COMTROL

**DeviceMaster® Primo
Serial Port Server Device Driver
Installation for Windows® 98/Me**

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Overview

In this document, we explain how to configure the DeviceMaster for the particular application you have chosen.

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Two other documents related to the this one are:

- [DeviceMaster Primo Serial Port Server Hardware Installation (p1porthw.pdf)](.).
- [DeviceMaster Primo Using Pair Connect and Raw Connect (raw_pair.pdf)](.).

In the Hardware Installation document, we explain how to set up DeviceMaster Primo for use on a network.

Red, underscored items are links to URLs. Blue, underscored items are links within this document or to another document on the media.

Note: *If you copy this document from the ftp/web or CD and do not use the procedure discussed on the CD, you will get an error message when selecting hyperlinks outside of this document.*

Operation Introduction

The Hardware Installation document introduces you to the DeviceMaster unit's features and specifications.

We begin this discussion with a brief explanation of the three general types of operation modes available when using DeviceMaster Primo. The setup procedure is somewhat different for each operation mode so first take the time to determine which application best suits your needs.

Operation Modes:

- Host-Based Mode
- Pair-Connection Mode
- Raw-Connection Mode

Operation Modes

DeviceMaster Primo is an advanced, industrial Serial-to-Ethernet device designed to fit into today's ever-expanding networking world. It extends the usage of traditional COM ports on a PC—an isolated machine with restricted ports—to being able to access ports over a TCP/IP network. Through the nature of networking, you can control your serial devices from a distance, either over a LAN, or even over the Internet.

Traditional serial port communication uses a COM port board that slides into one of the slots on the back of your PC. In this case, only the computer containing the board has direct access to the board's serial ports. With the 1-port DeviceMaster serial device server, communicating with a COM port is much more versatile, since you are now able to access the COM port from a distance, over your company's LAN, or even over the Internet.

In this section, we discuss three types of application—Host-Based Mode, Pair-Connection Mode, and Raw-Connection Mode. Read carefully to determine which application best suits your needs.

Host-Based Mode

Host-Based Mode, which requires installing a device driver on each host and setting up the various parameters associated with the driver, refers to the case where one or more hosts are set up to use the DeviceMaster unit's serial port.

Single-Host Mode is used by a host needing access to one or more DeviceMaster units that are connected to the same LAN to which the host is connected.

Custom Mode can be set up to give a host access to a DeviceMaster that is connected outside the host's LAN. All that is needed is information about the host's and DeviceMaster's public IP addresses as well as the two Gateway addresses. By using the DeviceMaster unit's password protection function, Custom Mode also allows one host to act as administrator, providing and denying access to other hosts as needed.

Pair-Connection Mode

Pair-Connection Mode employs two DeviceMasters in tandem. One DeviceMaster is connected from its RS-232 port to the COM port of the PC and the serial device is connected to the RS-232 port of the other DeviceMaster. The two DeviceMasters are then connected to each other by an Ethernet cable, are both connected to the same LAN, or in a more advanced setup, communicate with each other over a WAN (that is, through one or more routers).

This mode of operation provides a certain amount of flexibility. Since DeviceMaster uses its own system software to transport data back and forth between the two devices, the data from the serial port of one DeviceMaster can be automatically sent to the serial port of the other DeviceMaster, without the need for an intermediate PC or controller.

Raw-Connection Mode

Raw-Connection Mode is used for standard TCP/IP socket programs and provides transparent communication between the network socket program and corresponding asynchronous port.

This mode of operation, which works over either a LAN or WAN connection, allows the user to easily open the asynchronous serial port and read or write raw data from an Ethernet host to the remote serial device by using an open TCP/IP socket.

Host-Based Mode

There are two options under Host-Based Mode. Follow the installation instructions under Single Host Mode if you will be accessing DeviceMaster from just one host. Follow the instructions under Custom Host for all other Host-Based applications.

Note: *Before installing the driver and software, install the DeviceMaster Primo hardware using the DeviceMaster Primo Serial Port Server Hardware Installation document.*
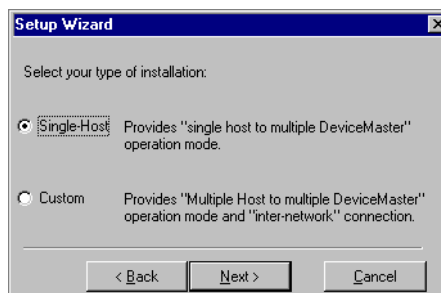
Single Host Mode

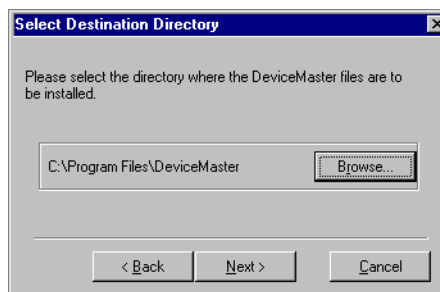**Driver and Software Installation**

1. From the installation CD, select the **Software and Installation** button. The CD menu appears.

2. From the Windows 98 group, double-click on the **Device Driver** text. Or, locate and run the installation program *setup.exe* that you downloaded.

3. Select **Next**.

4. Select the **Single-Host** option, and select **Next**.

5. Select **Next** to install DeviceMaster files in the given default directory, or select the **Browse** button to enter the name of a different directory. The **Installing** page appears indicating that the computer is installing files into the appropriate folder. If the setup is successful, the **Setup Wizard** page appears.
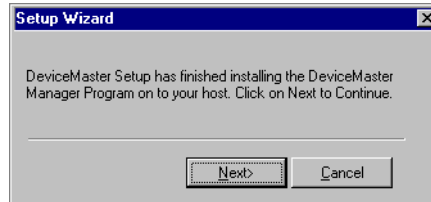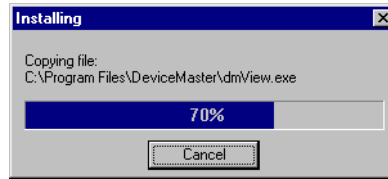
6. Select **Next** to run the **Add Wizard** (see the next discussion).

