
WhatsUp

Addendum to User's Guide

Software Version 2.5

Ipswitch, Inc.

IPSWITCH™

81 Hartwell Ave.
Lexington, MA 02173 USA

Phone: 781-676-5700
FAX: 781-676-5710
Web: <http://www.ipswitch.com>

The information in this document is subject to change without notice and should not be construed as a commitment by Ipswitch, Inc. While every effort has been made to assure the accuracy of the information contained herein, Ipswitch, Inc. assumes no responsibility for errors or omissions. Ipswitch, Inc. assumes no liability for damages resulting from the use of the information contained in this document.

The software described in this document is furnished under a license and may be used or copied only in accordance with the terms of that license.

Copyright © 1991-1998 by Ipswitch, Inc. All rights reserved. WhatsUp, the WhatsUp logo, WS_FTP, and the WS_FTP logo are registered trademarks of Ipswitch, Inc. IMail, the IMail logo, Ipswitch, and the Ipswitch logo are trademarks of Ipswitch, Inc. Other products or company names are or may be trademarks or registered trademarks and are the property of their respective companies.

No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transferred without the express prior written consent of Ipswitch, Inc.

Printing History

June, 1998 First Edition.

Addendum to WhatsUp V2.5 Manual

This addendum describes the new features and enhancements in Version 2.5 of WhatsUp — the network monitoring tool for Windows. Please read the following for information on changes and additions and keep this addendum with your WhatsUp manual.

In This Addendum

- **New in Version 2.5** — describes new features in WhatsUp Version 2.5.
- **System Requirements** — lists changes to the system resources and software required for running WhatsUp.
- **Documentation Notes** — lists updates and corrections to the WhatsUp User's Guide.

WhatsUp 2.5 Release Notes — The *release.txt* file, found in the directory where you installed WhatsUp, provides a detailed list of enhancements and bug fixes.

WhatsUp Help — the WhatsUp help system has been updated to reflect the changes in Version 2.5. To display help topics, select Help->Contents from a WhatsUp window, or press the F1 key in dialog boxes and windows that don't have a Help menu.

Support Knowledge Base — visit the Ipswitch web site (<http://support.ipswitch.com>) and read articles about using WhatsUp.

New in Version 2.5

This version of WhatsUp contains the following new features:

- **IPX monitoring.** WhatsUp can now monitor a network element that uses Novell NetWare's IPX protocol.
- **Enhanced the Auto Scan feature** with options to resolve hostnames, re-check a missed poll, and set a timeout after which the scan continues to the next address.

- Added options to help in configuring monitoring of a specific service such as Internet Relay Chat (IRC) or Remote Authentication and Dial-In User Service (RADIUS).
- Corrected NetBIOS checking so it works on Windows NT (with NetBEUI installed) and for checking Windows NT systems.

System Requirements

To poll IPX network elements, Microsoft's NWLink IPX/SPX Compatible Transport must be installed and running on the WhatsUp system. You can add this transport in the Control Panel's Network applet as follows:

For Windows 95	In the Control Panel, select Network, then click Add, double-click Protocol, click Microsoft, select IPX/SPX-compatible Protocol.
For Windows NT 4.0	In the Control Panel, select Network, then click Protocols, add NWLink IPX/SPX-compatible Protocol.
For Windows NT 3.51	In the Control Panel, select Network, click Add Software, select NWLink IPX/SPX.

Documentation Notes

This section contains changes and corrections to the WhatsUp User's Guide. The changes in this release are also integrated into the WhatsUp help file.

- Page 15. In the section, "Creating a Network Map," the following information about using the Tools->Import->AutoLoad feature should be included.

Use AutoLoad to automatically scan your system's hosts file and the Windows registry (both of which list hostnames and their associated IP addresses) and create icons for all network elements found in those files.

1. From the File menu, select **New**, or click the **Create New Map** button in the button bar.

2. From the Tools menu, select **Import**→**AutoLoad**. WhatsUp scans the hosts file and the Windows registry and creates an icon for each network element it finds. Make sure the host file is located where the TCP/IP stack can find it.

3. Convert any PC icons to the appropriate icon (server, router, bridge, LAN box, etc.) To change a network element's icon, click the **Tools** button to switch to Map Edit mode, select the icon, and then select the appropriate icon type from the Edit→Convert To menu.

4. Enter or modify information about the network elements. See “Setting Up Properties” in Chapter 3 for more information.

5. Use the Map Editor to move network elements and draw connecting lines. See “Using the Map Editor” in Chapter 3 for more information.

- Page 17. In the “Automatic Scan” section, three new options are now available:
Resolve names. Shows the hostnames for any active IP addresses found. Note that selecting this option causes the scan to take longer.

Double Check. Causes Scan IP to immediately check the host a second time when the host misses a ping. This option applies only on the first poll that fails.

ICMP Timeout. If a network element does not respond to a scan within this time, the Scan IP continues on to the next IP address. The default is 500 milliseconds. You may want to increase the timeout value for slow networks.

- Page 27. In the “Defining Host Properties section,” Steps 2 and 6 should read as follows:

Step 2. In the **Address/Name** text box, if the polling type (see Step 6) is TCP/IP, enter a hostname that can be resolved or an IP address. If the polling type is NetBEUI or IPX, enter a

NetBEUI or IPX name. This text box is limited to 49 characters.

Step 6. Select the **Type** for the polling method: TCP/IP (the default), NetBEUI (used for Windows networks), or IPX (used for Novell NetWare networks). This defines how the system talks to the network element.

- Page 30. In the “Monitoring Services” section, note that the Services properties are disabled for IPX and NetBEUI network elements. This applies to both monitoring the predefined services (which are TCP/IP services) and monitoring a specific service defined by the user.
- Page 32. In the section “Setting Up a Specific Service,” there are two new options available in the Services dialog box. The **Send command on connect** and **Expect after connect** options let you check the availability of a service by sending a command recognized by the service and specifying the expected reply.

For example, to check an IRC (Internet Relay Chat) service, you can send the command “*Version\r\n*” and the expected response from the IRC service is “*:irc*” .

Name: IRC
Port: 6667
(Select the TCP option.)
Expect on connect: leave blank
Send command on connect: *Version\r\n*
Expected command response: *:irc*
Send to disconnect: *QUIT\r\n*

Another example is monitoring a RADIUS (Remote Authentication and Dial-In User Service) service.

Name: RADIUS
Port: 1645
(Select the UDP option.)
Expect on connect: leave blank
Send command on connect: *\aD\@,0123456789012345\a*f
Expected command response: *\cD\@*
Send to disconnect: *QUIT\r\n*

Make sure that the computer running WhatsUp is in the clients file of the RADIUS server, and that it does not try to log in as a valid user of the RADIUS computer.

Also note that you can use special characters to encode commands in the “send” and “response” options. WhatsUp uses ASCII characters where possible. \@=0, \a=1, \b=2, \c=3, etc. with the exception that \r=0x0a, \n=0x0d, and \t=0x09. You can also use %nnn where nnn is any value from 0 to 255.

The \r (carriage return) and \n (line feed) are the conventions for sending these control characters to terminate a string. It is up to the user to determine the proper strings to expect and send in a user defined service.

- Page 34. In the section “Defining Pop-up Menu Items,” note that the default Menu properties are removed for IPX and NetBEUI network elements.
- Page 39. In the section “Defining Beeper Notification,” there are two new Code options in the Beeper section of the Communications Setup dialog box. When the status of a network element changes, WhatsUp sends one of these codes along with the Beeper code to the specified beeper. The **Up** code indicates that a network element has come back up after being down (the default value is 0*). The **Down** code indicates the element is down (the default value is 9*). The asterisk character separates the codes from a subsequent message.

(The beeper code tells you which network element the notification is for. You enter a beeper code when adding the notification.)

Also, in the Communications Setup dialog box, there is now a **Modem Init String** option in which you can specify the commands to initialize your modem. The default string is ATEOQOV1X4. What is expected in this string are the modem commands for “Command Echo Off” (EO), “Result Codes On” (QO), “Verbal Results” (V1), and “Extended Status” (X4).

- Page 42. In the section “Defining Pager Notification,” there is now a **Parity** option in the Pager section of the Communications Setup dialog box. Use this option to select the parity setting used by your pager. The TAP protocol requires the 7–E–1 setting. Some pagers require the 8–N–1 setting.
- Page 52. In the section, “Using the Mini Status Window,” a **Quiet** button now appears on the Mini Status — you can click this button to turn off an alarm.

Also, the **Exit** button is now called the **Map** button. The button’s function is the same — when clicked, WhatsUp closes the Mini Status and opens the Map window.

- Page 58. In the “Program Options” section, two new options are available:

Animate Icon. Check this box if you want to animate the Tools icon in the toolbar (the Tools icon will flash). If you are using Windows NT version 3.5 or 3.51, you must exit and restart WhatsUp to implement this option.

Start in Mini Status Mode. Check this box to start WhatsUp in Mini Status mode. Mini Status mode saves screen space by providing a simple listing of the network elements (in place of the main window).

- Page 66. In the section “WhatsUp Options,” in the Add/Edit WhatsUp Reports dialog box, the report frequency is now measured in minutes. Instead of sending the report “after every *nn* system checks,” WhatsUp sends the report “after every *nn* minutes.” You specify the number of minutes (*nn*).

WhatsUp

User's Guide

Software Version 2.0

Ipswitch, Inc.





The information in this document is subject to change without notice and should not be construed as a commitment by Ipswitch, Inc. While every effort has been made to assure the accuracy of the information contained herein, Ipswitch, Inc. assumes no responsibility for errors or omissions. Ipswitch, Inc. assumes no liability for damages resulting from the use of the information contained in this document.

The software described in this document is furnished under a license and may be used or copied only in accordance with the terms of that license.

Copyright © 1991–1996 by Ipswitch, Inc. All rights reserved. Acadia/VxD, the Acadia/VxD logo, CyberSuite, the CyberSuite logo, the CyberSuite Desktop, IMail, the IMail logos, IMosaic, the IMosaic logo, IPing, the IPing logo, WhatsUp, the WhatsUp logo, WS_FTP, the WS_FTP logo, Piper/IP, the Piper/IP logo, Vantage/IP, the Vantage/IP logo, Ipswitch News, Ipswitch, and the Ipswitch logo are trademarks of Ipswitch, Inc. Mosaic is a trademark of the University of Illinois. Other products or company names are or may be trademarks or registered trademarks and are the property of their respective companies.

No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transferred without the expressed prior written consent of Ipswitch, Inc.

IBM®, PC/AT®, PS/2®, PC-DOS®, TopView®, and OS/2® are registered trademarks of International Business Machines Corporation. UNIX® is a registered trademark of AT&T Bell Laboratories. 3Com, EtherLink, EtherLink Plus, EtherLink/MC, and EtherLink II are trademarks of 3Com Corporation. Microsoft®, Windows, and MS-DOS® are trademarks or registered trademarks of Microsoft Corporation. Ethernet and XNS are trademarks of Xerox Corporation. AppleTalk is a trademark of Apple Computer Corporation. VT102® is a registered trademark of Digital Equipment Corporation. DESQview is a trademark of Quarterdeck Office Systems. Novell® and NetWare® are registered trademarks of Novell, Inc. Sun® and NFS® are registered trademarks of Sun Microsystems, Inc.

