Cisco TCP/IP Suite Online Help

 Cisco TCP/IP Suite Monitor Options

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 Monitor Procedures
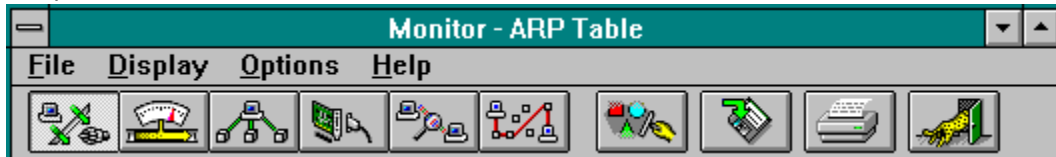
 Monitor Concepts

Cisco TCP/IP Suite Monitor Application

The Cisco TCP/IP Suite Monitor application displays information about the status of Cisco TCP/IP Suite features.

Click graphic fields for more information.

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File Menu

The [File menu](#) lets you store Monitor statistics in a file, print the statistics, and exit Monitor.

Display Menu

The [Display menu](#) lets you specify the statistics to display, and update (refresh) the display.

Options Menu

The [Options menu](#) enables or disables the toolbar, bubble help, and the status bar, and lets you specify program attributes.

Help Menu

The <u>Help menu</u> lets you display information on using Help and the Monitor version number.

ARP Table Button

The ARP Table button, or ARP Table from the Display menu, displays the contents of the ARP (Address Resolution Protocol) cache.

By viewing the contents of the ARP cache and comparing information displayed with the known IP and hardware address pairs, you can be sure that one system on the network is not using another system's IP address.   Checking the ARP cache is useful when the workstation frequently loses connection when communicating with another host on the network.

ARP Table Statistics

The ARP Table lists the contents of the ARP (Address Resolution Protocol) cache. The ARP Table contains these columns:

Host Network Address
Identifies the IP address of the local hosts with which your workstation is communicating. For example, `192.168.240.56`.

Hardware Address
Identifies the hardware address of each host.   For example, `AA:00:04:00:01:60`.

Arp Flags
Identifies whether an entry is temporary or permanent in the ARP cache.

Buffer Statistics Button

The Buffer Statistics button, or Buffer Statistics from the Display menu, shows the amount of RAM (Random Access Memory) space available for temporary storage of data.

Buffer Statistics

The Buffer Statistics indicate the amount of RAM (Random Access Memory) space available for temporary storage of IP data. The Buffer Statistics table identifies the number of buffers in use, the percentage of buffers in use, and the number of denied memory requests.   For example:

```
Cisco TCP/IP Suite Buffer Statistics:
35 out of 96 buffers in use.
      3 buffers allocated to Data.
      8 buffers allocated to Socket Structures.
      12 buffers allocated to Protocol Control Blocks.
      3 buffers allocated to Routing Table Entries.
      4 buffers allocated to Kernel Fork-Processes.
      2 buffers allocated to Interface Addresses.
      2 buffers allocated to Multicast Addresses.
      1 buffers allocated to Link-Level Multicast Addresses.
1 out of 16 page clusters in use.
44 Kbytes allocated to Cisco TCP/IP Suite buffers (9% in use).
0 requests for memory denied.
```

Connection Table Button

The Connection Table button, or Connection Table from the Display menu, lists the workstation's current TCP/IP connections.

Connection Table Statistics

The Connection Table lists the workstation's current TCP/IP connections. The Connection Table contains these columns:

Proto
Identifies the networking protocol being used for each connection.

Rcv-Q
Identifies the number of bytes waiting to be processed.

Snd-Q
Identifies the number of bytes waiting to be sent to the remote host.

Local Addr (Port)
Identifies the IP address and port of the workstation being used for each connection.

Foreign Addr (Port)
Identifies the address and port being used on the remote host.

State
Identifies the status of the connection.

Interface Table Button

The Interface Table button, or Interface Table from the Display menu, displays information about all interfaces on the workstation.   When the statistics display, double-click an entry to view the Interface display window and receive more information about the entry.

Interface Table Statistics

The Interface Table displays information about all interfaces on the PC. The Interface Table contains these columns:

Name
   The name of the interface.

