WaveView

Switch Manager User Guide

PLAINTREE

Document number: 15306
Software version: 2.3
Date: January, 1999

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Preface

Who Should Use This Guide

This guide is designed to be used by the individual responsible for setting up and operating WaveView on your local area network.

Technical support and product information

Technical support

Product support staff are available to answer technical questions between 8:00 a.m. and 8:00 p.m. EST, Monday to Friday.

Telephone:	1 800 831 1095 (toll free)
	1 613 831 8883
Fax:	1 613 831 3283

You can also contact product support staff using electronic mail on the Internet by sending a message to:

```
support@plaintree.com
```

Product information

You can download software updates, test tools, product documentation, and other information from Plaintree's Web site or FTP site.

Plaintree Systems Web site

For up-to-date information about Plaintree products, see the Plaintree Systems Home Page on the World Wide Web at the following URL:

```
http://www.plaintree.com
```

Plaintree Systems FTP site

You can contact the Plaintree FTP site at *ftp.plaintree.com* to download files that contain software upgrades and product documentation.

Plaintree Systems sales telephone numbers

Call for information about Plaintree Systems Inc. products.

In the United States:	1 800 370 2724 (toll free)
In Canada:	1 800 461 0062 (toll free)
In the rest of the world:	+ 1 613 831 8300
	+ 1 613 831 3283 (Fax)

Plaintree Systems Inc. product warranty

Standard Warranty

Plaintree Systems products are guaranteed to be free from manufacturing and material defects for one (1) year from the date of original purchase by the end user.

Plaintree Systems will, at its option, repair or replace any defective part without charge for parts or labor, on a returned to factory basis, within one year from the date of original purchase.

The Standard Warranty includes:

- access to Plaintree Technical Support during regular business hours
- guaranteed turnaround time of 30 calendar days

Shipping expenses to the factory are the responsibility of the purchaser.

To qualify for warranty service, the purchaser must notify Plaintree Systems of any alleged defect within the one-year warranty period.

The repaired item is warranted for 90 days or the remainder of the original warranty period, whichever is longer.

This warranty does not cover damage to the product caused by

- modification, alteration, physical abuse or misuse
- repair or service to the product by anyone other than Plaintree Systems or a Plaintree Systems-appointed technician
- operation in a manner contrary to the instructions that accompany the product
- freight damage
- damage caused by circumstances beyond the control of Plaintree Systems, such as lightning or fluctuation of electrical power.

Under no circumstances will Plaintree Systems be held liable, in any way, to the purchaser for damages, including loss of business profits, lost savings, business interruption, loss of business information, or other incidental or consequential damages arising out of the use of, or inability to use, the product.

Plaintree Systems Inc. additional warranty plans

Plaintree Systems Inc. offers additional warranty protection plans, which are described below. Any of the following warranty programs may be purchased before expiration of the original one-year warranty.

Extended Standard Warranty

The Extended Standard Warranty annual service extension, which includes Standard return to factory service repairs, runs in annual increments after the completion of the original one-year warranty.

The Extended Warranty includes:

- 12-month warranty with Standard return to factory service
- access to Plaintree Technical Support during regular business hours
- guaranteed turnaround time of 30 calendar days

One-Time Express Repair Service (Under Warranty)

At any time in conjunction with the Standard or Extended Standard Warranty, in the case of product failure a replacement unit can be expedited to the customer's site through the purchase of the One-Time Express Repair Service.

Upon notification of, and determination by, Plaintree Systems that an item is not operational, Plaintree Systems will replace the defective item with a comparable item by the fastest shipping method available.

The repaired item is warranted for 90 days or the remainder of the original warranty period, whichever is longer.

Premium Warranty

The Premium Warranty is a superior grade of warranty featuring Express Repair Service and 24 Hour Technical Support. It is available in annual increments from the date of purchase of the product.

The Premium Warranty includes:

- 24x7 Technical Support - Customer problems will be addressed by telephone by a Technical Support Specialist 24 hours per day, 7 days a week.
- Next Business Day Replacement - This is available when it has been determined by Plaintree Technical Support before 3:00 p.m. EST that a replacement is needed. Saturday deliveries are available.
- Automatic Documentation Updates - These will be in PDF format if minor changes have been made to the documentation due to software enhancements.

- Site Discovery - A Technical Support Representative will contact the customer and gather information on the customer's network, determine contact and shipping information, and verify the equipment covered by the Premium Warranty. This information will be kept on file at Plaintree.

Upon determination by Plaintree Systems that an item is not operational, Plaintree Systems will replace the defective item with a comparable item by the fastest shipping method available.

Replacement items are warranted for 90 days or the remainder of the purchased Premium Warranty period, whichever is longer. The warranty period is determined from the date the item is received at the customer site.

RMA shipping instructions

If you want to return a Plaintree product, do the following:

1. Call Plaintree Systems Inc. Technical Support department (see Technical support and product information on page vii) to report the problem. Plaintree Systems Inc. Technical Support staff will try to help you fix the problem.

   Be prepared to supply the following information when you call:
   - description of the problem
   - description of the steps you have taken to try to correct the problem
   - status of the front-panel indicator lamps
   - model number of the unit
   - serial number of the unit
   - software version in use
   - configuration of the unit
   - version of the network management system in use
   - configuration of your network

Note – *If the problem cannot be fixed at your site, Technical Support staff will supply you with a Return Material Authorization (RMA) number.*

2. Complete the Return Form supplied by Plaintree Systems Technical Support staff.

3. Pack the item, along with the completed form, in its original shipping box and write the RMA number on the outside of the box.

Note – *If you do not have the original box, use a carton with adequate packaging to prevent damage during shipping.*

4. Ship the item to:

   Plaintree Systems
   44 Iber Road
   Stittsville, ON
   Canada K2S 1E8

Important – *Items returned for repair without an RMA number will not be accepted and will be returned to the sender at the sender's expense.*

Using this manual

This manual contains information about how to install and configure WaveView Switch Manager. This manual focuses on procedures for using WaveView and managing your Plaintree Systems Inc. WaveSwitch systems. You can find additional information about network configuration, network protocols, and network engineering standards in the books listed in Ordering publications on page xiv.

Notation conventions

WaveView has a useful command flexibility. Use either menus, toolbar icons, or right-click commands to perform any WaveView function.

The procedures in this manual will give you the simplest method of accomplishing your tasks, that is, the one with the fewest keystrokes or mouse clicks.

Menu commands such as File:Close are printed in Helvetica font.

Instructions for using toolbar icons include an image such as the Help button shown here.

Keyboard buttons such as <**Ctrl**> and GUI button such as <**OK**> are printed in **bold face** and enclosed in angled parentheses.

Mandatory variables

Variables that you must enter are shown in angle brackets < >, as follows:

```
Contact: <name_string>
```

Optional variables

Variables that are optional are shown in square brackets[ ], as follows:

```
Community: <community_name> [ip_address]
```

Note – *When entering variables, do not type brackets around the values you enter.*

Ordering publications

Outside publications

For more information on topics referenced in this manual, see the following:

American National Standards Institute (ANSI), X3T9.5/84-49 (Revision 7.3) Station Management

Comer, Douglas E., Internetworking with TCP/IP, Volume I: Principles, Protocols, and Architecture, Englewood Cliffs, NJ: Prentice-Hall, 1991.

Institute of Electrical and Electronic Engineers, ANSI/IEEE Standard 802.1, Higher Layer Interface Standard, New York, NY: IEEE, 1984.

Institute of Electrical and Electronic Engineers, ANSI/IEEE Standard 802.2, Logical Link Control, New York, NY: IEEE, 1984.

Draft Standard P802.1Q/D8, December 22, 1997
IEEE Standards for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks

Internet Engineering Task Force
Internet Group Management Protocol, Version 2
Inter-Domain Multicast Routing Working Group INTERNET-DRAFT W. Fenner, Xerox PARC, January 1997

Internet RFC 1213 Management Information Base for Network Management of TCP/IP-based internets: MIB-II, March 1991.

Internet RFC 1493 Definitions of Managed Objects for Bridges, July 1993.

Perlman, Radia, Interconnections: Bridges and Routers, Reading, MA: Addison-Wesley Publishing, 1992.

Digital Equipment Corporation, A Primer on FDDI: Fiber Distributed Data Interface, (Version 2.00), June 1992.

Internet RFC 1512 FDDI Management Information Base, September 1993.

Internet RFC 1757 Remote Monitoring MIB, February 1995.

Mirchandani, S., and Khanna, R. (editors), FDDI Technology and Applications, New York, NY: John Wiley & Sons, 1993.

