PMconsole for Windows Administrator's Guide

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Preface

About This Guide

The PMconsole™ user interface configures all Livingston PortMaster™ and IRX products. This guide documents the Microsoft Windows version of PMconsole. Other versions include PMconsole for X Windows, PMconsole ASCII terminal, and the command prompt interface. Each interface has its own *Administrator's Guide*. Use the guide that is appropriate for your chosen interface.

This guide is designed to be used by qualified system administrators and network managers.

Use the *Hardware Installation Guide* before you attempt to configure your PortMaster.

Preview of this Guide

This guide provides you with the information needed to use the PMconsole for Windows user interface to configure your new PortMaster. However, more detailed information about configuration issues can be found in the *Configuration Guide for PortMaster Products*. This guide includes the following chapters:

Chapter 1, "Installation of PMconsole for Windows" describes how to install PMconsole for Windows on your PC workstation, as well as the procedure for upgrading your PortMaster software.

Chapter 2, "Introduction to PMconsole for Windows" provides a guided tour of the PMconsole for Windows user interface.

Chapter 3, "Global Configuration" describes how to use PMconsole for Windows to set global PortMaster parameters, including default and alternate hosts, gateways and metrics, and name service.

Chapter 4, "Ethernet Interface" describes how to use PMconsole for Windows to configure Ethernet ports.

Chapter 5, "Asynchronous Ports" describes how to use PMconsole for Windows to configure asynchronous ports.

Chapter 6, "Synchronous Ports" describes how to use PMconsole for Windows to configure synchronous ports.

Chapter 7, "User Table" describes how to use PMconsole for Windows to configure the User Table and RADIUS window.

Chapter 8, "Location Table" describes how to use PMconsole for Windows to configure the Location Table, as well as the use of the Location Dialer Window.

Chapter 9, "Filters" describes how to use PMconsole for Windows to create, edit and delete the filters in the Filter Table.

Chapter 10, "Port and Network Monitoring" describes the procedure for monitoring both individual ports and the attached Ethernet network, as well as configuring and enabling SNMP.

Chapter 11, "The Host Table" describes how to use PMconsole for Windows to configure the Host Table.

Chapter 12, "The Route Table" describes how to use PMconsole for Windows to configure the Route Table.

Related Documentation

The *Hardware Installation Guide* gives instructions for installing your specific product on your network. Use the hardware installation guide before you attempt to configure your PortMaster.

The *Configuration Guide for PortMaster Products* provides an overview of networking and configuration issues related to the PortMaster series of products.

Document Conventions

The following table describes the type changes and symbols used in this guide.

Typeface or Symbol	Meaning	Example
`AaBbCc123`	The names of commands, parameters, and directories; on-screen computer output.	Use `version` to display the version number.
`AaBbCc123`	What you type, contrasted with on-screen computer output.	`login:` **`!root`** `Password:`
`AaBbCc123`	Command-line placeholder: replace with a real name or value.	To set baud rate, type: **`set S0 speed 2`** *`baud_rate`*
[AaBbCc123]	Commands in brackets denote a key to press.	`login:` **`!root`** **[Return]**

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- By electronic mail, send mail to support@livingston.com
- By world wide web, at `http://www.livingston.com/`

Installation of PMconsole for Windows 1

PMconsole™ for Windows (PMconsole) provides a graphical user interface for administering PortMaster™ Communications Servers and Internetwork Routers (PortMasters). PMconsole is not required for operation of your PortMaster, but offers an easy-to-use front end for administration.

This chapter describes how to install PMconsole for Windows on your PC workstation. Installation requirements are described in table format.

To install your PortMaster, refer to the *Hardware Installation Guide* included with this documentation set. If you are unfamiliar with MS-Windows and MS-Windows terminology, refer to the MS-Windows documentation and tutorial.

Installation Requirements

Before installing PMconsole, consult Table 1-1 and Table 1-2 to verify that your system meets the minimum PMconsole system requirements.

Table 1-1 PMconsole Minimum Hardware Requirements

Hardware Component	Minimum Requirement
CPU	386/25DX
RAM	4MB (minimum), 8MB (recommended)
Network connection	Any functioning network or modem connection that allows your PC workstation to function as a network node.

Table 1-2 PMconsole Minimum Software Requirements

Software Component	Minimum Requirement
Operating System	DOS 5.0 or higher running Windows 3.1 or Windows NT 3.5 or higher
Network	Any Windows Socket (Winsock) 1.1-compliant stack and `.dll`

Installing PMconsole

To install PMconsole:

1. **Insert the PMconsole floppy diskette or CD-ROM disc into its corresponding drive.**
2. **From the Windows Program Manager, click File, then Run.**

   The Run dialog box is displayed, as shown in Figure 1-1.

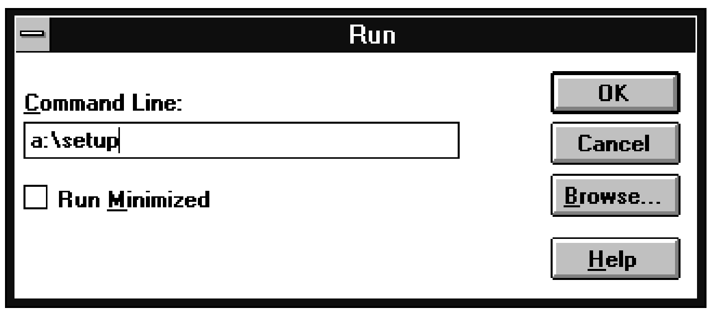


Figure 1-1 Run dialog box

3. **In the Command Line field, type `x:\setup [Enter]`, where “x” is the letter designating the drive location of the installation diskette or disc.**
4. **Follow the instructions on the screen.**

Note – PMconsole makes no changes to your system files during installation. It does, however, add the `pmconsol.ini` file to your `windows` directory (`c:\windows` on most systems).

Installing New Hardware

The *Hardware Installation Guide* included with this documentation set provides step-by-step installation instructions for installing new hardware, including address assignment. Once your new PortMaster is installed and an address assigned, you can use PMconsole to configure ports, set up internal tables, and monitor performance.

Upgrading the PortMaster Software

Periodically, upgrades will be made to the PortMaster software (ComOS™). To install an upgrade, follow these steps:

1. **Press the Upgrade PortMaster button in the toolbar.**

   The Upgrade PortMaster button is shown in Figure 1-2. The Select Upgrade File dialog box is displayed, as shown in Figure 1-3.

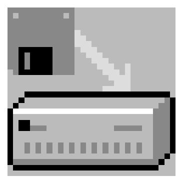


Figure 1-2 Upgrade PortMaster Button

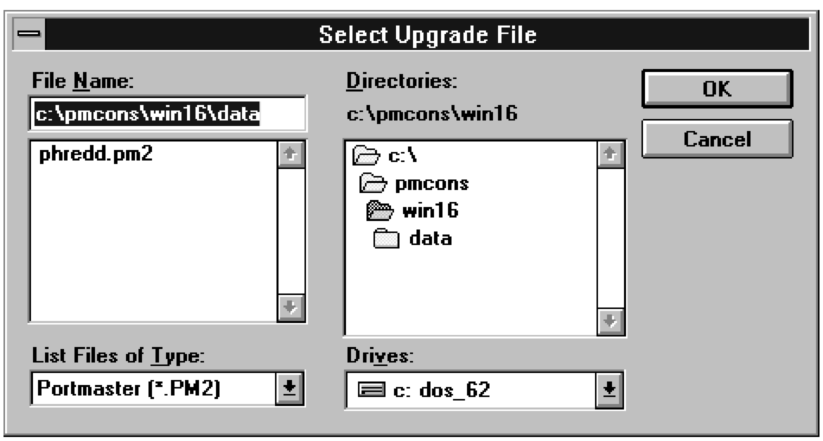


Figure 1-3 Select Upgrade File Dialog Box

2. **Select the directory where the upgrade file is located, then select the name of the upgrade file from the scrolling list box.**
3. **Press the OK button to select the file.**

   The Upgrade PortMaster dialog box is displayed, as shown in Figure 1-4.

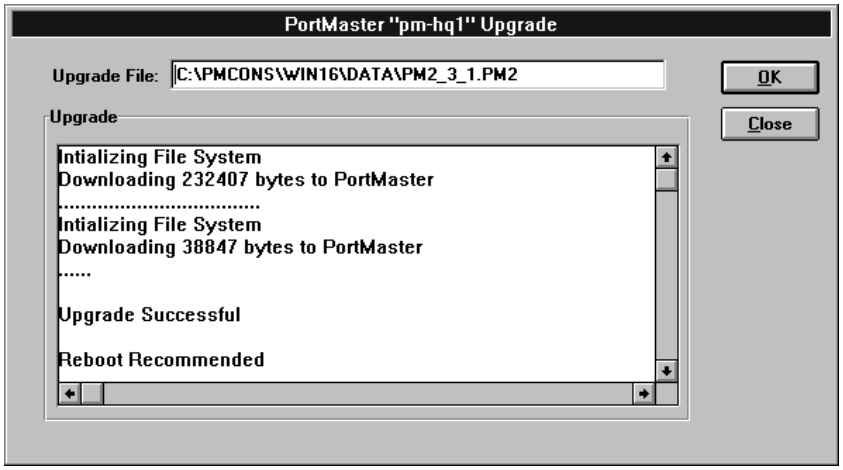


Figure 1-4 Upgrade PortMaster Dialog Box

4. **Press the OK button to start the upgrade.**

   You can observe the progress of the upgrade in this dialog box.

Note – If the upgrade fails, this will be indicated in the Upgrade PortMaster dialog box. If the upgrade fails, contact Livingston Technical Support by one of the methods described in the Preface.

Upon completion of the upgrade, the PortMaster reboots. Before it reboots, a dialog box appears asking you to confirm. Press the OK button to proceed. Press the Cancel button to abort.

Introduction to PMconsole for Windows 2

PMconsole can be used to administer any Livingston Communications Server or Internetwork Router (PortMaster).

This chapter describes the organization of this guide, as well as how to start PMconsole for Windows. A guided tour of the PMconsole window is also provided.

Organization of this Guide

PMconsole can be used to configure your PortMaster ports. Table 2-1 lists the configurable ports by PortMaster model.

Table 2-1 Available Port Types by PortMaster Model

Product	**Ethernet**	**Async**	**Sync**	**Parallel**
OR-M	ether0	s0-1		
PM-2	ether0	s0-9		p0
PM-2E-30	ether0	s0-29		p0
PM-2R	ether0	s0-9	w1	
PM-2ER-30	ether0	s0-29	w1	
PM-25	ether0	s0-24		
IRX-111	ether0	s0	s1	
IRX-112	ether0	s0	s1-2	
IRX-114	ether0	s0	s1-4	
IRX-211	ether0-1	s0	s1	

Table 2-2 lists administration topics by chapter.

Table 2-2 Administration Topics by Chapter

To administer	See chapter
Global Configuration	3
The Ethernet Port	4
Asynchronous Ports	5
Synchronous Ports	6
The User Table	7
The Location Table	8
The Filter Table	9
Port and Network Monitoring	10
The Host Table	11
The Route Table	12

Starting PMconsole for Windows

To start PMconsole for Windows, follow these steps:

1. Double-click the PMconsole icon in the PMconsole program group.

The PMconsole icon is shown in Figure 2-1. The PMconsole window is displayed, as shown in Figure 2-2.

Figure 2-1 PMconsole Icon

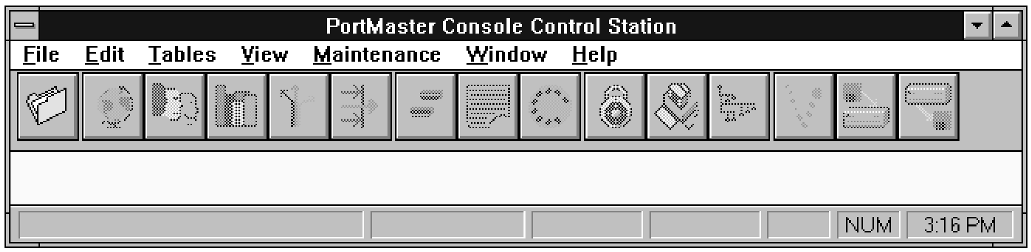


Figure 2-2 PMconsole Window

Logging In

To login to the PortMaster:

1. **Click the Open PortMaster button in the toolbar.**

   The Open PortMaster button is shown in Figure 2-3. The Open PortMaster dialog box is displayed, as shown in Figure 2-4.

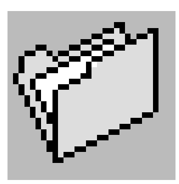


Figure 2-3 Open PortMaster Button

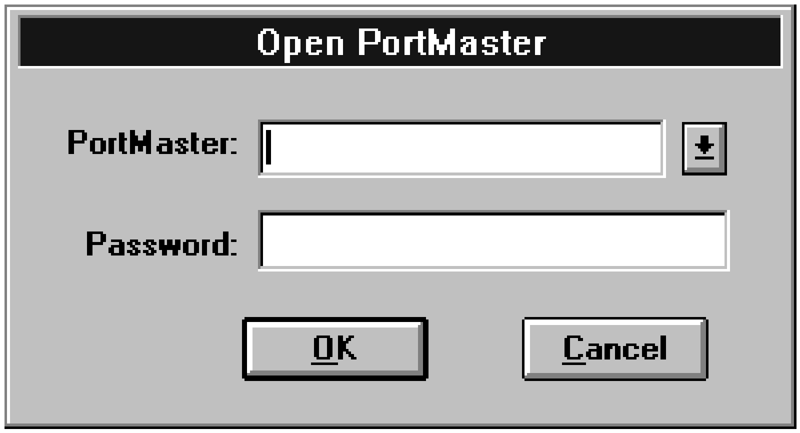


Figure 2-4 Open PortMaster Dialog Box

2. **Enter your PortMaster name and password.**

   Figure 2-4 shows the PortMaster field, a drop-down list from which you can select the PortMaster address, and the Password field where you enter your password.

Note – Depending on your PC's TCP/IP implementation, you may be able to enter an address or host name in the PortMaster field. Refer to your TCP/IP vendor's documentation regarding host name resolution.

3. **Click the OK button to open the PortMaster.**

   The PortMaster dialog box is displayed, as shown in Figure 2-5.