MTU
   The MTU (Maximum Transmission Unit) for the interface.   MTU path discovery determines the maximum TCP packet that can be sent through the network.   By determining the largest, most efficient packet size possible with the hardware at each hop, performance is increased.   This feature is described in RFC-1191.

Network
   The network number for the interface or the interface status. If the network is shown as `****DOWN****`, ensure that the interface is enabled with the Cisco TCP/IP Suite Configuration Utility.   If the device is an Ethernet device, a SLIP interface cannot be running simultaneously.

Address
   The IP address of the interface.

IPkts
   The number of incoming packets.

Ierrs
   The number of incoming errors detected.

Opkts
   The number of outgoing packets.

Oerrs
   The number of outgoing errors.

Collis
   The number of detected collisions.

Double-click an entry to view the Interface display window and receive more information about the entry.

Interface Display Window

The Interface display window lists additional information about an interface entry, and contains these fields:

Flags
Any flags in effect for the interface.

IP Address
The IP address of the interface.

IP Sub-Net Mask
The subnet mask for the interface.

IP Broadcast Address
The broadcast address for the interface.

Protocol Statistics Button

The Protocol Statistics button, or Protocol Statistics from the Display menu, presents detailed networking statistics for all current connections.

Protocol Statistics

The Protocol Statistics list the number of packets sent and received for each TCP/IP protocol. For example:

```
Cisco TCP/IP Suite Protocol Statistics:
10    TCP connections initiated.
10    TCP connections established.
10    TCP connections closed.
77    TCP segments timed for RTT.
67    TCP segments updated for RTT.
7     TCP delayed ACKs sent.
105   TCP packets sent.
58    TCP data packets sent.
3887  TCP data bytes sent.
27    TCP ACK-only packets sent.
20    TCP control packets sent.
118   TCP packets received.
70    TCP packets received in sequence.
5982  TCP bytes received in sequence.
9     TCP packets were out of order.
67    TCP packets had ACKs.
10    TCP packets had duplicate ACKs.
3897  TCP bytes ACKed.
1297  IP packets received.
```

Routing Table Button

The Routing Table button, or Routing Table from the Display menu, identifies the hosts or networks with which the PC is communicating and the routes being used.

Routing Table Statistics

The Routing Table identifies the hosts or networks with which the PC is communicating and the routes being used. The Routing Table contains these columns:

Destination
The IP addresses of hosts or networks with which the workstation is communicating.

Gateway
The IP address of the default route.

Flags
Any flags in effect for the route.

Refcnt
The number of applications currently using each route (the reference count).

Use
The total number of times each route has been used.

Interface
The name of the interface using the route.

MTU
The maximum transmission unit for each route.   MTU path discovery determines the maximum TCP packet that can be sent through the network.   By determining the largest, most efficient packet size possible with the hardware at each hop, performance is increased. This feature is described in RFC-1191.

Refresh Button

The Refresh button, or Refresh from the Display menu, updates the statistics appearing in the table.

Save Button

The Save button, or Save As from the File menu, saves statistics in a file using the <u>Save As dialog box.</u>

Print Button

The Print button, or Print from the File menu, prints statistics using the <u>Print dialog box.</u>

Exit Button

The Exit button, or Exit from the File menu, closes the Monitor application.

File Menu

The File menu contains these commands:

Save As
Saves the displayed statistics to a file.   The shortcut button is:

Print
Prints the displayed statistics.   The shortcut button is:

Print Setup
Lets you change printer options.

Exit
Closes the Monitor application.   The shortcut button is:

Save As Dialog Box

The Save As dialog box lets you save statistics to a file:

File Name
    The name of the file in which to save the statistics.

Save File As Type
    The file format for the file.

Directories
    The directory for the file.

Drives
    The drive for storing the file.

Network
    Connects to another network location so you can assign it a new drive letter.

Print Dialog Box

The Print dialog box lets you print the displayed statistics:

Printer
Shows the active printer and printer connection.   Click the Setup button to change the printer and printer connection.

Print Range group
Lets you specify the pages you want to print: All pages; just the data you selected in the statistics window; or a specific page range.

Print Quality
Determines how clear the printout is, based on the capabilities of your printer.

Copies
The number of copies you want to print.

