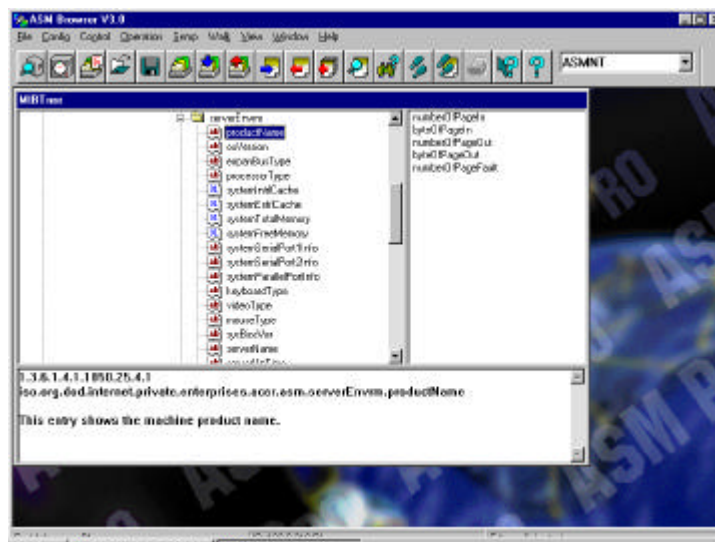


Chapter 9

ASM Browser

ASM Browser is a MIB (Management Information Base) file browsing tool included with the ASM package. You can start ASM Browser by clicking on the ASM Browser icon in the ASM Station program group.

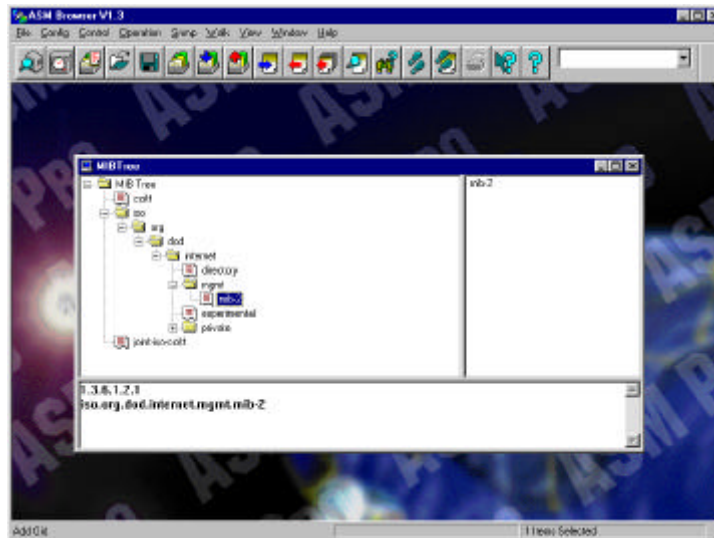
To launch ASM Browser from ASM Station, click the ASM Browser icon on the toolbar or select ASM Browser from the Tools menu.



This tool allows you to view and modify the OID (Object ID) values of the machines you are managing on your network. It also allows you to define and maintain a list of OIDs to view.

9.1 ASM Browser User Interface

The ASM Browser user interface allows you to move around easily. You can access different information using menu commands or clicking buttons.



When you start ASM Browser, the main screen will display the information from your last ASM Browser session. This section discusses these major screen components:



- Menu Bar and Toolbar
- Machine List Combo Box
- MIB Tree Window
- Selection Window
- Description Window
- Status Bar

9.1.1 Menu Bar and Toolbar






Toolbar buttons enable quick access to selected functions in ASM Browser through a single mouse click. The Menu Bar contains the following items and commands:






- File Menu - allows you to save and print your files.

Item	Icon	Description
Save		Lets you save an existing query
Print Setup		Lets you setup the printer
Print		Lets you print information contained in the window
Exit		Ends ASM Browser session




- Config Menu - generally controls the environment of the browser. You can select machines to view and set polling intervals.



Item	Icon	Description
Auto Discovery		Lets you select machines to browse from your network
Timer		Lets you set polling intervals
Trap		Lets you enable/disable the Trap Handling function and view the trap log
Community		Specify the community for Get and Set Operations

- Control Menu - contain the tools for manipulating and viewing MIBs. It includes a submenu for adding and removing MIBs.







Item	Icon	Description
Define New Query		Lets you specify your own query (list of OIDs) to browse
Select Query		Lets you select from a list of previously defined queries to browse or remove queries from the list
Manage Database Submenu		
Initialize		Removes all installed MIB files from the existing MIB database
Add MIB		Adds a MIB file into the MIB database
Remove MIB		Removes an installed MIB file from the MIB database
History		Show you a list of installed MIB files

- Operation Menu - contain the tools for manipulating and viewing OIDs. It include commands to let you add or remove OIDs in the Selection window and view the values of these OIDs.