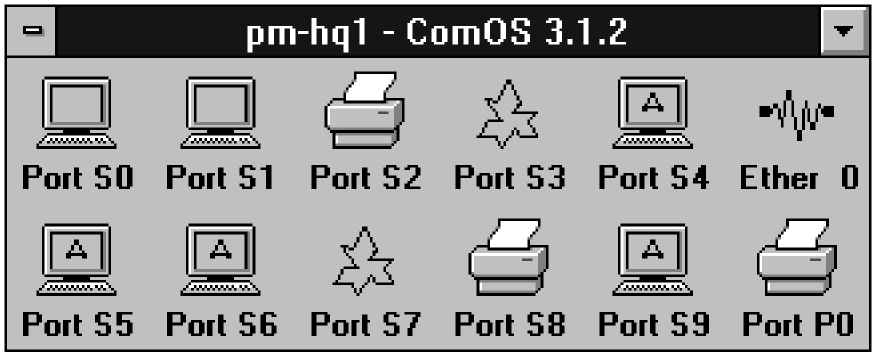


Figure 2-5 PortMaster Dialog Box

Note – See Table 2-1 for a listing of the ports you should see displayed in the PMconsole Port dialog box for your PortMaster. See Table 2-5 for port icon descriptions.

You are now logged in to your PortMaster.

Note – If you are unable to login to your PortMaster, refer to the *Configuration Guide for PortMaster Products*.

The PMconsole Window

Figure 2-6 shows the PMconsole Window and identifies the menu bar, toolbar, and status bar. Menu bar detail is presented in Figure 2-7 and Table 2-3, while toolbar detail can be found in Figure 2-8 and Table 2-4.

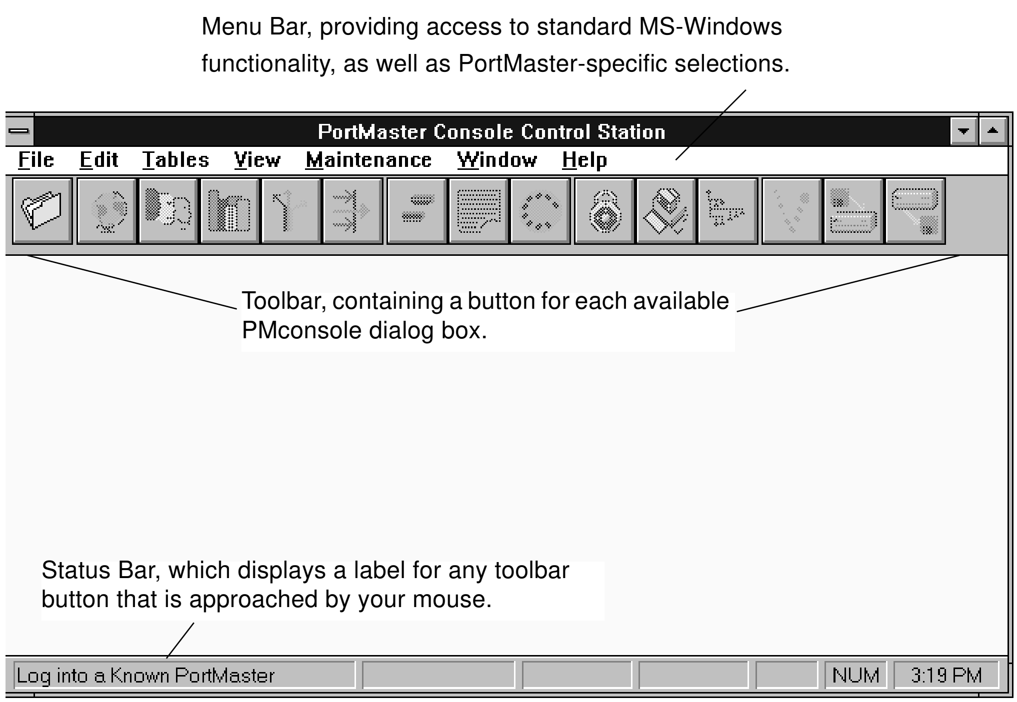


Figure 2-6 PMconsole Window

PMconsole Menu Bar

The menu bar is displayed in Figure 2-7. Individual menu bar items are described in Table 2-3.

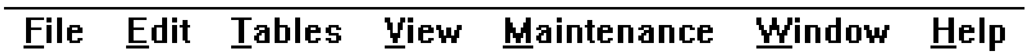


Figure 2-7 PMconsole Menu Bar

Table 2-3 PMconsole Menu Bar Descriptions

Menu	Submenu	Description
File	Open	Opens a new PortMaster dialog box.
	Close	Closes the current PMconsole window.
	Exit	Exits PMconsole, closes an open PMconsole window.
Edit	Cut	Removes the currently selected text to the Windows clipboard.
	Copy	Copies the currently selected text to the Windows clipboard.
	Paste	Pastes contents of the Windows clipboard to the cursor location.
	Selected	Displays the dialog box for the currently selected port.
	Global	Displays the Global Configuration dialog box.
	SNMP	Displays the SNMP dialog box.
	RADIUS	Displays the RADIUS dialog box.
	Preferences	Displays the User Preferences dialog box.
Tables	Users	Displays the User Table.
	Locations	Displays the Location Table.
	Routes	Displays the Route Table.
	Filters	Displays the Filter Table.

Table 2-3 PMconsole Menu Bar Descriptions *(Continued)*

Menu	Submenu	Description
	Hosts	Displays the Host Table.
Views	Ports	Displays the Port View.
	Netstats	Displays the Network Statistics View.
	Dialer	Displays the Location Dialer View.
Maintenance	Reboot	Reboots the PortMaster.
	Upgrade	Displays the Upgrade PortMaster dialog box.
	Backup Configuration	Backs up an image of the current PortMaster parameters. If you want to recover these parameters, run Upgrade PortMaster.

PMconsole Toolbar

The PMconsole toolbar is displayed in Figure 2-8. Individual toolbar items are described in Table 2-4.

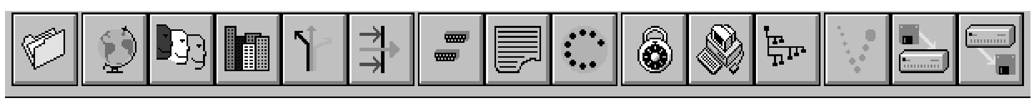


Figure 2-8 PMconsole Toolbar

Table 2-4 Toolbar Descriptions

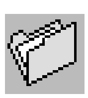
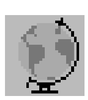
Icon	Meaning	Description
	Open PortMaster	Displays the PortMaster dialog box.
	Global Configuration	Displays the Global Configuration dialog box.

Table 2-4 Toolbar Descriptions *(Continued)*

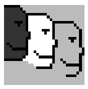
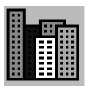
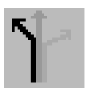
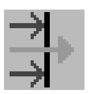
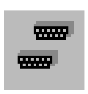
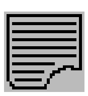
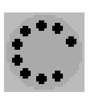
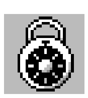
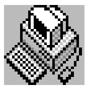
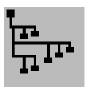
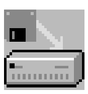
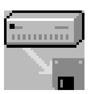
Icon	**Meaning**	**Description**
	User Table	Displays the User Table.
	Location Table	Displays the Location Table.
	Route Table	Displays the Route Table.
	Filter Table	Displays the Filter Table.
	Port View	Displays the Port View.
	Network Statistics View	Displays the Network Statistics View.
	Location Dialer	Displays the Location Dialer.
	RADIUS	Displays the RADIUS dialog box. For more information about RADIUS, refer to the *RADIUS Administrator's Guide*.

Table 2-4 Toolbar Descriptions *(Continued)*

Icon	**Meaning**	**Description**
	Host Table	Displays the Host Table.
	SNMP Dialog	Displays the SNMP dialog box.
	Reboot PortMaster	Reboots your PortMaster.
	Upgrade PortMaster	Displays the Upgrade PortMaster dialog box.
	Backup Configuration	Displays the Backup Configuration dialog box. If you want to recover these parameters, use Upgrade PortMaster.

PortMaster Dialog Box

The PortMaster dialog box is displayed in Figure 2-9. Individual port icons are described in Table 2-5.

Note – Clicking once on any of these icons selects the port. Double-clicking opens a dialog box that allows you to configure the port.

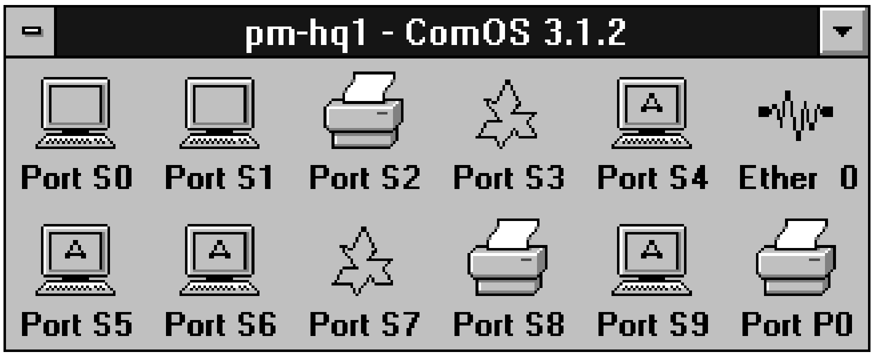


Figure 2-9 PortMaster Dialog Box

Table 2-5 Port Icon Descriptions

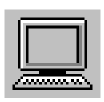
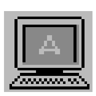
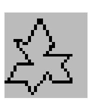
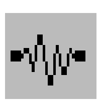
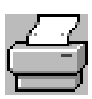
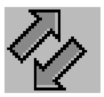
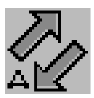
Icon	Description
	This icon represents a port for login services.
	This icon represents a port for login and network services.
	This icon represents a network port.
	This icon represents an Ethernet interface.
	This icon represents a port for device services.

Table 2-5 Port Icon Descriptions *(Continued)*

Icon	Description
	This icon represents a port for network and device services.
	This icon represents a port for device and login services.
	This icon represents a port for device, login and network services.

Rebooting a PortMaster

A PortMaster can be rebooted to change from one Ethernet IP address to another, or following an upgrade when you have decided to wait until later to reboot.

Caution – Rebooting causes the PortMaster to perform a soft reboot that takes approximately 30 seconds. This process resets all active ports to their saved configurations, disconnecting any active sessions.

To reboot a PortMaster, click the Reboot button in the toolbar, shown in Figure 2-10.

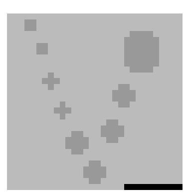


Figure 2-10 Reboot Button

Before the PortMaster reboots, a dialog box appears asking you to confirm. Press the OK button to proceed. Press the Cancel button to abort.

Global Configuration 3

PMconsole can be used to configure global parameters, allowing you to control default and alternate hosts, gateways and metrics, as well as setting the name service on your PortMaster. Global configuration can also be used to change the administrative password for the PortMaster.

This chapter describes how to use PMconsole to configure global parameters. Dialog box parameters and buttons are presented and defined in table format. The procedure for using the Global Configuration dialog box to change the PortMaster password is also described.

Configuring Global Parameters

To configure global parameters:

1. **Click the Global Configuration button in the toolbar.**

   The Global Configuration button is shown in Figure 3-1. The Global Configuration dialog box is displayed, as shown in Figure 3-2.

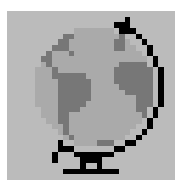


Figure 3-1 Global Configuration Button

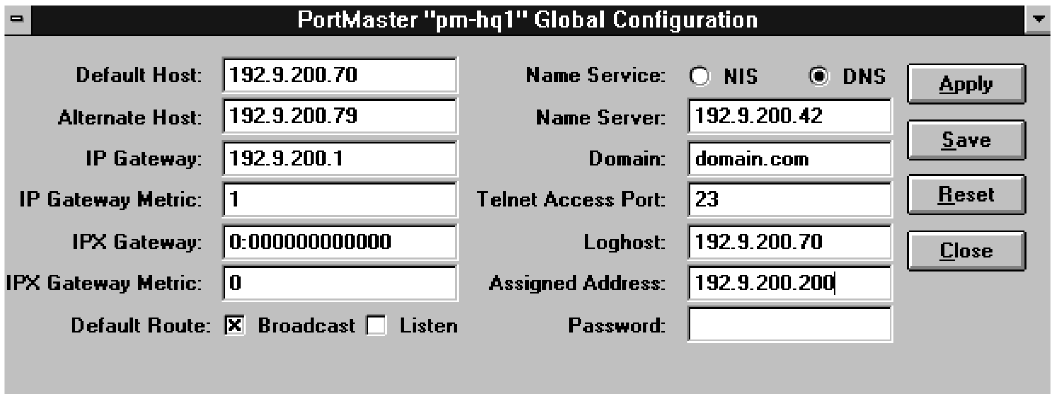


Figure 3-2 Global Configuration Dialog Box

2. **Enter your global configuration and press [Tab] to move from field to field.**

   Each of the fields are described in Table 3-1.

3. **When you have set the global parameters for your configuration, click the Save button to write configuration changes to the nonvolatile memory of the PortMaster.**

   Alternatively, you may click the Apply button to send changes to the dynamic memory of the PortMaster. Additional buttons are available. For a description of the buttons, see Table 3-2.

4. **Click the Close button to dismiss the Global Configuration dialog box.**

Description of Global Parameters

Parameters for the Global Configuration dialog box are described in Table 3-1.

Table 3-1 Global Parameters

Parameter	Option	Description
Default Host		Default host from which you will establish login sessions. For systems that do not provide login sessions, this field should remain blank.
Alternate Host		Alternate host from which you will establish login sessions when the default host is unavailable. For systems that do not provide login sessions, this field should remain blank.
IP Gateway		Default gateway for use by the PortMaster when no other route applies. If your PortMaster is connected to an IP network with a gateway, the name or IP address of that gateway should be entered.
IP Gateway Metric		Hop-count associated with the default IP gateway. Use this field only if the IP Gateway parameter is used. It is usually set to 1.
IPX Gateway		Default gateway for use by the PortMaster when no other IPX route applies. If your PortMaster is connected to an IPX network with a gateway, the name of that gateway should be entered.
IPX Gateway Metric		Hop-count associated with the default IPX gateway. Use this field only if the IPX Gateway parameter is used.