Plaintree Systems Inc. publications

You can order publications by sending a request to:

Plaintree Systems Inc.
44 Iber Road
Stittsville, ON
Canada K2S 1E8

Telephone: 1 800 461 0062
1 613 831 8300
Fax: 1 613 831 3283

RFCs (Request for Comments)

You can get RFCs by doing one of the following:

- calling 1 415 859 6387 to place an order
- sending an Internet e-mail message to:

  ```
  rfc-info@isi.edu
  ```

  in the body of the message:

  ```
  Retrieve: RFC
  Doc-ID: RFCnnnn (where nnnn is the four-digit doc code)
  ```

- accessing the Internet Documentation site on the World Wide Web at the following URL:

  ```
  http://ds.internic.net/ds/dspg0intdoc.html
  ```

Other standards documentation

You can get a comprehensive collection of domestic and international communications standards and documentation (updated every six months) on the STANDARDS CD-ROM from:

InfoMagic
P.O. Box 708
Rocky Hill, NJ 08553-0708

To order, call 1 800 800 6613 or 1 609 683 5501, or send an e-mail message on the Internet to:

```
info@infomagic.com
```

Introduction

What is WaveView?

The WaveView Switch Manager is a network management software application with a graphical user interface (GUI) that enables you to manage one or more systems on the network. Network managers can use the WaveView Web Server to access switch management functions remotely. WaveView allows network managers to quickly collect, organize, and save critical information about their systems and other network switching equipment.

WaveView runs under the following operating systems:

- Windows 95/98
- Windows NT 3.51
- Windows NT 4.0

WaveView uses SNMP (Simple Network Management Protocol) to communicate with devices on the network. For information about SNMP and the SNMP agent, see the User Manual that is supplied with your Plaintree Systems switch.

WaveView communicates with WaveSwitch systems and other SNMP devices in a LAN. It permits management of individual ports on a Plaintree Systems LAN switch but not workstations, servers, printers or other LAN resources.

WaveView Switch Manager can configure Plaintree Systems NextWave Switching group of features for the WaveSwitch family of Gigabit Ethernet switches. These features include SmartARP, SmartSAP, ChannelCast, FloodControl and Trunk Groups.

What’s new in this version of WaveView?

If you are upgrading from WaveView version 2.2 you will find the following improvements:

- support for the Static Filter Database (AllowedToGoTo MIB object) in the WaveSwitch 9200
- support for Configuration Manager
- support for Event Display

Bug fixes and changes

The following WaveView bugs have been fixed from the previous version:

- AutoDiscovery would not work properly if a SNMP agent on the network did not support the 'sysObjectID' MIB variable.
- When running WaveView using an international version of Windows 95 or NT, an error message stating: "... is not a valid floating point number" would appear.

The following WaveView features have been disabled:

- viewing statistics for all ports simultaneously
- management of VLANs via the Web Browser

Supported switches

WaveView supports the following series of Plaintree Systems switching products:

- WaveSwitch 9200
- WaveSwitch 9202
- WaveSwitch 4800
- WaveSwitch 1216
- WaveSwitch 1018/1019
- WaveSwitch 4+TX/4+FX/4+4
- WaveSwitch 100FL
- WaveSwitch 100

Installing WaveView

This chapter contains the following sections:

Installation requirements

System requirements

Windows 95/98

- IBM PC or compatible with Intel 80486 or higher CPU
- Windows 95 or Windows 98
- 16 MB of RAM (32 MB recommended)
- 15 MB of free disk space
- VGA monitor or higher resolution
- A mouse is strongly recommended
- Network connection with a unique IP address

Windows NT

- IBM PC or compatible with Intel 80486 or higher CPU
- Windows NT 4.0 or higher
- 32 MB of RAM (64 MB recommended)
- 15 MB of free disk space
- VGA monitor or higher resolution
- A mouse is strongly recommended
- Network connection with a unique IP address

Software requirements

Make sure you have the software applications you need to run WaveView in your network environment.

Item	Description
1	Install TCP/IP software on the PC. The TCP/IP software should be WINSOCK compliant.
2	Make sure the TCP/IP software is operational. You should be able to ping other hosts on the network.
3	Proceed with WaveView installation.
end	

Note – WaveView does not include TCP/IP software.

Installation instructions

From a Local Drive

To install WaveView from a local drive, do the following:

Step	Action
1	Insert the WaveView installation CD-ROM in the CD-ROM drive of your PC. The Install Shield Wizard will automatically begin installing WaveView.
2	Follow the installation instructions.
end	

If the Install Shield does not run automatically, do the following:

Step	Action
1	Insert the WaveView installation CD-ROM in the CD-ROM drive of your PC.
2	Click on **Start** in the taskbar then select **Run...**
3	Type **E:\SETUPEX** (if the CD-ROM is in drive E:) and press <**Enter**>. Setup runs Install Shield Wizard.
4	Follow the installation instructions.
end	

From a Network Drive

To install WaveView from a network drive, do the following:

Step	Action
1	Locate WaveView's setup.exe in the network directory in which it resides.
2	Double-click on **setupex.exe**. *Install Shield* will guide you through WaveView installation.
end	

Removing WaveView

To remove WaveView, do the following:

Step	Action
1	Delete the WaveView 2.3 directory.
2	Delete **np_wsnmp.ini** file from your Windows directory **Note**: Deleting np_wsmp.ini will not affect subsequent re-installation.
end	

Note – The Add/Remove Programs option in the Control Panel in Windows 95 and NT 4.0 will not delete WaveView data files from the hard drive; only the program files would be removed. To ensure WaveView 2.3 is completely removed from the hard drive, delete the WaveView 2.3 application directory (and all of its sub-directories) using Windows Explorer.

Upgrade Installation

Install your upgrade version of WaveView Switch Manager on top of any earlier version. Old configuration files and databases will be copied over to the new directories.

The installation process:

WaveView creates the specified directory if it does not already exist and copies the files to the specified directory.

Note – The installation process does not alter critical system files such as AUTOEXEC.BAT, CONFIG.SYS, SYSTEM.INI, or WIN.INI.

WaveView and Third-Party Network Management Systems

HP OpenView™

WaveView version 2.3 supports both 16-bit and 32-bit versions of HP OpenView.

To install HP OopenView after WaveView, do the following:

Step	Action
1	From Windows Explorer, run **HP OpenView 32-bit Integration Wizard** or **HP OpenView 16-bit Integration Wizard**. Follow the integration instructions.
2	Run **HP OpenView** and open **Network Map**.
3	Right-click on any Map object.
4	Click on **WaveView**.
end	

If HP OpenView is installed, the WaveView installation program automatically sets up a configuration that lets you access WaveView as an HP OpenView application.

If you install HP OpenView after you install WaveView, you must reinstall the WaveView application to activate the network management platform option.

Notes:

- Reinstalling the software does not destroy data you have created. Upgrades of WaveView will retain the information from previous versions and recreate files accordingly.
- HP OpenView temporarily uses a new file, PLHPDEV.DLL, to update its auto discovery database. Once HP OpenView has been updated this file is deleted.

Web Server Configuration

WaveView Switch Manager includes an embedded Web Server. Network information available from the host station where WaveView is installed can be accessed anywhere on the network using a Web Browser enabled with Frames.

For information on viewing WaveView Web Server see "Viewing Web Server functions" on page 91.

Enable Web server

In order to allow web browser access to the WaveView host station the system must first be configured as an HTTP server. To perform server configuration, do the following:

Step	Action
1	Click on the **Web Server** button in the Control Center. The Web Server (HTTP server configuration) dialogue will appear, **Optional:** If you want to set up the Web Server without running WaveView, select **Web Server** from Start Menu Programs.
2	**Optional:** Select the Automatic Startup option. This will cause the local host to run Web Server upon WaveView startup.
3	Click on **Start**. Click on **Minimize**.
end	

Important – The host station running WaveView Web Server must have a permanently assigned IP address.

Restricting Access

To restrict access to the Web Server, do the following:

Step	Action
1	Obtain the Web Server (HTTP server configuration) dialogue. Select the **Restrict Access** option box.
2	Click on **Add...**.
3	In the HTTP Server Access Entry dialogue enter the **IP address** of a client to whom you wish to allow restricted access. **Note:** You may enter a wildcard IP address pattern such as **132.57.*.*** - only stations whose address begins with 132.57 can access the Web Server.
4	Click on **Start**.
end	

Note – To delete a client from the HTTP Server Access Entry dialogue, select it and press the <Delete> key on your keyboard.

Testing the Web Server

To test access to the Web Server, do the following:

Step	Action
1	Load your Frames enabled Web Browser.
2	Enter the following URL: **http://127.0.0.1** The browser will load the WaveView Web Server home page.
end	

Accessing WaveView Web Server remotely

To access to the Web Server from a remote station, do the following:

Step	Action
1	Load your Frames enabled Web Browser.
2	Enter the IP address of the host station running WaveView Web Server in the URL field. The browser will load the WaveView Web Server home page.
end	

Configure WaveView

WaveView can be configured to suit all your switch management needs.