Item	Icon	Description
Add		Appends the highlighted OID or OIDs of a highlighted node in the MIB Tree Window to the Selection Window
Remove		Deletes the selected OIDs from the Selection Window
Remove All		Clears the Selection Window

Item	Icon	Description
Browse		Displays the values of the OIDs in the Selection Window
Find		Search the OID which users want to find in the MIB tree.

- **SNMP Menu - SNMP (Simple Network Management Protocol)** is a tool that allows you to control and view information concerning OIDs. The pull down menu is only enabled when the SNMP Table is open. Please refer to section 9.2.10, for more information on how to open the SNMP Table.

Item	Icon	Description
Get		Update the contents of the OID Value table with the current OID values.
Set		Enabled only when the SNMP Table is the active window and when the OID selected can be modified.
Polling		Continually retrieve the current values of OIDs and update the OID Value table
Timer		Lets you set the time interval for polling
Rotate		It is used to switch the order in which the contents of the OID Value Table are displayed. This command acts as a toggle between views, therefore rows are turned into columns and vice versa
Option		Lets you assign a log file for keeping records

- Walk Menu - detects available OIDs from a node or subnode and display its values.

Item	Icon	Description
MIB Tree		Use this command to display the values of a selected node and its subnodes in the Walk Operation window.
OID		Use this command to specify an OID in the Walk Operation - Input dialog box from which the walk operation will start.
Pause		This command is available only when a walk operation is in progress to temporarily halt or resume the walk operation.
Set		This command is enabled only when the Walk Operation window is the active window and when the OID selected can be modified. Choose this command and the Set Operation dialog box will be displayed .



- View Menu - gives you the option of whether or not to show the toolbar and status bar.

Item	Description
Toolbar	Displays/hides the toolbar
Status Bar	Displays/hides the status bar

- Window Menu - allows you to arrange the windows in your ASM Browser.

Item	Description
Cascade	Displays/hides the toolbar
Tile	Displays/hides the status bar
Arrange Icons	arrange the icons properly
Split	splits the window which gives you a scrollable view of the same file in two windows

- Help Menu - ASM Browser comes with a context-sensitive Help menu with the following items:

Item	Icon	Description
Help Topics		Starts ASM Browser Help, displaying the Index screen
About		Displays ASM Browser product information

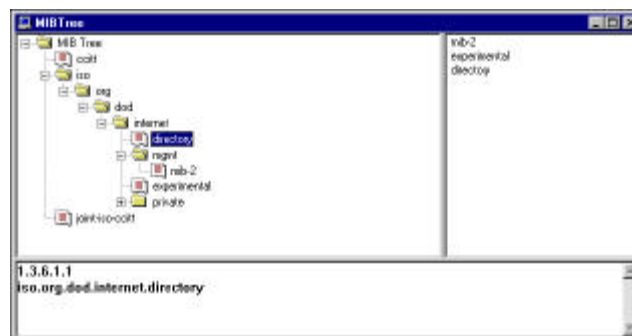
9.1.2 Machine List Combo Box



Use this box to select the name of the machine whose OIDs you want to view. The Machine List Combo Box contains all the machines added to the Machines Selected list in the AutoDiscover dialog box.

9.1.3 MIB Tree Window

Located on the left side of the screen, this window shows the MIB tree structure. MIB nodes and subnodes are represented by folders while OIDs are represented by documents. You can expand or collapse these nodes by clicking the folder. When you double-click an OID, it will be added to the Selection Window. If you double-click a node, all OIDs contained in that level will be added.




9.1.4 Selection Window

This window can be found on the right side of the ASM Browser main screen. OIDs selected from the MIB Tree Window or a list of previously defined OIDs from the Select Query dialog box can be seen here.

9.1.5 Description Window

The description window is located at the lower part of the ASM Browser main screen. It displays OIDs, labels and a brief description of the node or OID highlighted in the MIB Tree Window.

9.1.6 Status Bar



For Help, press F1	IP: 192.9.210.26	7 Items Selected
--------------------	------------------	------------------

Located along the bottom of the screen, the status bar provides different information as you work with ASM Browser. The left side displays a brief description of a highlighted menu command or a clicked toolbar button. The right side contains the network address of the selected machines and the number of selected items in the Selection Window.