Table 3-1 Global Parameters *(Continued)*

Parameter	Option	Description
Default Route	Broadcast	When this checkbox is selected, the PortMaster will propagate default routes as a part of its RIP packet (if there are default routes in the Route Table). These routes are either routed statically or learned dynamically.
	Listen	When this checkbox is selected, the PortMaster accepts default route information from other routers on any interface with routing enabled.
Name Service		A name service should be selected only if users will be prompted for hosts that require a name service, or to display host names instead of addresses in the administrative command prompt interface.
	NIS	Select this radio button for the PortMaster to use NIS (Network Information Service) for host name lookups.
	DNS	Select this radio button for the PortMaster to use DNS (Domain Name Service) for host name lookups.
Name Server		Name or IP address of the server providing the selected name service.
Domain		Domain name for use by DNS or NIS. Required only if DNS or NIS are selected.
Telnet Access Port		TCP port number used by the PortMaster to listen for incoming telnet administration sessions. If set to zero (0), the PortMaster disables the telnet administration function. Ports numbered 10000 through 10100 are reserved and should not be used for this function. The default is 23.

Table 3-1 Global Parameters *(Continued)*

Parameter	Option	Description
Loghost		Host to which the PortMaster logs authentication information using the syslog "auth" facility.
Assigned Address		Enter the starting address for a pool of consecutive temporary IP addresses to be allocated by the PortMaster. Assigned Address is used in conjunction with network access, for network login users who are set up in the User Table to use Assigned Address. The PortMaster assigns such users the first free IP address in the pool. The number of addresses in the pool is the same as the number of ports configured for network dial-in access.
Password		Password for administrative access to the PortMaster. Refer to the instructions in the section "Changing the Password" on page 3-6.

Description of Global Configuration Buttons

Global Configuration buttons are described in Table 3-2.

Table 3-2 Global Configuration Buttons

Button	Description
Apply	Send the configuration changes to the dynamic memory of the PortMaster.
Save	Write the configuration to the nonvolatile memory of the PortMaster.
Reset	Reset all active serial connections to the active configuration. When this button is clicked, all ports will drop all active sessions and be reset to the active configuration.
Close	Dismiss the Global Configuration dialog box.

Changing the Password

The PortMaster has an administrative password which is used when logging in as `!root` and when connecting with PMconsole.

To change the administrative password:

1. **Click the Global button in the toolbar.**

   The Global Configuration button is shown in Figure 3-1. The Global Configuration dialog box is displayed, as shown in Figure 3-2.

2. **Enter a new password in the Password field and click the Apply button.**

   The system displays a Password Confirm field just below the original Password field.

3. **In the new field, re-enter your Password and click Apply again.**

   In both cases, the password is echoed with asterisks (***).

   When you click Apply the second time, the PortMaster administrative password is written to the nonvolatile memory of the PortMaster.

Ethernet Interface 4

This chapter describes how to use PMconsole to configure the Ethernet interface(s). Dialog box parameters and buttons are described in table format.

Note – In this chapter, examples are from a PortMaster PM-2, which uses the indicator `ether0` for its Ethernet interface. All Livingston PortMasters use this same designation. In addition, the IRX-211 uses `ether1` for a second Ethernet interface.

Configuring Ethernet Interfaces

To configure an Ethernet interface:

1. **Click the Ethernet button in the PortMaster dialog box.**

   The Ethernet button is shown in Figure 4-1. The Ethernet dialog box is displayed, as shown in Figure 4-2.

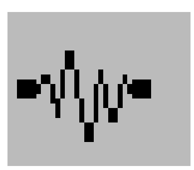


Figure 4-1 Ethernet Button

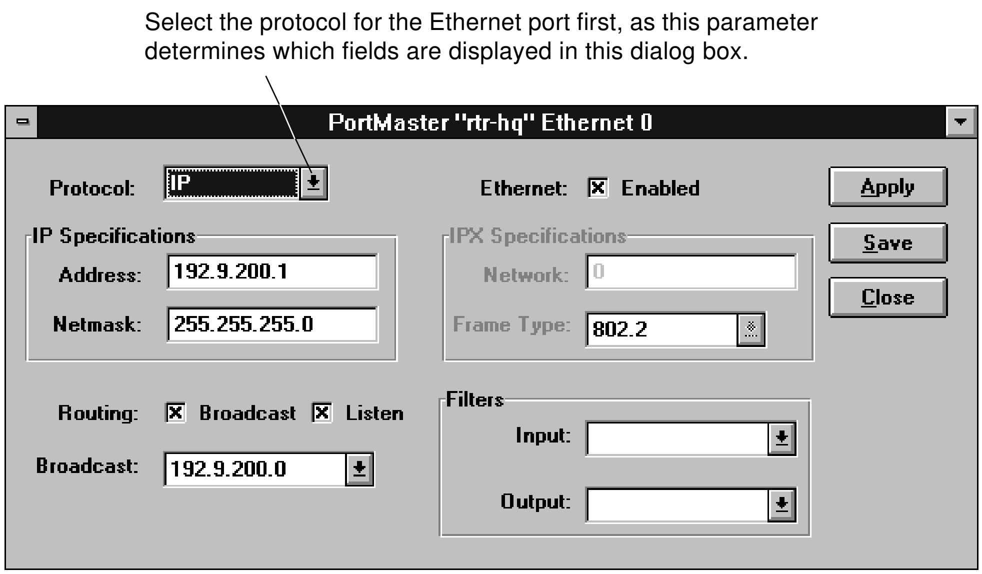


Figure 4-2 Ethernet Dialog Box

2. **Enter your Ethernet configuration information and press [Tab] to move from field to field.**

   Fields are described in Table 4-1.

Note – The first parameter you select is Protocol. Depending on the protocol (IP, IPX, or IP/IPX), some parameters will be available and others will be grayed out or absent.

3. **When you finish configuring the Ethernet port, click the Save button to store your configuration changes in PortMaster nonvolatile memory.**

   Additional buttons are available. For a description of the buttons, see Table 4-2.

4. **Click the Close button to dismiss the Ethernet dialog box.**

Caution – If you have changed the Ethernet IP address, you must reboot the PortMaster for the change to take effect.

Description of Ethernet Parameters

Parameters for the Ethernet dialog box are described in Table 4-1.

Table 4-1 Ethernet Parameters

Parameter	**Option**	**Description**
Protocol	IP	Select this parameter to use the IP protocol on the network connected to the Ethernet port of the PortMaster.
	IPX	Select this parameter to use the IPX protocol on the network connected to the Ethernet port of the PortMaster.
	IP/IPX	Select this parameter to use both IP and IPX protocols on the network connected to the Ethernet port of the PortMaster.
Ethernet	Enabled	Select this checkbox to enable IP and IPX traffic on the Ethernet port of the PortMaster.
	Disabled	Deselect this checkbox to disable IP and IPX traffic on the Ethernet port of the PortMaster. This parameter should be disabled only if the PortMaster is not directly attached to a local Ethernet network. Before deselecting the checkbox, note that PMconsole requires the Ethernet port to be enabled in order to access the PortMaster.
IP Address		Enter the IP address of the PortMaster. For more information about setting the IP address, see the *Hardware Installation Guide*.
IP Netmask		Defaults to 255.255.255.0; modify if your site uses a different netmask.
IPX Network		Address of IPX network.
IPX Frame Type		Enter the Ethernet frame type. This field should match the setting of other devices attached to the same Ethernet segment.

Table 4-1 Ethernet Parameters *(Continued)*

Parameter	Option	Description
Routing		Select these radio buttons to indicate that the PortMaster will use the RIP protocol on the Ethernet port. Default is Broadcast and Listen selected.
	Broadcast	If Broadcast is selected, the PortMaster broadcasts RIP information to the local Ethernet.
	Listen	If Listen is selected, the PortMaster accepts RIP information from other routers on the local Ethernet.
Broadcast Address		Enter the IP address that the PortMaster will interpret and use as the local broadcast address. It *must* match the broadcast address used by other hosts on the same local Ethernet.
Filters (Input)		Select a filter for packets entering the PortMaster on the interface.
Filters (Output)		Select a filter for packets exiting the PortMaster on the interface.

Description of Ethernet Buttons

Ethernet buttons are described in Table 4-2.

Table 4-2 Ethernet Buttons

Button	Description
Apply	Send the configuration changes to the dynamic memory of the PortMaster.
Save	Write the port configuration to the nonvolatile memory of the PortMaster.
Close	Dismiss the Ethernet dialog box.

Asynchronous Ports 5

Asynchronous (async) interfaces can be configured as Login, Device, TwoWay or Network ports. Additional configuration options include Network/Login, Network/Device, and Network/TwoWay.

This chapter describes how to use PMconsole to configure async ports. Async port types, dialog box parameters and buttons are described in table format.

Note – In this chapter, examples are from a PortMaster PM-2, which uses the indicator s0 for async ports. All PortMasters use this same designation for the first async port. In addition, all PortMasters in the PM model series use s1-s*n* (where *n* is the highest-numbered port) to designate additional async ports. See Table 2-1 for the range of async ports available on each PortMaster model.

Configuring Asynchronous Ports

To configure an async port:

1. **Click the Asynchronous Port icon in the PortMaster dialog box.**

   Asynchronous Port icons are described in Table 2-5. An example is shown in Figure 5-1. The Asynchronous Port dialog box is displayed, as shown in Figure 5-2.

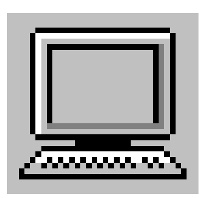


Figure 5-1 Example Asynchronous Port Icon

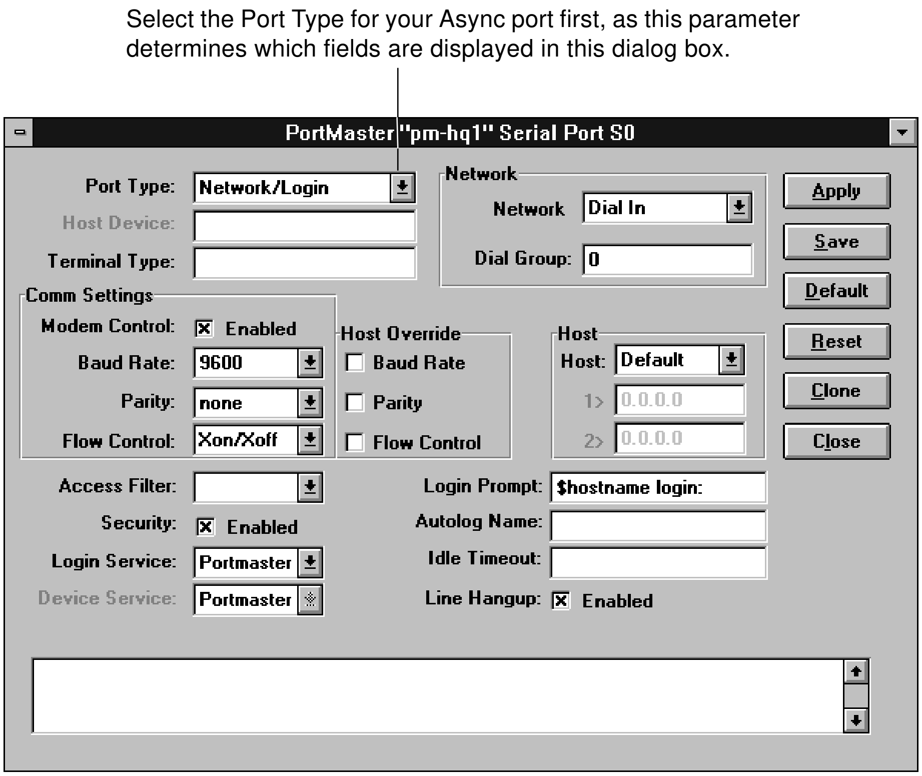


Figure 5-2 Asynchronous Port Dialog Box

2. **Enter your Async port configuration information and press [Tab] to move from field to field.**

   Fields are described in Table 5-2.

Note – The first parameter you select is Port Type. Depending on the port type, some parameters are available and others are grayed out or absent.

3. **When you have set the Async port parameters, click the Save button to write configuration changes to the nonvolatile memory of the PortMaster.**

   Alternatively, you may click the Apply button to send changes to the dynamic memory of the PortMaster. Additional buttons are available. For a description of the buttons, see Table 5-3.

4. **Click the Reset button to have the new parameters take effect.**

   Any current session on the port will be dropped when the port is reset.

5. **Click the Close button to dismiss the Asynchronous Port dialog box.**

Description of Asynchronous Port Types

Async port types are described in Table 5-1.

The Async port type Network/Login has the same parameters as Login, except that the two network parameters—Network Type and Dial Group—are added. Likewise, Network/Device and Network/TwoWay have the same parameters, respectively, as Device and TwoWay, with the addition of the two network parameters.

Table 5-1 Asynchronous Port Types

Port Type	**Description**
Login	The port is available for a Login User establishing a terminal session to a host on the network.
Device	A host on the network can originate a connection to the port; for example, from a host to a printer via the PortMaster.
TwoWay	Either the PortMaster or a host can originate the connection; for example, from a modem to a host or vice-versa.
Network	A hardwired connection; for example, a WAN link over a dedicated point-to-point asynchronous leased line.
Network Dialin	The port is available for a Network User to establish a network connection using SLIP or PPP.
Network Dialout	The port is available for use by network dial out locations defined in the Location Table.
Network TwoWay	Allows both network dial in and network dial out functionality.

Description of Asynchronous Port Parameters

Parameters for the Asynchronous Port dialog box are described in Table 5-2.