Adding a DeviceMaster - Add Wizard

1. Select the **Yes** option, and select **Next**.
   The **Your DeviceMaster** server page appears.

   > ***Note:*** *If the DeviceMaster is not automatically detected, cancel the installation and run the uninstall program. Run the setup.exe again, and install the DeviceMaster using the Custom Installation.*
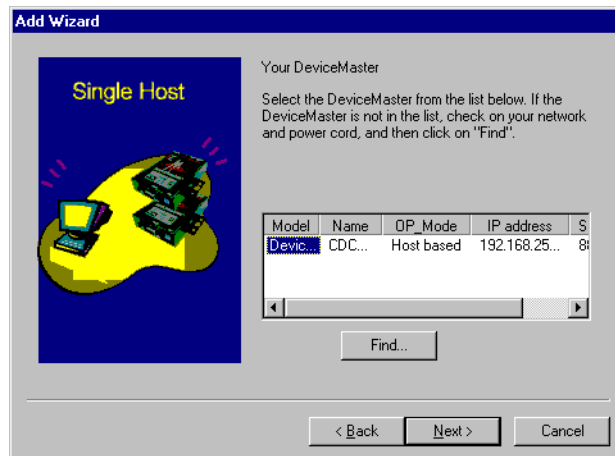
2. This page lists all DeviceMaster Primo units that are connected to the network. Select the **Model** number of the DeviceMaster you would like to add, and select **Next**.
   The **Password Protected** page appears.

3. If a password has been set, the Wizard will prompt you to enter it. After entering the password, select **Next**.

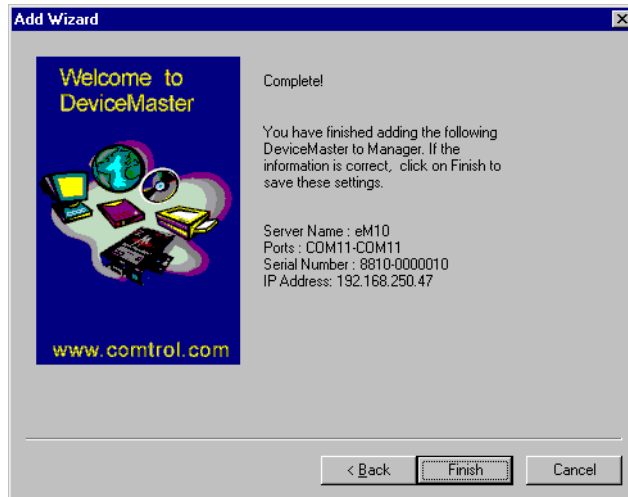4. Select a COM port number that you want to assign to your DeviceMaster serial port. Select the desired number from the drop-down list box, and then select **Next**.
   The **Set DeviceMaster** page appears.

5. If a password was not previously set, the program will prompt you to enter and confirm it. Select **Next**.

6. Verify that all information is correct, and select **Finish**.
   The **DeviceMaster Manager** utility appears, displaying the DeviceMaster that you have just added, including port configuration settings.
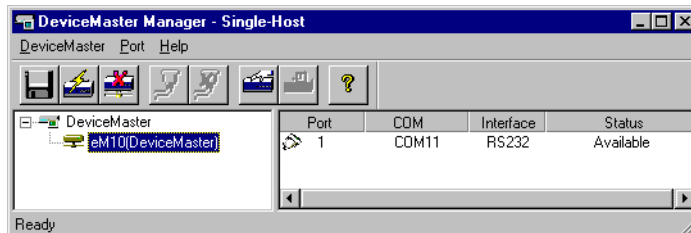
7. If you would like to add another DeviceMaster, select the **Add DeviceMaster** icon and then repeat steps 1 through 6.

8. Be sure to select **Save Configuration** on the DeviceMaster Manager's **DeviceMaster** menu to save the settings to your Windows host and to the selected DeviceMaster.

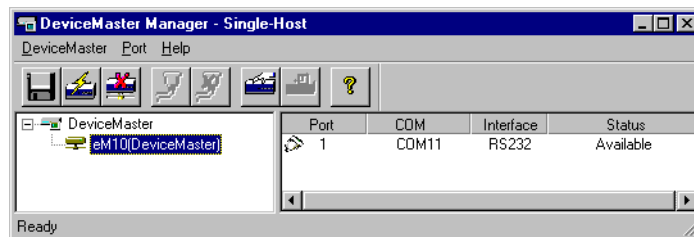9. Exit DeviceMaster Manager by selecting **Exit** on the **DeviceMaster** menu.

Using DeviceMaster Manager

Using the DeviceMaster Manager you can add more DeviceMasters, change DeviceMaster names, remove DeviceMasters, and change COM names.

To start the DeviceMaster Manager, on the Windows desktop toolbar, select the **Start** button, then select **Programs**, **DeviceMaster**, and select **DeviceMaster Manager**.

The **DeviceMaster Manager** main window appears, displaying DeviceMaster names and model numbers in the left information pane. When you select a particular DeviceMaster Primo, the DeviceMaster Manager displays the port associated with that DeviceMaster, the associated COM port names, and other relevant information.

You can select all DeviceMaster Manager functions from the toolbar. Functions related to DeviceMasters are found under the **DeviceMaster** menu, and port functions are under the Port menu. Right-click on a port or DeviceMaster to display a short-cut menu with a list of functions available for the selected item.

DeviceMaster Manager Toolbar Icons

The DeviceMaster Manager toolbar icons provide an easy way to manage your DeviceMasters.

Save all DeviceMasters

To activate any changes to the DeviceMaster or changes to port configurations, you need to save them. Select the **Save all DeviceMasters** icon to detect any changes and save them in the appropriate places.