9.2 Browser Functions

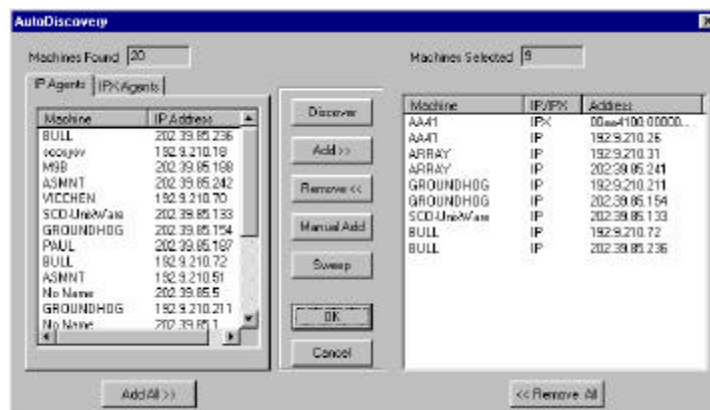
This section tells you how to do the following:

- Selecting networks
- Setting polling intervals
- Defining a new query
- Selecting a query
- Initializing the database
- Adding a new MIB
- Removing an MIB
- Adding an OID
- Removing an OID
- Browsing OIDs (SNMP Table)
- Taking a Walk through the MIB
- Finding an OID

9.2.1 Selecting Networks



From the Config menu, select Auto Discovery or click on the Auto Discovery icon on the toolbar menu to display the Auto Discovery Configure dialog box.



This box displays all IP/IPX machines in your network detected by ASM Browser. The following options are available in this dialog box.

Auto Discovery Dialog Box Items

Item	Description
Machines Found	This list displays all the IP/IPX machines available on your network
Machines Selected	This list shows all the machines to be monitored by ASM Browser
Buttons	
Discover	“Refresh” or rediscover existing machines
Manual Add	You can manually add an IP address by clicking this button

Auto Discover Dialog Box Items (continued)

Item	Description
Buttons	
Sweep	Searches an address by matching the first three blocks you specified
Add	Clicking this button will append the highlighted IPX machines in the Machines Found list or the IP machines specified in the IP Address field to the Machines Selected list
Remove	Clicking this button will delete the highlighted machines from the Machines Selected list
Add All	Clicking this button will highlight all available machines currently listed in the Machines Found list to the Machines Selected list
Remove All	Clicking this button will remove all the machines in the Machines Selected list
OK	This button closes the dialog box and causes the modifications you made to take effect. The Server combo box will now contain all the machines you specified in the Machines Selected list.
Cancel	This button closes the dialog box, discarding all changes made.



In order to make the auto discovery function work properly, the agent must be able to respond to the standard MIB-2 requests. Please refer to RFC1213 for more information about MIB-2.

9.2.2 Setting Polling Intervals



From the Config menu, select Timer to display the Configure Timer dialog box.



This dialog box allows you to set the polling intervals in seconds.

Configure Timer Dialog Box Items

Item	Description
Polling Interval Field	Type an integer from 1 to 60 to specify the polling interval
Buttons	
OK	Closes the dialog box and causes the modifications you made to take effect
Cancel	Closes the dialog box, discarding all changes made

9.2.3 Saving Information/Defining a New Query

Saving Information

This command works three ways depending on the current active window:

- If the MIB Tree window is the active window, choosing this command will display the Define New Query dialog box. For more information on “Defining a New Query”, please refer to the next page.
- If the SNMP Table window is the active window, choosing this command will display the Save SNMP Information dialog box. Information contained here is saved as a text file with a .SMP file extension.



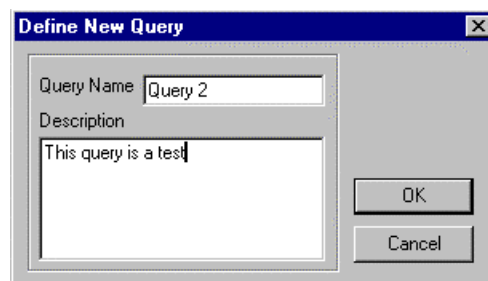
- If the Walk Operation window is the active window, choosing this command will display the Save Walk Information dialog box. Information contained here is saved as a text file with a .WLK file extension.



Defining a New Query

Follow these steps to define a new query (set a list of OIDs to view):

1. Select the OIDs you want to include in the query and add them to the Selection Window.
2. Select Define New Query from the Control menu. The Define New Query dialog box displays.
3. Type a name and description for the query.
4. Click **OK** to accept.



