

Chapter 5

Performance Monitoring

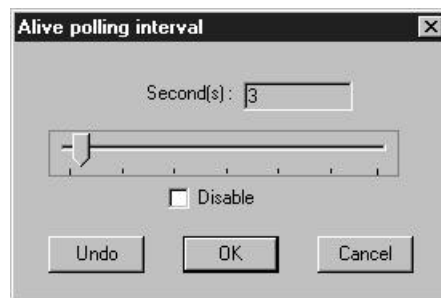
ASM Pro monitors the performance of its agents by periodically checking each agent and reporting this information to the ASM-Station. The system administrator only needs to check the Station to see the latest status of any of the Agents. The Station can be configured to “poll” the Agents whenever the system administrator chooses. The following functions are described in detail in this chapter.

- **Alive Polling Interval.** Checks the connection status between station and agent.
- **Polling Interval.** You can set polling intervals for the station to update the data with the current available information.
- **Disk Utilization.** Information about the performance efficiency of a particular disk on server.
- **Processor Utilization.** CPU utilization information.
- **PCI Bus Utilization.** PCI bus utilization information for some models only).
- **Memory Utilization.** System memory utilization and threshold setting information.
- **NIC Utilization.** Network interface card data transmission utilization information.
- **File System Utilization.** File system utilization and threshold setting information.
- **NIC Fault.** Network interface card data transmission fault.
- **BIOS Event Log Utilization.** Server system event log information.

5.1. Alive Polling Interval

Alive Polling Interval checks for the connection status between the station and the agent.

Select **Setup -> Alive Polling Interval** on the menu bar. The Alive Polling Interval screen displays:



You can use the slider to input a value. Click **Undo** to restore the previous value. Checking the disable box simply disables ASM's Alive Polling Interval. Specifying 3 seconds will set the ASM-Station to check the connections every 3 seconds.

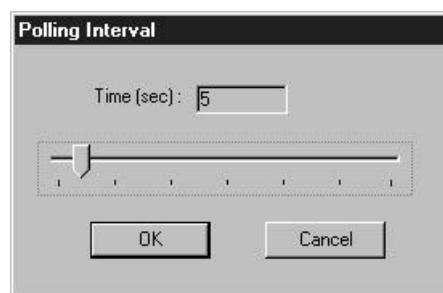


The number of seconds must be a number between 1 and 60.

5.2. Polling Interval

The Station polling interval determines how frequently the Station polls the Agent(s) to update its data.

You can set polling intervals for the ASM-Station. Using different polling interval values reduces unnecessary network traffic. Select **Setup -> Polling Interval** from the menu bar to display the Polling Interval dialog box.



Use the slider to specify the integer value as a polling interval (in seconds) for the ASM-Station. Click **OK** to set the value.



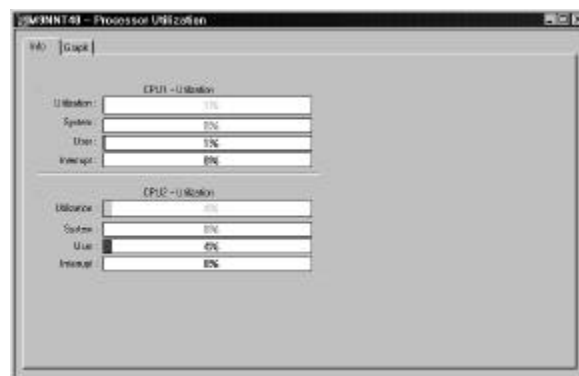
The polling interval must be a number between 1 and 60 seconds.

5.3. Processor Utilization

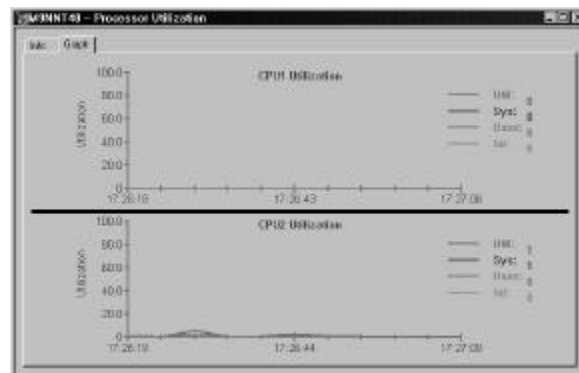


Click on the **Processor Utilization** toolbar button from the toolbar menu to view processor utilization information.