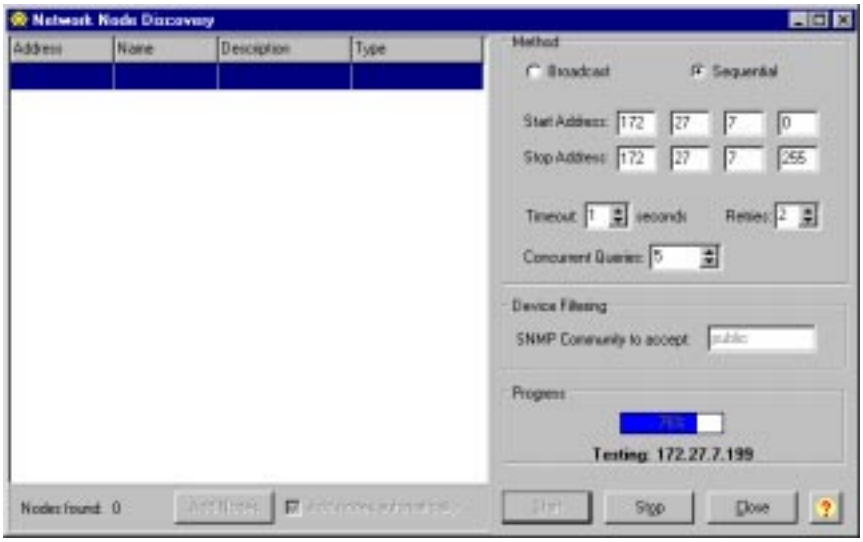
This chapter contains the following sections on WaveView configuration:

Initiate Automatic Discovery

The first time you run WaveView, the Automatic Discovery window appears. You can also perform Automatic Discovery whenever you need to update your Control Center database. Automatic Discovery is the process for gathering all the information necessary to build a list or map of the network and begin managing the network switches.

The following figure shows the WaveView Automatic Discovery window with Sequential search method selected.

Figure 1 WaveView Automatic Discovery in progress using Sequential method



Broadcast Method

The broadcast method tells WaveView to send out a broadcast IP packet beginning with the same value as the Local Host station's IP address.

To perform Automatic Discovery using the Broadcast method, do the following:

Step	Action
1	Enable the **Broadcast** option.
2	Enable the **Automatically Add Nodes** option to automatically add all discovered network switching devices to the Network Map.
3	Click on **Start**.
end	

WaveView performs a sequence of pings, collects the returned IP address ping echoes to create a list of devices in the Results: box. The progress of the search is displayed in the status box above the Results: window. When the search is complete the entries in the Results: window are highlighted.

Note – The broadcast option is the system default. It is recommended for small networks and those whose IP addresses are grouped together.

Sequential Method

To define a sequential range of addresses for WaveView to search, do the following:

Step	Action
1	Enable the **Sequential** option.
2	Enable the **Automatically Add Nodes** option to automatically add all discovered network switching devices to the Network Map.
3	Click on **Start**.
end	

The address being tested and the percentage of the process completed are displayed in the status area.

The Begin button is disabled during the discovery process.

The Close button normally closes the window with no action being taken. During the discovery process, the Close button changes to a Cancel button. Clicking Cancel stops the discovery process.

Note – If the application is awaiting a response, the cancellation action can take a few seconds.

When the discovery process is completed, the Results list displays the network address and system description of each WaveSwitch system that responded. By default, all items in the list are selected.

Network Control Center Configuration

The Control Center window is the main window of WaveView. Only one Control Center window can be open at a time.

When you first install WaveView you will be prompted to perform Automatic Discovery for your network nodes to build the database. See “Initiate Automatic Discovery” on page 14.

Adding devices

The quickest way to complete your Control Center database is by performing Automatic Discovery. See “Initiate Automatic Discovery” on page 14. This process will automatically add all functioning switches to the Control Center.

To add individual devices to your Control Center, do the following:

Step	Action
1	Click the **Add** button in the Control Center toolbar. The Add Node dialogue box appears.
2	Enter the TCP/IP address of the new switch.
3	Enter the correct Community String in the space provided.
4	Click on **OK**. WaveView adds the device to the viewing area in the Control Center window. **Note:** WaveView will not add duplicate addresses to the Control Center.
end	

Important – When you add a device to the network list, WaveView puts the new item in numeric order of its network address.

Deleting devices

To remove a device from the Control Center, do the following:

Step	Action
1	Select a device and click on the **Delete** button in the tool bar. A confirmation dialogue box will appear.
2	Click on **Yes** to confirm and delete the selected device from the Control Center.
end	

Note – You can erase the entire Control Center database using the menu command Edit: Clear All Nodes.

Background Polling Configuration

Background polling is the action of verifying the status of devices in the network on a regular basis. It is enabled by default. To configure background polling for the status of network nodes, do the following:

Step	Action
1	Select the menu item **Tools: Background Polling**.
2	Select the **Enable Background Polling** option.
3	Enter the interval in seconds. Click on **OK**.
end	

5. Enter the interval in seconds. Click on **OK.**

Check for connectivity

To check a switch for connectivity (Ping), do the following:

Step	Action
1	Select a WaveSwitch system from the Control Center.
2	Click on the **Ping** tool. The result will be displayed in the status field.
end	

Network Map Configuration

The Network Map is a useful tool for creating a graphic display of your network topology. You can load a background bitmap, move the devices about, draw lines to show links, add images of other network resources, and add descriptive text.

The map view shows network elements as icons labelled with the network address below it. To run Network Map click the Map button in the Network Control Center toolbar.

Labelling Map Elements

The map view shows the network devices as faceplate icons labelled by IP addresses. Move the cursor over an image to reveal balloon tips. To modify the image labels, do the following:

Step	Action
1	Select a network device. Right-click to display the drop down menu.
2	Select **Set Label**. The Node Setting dialogue will appear.
3	Enter a new label for the image, and some text for balloon tips. Click on **OK**.
end	

Configure Background Bitmap

The background bitmap is an image such as an aerial photograph of a campus or a simple line drawing of an office building. It can be whatever sort of image will best suit your needs. To load a bitmap background, do the following:

Step	Action
1	Copy your bitmap to C:\Program Files\WaveView\bin\ .
2	In Network Map, select the **Edit:Background** menu item.
3	Select **Load**. The Load Background bitmap dialogue will appear.
4	Select the bitmap file and click on **Open**.
end	

To clear the bitmap background, do the following:

Step	Action
1	Select the **Edit:Background** menu item.
2	Select **Clear**. The background bitmap will disappear without requesting confirmation.
end	

Placement of Map Elements

To arrange images in your Network Map, do the following:

Step	Action
1	To move network devices, select the **Arrow** tool.
2	Click and drag the images of network devices to any location on your bitmap.
3	To link network devices, select the **Line** tool.
4	Click on a network device, hold the mouse button down and move over another network device. Release the mouse button. A blue line joins the two images.
5	To add other network resources, select the **View:Node Tools** menu item. The Node Tools bar will appear.
6	From the **Node Class** drop down menu select **Generic**. See the Note below.
7	Select a Generic Node. Click on the Network Map. The Node Setting dialogue will appear.
8	Enter an IP address, a label for the image, and some text for balloon tips. Click on **OK**. The new device will appear. **Note:** Follow Steps 1 to 4 to place it in your Network Map.
9	From the **Node Class** drop down menu select **Annotations**. Select the desired tool, click on the Network Map and proceed with annotating your diagram.
end	

Configuration Manager

You can use Configuration Manager to save files containing all your individual switch configurations. These files can be used to copy the same configuration to other switches or simply for network configuration backup.

Save a file

You can save a device configuration file for later analysis or to load onto another device.

To save a configuration to file, do the following:

Step	Action
1	In the Network Control Center, select a WaveSwitch system.
2	Click on **Tools:Configuration Manager** to run Configuration Manager.
3	Click on **Save**. The Saving Configuration dialogue will appear. **Note:** The Saving Configuration title bar will also display the IP address of the selected switch.
4	Enter a **read/write commmunity string**.
5	Click on **Start**.
6	When the Comment field displays *Saved Configuration*, click on **Close**.
end	

Note – The default name of the saved file is "Saved Configuration". You can modify this text by selecting and typing over it; use a maximum of 60 ASCII characters.

Load a configuration file

You can load a previously saved configuration file onto a network device. Configuration files are located in the WaveView\Database subdirectory.

To load a configuration file onto a device, do the following:

Step	Action
1	In the WaveView\database subdirectory, locate the saved Configuration file according to its switch IP address using Windows Explorer.
2	Right-click on the file an Rename the file to reflect the IP address of the target switch.
3	In the Network Control Center, select a WaveSwitch system.
4	Click on **Tools:Configuration Manager** to run Configuration Manager.
5	Click on **Apply**.
6	Enter a **read/write commmunity string**.
7	Click on **OK**.
end	

Telnet

Telnet requirements

The following requirements must be satisfied before a Telnet session is possible:

- switch must have an IP address
- network station must have an IP address
- switch and network station must be within the same IP subnet
- must be a physical connection between the switch and the network station
- the network station must have Telnet software installed

Telnet Start-up

To start a Telnet session with a network switch, do the following:

Step	Action
1	Click on **Start/Programs/** in the desktop task bar. From the WaveView application menu select **wvtelnet**.
2	Enter the switch **IP address** in the field provided in the WaveView Telnet window or click the dropdown menu to select one.
3	Enter the required Telnet password.
end	

To start a Telnet session from the Panel display do the following:

Step	Action
1	In the front panel display of a WaveSwitch system click on the **Console RS-232** port.
2	Click on **Yes** to confirm the Telnet session.
3	Enter the required Telnet password.
end	

Note – Enter **Help** on the command line for a list of available Telnet commands.