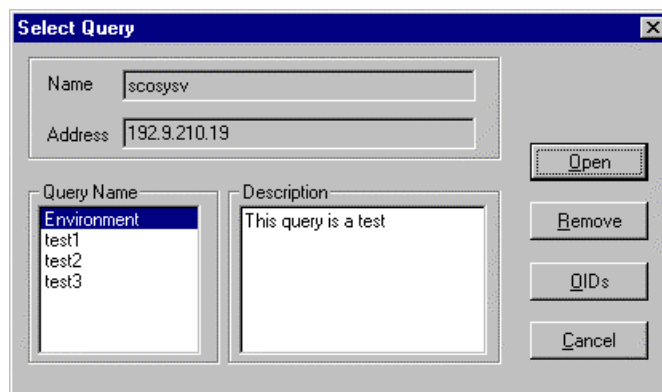
This dialog box lets you specify a name and description of the list of OIDs frequently viewed and saves this information to the database. This eliminates the need to individually search for the same sets of OIDs to view each time you start ASM Browser. After setting a query, it will be added to the Name field in the Select Query dialog box.

Each time you want to view this list, simply select its name from the Select Query dialog box. See section 9.2.4 for more information on Selecting Queries.

9.2.4 Selecting a Query



From the Control menu, click on this command to select from or remove a list of previously defined OIDs to view. The Select Query dialog box appears.



This dialog box allows you to choose from a list of previously defined queries. It also places all OIDs in this query into the Selection window. You can also remove queries from the database or clear the database of all queries.

You can also see the following options in this dialog box.

Select query dialog box items

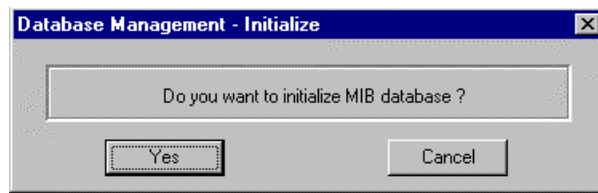
Item	Description
Name Field	This field shows the name of the machines you are currently browsing.
Address Field	This field displays the network address of the machines you are currently browsing.
Query List	All query names defined in the Define New Query dialog box are listed here. Click the name of the query you want to view or remove from the database.
Description Field	This field displays a brief description of the selected query.
Buttons	
Open	This button opens the selected query.
Remove	Click this button to remove all queries in the database. This action will take effect only after clicking OK.
OIDs	Shows the OIDs defined in this query.
Cancel	This button closes the dialog box, discarding all changes made.

9.2.5 Initializing the Database



The Initialize command removes all installed MIB files from the existing MIB database. After this process is carried out, only the basic MIB tree contents will remain.

Select **Initialize** from the Manage Database submenu of the Control menu. The Database Management Initialize dialog box appears for you to confirm the initialization.



This dialog box prompts you to confirm whether or not to continue initializing the MIB database. To continue, click **Yes**, otherwise, click **Cancel** to close this box without initializing.

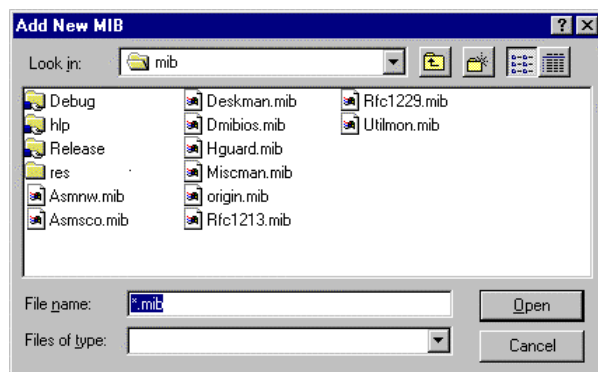


The initialize action cannot be undone. Do not click the Yes button unless you are sure about removing all installed MIB files from the database.

9.2.6 Adding a New MIB



To install a new MIB file into the existing MIB database, select Add from the Manage Database submenu of the Control menu. The Add New MIB dialog box appears where you can specify the path and filename of the MIB file you want to install.



The following options allow you to specify which file to add or remove:

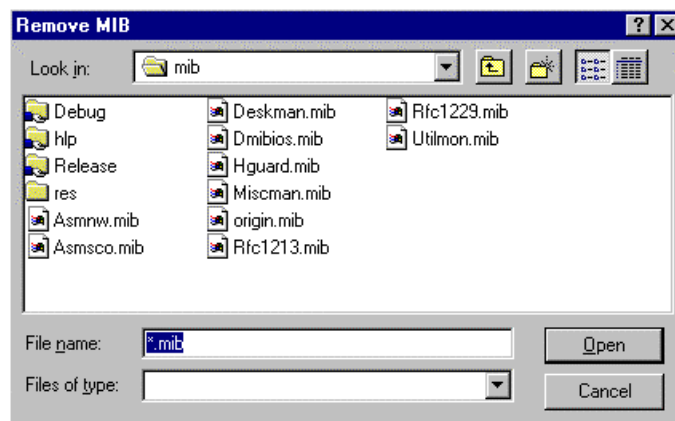
Add New MIB / Remove MIB Dialog Box Items