Note:

Do NOT monitor host systems, workstations, or other network elements that you do not have control of without the expressed permission of the owners of those network elements.

Contents

Chapter 1: Introduction	1
What is WhatsUp ?	1
WhatsUp Features	2
Read Me First Information	3
Please Send Us Your Feedback	3
System Requirements	3
Installation	4
Files Installed	5
Chapter 2: Getting Started	7
Starting WhatsUp	7
The WhatsUp Main Window	7
Tutorial: Testing WhatsUp on your Network	10
Hints	13
Chapter 3: Setting Up the Network Map	15
Creating a Network Map	15
Automatic Scan	16
Load Host File	18
Manually Draw a Map	19
Using the Map Editor	19
The Tools Window	20
Map Editor Pop-Up Menus	22
Creating Network Elements	22
Drawing Connecting Lines	22
Modifying the Map	23
Viewing and Modifying a Network Element's Properties	25
Exiting Map Edit Mode	26
Setting up Properties	26
Defining Host Properties	27
Entering Notes	30
Monitoring Services	30
Setting Up Predefined Services	31
Setting Up a Specific Service	32
Defining Pop-up Menu Items	34
Setting the Down Action	35
Setting Up Notification	37
Defining Beeper Notification	38

Using an External Beeper Program	40
Defining Pager Notification	41
Defining E-mail Notification	43
Notification Message Variables	44
Updating Notification	45
Testing Notification	45
Connecting to a Network Resource	45
Linking Network Maps	46
Saving the Network Map	46
Setting System Options	46
Chapter 4: Monitoring a Network	47
Establishing a Currently Active Network Map	47
Setting up the Network for Monitoring	48
Initiating Polling	48
To Initiate a Single Check	48
To Stop a Single Check	48
To Initiate Automatic Polling	49
To Stop Automatic Polling	49
Monitoring the Network Display	49
Alarms	50
Status Information	50
Using the Mini Status Window	52
Viewing and Changing Polling Order	53
Viewing Network Information	54
Stack Information	54
Local Information	54
Database Information	54
Log Information	55
Chapter 5: Setting System Properties	57
Program Options	57
Map Options	59
Tool Options	61
Ping Options	61
Trace Options	61
Colors Options	62
Notifications Options	64
WhatsUp Options	65

Chapter 6: Network Tools	67
Lookup	67
What is Lookup?	67
Lookup Query	67
Ping	68
What is Ping?	68
Ping Options	68
Pinging a Host	69
Traceroute	69
What is Traceroute?	69
Traceroute Options	69
Traceroute Search	70
Finger	71
What is Finger?	71
Finger a Host	71
Whois	72
What is Whois?	72
Whois Search	73

Chapter 1: Introduction

With the rapid proliferation of computer networks, you need a tool to easily monitor the status of networked components. If you are the person responsible for installing, configuring, monitoring, and correcting problems with an organization's network and computer assets, WhatsUp can make your job easier. WhatsUp is designed to help you monitor the status of network resources.

What is WhatsUp ?

WhatsUp is an easy-to-use tool for monitoring TCP/IP and Netbeui networks. WhatsUp initiates both visible and audible alarms when monitored network elements do not respond to polling. WhatsUp will even notify you by digital beeper, alphanumeric pager, and e-mail.

Designed for PCs operating with Windows 95 or Windows NT, WhatsUp can be installed wherever needed and does not require expensive, dedicated hardware. It could easily run in the background on your PC. WhatsUp will work with any 32-bit TCP/IP stack, such as those bundled with Windows NT and Windows 95. You can configure WhatsUp and start monitoring your network without any special training.

WhatsUp monitors vital network elements and system services and generates an alarm when there is a problem. It also facilitates remote support and diagnosis by allowing users to easily access all network elements.

WhatsUp Features

WhatsUp provides the following capabilities:

- Graphical display of components being monitored and their status
- On-going confirmation of network connections
- Monitoring of a wide range of network elements, including hosts, servers, workstations, bridges, routers, hubs, LAN concentrators, and printers
- Monitoring of the availability of one or more predefined services (e.g., SMTP, POP3, FTP, Telnet, WWW, or News) on a host
- Monitoring of the availability of a specific service on a remote host (e.g., an alternate Web server on a non-standard port)
- Initiation of visible and audible alarms when any network element does not respond to polling
- Remote notification by digital beeper, alphanumeric pager, and e-mail
- Monitoring of hierarchical (multitiered) networks
- Automatic detection and display of all connected elements in a subnet
- Ability to Telnet from WhatsUp to a monitored host using your favorite Telnet program
- Monitoring of unmanageable as well as manageable network devices
- Requires no additional agent technology on monitored network elements

In addition, WhatsUp includes a versatile set of integrated tools that let you search for and display information about organizations, networks, computers, or people on a network. WhatsUp tools include Lookup, Ping, Traceroute, Whois, and Finger.

You can also configure WhatsUp to use your favorite FTP and Telnet programs (such as WS_FTP Professional or VT320W for Windows available from Ipswitch) to connect to networked hosts from within WhatsUp.

Read Me First Information

Please reference the release notes included with this product for information regarding enhancements and restrictions.

Please Send Us Your Feedback

We welcome your feedback on this product. Please send the results of your evaluation and your comments and suggestions to the following e-mail address: *feedback@ipswitch.com*

System Requirements

WhatsUp requires the following system resources:

- An Intel 386, 486, or Pentium processor.
- Windows NT 3.51 or greater (not 3.5); or Windows 95 operating system
- A TCP/IP protocol stack. Supported stacks include those from Microsoft (Windows 95 and NT) and Ipswitch (Windows 95).

Note:

To monitor Netbeui networks, you must run WhatsUp on a Windows 95 system.

Installation

1. Install a Windows TCP/IP stack on your system. Microsoft provides a TCP/IP stack with Windows 95 and Windows NT. Ipswitch also offers Acadia/VxD and CyberSuite that run on Windows 95.
2. Insert the WhatsUp disk into a floppy disk drive.
3. Do one of the following:
 - For Windows 95, click the **Start** button, select **Run**, and then enter the diskette path followed by *install.exe*. For example:

```
a:install.exe
```

- For Windows NT, select **Run** from the File menu, and then enter the diskette path followed by *install.exe*. For example:

```
a:install.exe
```

The installation program asks where you want to install WhatsUp.

4. Enter a directory where you would like to install the WhatsUp executables, release notes, and help file.

The installation program installs the files and creates a shortcut for WhatsUp.

You are now ready to proceed to “Chapter 2: Getting Started.”

Files Installed

The WhatsUp installation places the following files on your system:

<i>whatsup.exe</i>	The WhatsUp executable program.
<i>ipswsupt.dll</i>	Supports serial communications.
<i>whatsup.bmp</i>	The default bitmap file used as the main window background.
<i>whatsup.txt</i>	Release notes for this version of WhatsUp.
<i>down1.wav</i>	The sound file for the alarm activated when a low-priority network element does not respond to polling.
<i>down2.wav</i>	The sound file for the alarm activated when a medium-priority network element does not respond to polling.
<i>down3.wav</i>	The sound file for the alarm activated when a high-priority network element does not respond to polling.
<i>up.wav</i>	The sound file for the alarm activated when a network element comes back up after a failure.



Chapter 2: Getting Started

After completing the installation, you can start WhatsUp, create a network map, and start monitoring your network.

Starting WhatsUp

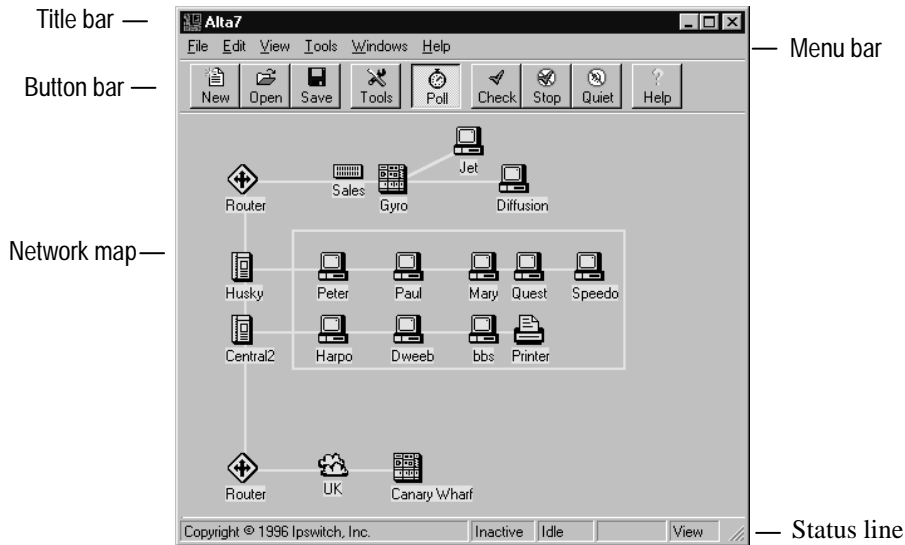
To start WhatsUp:

- In Windows 95, click the **Start** button, and then select **Programs**→**WhatsUp**.
- In Windows NT, open the WhatsUp folder and click on the WhatsUp icon.

The WhatsUp main window appears.

The WhatsUp Main Window

The WhatsUp main window graphically displays the database of network elements and connections being monitored and provides access to other WhatsUp features.



Window Components

The components of the WhatsUp main window are described below:

Title bar

Shows the name of the active network map and the polling countdown when polling.

Menu bar

Provides menu choices for opening windows and accessing commands.

Button bar

Provides quick access to frequently used commands. Position your mouse pointer over a button to display a description of the button's action. You can display labels for each button, by enabling the **Label Toolbar** option in Program properties (select **File->Properties**).

Network map

Shows the active network map. You can load and save network maps by selecting the **Load** or **Save** items from the File menu, or clicking on the appropriate button bar button.

Status line

Shows any status or error message associated with the current polling action.

How WhatsUp Works

On initial start up, WhatsUp reads the Windows registry and the system hosts file on your system and creates a network map that contains icons for the network elements found in these files. You can use the Map Editor to add network elements, draw connecting lines, and convert elements to a different icon type. You can also create a network map by scanning a range of IP addresses or by reading a hosts file.

For each network element, you can choose from a set of options in a Properties window to determine how it is monitored and define what action to take if the element does not respond to polling.

Once you have created or loaded a network map, you can set WhatsUp to continuously monitor the network elements, or you can initiate a single check of the network.

WhatsUp monitors each of the network elements defined in a particular map/database by sending a set number of ICMP echo requests to the specified IP address and then tracking the responses. During monitoring operations, WhatsUp makes effective use of colors to indicate the status of the various network elements. By convention, those that respond to polling are displayed in green, those that have missed one polling request are displayed in light green, those that have missed two polling requests are displayed in yellow, and those that are not accessible or have not responded to four consecutive polling requests are displayed in red. You can easily change these default color selections to fit your preferences.

While monitoring, you can display up-to-the-minute status information about a particular network element by simply pointing to it and clicking the left mouse button to display a status window.

