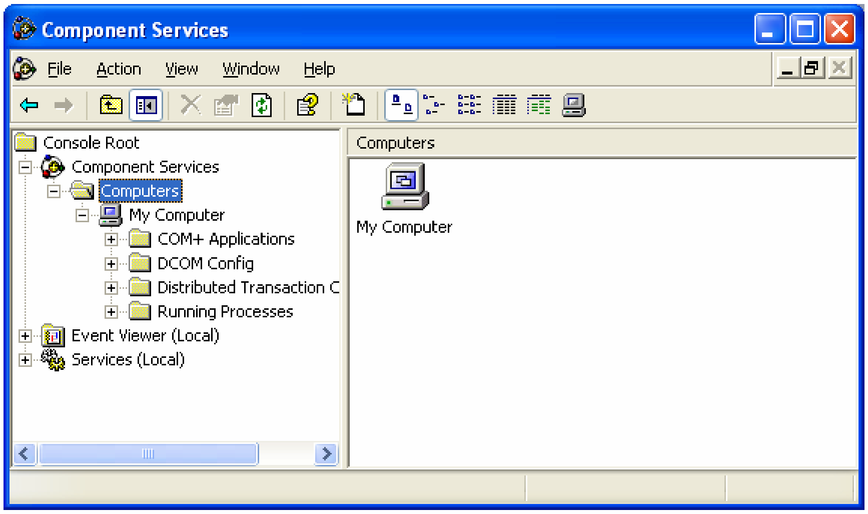

Run
?
Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:
OK
Cancel
Browse...

Open: dcomcnfg

Windows XP and Vista

To configure the default DCOM settings for the computer:

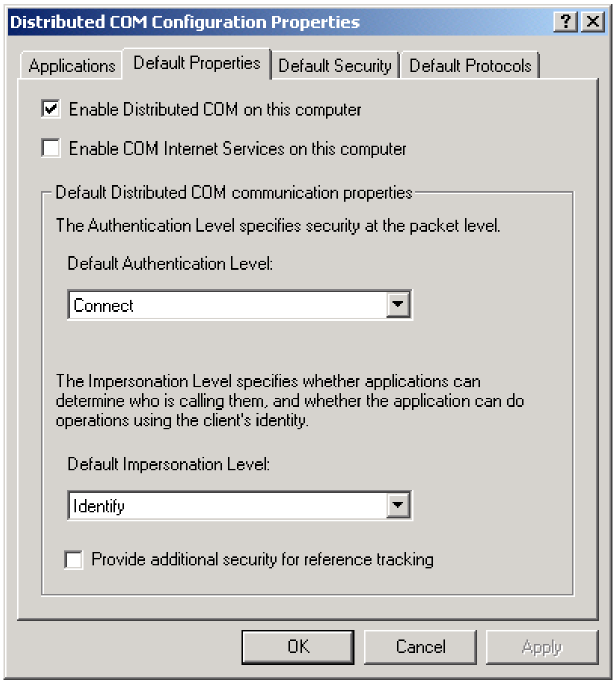
1. Click on the **Component Services** node, located under the Console Root.
2. Click on the **Computers** folder.
3. In the right-hand pane, select My Computer, followed by **Action** > **Properties** (or right-click on My Computer and select the **Properties** command).



"Default Properties" Tab

The Default Properties tab allows you to specify the basic DCOM properties for all applications globally.

Windows 2000



Distributed COM Configuration 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.