This screen shows the percentage of utilization of each CPU. The higher the number, the busier the CPU. This can be used to indicate how much load the server has and how well the server's processing power is handling your server's load.



Click on the **Graph** folder to see a graphic representation. A screen similar to the following appears:



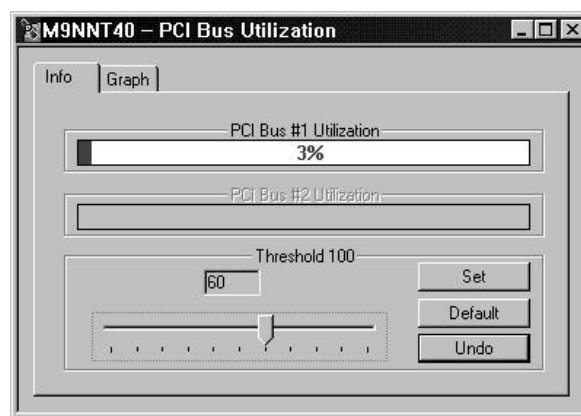
5.4. PCI Bus Utilization (for some models only)

Click on the **PCI Bus Utilization** toolbar button from the toolbar menu to view PCI bus utilization information.

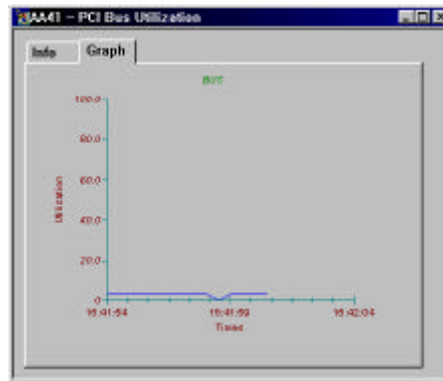
From here, you can set the threshold value so that the ASM-Station will notify you when the threshold value for the server has been exceeded.

5.4.1 Utilization

In the screen shown below (the Info tab), the 3% indicates that PCI Bus #1 has used 3% of its system resources. The threshold setting is set at 60%. When the utilization percentage (3%) exceeds this threshold (60%), the Utilization field will turn from green to red, indicating that the threshold has been exceeded. For more information about setting Trap Handling, please refer to the “Event Notification and Threshold Setup” section.



Click on the **Graph** folder to see a graphic representation. A screen similar to the following appears.



5.4.2 Threshold Settings

Threshold settings indicate when a desired limit is exceeded. When a threshold setting is exceeded, a trap is sent to the ASM-Station. The ASM-Station then either notifies the system administrator or takes corrective action, depending on the nature of the fault.

Threshold settings are preset by the manufacturer for each server and stored at the server. These threshold settings may be changed by the system administrator using the three buttons on the PCI Bus Utilization screen.

Set

You can point your mouse at the threshold setting meter, and drag the meter to the desired position. Click **Set** to save the changes.



If the password is enabled in the ASM-Agent, you will be required to enter the password for the Agent when changing the threshold setting. See "Installing ASM-Agent" in Chapter 1.

Undo

Click this button to undo the last change you made. After you have moved the threshold setting meter or clicked on **Default**, you can click on the **Undo** button to restore the current setting. Pressing the **Undo** button alone will have no effect.

Default

Click this button at any time to return to the system default setting. You must click on **Set** to save the changes. The default value is 100.