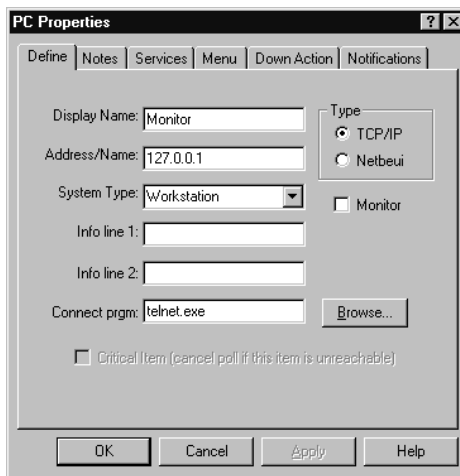
Tutorial: Testing WhatsUp on your Network

The following procedure shows how you can quickly create and set up a map of some of your network elements so you can test the functionality of WhatsUp. If you have a large network, you will not want to create each element manually — you can use the **Tools->Import->Scan IP** or **Tools->Import->Host File** features to more easily create a network map. The chapters that follow provide detailed information on the different methods for creating a network map and the options available for monitoring network elements.

To create a new network map:

1. Select **New** from the File menu, or click the **Create New Map** button in the button bar.
2. In the button bar, click the **Tools** button. WhatsUp displays an empty map with a grid and displays the Tools window, which contains buttons to help you create a map.
3. In the Tools window, click the **Add PC** button, and then click on the map to create an icon for the PC; or click the right mouse button and select **New->PC** from the pop-up menu.
4. In the Tools window, click the **Configure** button, and then click on the PC element; or click the right mouse button on the network element and select **Properties** from the pop-up menu.

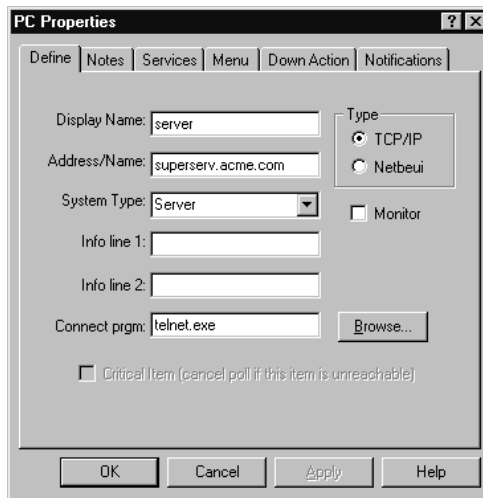
The PC Properties dialog box appears.



5. Enter the information in the Properties dialog box as shown. Set the **Display Name** to *Monitor* or whatever name you would like for the network monitor station. Set the **Address/Name** to *127.0.0.1* for this host. (This is the local “loopback” network address used by a network device when referenced from that same device.) In the **Type** options, select **TCP/IP**.

Toggle on the Monitor check box to enable monitoring.

6. Click the **OK** button or press **Enter**.
7. To create an icon for one of your file servers: Click the **Server** button in the Tools window, and then point to the desired location on the map and click once to create the icon.
8. In the Tools window, click the **Configure** button, then click on the Server icon. The Properties dialog box appears.



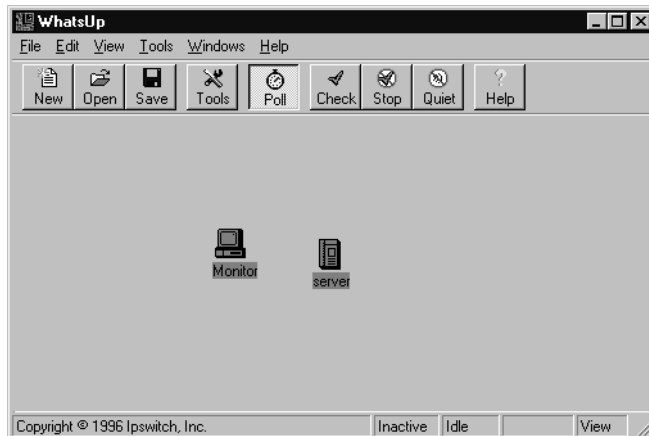
9. Set the **Address/Name** text box of this new host to the IP address or name of system on your network. (Note: If you use a name, it must be able to be resolved by the network stack either from a local hosts file or by looking it up on a Domain Name Server, which is a server that lists hostnames and their IP addresses. This name is looked up whenever the map is loaded.) In the **Network Type** options, select **TCP/IP**. Click **OK**.

Toggle on the Monitor check box to enable monitoring.

After finishing the configuration of the new host system, you should save the map by selecting **Save As** from the **File** menu. Save the map with the name of “*WhatsUp.db*.” (You can use any name here.)

10. After saving the map, click the **Tools** button to exit Edit mode and enter Monitor mode. You can check the functionality of WhatsUp by clicking on the green **Check Mark** in the button bar or by selecting **C**heck from the **T**ools menu.

Your screen should look something like this screen.



Hints

- To move an icon, click the **Tools** button, click the **Select** button in the Tools window, and then click and drag the icon to a new position.
- To view information about the icon: in Monitor mode, click on an icon to display status information.
- To change information about the icon (in Monitor mode), click on the icon, and then select **Properties** from the dialog box.
- To draw connecting lines between network elements (in Edit mode), click the **Line** button in the Tools window, and then click and drag the mouse to create a line.
- To erase a line or icon (in Edit mode), click the **Erase** button in the Tools window, and then click on the line or icon you want to delete. Be careful to change out of Erase mode before clicking on any other network elements.
- To undo your last edit, select **Undo** from the Edit menu.

If WhatsUp has not begun monitoring your network, you may need to change some system parameters. See “Chapter 5: Setting System Properties” for information on these parameters.

Chapter 3: Setting Up the Network Map

This chapter describes how to get started using WhatsUp to monitor your network. Before WhatsUp can monitor the PCs in your network, you need to do the following:

1. Create a network map.
2. Set up properties for network elements (hosts, routers, bridges, etc.).
3. Save the network map.
4. Set system options to determine how WhatsUp will monitor the network elements.

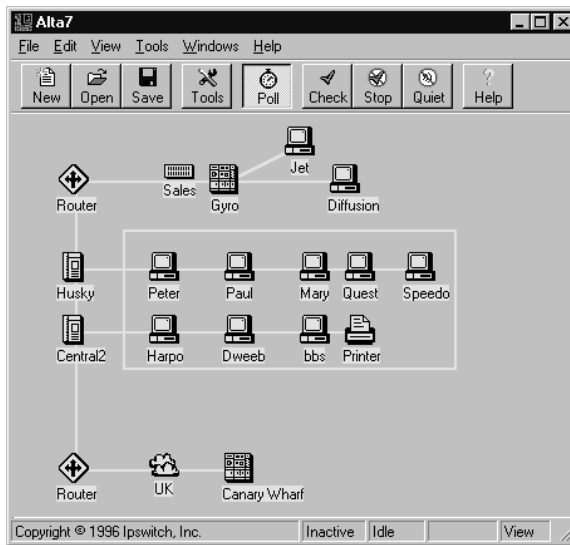
The following sections describe each task in detail.

Note:

Do NOT monitor host systems, workstations, or other network elements that you do not have control of without the expressed permission of the owners of those network elements.

Creating a Network Map

The network map is a graphical representation of the elements in your network that you want to monitor. Network elements can be PCs, hosts, servers, routers, bridges, hubs, LAN boxes, printers, or subnetworks (subnets). The following shows a typical network map.



There are three ways to create a map for your network:

- Use Scan IP to automatically detect and list all of the network elements currently in your network. Then, you can select from the list those elements that you want to appear in the map.
- Load a hosts file and WhatsUp will create an icon for each host found in the file.
- Create an icon for each network element and enter information about the element.

In all cases, you have the option of showing how network elements are connected by using the Map Editor to draw connecting lines between the network elements.

Automatic Scan

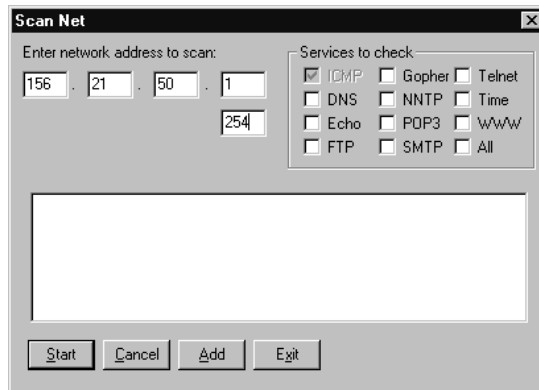
The Scan feature automatically detects and displays icons for the systems in your network. You specify a range of IP addresses to be scanned, and WhatsUp polls each address. If WhatsUp finds an active host, it creates an icon for it on the map. After completing the scan, you can arrange the network elements as you want them to appear and draw connecting lines. By default, WhatsUp creates a PC icon type to represent each system it scans. You can change the icon type

(to a router, bridge, server, host icon, etc) to better represent the network element.

A scan can also identify the network services (such as FTP, WWW, SMTP) that are available on each system.

To start a Scan:

1. From the File menu, select **New**, or click the **Create New Map** button in the button bar.
2. From the Tools menu, select **Import**→**Scan IP**. The Scan Net dialog box appears.



3. Enter a range of network addresses to scan.

For example, if your network addresses range from 156.21.50.1 through 156.21.50.254, you would enter the range as shown in the dialog box above.

4. Click **Start**. (You can click **Cancel** at any time to stop the scan. Note that it may take a few seconds for the system to respond to a Cancel request)

WhatsUp scans the IP addresses and creates an icon for each system it finds on the network. The Scan Net dialog box shows the current address being scanned. The scan is completed when the current address shown is the last in the specified range.

The Scan Net lists all network elements in a list box in the Scan Net dialog box.

5. Select the network elements you want to include in the map, and then click the **Add** button.

Click on a system in the list to select it. Use the **Shift** or **Ctrl** keys to select multiple items.

WhatsUp creates icons for all selected network elements and uses the network element's hostname as the display name.

6. Click **Exit** to close the Scan Net dialog box.
7. Convert any PC icons to the appropriate icon (server, router, bridge, LAN box, etc.).

To change a network element's icon, click the **Tools** button to switch to Map Edit mode, select the icon, and then select the appropriate icon type from the **Edit->Convert To** menu.

8. Enter or modify information about the network elements. See the "Setting Up Properties" section in this chapter for more information.
9. Use the Map Editor to move network elements and draw connecting lines. See the "Using the Map Editor" section in this chapter for more information.

Load Host File

You can load a hosts file (which lists hostnames and their associated IP addresses) and WhatsUp will create icons for each system listed in the file.

1. From the File menu, select **New**, or click the **Create New Map** button in the button bar.
2. From the Tools menu, select **Import->Host File**.

The Browse dialog box appears.

3. Locate the hosts file and click **OK**.

WhatsUp scans the hosts file and creates an icon for each network element it finds in the host file. Make sure the host file is located where the TCP/IP stack can find it.

4. Convert any PC icons to the appropriate icon (server, router, bridge, LAN box, etc.)

To change a network element's icon, click the **Tools** button to switch to Map Edit mode, select the icon, and then select the appropriate icon type from the **Edit→Convert To** menu.

5. Enter or modify information about the network elements. See the “Setting Up Properties” section in this chapter for more information.
6. Use the Map Editor to move network elements and draw connecting lines. See the “Using the Map Editor” section in this chapter for more information.

