

# Mistic 200 I/O Server

## User's Guide



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## Introduction

The Mistic 200 I/O Server is a Microsoft® Windows™ based application that acts as a communications server allowing other Windows based programs access to data from the OPTO 22 Mistic2000 Controller. The Mistic 200 I/O Server may be used by any Windows based application capable of acting as a DDE or SuiteLink™ aware client.

The Server communicates with the Mistic 200 controllers via an ARCNET (PCI or ISA) card in the personal computer and supports reads and writes to points defined in the Mistic 200 controller.

## Supported Physical Connections and Protocols

The following table provides a summary of the physical connections and protocols supported by this server.

Physical Connection	Protocol	Example PC Adapter
ISA ARCNET	"Raw" FORTH Commands	Contemporary Controls PCA66
PCI ARCNET	"Raw" FORTH Commands	Contemporary Controls PCI20-CXS

The Contemporary Controls PCI-CXB (ARCNET) family of ISA adapters is not supported. The Contemporary Controls PCI22 (ARCNET) has not been tested but should work.

Serial (e.g. RS232, RS422, RS485) and Ethernet communications to Mistic Controllers are not supported by this server.

The PCI ARCNET adapter has a row of eight DIPswitches on the back. These DIPswitches are used to set the node ID (network address) for the ARCNET adapter. Opto 22 specifically recommends that the DIPswitch be set to a node ID of zero. Following Opto 22's recommendation prevents the Mistic I/O Server from working correctly. The DIPswitch must be set to a non-zero node ID that does not conflict with any other node ID on the network.

ASUS motherboards have a BIOS setting to enable or disable "plug-and-play support". Many other motherboards also have this BIOS setting. The PCI ARCNET adapter does not function correctly if plug-and-play support is enabled in the BIOS. Microsoft recommends and, indeed, it is required that plug-and-play support be set to DISABLED.

## Supported Controllers

The following list provides some examples of supported Mistic Controllers. Basically, any Opto 22 Mistic Controller that supports the physical connections listed in the previous section is supported.

- G4LC32
- G4LC32SX
- M4RTU

## Communications Protocols

**Dynamic Data Exchange (DDE)** is a communication protocol developed by Microsoft to allow applications in the Windows environment to send/receive data and instructions to/from each other. It implements a client-server relationship between two concurrently running applications. The server application provides the data and accepts requests from any other application interested in its data. Requesting applications are called clients. Some applications such as InTouch and Microsoft Excel can simultaneously be both a client and a server.

**FastDDE** provides a means of packing many proprietary Wonderware DDE messages into a single Microsoft DDE message. This packing improves efficiency and performance by reducing the total number of DDE transactions required between a client and a server. Although Wonderware's FastDDE has extended the usefulness of DDE for our industry, this extension is being pushed to its performance constraints in distributed environments.

**NetDDE™** extends the standard Windows DDE functionality to include communication over local area networks and through serial ports. Network extensions are available to allow DDE links between applications running on different computers connected via networks or modems. For example, NetDDE supports DDE between applications running on IBM® compatible computers connected via LAN or modem and DDE-aware applications running on non-PC based platforms under operating environments such as VMS™ and UNIX®.

**SuiteLink** uses a TCP/IP based protocol and is designed specifically to meet industrial needs such as data integrity, high-throughput, and easier diagnostics. This protocol standard is only supported on Microsoft Windows NT 4.0 or higher.

SuiteLink is not a replacement for DDE, FastDDE, or NetDDE. The protocol used between a client and a server depends on the network connections and configurations. SuiteLink was designed to be the industrial data network distribution standard and provides the following features:

- Value Time Quality (VTQ) places a time stamp and quality indicator on all data values delivered to VTQ-aware clients.
- Extensive diagnostics of the data throughput, server loading, computer resource consumption, and network transport are made accessible through the Microsoft Windows NT operating system performance monitor. This feature is critical for the scheme and maintenance of distributed industrial networks.
- Consistent high data volumes can be maintained between applications regardless if the applications are on a single node or distributed over a large node count.
- The network transport protocol is TCP/IP using Microsoft's standard WinSock interface.

## Accessing Remote Items via the Server

The communications protocol identifies an element of data by using a three-part naming convention that includes the application name, topic name and item name. The following briefly describes each portion of the DDE Address.

**Application Name** The name of the Windows program (server) that will be accessing the data element. In the case of data coming from or going to the equipment via this Server, the application portion of the address is "MISTC200".

**Topic Name** Meaningful name(s) are configured in the Server to identify specific devices. These names are then used as the topic name in all conversations to that device. For example, MDC00.

<b>NOTE</b> To poll different points at different rates multiple topic names can be defined for the same device.
--

**Item Name** A specific data element within the specified topic. For example, when using this Server, an item can be a relay, timer, counter, register, etc., in the PLC.

<b>NOTE</b> The item/point names are predefined by the Server. The term point is used interchangeably with the term item in this user's guide.
--

## Installation

The Server installation requires a reboot. It is recommended that all applications be terminated prior to installing the server.

### Installing the Server from the Standard Solutions CD

1. From the Welcome screen select the **Products** link.
2. Select the **I/O Servers** product category.
3. From the product category select the product you wish to install and activate the **Install** button.
4. Select the **Mistic 200** option.
5. Select the **Full** option.
6. Select the **OPC** or **SuiteLink** option.
7. The Welcome Screen appears. Click the **Next** button. This activates the License Agreement dialog.
8. Review the license agreement and select the **I accept the terms of the license agreement** option. Click the **Next** button.
9. Complete the **User Name** and **Company Name** fields on the Customer Information dialog. Select the appropriate install option. Click the **Next** button.
10. Copy the **computer name** and **activation code** from the Product Registration Instructions dialog. Click the **Next** button.
11. Select the setup type, **complete** or **custom**. Click the **Next** button.
12. Click the **Install** button on the Ready to Install the Program dialog.
13. Once the successful installation is complete, the Installation Complete dialog appears. Click the **Finish** button.