Add DeviceMaster

If you need to add another DeviceMaster Primo to your system after the initial installation, select the **Add DeviceMaster** icon to start the Add Wizard.
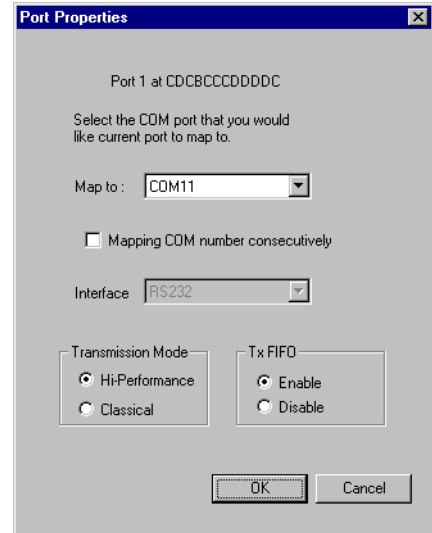
Delete DeviceMaster

If one of the DeviceMaster Primo units originally installed on your system has been moved, or you do not need the DeviceMaster installed on your system anymore, then you can use the DeviceMaster Manager to delete it. Select the DeviceMaster name from the list and select the **Delete DeviceMaster** icon.

Map Port

Use this procedure to change previously assigned COM ports.

1. Select the name of the DeviceMaster whose port number you would like to change from the left pane list.

2. The port on this particular DeviceMaster will be displayed in the right pane. Select the desired port.

3. Select the **Map Port** icon.

4. Select the new COM port name that you would like to map to.

5. Select **OK**.

Unmap Port

Select the **Unmap Port** icon to remove a port from your Windows 98/Me operating system.

1. Select the DeviceMaster that you would like to modify.

2. Select the port.

3. Select the **Unmap Port** icon to remove it.
   When a port is unmapped, the COM column displays an ellipsis (...) instead of COM number.

DeviceMaster Properties - Change Name

Use this icon to modify the DeviceMaster name.

1. Select the name of the DeviceMaster listed in the left pane that you want to change.

2. Select the **Properties** icon. The **DeviceMaster Properties** dialog box appears.

3. Modify the DeviceMaster name as desired.
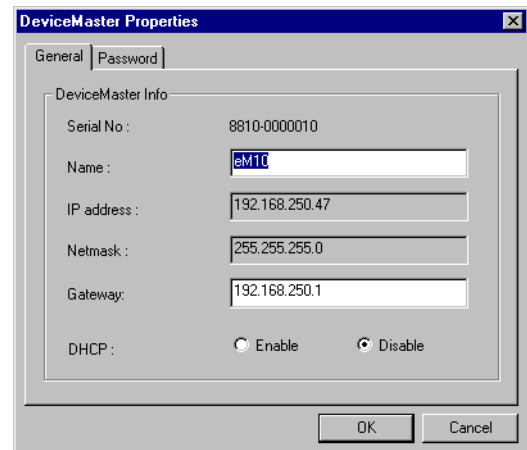
4. Select **OK**.

**DeviceMaster Properties -
Change Password**

To add more security to your
DeviceMaster Primo, you can set a
password. If you did not set the
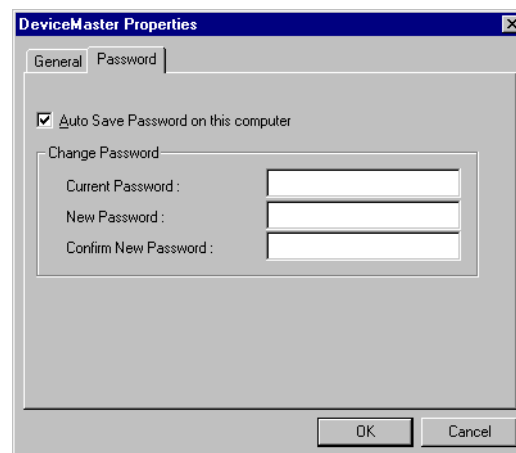password while running the Add
Wizard, or you would like to change
your password, select the
**Properties** icon to do so.

1. Select the name of the
   DeviceMaster listed in the left
   pane that you want to change.

2. Select the **Properties** icon.

3. Select the **Password** tab.

4. Enter the current password and
   new password as indicated.

5. Select **OK** to save the changes.

Replacing a Server

In the unlikely event that you need to replace your DeviceMaster Primo, select
Replace DeviceMaster on the **DeviceMaster** menu. This procedure uses the
DeviceMaster "hot-swap" feature, and provides a way for you to find the
replacement DeviceMaster. The process saves the configurations that were set
while installing the previous DeviceMaster. This procedure is easier than deleting
the old DeviceMaster from DeviceMaster Manager, and then configuring the new
DeviceMaster and its ports.

1. In the DeviceMaster Manager, select the DeviceMaster that has a question
   mark(?) icon on top of it.

2. On the **DeviceMaster** menu, select **Replace DeviceMaster**.
   The **Replace DeviceMaster** dialog box appears. This dialog box displays a
   list of DeviceMasters that have not been configured.
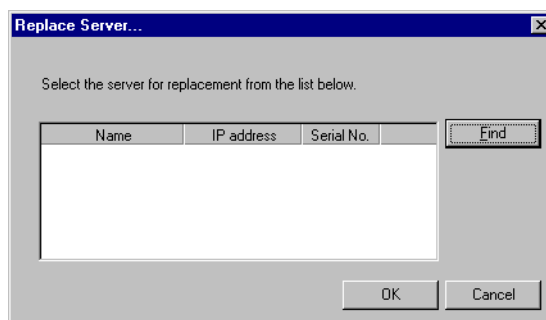
3. From the server list, select the new DeviceMaster by looking at the serial
   number.