Item	Description
File Name	Type or select the filename you want to add or remove. This box displays the files with the extension you specified from the List Files of Type box.
Files of Type	This box lets you specify the extension the file you want to add or remove
Look in:	Use this box to specify the drive containing the file you want to add or remove

9.2.7 Removing an MIB



To remove an installed MIB file from the existing MIB database, select **Remove** from the Manage Database submenu of the Control menu. The Remove MIB dialog box (similar to the Add New MIB dialog box) appears where you can specify the path and filename of the MIB file you want to remove.



To remove all installed MIB files from the MIB database, choose the **Initialize** command.

9.2.8 Adding an OID



Select the OIDs you want to view by highlighting them from the MIB Tree then choosing the **Add** command from the Operation menu or clicking its button from the toolbar. The OID will appear on the upper right frame of the MIB Tree window.



If you highlight a node, all OIDs on that node will be added.

9.2.9 Removing an OID



Select the OIDs you want to remove by highlighting them from the Selection window then choosing the **Remove** command from the Operation menu or clicking its button from the toolbar. The OID will disappear from the Selection window.



Removing All OID

You can simultaneously remove all the OIDs in the Selection window by clicking on the **Remove all** toolbar or by choosing the Remove All command from the Operation menu.

9.2.10 Browsing OIDs (SNMP Table)

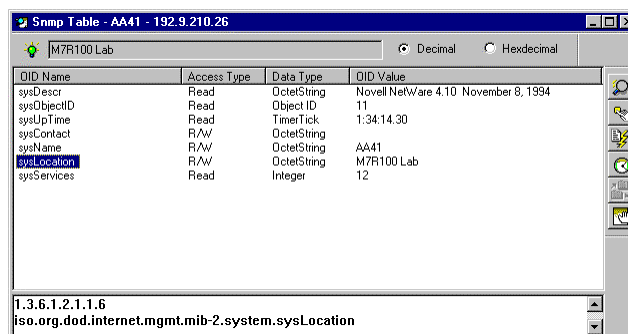
To get the OID values of an SNMP agent:

1. From the combo box in the toolbar, select the machine's name.
2. Browse through the MIB Tree window to select the OIDs you want to view.
3. To search for a particular OID, choose the **Find** command from the Operation menu or click its button from the toolbar and specify the OID to find.
4. Select the OIDs you want to view by highlighting them from the MIB Tree then choosing the **Add** command from the Operation menu or clicking its button from the toolbar. The OID will appear on the upper right frame of the MIB Tree window.



If you highlight a node, all OIDs on that node will be added.

5. Select the Browse command from the Operation menu or click its button from the toolbar. The SNMP Table window will appear displaying the OID values you selected.





OID Name	Access Type	Data Type	OID Value
sysDescr	Read	OctetString	Novell NetWare 4.10 November 8, 1994
sysObjectID	Read	Object ID	11
sysUpTime	Read	TimeTick	1:34:14.30
sysContact	R/W	OctetString	
sysName	R/W	OctetString	AA41
sysLocation	R/W	OctetString	M7R100 Lab
sysServices	Read	Integer	12

1.3.6.1.2.1.1.6
iso.org.dod.internet.mgmt.mib-2.system.sysLocation

SNMP Table

SNMP stands for Simple Network Management Protocol. It allows you to manage and view information concerning OIDs.

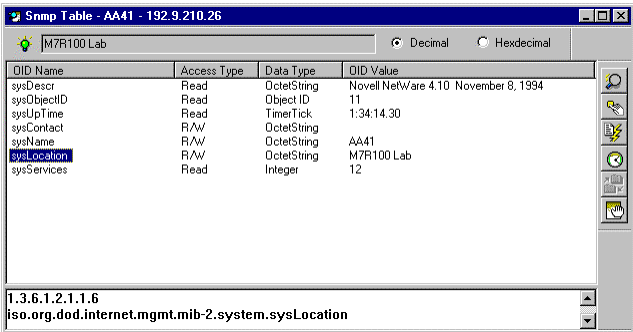
The Get button  update the contents of the OID Value table with the current OID values. The Set button  is enabled only when the SNMP Table is the active window and when the OID selected can be modified.

You can also record events in the log file by activating the log file entry.

