

# MIB Browser Version 6.22 Quick Start

The iReasoning MIB browser is a powerful and easy-to-use tool powered by iReasoning [SNMP API](#). MIB browser is an indispensable tool for engineers to manage SNMP enabled network devices and applications. The iReasoning MIB browser allows users to load standard, proprietary MIBs, and even some mal-formed MIBs. It also allows them to issue SNMP requests to retrieve SNMP agents' data, or make changes to agents. A built-in trap receiver can receive SNMP traps and handle trap storm.

## Major features:

- Intuitive GUI
- Complete SNMPv1, v2c and v3 (USM and VACM) support
- Complete SNMPv3 USM support, including HMAC-MD5, HMAC-SHA, CBC-DES, [CFB128-AES-128](#) algorithms
- Robust and powerful SMIv1/SMIv2 MIB parser
- IPv6 support
- Trap Receiver
- Trap Sender
- Log window to display application log and SNMP packets exchanged between browser and agents
- Table view for MIB tables
- SNMPv3 USM user management
- Port view for network interface cards
- Switch port view for mapping switch ports
- Performance graph tool for monitoring of numerical OID values
- Device snapshot
- Cisco device snapshot
- Ping and traceroute tools
- Network discovery tool
- SNMP Agents Comparison
- Bookmarks
- Runs on Windows, Mac OS X, Linux and other UNIX platforms

## Requirements

- Windows, Mac OS X, Linux and other UNIX platforms.
- If on Linux/UNIX, the [SUN JRE 1.4](#) or a later version must be installed and *java* command must be in the system path.

## Download and Run MIB Browser

1. Download [MIB browser installer or zip file](#). On Windows, run setup.exe to install MIB browser. On Mac OS X, Linux and other UNIX platforms, unzip it to the desired directory.

2. Run MIB Browser:

- On **Windows**, click on the MIB browser icon to start browser.
- On **Linux/UNIX**, enter MIB browser home directory and run browser.sh to start browser.
- On **Mac OS X**, enter ireasoning/mibbrowser directory and double click on the browser icon (browser.app directory) to start MIB browser.

## The Browser GUI

### ✧ Menu

#### ■ File menu

##### ▪ Load MIB

Launch a file dialog for picking one or multiple MIB files. You need to hold CTRL key if you want to select multiple files.

##### ▪ Open Session

Open a previously saved session file.

##### ▪ Open Graph Data

Open a previously saved graph data file.

##### ▪ Save Session

Save current settings of open tabs to a session file, which can be opened later to restore tabs.

- **Exit**

Exit browser.

- **Edit menu**

- **Find**

Find a node in MIB tree.

- **Operations menu**

- **Get**

Issue SNMP GET request against current agent.

- **Get Next**

Issue SNMP GET-NEXT request against current agent.

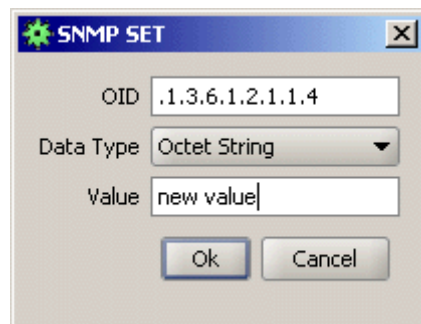
- **Get Bulk**

Issue SNMPv2c or SNMPv3 GET-BULK request against current agent. If the SNMP agent only supports SNMPv1, then this command will time out.

- **Set**

Issue SNMP SET request against current agent.

The following window will show up:

A screenshot of a Windows-style dialog box titled "SNMP SET". The dialog has a blue title bar with a green gear icon on the left and a close button (X) on the right. Inside the dialog, there are three input fields: "OID" with the text ".1.3.6.1.2.1.1.4", "Data Type" with a dropdown menu showing "Octet String", and "Value" with the text "new value". At the bottom of the dialog are two buttons: "Ok" and "Cancel".

Enter a new value in the “*Value*” field then click “Ok” button.

To set multiple variables, you can hold CTRL key and select multiple rows in the result pane, then choose SET operation.

Note:

1. For *BITS* data type, you need to use mathematical notation for a set of integers, that is, something like  $\{1, 3, 8\}$ .
2. The format for hexadecimal string is (0x[0-9A-Fa-f][0-9A-Fa-f] )+. For instance, 0x12 0xA1 0x30

- **Get Subtree**

Issue SNMP GET-NEXT requests to get the whole subtree against current agent.

- **Walk**


Do SNMP walk against current agent.


- **Table View**


Show MIB table data.

Result Table

server - ifTable

 Rotate

 Refresh

 Export

Poll

SNMP SET

	1	2
ifIndex	1	16777219
ifDescr	MS TCP Loopback...	VIA Rhine II Fast ...
ifType	softwareLoopback	ethernetCsmacd
ifMtu	1500	1500
ifSpeed	10000000	100000000
ifPhysAddress		00-16-EC-6E-D7-CA
ifAdminStatus	up	up
ifOperStatus	up	up
ifLastChange	0 millisecond	0 millisecond
ifInOctets	7259756	273027256
ifInUcastPkts	37065	252508
ifInNUcastPkts	0	286707
ifInDiscards	0	0
ifInErrors	0	0
ifInUnknownProtos	0	317
ifOutOctets	7259756	26903284
ifOutUcastPkts	37065	176062
ifOutNUcastPkts	0	631
ifOutDiscards	0	0
ifOutErrors	0	0
ifOutQLen	0	0
ifSpecific	.0.0	.0.0

Clicking on this menu item will bring up a new table view window. But first, [OID field](#) needs to be an OID of a table or entry nodes. For example, it can be *ifTable*, *ifEntry* etc.