Telnet log

To save a Telnet session log, do the following:

Step	Action
1	Select the **File\Capture** menu item. The file `emultv.log` is saved to the ..\WaveView\bin directory.
end	

To cancel a Telnet session log, do the following:

Step	Action
1	Select the **File\Capture** menu item again to turn off the Capture function.
end	

Copy and paste text

To copy and paste a portion of a Telnet session, do the following:

Step	Action
1	Run your system text or word processor.
2	Click and drag the mouse to draw a **marquis** around the desired text in the Telnet window.
3	Select the **Edit\Copy** menu item (<Ctrl>+C). The text enclosed in the marquis is copied to the system clipboard.
4	Select the **Edit\Paste** menu item (<Ctrl>+V). The clipboard is pasted into the text or word processor of your choice.
end	

Event Manager

Event Manager runs in the background whenever you start WaveView. It collects a table of alarms and traps.

The tasks of collecting, pruning, and handling of traps is done by the Event Manager. For information on displaying the Event Manager database see "View Event View" on page 69.

To set thresholds for Event Manager see "Configure Alarms" on page 64.

Event Manager’s operation is run separately from the other WaveView controls. It is launched in your system taskbar. When you close WaveView, Event Manager remains active until you close it explicitly.

Address Book Configuration

The Address Book displays a list of physical and network addresses that have been discovered through background polling of the network.

As physical or MAC addresses are found, they are added to the database in tandem with their corresponding network or TCP/IP addresses. In order to save on system resources, background polling of the network in search of addresses is performed on a timed basis.

Configuring time delay

To configure the Address Book update time delay, do the following:

Step	Action
1	In the Address Book window, select the **Configure** button.
2	Check the **Run updates every xxx seconds** option box.
3	Enter a value for the number of seconds required between database updates. The default is 1800, or 30 minutes.
4	Click on **Apply**.
end	

Disable Address Book update

To disable the Address Book update, do the following:

Step	Action
1	In the Address Book window, select the **Configure** button.
2	Remove the check from the **Run updates every xxx seconds** option box.
3	Click on **Apply**.
end	

Updating entries

To update the Address Book database from the fileserver, do the following:

Step	Action
1	In the Address Book window, select the **Configure** button.
2	Click on the **Update database from Novell File Server** button.
3	Click on **Apply**.
end	

To update the Address Book database from the ARP cache, do the following:

Step	Action
1	In the Address Book window, select the **Configure** button.
2	Click on the **Update database now** button.
3	Click on **Apply**.
end	

To stop the Address Book database from updating do the following:

Step	Action
1	In the Address Book window, select the **Configure** button.
2	Click on the **Cancel update in progress** button.
end	

Finding entries

To find an entry in the Address Book database, do the following:

Step	Action
1	Click in the **text box** in the Address Book toolbar to obtain a cursor.
2	Type all or a portion of an address you wish to find. Press **Enter**.
end	

Note – To locate a name, the entire name must be entered.

Deleting entries

To delete an entry from the Address Book database, do the following:

Step	Action
1	Select the **address** or group of address you want to remove from the database.
2	Click on the **Delete** button.
end	

To clear the Address Book database do the following:

Step	Action
1	Click on the **Clear** button.
end	

WaveSwitch Configuration using WaveView

WaveView can be configured to suit all your switch management needs.

This chapter contains the following sections on WaveView configuration:

Configuring WaveSwitch Device Details

Ping a WaveSwitch system

To check a switch for connectivity, do the following:

Step	Action
1	Select a WaveSwitch system in the Control Center and open a Device Details window. See "Viewing WaveSwitch Device Details" on page 74.
2	Under the **Connections** tab click on **Ping**. The results are displayed in the text field provided.
end	

Note – You can configure the number of retries and the time-out period by entering a value in their respective fields. The default number of retries is 2 and the time-out period is 5 seconds.

Test Read/Write Communities

To test the Read and Write community strings, do the following:

Step	Action
1	Select a WaveSwitch system in the Control Center and open a Device Details window. See "Viewing WaveSwitch Device Details" on page 74.
2	Under the **Access** tab enter text in the Read and Write fields. Click on **Test**. The results are displayed in the text field provided.
end	

General information configuration

To enter general information, do the following:

Step	Action
1	Select a WaveSwitch system and open a Device Details window. See "Viewing WaveSwitch Device Details" on page 74.
2	Under the **General** tab enter text in the Name, Location and Contact fields.
3	Click on **Apply**.
end	

Configuring Port Details

Change port state

To change the operational state of the port, do the following:

Step	Action
1	Select a WaveSwitch system and open a Panel view. See "View a WaveSwitch Panel in real time" on page 73.
2	Double-click on a **port** or one of its LEDs.
3	Under the General tab select a port **operational state** from the dropdown menu. The options include: up, down, testing.
4	Click on **Apply**.
end	

General port information configuration

To enter general information, do the following:

Step	Action
1	Select a WaveSwitch system and open a Panel view. See "View a WaveSwitch Panel in real time" on page 73.
2	Double-click on a **port** or one of its LEDs.
3	Under the **Additional** tab enter text in the Name field.
4	Click on **Apply**.
end	

Port Duplex configuration

To modify the port duplex configuration, do the following:

Step	Action
1	Select a WaveSwitch system and open a Panel view. See "View a WaveSwitch Panel in real time" on page 73.
2	Double-click on a **port** or one of its LEDs.
3	Under the **Additional** tab select one of the following from the Duplex dropdown menu: autoNegotiate **halfDuplex-10Mbps** **fullDuplex-10Mbps** **halfDuplex-100Mbps** **fullDuplex-100Mbps**
4	Click on **Apply**.
end	

Configure Router Accelerator

Router Acceleration is only available on WaveSwitch 9200 and WaveSwitch 9202 systems.

Enable Router Acceleration

To enable Router Acceleration, do the following:

Step	Action
1	Obtain the Front Panel view of a WaveSwitch system. Click on the **RA** icon in the taskbar.
2	In the Router Acceleration - Configuration dialogue, check the **Enable** option box. Click **Apply**.
end	

Configure Router Discovery

To configure Router Discovery, do the following:

Step	Action
1	In the Router Acceleration - Configuration dialogue, click the dropdown menu to select a Router Discovery option. Options include: disabled, passive, active.
2	Click **Apply**.
end	

Configure ports for Router Acceleration

To configure switch ports for Router Acceleration, do the following:

Step	Action
1	Ensure RA is enabled. In the Router Acceleration - Configuration dialogue, click the **Port Configuration** button.The RA - Port Configuration dialogue will appear.
2	Check the **Enable** option box for each port to be configured.
3	Click **OK**.
end	

Configure Router Tables

Assign Routers to the list of Static routers

To transfer Routers from the list of automatically learned routers, do the following:

Step	Action
1	From the Router Acceleration - Configuration dialogue, click on the **Router Tables** button.
2	Select from the list of Learned routers.
3	Click the **>>** button to move the selected routers to the Static routers list. **Option:** Enable or disable Acceleration using the option box provided.
4	Click **OK**.
5	Click **Close**.
end	

Create a Router entry

To create router entries in the Router Tables, do the following:

Step	Action
1	From the Router Acceleration - Configuration dialogue, click on the **Router Tables** button.
2	Click the **Create** button. (Ensure you have Read/Write privileges.)
3	In the RA - Master Create dialogue enter the known IP address of a Router. **Option:** Enable or disable Acceleration using the option box provided.
4	Click **OK**.
5	Click **Close**.
end	

Delete Routers

To delete routers from the Router Tables, do the following:

Step	Action
1	From the Router Acceleration - Configuration dialogue, click on the **Router Tables** button.
2	Select from the lists of routers.
3	Click the **Delete** button to remove the selected routers and click **Yes**.
4	Click **Close**.
end	

Configure SmartARP

Intelligent Broadcast Forwarding Configuration

Intelligent broadcast forwarding includes the SmartARP and SmartSAP features.

To configure SmartARP, do the following::

Step	Action
1	From the Panel view of a WaveSwitch system click the **NextWave** button in the toolbar. The NextWave Switching Summary dialogue window will appear.
2	Under the Intelligent Broadcast Forwarding heading click in the **Enable SmartARP** check box.
3	Continue with NextWave Switching configuration or click **Commit**. Enter the correct **community string** if requested.
end	

Configure Channel Cast

The ChannelCast feature uses IGMP (Internet Group Management Protocol) to confine IP multicast conversation traffic to switch ports of the participants, rather than all switch ports.