Manually Draw a Map

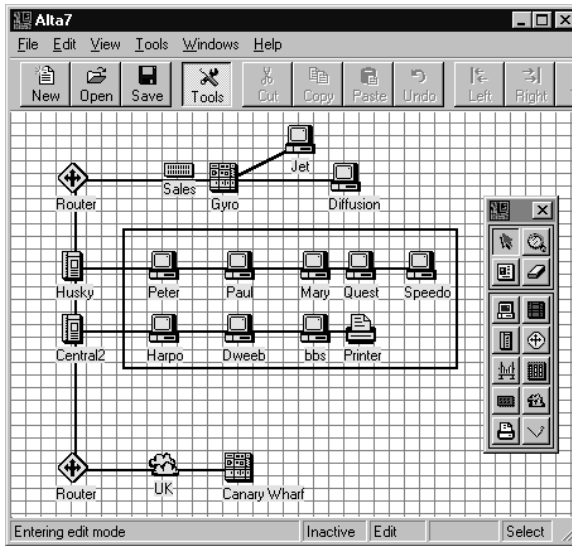
You can create network elements manually by using the Map Editor.

1. From the File menu, select **New**, or click the Create New Map button in the button bar.
2. In the button bar, click the **Tools** button. WhatsUp displays an empty map with a grid
3. Use the Map Editor to create network elements. See the “Using the Map Editor” section in this chapter for more information.
4. Enter information about the network elements. See the “Setting Up Properties” section in this chapter for more information.

Using the Map Editor

You use the Map Editor to create, move, and delete individual network elements and connecting lines. You can also use the Map Editor to change the information associated with a particular network element.

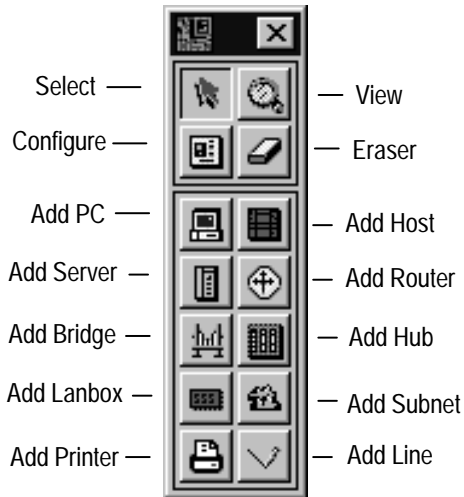
To access the Map Editor, in the button bar, click the **Tools** button. The map background changes to a grid and the Tools window appears.



You can use the grid to help you align network elements. The Tools window provides the map edit functions. These functions are also available from a pop-up menu.

The Tools Window

To display the Tools window, click the **Tools** button in the button bar or select **Tools Window** from the View menu.



Position the mouse pointer over a Tools Window button to display a description of the button.

Select tool (arrow icon)

When the Select tool is active, you can click and drag a network element to a new location on the map, or you can click and drag the end point of a line to a new location.

View tool (magnifying glass icon)

When the View tool is active, you can click on a network element to display its properties and status.

Configure tool (computer icon)

When the Configure tool is active, you can click on a network element to view and modify its properties. See the “Setting Up Properties” section in this chapter for more information.

Erase tool (eraser icon)

When the Erase tool is active, you can click on a network element or line to erase it. The **Undo** button on the button bar can undo the last change that you made.

Add Icons tools

The Tools window provides icons for eight types of network elements: PC, Host, Server, Router, LAN box, Bridge, Hub, Printer, and Subnet. When you click on one of these icons in the Tools window, it becomes the active Add tool. This Add tool remains active until you click on another button in the Tools window. Click on the icon type (for example Add PC), and then click on the map to add the icon.

Add Line tool

When the Add Line tool is active, you can click and hold the mouse button on the map, and then drag the line to place it.

Map Editor Pop-Up Menus

As an alternative to the Tools window, you can also use the Map Editor pop-up menus to perform many of the Map Editor functions. There are two pop-up menus available while working with the map in either Edit mode or Monitor mode.

Click the right mouse button on a network element to display the network element functions (such as Properties, Attach to, and Delete).

Click the right mouse button on an empty area of the map to display the create element functions and the map and color functions.

Creating Network Elements

In the Tools window, click on the type of network element that you want to create, and then click on the map. WhatsUp creates the network element on the map.

For example, click the **Add PC** button, and then click on the map. A PC icon is added to the map. Click on the map again to add another PC icon. The Add PC tool remains active until you click another button in the Tools window.

To enter information (such as the hostname and IP address) for a network element, see the “Setting Up Properties” section of this chapter.

Drawing Connecting Lines

There are two types of lines you can use to show connections between network elements: free lines and attached lines. Free lines are separate elements; they do not move when you move a network element. Attached lines attach one network element to another; if you move one of the elements, the line moves with it and is resized to the new position.

You can assign a different color for either attached or free lines to make it clear which type it is. To assign colors, select **Properties** from the File menu, and then select the **Colors** options.

To draw free lines:

In the Tools window, click the **Line** button, then press and hold the mouse button on the map location where you want the line to start, drag the mouse to where you want to end the line, and then release the mouse button.

To draw attached lines:

1. Click the right mouse button on a network element to display the pop-up menu.
2. Select **Attach to** from the pop-up menu.
3. Click on the network element to which you want to attach the first element.

Or:

Select a network item, and then click the right mouse button on another network item and select **Attach to selected item** from the pop-up menu.

WhatsUp draws the attached line between the network elements. Each network element can attach to only one other network element, but a particular network element can be *attached to* by many elements.

Modifying the Map

You can move network elements and lines to new positions on the map. You can erase network elements and free lines. You can also cut, copy, and paste network elements within a map or from one map to another.

You can click the **Undo** button in the button bar to undo the last single change that you made.

To move a network element or line:

1. In the Tools window, click the **Select** button.
2. To move a network element, press and hold the mouse button on a network element, drag it to its new location, and release the mouse button. If the element has an attached line, the line moves with it.

To move one end of a free line, click and hold the mouse button on the line, drag the end point to its new location, and release the mouse button.

To erase a network element or line:

1. In the Tools window, click on the **Eraser** button.
2. To erase a network element, click on the network element. To erase a line, click on any point of the line.

As an alternative, you can select a network element and press the Delete key to delete it.

Note:

When erasing network elements or lines that are close together, you can avoid selecting the wrong item by clicking near the center of the network element or line.

If you erase the wrong network element, click the **Undo** button in the button bar to undo the last change.

To cut or copy and paste a network element:

1. Click on a network element to select it.
2. From the **Edit** menu, select **Cut** or **Copy**.
3. After you cut or copy an item, select **Paste** from the Edit menu to paste it.

To select a range of network elements:

1. In the Tools window, click on the **Select** (arrow) button.
2. Press and hold the mouse button on the map, drag the select box around the network elements you want to select, and then release the mouse button.
3. You can apply any of the edit functions to the selected network elements, including move, cut, copy, paste, and convert icons.

Note:

To select all network elements in a map, from the Edit menu, select **Select All**. To select individual network elements, press the **Ctrl** key and click on the desired elements.

Viewing and Modifying a Network Element's Properties

While in the Map Editor, you can view a network element's properties and status and modify its properties as follows:

To quickly view a network element's properties and status:

1. In the Tools window, click on the **View** button.
2. Click on a network element.

The status dialog box appears.

To modify a network element's properties:

1. In the Tools window, click on the **Configure** button.
2. Click on a network element.

The Properties dialog box appears. See the "Setting Up Properties" section in this chapter for more information.

To connect to a network element:

1. In the Tools window, click on the **View** button. The status dialog box appears.
2. Click the **Connect** button to launch the Connect program. This program (which is not part of WhatsUp) can be Telnet or some other connect program. See “Setting Up Properties” in this chapter for more information.

Exiting Map Edit Mode

To exit Map Edit mode and return to Monitor mode, click on the Tools button on the button bar. The grid background and Tools window disappear.

Setting up Properties

After you have created the network elements that you will monitor on the network map, you can enter information about each element, set up the properties that determine how you will monitor each element, and define what action WhatsUp should take if the element does not respond to polling. You can use the Properties dialog box to set the following types of options:

Define — Define the display name, hostname/IP address, and type of network.

Notes — Enter any notes that you want to associate with the network element.

Services — Set up monitoring of services (such as SMTP, POP3, FTP, Telnet, WWW, or News) on a network element.

Menu — Specify additional programs or network utilities that you would like to appear on the pop-up menu for the selected host. Defaults include the Connect program for this host, Ping, and Traceroute.

Down Action — Specify the down actions to take when a network element does not respond to polling (for example, sound an alarm, write to log file, activate a beeper, or send a message to a pager or to an e-mail address).

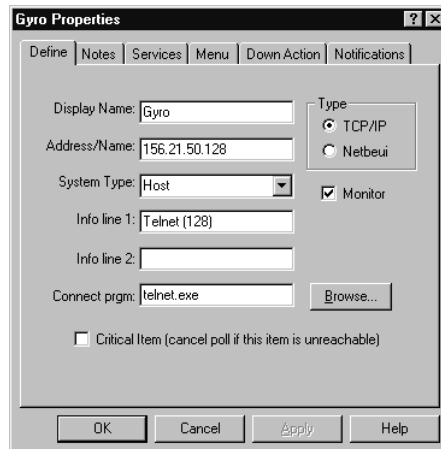
Notifications — Define the notification actions that you will use to report a failure (for example, set up the telephone number for beepers and pagers, and set up the automated message to be sent to a pager or e-mail address).

To open the Properties dialog box, do one of the following:

- Click on a network element to display the status dialog, and then select **Properties**.
- In the Map Editor, from the Tools window, click the **Configure** button, and then click on a network element.

Defining Host Properties

In the Properties dialog box, click **Define** to display the Define options.



1. In the **Display Name** text box, enter a name using up to to 8 characters. This is the name displayed on the network map.
2. In the **Address/Name** text box, enter a name that can be resolved or an IP address. This text box is limited to 25 characters.

3. In the **System Type** text box, select the desired type from the drop down list. This option is used to select the icon to display when the Use Icons option is enabled.
4. In the **Info Line 1** and **Info Line 2** text boxes, enter any information you want to associate with the network element. For example, you can enter a name that is the “point of contact” for a system or location. This information is displayed in the status dialog box during monitoring operations (as described in Chapter 4) and can be included in notifications.
5. In the **Connect Prgm**, enter the command to be executed when you select Connect from the status dialog box or pop-up menu for a network element. The IP address of the network element is included as the last argument on the command line. The Connect program is not included with WhatsUp. Typically, the Connect program is a terminal emulator, such as Ipswitch’s VT320W for Windows.

You can use the following special values when defining the Connect Program:

[LOAD]database_file_name%

This causes the specified database to be loaded. You need to include the brackets as shown. This is intended to be used in conjunction with an item that has a System Type of Subnet. See “Linking Network Maps” in this chapter for more information.

%l

This is replaced with the contents of the Display Name text box of the network element’s properties.

%n

This is replaced with the contents of the Address/Name text box of the network element’s properties.

%a

This is replaced with the IP address of the network element.

%1

This is replaced with the contents of the Info Line1 text box of the network element.

%2

This is replaced with the contents of the Info Line 2 text box of the network element.