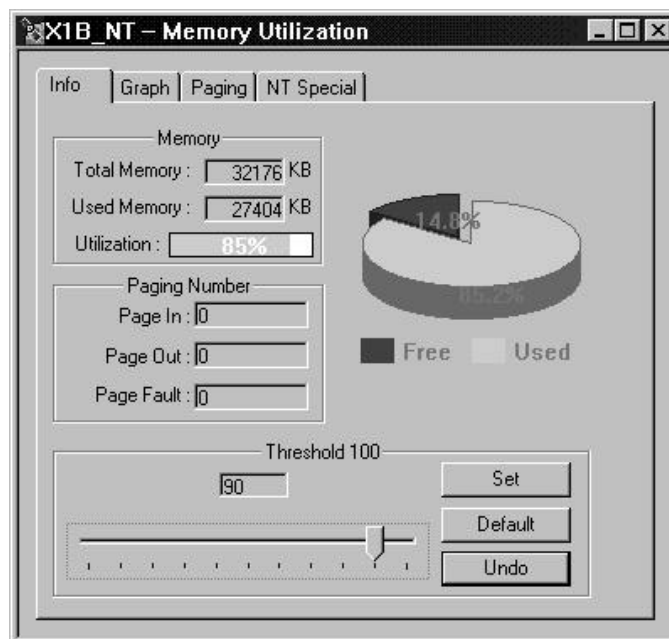
If the password is enabled in the ASM-Agent, you will be required to enter the password for the Agent when changing the threshold setting back to the default. See "Installing ASM-Agent" in Chapter 1.

5.5. Memory Utilization

Click the **Memory Utilization** icon on the toolbar. The Memory Utilization window appears.

5.5.1 Info Folder

In the screen below, 85% indicates that the system memory is using 85% of its system resources. The threshold setting is set at 90%. When the utilization percentage (85%) exceeds this threshold (90%), the Utilization field will turn from green to red, indicating that the threshold has been exceeded. For more information about setting Trap Handling, please refer to “Event Notification and Threshold Setup” in Chapter 6.



The table below describes each items available in the Info folder.

Items	Descriptions
Total Memory	Total memory is displayed only if the selected server is an NT or SCO OpenServer server.
Used Memory	Total memory used is displayed only if the selected server is an NT or SCO OpenServer server.
Cache Buffer	The selected server's total cache buffer (displayed only if the selected server is a NetWare server).
Used Buffer	The used buffer size of the selected server (displayed only if the selected server is a NetWare server).
Memory	The percentage of total memory used. If this number is close to 100%, you should consider adding more physical memory to your server if the server has not already reached its maximum capacity.
Page In Numbers	The number of pages read into physical memory from disk when the operating system performs memory swapping (displayed only if the selected server is an NT or SCO OpenServer server).
Page Out Numbers	The number of pages written into the disk from physical memory when the operating system performs memory swapping (displayed only if the selected server is an NT or SCO OpenServer server).
Page Faults	The number of page faults that have occurred (displayed only if the selected server is an NT or SCO OpenServer server).

Threshold Settings

Threshold settings indicate when a desired limit is exceeded. When a threshold setting is exceeded, a trap is sent to the Station. Station then either notifies the system administrator or takes corrective action, depending on the nature of the fault.

Threshold settings are preset by the manufacturer for each server and stored at the server. These threshold settings may be changed by the

system administrator using the three buttons on the Memory Utilization menu.

Buttons	Descriptions
Set	You can point your mouse at the threshold setting meter, and drag the meter to the desired position. To save the change, click Set after making the change.
Undo	Click this button to undo the last change you made. After you have moved the threshold setting meter or clicked on Default , you can click on the Undo button to restore the current setting. Pressing the Undo button alone will have no effect.
Default	Click this button at any time to return to the system default setting. You must click on Set to save this change. The default value is 100.