To configure the ChannelCast feature, do the following:

Step	Action
1	From the Panel view of a WaveSwitch system click the **NextWave** button in the toolbar. The NextWave Switching Summary dialogue window will appear.
2	Under the ChannelCast heading click on **ChannelCast groups...**. The ChannelCast Members configuration window will appear and automatically load data from the switch into the Dynamic window. These data include group address and port number.
3	Select addresses from the Dynamic window and transfer them to the Static window with the **>>** button. Note: If you do not see an address you wish to add you can create it using the **Create** button. Fill in the required group IP and port number and click **OK**.
4	Click on **Close**.
5	Under the ChannelCast heading click in the **Enable Channel-Cast** check box.
6	Determine the **Group Aging** time using the up and down scrolling buttons. The default is 300 seconds.
7	Continue with NextWave Switching configuration or click **Commit**. Enter the correct **community string** if requested.
end	

Configure Flood Control

This feature allows the system to detect broadcast/multicast/unknown unicast storms and prevent forwarding of these packets from a storming segment for the duration of the storm. The result is that broadcast/multicast/unknown unicast storms can be limited with little or no management action.

To configure the Flood Control feature, do the following:

Step	Action
1	From the Panel view of a WaveSwitch system click the **NextWave** button in the toolbar. The NextWave Switching Summary dialogue window will appear.
2	Under the Flood Control heading click on **Throttling tables...**. The Broadcast/Multicast Throttling Table configuration window will appear and automatically load data from the switch into the Broadcast Forwarding Rates (Maximum) window and the Multicast Forwarding Rates (Maximum) window. These data include port number and frames per second.
3	Select a port number from either window and click in the frames per second cell next to it. Type in the maximum number of frames per second you wish to allow. The default number is 350 broadcast frames and 1000 multicast frames.
4	Click on **Commit**. Enter the correct **community string** if requested.
5	Under the Flood Control heading click in the **Enable Broadcast Throttling**, **Enable Multicast Throttling** and **Enable Unknown Unicast Throttling** check boxes as required.
6	Determine the **Unknown Unicast Flood** time using the up and down scrolling buttons. The default is 30 seconds.
7	Continue with NextWave Switching configuration or click **Commit**. Enter the correct **community string** if requested.
end	

Configure VLANs

WaveView Switch Manager VLAN Browser is a Virtual LAN configuration and management interface.

The VLAN Browser interface configures VLANs one switch at a time. You can run it from Control Center or from a WaveSwitch system front panel.

Protocol Group Configuration

To configure Protocol Groups, do the following:

Step	Action
1	Click on the **+** beside Protocols in the VLAN Browser directory. The PGN sub-directory will appear.
2	Select a PGN. (Protocol Group Number) Unspecified = PGN0 User Group 1 = PGN1 User Group 2 = PGN2 IP/ARP = PGN3 The network protocols belonging to the respective group are displayed in the right of the interface.
3	Select desired protocols intended for moving and click the required button under **Set selections to:**
4	Continue with VLAN configuration as required.
end	

VLAN Group Configuration

To create VLAN groups, do the following:

Step	Action
1	Select **VLANs** from the VLAN Browser directory.
2	Click on the **Create** button. The Create VLAN dialogue will appear.
3	Enter the name of the VLAN group to be created.
4	Select the required **Protocol Group**.
5	Enter a value for the VLAN ID number. The default is to increment by one for each new VLAN group.
6	Click on **OK**. Continue with VLAN configuration as required.
end	

Add VLAN Members

Add Port Members

To add port members to VLAN groups, do the following:

Step	Action
1	Select **Ports** from the VLAN Browser directory. A chart of switch ports and Protocol Groups will appear.
2	Select a **cell** corresponding to the desired port and Protocol Group. A dropdown menu will appear listing the available VLAN groups.
3	Select the desired **VLAN group**.
end	

Add Explicit Members

There are two methods for adding Explicit members to a VLAN.

To add explicit, or MAC address, members to VLAN groups, do the following:

Step	Action
1	Select **VLANs** from the VLAN Browser directory.
2	From the list of VLAN Groups, select one.
3	Click on the **Add** button. The Enter MAC Address dialogue will appear. Enter the desired **MAC address**.
end	

OR

Step	Action
1	Select **Explicit Addresses** from the VLAN Browser directory.
2	Click on the **Add** button. The Enter MAC Address dialogue will appear. Enter the desired **MAC address**.
3	For each member, click in a cell to select a VLAN from the dropdown menu. **Note:** Leave the cell blank to allow all protocols.
end	

Removing members from VLANs

Remove port members

To remove port members from a VLAN, do the following:

Step	Action
1	In the VLAN Directory select the **Ports** menu then click on the desired port.
2	From the list box , select the **blank cell**.
end	

Remove explicit members

To remove explicit members from a VLAN, do the following:

Step	Action
1	In the VLAN Directory select the **Explicit Addresses** menu then click on the desired **address**.
2	From the list box , select the **blank cell**.
end	

Remove a VLAN

To remove a VLAN, do the following:

Step	Action
1	Select a VLAN from the list in VLAN Directory.
2	Click on **Delete**. Click on **OK** to confirm.
end	

Configure Port Tagging

To configure Port Tagging, do the following:

Step	Action
1	Select **Port Taggings** from the VLAN Browser directory.
2	Use the dropdown menu to set a port to **tag**, **untag** or **automatically tag** frames on each port.
end	

Create and Remove Inclusion VLANs

To create Inclusion VLANs, do the following:

Step	Action
1	Select the **VLANs** directory.
2	Select the **parent VLAN** and click the **Includes** button.
3	Edit the VLANs checkbox as required. Click on **OK**.
end	

OR

Step	Action
1	Select the **VLANs** directory.
2	Select the **child VLAN** and click the **Included by** button.
3	Edit the VLANs checkbox as required. Click on **OK**.
end	

Note – Inclusion VLANs are valid only for WaveSwitch 9200 and WaveSwitch 9202 systems.

Commit VLAN file to the WaveSwitch system

To commit a VLAN file, do the following:

Step	Action
1	Complete all network VLAN requirements.
2	Click on the **Commit** button.
end	

Configure SmartVIPS

Configure VIPS Port Discovery

To configure VIPS port discovery, do the following::

Step	Action
1	Select the **VLANs** directory.
2	Click on the **VIPS Port Discovery** button.
3	Click the **Freeze** button to save port members in the database.
end	

Note – Selecting Freeze will automatically disable SmartVIPS. Check the Enable SmartVIPS box in the VLAN menu if desired.

Configure SmartSAP

To configure the SmartSAP feature, do the following:

Step	Action
1	From the Panel view of a WaveSwitch system click the **NextWave** button in the toolbar. The NextWave Switching Summary dialogue window will appear.
2	Under the Intelligent Broadcast Forwarding heading click on **SAP Forwarding...**. The SAP Forwarding configuration window will appear and automatically load data from the switch. These data include port numbers, forwarding configuration and status.
3	Select a port number and double-click in the **Configuration** cell next to it. A drop-down menu will appear.
4	Select **auto** (default) or **permanent**. Continue as required until all necessary ports have been configured.
5	Click on **Commit**. Enter the correct **community string** if requested.
6	Under the Intelligent Broadcast Forwarding heading click in the **Enable SmartSAP** check box. Continue with NextWave Switching configuration or click **Commit**. Enter the correct **community string** if requested.
end	

Configure Trunk Groups

Trunk Groups permit the grouping of two or more full-duplex high-speed ports to behave as a single, super high-speed link. This provides increased bandwidth and dynamic load sharing for such traffic-intensive applications as high-speed backbones, inter-switch links and server connections. The entire Trunk Group is considered a single link by the system; it is considered a single path by the 802.1D Spanning Tree Protocol and no communication is permitted between the ports of a Trunk Group. Every member of the Trunk Group carries an equal share of the unicast traffic load.

Trunk Groups provide higher capacity and faster failure recovery than standard STP redundancy configurations.

To configure the Trunk Group feature, do the following:

Step	Action
1	From the Panel view of a WaveSwitch system click the **NextWave** button in the toolbar. The NextWave Switching Summary dialogue window will appear.
2	At the bottom of the interface click on **Trunk Groups...**. The Trunk Groups configuration window will appear and automatically load data from the switch into the Trunk Groups and Port Memberships windows.
3	In the Trunk Groups window, enable the desired Trunk Groups.
4	In the Port Memberships window, assign a Trunk Group.
5	Continue with NextWave Switching configuration or click **Commit**. Enter the correct **community string** if requested.
end	

Configure Protocol Interdiction

To configure Protocol Interdiction, do the following:

Step	Action
1	Select **Protocol Interdictions** from the VLAN Browser directory.
2	To allow a protocol group, **check** the option box. To block a protocol group, **remove the check** from the option box.
end	

Note – Protocol Groups 1 and 2 must have protocols assigned to them before setting User Groups 1 and 2, respectively, to Forward or Drop Frames.