Examples

```
d:\csuite\apps\imosaic.exe http://%a/
```

```
d:\csuite\apps\telnet.exe %a
```

```
d:vt320w @connect winsock %a
```

```
[LOAD] subnet.db%
```

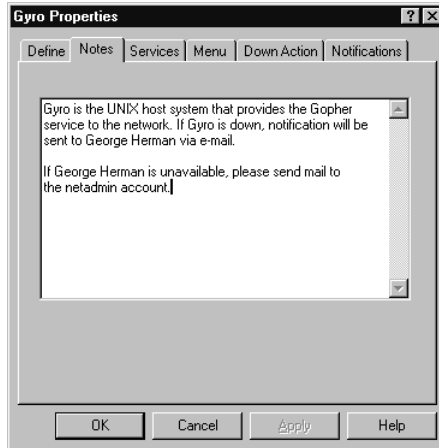
6. Select the **Network Type**. Currently, TCP/IP and Netbeui are supported. This defines how the system talks to the network element. Netbeui is available on Windows 95 only.
7. Select the **Monitor** check box to check the network element's status on each poll. If this is not checked, the network element is displayed in grey.
8. Select the **Critical Item** check box if you want to cancel the polling of other network element when this network item is not reachable.

The remaining elements in the polling sequence will not be checked if a "critical" host is not reachable (if a service is down, but the host is up, it won't stop). Remaining elements in the poll are marked as missing one poll to force a color change.

9. Click **OK** or press **Enter**.

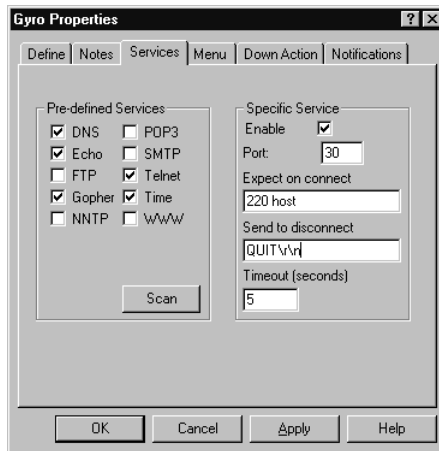
Entering Notes

You can enter notes in text format that you want to associate with the network item. Select Notes in the Properties dialog box and enter any text information.



Monitoring Services

WhatsUp allows you to check if a service (such as SMTP, POP3, or WWW) is running on a remote host. You set up service monitoring in the Services options of the network element's Properties dialog box.

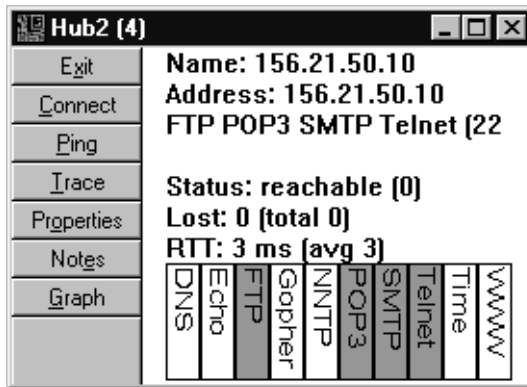


There are two ways to set up service monitoring:

- You can use the services checked in the Predefined Services (SMTP, POP3, WWW, etc.) list on the left side of the Services page.
- You can set up monitoring for a specific service by entering information about the service on the right side of the Services page. This is useful if a service does not appear as a Predefined Service, or if it uses a nonstandard port number.

WhatsUp will check that the selected services are running whenever it polls the network item. If a predefined service is down, the network element will change color to purple. If a specific service is down, the regular color codes are used (green = up, red = down).

The status window (shown below) also shows the status of polled services: green = up, red = down.



See Chapter 4 for more information on polling options and status displays.

Setting Up Predefined Services

You can select the services to be monitored from a list of predefined services.

1. Select a network element. In the Properties dialog box, click the **Define** button. The Define options appear. Set the **Network Type** to TCP/IP; and enable the **Monitor** option. All other options set in the Properties dialog box remain in effect.

2. In the Properties dialog box, click the **Services** button. The Services options appear.
3. Select the services you want to monitor.

If you did a Scan Net to create the network map, you may have already scanned each network element for available services. In this case, when you open the Services options of a network element's Properties, the list of Predefined Services will show the services available (those that are checked) on that network element. You can toggle off any services that you do not want to monitor.

You can click the **Scan** button on the Services page to scan the network element and determine if any of the predefined services are available on that machine. Services found on the machine are marked with a check (see the Services properties screen at the beginning of this section).

4. Click **Apply** (You must click the Apply button to save changes).

Setting Up a Specific Service

You can also monitor for a specific service that does not appear in the list. To do this, the Specific Service option must be enabled and a port must be set in the Services options.

To set up monitoring of a specific service on the network element:

1. In the Properties dialog box, click the **Define** button. The Define options appear. Set the **Network Type** to TCP/IP and enable the **Monitor** option. All other options in the Properties dialog box are honored.
2. In the Properties dialog box, click the **Services** button. The Services Options appear.
3. Select the **Enable** check box to enable monitoring of a specific service.
4. In the **Port** text box, enter the TCP/UDP port that you wish to monitor. (For example: 21=FTP, 23=TELNET, 25=SMTP, 53=DNS, 80=WWW, 110=POP3, 119=NNTP)

5. Optionally, in the **Expect on Connect** text box, enter a message that the remote service will send back to you on connect. The field length is limited to 19 characters. This is an absolute match starting from the beginning of the received message. For example, if you expect to get “**220 hostname.domain.com Imail v1.3\r\n**” back from the host, you could enter “**220 host**” as an expect string. To find the proper string here, telnet to the desired port on the host when it is working properly, and see what comes back. *Note that some services (such as DNS) will not provide you with a string.*

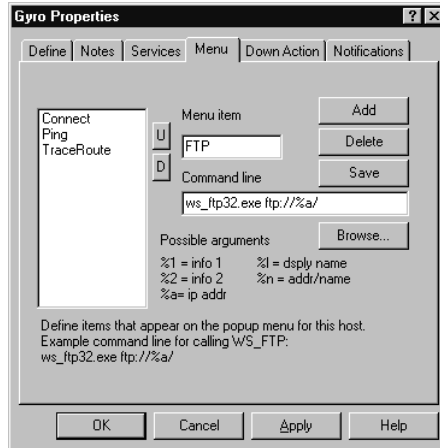
Note:

The `\r` (carriage return) and `\n` (line feed) are the conventions for sending these control characters to terminate a string.

6. Optionally, in the **Send to disconnect** text box, enter a command string to disconnect from the service properly. For most TCP/IP servers, the string “**QUIT\r\n**” is proper. If a command string is not specified, the connection is closed by sending a FIN packet and then an RST packet.
7. Optionally, in the **Timeout** text box, change the default timeout (5 seconds) for the service status. This is separate from the timeouts used for polling and is specified in seconds.
8. Click **Apply** (you must click the Apply button to save changes).

Defining Pop-up Menu Items

When you click the right mouse button on a network element, a pop-up menu appears. You can use the Menu properties to add or delete items in the pop-up menu and to define the command executed when a menu item is selected.



To add a menu item to the pop-up menu:

1. In the Menu Item text box, enter the name that you want to appear in the menu.
2. In the Command Line text box, enter the command that executes the program.

You can use the following arguments on the command line:

%l

This is replaced with the contents of the Display Name text box of the network element's properties.

%n

This is replaced with the contents of the Address/Name text box of the network element's properties.

%a

This is replaced with the IP address of the network element.

%1

This is replaced with the contents of the Info Line1 text box of the network element.

%2

This is replaced with the contents of the Info Line 2 text box of the network element.

3. Click the **Add** button.

The item appears in the list of menu items.

4. Click the **Save** button.

To delete a menu item, select it in the list of menu items on the left of the Menu Properties page, and then click the **Delete** button.

Setting the Down Action

WhatsUp sounds an alarm (.WAV file) when a network element fails, or it invokes a bell sound when it starts up after having failed. You can set the priority of the alarm for each network element. You can set the notifications you want to occur when the network element is down. These notifications can activate a beeper, send a message to a pager, or send an e-mail message.

You can globally enable and disable alarms for a network map. Select **Properties** from the File menu, and then select **Map** options. The **Enable .WAV Playing** option is checked by default. To globally disable alarms, toggle off this option.

To hear the alarm, you must have a sound card installed on your system.

To set the Alarm options:

1. In the Properties dialog box, click the **Down Action** button. The Down Action options appear.



2. Select the **Log Activity** check box to write an entry in the *mapname.LOG* file in the same directory of the map when the item has missed 4 polls and when the item recovers after missing 3 or more polls.
3. In the **Sound** check box, select the sound file that will be played when the network element goes down. None=no sound, Low priority=down1.wav, Middle priority=down2.wav, High priority=down3.wav. When multiple network elements go down simultaneously, the highest numbered sound has priority.

Before you can add a notification action to a network element's Down Action properties, you need to define the action in the Notifications properties. See the following section, "Defining Notification Actions" for information.

After defining notifications, you can enable them in the Down Action properties. To enable the Notification actions to be performed when the network element does not respond to polling:

1. To enable a notification action, click the **New** button. The Add Notification dialog box appears. All notification actions that have been defined are available from the Notify drop-down list. Select an action, such as Default Beeper or Default Pager, from this list.

You can also set the following options in the Add Notification dialog box:

system checks

After this number of failures on system checks, send notification. This is an exact match of the down count for when the notification should be activated. This number *should* be greater than 4. The default is 15 greater than the sound activation trigger. (sound activation trigger is 4)

when system comes back up

When checked, performs notification action when the system comes back up after a down notification.

send only if

When checked, sends notification only if no one silenced the alarm from the console.

Beeper code (for beeper only)

This is the number that is sent to the beeper or passed as arg 3 to the external program (see the section “Using an External Beeper Program” in this chapter.)

2. Select the **Enable** check box to enable the Notification actions shown in the Notification list box.
3. Click on **Apply**.

To edit an existing notification action, select it and click the Edit button. To delete a notification action so that it is not applied for the network element, select it and click the Del button.

Setting Up Notification

When the network element does not respond to polling, WhatsUp can send notification via a beeper, a pager message, or an e-mail message. Setting up notification for a network element involves two steps:

1. You first need to define the notification actions that you will want to use, such as activating a network administrator’s beeper or sending e-mail to an individual.

- Then, you can enable notification actions for a network element, which is just a matter of selecting from the defined actions. You can set options that determine when a notification is sent. For example, you can specify that a notification be sent when the network element does not respond to 10 system checks.

See the previous section “Setting the Down Action” for information on enabling notification actions for a network element.

You can also set up a notification to send a network status report at a specified time interval. See WhatsUp Properties in the “Setting System Properties” section.

You can access the Notifications properties in either of the following ways:

- Open the network element’s Properties dialog box and click **Notifications**.
- From the File menu, select **Properties**, then click **Notifications**.

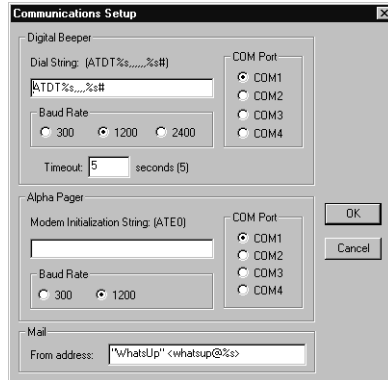
The following sections describe how to set up the different types of notification.

Defining Beeper Notification

You can define beeper notification to activate a beeper when the network element does not respond to polling.



1. Enter a unique name to identify the beeper notification, for example “Beep Bob.”
2. Select the **Beeper** notification type.
3. In the **Phone** text box, enter the phone number to dial.
4. Click **Comm Setup**. The Communications Setup dialog box appears.