### Obtaining a License File

The product requires that a license be saved to the **Program Files | Standard Automation | product folder**.

To receive the license file complete the following steps and it will be emailed to you.

1. Log on to [www.mtlmost.com/productregistration](http://www.mtlmost.com/productregistration).
2. Enter the **Company ID** and **Serial Number** that was included with your server.
3. Select the **Submit** button.
4. Select the **License Type**, either Permanent or Temporary.
5. Enter the **Node name** and **Activation Code** of the computer on which the server is to be loaded and click the Submit button.
6. Enter the **email address** to which the license file will be sent.

7. A confirmation will appear indicating that the license file has been emailed.
8. Once you receive the email containing the license file, save it to your computer.
9. Select **Start | Programs | Standard Automation Products | License Utility | Mistic 200 | License Utility**.
10. **Browse**  to the location where you saved the License File.
11. Click the **Exit** button. The License File is copied to the appropriate location.

Contact Product Registration at [ProductRegistration@mtlmost.com](mailto:ProductRegistration@mtlmost.com) or call 1-888-334-3293 and ask for Product Registration with questions or comments.

### Uninstalling the Application

1. Select **Start | Settings | Control Panel**.
2. Select the **Add/Remove Program** icon.
3. Select the **Mistic 200** listing.
4. Select the **Remove** button activating the Uninstall Wizard.

## Windows 2000 Device Manager

When a PCI adapter is installed in a computer running Windows 2000, the next time the computer is started the operating system detects the change and tries to install a 'device driver'. Windows 2000 displays the Found New Hardware message when it detects the new adapter.

The message is followed by the Found New Hardware Wizard.

The 'device driver' for the PCI ARCNET adapter that ships with Windows 2000 should **never** be installed. It does not work with this server and it does not work with the software from Opto 22. When the prompt above appears, press the **Cancel** button.

Right-click on the **My Computer** icon on the desktop.

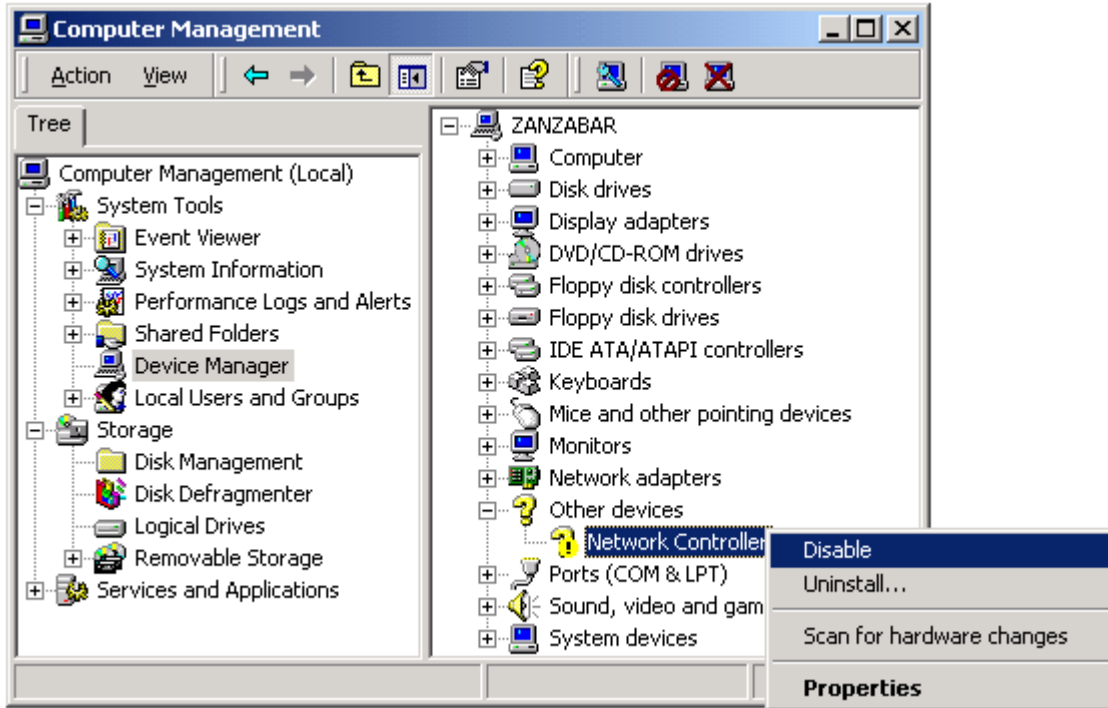
Select the **Manage** option from the right-click menu. This activates the **Computer Management** dialog.

From the Computer Management dialog select the **Device Manager** sub node from the System Tools node.

The PCI ARCNET adapter is located under **Other devices** and is listed as a **Network Controller**. Right-click on the PCI ARCNET adapter to display the context menu and execute the Disable menu item.

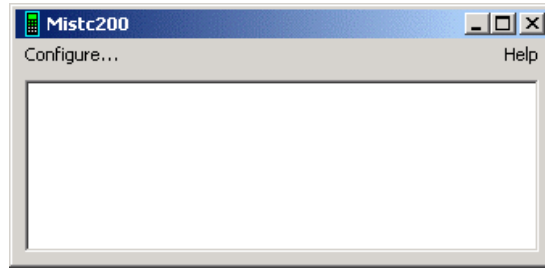
A prompt configuring the action is displayed. Select the **Yes** button to confirm that the PCI ARCNET adapter should be disabled.

Close the Computer Management dialog.