4. Use the short-cut menu to confirm the DeviceMaster.

5. If the new DeviceMaster is password protected, enter the pre-set password
   when prompted to do so.

6. Select **OK** to save the current settings to the new DeviceMaster.
   The **DeviceMaster Manager** appears.

7. On the **DeviceMaster** menu, select **Save Configuration** to activate.

Note: *Previous configuration information, including DeviceMaster name and port
settings, are retained after following the Replace Server procedure. The old
DeviceMaster password will be superseded by the password that you entered
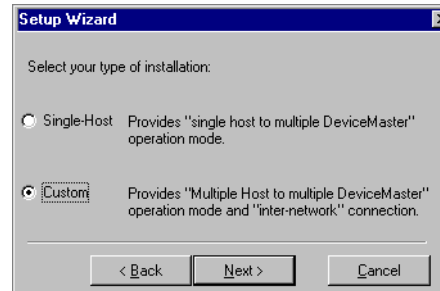during the replacement procedure.*

Custom Mode

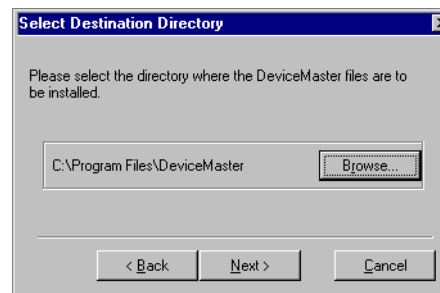**Driver and Software Installation**

1. From the installation CD, select the **Software and Installation** button. The CD menu appears.

2. From the Windows 98 group, double-click on the **Device Driver** text. Or, locate and run the installation program *setup.exe*.
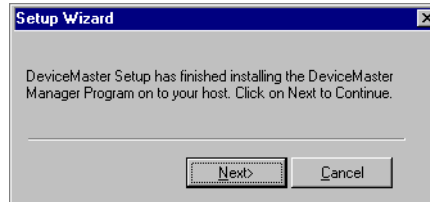
```
Welcome to DeviceMaster                              [×]

This setup program will install the software for DeviceMaster to
your workstation. Click on the Cancel button now if you do not
want to continue setting up DeviceMaster at this time.




                                 [  Next >  ]      [  Cancel  ]
```

3. Select **Next**.

```
Setup Wizard                                         [×]

Select your type of installation:

○ Single-Host   Provides "single host to multiple DeviceMaster"
                operation mode.

● Custom        Provides "Multiple Host to multiple DeviceMaster"
                operation mode and "inter-network" connection.

              [ < Back ]  [  Next >  ]      [  Cancel  ]
```

4. Select the **Custom** option, and select **Next**.

```
Select Destination Directory                         [×]

Please select the directory where the DeviceMaster files are to
be installed.


    C:\Program Files\DeviceMaster          [  Browse...  ]


              [ < Back ]  [  Next >  ]      [  Cancel  ]
```

5. Select **Next** to install DeviceMaster Primo files in the given default directory, or select the **Browse** button to enter the name of a different directory. The **Installing** page appears indicating that the computer is installing files into the appropriate folder. If the setup is successful, the **Setup Wizard** page appears.
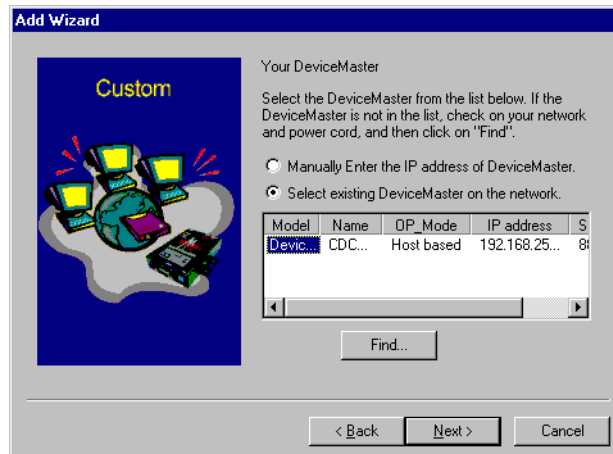

6. Select **Next** to run the **Add Wizard**.

Adding a DeviceMaster - Add Wizard


1. Select the **Yes** option, and select **Next**.

2. This page lists all DeviceMaster Primo units that are connected to the network. Select the **Model** number of the DeviceMaster that you would like to add, and select **Next**.

   Note: *If the DeviceMaster is at a remote site, you must select the **Manually Enter the IP address of DeviceMaster Server** option, and then select **Next**.*

3. If you are a first-time installer, go to the next step. If the DeviceMaster being setup has a password, you will see a password protected page. If you are the server administrator, select **Yes** and enter the password. However, if you are not the administrator, select **No** and continue to install the ports.

   Note: *If you are not the administrator, be sure to ask the administrator to add you to the DeviceMaster unit's access control list.*

4. Confirm that the displayed IP address is correct, or enter a dedicated IP address assigned by your LAN administrator. Select **Next**.
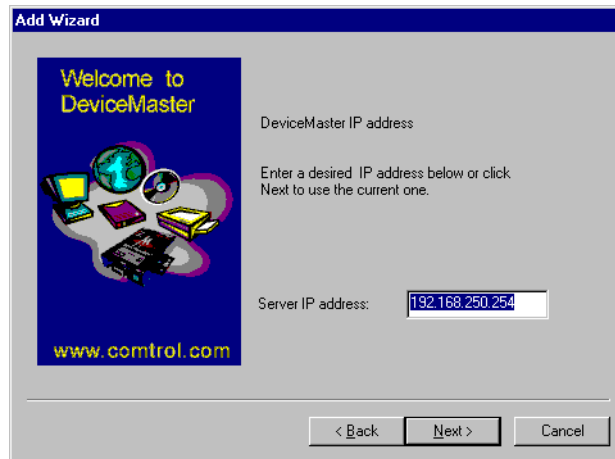

Note: *If you have a DHCP server on your local network, be sure to consult with the DHCP administrator to assign a dedicated IP address to the server, and to the computers connected to the server.*