Enter the information in the Beeper section of the dialog box::

Dial String

The default dial string is: ATDT%s,,,,,%s#

The first %s is replaced by the phone number and the second %s is replaced by the beeper code. Most modems and beepers support the use of '#' to terminate the message and '*' to print out a dash. You may find a need to increase the number of commas in the dial string if it dials the code too soon or decrease the number of commas if it waits too long.

Baud Rate

Select the speed (measured in bits per second) at which the serial port will communicate with the modem.

COM Port

Select the port to which your modem is attached.

Timeout

The timeout value determines how long the system waits after sending the last character before it hangs up the phone, if a transition is not recognized.

When you have entered the information, click **OK**.

5. Click the **Add** button to add the new beeper notification.
6. The beeper notification appears in the list of Notifications.

Click the **Test** button to test the notification.

Using an External Beeper Program

You can also use an external program of your own to handle beeper notification. The presence of an external program name in notification enables the external program.

The following information is made available to the external program via the command line.

- arg 1: either DN or UP
- arg 2: the phone number as specified in the Notification options
- arg 3: the beeper code as specified in the Down Action options (in the Add Notification dialog box)
- arg 4: the IP address of the host

External program example arguments:

0: beeper.exe 1: DN 2: 8694297 3: 3333 4: 127.0.0.1

0: beeper.exe 1: DN 2: 8694297 3: 2222 4: 127.0.0.1

0: beeper.exe 1: UP 2: 8694297 3: 2222 4: 127.0.0.1

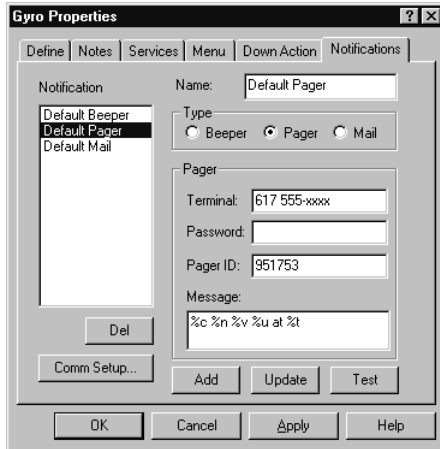
The external program is executed with `SW_SHOWMINNOACTIVE`.

The external beeper program will not be activated if someone silenced the alarm before the system check is reached.

The UP message will only be sent if the packets lost is greater than system checks when the network element comes back up.

Defining Pager Notification

You can define pager notification to send a message to a pager when the network element does not respond to polling. WhatsUp supports PageNet and other TAP (Telocator Alphanumeric Protocol) pagers.



To define a pager notification action:

1. Enter a unique name to identify the pager notification, for example "Page Bob."
2. Select the **Pager** notification type.
3. Enter the following information:

Terminal

Enter the phone number to dial.

Password

Enter the pager password, if required.

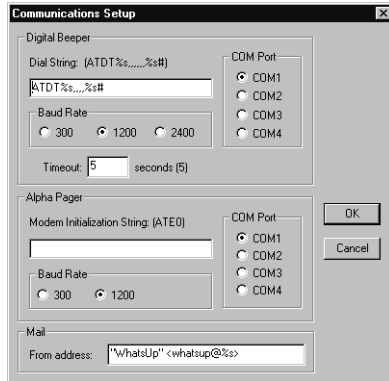
Pager ID

Enter the pager identification number.

Message

Enter a text message plus any of notification variables (see the Notification Message Variables at the end of this section).

4. Click **Comm Setup**. The Communications Setup dialog box appears.



Enter the information in the Alpha Pager section of the dialog box:

Modem Initialization String (ATE0)

The default string is ATE0. What is expected in this string are the modem commands for “Command Echo Off” (EO), “Result Codes On” (QO), and “Verbal Results” (V1). The recommended string to use is: ATE0 QO V1

Baud Rate

Select the speed (measured in bits per second) at which the serial port will communicate with the modem.

COM Port

Select the port to which your modem is attached.

When you have entered the information, click **OK**.

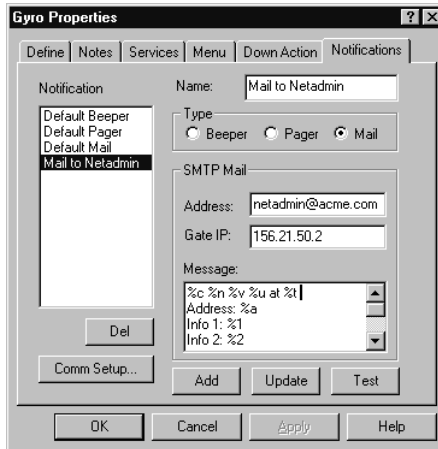
5. Click the **Add** button to add the new pager notification.

The pager notification appears in the list of Notifications.

Click the **Test** button to test the notification.

Defining E-mail Notification

You can define e-mail notification to send a message to an e-mail address when a network element does not respond to polling. To define an e-mail notification action:



1. Enter a unique name to identify the e-mail notification, for example "Mail to Netadmin."
2. Select the **Mail** notification type.

Enter the following information:

Address

Enter an e-mail address that is accepted by the Gate IP. (This can be a simple name.) The Address should not contain brackets, braces, quotes, or parentheses.

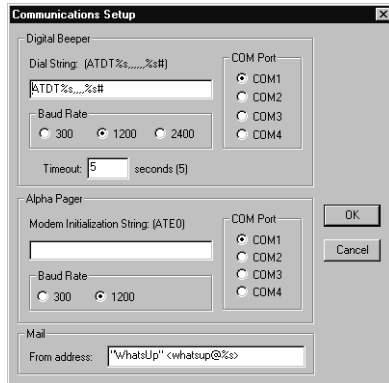
Gate IP

Enter an IP address of a host running SMTP.

Message

Enter a text message plus any of notification variables (see the Notification Message Variables at the end of this section).

3. If you need to change the Mail From Address, click **Comm Setup**. The Communications Setup dialog box appears.



The Mail From Address defines the sender of an e-mail notification as: <whatsup@%s>, where %s is the local hostname. In most cases, you will not need to change this address. If you do change the address, be sure to keep the angle brackets (< >) in place.

4. Click the **Add** button to add the new mail notification.

The mail notification appears in the list of Notifications.

Click the **Test** button to test the notification.

Notification Message Variables

In pager and e-mail notification messages, you can use the following variables to encode information about a network element from WhatsUp.

%u = “UP” or “DOWN”

%n = Display Name

%h = Address/Name

%a = IP Address

%c = System Type

%1 = Info line 1

%2 = Info line 2

%t = time (hh:mm:ss)

%d = date (yy.mm.dd)

%S = status (such as “timed out”, “did not respond”)

%s = integer status (these are Winsock error codes)

%v = down services

%V = down services with “services” printed

%N = notes

%L = log file (or %Lnn where nn=last nn lines of the log file)
(This variable can be used in e-mail messages only.)

Updating Notification

To update an existing notification action, select it in the list of Notifications, edit any of the options, and then click the **Update** button.

Testing Notification

You can test a notification action by selecting it in the list of Notifications and clicking the **Test** button. The test results are displayed in the right side of the Notifications page. To return to the original display, click on a Notification Type.

Connecting to a Network Resource

You set up the Connect Program (for example, Telnet) in the Define options of the network element’s properties. You can then connect to a network resource by clicking on a network element to display the status window, and then selecting **Connect**.

Linking Network Maps

You can create a subnet to link one network map to another to represent a hierarchical network. To link the network maps:

1. Create a Subnet icon in the top-level network map.
2. Open the subnet element's Properties, and enter the following command in the Connect Program text box:

```
[LOAD] database_file_name%
```

where *database_file_name* is the name of the database file of the network map to be linked.

The following example loads the network map defined by the *subnet.db* file.

```
[LOAD] subnet50.db%
```

When you select the Connect program for the subnet, WhatsUp loads the database file and displays the network map.

Saving the Network Map

When you have finished setting up the network map, you can save it by selecting **Save** from the File menu. The Save dialog box appears. Enter a name with the extension *.db* to save the network map and click **OK**.

Setting System Options

You can set system options to determine how WhatsUp will monitor your network. You can set automatic polling or initiate polling manually. See “Chapter 4: Monitoring a Network” and “Chapter 5: Setting System Properties” for more information.

Chapter 4: Monitoring a Network

This chapter describes how to initiate polling of the network elements in your network map and how to display network status information.

Establishing a Currently Active Network Map

Before monitoring a network you need to establish a currently active network map in one of the following ways:

- Load a previously defined network map — Select **Load** from the File menu or click the **Load Database** (open folder) button on the button bar. The Open dialog box will appear to assist you in locating the network map database file to open.
- Define a new network map — Select **New** from the File menu or click on the **Create New Map** (sheet of paper) button on the button bar. Click on the **Tools** button in the button bar to enter Map Edit mode. You can now define a new network map.
- Use the WhatsUp autoscan feature to automatically create a network map — Select **Import→Scan IP** from the Tools menu. The Scan Net dialog box will appear. Modify the network addresses if necessary and click the **Start** button to start the automatic scan. When the scan completes, you can select the network elements that you want to appear in the map.
- Load a hosts file to automatically create a network map — Select **Import→Hosts File** from the Tools menu. WhatsUp scans your hosts file and creates an icon for each host listed in the file.

See “Chapter 3, Setting Up the Network Map” for information on performing these operations.

Setting up the Network for Monitoring

Once you have established an active network map, you should disable the monitoring of any network element that you do not want included in the polling by toggling the **Monitor** check box to off in the **Define** page of the Properties dialog box for that network element. (Note that the icon for that network element will be displayed in a different color, dark gray by default, to indicate its inactive status.) Also, you should set any options that you want to be in effect during network monitoring by selecting **Properties** from the **File** menu and changing any Program, Map, or Colors options. See Chapter 5, Setting System Properties, for more details on setting up system options or display colors).

Initiating Polling

You can initiate a single check of the network, whereby WhatsUp makes a single pass through the elements in the network map, polling each element. You can also initiate automatic polling, whereby WhatsUp polls the network elements continuously, starting each new pass after a specified time interval.

To Initiate a Single Check

When you are ready to begin monitoring your network, you can initiate a single check or polling of currently active network elements by clicking the **Check** button (green check mark) on the button bar or by choosing **Check** from the Tools menu. These two actions are equivalent and result in WhatsUp sending a set number of ICMP echo requests to the specified IP address for each active network element and tracking the responses.

To Stop a Single Check

To stop a single check or polling of currently active network elements, simply click the **Stop** button (crossed-out check mark) on the button bar of the WhatsUp main window.

To Initiate Automatic Polling

To initiate automatic polling of currently active network elements, choose **Properties** from the File menu. The Properties dialog box will appear. In the Map options, set up the number of seconds you want between checks, the number of seconds to wait before time-out, and any other options you may want to change. When you are ready, toggle off the **Disable Automatic Checks** check box and click **OK** to start automatic polling. WhatsUp closes the Properties dialog box and returns to the main window to allow you to follow monitoring operations if you choose.

To Stop Automatic Polling

To temporarily stop polling of currently active network elements, click on the **Poll** (timer clock) button in the button bar. To resume polling, click the **Poll** button again.