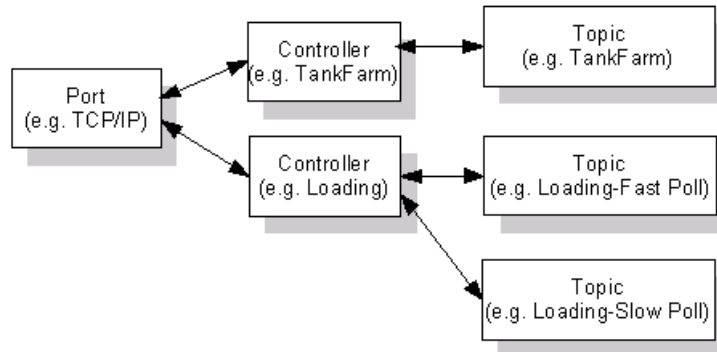
## Starting the Server

Start the Server from Windows by selecting the **Start -> Programs -> Standard Automation Products -> Mistic 200 I/O Server** command. This activates the Mistic200 window.



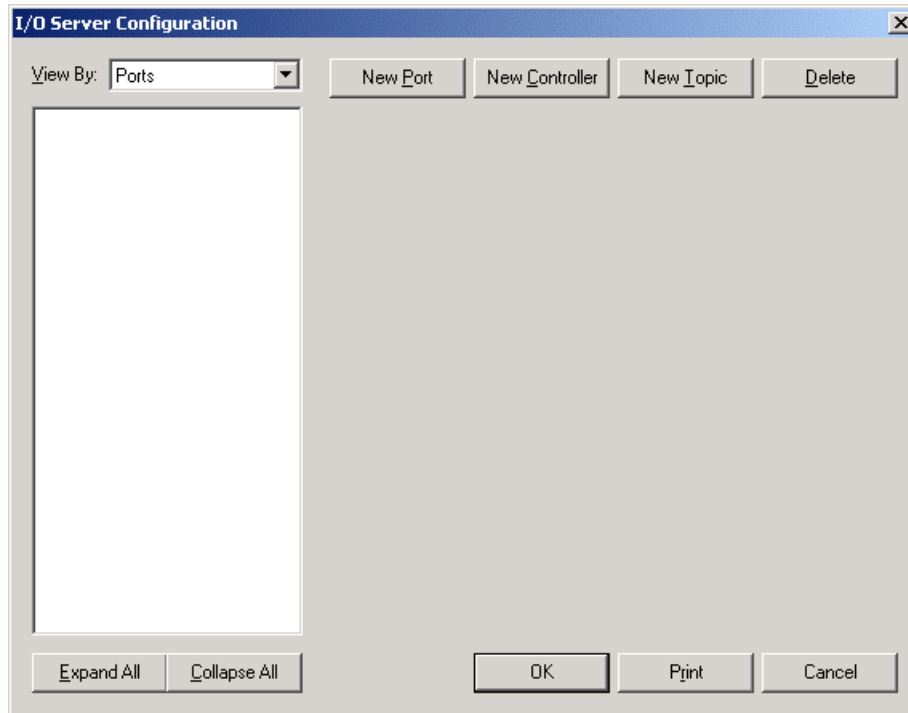
## Software Configuration

Configuration data is structured like a tree with 'ports' being the trunk, 'devices' being the branches, and 'topics' being the leaves. Each topic is connected to a device through the device's name and each device is connected to a port through the port's name. Client software connects the Mistic Server through a topic (using the topic's name). The Mistic Server determines the controller address to use from the connected device and determines the physical path to the controller from the connected port. This diagram portrays the relationships.



## I/O Server Configuration Dialog

The entire configuration process is performed using the I/O Server Configuration dialog.



<i>View By</i>	Select the method to display the topics, ports, and controllers. Choices include:  Topics, Controllers to Topics, Controllers to Ports, and Ports.
<i>New Port</i>	Activates the Create New Port dialog.
<i>New Controller</i>	Displays the information required to add a new controller.
<i>New Topic</i>	Displays the information required to add a new topic.
<i>Delete</i>	Deletes the selected item.
<i>Expand All</i>	Displays all sub levels using the selected View By option.
<i>Collapse All</i>	Closes all sub levels and displays only the selected View By option.
<i>OK</i>	Saves settings and closes the dialog.
<i>Print</i>	Displays the configuration information in a print preview format. To print the information, select the Print button.
<i>Cancel</i>	Closes the dialog without saving changes.

## Creating a New Port

The Mistic Server supports two types of ports:

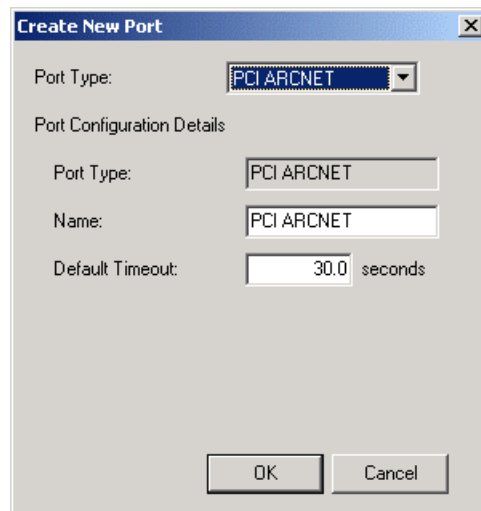
- PCI20-CXS ARCNET
- ISA ARCNET

To create a new port type complete the following:

1. Select the **New Port** button. This activates the **Create a New Port** dialog.
2. Select the port type to be created from the **Create a New Port** dialog. The appropriate fields will appear on the dialog.

Each port type has different parameter fields that are explained in the following sections.

## PCI ARCNET Port



<i>Name</i>	The port's name is only used within the Mistic Server. It can include any characters. The port name must be unique
<i>Default Timeout</i>	The default timeout is the amount of time (in seconds) that the Mistic Server waits for response.
<i>OK</i>	Creates the new port.
<i>Cancel</i>	Closes the dialog without creating a new port.