Configure Spanning Tree

To enable Spanning Tree, do the following:

Step	Action
1	Select a WaveSwitch system and open a Device Details window. See "Configuring WaveSwitch Device Details" on page 30.
2	Under the **Additional** tab select **Enable** from the Spanning Tree dropdown menu.
3	Click on **Apply**.
end	

To disable Spanning Tree, do the following:

Step	Action
1	Select a WaveSwitch system and open a Device Details window. See "Configuring WaveSwitch Device Details" on page 30.
2	Under the **Additional** tab select **Disable** from the Spanning Tree dropdown menu.
3	Click on **Apply**.
end	

Note – This procedure enables and disables Spanning Tree for the entire system. You can enable and disable Spanning Tree on a per-port basis using the *portBpeEnable.n* MIB object, where *n* = port number.

Configure Age Filter Database

To enable the Age Filter database, do the following:

Step	Action
1	Select a WaveSwitch system and open a Device Details window. See "Configuring WaveSwitch Device Details" on page 30.
2	Under the **Additional** tab select **Enable** from the Age Filter database dropdown menu.
3	Click on **Apply**.
end	

To disable the Age Filter database, do the following:

Step	Action
1	Select a WaveSwitch system and open a Device Details window. See "Configuring WaveSwitch Device Details" on page 30.
2	Under the **Additional** tab select **Disable** from the Age Filter database dropdown menu.
3	Click on **Apply**.
end	

Configure MIB Browser

Find a MIB object

To find a MIB object, use the following suggestions::

Step	Action
1	Click on the **MIB** icon in the Network Control Center toolbar.
2	Select a file tab corresponding to the desired MIB.
3	Click on the **+** and **-** controls in the MIB directory.
end	

Set a MIB object

To set a MIB object, do the following::

Step	Action
1	Click on the **MIB** icon in the Network Control Center toolbar.
2	Find the desired MIB object. See above procedure. If this MIB object can be set the Set button will be activated.
3	Enter a value in the appropriate text field. Click on **Set**.
end	

Walk the MIB

To walk the MIB, do the following:

Step	Action
1	Click on the **MIB** icon in the Network Control Center toolbar.
2	Select a MIB object
3	Click on **Walk**. The MIB Walk dialogue will appears.
4	Determine the number of repetitions. The default is 1.
4	Select the **Log to File** option. WaveView will create a.txt file which will be saved to the WaveView \bin directory. Use the "**...**" button to browse for a previously saved file.
5	Click on **Start**.
end	

Add third party MIB files to WaveView

To add new MIB files to WaveView, do the following:

Step	Action
1	Ensure WaveView is not running. (This includes MIB Browser.)
2	Open a **DOS** window or **Explorer**.
3	If you are running Windows NT 4.x, erase this file from the WaveView directory: **\lib\tnm2.1.7\intel-WindowsNT-4.0** If you are running Windows 95, erase this file from the WaveView directory: **\lib\tnm2.1.7\intel-Windows95**
4	Copy the desired MIB files to this WaveView directory: **\lib\tnm2.1.7\mibs**
5	Open this file in the WaveView directory using a text editor: **\rc\MibBrowser.rc**
6	Add the following to the end of the file: **lappend tnm(mibs) user_mib_file1** where *user_mib_file* is the name of the private MIB file.
7	Repeat as necessary for each new MIB file.
8	**Save** the file and **exit**.
9	Restart WaveView.
end	

Upgrade or change existing MIB files

To upgrade or change an existing MIB file in WaveView, do the following:

Step	Action
1	Ensure WaveView is not running. (This includes MIB Browser.)
2	Open a **DOS** window or **Explorer**.
3	If you are running Windows NT 4.x, erase this file from the WaveView directory: **\lib\tnm2.1.7\intel-WindowsNT-4.0** If you are running Windows 95, erase this file from the WaveView directory: **\lib\tnm2.1.7\intel-Windows95**
4	Copy the desired MIB files to this WaveView directory: **\lib\tnm2.1.7\mibs**
5	**Save** the file and **exit**.
6	Restart WaveView.
end	

Add new file tabs to the MIB Browser interface

To add file tabs to the MIB Browser interface, do the following:

Step	Action
1	Ensure WaveView is not running. (This includes MIB Browser.)
2	Open this file in the WaveView directory using a text editor: **\rc\MibBrowser.rc**
3	Add the following to the end of the file: **lappend DisplayRoots node_name1** where *node_name1* is the name of the private MIB file.
4	Repeat as necessary for each new MIB file.
5	**Save** the file and **exit**.
6	Restart WaveView.
end	

Configure IP Database

To configure the IP Database, do the following:

Step	Action
1	From the Panel view of a WaveSwitch system click the **NextWave** button in the toolbar. The NextWave Switching Summary dialogue window will appear.
2	Under the Intelligent Broadcast Forwarding heading click on **IP Database...**. The IP Database configuration window will appear and automatically load data from the switch into the Learned window. These data include IP address, MAC address and port number.
3	Select addresses from the Learned window and transfer them to the Static window with the **>>** button. **Note:** If you do not see an address you wish to add you can create it using the **Create** button. Fill in the required IP and MAC addresses and click **OK**.
4	Click on **Close**.
end	

Configure WaveView to display switch information

WaveView can be configured to suit all your switch management needs.

This chapter contains the following sections on WaveView configuration:

Configure Switch TopN

Configure database size

To determine the size of the database, do the following:

Step	Action
1	From a WaveSwitch Panel View, click on the **SwTopN** icon.
2	Define the number of entries in the text box provided in the toolbar.
end	

Configure polling frequency

To determine the frequency at which data is retrieved, do the following:

Step	Action
1	From a WaveSwitch Panel View, click on the **SwTopN** icon.
2	Define the number of seconds between polling intervals in the text box provided in the toolbar.
end	

Configure Host TopN

To configure Host TopN, do the following:

Step	Action
1	In a WaveSwitch **Panel** view, right-click over a port to display the RMON menu. Select **Host TopN**.
2	Enter the number of entries in the **Size:** field.
3	Select the **Poll** check box.
4	Enter the polling interval in seconds.
end	

Configure Host Matrix

To configure Host Matrix, do the following:

Step	Action
1	In a WaveSwitch **Panel** view, right-click over a port to display the RMON menu. Select **Host Matrix**.
2	Click on the **Packets**, **Octets** or **Errors** button to display the relevant data.
3	Enter the number of entries in the **Size:** field.
4	Select the **Poll** check box.
5	Enter the polling interval in seconds.
6	Continue with RMON functions as required.
end	

Configure Host Statistics

To configure Host Statistics, do the following:

Step	Action
1	In a WaveSwitch **Panel** view, right-click over a port to display the RMON menu. Select **Host Statistics**.
2	Enter the polling interval in the text box provided on the tool-bar.
end	

Configure Packet Capture

To configure Packet Capture, do the following:

Step	Action
1	In a WaveSwitch **Panel** view, right-click over a port to display the RMON menu. Select **Packet Capture**.
2	Click the **Configure** button. The Packet Capture setting dialogue will appear.
3	Under Source Address select the **Any Address** radio button.
4	Under Destination Address select the **Any Address**, **Broadcast Address** or **Multicast Address** radio button.
5	Select a type of packet.
6	Enter the total number of packets stored in the local buffer -. any Integer up to 10 digits.
7	Click on **OK**.
end	

Note – Packet Capture of only IPX frames for any source address to any destination address will only capture Ethernet_II frames. It will not capture Ethernet_802.2, Ethernet_802.33, or Ethernet_SNAP frames. These frame types can be captured if there is no filtering restriction applied.

Configure Static Database

Update the database

To update the Static database, do the following:

Step	Action
1	Click on the **Refresh** button.
end	

Adding entries

To add switch ports to the Static Database, do the following:

Step	Action
1	Click on the **Add** button.
2	In the Create window enter the **MAC address** of the port. **Option:** Click on **Browse** to open the Address Book and select a port MAC address.
3	Determine the Receiving port by selecting from the **Receiving port** dropdown menu.
4	Determine the Status by selecting from the **Status** dropdown menu.
5	Click on **OK**.
end	

Deleting entries

To delete switch ports from the Static Database, do the following:

Step	Action
1	Select an entry in any field of the Static Database dialogue.
2	Click on the **Delete** button.
3	Click on **OK** to confirm.
end	

Editing entries

To edit an entry in the Static Database, do the following:

Step	Action
1	Select an entry from the Static database.
2	Click on the **Edit** button.
3	In the Edit window enter the **MAC address** of the port. **Option:** Click on **Browse** to open the Address Book and select a port MAC address.
4	Determine the Receiving port by selecting from the **Receiving port** dropdown menu.
5	Determine the Status by selecting from the **Status** dropdown menu.
6	Click on **OK**.
end	

Configure Event View

Clear Events

To clear an event from the database, do the following:

Step	Action
1	Select an event.
2	Click on **Edit:Delete Selected**.
end	

To clear more than one event from the database, do the following:

Step	Action
1	Hold down the <**Ctrl**> key and select all events to be cleared.
2	Click on **Edit:Delete Selected**.
end	

Hold down the <**Ctrl**> key and select all events to be cleared. Click on **Edit:Delete Selected**.To clear the entire Event Manager database, do the following:

Step	Action
2	Click on **Edit:Delete Entire Database**.
end	

Configure Alarms

To define or add Alarm Settings to the Alarms manager, do the following:

Step	Action
1	In a WaveSwitch **Panel** view, right-click over a port to display the RMON menu. Select **Alarms**.
2	Click on the **Add** button.
3	Click on the **Browse** button. The MIB Variable List will appear. Scroll to find the desired MIB Variable and select it.
4	Click on **OK**.
5	Set the thresholds to the desired values. Click on **OK**.
6	Repeat Steps 2 through 5 as necessary.
end	

View network information using WaveView

This section describes procedures for viewing network information using WaveView. It includes the following:

View the Control Centre

After you have created a network list with Automatic Discovery, the Control Centre window appears when you start up WaveView.