Collate Copies
Whether you want each copy printed in page number order (checked), or whether you want all copies of each page printed together, so that, for example, all page ones are printed first before printing page two (unchecked).

Setup button
Lets you select a printer and set other printer options using the Print Setup dialog box.

Print Setup Dialog Box

The Print Setup dialog box lets you select a printer, page orientation and dimensions, paper source and other options:

Printer group
    Lets you select either the default printer, or another printer that you have installed.

Orientation group
    Determines whether the printout is in portrait or landscape orientation.

Paper group
    Determines the size of the paper and the paper tray that is used.

Options button
    Additional options that you can set for the selected printer.

Network button
    Lets you connect to a printer on your network.

Display Menu

The Display menu contains these commands:

ARP Table
Displays the contents of the ARP (Address Resolution Protocol) cache.   By viewing the contents of the ARP cache and comparing information displayed with the known IP and hardware address pairs, you can be sure that one system on the network is not using another system's hardware or IP address.   Checking the ARP cache is useful when the workstation frequently loses information when communicating with another host on the network.   The shortcut button is:

Buffer Statistics
Indicates the amount of RAM (Random Access Memory) space available for temporary storage of data.   The Buffer Statistics table identifies the number of buffers in use, the percentage of buffers in use, and the number of denied memory requests.   The shortcut button is:

Connection Table
Lists the workstation's current TCP/IP connections. The Connection Table lists the network protocol, number of bytes being transferred, IP address and port information, and connection status.   The shortcut button is:

Interface Table
Displays information about all interfaces on the workstation. The Interface Table lists interface name, MTU, network, address, packet, and error information. When the statistics display, double-click an entry to view the Interface display window and receive more information about the entry.   The shortcut button is:

Protocol Statistics
Presents detailed networking statistics for all current connections.   The shortcut button is:

Routing Table
Identifies the hosts or networks with which the workstation is communicating and the routes being used. The Routing Table lists route destination, gateway, flags, reference count, use, interface, and MTU (Maximum Transmission Unit) information.   The shortcut button is:

Refresh

Refreshes the displayed statistics.   The shortcut button is:

Options Menu

The Options menu contains these commands:

Program
 Sets Monitor program options using the <u>Program dialog box.</u>

Toolbar
 Displays or hides the <u>toolbar,</u> which is the bar of shortcut buttons beneath the menu.

Bubble Help
 Enables or disables bubble help, which is the quick popup help you get when moving the cursor over the toolbar buttons.

Status Bar
 Displays or hides the status bar at the bottom of the main window.

Program Dialog Box

The Program dialog box lets you specify a refresh rate and how hosts are identified in the statistics.   It contains these fields:

Refresh Interval (Sec)
The number of seconds you would like to elapse before the Monitor application updates the information in the table.

Save Settings on Exit
Determines whether the values you set in this dialog box are saved and used the next time you start Monitor.

Symbolic Display group
Determine how hosts are identified in the statistics.

None
Hosts are identified by IP address.

Host Table
Hosts are identified by the name assigned to the IP address in your host table.

DNS
Hosts are identified by the name assigned to the IP address in the DNS server. Because the DNS servers must be queried for these names, Monitor might run more slowly.

Host Table Radio Button

The Host Table radio button indicates that the Monitor application should identify all hosts by their host names as defined in the host table.

DNS Radio Button

The DNS radio button indicates that the Monitor application should identify all hosts by their host names as defined in DNS (Domain Name System).   Enabling this radio button can generate many queries to DNS domain servers and the Monitor application can, therefore, run slower.

Help Menu

The Help menu contains these commands:

Contents
Displays the [contents page](#) of this help file.

Search for Help on
Searches this help files index.

How to Use Help
Displays help information for using the Windows help system.

About Monitor
Displays version information for the application.

Toolbar

The Monitor toolbar buttons let you display the ARP table, list buffer statistics, display the current connections, list interfaces and their configurations, list protocol statistics, or display the routing table. Additional buttons let you refresh the screen, save output to a file, print output, or exit the Monitor application.
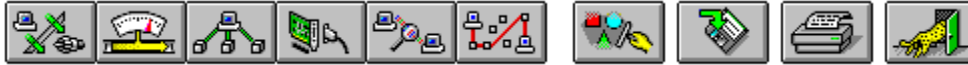
Click graphic fields for more information.