Table 5-2 Asynchronous Port Parameters

Parameter	Options	Description
Network Type	Hardwired	The port is a dedicated network connection between two sites. No authentication is required, and the port begins running the specified protocol as soon as it is reset. No other port type can be used with Network Hardwired.
	Dial In	The port accepts dial-in network connections. In this mode, authentication is required. For more information about authentication methods, refer to the *Configuration Guide for PortMaster Products*.
	Dial Out	The port is available for dialing to remote destinations and initiating network connections to those destinations. Dial-out network connections are controlled by the Location Table.
	Dial In & Out	The port will accept dial-in network connections, as well as being available for dial out to remote locations.
Host Device		When using the port as a network-accessible device using the rlogin, telnet, or netdata device service, set this parameter to `/dev/network`. When using the port with the PortMaster device service on a UNIX host, enter the name of a pseudo-tty device in the host's `/dev` directory.
Terminal Type		This optional field is used for both User Login and Two-Way ports. When a new host login session is established on the host workstation, this terminal type will be set in the user's environment.
Dial Group		Enter a number between 0 and 99. Locations with the same Dial Group can use this port. Default is 0. Available if Port Type includes Network and Network Type includes Dial Out.

Table 5-2 Asynchronous Port Parameters *(Continued)*

Parameter	Options	Description
Modem Control		When this checkbox is selected, the PortMaster tracks the actual state of carrier as input on the port. When this checkbox is not selected, the PortMaster assumes that carrier is always asserted. The following options indicate the effect of carrier assertion for each port type:
	Login	If carrier is not asserted, the port is unavailable. If carrier is asserted, the PortMaster initiates authentication and displays a login prompt.
	Device	If carrier is not asserted, the port is unavailable. If carrier is asserted, the port is available for the device service.
	TwoWay	If carrier is not asserted, the port is available for device services. If carrier is asserted, the port will attempt to establish a network connection and disable the device service.
	Network (hardwired)	If carrier is not asserted, the port is unavailable. If carrier is asserted, the port attempts to establish a network connection.
	Network Dialin	If carrier is not asserted, the port is unavailable. If carrier is asserted, the PortMaster initiates authentication and displays a login prompt.
	Network Dialout	When configured as a network dial-out port, the assertion of carrier has no effect, but the transition of carrier from asserted to not asserted will cause the port to be reset.
	Network TwoWay	If carrier is not asserted, the port is available for device services. If carrier is asserted, the port will attempt to establish a network connection and disable the device service.

Table 5-2 Asynchronous Port Parameters *(Continued)*

Parameter	**Options**	**Description**
Baud Rate		Select or enter the baud rate.
Parity		This field should match the device attached to the PortMaster. • `even` or `odd` assumes 7 databits and 1 stop bit. • `none` or `strip` assumes 8 databits and 1 stop bit. When `strip` is selected, the parity bit will be removed upon receipt by the PortMaster. In normal usage, `none` should be selected.
Flow Control	Xon/Xoff	The PortMaster will use software flow control, using the ASCII control characters `DC1` and `DC3` to communicate with the attached device to start and stop the flow of data. This should only be used if RTS/CTS flow control is not available on the attached device.
	RTS/CTS	This option is for devices where hardware flow control is required. If selected, the PortMaster signals the ability to receive data from attached device by raising RTS (Request to Send) on pin 4 of the RS-232 connector; output from the PortMaster occurs when the CTS (Clear to Send) modem line on pin 5 of the RS-232 connector is raised by the attached device.
Host		Host applies to Login, Device and TwoWay services, and is not used for Network services.
	Default	When selected, the Host entries set in the Global Configuration dialog box are used for this port.
	Prompt	When selected, the user is given a host prompt instead of the standard login prompt and may enter a host name or IP address to connect to a host on the network.
	Specified	When selected, a primary host and an alternate host may be entered for this specific port. Additional alternates can be configured using the command line interface.

Table 5-2 Asynchronous Port Parameters *(Continued)*

Parameter	Options	Description
Access Filter		Select an (optional) access control filter from the standard Filter Table. When the user is prompted for a host, the filter is used to control which hosts that user can access. For information about how to set up filter definitions, refer to the *Configuration Guide for PortMaster Products*.
Login Prompt		This field allows customization of the login prompt for display to users. Any ASCII characters may be entered. Double quotes (") and control characters are not allowed. If the string `$hostname` is included in the Login Prompt, the name of the host specified in the Host parameter is substituted for the string. Default is `$hostname login:`
Security		When On, only users who are in the User Table or authenticated by RADIUS will be able to login. When Off, users not found in the User Table are forwarded to the host specified in the Host field.
Autolog Name		If this field has an entry, the user will not receive a login prompt. Instead, the PortMaster will establish a login session to the host as if the user had typed the Autolog Name in response to the login prompt.

Table 5-2 Asynchronous Port Parameters *(Continued)*

Parameter	Options	Description
Login Service	PortMaster	This is the default and preferred service because it makes the port appear as if it were physically attached to the host. It is the most efficient service. To use this service, the PortMaster daemon `in.pmd` must be installed on the UNIX login host.
	Rlogin	Rlogin is supported by many UNIX hosts and is the next most efficient service after the `in.pmd` login service
	Telnet	In a network where mixed hardware and operating systems will be used by this port and the previous two services are unavailable, Telnet should be selected. The default TCP port number for telnet is 23; an additional data entry field is provided to enter an alternate TCP port if required.
	Netdata	Netdata can be used to create a virtual connection to another async port on a different PortMaster, or for allowing clear channel TCP network connections to other hosts on the network. The default TCP port number for netdata is 6000; another entry field is provided to enter an alternate TCP port if required. If using the virtual connection service, the serial port on the remote PortMaster must be configured as a Host Device using the Netdata Device Service, with the same TCP port number.

Table 5-2 Asynchronous Port Parameters *(Continued)*

Parameter	**Options**	**Description**
Device service	PortMaster	When selected, the port is accessed through a `/dev/tty` device on the UNIX host. To use this service, the PortMaster daemon `in.pmd` must be installed on the login host.
	Rlogin	Supported by many UNIX hosts, this service can be used to allow hosts on the network to initiate an rlogin session to the PortMaster. Once the session is established, the host application will be able to directly read and write data to the async port. If multiple ports on the PortMaster are configured to use this service, a “pool” of ports that can be accessed by other hosts will automatically be created. When all ports are in use, new users receive a “Connection Refused” message.
	Telnet	Supported by most TCP/IP hosts, this option allows many different types of computers on the network to initiate a telnet session to the PortMaster. Once the session is established, the host application will be able to directly read and write data to the serial port. The default TCP port number for telnet is 23; an additional data entry field is provided to enter an alternate TCP port if required. These can be pooled. Note that the telnet administration port should be moved to a different number if 23 is used for network devices in this manner.
	Netdata	Can be used for customized application programs requiring a TCP or SPX connection directly to the async port. Programs which use a socket interface (or a similar TCP interface) are provided with a direct data link to the PortMaster serial port. No special option negotiation or protocol is required. The default port number for netdata is 6000; an additional data entry field is provided to enter an alternate port if required. These can also be pooled.

Table 5-2 Asynchronous Port Parameters *(Continued)*

Parameter	Options	Description
Idle Timeout		Specifies how long the PortMaster should wait after input and output activity on the port stops before resetting the port. This parameter is specified in minutes and can be any value from 0 to 240. If set to 0, the idle timer is disabled. If set to 1 or higher, a dial-in user has five minutes to respond to a login, password or host prompt. If the user does not respond, the port resets, making it available to another user. Setting the idle timer to 1 turns off the idle timer after the user logs in.
Line Hangup		If this checkbox is selected, after termination of a session the PortMaster drops the RS-232 DTR signal for 500 milliseconds. If it is not selected, DTR is not dropped after session termination.

Description of Asynchronous Port Buttons

Asynchronous Port buttons are described in Table 5-3.

Table 5-3 Asynchronous Port Buttons

Button	Description
Apply	Send the configuration changes to PortMaster dynamic memory.
Save	Write the port configuration to PortMaster nonvolatile memory.
Default	Resets the screen to factory defaults. Save must be used to save these values if desired.
Reset	Resets the port, dropping DTR for 500 milliseconds and making the applied or saved configuration active.
Clone	Copy configuration from another port. To use this feature, click Clone, then click on the icon for the port to be cloned from in the PortMaster dialog box.
Close	Dismiss the Asynchronous Port dialog box.

Synchronous Ports 6

PMconsole can configure a PortMaster synchronous serial port for leased lines, Frame Relay, ISDN and switched 56K.

This chapter describes how to use PMconsole to configure synchronous ports. Dialog box parameters and buttons are described in table format.

Note – In this chapter, examples are from a PortMaster IRX-114, which uses s1 through s4 for synchronous ports. On a PortMaster PM-2R or PM-2ER, this port is labelled w1. See Table 2-1 for the range of synchronous ports available on each PortMaster model.

Configuring Synchronous Ports

To configure a synchronous port:

1. **Click the Synchronous Port Icon in the PortMaster dialog box.**

   An example Synchronous Port icon is shown in Figure 6-1, although it may appear differently depending on configuration. The Synchronous Port dialog box is displayed, as shown in Figure 6-2.

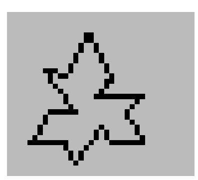


Figure 6-1 Example Synchronous Port Icon

Note – This icon is also used in the PortMaster dialog box to represent a network hardwired asynchronous port.

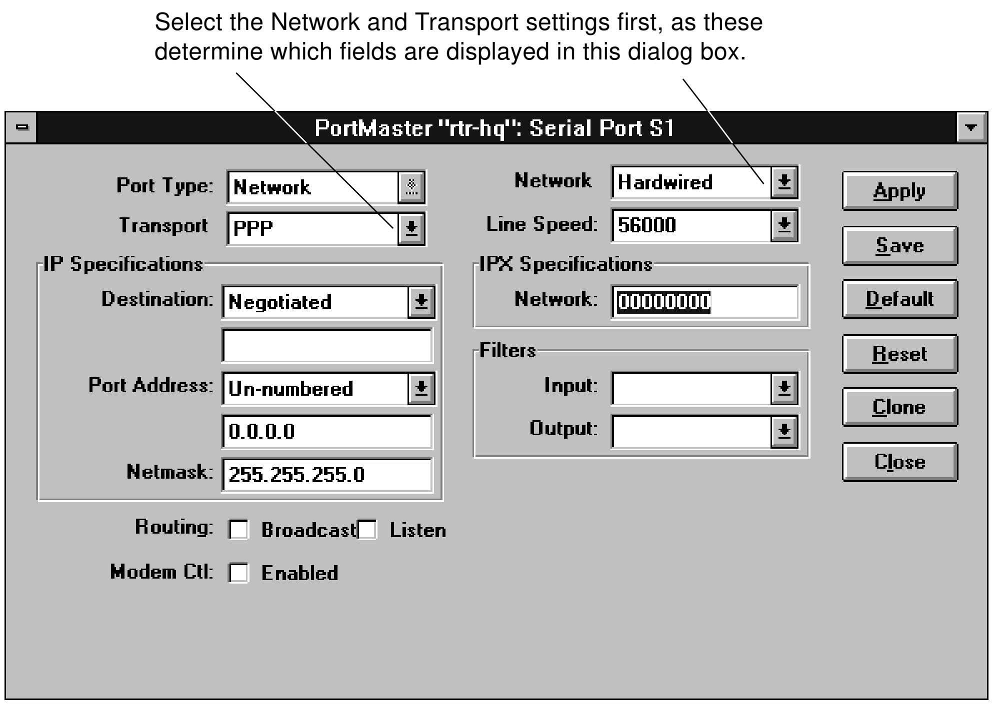


Figure 6-2 Synchronous Port Dialog Box

Note – The first parameters you select are Network and Transport. Depending on the Network and Transport settings, some parameters will be available and others will be grayed out or absent.

2. **Enter your synchronous port configuration information and press `[Tab]` to move from field to field.**

   Parameters are described in Table 6-1. For information about specific settings for four types of synchronous configurations—leased line, Frame Relay, ISDN or switched 56K—refer to the *Configuration Guide for PortMaster Products*.

3. **When your synchronous port configuration information is complete, click the Save button to write configuration changes to the nonvolatile memory of the PortMaster.**

Alternatively, you may click the Apply button to send changes to the dynamic memory of the PortMaster. Additional buttons are available. For a complete set of button descriptions, see Table 6-2.

4. **Click the Reset button to reset the port and make any changes take effect, if desired.**
5. **Click the Close button to dismiss the Synchronous Port Dialog Box.**

Description of Synchronous Port Parameters

Parameters for the Synchronous Port dialog box are described in Table 6-1.

Table 6-1 Synchronous Port Parameters

Parameter	Option	Description
Port Type		Always set to Network.
Network	Network Dialin	When this option is selected, a remote host can connect to the port. Used for ISDN or switched 56K.
	Network Dialout	When this option is selected, the port is available for dial out use by the Location Table. Used for ISDN or switched 56K.
	Network Dial In&Out	When this option is selected, the port is configured for both Network Dialin and Network Dialout.
	Network (hardwired)	If carrier is not asserted, the port is unavailable. If carrier is asserted, the port attempts to establish a network connection.
Transport	Frame Relay	Select Frame Relay when attaching the port to a Frame Relay network via a CSU/DSU and Frame Relay switch.
	PPP	Select PPP (Point to Point Protocol) for direct leased line connections between routers, for ISDN, or for switched 56K.
Line Speed		The synchronous port always requires external clock. The speed entered in this field is only a comment.

Table 6-1 Synchronous Port Parameters *(Continued)*

Parameter	Option	Description
Dial Group		Dial group defining which dial-out locations may use the port. Enter a value from 0 to 99. Default is 0.
Modem Control	On	When this checkbox is selected, the PortMaster tracks the state of carrier as input on the port.
	Off	When this checkbox is not selected, the PortMaster assumes that carrier is always asserted.
LMI Timer		Sets the LMI Keepalive polling interval to allow the Frame Relay switch to monitor link status. When enabled, the LMI default value of 10 seconds is displayed in the Keepalive field. If your Telephone Company chooses another Keepalive value, change this value as they instruct you. Annex-D is also available, but must be set from the command line interface.
DLCI List		When using Frame Relay, a scrolling window is provided for entering the list of DLCIs accessible through this interface via the Frame Relay Network. The PortMaster will automatically use ARP and Inverse ARP requests to learn the IP addresses of routers attached to the PVCs (permanent virtual circuits) represented by these DLCIs. Alternatively, these IP addresses can be specified directly opposite their corresponding DLCIs. If an address is specified, the PortMaster will statically configure these entries into its ARP table for this interface. With LMI or Annex-D, DLCIs are automatically learned.