**Note:** It has been determined that the Mistic 200 server will only communicate over the PCI20-CXS card and not over the PCI-CXB card.

## ISA ARCNET Port

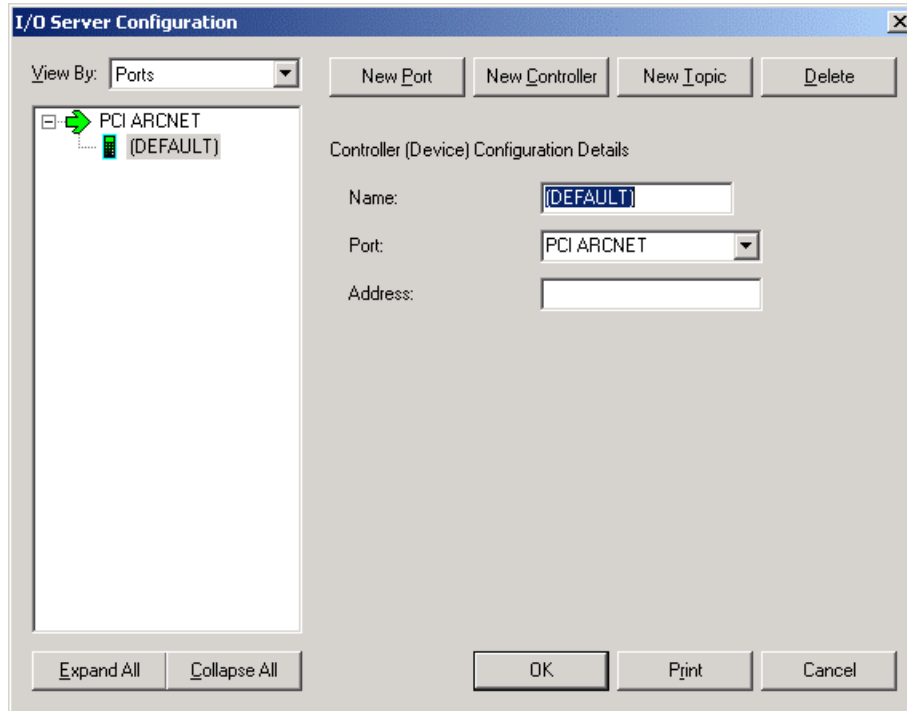
It is very important that the ARCNET adapter does not conflict with any other hardware in the computer. It is not possible for ISA adapters to share interrupt request lines with any other device. The ARCNET adapter must be assigned to its own interrupt request line.

The screenshot shows a dialog box titled "Create New Port" with a close button (X) in the top right corner. The dialog is divided into two sections. The top section has a "Port Type:" label followed by a dropdown menu showing "ISA.ARCNET". The bottom section is titled "Port Configuration Details" and contains several fields: "Port Type:" with a text box containing "ISA.ARCNET", "Name:" with a text box containing "ISA.ARCNET", "Default Timeout:" with a text box containing "30.0" and the unit "seconds", "Memory Base Address:" with a dropdown menu showing "D0000", "I/O Base Address:" with a dropdown menu showing "2E0", and "Interrupt Request Level:" with a dropdown menu showing "5". At the bottom of the dialog are two buttons: "OK" and "Cancel".

<i>Name</i>	The port's name is only used within the Mistic Server. It can include any characters. The port name must be unique
<i>Default Timeout</i>	The default timeout is the amount of time (in seconds) that the Mistic Server waits for response.
<i>Memory Base Address</i>	Refer to the documentation for the ARCNET adapter to determine the correct value for this field.
<i>I/O Base Address</i>	Refer to the documentation for the ARCNET adapter to determine the correct value for this field.
<i>Interrupt Request Level</i>	Refer to the documentation for the ARCNET adapter to determine the correct value for this field.
<i>OK</i>	Creates the new port.
<i>Cancel</i>	Closes the dialog without creating a new port.

## Adding a Controller

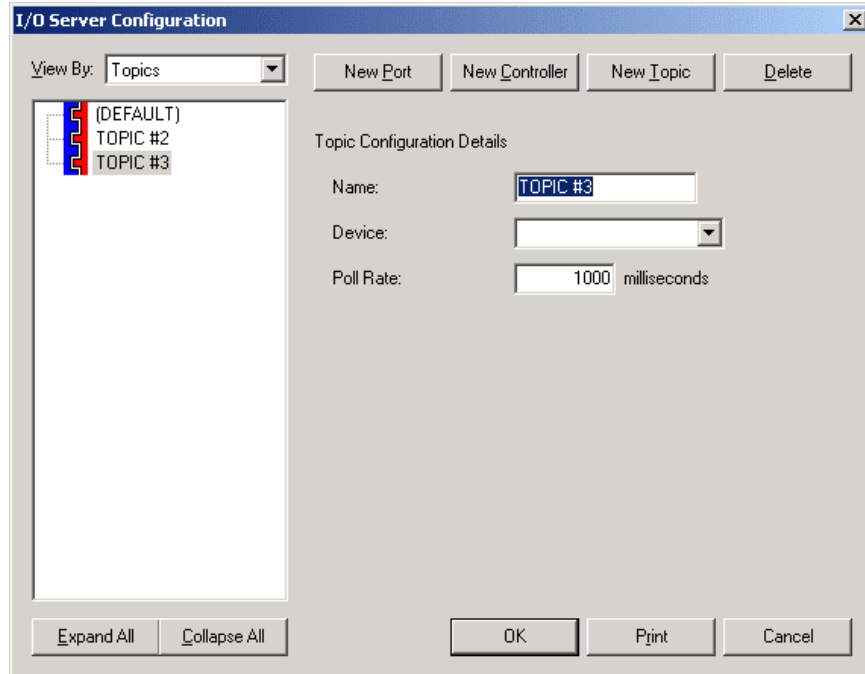
Controllers are added by selecting the **New Controller** button. The new controller will be assigned to the selected port.