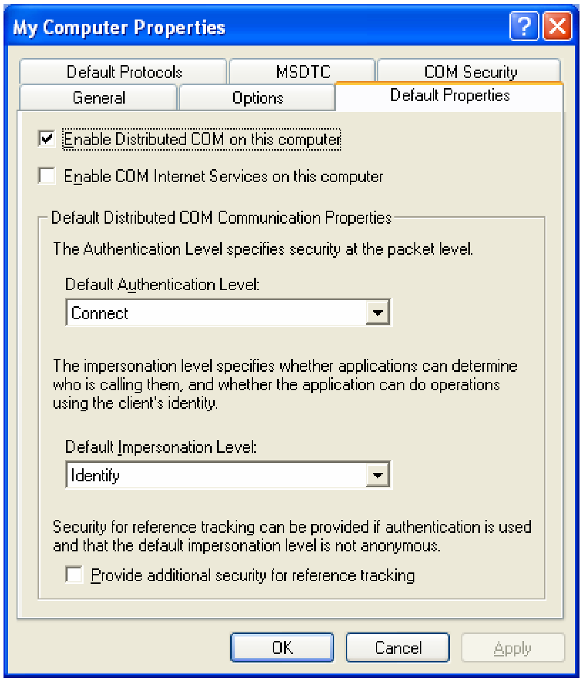
Default Authentication Level: Connect

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

□ Provide additional security for reference tracking

Windows XP SP2



My Computer 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

1. Check **Enable Distributed COM on this computer**.

2. Set the Default Distributed COM Communication Properties to the following:

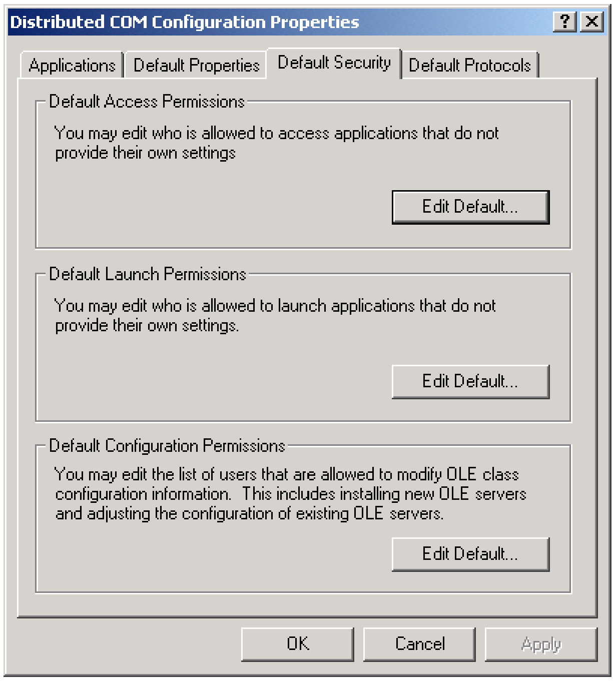
Network Controller Type	Default Authentication Level	Default Impersonation Level
Domain server (recommended network type)	Connect	Identify
Workgroup (no domain server available for the authentication)	None	Anonymous

If you will be using workgroups for your network, refer to Section A.2.4.3, Configuring DCOM on Workgroups.

"Default Security", “Default COM Security”, or “COM Security” Tab

The COM Security tab allows you to specify the default permissions for DCOM operations. These parameters ensure that only clients with the necessary permissions can use the server.

Windows 2000



Default Access Permissions

You may edit who is allowed to access applications that do not provide their own settings

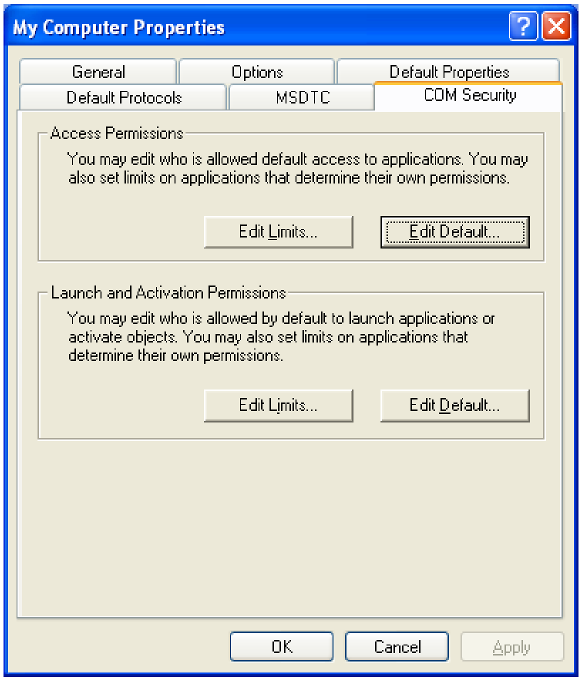
Default Launch Permissions

You may edit who is allowed to launch applications that do not provide their own settings.

Default Configuration Permissions

You may edit the list of users that are allowed to modify OLE class configuration information. This includes installing new OLE servers and adjusting the configuration of existing OLE servers.

Windows XP SP2



Access Permissions

You may edit who is allowed default access to applications. You may also set limits on applications that determine their own permissions.

Launch and Activation Permissions

You may edit who is allowed by default to launch applications or activate objects. You may also set limits on applications that determine their own permissions.

The following permissions can be set for DCOM. These permissions can also be set individually for each object (in which case, the default properties are be ignored).

Permission Type	Description
Access permissions	The Default access permissions allow you to specify, for all COM objects, which user accounts can access the object; in other words, to call its methods.
Launch permissions	The Default launch permissions allow you to specify, for all COM objects, which user accounts can create a new instance of the object.
Configuration/Activation permissions	The Default configuration/activation permissions allow you to specify, for all COM objects, which user accounts can modify the registry database information.