Network devices are listed in numerical order of IP address. Other node information includes Name, Description. Object ID, and Status.

To configure the Control Center see "Network Control Center Configuration" on page 16.

View Network Map

The Network Map is a useful tool for creating a graphic display of your network topology. You can load a background bitmap, move the devices about, draw lines to show links, add images of other network resources, and add descriptive text.

The map view shows network elements as icons labelled with the network address below it. To run Network Map click the Map button in the Control Center toolbar.

To configure the Network Map see "Network Map Configuration" on page 18.

Viewing Address Book

The Address Book displays a list of physical and network addresses that have been discovered through background polling of the network.

As physical or MAC addresses are found, they are added to the database in tandem with their corresponding network or TCP/IP addresses.

To open the Address Book, do the following:

Step	Action
1	Click on the **Address Book** tool in the Control Centre window.
end	

To re-sort the Address Book, do the following:

Step	Action
1	Click on the desired **heading** text.
end	

View Event View

To view Event Display, do the following:

Step	Action
1	Click on the **Event Display** icon in the Network Control Center.
end	

View WaveSwitch information using WaveView

This section describes procedures for viewing WaveSwitch information using WaveView. It includes the following:

View Configuration manager

To view Configuration Manager, do the following:

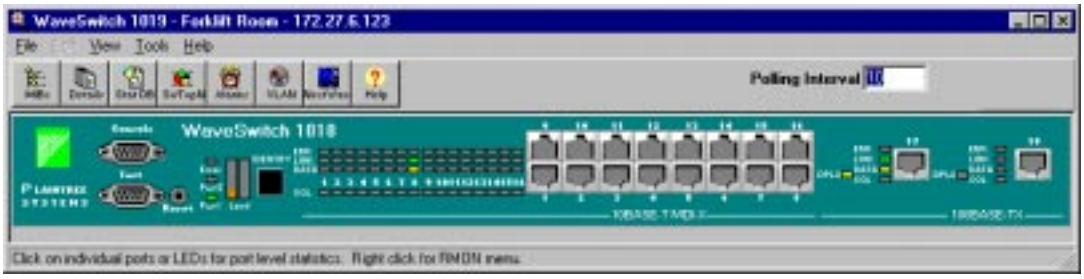
Step	Action
1	In Control Center, click on **Tools:Configuration Manager**.
end	

See also "Configuration Manager" on page 20.

View a WaveSwitch Panel in real time

The Panel feature is a real-time display of a WaveSwitch system in your network. Tool icons allow you quick access to other WaveView functions. Graphic displays of RMON functions are quickly revealed by a right-click over a port.

Figure 2 WaveView front panel view featuring a WaveSwitch 1018 system



To open a front panel view of a WaveSwitch system, do the following:

Step	Action
1	Select a WaveSwitch system in the Control Center.
2	Click on the **Panel** tool icon.
end	

Viewing WaveSwitch Device Details

The Device Details feature is a one-stop interface for switch statistics.

See also "Configuring WaveSwitch Device Details" on page 30.

View WaveSwitch Device Details

To open a Device Details window from the Control Center, do the following:

Step	Action
1	Select a WaveSwitch system in the Control Center.
2	Click on the **Details** tool icon.
end	

See also Configuring WaveSwitch Device Details

To open a Device Details window from the Panel view, do the following:

Step	Action
1	Click on the **Details** tool icon.
end	

View WaveSwitch Port Details

To open a Port Details window, do the following::

Step	Action
1	Obtain a **Panel** view of a WaveSwitch system.
2	Double-click on a **port** or any of its **LEDs**.
end	

View RMON Features

To view RMON features, do the following:

Step	Action
1	Obtain a **Panel** view of a WaveSwitch system.
2	Right-click over the WaveSwitch image and select an RMON function from the dropdown menu.
end	

Note – RMON features are available only to switches which support these features.

View Host TopN

The Host TopN window displays a list of the conversations on the network similar to the RMON Matrix and TopN Statistics tools.

To view Host TopN, do the following:

Step	Action
1	In a WaveSwitch **Panel** view, right-click over a port to display the RMON menu. Select **Host TopN**.
end	

See also "Configure Host TopN" on page 57.

View Host Matrix

The Host Matrix displays a list of the conversations on the network that are generating the most traffic.

To view Host Matrix, do the following:

Step	Action
1	In a WaveSwitch **Panel** view, right-click over a port to display the RMON menu. Select **Host Matrix**.
end	

See also "Configure Host Matrix" on page 58.

View Packet Capture

The Packet Capture feature allows you define filters for the packets being captured and displays them.

To view Packet Capture, do the following:

Step	Action
1	In a WaveSwitch **Panel** view, right-click over a port to display the RMON menu. Select **Packet Capture**.
end	

Note – Packet Capture of only IPX frames for any source address to any destination address will only capture Ethernet_II frames. It will not capture Ethernet_802.2, Ethernet_802.33, or Ethernet_SNAP frames. These frame types can be captured if there is no filtering restriction applied.

See also "Configure Packet Capture" on page 60.

View Static Database

The Static Database feature displays a table of network data on a selected switch or port.

To view the Static Database, do the following:

Step	Action
1	Select a WaveSwitch system and open a **Panel** view. See "View a WaveSwitch Panel in real time" on page 73.
2	Click on the **Stat DB** button.
end	

The Static Database displays a list of physical and network addresses that have been discovered through background polling of the network.

As physical addresses are found, they (and their corresponding network address) are added to the database. A default name is created which the user can change to whatever they wish.

The same destination address can appear in multiple table entries with different receive port numbers.

When a destination address is entered into the static filter database, all frames containing that destination address are filtered using the information from entries in the database. Dynamic filtering is not done on those frames.

See "Configure Static Database" on page 61.

View Alarms

WaveView creates two event entries in the RMON event table - one for the rising and one for the falling. They trigger a trap and record a log entry. To view these events click the Event Manager button in your system Taskbar.

To view Alarms manager, do the following:

Step	Action
1	In a WaveSwitch **Panel** view, right-click over a port to display the RMON menu. Select **Alarms**.
end	

See also "Configure Alarms" on page 64.

View Switch TopN

The Switch Top N feature helps the network manager measure the traffic on a selected switch or port.

To view Switch Top N, do the following:

Step	Action
1	In the Control Center or a WaveSwitch system **Panel** view, click the **SwTopN** button.
end	

See also "Configure Switch TopN" on page 56.

View Router Accelerator

View Router Accelerator configuration

To view Router Accelerator configuration, do the following:

Step	Action
1	From a WaveSwitch 9200 panel view, click the **RA** tool. The Router Acceleration - Configuration dialogue will appear.
end	

Note – Router Acceleration is only available on WaveSwitch 9200 and WaveSwitch 9202 systems.

See also "Configure Router Accelerator" on page 33.

View Router Tables

To view Router Tables, do the following:

Step	Action
1	From the Router Acceleration - Configuration dialogue, click on the **Router Tables** button. The RA - Master Routers for Switch dialogue will appear.
end	

See also "Configure Router Tables" on page 34.

View MIB Browser

To view MIB Browser, do the following::

Step	Action
1	Select a WaveSwitch system from the Control Center or open a switch Panel view.
2	Click on the **MIB Browser** button.
3	Verify the target IP address to ensure you have the MIB tables for the correct switch.
4	Proceed with MIB Browser configuration.
end	

See also "Configure MIB Browser" on page 51.

View NextWave Switching Summary

To view the NextWave Switching summary on a WaveSwitch system, do the following:

Step	Action
1	From a WaveSwitch panel view, click on the **NextWave** tool.
end	

The following is a list of features included in NextWave Switching. See your *WaveSwitch User Manual* for more information on the switching features available on your WaveSwitch system.