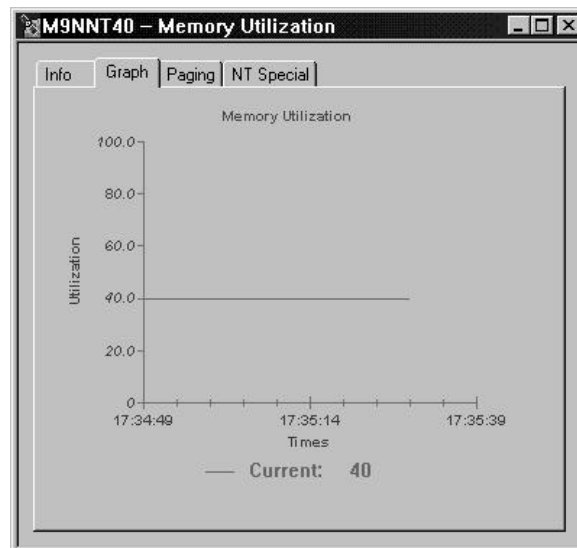


If the password is enabled in the ASM-Agent, you will be required to enter the password for the Agent when changing the threshold setting. See “Installing ASM-Agent” in Chapter 1.

If the password is enabled in the ASM-Agent, you will be required to enter the password for the Agent when changing the threshold setting back to the default. See “Installing ASM-Agent” in Chapter 1.

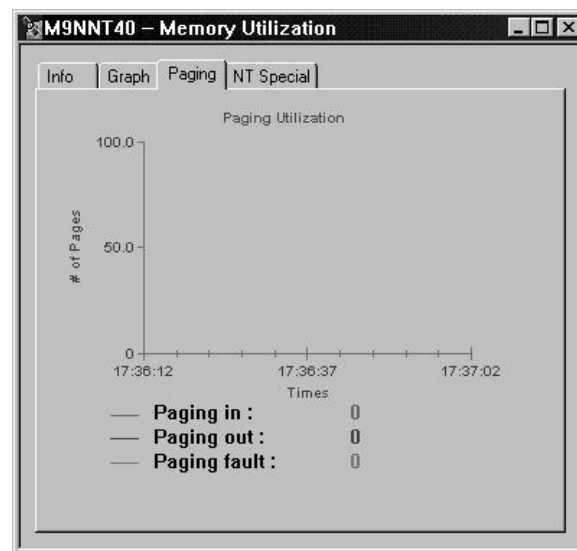
5.5.2 Graph Folder

Click on the **Graph** folder to see a graphic representation. A screen similar to the following appears:



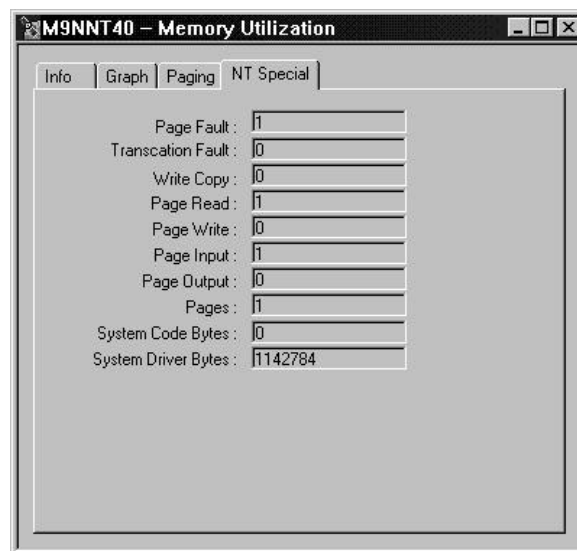
5.5.3 Paging Folder

The Paging tab shows a graphic representation of memory paging.



5.5.4 NT Special Folder

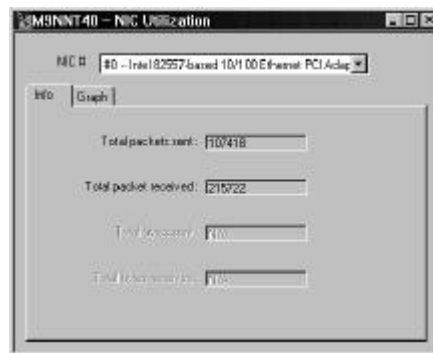
The NT Special tab shows Windows NT-specific information related to memory utilization.