For Windows 2000

Edit the default access permissions. Add a group named “Everyone” to the permission list, specifying **Allow Access**. If you are going to run the server as a service, add a group named “System” to the permission list, specifying **Allow Access**.

Edit the default launch permissions. Add a group named “Everyone” to the permission list, specifying **Allow Launch**. If you are going to run the server as a service, add a group named “System” to the permission list, specifying **Allow Access**.

For Windows XP

Edit the default access permissions. Add a group named “Everyone” to the permission list, specifying an Access Permission of **Allow**. Add a group named “SYSTEM” to the permission list, specifying an Access Permission of **Allow**. Add a group named “NETWORK” to the permission list, specifying an Access Permission of **Allow**.

Edit the default launch permissions. Add a group named “Everyone” to the permission list, specifying a Launch Permission of **Allow**. Add a group named “SYSTEM” to the permission list, specifying a Launch Permission of **Allow**. Add a group named “NETWORK” to the permission list, specifying a Launch Permission of **Allow**.

For Windows XP SP2 and Windows Vista

Edit the limits for access permissions. For user “ANONYMOUS LOGON”, specify Local Access and Remote Access permissions of **Allow**.

Edit the limits for launch and activation permissions. For group “Everyone”, specify Local Launch, Remote Launch, Local Activation, and Remote Activation permissions of **Allow**.

Edit the default access permissions. For group “Everyone”, specify Local Access and Remote Access permissions of **Allow**.

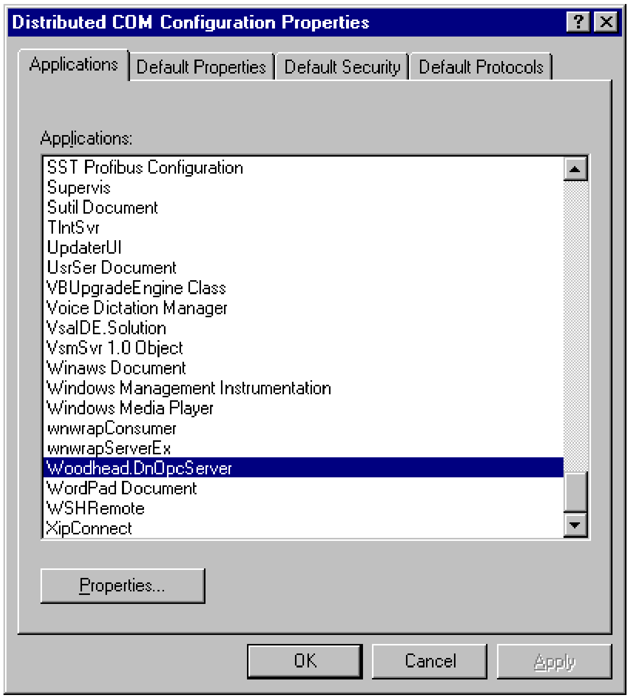
Edit the default launch and activation permissions. For group “Everyone”, specify Local Launch, Remote Launch, Local Activation, and Remote Activation permissions of **Allow**.

A.2.4.2 Configuring Woodhead.DnOpcServer OPC Server on the Client and Server Computers

You need to configure DCOM settings for the DeviceNet OPC server on each client and server computer where the OPC server is to be used. Therefore, the following steps should be carried out for each client or server computer, making sure to configure the DCOM settings for both the Woodhead.DnOpcServer application and the OpcEnum application.

For Windows 2000

The **Applications** tab in the DCOM Configuration program displays all of the COM objects available on the machine.