- Name* The controller name is used only within the Mistic Server. It can contain any characters. Controller names must be unique.
- Port* The name of the port that has been configured or will be configured.
- Address* The address depends on the port type. If the port is TCP/IP then the address is the IP address or node name of the Mistic Controller. If the port is ARCNET then the address is the ARCNET address (1 through 255) of the Mistic controller.
- OK* Saves the configuration.
- Print* Displays the configuration information in a print preview format. To print the information select the Print button from the Print Preview screen.
- Cancel* Closes the dialog without configuring the device.

## Creating a Topic

Topics are created by selecting the **New Topic** button. The new topic will be assigned to the selected controller.



- |                  |   |
|------------------|---|
| <i>Name</i>      | The topic name is used by client applications to obtain data from the Mistic server. Topic names must be unique.                                  |
| <i>Device</i>    | The device is the name of a controller that has been or will be configured.   |
| <i>Poll Rate</i> | How fast the Mistic server should try to scan the Mistic controller for fresh data.   |
| <i>OK</i>        | Creates the topic.  |
| <i>Print</i>     | Displays the configuration information in a print preview format. To print the information select the Print button from the Print Preview screen. |
| <i>Cancel</i>    | Closes the dialog without configuring the device.   |

## Configuration Example

This section provides an example configuration and covers the steps necessary to communicate to one Mistic Controller.

### Getting Started

1. Start the Mistic Server.
2. Click the **Configure** menu item to activate the Configuration dialog.

### Configure the Port

1. Click the **New Port** button to add a new port.
2. Select the appropriate port type.
3. Leave Default Timeout at 30 seconds.
4. Select the **OK** button. The newly created port is displayed in the treeview.

### Configure the Controller

1. Click the **New Controller** button to add a new controller to the configuration.
2. The newly created controller is immediately displayed in the tree view.
3. Enter an appropriate name for the controller; the default name may be used.

### Configure the Topic

1. Click the **New Topic** button to add a new topic to the configuration.
2. The newly created topic is immediately displayed in the treeview.
3. Enter an appropriate name for the topic; the default name may be used, but is not recommended.
4. The Device (controller) is already selected and does not need to be changed.
5. Enter the desired poll rate.
6. Select the **OK** button on the **Configuration** dialog. The Mistic Server is now ready to start polling the configured Mistic Controller.

### Online Changes

It is possible to make configuration changes while the server is 'active' (polling a controller), but the changes will not take effect until the Mistic Server is restarted.

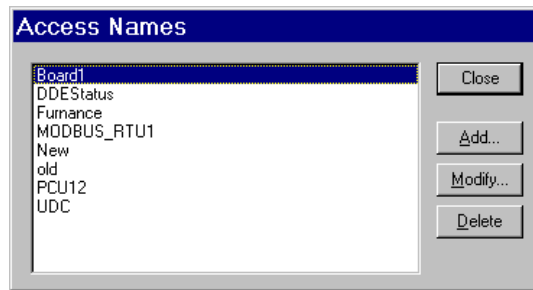
## Using the Server with InTouch

To exchange data between the Mistic 200 I/O Server and InTouch, the following steps are required:

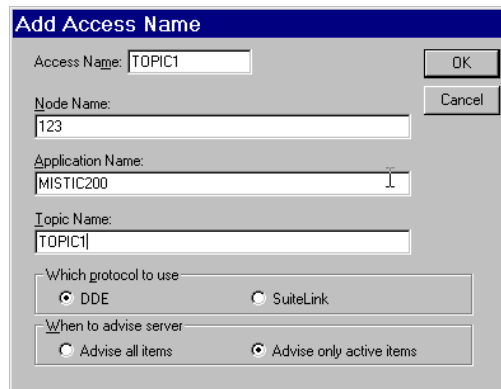
1. Create at least one access name in InTouch.
2. Create a tagname for each Cyrano or OptoControl point accessed in the Mistic 200 I/O Server.

### Access Name Setup

To create the access names in InTouch, select Special/Access Names command within WindowMaker. The Access Name dialog is displayed.



Select the **Add** button and the **Add Access Name** dialog appears.

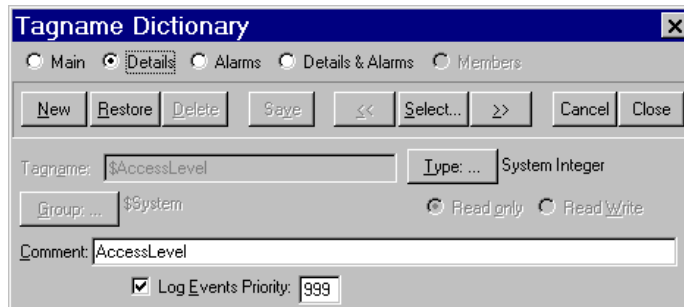


<i>Access Name</i>	A nickname for the application name/topic name pair. The unique name is later used to define the channel for tagname dictionary entries. Enter a meaningful name based upon the application and/or topic names.
<i>Node Name</i>	Computer name.
<i>Application Name</i>	The application name, always enter MISTIC200.
<i>Topic Name</i>	The name defined for the topic in the Mistic 200 Server. This is the name entered for <b>Topic Name</b> in the <b>Topic Description</b> dialog.

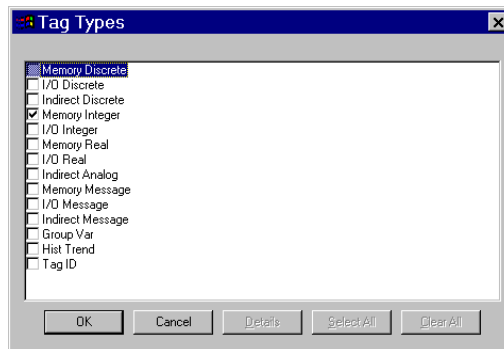
- Which protocol to use*      Select either **DDE** or **SuiteLink**.
- When to Advise Server*      Advise only active items is recommended to minimize the work load of the Server and the controller. If this option is selected, only active items are polled for fresh data.