Table 6-1 Synchronous Port Parameters *(Continued)*

Parameter	**Option**	**Description**
IP Destination	Specified	When selected, enter the IP address of the remote router.
	Negotiate	When selected, the PortMaster learns the remote router address automatically via PPP LCP negotiation.
IP Port Address	Un-numbered	When selected, an IP address is not assigned to the port; instead, the PortMaster's ether0 IP address is used to identify it. (Recommended for PPP; cannot be used with Frame Relay.)
	Specified	When selected, an IP address must be entered on the line below. This option must be selected for Frame Relay connections; it is optional for PPP connections.
IP Netmask		Enter netmask for the IP network of this port.
IPX Network		Enter the IPX number for this serial link.
Routing		Select these radio buttons to indicate that the PortMaster will use the RIP protocol on this interface. Default is both Broadcast and Listen enabled.
	Broadcast	When selected, the PortMaster sends RIP information to other routers on the interface.
	Listen	When selected, the PortMaster accepts RIP information from other routers on the interface.
Input Filter		Select a filter for packets entering the PortMaster on the interface.
Output Filter		Select a filter for packets exiting the PortMaster on the interface.

Description of Synchronous Port Buttons

Synchronous Port buttons are described in Table 6-2.

Table 6-2 Synchronous Port Buttons

Button	**Description**
Apply	Send the configuration changes to the dynamic memory of the PortMaster.
Save	Write the port configuration to the nonvolatile memory of the PortMaster.
Default	Resets the screen to factory defaults. Apply or Save must be used to save these values to active memory or nonvolatile memory, if desired.
Reset	Resets the port, dropping DTR for 500 milliseconds.
Clone	Copy configuration from another port. To use this feature, click Clone, then click on the icon for the port to be “cloned from” in the PortMaster dialog box.
Close	Dismiss the Synchronous Port dialog box.

User Table 7

The User Table is used by the PortMaster to authenticate and provide operational parameters on a user-by-user basis.

PMconsole enables you to create, edit and delete four kinds of users:

- Network User/Normal users establish an immediate active PPP or SLIP connection to the network.
- Network User/Dialback users are immediately disconnected by the PortMaster, which then dials back to the user at a predefined location. For more information about locations, see Chapter 8, "Location Table."
- Login User/Normal users begin an active shell session on a host on the network.
- Login User/Dialback users are immediately disconnected by the PortMaster, which then dials back to the user at a predefined phone number.

This chapter describes how to use PMconsole to configure the User Table. User Table parameters, dialog box parameters and buttons are described in table format. Using PMconsole to configure a PortMaster as a RADIUS authentication client is also described. For more information on RADIUS (Remote Authentication Dial In User Service) refer to the *RADIUS Administrator's Guide.*

Configuring the User Table

To configure the User Table:

1. **Click the User Table button in the toolbar.**

   The User Table button is shown in Figure 7-1. The User Table dialog box is displayed, as shown in Figure 7-2.

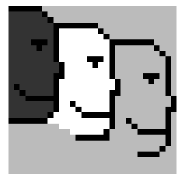


Figure 7-1 User Table Button

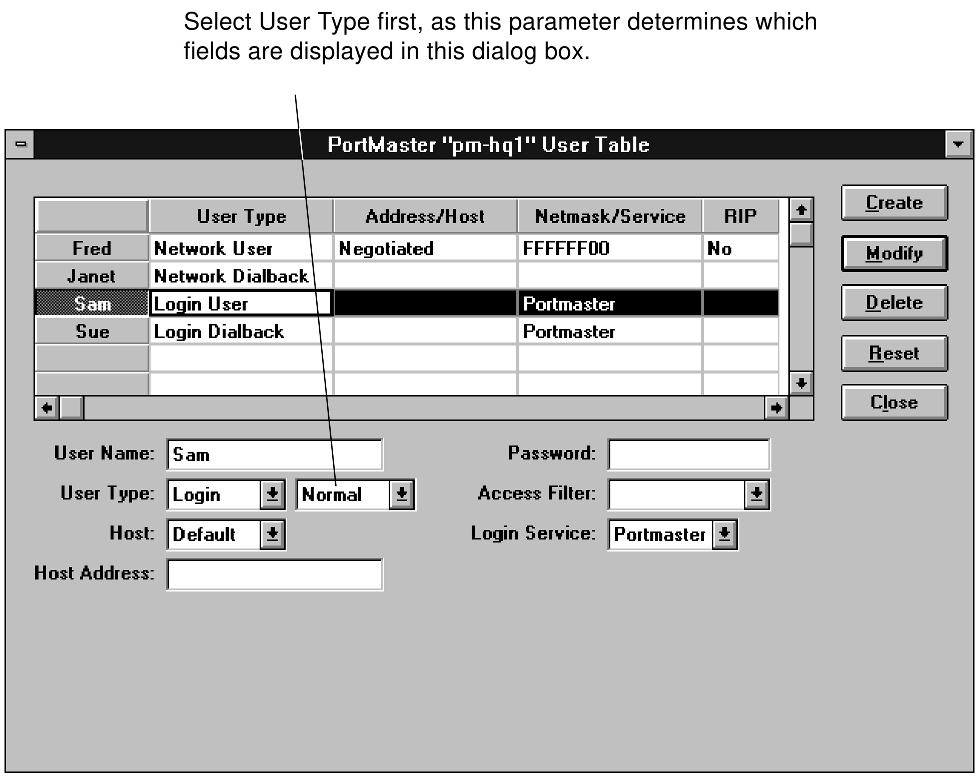


Figure 7-2 User Table Dialog Box

Note – The first parameter you select is User Type. Depending on the user type, some parameters are available and others are grayed out or absent. The sample User Table in Figure 7-2 is displayed as it would be for a Login user.

2. **Change the User Table to add, change or delete existing users.**
   a. To create a new user, click the Reset button to clear the window, then complete the user parameter fields and click the Create button.

      Fields are described in Table 7-1.

   b. To edit an existing user, enter that user's name into the User Name field (or select it from the list), then edit the User Table parameters and click the Modify button.
   c. To delete an existing user, enter that user's name into the User Name field (or select it from the list) and click the Delete button.
3. **Click the Close button to dismiss the User Table dialog box.**

Description of User Table Variations

In the following sections, each of the variations on the User Table dialog box are discussed:

- Login User
- Dialback Login User
- Network User
- Dialback Network User

Login and Dialback Login Users

The Login User dialog box is shown in Figure 7-2. The Dialback Login User dialog box is shown in Figure 7-3.

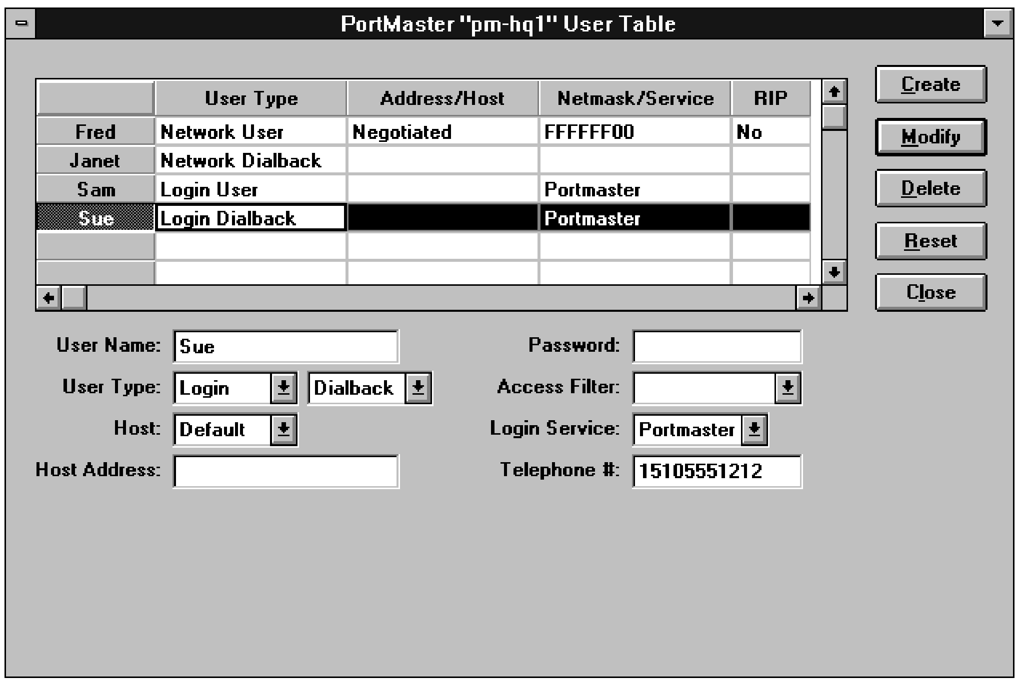


Figure 7-3 Dialback Login User Dialog Box

Parameters for the Login and Dialback Login User dialog boxes are described in Table 7-1.

Table 7-1 Login and Dialback Login User Table Parameters

Parameter	**Options**	**Description**
User Name		Enter login name of the user to be entered at the `login:` prompt from the PortMaster. Up to eight printable ASCII characters.
User Type	Login Normal	When selected, user is permitted to begin an active shell session on a host on the network.
	Login Dialback	When selected, user is disconnected by the PortMaster, which then dials back to the user at a predefined phone number.
Password		Enter password for user as a string of up to 16 printable ASCII characters. Asterisks (***) will be echoed.
Host	Default	When selected, the user is connected to the default host for this serial port.
	Prompt	When selected, this option allows user to select a host (by IP address or name) to begin a login session.
	Specified	When selected, this option connects the user to the host whose name (or IP address) is entered in the text area below the Host field.
Host Address		Enter address of the specified host.

Table 7-1 Login and Dialback Login User Table Parameters *(Continued)*

Parameter	Options	Description
Login Service	PortMaster	This is the default service and can be used with any host on which the PortMaster daemon `in.pmd` has been installed. This is the preferred service because it makes ports appear as serial ports on the host. It is the most efficient login service.
	Rlogin	This service is supported by many UNIX based computers. Therefore, where it impractical to use the PortMaster service, Rlogin should be selected.
	Telnet	This service is supported by most TCP/IP implementations. Therefore in a network where mixed hardware and operating systems will be used, telnet should be selected. The default TCP port number for telnet is 23; an additional data entry field is provided to enter an alternate TCP port.
	Netdata	This service can be used to create a virtual connection between ports on different PortMasters. The default TCP port number for Netdata is 6000, however an additional data entry field is provided to enter an alternate TCP port if required. The serial port on the remote PortMaster must be configured as a Host Device Port using the same service and TCP port number.
Telephone Number		Enter the telephone number which should be dialed to reach the Dialback Login user's modem. Only the telephone number is needed; the PortMaster provides the required AT commands. Dialback only supports modems with the Hayes AT command set.
Access Filter		Optional access control filter for the user. After the user specifies a host, its address is compared against the designated filter. If the address is permitted by the filter, the user's connection is allowed; otherwise, it is denied.

Network and Dialback Network Users

The Network User dialog box is shown in Figure 7-4. The Dialback Network User dialog box is shown in Figure 7-5.

Parameters for the Network and Dialback Network User dialog boxes are described in Table 7-2

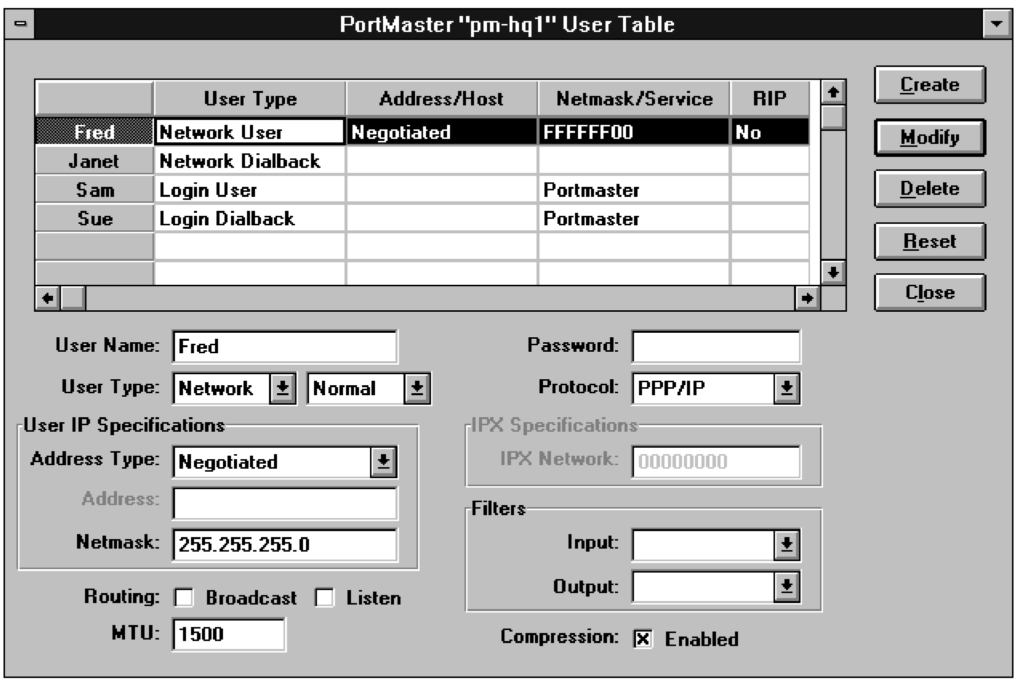


Figure 7-4 Network User Dialog Box

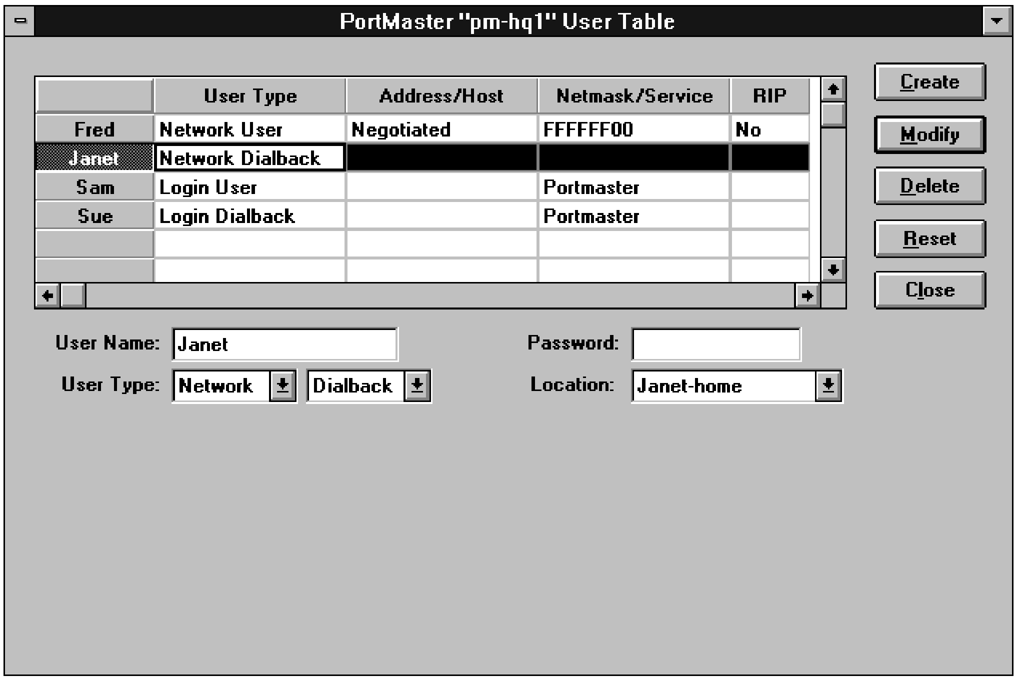


Figure 7-5 Dialback Network User Dialog Box

Table 7-2 Network and Dialback Network User Table Parameters

Parameter	Options	Description
User Name		Enter login name of the user to be entered at the `login:` prompt from the PortMaster. Up to eight printable ASCII characters.
User Type	Network Normal	When selected, user establishes a PPP or SLIP connection to the network.
	Network Dialback	When selected, user is disconnected by the PortMaster, which then dials back to the user at a predefined location.