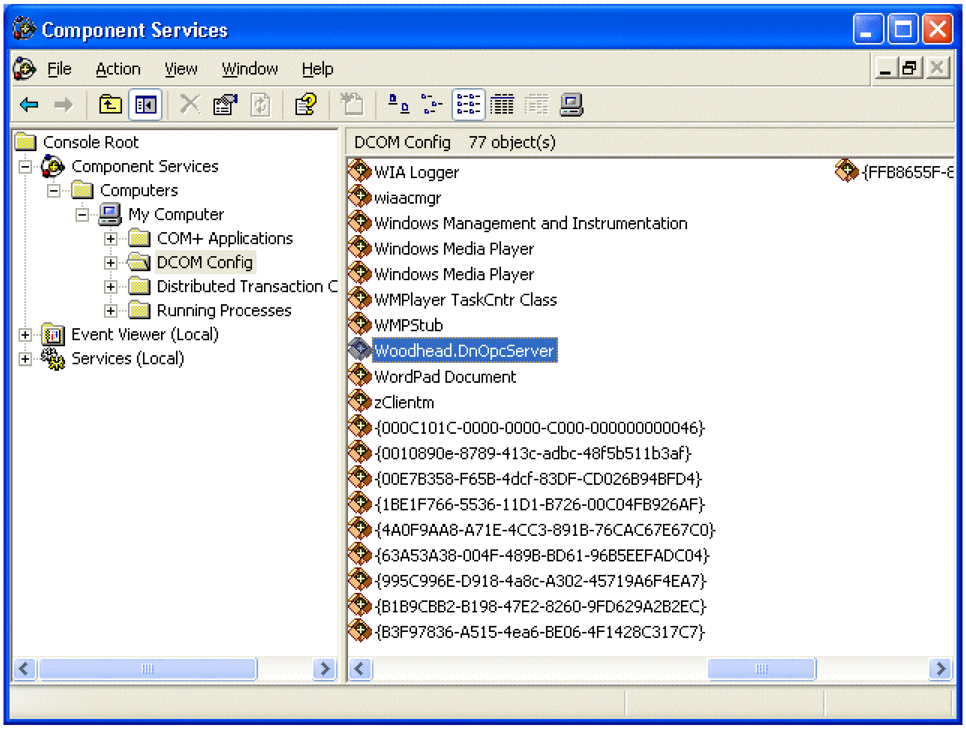


1. Select **Woodhead.DnOpcServer**, followed by **Properties…** to start configuring specific parameters for the OPC server, as described in the following sections.

2. When you are finished, select **OpcEnum** and repeat the process.

For Windows XP and Vista

1. Under the **My Computer** node, click on **DCOM Config** to view all the COM objects available on the machine.


Component Services
File Action View Window Help
Console Root
Component Services
Computers
My Computer
COM+ Applications
DCOM Config
Distributed Transaction C
Running Processes
Event Viewer (Local)
Services (Local)
DCOM Config 77 object(s)
WIA Logger
wiaacmgr
Windows Management and Instrumentation
Windows Media Player
Windows Media Player
WMPlayer TaskCntr Class
WMPStub
Woodhead.DnOpcServer
WordPad Document
zClientm
{000C101C-0000-0000-C000-000000000046}
{0010890e-8789-413c-adbc-48f5b511b3af}
{00E7B358-F65B-4dcf-83DF-CD026B94BFD4}
{1BE1F766-5536-11D1-B726-00C04FB926AF}
{4A0F9AA8-A71E-4CC3-891B-76CAC67E67C0}
{63A53A38-004F-489B-BD61-96B5EEFADC04}
{995C996E-D918-4a8c-A302-45719A6F4EA7}
{B1B9CBB2-B198-47E2-8260-9FD629A2B2EC}
{B3F97836-A515-4ea6-BE06-4F1428C317C7}
{FFB8655F-8

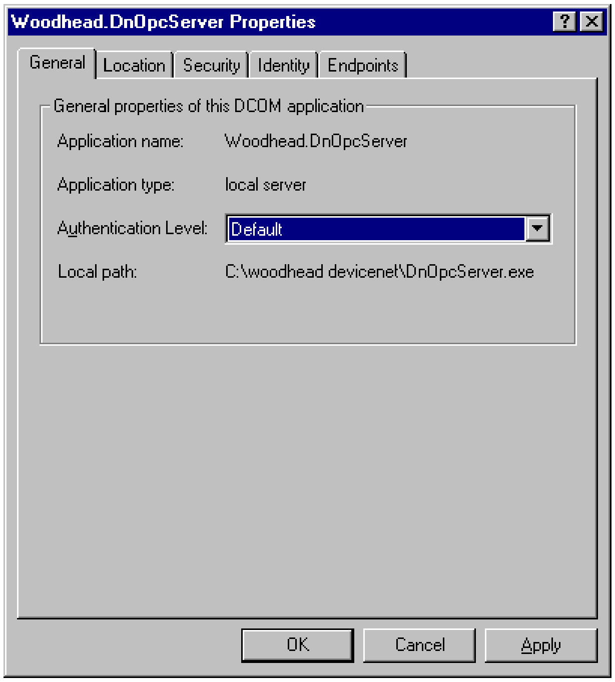
2. Select **Woodhead.DnOpcServer** in the right-hand pane, followed by **Action** > **Properties** (or right-click on **Woodhead.DnOpcServer** and select the **Properties** command), to start configuring specific parameters for the OPC server, as described in the following sections.