5.6. NIC Utilization

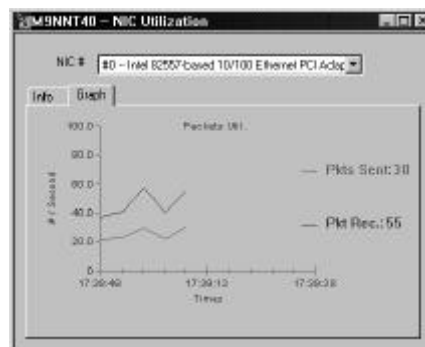


The **NIC Utilization** toolbar button shows the receive and transmit transactions of network cards on the selected server.



The window above shows current receive and transmit transactions (bytes and packets) of NICs on selected servers. This information is especially useful in determining the periods during which the agent is at its peak.

A graphical representation of this information is also available.



5.6.1 NIC Utilization Window Items

The table below describes each items in the NIC Utilization window.

Items	Descriptions
NIC#	The selected NIC number. This item has a description of the NIC type.
Total Packets Sent	The number of transmitted packets.
Total Packets Received	The number of packets received.
Total Bytes Sent	The number of transmitted bytes.
Total Bytes Received	The number of bytes received.

5.7. NIC Fault

To display the NIC Fault screen, select **Information** from the menu bar. Then select the **NIC Faults** pulldown menu of the Utilization submenu.

This tab shows the number of instances of different faults in the selected Network Interface Card.

To view a particular network card, click the arrow button of the NIC# combo box and select a network card from the list.

For NetWare agents, the following items are shown:

The screenshot shows a window titled "M9N411 - NIC Fault". At the top, there is a dropdown menu for "NIC#" with the selected value "#0 - Intel 82557-Based PCI LAN adapter". Below this is a tab labeled "Info". The main area of the window contains two columns of fault counts, each with a label and a text input field. The labels and their corresponding values are:

Label	Value
No EOB available count:	0
Send packet too big count:	0
Receive pkt overflow count:	0
Receive pkt too big count:	0
Receive pkt too small count:	N/A
Receive pkt miscellaneous errors:	0
Send pkt miscellaneous errors:	0
Send pkt retry count:	N/A
Checksum errors:	0
HW receive mismatch count:	0
Adapter reset count:	0
Send OK single collision:	0
Send OK but deferred:	0
Send - late error collision:	0
Send - excess collision:	0
Send - carrier sense error:	0
Send - excess defer:	0
Receive - bad frame align:	0

For SCO OpenServer and SCO UnixWare agents, the following items are shown:

The screenshot shows a window titled "m9n504 - NIC Fault". Below the title bar is a dropdown menu for "NIC #" showing "#0 - Intel EtherExpress PRO/100B LAN Adapter". Below this is an "Info" tab. The main area contains two columns of statistics, each with a label and a text input field:

Deferred frame :	111	Bad SAP received :	590
Total collisions :	16	Multicast frames rejected :	0
Frames involved in a collision :	16	Errors due to lost carriers :	0
Out of frame collisions :	0	Errors due to lost CTS :	0
Frames dropped - excessive coll :	0	DMA over/under runs :	0
Frames dropped - no streams :	0	Device timeout :	0
Frames dropped - no resource :	0		
Bad checksum received :	0		
Bad alignment received :	0		
Bad length received :	0		

For Windows NT agents, the following items are shown:

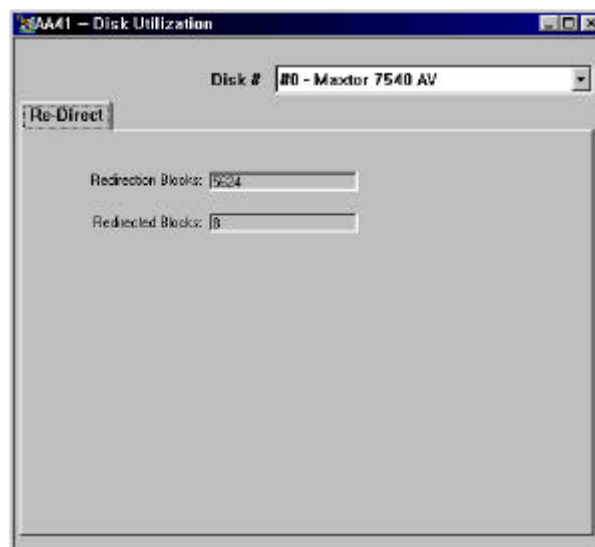
The screenshot shows a window titled "M9NNT40 - NIC Fault". Below the title bar is a dropdown menu for "NIC #" showing "#0 - Intel 82557-based 10/100 Ethernet PCI Adapter". Below this is an "Info" tab. The main area contains two columns of statistics, each with a label and a text input field:

Frame Transmit Error	0	Transmit heart beat	0
Frame receive error	0	CRS lost	0
Frame receive CRC error	0	Transmit late collision	0
Receive frame alignment error	0		
Transmit OK one collision	98		
Transmit OK more collision	136		
Transmit OK deferred	1798		
Transmit fail max collision	0		
Receive error overrun	0		
Transmit error underrun	0		

5.8. Disk Utilization

Select this option from the Utilization submenu of the Information menu to view the selected server's Disk Utilization.

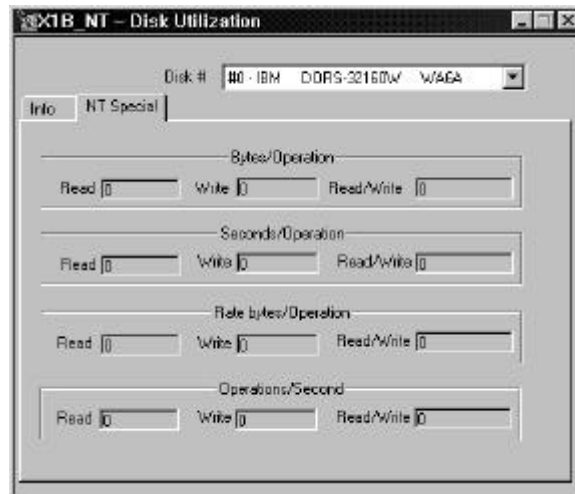
For NetWare, this command is enabled only if a server is highlighted in the System Listing window and is used to view the number of redirected blocks in the storage device for the NetWare environment.



For SCO OpenServer and Windows NT, Disk Utilization will display information similar to the screen below.



Notice that for Windows NT, you can click on the **NT Special** tab to display some information that is only supported in Windows NT. The figure below shows a sample screen.



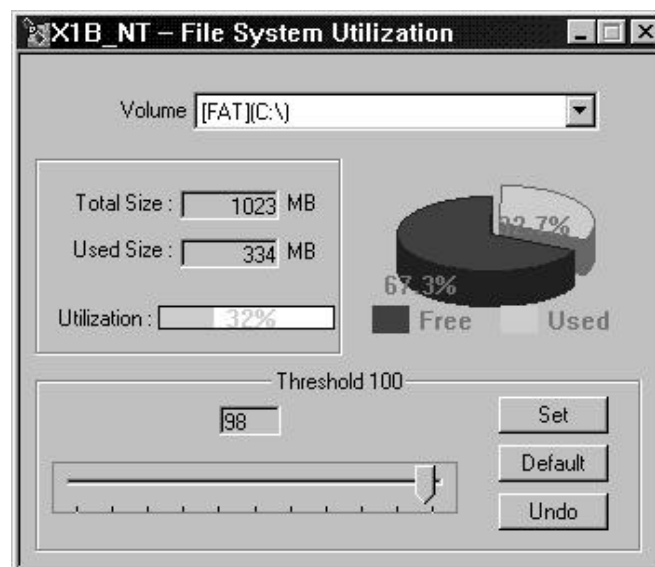
The table shows the items and their descriptions.

Items	Descriptions
Bytes/Operation	The average number of bytes transferred to or from the disk during write or read operations.
Seconds/Operation	The average time in seconds it takes to read or write data to the disk.
Rate bytes/Operation	The rate bytes are transferred to and from the disk.
Operations/Second	The rate of read and write operations on the disk.