Table 7-2 Network and Dialback Network User Table Parameters *(Continued)*

Parameter	**Options**	**Description**
Password		Enter password for user as a string of up to 16 printable ASCII characters. Asterisks (***) will be echoed.
Protocol	PPP/IP	When selected, use PPP with IP packet routing.
	PPP/IPX	When selected, use PPP with IPX packet routing.
	PPP/IP/IPX	When selected, use PPP with both IP and IPX packet routing.
	SLIP	When selected, use SLIP (Serial Line Internet Protocol).
User IP Address Type	Specified	When selected, the specific IP address of the user must be entered in the text area directly below this field.
	Assigned	When selected, the PortMaster assigns the user a temporary IP address from a pool of addresses maintained by the PortMaster. For more information about Assigned Addresses, see Chapter 3, "Global Configuration."
	Negotiated	When this option is selected, the PortMaster will attempt to learn the IP address of the remote computer automatically; valid only for PPP.
User IP Address	Specified	When Address Type is Specified, enter the IP address of the remote host in this field.
User IP Netmask		Enter the netmask of remote system.
IPX Network		Enter the IPX number for the dial-up link; for remote nodes, this will be the unique network for the user.

Table 7-2 Network and Dialback Network User Table Parameters *(Continued)*

Parameter	**Options**	**Description**
Routing		Any combination of Broadcast and Listen can be used.
	Broadcast	If selected, the PortMaster will send RIP information to the remote host.
	Listen	If selected, the PortMaster will accept RIP information from the remote host.
MTU (Maximum Transmission Unit)		Defines the largest data packet that can be sent through this connection. If a packet is too large the PortMaster will fragment it if IP or discard it if IPX. PPP connections can be set between 100-1500 bytes and the remote computer can negotiate a smaller value than the setting entered. SLIP connections can be set to values between 100-1006.
Compression		When enabled, the PortMaster uses Van Jacobson TCP/IP header compression, improving the performance of interactive TCP sessions. For SLIP connections, both sides need to be configured identically. For PPP connections, if either side does not support compression, the PortMaster disables it.
Input Filter		Select any available filter from this drop-down list box. When specified, all packets received from the serial interface will be evaluated against the rule set for the filter; only packets which are permitted by the filter will be allowed to enter the PortMaster.
Output Filter		Select any available filter from this drop-down list box. When specified, all packets sent to the serial interface will be evaluated against the rule set for the filter; only packets which are permitted by the filter will be allowed to exit the PortMaster.

Description of User Table Buttons

User Table buttons are described in Table 7-3.

Table 7-3 User Table Buttons

Button	**Description**
Create	Add the currently displayed user to the User Table in the nonvolatile memory of the PortMaster.
Modify	Make the currently displayed changes to the User Table in the nonvolatile memory of the PortMaster.
Delete	Delete the currently displayed user from the User Table in the nonvolatile memory of the PortMaster.
Clear	Clear the User Table display to allow the entry of a new user. This selection does not affect the stored User Table.
Close	Dismiss the User Table dialog box.

Configuring a RADIUS Authentication Client

PortMasters support RADIUS (Remote Authentication Dial In User Service) for authentication of users and remote routers from a centrally managed database maintained on an authentication server.

For information about configuring a RADIUS authentication server, see the *RADIUS Administrator's Guide*.

Note – Ports must have Security On to use RADIUS

To use PMconsole to configure the PortMaster as a RADIUS client:

1. **Click the RADIUS button in the toolbar.**

   The RADIUS button is shown in Figure 7-6. The RADIUS Window is displayed, as shown in Figure 7-7.

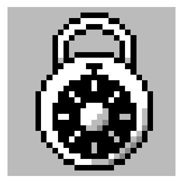


Figure 7-6 RADIUS Button

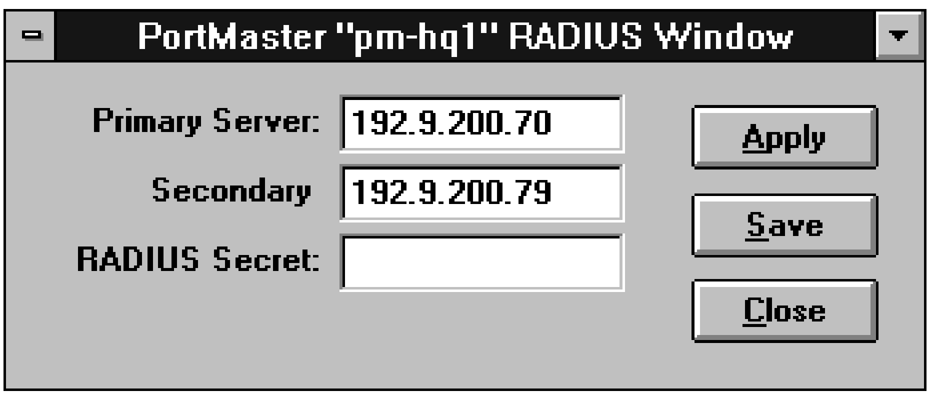


Figure 7-7 RADIUS Window

2. **Enter your RADIUS settings and press [Tab] to move from field to field.**

   Each of the fields is described in Table 7-4.

3. **Click the Save button to write configuration changes to the nonvolatile memory of the PortMaster.**

   Alternatively, you may click the Apply button to send changes to the dynamic memory of the PortMaster.

4. **Click the Close button to dismiss the RADIUS Window.**

Table 7-4 RADIUS Parameters

Parameter	Description
Primary Server	The host name or the IP address of the primary authentication server.
Secondary	The host name or the IP address of the secondary authentication server, used when the primary server cannot be reached.
RADIUS Secret	Enter the secret used to encrypt users' passwords and for verification of the responding RADIUS server.

Caution – When entering the RADIUS secret from PMconsole, it is passed over the network in clear text. Alternatively this secret may be entered using the command line interface directly through the console on the PortMaster.

Description of RADIUS Buttons

Radius buttons are described in Table 7-5.

Table 7-5 RADIUS Buttons

Button	Description
Apply	Send the RADIUS changes to the dynamic memory of the PortMaster.
Save	Write the RADIUS settings to the nonvolatile memory of the PortMaster.
Close	Dismiss the RADIUS dialog box.

Location Table 8

The Location Table contains unique location names and the associated parameters required to establish dial out network connections.

This chapter describes how to use PMconsole to configure the Location Table. Location parameters, dial command scripts, dialog box parameters, and buttons are described in table format.

Configuring the Location Table

To configure the Location Table:

1. **Click the Location Table button on the toolbar.**

   The Location Table button is shown in Figure 8-1. The Location dialog box is displayed, as shown in Figure 8-2.

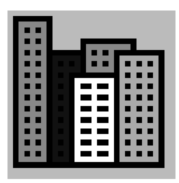


Figure 8-1 Location Table Button

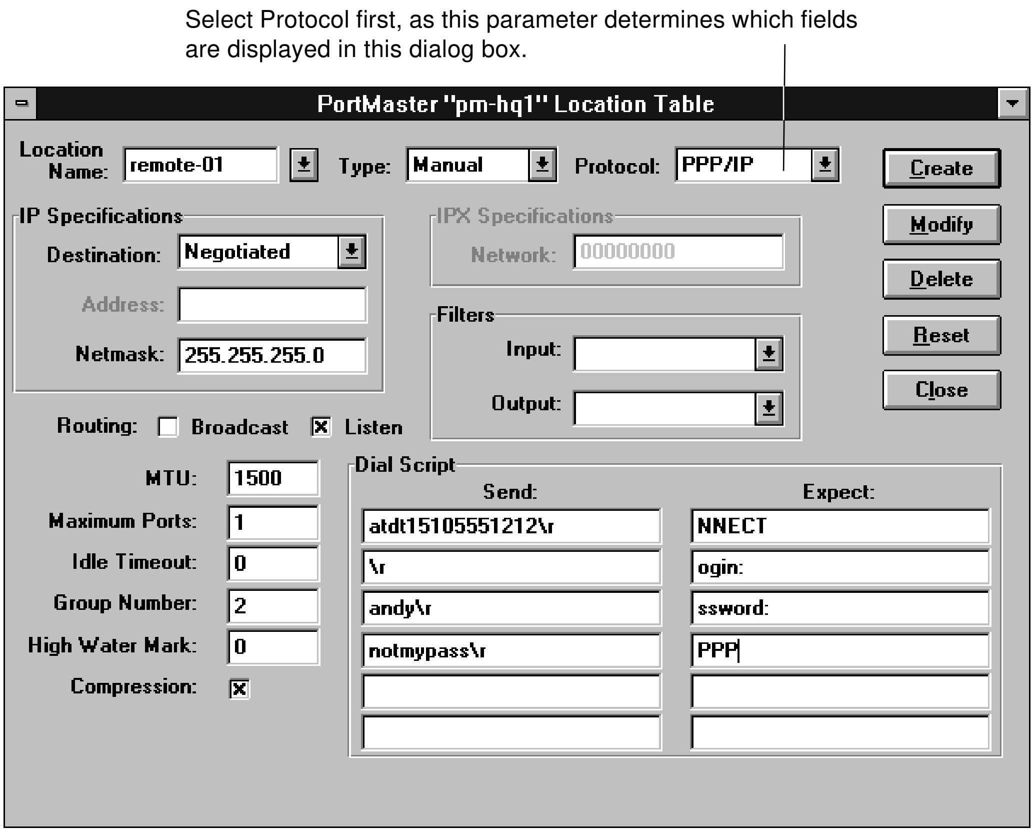


Figure 8-2 Location Dialog Box

2. **Edit the table to add, modify or delete locations.**

   Fields are described in Table 8-1.

Note – Depending on the option you choose for Protocol, some parameters will be available to you and others will be grayed-out or absent.

a. To add a new location, click the Reset button to clear the window, enter a location name, then complete the location parameters and click the Create button.

b. To modify an existing location, enter it or select it from the Location Name drop-down list, then edit the location parameters and click the Modify button.

c. To delete an existing location, enter it or select it from the Location Name drop-down list, and click the Delete button.

3. Press the Done button to dismiss the Location dialog box.

Description of Location Parameters

Parameters for the Location dialog box are described in Table 8-1.

Note – When switching a location from Manual to On Demand, make sure the dial-out connection has been closed (reset the serial port) before updating the Location Table.

Table 8-1 Location Parameters

Parameter	**Option**	**Description**
Location Name		Enter the 12-character name for the remote location.
Protocol	PPP/IP	When selected, use PPP with IP.
	PPP/IPX	When selected, use PPP with IPX.
	PPP/IP/IPX	When selected, use PPP with both IP and IPX.
	SLIP	When selected, use SLIP.
Type	On Demand	When selected, this option notifies the PortMaster to dial and establish a connection to the remote location whenever packets are queued for that location.
	Continuous	When selected, the PortMaster dials out to the location and establishes a connection. It redials if the link is dropped for any reason.
	Manual	When selected, this option notifies the PortMaster to dial out to the remote location only when an operator requests the connection. In this mode, the user can observe dial operation in progress in the dialer window.

Table 8-1 Location Parameters *(Continued)*

Parameter	**Option**	**Description**
IP Destination		For SLIP or PPP connections, enter the IP address or the name of the remote host. For PPP connections, the destination can be Negotiated instead. On Demand locations must use a specified address.
IP Address		Enter the IP address of the remote host.
IP Netmask		Enter the netmask of the remote host.
IPX Network		Enter the IPX network number for the serial link in HEX format.
Routing		This field indicates whether the PortMaster should use the RIP protocol through the interface. Any combination of Broadcast and Listen can be used.
	Broadcast	When selected, the PortMaster sends RIP information to the remote computer.
	Listen	When selected, the PortMaster will accept RIP information from the remote computer.
Input Filter		Select any available filter from this drop-down list. When specified, all packets received from the serial interface will be evaluated against the rule set for the filter; only packets which are permitted by the filter will be allowed to enter the PortMaster.
Output Filter		Select any available filter from this drop-down list. When specified, all packets sent to the serial interface will be evaluated against the rule set for the filter; only packets which are permitted by the filter will be allowed to exit the PortMaster.