3. When you are finished, select **OpcEnum** and repeat the process.

“General” Tab

The General tab allows you to change an object's level of authentication.

Windows 2000



General properties of this DCOM application

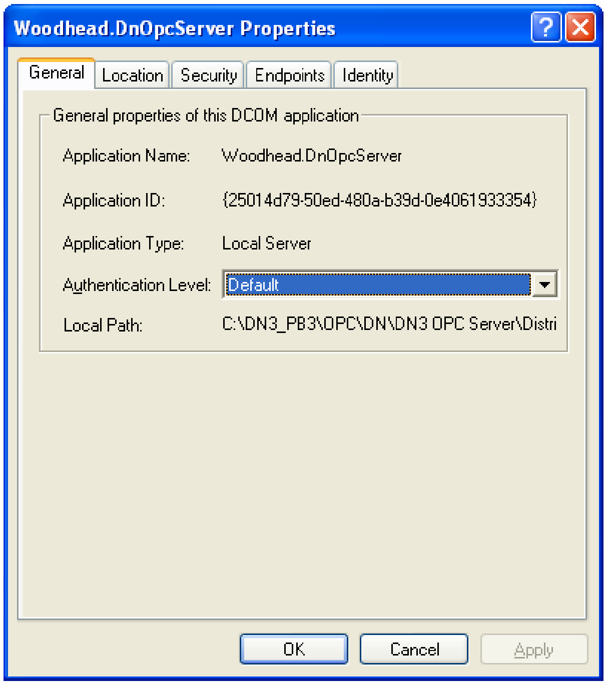
Application name: Woodhead.DnOpcServer

Application type: local server

Authentication Level: Default

Local path: C:\woodhead devicenet\DnOpcServer.exe

Windows XP SP2



General properties of this DCOM application

Application Name: Woodhead.DnOpcServer

Application ID: {25014d79-50ed-480a-b39d-0e4061933354}

Application Type: Local Server

Authentication Level: Default

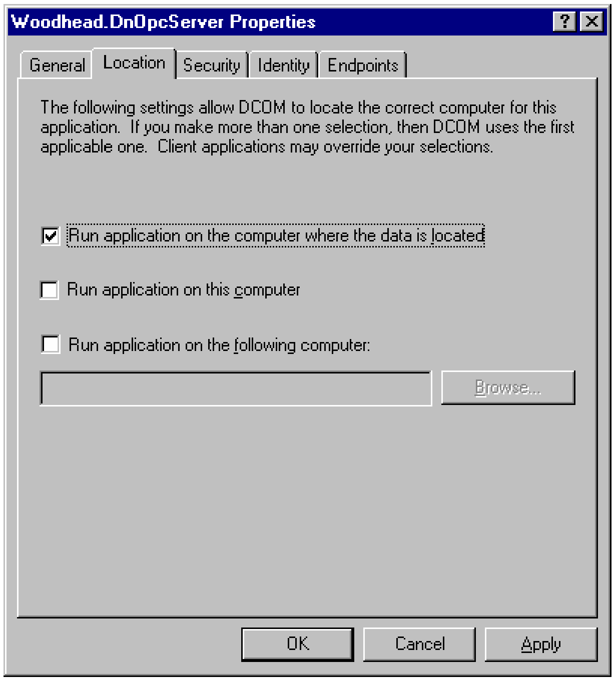
Local Path: C:\DN3_PB3\OPC\DN\DN3 OPC Server\Distri

Leave the authentication level set to **Default**.

“Location” Tab

The Location tab allows you to specify which machine the server will start on.

Windows 2000



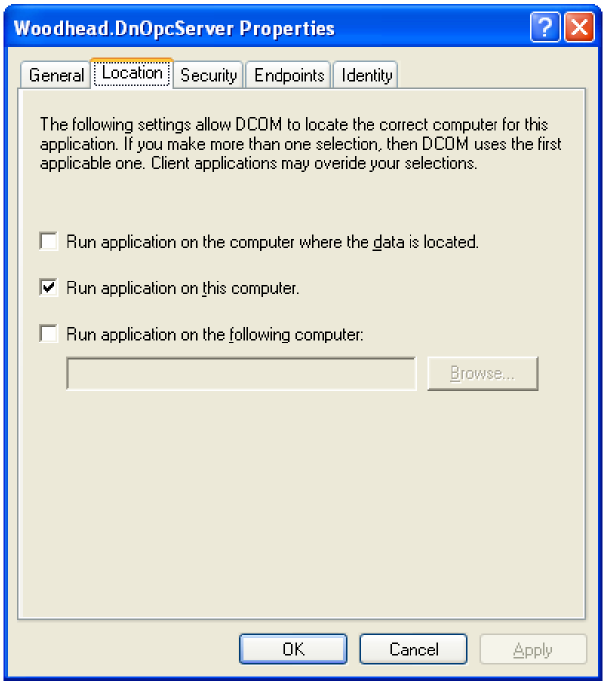
The following settings allow DCOM to locate the correct computer for this application. If you make more than one selection, then DCOM uses the first applicable one. Client applications may override your selections.