5.9. File System Utilization

Select this option from the Utilization submenu of the Information menu to view the selected server's File System Utilization.

In the screen shown below, 32% indicates that the file system utilization is using 32% of its available resources. The threshold setting is set at 98%. When the number 98 is exceeded, the Utilization field turns from green to red, indicating that the threshold has been exceeded. For more information on setting event notifications, refer to “Event notification and Threshold Setup” in Chapter 6.



The table below shows the items and their respective descriptions.

Items	Descriptions
Volume/File System Name	Selected server's volume name (NetWare and Windows NT) or file system name (SCO OpenServer).
Total Size	The volume or file system size in megabytes.
Used Size	The used volume or file system size in megabytes.

5.9.1 Threshold Settings

Threshold settings indicate when a desired limit is exceeded. When a threshold setting is exceeded, a trap is sent to the ASM-Station. The ASM-Station then either notifies the system administrator or takes corrective action, depending on the trap handling method selected by the system administrator.

Threshold settings are preset at 100 by the manufacturer for each server and stored at the server. These threshold settings may be changed by the system administrator using the three buttons on the File System Utilization menu.

You can set a threshold for each filesystem configured in your server. You can select the filesystem from the File System field, then use the **Set**, **Default** and **Undo** buttons to set or change the threshold for that file system.

Set

You can point your mouse at the threshold setting meter, and drag the meter to the desired position. Click **Set** to save the changes.



If the password is enabled in the ASM-Agent, you will be required to enter the password for the Agent when changing the threshold setting. See "Installing ASM-Agent" in Chapter 1.

Undo

Click this button to undo the last change you made. After you have moved the threshold setting meter or clicked on **Default**, you can click on the **Undo** button to restore the current setting. Pressing the **Undo** button alone will have no effect.

Default

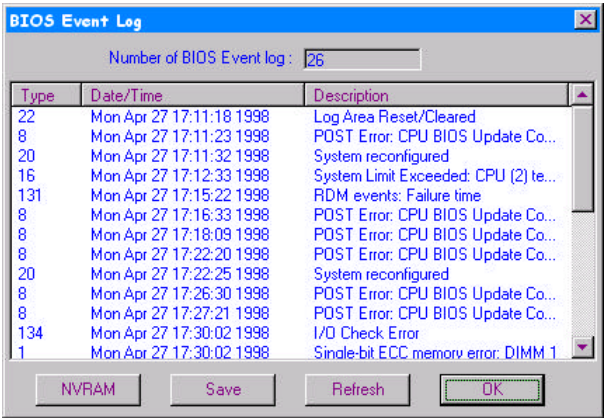
Click this button at any time to return to the system default setting. You must click on **Set** to save the changes. The default value is 100.



If the password is enabled in the ASM-Agent, you will be required to enter the password for the Agent when changing the threshold setting back to the default. See "Installing ASM-Agent" in Chapter 1.

5.10. BIOS Event Log Utilization

This dialog box appears when you click **Tools→BIOS Event Log Utilization** in the menu bar. It shows you the event log of the servers being monitored.



Number of BIOS Event Log

This box displays the number of events currently log into the SEEPROM.

Type

The type of event registered into the SEEPROM.

Time

The time when the event is recorded.

Description

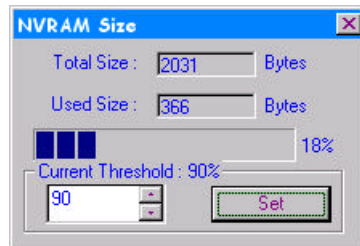
A description of the event registered into the SEEPROM.



Please refer to your main board's user's manual for more information concerning BIOS Event Log.

5.10.1 NVRAM

This button shows you the total amount of memory allocated for storing BIOS events in the RAM.



Total Size

Total number of bytes allocated to store BIOS event information.

Used Size

Total number of bytes currently stored in the RAM.

Current Threshold

Shows the percentage setting of allowable occurrence.

You can adjust the threshold setting accordingly by inputting the number of percentage in the input box and then clicking the Set button to accept the setting.