5. Select a COM port number that you want to assign to your DeviceMaster serial port from the drop-down list box. Select **Next**.
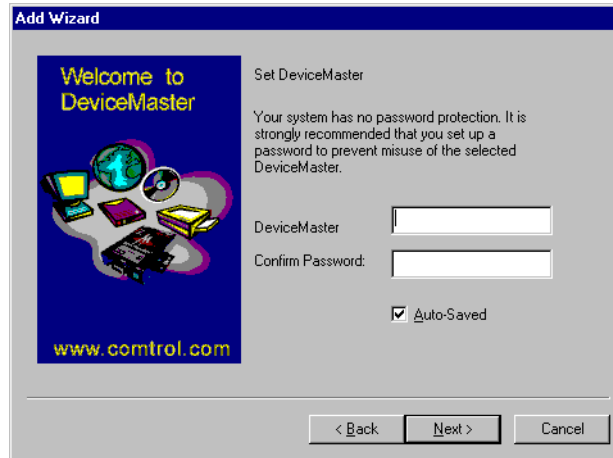
6. Enter a password in both the **DeviceMaster** and **Confirm Password** boxes, and select **Next**.
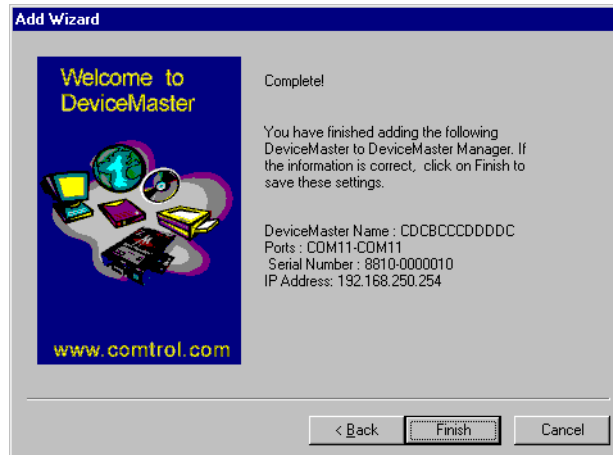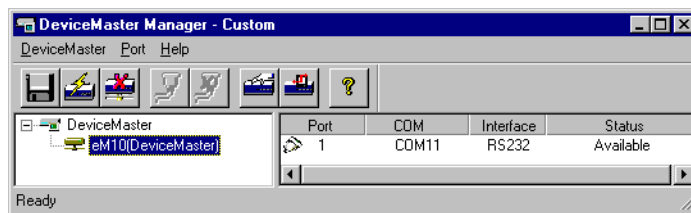

7. Verify that all the information is correct, and select **Finish**.
   The DeviceMaster Manager appears, displaying the DeviceMaster that you have just added, including the port configuration settings.

   Note: *If you see ports with the status 'Non-authorized', and you are a general user, ask your server administrator to add access permission to the DeviceMaster for you.*

8. If you would like to add another DeviceMaster, select **Add DeviceMaster Wizard** on the **DeviceMaster** menu, and repeat the previous steps.

9. To exit the DeviceMaster Manager, select **Exit** on the **DeviceMaster** menu.

Using DeviceMaster Manager for Custom Installation

When you run the *setup.exe* program to install DeviceMaster Primo drivers, you are automatically asked to add one DeviceMaster. However, you have the option to run DeviceMaster Manager at a later time if you decide to add more DeviceMasters, change DeviceMaster names, remove DeviceMasters, or change COM names.

To start DeviceMaster Manager, on the Window's desktop toolbar, select the **Start** button, then select **Programs**, **DeviceMaster**, and select **DeviceMaster Manager**.

The **DeviceMaster Manager** main window displays DeviceMaster names and model numbers in the left information pane. When you select a particular DeviceMaster Primo, the DeviceMaster Manager displays the port associated with that DeviceMaster, the associated COM port names and other relevant information.

You can select all DeviceMaster Manager functions from the toolbar. Functions related to DeviceMasters are found under the **DeviceMaster** menu, and port functions are under the **Port** menu. Right-click on a port or DeviceMaster to display a short-cut menu with a list of functions available for the selected item.

DeviceMaster Manager Toolbar Icons

The DeviceMaster Manager toolbar icons provide an easy way to manage your DeviceMasters.

Save all DeviceMasters

To activate any changes to the DeviceMaster or changes to port configurations, you need to save them. Select the **Save all DeviceMasters** icon to detect any changes and save them in the appropriate places.

Add DeviceMaster

If you need to add another DeviceMaster Primo to your system after the initial installation, select the **Add DeviceMaster** icon to start the Add Wizard.
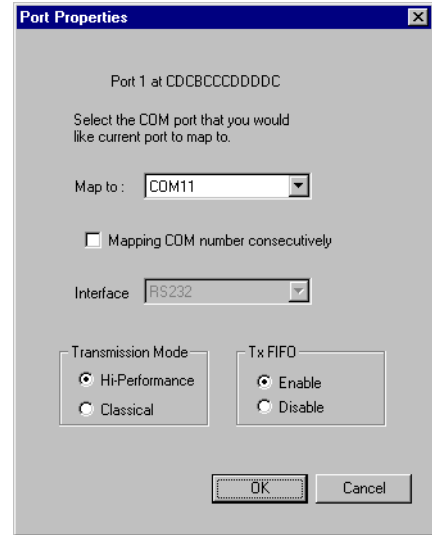
Delete DeviceMaster

If one of the DeviceMaster Primo units originally installed on your system has been moved, or you do not need the DeviceMaster installed on your system anymore, then you can use the DeviceMaster Manager to delete it. Select the DeviceMaster name from the list and select the **Delete DeviceMaster** icon.

Map Port

Use this icon to change previously assigned COM names.

1. Start DeviceMaster Manager, and select the name of the DeviceMaster whose port number you would like to change from the left pane list.