☑ Run application on the computer where the data is located

☐ Run application on this computer

☐ Run application on the following computer:

Windows XP SP2



The following settings allow DCOM to locate the correct computer for this application. If you make more than one selection, then DCOM uses the first applicable one. Client applications may overide your selections.

☐ Run application on the computer where the data is located.

☑ Run application on this computer.

☐ Run application on the following computer:

For Windows 2000

If you are configuring a client computer that you will not be running the server on as well (i.e., no local connection) and:

- You want to limit the client connection to only one remote server location

  or

- The client does not allow you to enter the name of the remote computer

select **Run application on the following computer** and enter or browse for the name of the remote computer.

In all other cases, select **Run application on the computer where the data is located**.

For Windows XP and Vista

If you are configuring a client computer that you will not be running the server on as well (i.e. no local connection), and:

- You want to limit the client connection to only one remote server location

  or

- The client does not allow you to enter the name of the remote computer

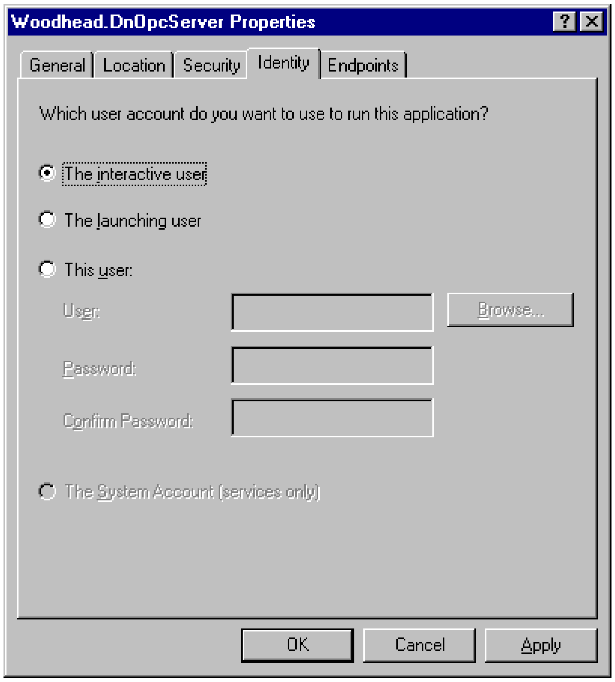
select **Run application on the following computer** and enter or browse for the name of the remote computer.

In all other cases, select **Run application on this computer**.

“Identity” Tab

The Identity tab allows you to specify which accounts will be used to check the user's object permissions.

Windows 2000



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

● The interactive user

○ The launching user

○ This user:

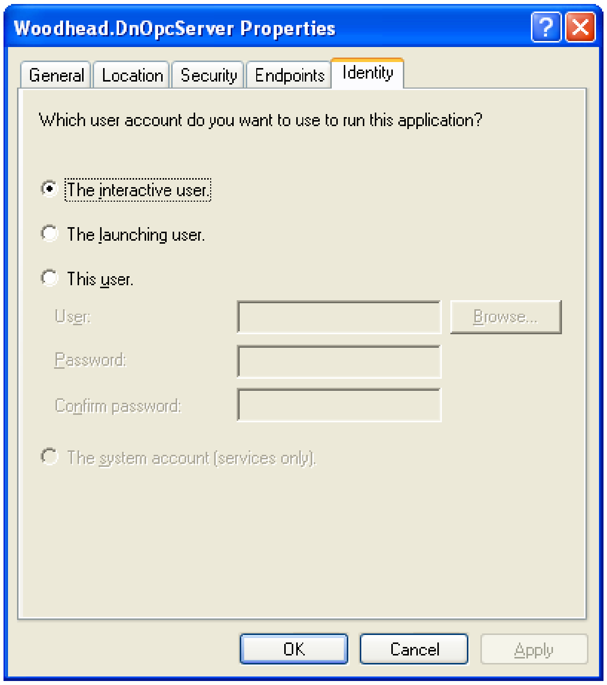
User:

Password:

Confirm Password:

○ The System Account (services only)

Windows XP SP2



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

● The interactive user.