To stop automatic polling of currently active network elements, choose **Properties** from the File menu. The Properties dialog box appears. In the Map options, toggle on the **Disable Automatic Checks** check box and click the **Save As Default** button to stop automatic polling. WhatsUp closes the Properties dialog box and returns to the main window.

Monitoring the Network Display

By convention, network elements that respond to polling are displayed in green, those that have missed at least one polling request are displayed in light green, those that have missed two polling requests are displayed in yellow, and those that are not accessible or have not responded to four consecutive polling requests are displayed in red. You can change the default colors in the Colors options, described in Chapter 5.

If you enabled the **Show Timer in Title** check box in the Map options of the Properties dialog box, WhatsUp displays a count-down timer in the title bar of the main window. WhatsUp resets this timer after each polling.

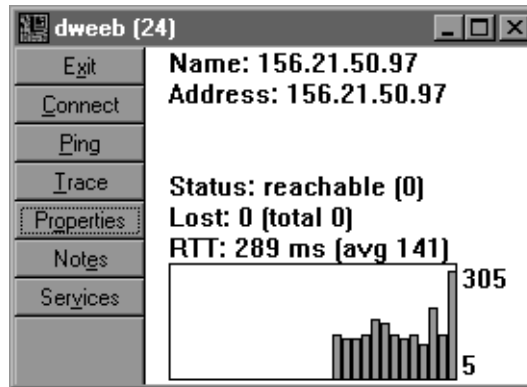
Alarms

An alarm will sound when the network element fails to respond to four consecutive polling requests, provided alarm priority in the element's Down Action properties is set to low, medium, or high priority. A different sound file is played for each level of priority. To hear the alarm, you must have a sound card installed on your system.

To turn off an alarm, click the **Alarm** button in the button bar, or select **Quiet Alarm** from the Tools menu.

Status Information

To display status information associated with any of the displayed network elements (active or inactive), click on the network element. The status window appears.



The status window shows the hostname and IP address of the network element, and displays a current status message. It also displays the status of packets sent by WhatsUp to poll this network element:

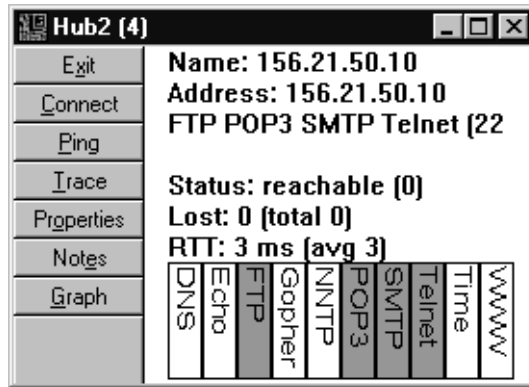
Lost — the number of packets lost and the total number of packets sent .

RTT — (Round Trip Time) the time (in milliseconds) that it took the last packet sent to arrive at the network element and return, and the average RTT for all packets sent.

A graph at the bottom of the dialog box shows the RTT information for the latest packets sent.

You can position, minimize, or delete the status window. In addition, buttons are available to make it convenient for you to select other options from here. These include accessing the **Connect** program for this host, **Ping** and **Traceroute** utilities, the **Properties** window for this host, or related **Notes**. You can toggle another button to change from a **Graph** of monitored results (as shown above) to a visual indicator of the status of the **Services** being monitored. (Note that the appearance of this button changes depending on which of these modes you're in.)

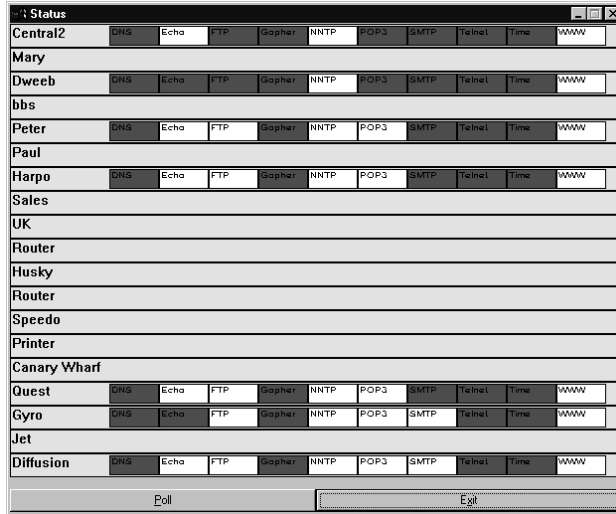
You can click on the **Services** button to show the status of any services that you are monitoring for that network element (as shown below). Services that respond to polling are displayed in green, those that are not accessible or have not responded are displayed in red.



Using the Mini Status Window

The Mini Status shows a list of all the network elements in the currently active map, and displays the status using the same colors used on the network map.

From the View menu, select **Mini Status**. The Mini Status window appears and the network map is closed.



Click the **Poll** button to initiate a single check of each network element. Click the **Exit** button to close the Mini Status and redisplay the network map.

Viewing and Changing Polling Order

WhatsUp polls network elements in the order that they were created on the map. You can view the polling order in the Mini Status window (select **View**→**Mini Status**) or in the database file (select **View**→**Information**→**Database**). You can also change the polling position of a network element.

To read the polling order:

In the Mini Status, the polling order starts at the top and goes down the list of network elements. If there are two columns, it starts in the left column, and continues at the top of the right column.

In the database file, the first number on each line indicates the polling position of the network element.

To change the polling position of a network element:

In the network map, click the right mouse button on the network element that you want to move in the polling order. A pop-up menu appears. Select from the following menu items:

Start of poll

Make the network element the first element to be polled.

Earlier in poll

Move the network element up one position in the polling order.

Later in poll

Move the network element down one position in the polling order.

End of poll

Make the network element the last element to be polled.

Viewing Network Information

WhatsUp provides easy access to information about your local system (the installed TCP/IP stack and your system's operating environment), the network map database files, and the activity log file that logs when any network element goes up or down.

You can display this information by selecting the appropriate item from the View menu.

Stack Information

From the View menu, select **Information**→**Stack** to view information about your local system's TCP/IP stack.

The stack information includes: the type of stack you are running, its status, version number, the maximum number of sockets, and the maximum length of a UDP packet.

Local Information

From the View menu, select **Information**→**Local** to view information about your local system's operating environment.

The local information includes: the system's operating system and version, its CPU and version, the current map window bitmap size (useful when using a bitmap for the map background), the Windows name, the hostname, and the IP address of the local system.

Database Information

From the View menu, select **Information**→**Database** to view the database of network element information.

The database file lists all of the network elements in the network map and shows the following information:

Number — the network element's position in the polling order.

Name — the network element's hostname.

Address — the network element's TCP/IP address.

Status — the network element's last read status

Last — round trip time (RTT) of the last poll

Min — minimum RTT of the last 50 polls

Max — maximum RTT of the last 50 polls

Avg — average RTT of the last 50 polls

TLost — current count of lost polls, if the element is down

TTotal — total count of lost polls since the map was loaded

STotal — current count of lost service polls, if a service is down

The database information that follows the STotal field is used for debugging purposes.

Log Information

Each time a network element goes down, or comes back up after going down the event is recorded in the Log file.

From the View menu, select **Information**→**Log** to view the Log file information.

The Log file shows the following information: the date and time the event occurred, the hostname and TCP/IP address of the network element, whether the event was the element going down or coming up (down/up), and the reason for the failure, such as “timed out,” or “not responding.”

Chapter 5: Setting System Properties

You can change a number of system options by selecting **Properties** from the File menu. From the Properties dialog box, you can select the following options categories:

- Program Options
- Map Options
- Tool Options
- Colors Options
- Notification Options
- WhatsUp Options

Each category is discussed in more detail below.

Program Options



Default map

This is the map database that WhatsUp loads on start up.

Telnet

Program to execute when you select **Tools**→**Network** and then **Telnet** from the pop-up menu that appears. Also the default tool used for the **Connect** pop-up menu option. (Available separately from Ipswitch, the VT320W Telnet Terminal Emulator is an excellent choice.)

FTP

Program to execute when you select **Tools**→**Network** and then **FTP** from the pop-up menu that appears. (Available separately from Ipswitch, WS_FTP Professional™ – Windows FTP Client is an excellent choice.)

Raw socket ICMP ping

This should be selected if you are using a stack that supports raw sockets, such as Acadia/VxD from Ipswitch, OnNet from FTP Software, or Trumpet Winsock.

Microsoft ICMP ping

This should be selected if you are using Microsoft's TCP/IP 32 on Windows NT or Windows 95. If this is checked and you are not using Microsoft's stack, you will get an error on ICMP.DLL.

TCP/IP echo

This should be selected if the other poll options (**Raw socket ICMP ping** or **Microsoft ICMP ping**) will not work. Note that some hosts may not respond to this type of check.

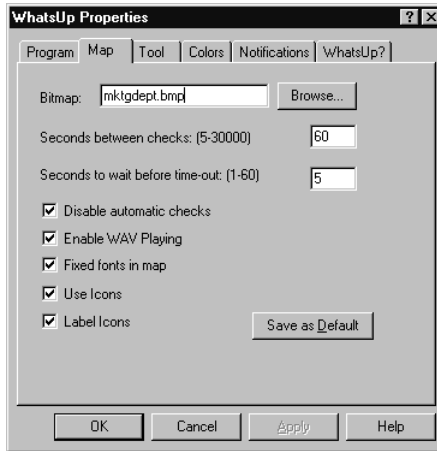
Show Timer in Title

Enables or disables display of the timer in the title bar of the WhatsUp main window. See the related information about the **Seconds Between Checks** option in the "Map Options" section.

Label Toolbar

Checking this box results in larger, labeled buttons being used in the toolbars in the WhatsUp main window and map-edit window.

Map Options



Bitmap

Allows you to specify a bitmap image file to be used as a background for the WhatsUp map. This could be a floor plan, a geographical map (city, state, or country), or any bitmap image that you want.

Seconds between checks

This is the number of seconds between polls. A count-down timer that resets to this number is displayed in the title bar of the main window if the **Show Timer in Title** option is enabled (see the Program Options section). Note: You should experiment to find the optimal value for your network.

Seconds to wait before time-out

This is the number of seconds to wait for a response from a polled network element. This should be set to the smallest possible value. For a local network, a time-out of two seconds is usually valid. For a long-distance (or slow-path) network, this time-out may need to be as high as ten seconds.

Disable automatic checks

If this box is checked, WhatsUp will not automatically poll network elements for their status. You can still press the green check mark button in the main window's toolbar to check the current status of network elements with a single polling.

Enable WAV Playing

Globally enables and disables the alarms that sound when a host goes down or comes up. This option is enabled (checked) by default.

Fixed Fonts in map

Changes the handling of fonts in the display of network elements.

Use Icons

WhatsUp will display icons in place of the simple host name if this box is checked. The type of icon is determined by the **System Type** property of the network element (specified in the **Properties** window).

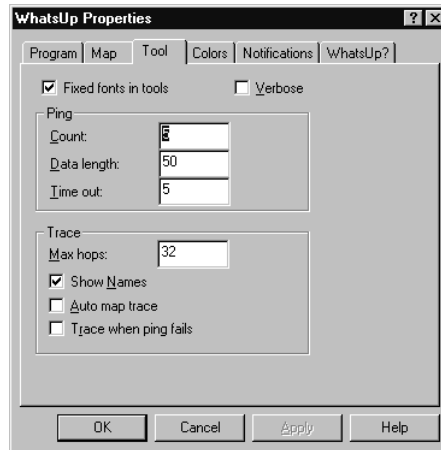
Label Icons

The simple name will be displayed below the icon when the **Use Icons** option and this option are both enabled. The **Label Icons** option can also be used to show labels only, when the **Use Icons** option is not enabled. Note that the color of the background under an icon is the nearest solid color to the current color of the icon.