2. The port on this particular DeviceMaster will be displayed in the right pane. Select the desired port.

3. Select the **Map Port** icon.

4. Select the new COM port name that you would like to map to.
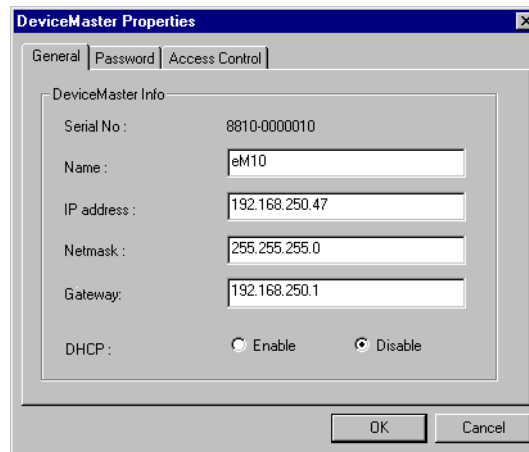
5. Select **OK**.

Unmap Port

Select the **Unmap Port** icon to remove a port from your Windows NT operating system.

1. Select the DeviceMaster that you would like to modify.

2. Select the port.

3. Select the **Unmap Port** icon to remove it.
   When a port is unmapped, the COM column display an ellipsis (...) instead of COM number.

DeviceMaster Properties - **Change Name**

Use this icon to modify the DeviceMaster name.

1. Start DeviceMaster Manager, and select the name of the DeviceMaster listed in the left pane that you want to change.

2. Select the **Properties** icon.

3. Modify the DeviceMaster name as desired.

4. Select **OK**.

DeviceMaster Properties - Change Password

To add more security to your DeviceMaster Primo, you can set a password. If you did not set the password while running the Add Wizard, or you would like to change your password, use the Properties icon to do so.

1. Start DeviceMaster Manager, and select the name of the DeviceMaster listed in the left pane that you want to change.

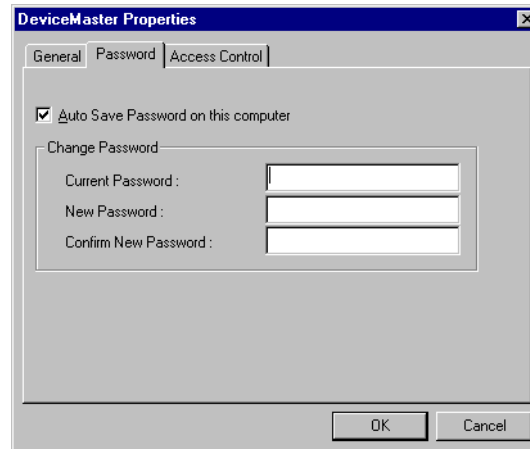2. Select the **Properties** icon.

3. Select the **Password** tab.

4. Enter the current password and new password as indicated.

5. Select **OK** to save the changes.

Granting Access to Hosts

To assign permission to give a host access to the port on a shared DeviceMaster Primo, use the **Access Control** tab. For security reasons, you must be the server's administrator or know the Server Properties password to view the access control list. If you have not been granted access, you will see a message that states you are 'Non-authorized' to assign access permission to the ports.

If you do not know the password, you can still map the ports to your PC host; you just will not have access to the ports. To get access, you will need to ask your administrator to add your IP address to DeviceMaster's access control list. (If you are not sure of the IP address of the host that you want to add, run "ipconfig" from the host's Windows 98/Me MS-DOS prompt.)

Note: *If you want to allow DeviceMaster Primo's ports to be accessed by all users, simply empty the access control list.*

To grant access, follow this procedure:

1. On the toolbar, select the **Start** button, then select **Programs**, **DeviceMaster**, and select **DeviceMaster Manager**.

2. Select the DeviceMaster that you want to modify.

3. On the **DeviceMaster** menu, select **DeviceMaster Properties**.

4. Select the **Access Control** tab.
   The tab displays a list of ports and two methods of adding permissions.

When you are adding access permissions, you may either view the access control list by **Port** or by **IP address**. These two approaches also apply to the procedure for adding new hosts. The next two discussions describe how to add hosts using both approaches.

Configuring Using View by IP Address option

Selecting the **View access control list by IP Address** option displays the access control list by giving DeviceMaster IP addresses. It should be clear which IP addresses have been granted access to which ports, and which IP addresses are allowed access to the DeviceMaster.

If particular hosts are permitted access to the port on a specific DeviceMaster Primo, we recommend configuring it using the **View access control list by IP address** option. This option enables the Add Port button.

1. Select the **Access Control** tab, and then select **IP address** from the **View access control list by** drop-down list box.
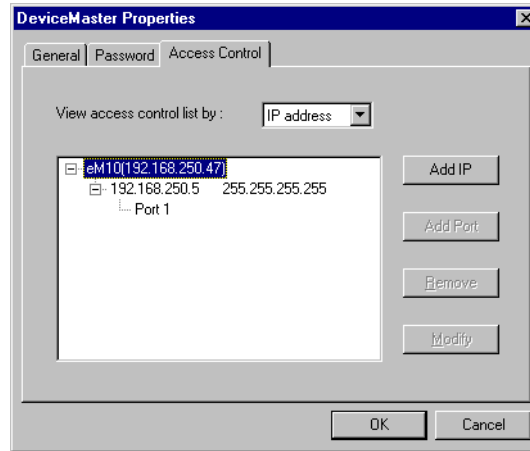

2. Select the DeviceMaster that you would like to modify.

3. Select the **Add IP** button.
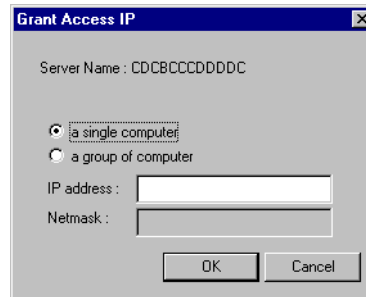
4. To add access for only one computer, select the **a single computer** option, and then enter the host's **IP address** in the appropriate box.
   To add access for a group of computers, select the **a group of computers option**, and then enter the **IP address** and **Netmask**. (For example, for network class C computers, you might enter 192.168.1.0 for **IP address** and then 255.255.255.0 for **Netmask**. This would allow access for any computer on the network with IP address of the form 192.168.1.xxx, in which xxx is any number between 1 and 254.)