○ The launching user.

○ This user.

User:

Password:

Confirm password:

○ The system account (services only).

Select **The interactive user**.

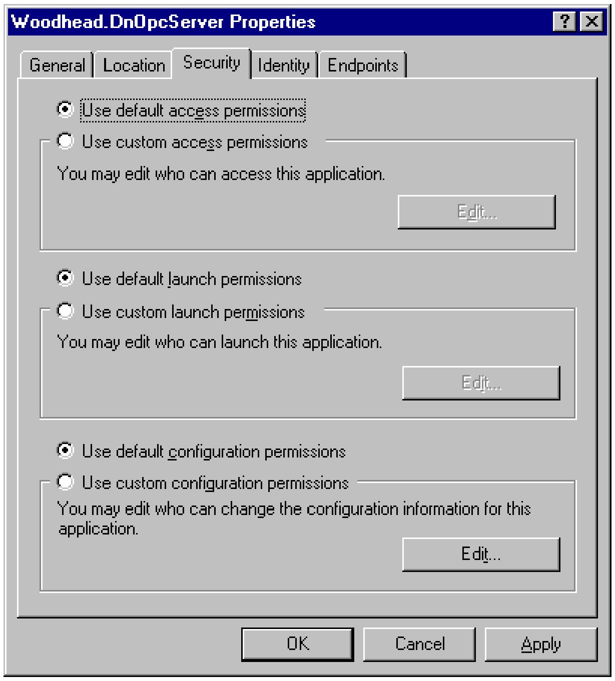
In some cases, you may need to specify **This user**, as described in the following table.

Type	Action
The interactive user	This is the recommended setting for both the client and server computers. The account of the user who opened the current session is used. If no user is logged on to the machine, then there is no interactive user and the COM object cannot be created. In this case, select "This user."
The launching user	This option must not be used with the OPC server. The account of the user who initiated the OPC client is used. This user must have the required permissions, and thus be included in the Security tab. This mode typically causes a server instance to be initiated for each executing user.
This user	The account of the specified user is used. This user must have the required permissions, and thus be included in the Security tab. The user must have the default permissions assigned to all machine users; in other words, they must belong to the Users group. This choice must be used for servers where no user is logged in.

“Security” Tab

The Security tab allows you to specify access permissions for the OPC server.

Windows 2000



Woodhead.DnOpcServer Properties

● Use default access permissions

○ Use custom access permissions

You may edit who can access this application.

● Use default launch permissions

○ Use custom launch permissions

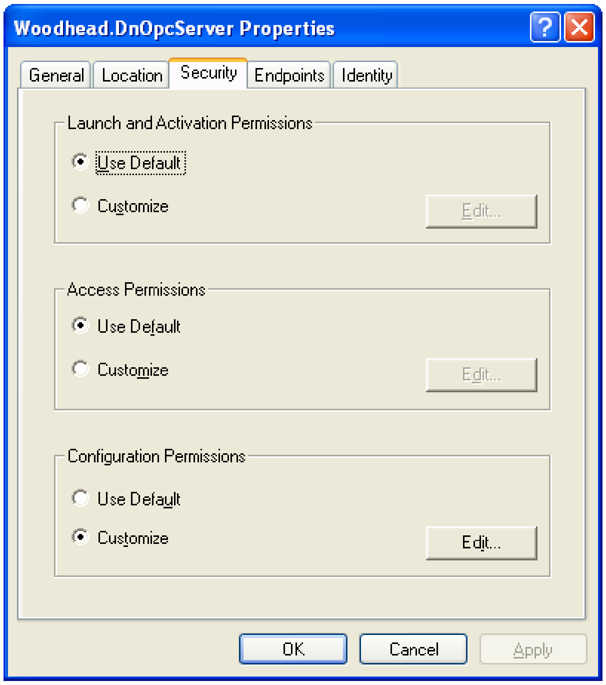
You may edit who can launch this application.

● Use default configuration permissions

○ Use custom configuration permissions

You may edit who can change the configuration information for this application.