DECIMAL OR HEXADECIMAL

The OID Value column heading can be viewed in two ways: Decimal and Hexadecimal. SNMP Table will display the OID value in decimal when you click Decimal. It will display OID Value in hexadecimal if you click Hexadecimal.

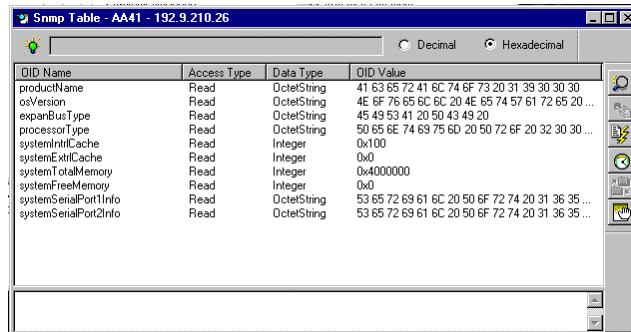
Decimal



OID Name	Access Type	Data Type	OID Value
sysDescr	Read	OctetString	Novell NetWare 4.10 November 8, 1994
sysObjectID	Read	Object ID	11
sysUpTime	Read	Timer Tick	1:34:14.30
sysContact	R/W	OctetString	
sysName	R/W	OctetString	AA41
sysLocation	R/W	OctetString	M7R100 Lab
sysServices	Read	Integer	12

1.3.6.1.2.1.1.6
iso.org.dod.internet.mgmt.mib-2.system.sysLocation

Hexadecimal



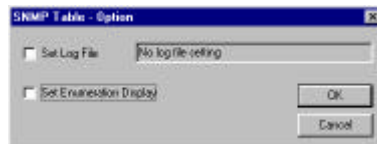
OID Name	Access Type	Data Type	OID Value
productName	Read	OctetString	41 63 65 72 41 6C 74 6F 73 20 31 39 30 30 30
osVersion	Read	OctetString	4E 6F 76 65 6C 6C 20 4E 65 74 57 61 72 65 20 ...
expansionBusType	Read	OctetString	45 49 53 41 20 50 43 49 20
processorType	Read	OctetString	50 65 6E 74 69 75 6D 20 50 72 6F 20 32 30 30 ...
systemInitCache	Read	Integer	0x100
systemInitCache	Read	Integer	0x0
systemTotalMemory	Read	Integer	0x4000000
systemFreeMemory	Read	Integer	0x0
systemSerialPort1Info	Read	OctetString	53 65 72 69 61 6C 20 50 6F 72 74 20 31 36 35 ...
systemSerialPort2Info	Read	OctetString	53 65 72 69 61 6C 20 50 6F 72 74 20 31 36 35 ...

There are 4 columns for each OID: OID name, Access Type, Data Type and OID value.

- **OID Name** - the OID label defined in MIB file.
- **Access Type** - Read, Write, R/W or Not Access for each OID, depending on the definition in MIB file. Only the OID whose access type is R/W or Write can be set.
- **Data Type** - integer, Unsigned Integer, Gauge, Counter, Counter64, TimerTick, OctetString, BitString, Network Address, IP Address, Opaque, Object ID. and unknown.
- **OID Value** - the value returned by SNMP agent for this OID. If the OID is a table, i.e., the values of this OID are more than one, the values will be shown in column "OID value #1", "OID value#2", etc.

TO ACTIVATE A LOG FILE

1. Click the Option button . The SNMP-Option dialog box appears.



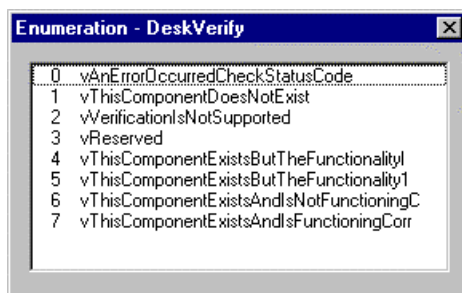
2. Click **Set Log File**. The Save Log File dialog box appears.




3. Enter the file name of the log file then click **Open**. You will notice that the file name is now displayed in the text box.
4. Click **OK**.

ENUMERATION DISPLAY

This dialog box displays a list of string-to-integer mappings for the selected OID.




To see Enumeration Display

1. Click the Option button  of the SNMP dialog box. The SNMP-Option dialog box appears.




2. Click on the Enumeration Display check box. The Enumeration-Deskverify dialog box appears.

TO RECORD OID POLLING INFORMATION


The Polling button  continually retrieve the current values of OIDs and update the OID Value table. You can record these information by activating the Log File. If the Log file is not activated then it will not be recorded. Please refer to "To activate a Log File" on section 9.2.10 for more information.