Statistics Table

Each Monitor activity displays its output differently in the statistics table:

- The <u>ARP Table</u> displays the contents of the ARP cache.
- The <u>Buffer Statistics</u> identify the number of RAM (Random Access Memory) buffers in use, the percentage of buffers in use, and the number of denied memory requests.
- The <u>Connection Table</u> lists the PC's current TCP/IP connections.
- The <u>Interface Table</u> displays information about all interfaces on the PC.
- The <u>Protocol Statistics</u> list detailed networking statistics for all current connections.
- The <u>Routing Table</u> identifies the hosts or networks with which the PC is communicating and the routes being used.

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- Using Monitor
- Setting the Refresh Rate
- Identifying Hosts By Host Name or IP Address
- Saving Monitor Statistics in a File
- Printing Monitor Statistics

 Monitor Concepts

Using Monitor

The Monitor application provides detailed information about your PC's TCP/IP communications.

To use Monitor:

Click a Toolbar button from those that follow or select the associated option from the Display menu:

<u>Key</u>	<u>Purpose</u>
	Display the ARP Table, which lists the contents of the ARP (Address Resolution Protocol) cache.
	Display Buffer Statistics, which list the amount of RAM (Random Access Memory) available for temporary IP data storage.
	Display the Connection Table, which lists the workstation's current connections.
	Display the Interface Table, which lists information about all interfaces on the workstation.
	Display the Protocol Statistics, which list the number of packets sent and received for each TCP/IP protocol.
	Display the Routing Table, which lists the hosts or networks with which the workstation is communicating.

Setting the Refresh Rate

To change the frequency at which statistics are updated (the refresh rate):

1. Select Program from the Options menu.
2. Enter a new value in seconds in the Refresh Interval edit box.
3. To save the refresh interval for the next time you use Monitor application, check the Save Settings On Exit check box.
4. Click OK.

Enabling or Disabling Host Names

To display host names instead of IP addresses, or IP addresses instead of host names:

1. Select Program from the Options menu.

2. To display host names as defined in your host table, click <u>Host Table.</u>   To display host names as defined in the DNS server, click <u>DNS</u>   To display only IP addresses, click None.

3. To save your changes for the next time you use the Monitor application, check the Save Settings On Exit check box.

4. Click OK.

Saving Monitor Statistics in a File

To save statistics in a file:

1. Click the <u>Save button</u> or choose Save As from the File menu.
2. Enter the required information.
3. Click OK.

Printing Monitor Statistics

To print Monitor statistics:

1. Click the Print button or choose Print from the File menu.
2. Enter the required information.
3. Click OK.

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Monitor Concepts

Monitor provides detailed information about your PC's TCP/IP communications.   When you click a toolbar button or choose a menu option, Monitor gathers the requested information and displays it in a table for your review.   Monitor lets you establish how frequently the information is updated and lets you determine if hosts should be identified by host name or IP address.   If desired, you can print the currently displayed statistics for later review.

ARP Cache

The ARP cache contains IP-to-hardware-address mappings for local systems with which the workstation is communicating. By viewing the contents of the ARP cache and comparing the information displayed with known IP and hardware address pairs, you can be sure that one system on the network is not using another system's IP address.   Checking the ARP cache is useful when the workstation frequently loses connection when communicating with another host on the network.   To resolve network delivery problems, scan the ARP cache for the hardware address of the host with the delivery problem. If the correct hardware address does not appear in the ARP cache, another machine is using the target host's IP address.

Buffer Statistics

Buffer statistics indicate how much space is available for temporary storage of IP data being sent or received.   To verify that all requests for memory are being honored, examine the PC's buffer statistics.   Occasionally, some requests for memory may be denied.   This is acceptable behavior.   However, if you consistently encounter denied requests for memory, contact your network administrator.

Interface Setup

The Interface table displays information about the PC's interfaces and their configuration.   If desired, you can obtain more information about an interface entry by double-clicking the entry.   The Interface dialog box appears.

Protocol Statistics

The Protocol statistics table presents detailed networking statistics for all current connections.

Routing Table

The Routing table identifies the hosts or networks with which the workstation is communicating and the routes being used.