Save as Default

Click this button to save the current values for all Map options.

Tool Options



Fixed Fonts in Tools

Changes the handling of fonts in the tools' displays.

Verbose

Provide full information in the tools' displays.

Ping Options

The following options are set for the Ping tool.

Count

The number of data packets sent by the ping command.

Data Length

The length in bytes of each packet sent by the ping command.

Time out

The ping will fail if the host does not respond after this number of seconds.

Trace Options

The following options are set for the Trace tool.

Max hops

The maximum number of hops to trace before ending the traceroute. When an IP packet passes from one host to another, it is referred to as one hop.

Show Names

The hostnames of each router along the route will be displayed.

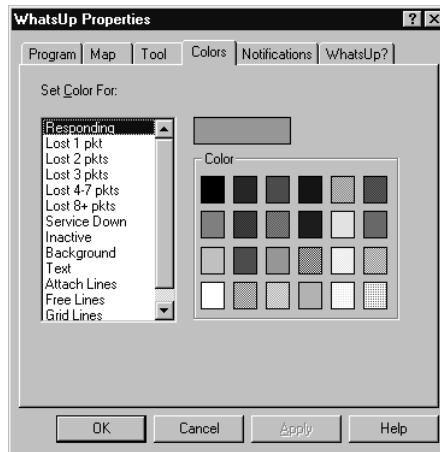
Automap Trace

When this option is enabled, when you launch a trace to a network element, WhatsUp draws a map of the route, displaying an icon for each router and showing the connections from router to router until it reaches the network element. See the “Traceroute” section in Chapter 6 for more information.

Trace when ping fails

When a ping fails, launches a traceroute to map the route to the failed network element.

Colors Options



You can change certain WhatsUp display colors in the Colors options.

Note:

Not all colors are available for use in all systems or for all fields. You will need to experiment for the best results on your system.

To change a color, select the color name in the list box and click the color patch that you want. The current setting for a name is displayed to the right of the list box, above the color patches. Colors that can be modified include:

Responding

This is the color used to paint the icon or text background of a network element that is responding to active checks. The default is solid green.

Lost 1 pkt

This is the color used to paint the icon or text background of a network element that has timed out on one active check. The default is solid light green.

Lost 2 pkts

This is the color used to paint the icon or text background of a network element that has timed out on two consecutive active checks. The default is solid yellow.

Lost 3 pkts

This is the color used to paint the icon or text background of a network element that has timed out on three consecutive active checks. The default is solid yellow.

Lost 4–7 pkts

This is the color used to paint the icon or text background of a network element that has timed out on four to seven consecutive active checks. The default is solid light red.

Lost 8+ pkts

This is the color used to paint the icon or text background of a network element that has timed out on eight or more consecutive active checks and for elements that have a network error such as network unreachable. The default is solid dark red.

Service down

This is the color used to paint the icon or text background of a network element that has a predefined service that is down. The default is solid purple.

Inactive

This is the color used to paint the icon or text background of a network element that is not being monitored (the Monitor option in the Define properties is disabled). The default is solid dark grey.

Background

This is the color used to paint main window background. The default is solid light grey.

Text

This is the color used to paint the text used in labels in the main window. The default is solid black.

Attach lines

This is the color used to paint lines created in the network map using the Attach to item from the pop-up menu. The default is solid yellow.

Free lines

This is the color used to paint lines created in the network map using the Add Line button on the Tools window. The default is solid yellow.

Grid lines

This is the color used to paint the lines that make up the grid on the window background when in map edit mode. The default is solid dark grey.

Notifications Options

When the network does not respond to polling, WhatsUp can send notification via a beeper, a pager message, or an e-mail message. You define these notifications in the Notifications options. See the “Setting Up Properties” in Chapter 3 for information on using these options.

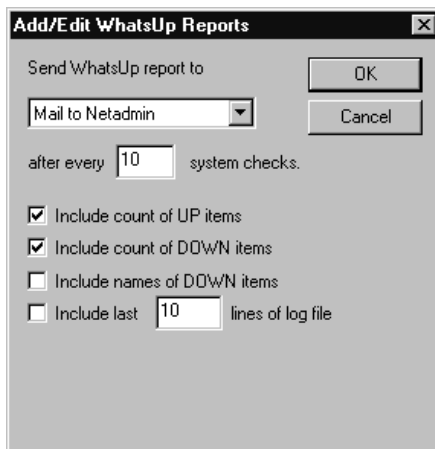
WhatsUp Options

The WhatsUp options let you send a network status report as a pager or e-mail message at a specified time interval. You can set up these options so that you receive up-to-date status reports at a remote site, so you can be assured the network is running smoothly, or so you can be quickly apprised of any problems.



To set up the status report notification:

1. Click the **New** button. The Add/Edit WhatsUp Reports dialog box appears.



2. Select a notification action from the drop-down list.

For example, if you created a notification action that sends e-mail to the network administrator, you can select that action from the drop-down list. If you need to create a notification action, see “Setting Up Properties” in Chapter 3 for information on using the Notifications options.

3. Enter how often (specified as the number of poll requests) you want to send the report.

This number is effected by the **Seconds between checks** option set in the Map options. If you select to send a report after every 10 poll requests, and the **Seconds between checks** is 60 seconds, then the report will be sent every 10 minutes (60 seconds X 10).

4. Check any options you want to use.
5. Click the **OK** button to apply the new notification and close the Add/Edit WhatsUp Reports dialog box.

The new notification appears in the Notifications list on the WhatsUp options page.

6. Toggle on the **Enable** check box to enable all notifications shown in the list box.
7. Click on **Apply**.

Chapter 6: Network Tools

WhatsUp includes a versatile set of tools that enable users to search for and display information about organizations, networks, computers, or people on a network. Accessed from the Tools menu, WhatsUp tools include Lookup, Ping, Traceroute, Finger, and Whois. You can also link your favorite Telnet and FTP program to the Tools menu.

Lookup

What is Lookup?

Lookup is a tool that lets you query Internet domain name servers for information about hosts and name servers. You can use Lookup to print just the name and Internet address of a host or domain, query the name server for information about various hosts and domains, or print a list of hosts in the domain.

Lookup Query

To initiate a Lookup query:

1. In the WhatsUp main window, from the Tools menu, select **Network→Lookup**. The Lookup window appears.
2. In the **Host Name/IP Address** text box, type a hostname or IP address.
3. Click the **Lookup** button. The hostname and IP address are displayed in the Results window.

Ping

What is Ping?

Ping is a network diagnostic tool that is used to verify connectivity to a particular system on your network. Ping sends an ICMP “echo request” in the form of a data packet to a remote host and displays the results for each “echo reply”. This exchange is referred to as “pinging.” The Ping command also displays the time for a response to arrive in milliseconds (this will vary depending on network load), and debugging information about the network interface. You can have multiple instances of the Ping application active simultaneously.

Ping Options

Ping options are set by default. You can change Ping Options from the Options dialog box.

Count

The number of data packets sent by the ping command.

Data Length

The length in bytes of each packet sent by the ping command.

Time out

The ping will fail if the host does not respond after this number of seconds.

To change your Ping Options and access the Options dialog box, do the following:

1. Click the **Options** button and make the desired changes.
2. Click **OK** to confirm the new Options settings.

Pinging a Host

To Ping a Host:

1. In the WhatsUp main window, from the **Tools** menu, select **Network**→**Ping**. The Ping window appears.
2. In the **Hostname/IP Address** box, type a hostname or IP Address (for example, denmark.com).
3. Click the **Ping** button.

The Ping application sends an echo request and waits for the echo reply. If the Ping was successful, summary lines are displayed in the Ping window, indicating the result of the Ping.

If the reply is not received within the timeout value, the Ping fails. This means there has been a failure at one of several points from your PC to the remote host. The host may not be functioning and therefore is unable to respond, a network or gateway in the path from the user may not be working, or the host may not implement the service you are requesting.

Traceroute

What is Traceroute?

Traceroute is a network diagnostic tool that allows users to trace and view the actual route an IP packet follows to an Internet host. Response times are displayed in milliseconds and will vary depending on network load. Traceroute is useful for finding potential trouble spots on large and complex networks that are connected together by routers.

Traceroute Options

Traceroute options are set by default. Traceroute Options can be changed from the Options dialog box.

Max hops

The maximum number of hops to trace before ending the traceroute. When an IP packet passes from one host to another, it is referred to as one hop.

Show Names

When enabled, the hostnames of each router along the route will be displayed along with the IP addresses. When disabled, only the IP addresses are shown. Showing the hostnames will add time to the traceroute as it requires that the IP addresses be resolved.

Automap Trace

When this option is enabled, when you launch a trace to a network element, WhatsUp draws a map of the route, displaying an icon for each router and showing the connections from router to router until it reaches the network element.

Trace when ping fails

When a ping fails, this option launches a traceroute to map the route to the failed network element.

To change your Traceroute Options and access the Options dialog box, do the following:

1. Click the **Options** button and make the desired changes.
2. Click **OK** to confirm the new Options settings.

Traceroute Search

To initiate a Traceroute search, do the following:

1. In the WhatsUp Main Window, from the Tools menu, select **Network**→**Traceroute**. The Traceroute window appears.
2. In the **Host Name** text box, enter a host name.
3. Click the **Traceroute** button.

The results of the Traceroute search are displayed in the Results window.

If the Auto Map Trace option is enabled, WhatsUp draws a map of the route. The following example shows the map of the route from the Supernet server to the localhost generated by an Auto Map Trace.



Finger

What is Finger?

Finger is an application that identifies and displays information about all users on a network host. This information includes a display of current users (IDs and usernames) and related information including the home directory, login time, idle times, office locations, as well as the last time a user received mail, the last time a user read their mail, and any plan contained in the file *.plan* or any project on which they are working in the file *.project* in their home directory.

If the specified host does not have a Finger Server, the Finger client displays the message: `Connection not made`

Finger a Host

Use the Finger command to display the usernames of people logged on to a specified host.

The display produced by the Finger command may change depending on the specified host

To initiate a Finger query, do the following:

1. In the WhatsUp main window, from the Tools menu, select **Network**→**Finger**. The Finger window appears.
2. In the **Finger String** text box, enter a hostname or IP address.
3. Click the **Finger** button.

The Finger client contacts the host's Finger server. The results of the query appear in the window.

Whois

What is Whois?

An Internet username directory service, Whois provides additional information to that provided by Finger about users or hosts on a network. The information includes a contact name, mailing address, telephone number, and network mailbox for all users and organizations who are registered with the Network Information Center (NIC) database.

Note:

The host server for Network Information Center (NIC) is RS.INTERNIC.NET.

Whois Search

To initiate a Whois search, do the following:

1. In the WhatsUp main window, from the Tools menu, select **Network**→**Whois**. The Whois window appears.
2. In the **WAIS Host** text box, enter a hostname or username.
3. In the **Search String** text box, enter a search string.
4. Click the **Whois** button.

The Whois client contacts that host's Whois server. The results of the query appear in the window.