5. Select **OK**.
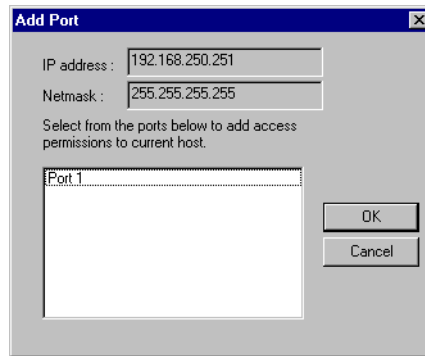
6. Select the port, and select **OK**.
   The **DeviceMaster Properties** dialog box appears.

7. Select **OK** to finish the procedure.
   The **Access Control** tab appears.

8. DeviceMaster lists the ports granted access under the host's IP address. Select **OK**.
   The **DeviceMaster Manager** appears.

9. On the **DeviceMaster** menu, select **Save Configuration** to activate the settings.

Modifying the Host Setting of all Entries

1. Select the **Access Control** tab, and then select **IP address** from the **View access control list by** drop-down list box.
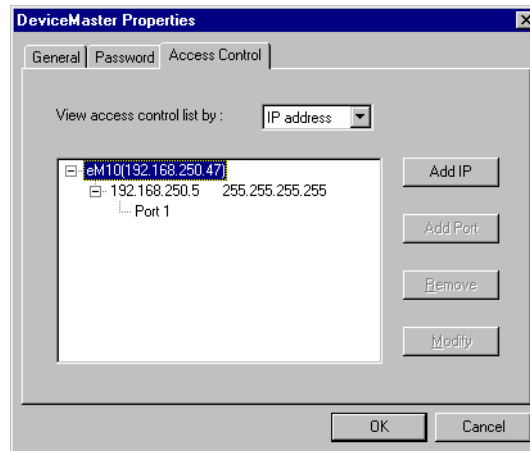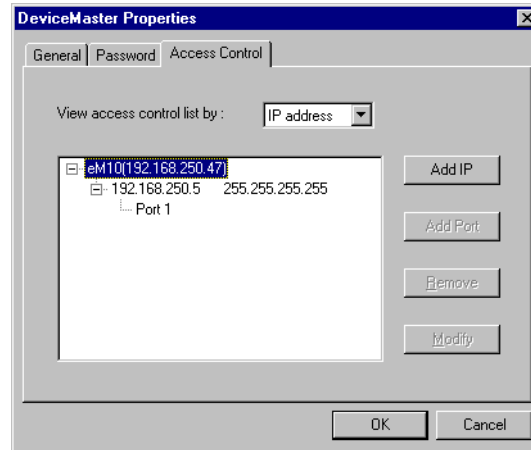

2. Select the DeviceMaster that you would like to modify.

3. Select the IP address of the host that you would like to modify.

4. Select the **Modify** button.
   The **Grant Access IP** dialog box appears.

5. Modify the configuration as desired.

6. Select **OK** to exit.
   The **DeviceMaster Manager** appears.

7. On the **DeviceMaster** menu, select **Save Configuration** to activate the settings.

Removing a Host   If you want to disable a particular host to use any of the ports, simply remove the host from the Access Control list.

Note: *Removing all hosts will grant server access to all computers.*

1. Select the **Access Control** tab, and then select **IP address** from the **View access control list by** drop-down list box.


2. Select the DeviceMaster that you would like to remove.

3. Expand the host's IP address entry and select the desired IP address.

4. Select **Remove**.

5. Select **OK** to exit.
    The **DeviceMaster Manager** appears.

6. On the **DeviceMaster** menu, select **Save Configuration** if you need to activate the setting immediately.

Configuring Through View by Port

Choose the **View access control list by Port** option to view the access permission granted for each port. This viewing option is useful for adding hosts to specific ports.

Adding a Host IP Address to a Specific Port

1. In the **Access Control** tab on the **DeviceMaster Properties** dialog box, select the Port to which you would like to add the host.
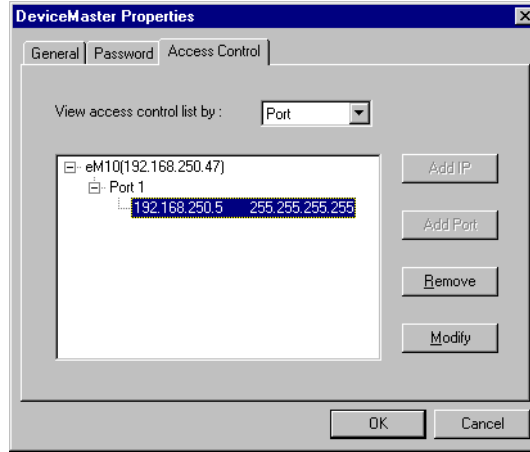
2. Select **Add IP**.