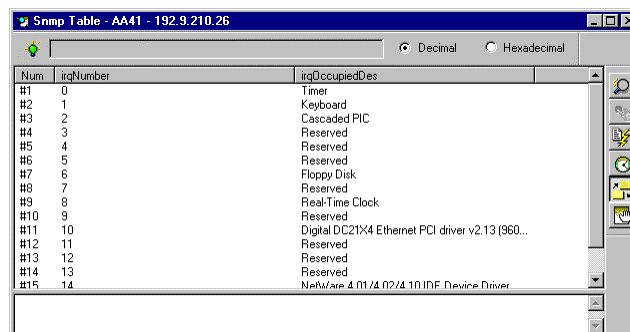
TO SET TIME INTERVAL FOR POLLING

The Timer button  let you set the time interval for polling. You can set the polling interval between 1 to 60 seconds.



ROTATING THE SNMP TABLE

The Rotate button  is used to switch the order in which the contents of the OID Value Table are displayed. This command acts as a toggle between views, therefore rows are turned into columns and vice versa.

A screenshot of a window titled "Snmp Table - AA41 - 192.9.210.26". It has a toolbar with a lightbulb icon and radio buttons for "Decimal" (selected) and "Hexadecimal". Below the toolbar is a table with three columns: "Num", "oidNumber", and "oidOccupiedDes". The table contains 15 rows of data.

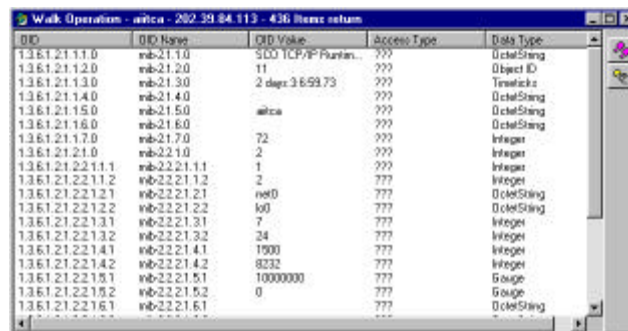
Num	oidNumber	oidOccupiedDes
#1	0	Timer
#2	1	Keyboard
#3	2	Cascaded PIC
#4	3	Reserved
#5	4	Reserved
#6	5	Reserved
#7	6	Floppy Disk
#8	7	Reserved
#9	8	Real-Time Clock
#10	9	Reserved
#11	10	Digital DC21X4 Ethernet PCI driver v2.13 (960...
#12	11	Reserved
#13	12	Reserved
#14	13	Reserved
#15	14	Nvidia nvidia 4.01.14.02/4.10.02 Device Driver

9.2.11 Taking a Walk through the MIB

You can use the Walk function to automatically view OID values starting from a particular node or OID.

To Walk from a node (MIB Tree)


1. From the combo box in the toolbar, select the machine's name.
2. Browse through the MIB Tree window and select an OID or node from which you'd like to start the walk operation then select the **Walk** command from the Walk menu or click its button from the toolbar.
3. The Walk Operation Window appears and the OIDs will pop-up in the window.



OID	OID Name	OID Value	Access Type	Data Type
1.3.6.1.2.1.1.1.0	mib-2.1.1.0	500 TCP/IP Runtim...	???	OctetString
1.3.6.1.2.1.1.2.0	mib-2.1.2.0	11	???	Object ID
1.3.6.1.2.1.1.3.0	mib-2.1.3.0	2 days 3 6:59:73	???	TimeTicks
1.3.6.1.2.1.1.4.0	mib-2.1.4.0		???	OctetString
1.3.6.1.2.1.1.5.0	mib-2.1.5.0	afica	???	OctetString
1.3.6.1.2.1.1.6.0	mib-2.1.6.0		???	OctetString
1.3.6.1.2.1.1.7.0	mib-2.1.7.0	72	???	Integer
1.3.6.1.2.1.1.8.0	mib-2.1.8.0	2	???	Integer
1.3.6.1.2.1.2.2.1.1.1	mib-2.2.2.1.1.1	1	???	Integer
1.3.6.1.2.1.2.2.1.1.2	mib-2.2.2.1.1.2	2	???	Integer
1.3.6.1.2.1.2.2.1.2.1	mib-2.2.2.1.2.1	net0	???	OctetString
1.3.6.1.2.1.2.2.1.2.2	mib-2.2.2.1.2.2	600	???	OctetString
1.3.6.1.2.1.2.2.1.3.1	mib-2.2.2.1.3.1	7	???	Integer
1.3.6.1.2.1.2.2.1.3.2	mib-2.2.2.1.3.2	24	???	Integer
1.3.6.1.2.1.2.2.1.4.1	mib-2.2.2.1.4.1	1900	???	Integer
1.3.6.1.2.1.2.2.1.4.2	mib-2.2.2.1.4.2	8232	???	Integer
1.3.6.1.2.1.2.2.1.5.1	mib-2.2.2.1.5.1	10000000	???	Gauge
1.3.6.1.2.1.2.2.1.5.2	mib-2.2.2.1.5.2	0	???	Gauge
1.3.6.1.2.1.2.2.1.6.1	mib-2.2.2.1.6.1		???	OctetString