Windows XP SP2



Woodhead.DnOpcServer Properties

Launch and Activation Permissions

● Use Default

○ Customize

Access Permissions

● Use Default

○ Customize

Configuration Permissions

○ Use Default

● Customize

For Windows 2000

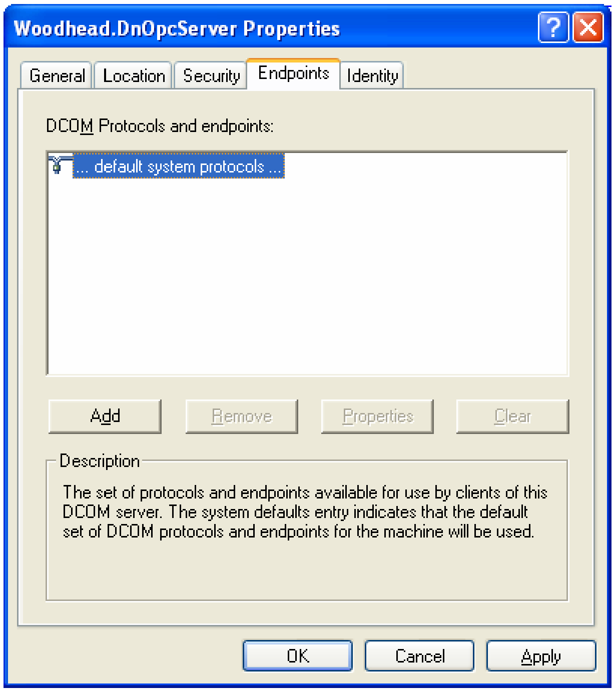
Set the access permissions to **Use default access permissions** and the launch permissions to **Use default launch permissions**.

For Windows XP and Vista

Set the launch and activation permissions and access permissions to **Use Default**. Set the configuration permissions to **Customize**.

“Endpoints” Tab

The Endpoints tab allows you to specify the DCOM protocols and endpoints available for use by clients of the OPC server.



DCOM Protocols and endpoints:

... default system protocols ...

Description

The set of protocols and endpoints available for use by clients of this DCOM server. The system defaults entry indicates that the default set of DCOM protocols and endpoints for the machine will be used.

This should always be set to … **default system protocols ….**

A.2.4.3 Configuring DCOM on Workgroups

DCOM works best when used with network domains. If you need to use workgroups for your network, you will need to take additional steps to establish remote OPC connections.

Make sure that you have set the computer for user-level security, as opposed to share-level security, before proceeding. This is necessary for configuring DCOM security for workgroups.

To launch an OPC server, a user requires administrator. Therefore, you will need to create an administrator account for each user. Alternatively, you can configure the OPC server to run as a service.

When establishing a connection between two workgroup computers, you must use the same user names and security settings on both machines.

To connect from a workgroup (client) to a domain (server), the client application on the workgroup computer must be set to accept responses from the server. This requires that any user who will be running the server on the domain computer be added to the local security settings on the workgroup computer. Also, add the local administrator/login to the default security settings.

To connect from a domain (client) to a workgroup (server), you must add the workgroup user to the local user list on the domain computer. On the workgroup computer, you must add the domain (client) user to the user list and local security settings, and add the local administrator/login to the default security settings.

B

Warranty and Support

Appendix Sections:

- Warranty
- Technical Support

B.1 Warranty

For warranty information pertaining to the card, refer to http://www.mysst.com/warranty.asp.

B.2 Technical Support

Please ensure that you have the following information readily available before calling for technical support:

- Software version
- Computer's make, model, CPU speed and hardware configuration (cards installed)
- Operating system type and version
- Details of the problem you are experiencing: firmware module type and version, target network and circumstances that may have caused the problem

B.2.1 Getting Help

Technical support is available during regular business hours by telephone, fax or email from any Woodhead Software & Electronics office, or from http://www.woodhead.com. Documentation and software updates are also available on the website.

North America

Canada:
Tel: 1-519-725-5136
Fax: 1-519-725-1515
Email: WoodheadSupportNA@molex.com

Europe

France:
Tel: 33-(0)2-32-96-04-22
Fax: 33-(0)2-32-96-04-21
Email: WoodheadSupportEU@molex.com

Germany:
Tel: 49-711-782-374-22
Fax: 49-711-782-374-11
Email: WoodheadSupportEU@molex.com

Italy:
Tel: 39-010-595-4052
Fax: 39-010-595-6925
Email: WoodheadSupportEU@molex.com

Other countries:
Tel: 33-(0)2-32-96-04-23
Fax: 33-(0)2-32-96-04-21
Email: WoodheadSupportEU@molex.com

Asia-Pacific

Japan:
Tel: 81-3-5791-4621
Fax: 81-3-5791-4688
Email: WoodheadSupportAP@molex.com

Singapore:
Tel: 65-6261-6533
Fax: 65-6261-3588
Email: WoodheadSupportAP@molex.com

China:
Tel: 86-21-5835-9885
Fax: 86-21-5835-9980
Email: WoodheadSupportAP@molex.com

For the most current contact details, please visit http://www.woodhead.com.

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