3. To add access for only one computer, select the **a single computer** option, and then enter the host's **IP address** in the appropriate box.
   To add access for a group of computers, select the **a group of computers option**, and then enter the **IP address** and **Netmask**. (For example, for network class C computers, you might enter 192.168.1.0 for **IP address** and then 255.255.255.0 for **Netmask**. This would allow access for any computer on the network with IP address of the form 192.168.1.xxx, in which xxx is any number between 1 and 254.)
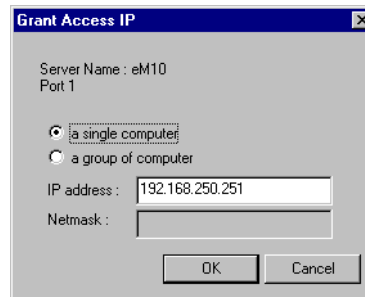
4. Select **OK**.
The **DeviceMaster Properties** dialog box appears. You can examine the **Access Control** tab to verify that the host was added to the port.
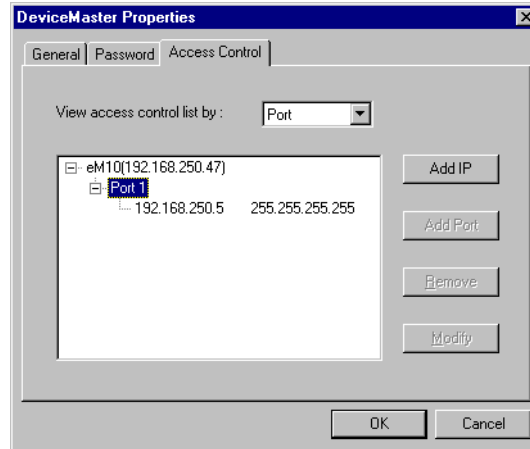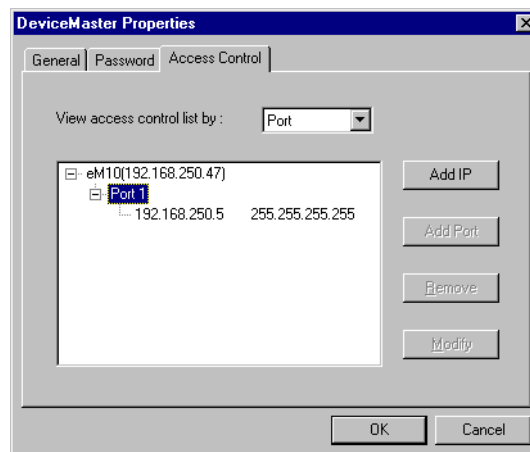

5. Select **OK**.
The **DeviceMaster Manager** appears.

6. On the **DeviceMaster** menu, select **Save Configuration** if you need to activate the settings immediately.

Modifying the Granted Host

1. On the **Access Control** tab, in the **DeviceMaster Properties** dialog box, display the port IP address by expanding the desired port list.

2. Select the IP address that you want to change, and select **Modify**.

3. Modify the IP address as needed and select **OK**.   .

4. Select **OK**.
   The **DeviceMaster Manager** window appears.

5. On the **DeviceMaster** menu, select **Save Configuration** if you need to activate the settings immediately.

Removing Granted Host

1. On the **Access Control** tab, in the **DeviceMaster Properties** dialog box, display the port IP address by expanding the desired port list.

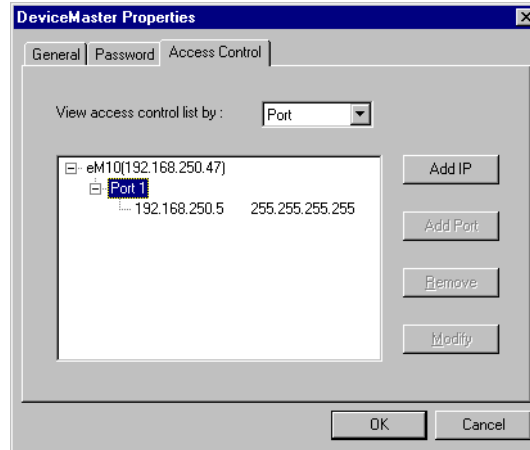2. Select the IP address that you want to change, and select **Remove**.
   DeviceMaster removes the IP address from the list.

3. Select **OK**.
   The **DeviceMaster Manager** window appears.

4. On the **DeviceMaster** menu, select **Save Configuration** if you need to activate the settings immediately.

Upgrading Firmware

Comtrol continually upgrades its driver software and DeviceMaster firmware to keep pace with the ever-expanding world of computing. You can use the DeviceMaster firmware upgrade utility included in the *setup.exe*. Please access Comtrol's Web site at www.comtrol.com to download the necessary file (contact our technical service department if you need assistance with this), and then follow the following instructions.

1. Stop all programs associated with the DeviceMaster Primo's COM port. You will lose the connection when you upgrade the firmware.

2. On the Window's desktop toolbar, select the **Start** button, then select **Programs**, **DeviceMaster**, and select **Firmware Utility**.
   The **DeviceMaster firmware upgrade utility** window appears.
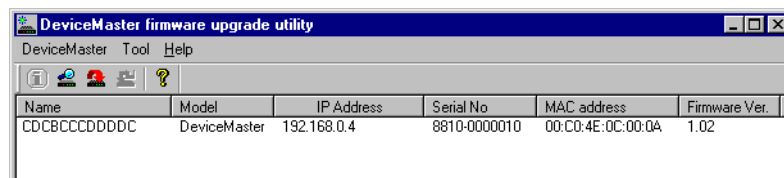
3. Select a DeviceMaster from the list

4. On the **Tool** menu, select **Upgrade Firmware**.
   The **Upgrade DeviceMaster** dialog box appears.

5. Enter the directory and file for this upgrade, or use the **Browse** button to search for the file.

6. Select **OK**. Wait until you see an "upgrade completed" message. The DeviceMaster will restart automatically.

Connectivity Requirements

Your system requires an Ethernet connection, either to an Ethernet hub or to a network interface card (NIC) in the host server. For more information, see the Hardware Installation document.

Note: *If you are connecting the DeviceMaster Primo directly to a host's NIC card, an Ethernet crossover cable is required.*

IP and MAC Addressing Issues

This is an overview of IP and MAC addressing issues that may affect how you configure the DeviceMaster, with a brief discussion of advantages of either method.

The IP addressing method has the following advantages:

- Uses an industry standard protocol.

- Allows you to configure servers that are outside of the host server's Ethernet segment to use ports on the DeviceMaster.

Note: *This IP address must be a unique reserved IP address. Do not use an address from a dynamic address pool. If necessary, ask your system administrator for an IP address.*

The MAC method has the following advantages:

- Simplifies implementation and ongoing support by eliminating the address administration issues inherent in network protocols. Comtrol predefines MAC addresses which eliminates potential address conflicts during setup.

- Is isolated from foreign LAN segments, minimizing potential security issues.