To Walk from a query input OID (OID)

1. To start at a particular OID, choose the OID command from the Walk menu or click its button from the toolbar. Type in the OID you want to Walk in the OID text box.

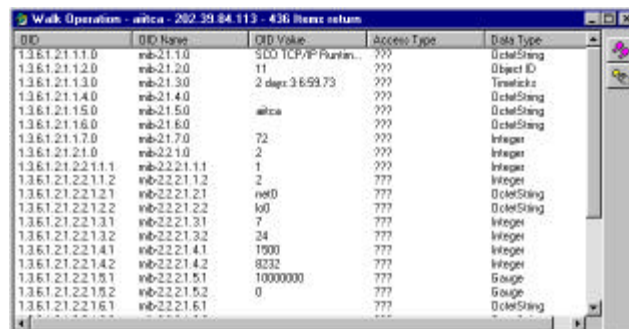


Walk Operation - Input OID



OID:

2. Click **Walk**. The Walk Operation Window appears and all available OIDs will start popping up one-by-one.

Walk Operation Window



OID	OID Name	OID Value	Access Type	Data Type
1.3.6.1.2.1.1.0	mib-2.1.1.0	500 TCP/IP Plurim...	???	OctetString
1.3.6.1.2.1.1.2.0	mib-2.1.1.2.0	11	???	Object ID
1.3.6.1.2.1.1.3.0	mib-2.1.1.3.0	2 days 3 6 59.73	???	TimeTicks
1.3.6.1.2.1.1.4.0	mib-2.1.1.4.0		???	OctetString
1.3.6.1.2.1.1.5.0	mib-2.1.1.5.0	alice	???	OctetString
1.3.6.1.2.1.1.6.0	mib-2.1.1.6.0		???	OctetString
1.3.6.1.2.1.1.7.0	mib-2.1.1.7.0	72	???	Integer
1.3.6.1.2.1.2.1.0	mib-2.2.1.0	2	???	Integer
1.3.6.1.2.1.2.2.1.1.1	mib-2.2.2.1.1.1	1	???	Integer
1.3.6.1.2.1.2.2.1.1.2	mib-2.2.2.1.1.2	2	???	Integer
1.3.6.1.2.1.2.2.1.2.1	mib-2.2.2.1.2.1	newD	???	OctetString
1.3.6.1.2.1.2.2.1.2.2	mib-2.2.2.1.2.2	490	???	OctetString
1.3.6.1.2.1.2.2.1.3.1	mib-2.2.2.1.3.1	7	???	Integer
1.3.6.1.2.1.2.2.1.3.2	mib-2.2.2.1.3.2	34	???	Integer
1.3.6.1.2.1.2.2.1.4.1	mib-2.2.2.1.4.1	1900	???	Integer
1.3.6.1.2.1.2.2.1.4.2	mib-2.2.2.1.4.2	8232	???	Integer
1.3.6.1.2.1.2.2.1.5.1	mib-2.2.2.1.5.1	10000000	???	Gauge
1.3.6.1.2.1.2.2.1.5.2	mib-2.2.2.1.5.2	0	???	Gauge
1.3.6.1.2.1.2.2.1.6.1	mib-2.2.2.1.6.1		???	OctetString

The Walk Operation Window shows detailed information about each OID. It will keep displaying OIDs as long as there are OIDs available. The Pause button  on the right side of the window pauses the walk function. The Set button  displays the Set Operation dialog box. You can only set an OID if it can be modify.

9.2.12 Finding an OID



You can use the Find function to look for OIDs.

1. In the MIB tree, Highlight the node where you like to start the search.
2. Click the **Find** icon on the toolbar or click Find in the Operation menu bar. The Find OID dialog box appears.



3. Type in the OID you want to find in the Find text box. You can check the check box for the browser to do the following:
 - Search from top of MIB - the browser will search the whole MIB tree.
 - Match Whole Word Only - the browser will search the MIB tree for matching words.
 - Match in Case - the browser will search the MIB tree for case-sensitive words.
4. Click **Find Next**. It will start searching for a match.