Table 8-1 Location Parameters *(Continued)*

Parameter	**Option**	**Description**
MTU		Defines the largest packet that can be sent through this connection. If a packet is too large, the PortMaster will fragment it if IP, or discard it if IPX. PPP connections can be set between 100-1500 bytes and the remote computer can negotiate a smaller value than the setting entered. SLIP connections can be set to values between 100-1006.
Group Number		The modem dial group which this location may use to dial out. Only serial ports which are configured with this Group Number will be available for dial out to this location.
Maximum Ports		The number of dial-out ports the PortMaster can use for this network connection. If “0” is selected, the location will never dial out. If “1” is selected, only one port will be used to dial out. If “2” or more is selected, the PortMaster will use the High Water Mark to decide when to dial out on additional ports If more than one port is connected to the remote location, the PortMaster will use load balancing across all ports. The Idle Timeout value is used to decide when to disconnect unneeded ports.
High Water Mark		The number of bytes of queued network traffic required to open an additional dial-out line to the remote site. This value is only used when Maximum Ports is greater than one (1) and there are available ports in this location’s Dial Group. Setting a very small number will cause the PortMaster to quickly use all of the ports specified in Maximum Ports.

Table 8-1 Location Parameters *(Continued)*

Parameter	Option	Description
Idle Timeout		Specifies how long the PortMaster should wait without input or output activity on the port before resetting the port. This parameter is specified in minutes and can be any value from 0 to 240. If set to 0 or 1, the idle timer is disabled.
Compression		When enabled, the PortMaster uses Van Jacobson TCP/IP header compression, increasing the performance of interactive TCP sessions. For SLIP connections, both sides need to be configured identically. Compression *must not* be used for locations using synchronous ports for dial out (ISDN or switched 56K).

Dial Command Scripts

This script is used to issue commands to the modem (or other similar equipment) to dial a number and establish a link. Both “Send” and “Expect” strings are allowed and are entered into the Location Table.

Note – For more detailed information about composing “Send” and “Expect” strings, refer to the *Configuration Guide for PortMaster Products*.

Description of Location Buttons

Location buttons are described in Table 8-2.

Table 8-2 Location Buttons

Button	**Description**
Create	Add the currently displayed location to the Location Table in the nonvolatile memory of the PortMaster.
Modify	Save displayed modifications to the Location Table in the nonvolatile memory of the PortMaster.
Delete	Delete the currently displayed location from the Location Table in the nonvolatile memory of the PortMaster.
Reset	Clear the Location Window to allow the entry of a new location. This does not affect the stored Location Table.
Close	Dismiss the Location dialog box.

Dialing Out to Remote Locations

To dial out to a remote location, follow these steps:

1. **Click the Location Dialer button in the PMconsole toolbar.**

   The Location Dialer button is shown in Figure 8-3. The Location Dialer dialog box is displayed, as shown in Figure 8-4.

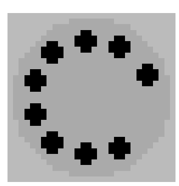


Figure 8-3 Location Dialer Button

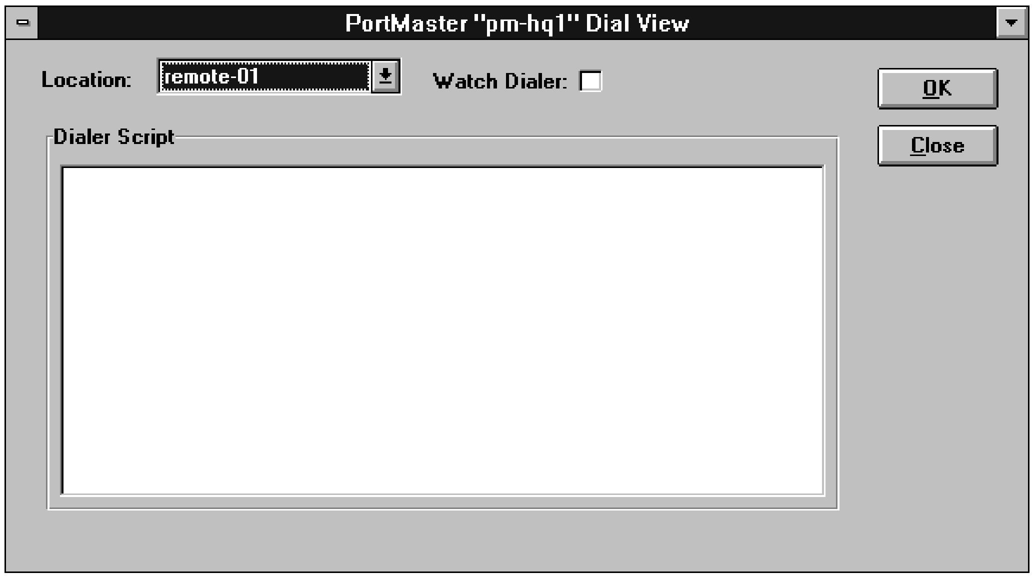


Figure 8-4 Location Dialer Dialog Box

2. **Select a location from the drop-down list.**

   Only those locations configured for manual dialing in the Location Table are shown in the list.

3. **Enable or Disable the Watch Dialer field.**

   If the Watch Dialer checkbox is checked, the progress of the dial operation is displayed in the Dialer window. If it is not checked, PMconsole becomes available for another operation.

4. **Click the OK button to start dialing.**

5. **Click the Close button to dismiss the Location Dialer dialog box.**

Note – For more information about interpreting the displayed dial results, refer to the *Configuration Guide for PortMaster Products.*

Filters 9

System Administrators can use PMconsole to design appropriate packet filters to control access to specific hosts, networks and network services.

This chapter describes how to use PMconsole to create, edit and delete packet and access filters.

Note – For information about designing packet filters, refer to the *Configuration Guide for PortMaster Products*.

Creating Filters

To create a packet filter:

1. **Click the Filter Table button on the Toolbar.**

   The Filter Table button is shown in Figure 9-1. The Filter Table dialog box is displayed, as illustrated in Figure 9-2.

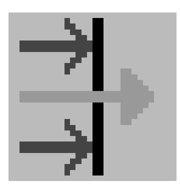


Figure 9-1 Filter Table Button

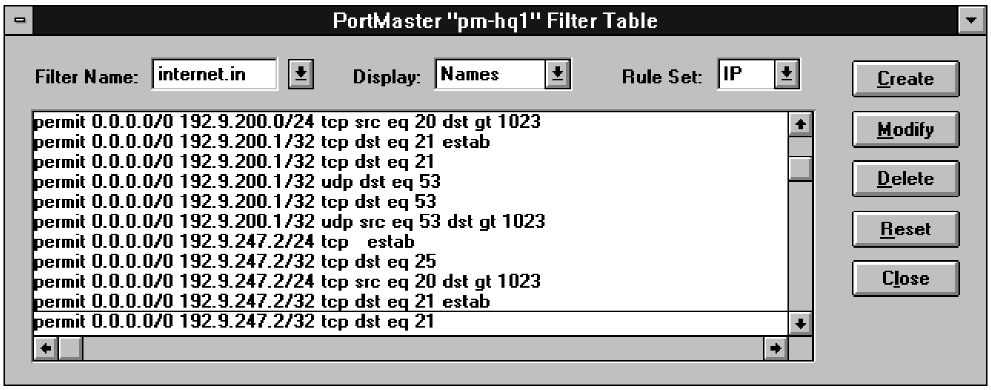


Figure 9-2 Filter Table Dialog Box

2. **Click the Reset button to clear the filter window.**
3. **In the Display drop-down list, select Names to display host names or Numbers to display IP addresses.**
4. **Type a name into the Filter Name field.**
5. **In the Rule Set drop-down list, select IP, IPX or SAP.**
6. **Type the filter rule(s) into the filter window.**

Note – For more information about syntax for Filter Rules, refer to the *Configuration Guide for PortMaster Products*.

7. **Click the Create button to add the new filter to the Filter Table in the nonvolatile memory of the PortMaster.**
8. **Click the Close button to dismiss the Filter Table dialog box.**

Editing an Existing Filter

To edit an existing filter:

1. **From the Filter Name drop-down list, select the name of the filter to modify.**

2. **When the filter is displayed in the filter window, edit by overtyping, deleting text or appending text to the existing rule(s).**
3. **Click the Modify button to write the changes to the Filter Table in the nonvolatile memory of the PortMaster.**
4. **Click the Close button to dismiss the Filter Table dialog box.**

Deleting a Filter

To delete an existing filter:

1. **From the Filter Name drop-down list, select the name of the filter to be deleted.**
2. **Click the Delete button to remove the filter from the Filter Table in the nonvolatile memory of the PortMaster.**
3. **Click the Close button to dismiss the Filter Table dialog box.**

Note – Changes made to filters from this dialog box will not appear in any Input Filter or Output Filter fields in dialog boxes that are currently open. Dialog boxes must be closed and reopened.

Note – Changes made to filters do not take effect on a serial interface until the interface is reset. Changes made to ethernet interface filters do not take effect until the filter is re-attached to the interface.

Description of Filter Buttons

Filter buttons are described in Table 9-1

Table 9-1 Filter Buttons

Button	**Description**
Create	Add the currently displayed filter to the Filter Table in the nonvolatile memory of the PortMaster.
Modify	Write currently displayed modifications to the Filter Table in the nonvolatile memory of the PortMaster.
Delete	Delete the currently displayed filter from the Filter Table in the nonvolatile memory of the PortMaster.
Reset	Clear the Filter Table dialog box to allow the entry of a new filter. This does not affect the stored Filter Table.
Close	Dismiss the Filter Table dialog box.

Port and Network Monitoring 10

This chapter describes how to use PMconsole to monitor ports and interfaces, and to configure SNMP.

Viewing Port Performance

To view performance by port:

1. **Click the Port View button on the toolbar.**

   The Port View button is shown in Figure 10-1. The Port View is displayed, as shown in Figure 10-2.

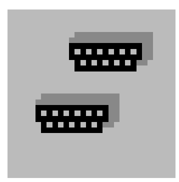


Figure 10-1 Port View

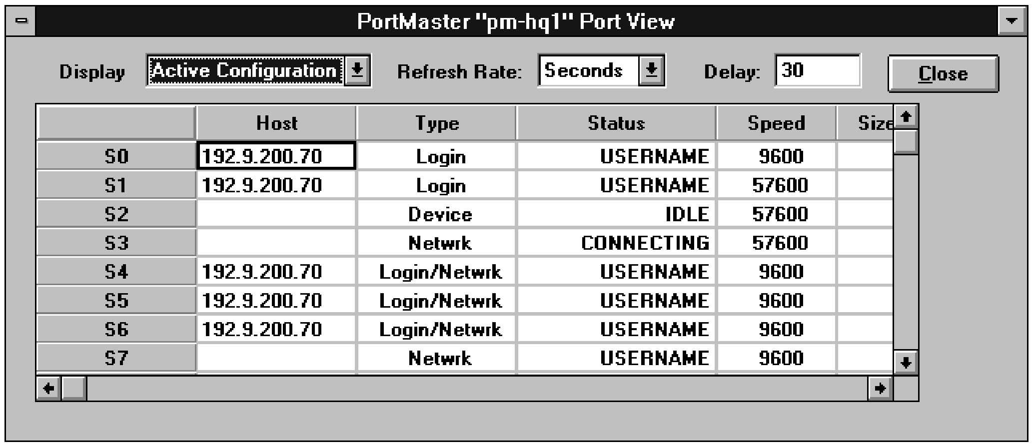


Figure 10-2 Port View

2. **Select a Display type, Refresh Rate and Delay.**

   The display parameters are described in Table 10-1.

   Columns can be resized. Grab the column header separator bar with the mouse and resize it as desired.

   The port view is now displayed.

   Port View Statistics are described in Table 10-2.

3. **When you are finished with this view, click the Close button to dismiss the Port View.**

Description of Port View Display Parameters

Display parameters for the Port View are described in Table 10-1.

Table 10-1 Port View Display Parameters

Parameter	Option	Description
Display	Active Configuration	Display communications parameters.
	I/O Statistics	Display input and output data.
	Active & I/O	Display both.
	Sessions	Display current user sessions.
Refresh Rate	Seconds Minutes Hours	Unit of time in which Port View data is refreshed.
Delay		Number of Refresh Rate units between data updates. For data at 5-minute intervals, select a Refresh Rate of Minutes and a Delay of 5.

Interpreting Port View Statistics

Depending on the radio button you select—Active Configuration, I/O Statistics, Sessions, or a combination—the Port View displays specific configuration and status information for each port.

Statistics for the Port View are described in Table 10-2.

Table 10-2 Port View Statistics

Display	Parameter	Option	Description
I/O Statistics	Port		PortMaster port.
	Host		Host name for the port.
	Type		Service type for the port.
	Status	Idle	The port is not in use.
		Established	A connection is active on this port.

Table 10-2 Port View Statistics *(Continued)*

Display	**Parameter**	**Option**	**Description**
		User Name	The presence of carrier has been detected.
		Host Name	For ports that are set up to prompt for a host, the presence of carrier has been detected.
		Password	The PortMaster has displayed a password prompt on the port.
		Disconnecting	The port is in the process of disconnecting.
	Input		The number of bytes transferred in through the port during the most recent reporting interval.
	Output		The number of bytes transferred out through the port during the most recent reporting interval.
	Pending		The number of bytes in the PortMaster output buffer which are pending in the output queue.
	Overrun Errors		Overrun error count for the most recent reporting interval.
	Parity Errors		Parity error count for the most recent reporting interval.
	Framing Errors		Framing error count for the most recent reporting interval.
Active Configuration	Port		PortMaster port.
	Host		Host name for the port.
	Type		Service type for the port.
	Status	Idle	The port is not in use.

Table 10-2 Port View Statistics *(Continued)*

Display	**Parameter**	**Option**	**Description**
		Established	A connection is active on this port.
		User Name	The presence of carrier has been detected.
		Host Name	For ports that are set up to prompt for a host, the presence of carrier has been detected.
		Password	The PortMaster has displayed a password prompt on the port.
		Disconnecting	The port is in the process of disconnecting.
	Speed		Port speed in bits per second.
	Size		Word size in data bits.
	Stop Bits		Number of stop bits for this port.
	Parity		Parity setting for this port.
	Modem Control		Modem control setting for this port (on or off).
	Flow Control		Flow control setting for this port.
Sessions	Port		PortMaster port.
	User		This field can contain the host name, the network name or number, or the destination host name or number.
	Host		Host name for the port.
	Type		Service type for the port.
	Direction		Type of connection (inbound or outbound).
	Status	Idle	The port is not in use.