### Defining the Tagnames

In InTouch, one tagname must be created for each Cyrano or OptoControl point to be accessed in a Mistic 200. Select the **Special/Tagname Dictionary** command from WindowMaker. The Tagname Dictionary dialog is displayed.



Select the **New** button and enter the desired Tagname. Activate the **Type** button to select the point's data type. This activates the **Tag Types** dialog.



The Mistic 200 Server supports I/O Discrete, I/O Integer, I/O Real, and I/O Message data types. The Item (Point) Naming section discusses the basic data types of Cyrano or OptoControl points. If the Cyrano or OptoControl data type does not match the InTouch tag data type, conversions are performed automatically. Select the corresponding data data type and the following **Details** dialog appears:

The screenshot shows the 'Tagname Dictionary' dialog box with the 'Details' tab selected. The 'Access Name' field is currently set to 'Unassigned'. The 'Type' is 'I/O Real', 'Group' is '\$System', and 'Comment' is 'AccessLevel'. There are also fields for 'Initial Value', 'Deadband', 'Eng Units', and 'Conversion' (Linear and Square Root).

Select the **Access Name** button, select the desired access name, and activate the **Done** button.

The screenshot shows the 'Access Names' dialog box with a list of access names. 'Board1' is selected. The list includes: Board1, DDEStatus, Furnance, MODBUS\_RTU1, New, old, PCU12, and UDC. Buttons for 'Close', 'Add...', 'Modify...', and 'Delete' are present.

The **Details** dialog reappears displaying the selected access name. The Item field must be completed so the Server knows what data to retrieve from the Mistic. Refer to the **Item (Point) Naming** section for details.

The remaining fields (e.g. Engineering Units, Initial Value, etc.) should be reviewed and changed to appropriate values.

Additional tags may be entered simply by selecting the **Save** button and then the **New** button.

## Item (Point) Naming

The Mistic 200 Server allows client applications access to a variety of Mistic Controller points. This section lists the types of points that can be accessed and provides details about the item naming used to access those points. The basic format for items is

### *PointName.Type*

Where:

<b>PointName</b>	The name of the OptoControl or Cyrano point
<b>.Type</b>	One of the entries from the table below that indicates the type of the point

**NOTE** As far as the Mistic Server is concerned, the item (point) name is not case sensitive. Cyrano currently capitalizes all point and variable names and Cyrano names work unchanged with the Server. OptoControl points are case sensitive. If lower case letters are used, the Server is not able to access the point. If a point in OptoControl is to be accessed from this server, the point name must be in upper case letters. The Mistic Server only supports Cyrano and OptoControl names (PointNames) less than 33 characters.

The following table summarizes the values of **.Type**:

Group	Type	Description	Access	InTouch
I/O	D	Digital point; input or output; fresh values read from the I/O	R/W	Discrete
	DI	Digital point; input or output; read from the internal value	R/W	Discrete
	A	Analog point; input or output; fresh values read from the I/O	R/W	Real
	AI	Analog point; input or output; read from the internal value	R/W	Real
Basic	I	Integer variable	R/W	Integer
	F	Floating point variable (R is a moniker for F)	R/W	Real
	R	Real	R/W	Real
	S	String variable	R/W	Message
Table <sup>1</sup>	TI#	Table of Integer variables	R/W	Integer
	TF#	Table of Floating point variables (TR is a moniker for TF)	R/W	Real
	TR#	Real Table	R/W	Real
	TS#	Table of String variables	R/W	Message
Bit <sup>2</sup>	I:#	Integer variable	R/W	Integer

<sup>1</sup> The table items require a zero based index immediately following the Type. For example: SOMESTRINGS.TS3 would access the fourth element of the SOMESTRINGS string table.

<sup>2</sup> The bit item requires a colon followed by a bit number between zero and 31. For example: PACKED.I:11 would access the twelfth bit of the integer variable PACKED. Bit items are read/write. Bit item reads are converted to a single integer read (or a table read) allowing upto 32 discrete values (1600 values for tables) to be read with one command. Bit item writes are performed on the Mistic as a series of bit manipulations in a fashion that makes them safe from chart access.

Group	Type	Description	Access	InTouch
	TI#	Table of integer values	R/W	Integer
PID	PN	Loop Input	R/W	Real
	PO	Loop Output	R/W	Real
	PS	Setpoint	R/W	Real
	PP	Proportional Term	R/W	Real
	PI	Integral Term	R/W	Real
	PD	Derivative Term	R/W	Real
	PM	Mode (Auto / Manual)	R/W	Discrete
	PR	Scan Rate	R/W	Real
	PC	Control Word	R/W	Integer
Chart	CR	Run; true if the chart is running; write false to stop a chart	R/W	Discrete
	CT	Stop; true if the chart is stopped; write false to start a chart	R/W	Discrete
	CU	Suspend; true if suspended; write true to suspend a chart	R/W	Discrete
	CC	Continue; normally false; write true to resume from suspended	R/W	Discrete
	CS	State (-1=Run; 0=Stop; 1=Suspend)	R/W	Integer
Timer	M	Timer current value	R/W	Real
	MA	Timer current value; automatic start on write	R/W	Real
	MC	Timer control (1=start, 2=stop, 3=pause, 4=continue)	W	Integer
	MT	Target value	W	Real
Custom	X	Raw FORTH (Read); Passed unchanged to Mistic	R	Unknown
	XR	Raw FORTH (Read); Passed unchanged to Mistic	R	Unknown