- SmartARP
- SmartSAP
- SmartVIPS
- ChannelCast
- FloodControl
- Trunk Groups

View SmartARP information

To view the Enable status of SmartARP, do the following:

Step	Action
1	In Network Control Center, select a WaveSwitch system.
2	Click on the **NextWave Switching** icon.
end	

To view IP Database information, do the following:

Step	Action
1	In Network Control Center, select a WaveSwitch system.
2	Click on the **NextWave Switching** icon.
3	In the NextWave Switching dialogue, click on the **IP Database** button next under Intelligent Broadcast Forwarding.
end	

View ChannelCast information

To view ChannelCast information, do the following:

Step	Action
1	In Control Center, select a WaveSwitch system.
2	Click on the **NextWave Switching** icon.
3	Click on the **ChannelCast Groups** button under ChannelCast
end	

View FloodControl information

To view FloodControl information, do the following:

Step	Action
1	In Control Center, select a WaveSwitch system.
2	Click on the **NextWave Switching** icon.
3	Click on the **Throttling Tables** button under Flood Control.
end	

View VLANs

View Protocol Groups

To view Protocol Groups, do the following:

Step	Action
1	In VLAN Manager, select the **Protocol Groups** directory to drop the list of Protocol Groups.
2	Select one of the Protocol Groups from the list. The network protocols belonging to the respective group are displayed.
end	

See also "Protocol Group Configuration" on page 39.

View VLAN groups

To view the list of VLANs, do the following:

Step	Action
1	In VLAN Manager, select the **VLANs** directory to drop the list of VLAN groups.
end	

See also "VLAN Group Configuration" on page 40.

View VLAN group members

To view the members of a VLAN, do the following:

Step	Action
1	In VLAN Manager, select the **VLANs** directory to drop the list of VLAN groups.
2	Select a VLAN group name in the list window. All the port and explicit members belonging to the selected VLAN will appear highlighted in the Port Members and Explicit Members areas.
end	

View SmartSAP information

To view SmartSAP information. do the following:

Step	Action
1	In Network Control Center, select a WaveSwitch system.
2	Click on the **NextWave Switching** icon.
3	Click on **SAP Forwarding** button under Intelligent Boradcast Forwarding.
end	

See also "Configure SmartSAP" on page 46.

View Trunk Groups information

To view Trunk Groups information, do the following::

Step	Action
1	In Control Center, select a WaveSwitch system.
2	Click on the **NextWave Switching** icon.
3	Click on the **Trunk Groups** button under Trunking.
end	

See also "Configure Trunk Groups" on page 47.

View Protocol Interdiction information

To view Protocol Interdiction information, do the following:

Step	Action
1	From a Panel view of a WaveSwitch system, click on the **VLANs** icon.
2	In the VLAN Manager window select **Protocol Interdictions**.
end	

Note – Review Protocol Groups for their assigned PIDs.

See also "Configure Protocol Interdiction" on page 48.

View Spanning Tree information

To view Spanning Tree (STP) information, do the following:

Step	Action
1	In the Control Center, select a WaveSwitch system.
2	Click on the **Details** icon.
3	Click on the **Additional** tab. The information is displayed under Spanning Tree.
end	

See also "Configure Spanning Tree" on page 49.

View Filter Database Aging Status

To view Filter Database (FDB) information, do the following:

Step	Action
1	In the Control Center, select a WaveSwitch system.
2	Click on the **Details** icon.
3	Click on the **Additional** tab. The information is displayed under Age Filter Database.
end	

See also "Configure Age Filter Database" on page 50.

Troubleshooting

TCP/IP stack is not installed

A WINSOCK compliant TCP/IP Stack has not been found. You can check for the presence of TCP/IP in Windows 95 and Windows NT by running Control Panel and then selecting Network.

Note – WaveView works with the TCP/IP software that is bundled with Microsoft Windows 95 and Windows NT.

If TCP/IP has been installed but you are unable to communicate with the network, do the following:

Step	Action
1	Try loading another TCP/IP application such as Ping or Telnet. If you receive an error message or are unable to communicate, then you do not have a WINSOCK compliant TCP/IP stack installed on your PC.

2	Check to make sure that the TCP/IP software is configured correctly. Common mistakes include using the wrong subnet mask or the incorrect class of TCP/IP address.
	`[pctcp kernel]`
	`host-table = c:\pctcp\etc\hosts.txt`

3	Reboot the PC (for the changes to take effect).
4	Re-install your TCP/IP software. It is possible that some component has become corrupted or is missing from your hard disk.
end	

Local machine has no TCP/IP address

When you install the TCP/IP software, you must specify a TCP/IP address for your PC (i.e. the “local host address”).

To specify a local host address, load the TCP/IP Configuration application and complete the entry for “local address”. The nature of the application and the entry name varies depending on the TCP/IP vendor.

For FTP Software‘s TCP/IP stack, you may need to take extra steps:

Step	Action
1	Specify the host name (in the DNS Configuration section of the WCONFIG.EXE program) as their local address (e.g. 40.1.2.99). OR Specify a host name in the DNS Configuration section, and then create a host file (e.g. HOSTS.TXT) in the PCTCP/ETC directory using the following format: (IP Address, 7 spaces, Local Host Name, optional comment starting with ‘#’). For example: `40.1.2.99 Jsmith# This is me`

2	In the PC/TCP kernel section of the WCONFIG.EXE application, specify the path to the HOSTS file in the Host Table field. (e.g. C:\PCTCP\ETC\HOSTS.TXT).
	Alternatively, the entry in the PCTCP.INI file is:
	`[pctcp kernel]`
	`host-table = c:\pctcp\etc\hosts.txt`

3	Reboot the PC (for the changes to take effect).
end	

Find the IP address of the WaveView station

To discover the IP address of the network management station, do the following:

Step	Action
1	Obtain a DOS window. (Click **Start**, point to **Programs**, point to **MS DOS prompt**.)
2	Enter **winipcfg**. The IP Configuration dialogue will appear displaying the system’s IP address.
end	

Device does not respond

This means there was no SNMP response from the WaveSwitch when a query was made.

This can be caused by any of the following factors:

- The given network address is incorrect.
- The SNMP agent software in the WaveSwitch is not working.
- The given network address is not reachable.
- The device at the given network address is not a WaveSwitch.

Use the following suggestions to help resolve this issue:

Step	Action
1	Check the network address and try again
2	Verify that the SNMP agent in the WaveSwitch is functional. This can be done using the out-of-band network management software in the WaveSwitch. For more information, see the WaveSwitch User Manual.
3	Check with your network administrator to make sure the network address of the WaveSwitch can be accessed from your workstation.
4	Try to PING the WaveSwitch using the TCP/IP software installed on your PC. If you cannot PING the WaveSwitch, it will not be accessible from WaveView.
5	Make sure your TCP/IP software is properly configured with the correct TCP/IP address, subnet mask, and default gateway.
end	

Cannot run WaveView in SNMPc or ManageWise

Beginning with version 2.3, WaveView no longer supports the network management applications SNMPc™ and ManageWise™.

Note – WaveView continues to support HP OpenView™.

SET command fails

If you try to change the contents of a variable and it fails, make sure

- the value is valid for the specified variable
- the extension of the variable is correct. (Indexed variables need the port number as the extension; non-indexed variables use the extension.0)
- the community name is correct for the WaveSwitch

GET command fails

If WaveView fails to retrieve the contents of a variable, make sure

- the variable name is valid.
- the extension of the variable is correct. (Indexed variables need the port number as the extension; non-indexed variables use the extension.0)
- the community name is correct for the WaveSwitch

Glossary

ANSI	American National Standards Institute
BBS	Bulletin Board System
BD	Broadcast Domain
CD-ROM	Compact Disk - Read Only Memory
CPU	Central Processing Unit
EEPROM	Electrically Erasable Programmable Read Only Memory
CSMA/CD	Carrier Sense Multiple Access with Collision Detect
DHCP	Dynamic Host Configuration Protocol
EEPROM	Electrically Erasable Programmable Read Only Memory
EIA	Electronics Industry Association
ESD	Electrostatic discharge
EST	Eastern Standard Time
FDDI	Fibre-optic Data Distribution Interface
FCS	Frame check sequence
FTP	File Transfer Protocol
FPS	Frames per second
GUI	Graphical User Interface
HP	Hewlett-Packard
ICMP	Internet Control Message Protocol
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
IP	Internet Protocol
IPX	Internetwork Packet Exchange
LAN	Local area network
LED	Light emitting diode
MAC	Media Access Control
MDI	Medium-dependent interface
MIB	Management Information Base

Octet	Eight bits
Packet	Data
PC	Personal Computer
PGN	Protocol Group Number
PID	Protocol Identifier
RFC	Request for Comments
RIP	Routing Information Protocol
RMA	Return Material Authorization
RMON	Remote Monitoring
RX	Receive (port)
SNMP	Simple Network Management Protocol
STT	Selective Translation Table
STP	Spanning Tree Protocol
SYSMAN	System Manager
TAP	Traffic analyzer port
TCP	Transmission Control Protocol
TFTP	Trivial File Transfer Protocol
TX	Transmit (port)
UDP	Unnumbered Datagram Protocol
UPS	Uninterruptable Power Supply
UTP	Unshielded twisted pair
VID	VLAN Identifier
VIPS	Virtual Internet Protocol Subnet
VLAN	Virtual Local Area Network
WWW	World Wide Web

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