Table 10-2 Port View Statistics *(Continued)*

Display	Parameter	Option	Description
		Established	A connection is active on this port.
		User Name	The presence of carrier has been detected.
		Host Name	For ports that are set up to prompt for a host and the host name is currently displayed, the presence of carrier has been detected.
		Password	The PortMaster has displayed a password prompt on the port.
		Disconnecting	The port is in the process of disconnecting.
	Started		Length of time the port has been in use.
	Idle		Length of time the port has been idle.
	Timeout		The value of any timer that has been set on the port.

Viewing Network Statistics

The status of network interfaces can be displayed in the Network Statistics View.

To view network interface statistics:

1. Click the Network Statistics View button on the toolbar.

The Network Statistics View button is shown in Figure 10-3. The Network Statistics View is displayed, as shown in Figure 10-4.

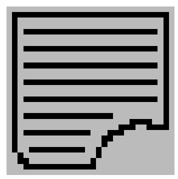


Figure 10-3 Network Statistics View Button

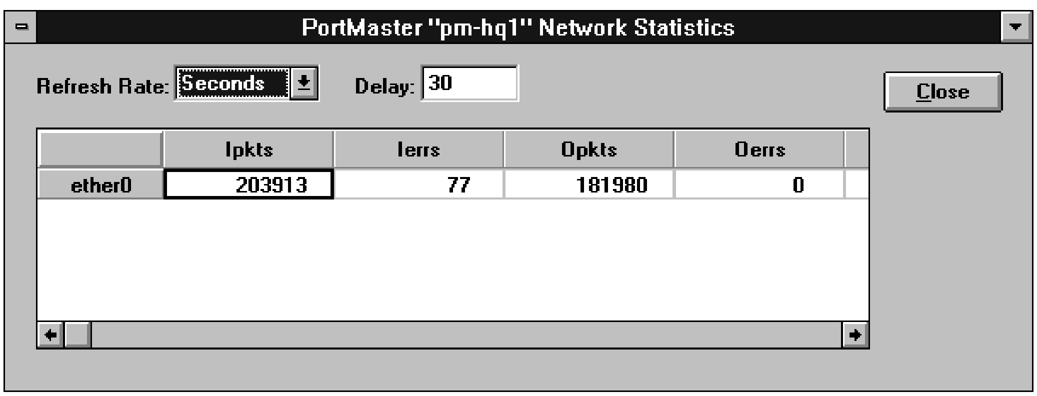


Figure 10-4 Network Statistics View

2. **Select a Refresh Rate and Delay.**

   Display Parameters are described in Table 10-3.

   Network Statistics Parameters are described in Table 10-4.

3. **When you are finished with this display, click the Close button to dismiss the Network Statistics View.**

Description of Network Statistics Display Parameters

Display Parameters for the Network Statistics View are described in Table 10-3.

Table 10-3 Network Statistics Display Parameters

Parameter	**Option**	**Description**
Refresh Rate	Seconds Minutes Hours	Select the time interval for refreshing of data.
Delay		Number of Refresh Rate units between data updates. For data at 5-minute intervals, select a Refresh Rate of Minutes and a Delay of 5.

Interpreting Network Statistics

Network statistics are described in Table 10-4.

Table 10-4 Network Statistics

Parameter	**Description**
Name	Name of the interface.
Ipkts	Number of input packets received.
Ierrs	Number of input packets received that were dropped due to errors.
Opkts	Number of output packets sent by the interface.
Oerrs	Number of output packets not sent by the interface due to errors.

Table 10-4 Network Statistics *(Continued)*

Parameter	**Description**
Collis	Number of collisions when attempting to send packets through the interface.
Queue	Number of packets currently queued for transmission (output) through the interface.
Stat	Indicates `up` if the interface is active, `down` if it is inactive.
Inet/Dest	For ether interfaces, the IP address of the PortMaster. For ptp interfaces, the IP address of the remote host. For frm interfaces, the IP address of the port.
Netmask	Netmask for the interface identified in the inet/dest field.
Ipxnet	IPX network number for the interface.
Routing	Indicates whether RIP protocol packets are being transmitted or received by the interface. Possible values are Routing, Sending, Listen, or Quiet.

Configuring SNMP

PMconsole supports configuration of SNMP.

To configure SNMP:

1. **Click the SNMP button on the toolbar.**

   The SNMP button is shown in Figure 10-5. The SNMP dialog box is displayed, as shown in Figure 10-6.

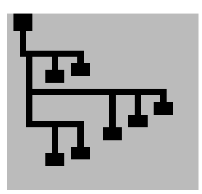


Figure 10-5 SNMP Button

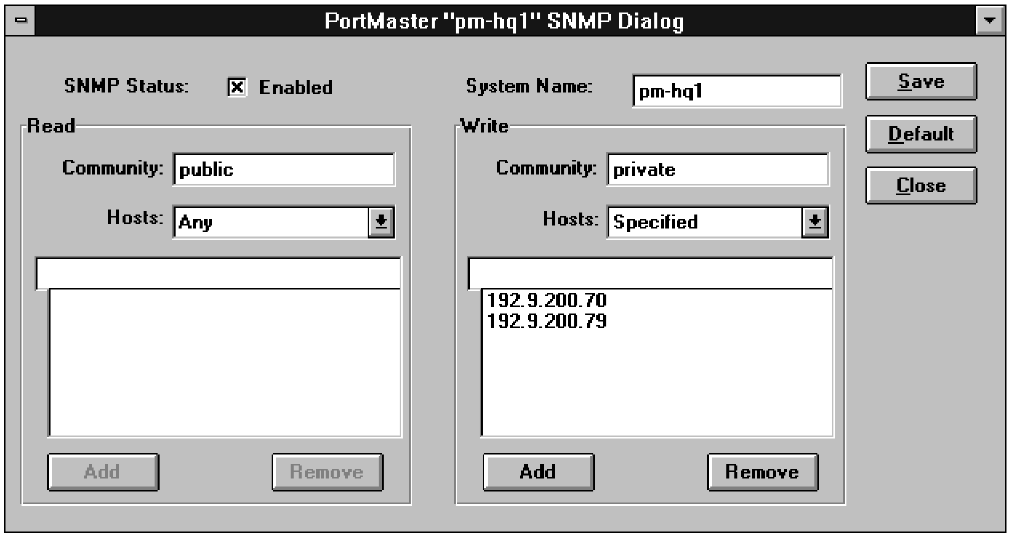


Figure 10-6 SNMP Dialog Box

2. **Update the SNMP parameters and press [Tab] to move from field to field.**

   Parameters are described in Table 10-5.

3. **Click the Save button to write the changes to the nonvolatile memory of the PortMaster.**

   SNMP is now configured.

4. **Click the Close button to dismiss the SNMP dialog box.**

Note – For more information about how to configure SNMP host lists, refer to the *Configuration Guide for PortMaster Products*.

Description of SNMP Parameters

SNMP Parameters are described in Table 10-5.

Table 10-5 SNMP Parameters

Parameter	Options	Description
SNMP Status		When this checkbox is selected, SNMP queries to the PortMaster will be accepted; otherwise, they will be ignored.
System Name		Global SNMP system name, independent of protocols. Also used as the system identifier in PAP and CHAP requests, and as the command line prompt.
Read Community		Set to match the read community setting of your SNMP management software. Default is public.
Read Hosts	Any	When selected, all hosts using the correct read community will be allowed to retrieve SNMP data from the PortMaster.
	None	When selected, no SNMP reads will be allowed by the PortMaster.
	Specified	When selected, a specific list of hosts can perform SNMP gets on the PortMaster. Input fields will be displayed for the list of hosts.
Write Community		Set to match the write community setting of your SNMP Management software. Default is private.
Write Hosts	Any	When selected, all hosts using the correct write community will be allowed to set SNMP data on the PortMaster.
	None	When selected, no SNMP writes will be allowed by the PortMaster.
	Specified	When selected, a specific list of hosts can perform SNMP sets on the PortMaster. Input fields will be displayed for the list of hosts.

Description of SNMP Buttons

SNMP buttons are described in Table 10-6.

Table 10-6 SNMP Buttons

Button	Description
Save	Write the configuration changes to the nonvolatile memory of the PortMaster.
Default	Displays factory defaults. This does not affect the stored SNMP Table.
Close	Dismiss the SNMP dialog box.

The Host Table 11

This chapter describes how to use PMconsole to configure the Host Table in the PortMaster. Each host attached to the network is assigned a unique IP address. PortMasters support a local Host Table to map hostnames to IP addresses.

Note – If your network lacks a computer that can perform hostname resolution, the PortMaster allows entries in a local Host Table. Hostnames are only used by the PortMaster for the convenience of the administrator when using the command line interface, and for host names entered by users at the host prompt. To avoid confusion and reduce administrative overhead, Livingston recommends using Domain Name Service (DNS) or Network Information Service (NIS) for hostname resolution rather than using the local Host Table. The local Host Table is always checked first before resorting to DNS or NIS.
For information on setting the NIS or DNS server and domain, refer to Chapter 3, "Global Configuration."

Configuring the Host Table

To configure the Host Table:

1. **Click the Host Table button in the Toolbar.**

   The Host Table button is shown in Figure 11-1. The Host Table dialog box is displayed, as shown in Figure 11-2.

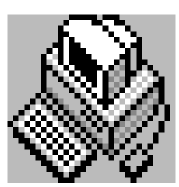


Figure 11-1 Host Table Button

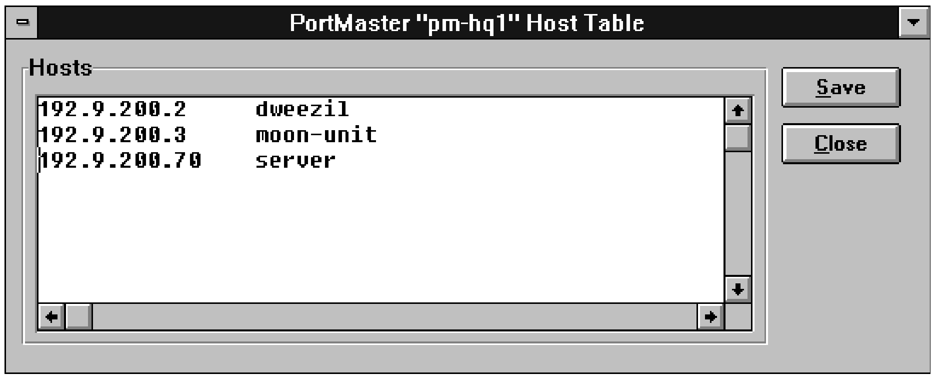


Figure 11-2 Host Table Dialog Box

2. **Click the Open button to retrieve the current Host Table from the PortMaster and display it in the text window.**
3. **Edit the table to add, change or delete existing hosts.**
   a. To add a new host, enter the host address and name in the format:

      `192.9.200.2 dweezil`

      In this example, "192.9.200.2" is the host's IP address and "dweezil" is the host name.

   b. To edit an existing host, overtype the existing entry with a new address and/or host name.

   c. To delete an existing host, select it and press the [Delete] key on your keyboard.
4. **When your work is complete, click the Save button to write the new configuration to PortMaster nonvolatile memory.**
5. **Click the Close button to dismiss the Host Table dialog box.**

The Route Table 12

This chapter describes how to use PMconsole to configure static network routes.

For information on setting the IP and IPX default gateways, refer to Chapter 3, "Global Configuration."

Configuring Routes

To configure a static route, follow these steps:

1. **Click the Route Table button in the PMconsole toolbar.**

   The Route Table button is shown in Figure 12-1. The Route Table dialog box is displayed, as shown in Figure 12-2.

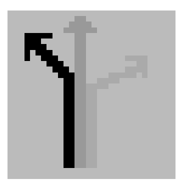


Figure 12-1 Route Table Button

Note – Static IPX routes are not a supported feature in this release of PMconsole. If needed, set them using the command line interface.

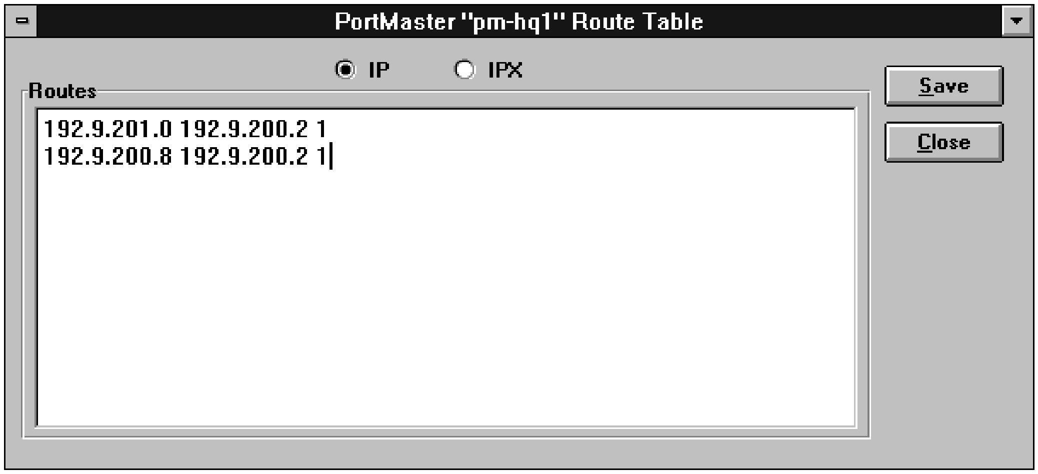


Figure 12-2 Route Table Dialog Box

2. **Click the Open button to retrieve the current static Route Table from the PortMaster and display it in the scrollable text window.**
3. **Edit the table to add, change or delete existing routes.**
   a. To add a new route, enter a destination, gateway and a metric, in the following form:

      `192.9.201.0 192.9.200.2 1`

      In this example, "192.9.201.0" is the destination (in this example, a network), "192.9.200.2" is the gateway, and "1" is the metric.

   b. To edit an existing route, overtype the existing entry with a new address and user name.

   c. To delete an existing route, select its destination, gateway and metric and press the [Delete] key on your keyboard.
4. **When your work is complete, click the Save button to write the new configuration to PortMaster nonvolatile memory.**
5. **Click the Close button to dismiss the Route Table dialog box.**

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