## Notes about item types:

- A # sign indicates the need to insert a number in that position.
- Values can be written to digital inputs and analog inputs, but when the Mistic Server attempts to write the value, the Mistic Controller simply ignores the message.
- Because of the way the Mistic Server writes to the PID controller word and the fact that the upper part of the control work is used internally by the PID algorithm, it is not safe, in most cases to change the PID control word from the Mistic Server.
- Reading items with timer types M and MA returns the current value of the timer as a real number. Writing to items with M and MA type sets the timer's target value (starting value for countdown timers and target value for count-up timers). For countdown timers, writing an item with MA type also starts the timer. For count-up timers, the MA type sets the target value but does not start the timer. For countdown timers, the timer's value is set to the written value and the timer starts counting down immediately.
- Items with timer type MC are used to control the corresponding timer. Normally, the value of these items is zero. Writing a value of one issues a command to the

controller to start the timer. Writing a value of two stops the timer. Writing a value of three pauses the timer and writing a value of four continues the timer. When the command is queued to be sent to the controller, the Mistic Server changes the item's value back to zero.

- Like the timer MC items, items with MT type are effectively write-only. Reading MT items always returns zero. Writing MT items sets the timer's target value. Writing to an MT item is functionally equivalent to writing to an M item.

## Predefined Status Items

The Mistic Server has always supported a predefined item named STATUS that indicates the status of communications through a topic. Unfortunately, STATUS provides no information regarding the reason of failure. Several new predefined items have been added to provide more information about driver, communications, and configuration problems. Whenever possible, these new items should be used instead of STATUS.

### \$STATUSDRIVER

\$STATUSDRIVER returns an integer value that indicates the status of the driver itself. The following table lists the potential values

Value	Label	Description
0		Client is not connected to the server
128	IoInfServerOk	Client is connected and no internal errors have been encountered
138	IoErrKernelDriverFailed	SARCNET.SYS is not running
139	IoErrBadTopic	Topic name does not exist
140	IoErrBadHardware	Unable to locate a PCI ARCNET adapter

### \$STATUSCOMM

\$STATUSCOMM returns an integer value that indicates the status of communications to the Mistic Controller. Once the Mistic Server is correctly configured, this item is the most useful of the three predefined items.

Value	Label	Description
0		Communications status is unknown
1		Communications is good
51	ERROR_REM_NOT_LIST	Device is not present on the ARCNET network or timeout occurred
121	ERROR_SEM_TIMEOUT	Time-out occurred waiting for ARCNET communications
10060	WSAETIMEDOUT	Unable to connect to the controller
10061	WSAICONNREFUSED	Port number or service name is incorrect
10065	WSAEHOSTUNREACH	No defined route to the controller's network address

**\$\$STATUSCONFIG**

\$\$STATUSCONFIG returns an integer value that indicates the status of the topic's configuration.

Value	Label	Description
0		Communications status is unknown
1		Communications appears to be OK
-2113863674	ERR_UNKNOWN_SYMBOL	At least one point does not exist in the controller (the value is FF82010006 is hexadecimal)

**Error Handling and Reporting**

This section provides details about the various failures that can occur and how the Mistic Server tries to manage the failures. The first column in the table is a brief description of the failure. The second column describes the corrective action taken by the Mistic Server. For some failures, the associated item qualities are set to the values listed in the third column.

Problem	Corrective Action by the Server	Quality / Value
Item name is not valid	Stop polling the item and set \$\$STATUSCONFIG to ERR_UNKNOWN_SYMBOL	WW_SQ_NOACCESS / no value
Topic name doesn't exist	Refuse the topic, set \$\$STATUSDRIVER to IoErrBadTopic, and send an error message to the Wonderware Logger.	n/a
Bad ARCNET address	Set \$\$STATUSCOMM to ERROR_REM_NOT_LIST and continue trying to communicate with the controller.	WW_SQ_NOCOMM for all affected items
Controller fails to respond in a timely manner on ARCNET	Set \$\$STATUSCOMM to ERROR_REM_NOT_LIST and continue trying to communicate with the controller.	WW_SQ_NOCOMM for all affected items
Failed to open SANCTL	Refuse the topic, set \$\$STATUSDRIVER to IoErrKernelDriverFailed, and send an error message to the Wonderware Logger.	n/a
Failed to locate a PCI ARCNET adapter	Refuse the topic, set \$\$STATUSDRIVER to IoErrBadHardware, and send an error message to the Wonderware Logger.	n/a
Failed to load	Send an error message to the	n/a

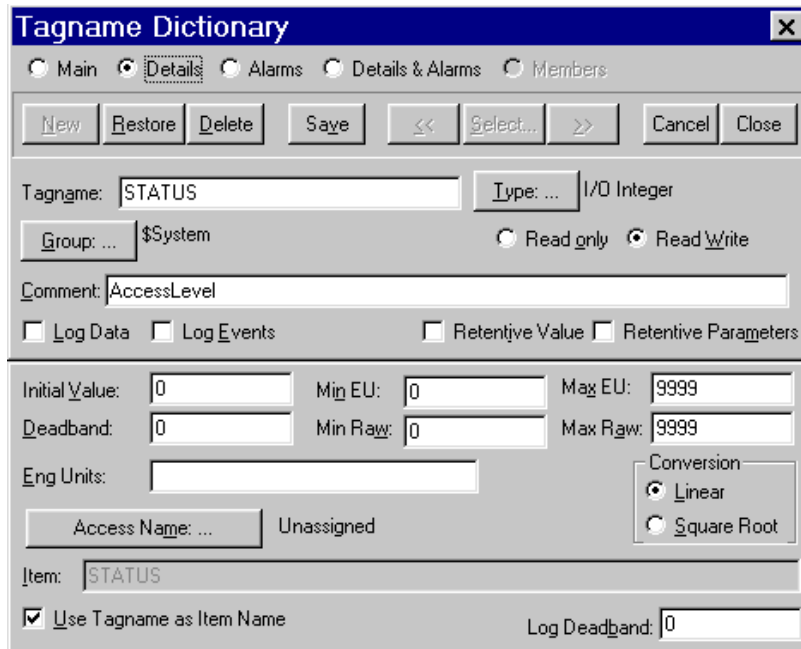
Problem	Corrective Action by the Server	Quality / Value
M2SUPPRT.DLL	Wonderware Logger and shutdown the server	

### Monitoring the State of Communications with the Mistic Controller

For each topic name, there is a built-in discrete item that can be used to monitor the state of communications with the device. The integer item, Status, is set to 0 when communications with the device fails and set to 1 when communications is successful.

From InTouch, the state of the device may be read by:

1. Defining a tagname and associating it with the topic configured for the device.
2. Using the word Status as the Item name. For example:



From Microsoft Excel, the status of the device communications may be read by entering the following formula in a cell:

**=MISTC200|TopicName!STATUS**

## Using *Excel* with the Server

Data from topics may be accessed from *Excel* spreadsheets. To do so, enter a formula like the following into a cell on the spreadsheet:

**=|TopicName|ItemName**

In some cases, *Excel* requires the topic or item to be surrounded by apostrophes.

In the formula, topic is replaced with one of the valid topic names defined during the Server configuration process. Item is one of the valid item/point names described in the Item (Point) Naming section.

### *Reading Values from the Server into Excel*

Values may be read directly into *Excel* spreadsheets from the I/O Server by entering a formula into a cell using the following format:

**=applicationname|topicname|itemname**

Example formula:

**=MISTIC200|'Engine1'|'RUNNING.D'**

where:

- HDL32** The application name, which is the executable name of the Server (less the .exe).
- Topic1** The exact topic name defined in the I/O Server for the device.
- AI** The actual location in the device that contains the data value. This is the item name.

In this example, each time the value of Topic1 changes in the device, the I/O Server will automatically send the new value to the cell containing the formula in *Excel*.

**NOTE** Refer to the Microsoft *Excel* manual for complete details on entering Remote Reference formulas for cells.

Values may also be read into *Excel* spreadsheets from the I/O Server by using the **DDEREQUEST** method in an *Excel* macro:

```
Sub DemoDDE()
    channelNumber = Application.DDEInitiate(app:="ApplicationName",
    topic:="TopicName")
    returnValue = Application.DDERequest(channelNumber,
    "ItemName")
    Worksheets("Sheet1").Cells(1, 1).Formula = returnValue(1)
    Application.DDETerminate channelNumber
End Sub
```

The following describes each of the above **DemoDDE** macro statements:

**channelNumber = Application.DDEInitiate(app:="ApplicaitonName", topic:="TopicName")**

Opens a channel to a specific *topic name* (defined in the I/O Server) in a particular *application name* (executable name less the .EXE) and assigns the number of that opened channel to **channelNumber**.

**returnValue = Application.DDERequest(channelNumber, "ItemName")**

Gets the value of **ItemName** from the application and topic specified in the previous DDEInitiate method and places it in the variable **returnValue**.

**Worksheets("Sheet1").Cells(1, 1).Formula = returnValue(1)**

Places the value in returnValue into the first cell in Sheet1.

**Application.DDETerminate channelNumber**

Closes the channel at the end of the macro. Some applications have a limited number of channels therefore, they should be closed when finished. **channelNumber** is the channel number returned by the previously executed **INITIATE** method.

## Writing Values to the I/O Server from Excel

Values may be written to the I/O Server from Microsoft *Excel* by creating an *Excel* macro that uses the **DDEPOKE** method. The proper code is entered in *Excel* as follows:

```
Sub DemoDDE()
    channelNumber = Application.DDEInitiate(app:="ApplicaitonName",
    topic:="TopicName")
    Set rangeToPoke = Worksheets("Sheet1").Range("A1")
    Application.DDEPoke channelNumber, "ItemName", rangeToPoke
    Application.DDETerminate channelNumber
End Sub
```

The following describes each of the above DemoDDE macro statements:

**channelNumber = Application.DDEInitiate(app:="ApplicationName", topic:="TopicName")**

Opens a channel to a specific *topic name* (defined in the IO Server) in a particular *application name* (executable name less the .EXE) and assigns the number of that opened channel to **channelNumber**.

**Set rangeToPoke = Worksheets("Sheet1").Range("A1")**

Places the range of values to be poked into the variable rangeToPoke. Sheet1 is the name of the worksheet, A1 is the cell range containing the values.

**Application.DDEPoke channelNumber, "ItemName", rangeToPoke**

POKEs the value contained in rangeToPoke to the specified *item name* (actual location in the device) via the channelNumber returned by the previously executed **INITIATE** method.

### **Application.DDETerminate channelNumber**

Closes the channel at the end of the macro. Some applications have a limited number of channels therefore, they should be closed when finished. channelNumber is the channel number returned by the previously executed INITIATE method.

## Technical Support

Prior to contacting technical support, please refer to the relevant documentation for a possible solution to the problem. If it is necessary to contact technical support for assistance, please have the following information available:

1. The version of the server that is operating.
2. The type and version of the operating system you are using. For example, Microsoft Windows NT Version 4.0 workstation.
3. The exact wording of system error message encountered.
4. Any relevant output listing from the Wonderware Logger, the Microsoft Diagnostic utility (MSD), or any other diagnostic applications.
5. Details and results of the attempts to solve the problem.
6. Details of how to recreate the problem.

Technical Support can be reached in the following ways:

Telephone 281-334-3293 or 1-888-334-3293

Fax 281-334-4324

Email [support@mtlmost.com](mailto:support@mtlmost.com)

Internet [www.mtlmost.com](http://www.mtlmost.com)

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