You can press CTRL key and select multiple tabular variables of the same table, then click “Table View”. In this way, table view only shows the tabular variables you selected rather than the whole table.

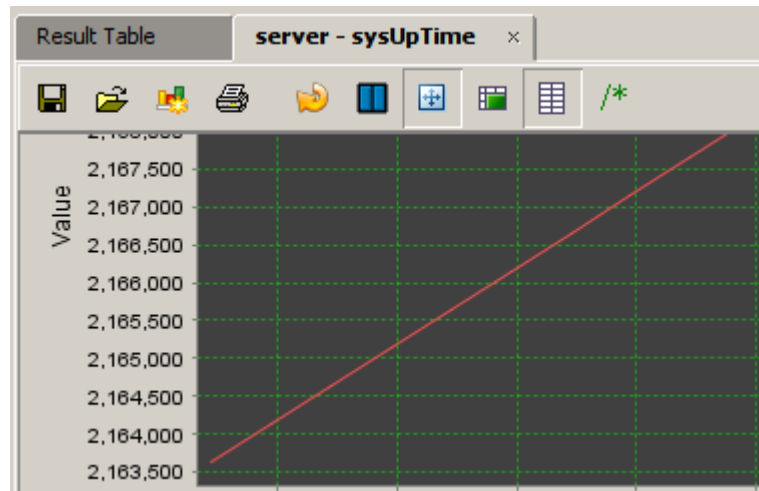
Buttons on the toolbar of table view window:

<b>Rotate button</b>	Rotate table 90 degrees.
<b>Refresh button</b>	Refresh table now.
<b>Export</b>	Export table data to a CSV file.
<b>Poll button</b>	Refresh table periodically.
<b>SNMP SET</b>	Perform SNMP SET for selected table cells.
<b>Create Row</b>	Dynamically create a row. The table must support dynamic row creation, that is, it has a RowStatus or EntryStatus column.

<b>Delete Row</b>	Dynamically delete the selected row. The table must support dynamic row creation, that is, it has a RowStatus or EntryStatus column.
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## ■ Graph

Plot graph for selected OID. If there is already one graph tab, you will be asked to re-use this tab or open a new tab.



Clicking on this menu item will bring up performance graph window. But first, [OID field](#) needs to be a numerical OID value or a table column node whose instances are numerical values. For example, it can be *sysUpTime*, *ifOutOctets*, and *ifOutOctets.1*, etc.

Buttons on the toolbar:

<b>Export to CSV file</b>	Export chart data to a CSV file.
<b>Import from CSV file</b>	Import data from a CSV file.
<b>Save as PNG</b>	Save chart data to a PNG format file.
<b>Print</b>	Print out the chart.
<b>Restart</b>	Restart plotting chart.
<b>Pause</b>	Pause plotting chart.
<b>Switch</b>	Switch between current view and global view.
<b>Display trace</b>	Display trace lines.
<b>Grid</b>	Display grid lines.
<b>Rate</b>	Display delta instead of raw values.

The polling interval can be changed by clicking the “Set” button.

## ■ Tools menu

### ▪ Trap Sender

Open trap sender window:

The screenshot shows the 'Trap Sender' window with the following configuration:

- IP Address: localhost
- Port: 162
- Number of Retries: 1
- Timeout(sec): 2
- Parameters:
  - Type: SNMPv2 Trap
  - Community: .....
  - snmpTrapOid: Other (Enterprise Specific)
  - Specific: 0
  - snmpTrapOID's Value: .1.3.6.1.2.1.16.0.1
  - sysUpTime (sec.): 120
- Variable Bindings (optional):


OID/Name	Value	Type
alarmIndex.1	0	Integer
alarmVariable.1	.1.3	OID
alarmSampleType.1	0	Integer
alarmValue.1		OctetString
alarmRisingThreshold.1		OctetString

Buttons: Add, Modify, Delete, Suffix, Send Trap

This window allows user to send out SNMPv1/v2c traps or informs. For SNMPv1/v2 trap nodes in the MIB tree, you can right click on them and select “Send Trap” context menu to bring up this window, and the information from the trap node will be used to fill out the default values.



### ▪ Watches

Displays a table of variables being watched.

<div>  Refresh         <div>Poll</div> <div>Show All ▼</div> </div>					
	Agent IP	Name ▲	Value	Type	Opera...
1	server	ifInDiscards	0	Count...	Get Next
2	server	ifInOctets	4672976	Count...	Get Next
3	server	mib-2	timeout		Get
4	server	sysDescr.0	Hardware: x86 Family 15 Model 3 St...	Octet...	Get

## ■ Add Watch

Add watch item.

 Add Watch Item
 

OID

.1.3.6.1.2.1.1.2.0

Name

sysObjectID.0

Operator

Get ▼

Threshold

< ▼

OK

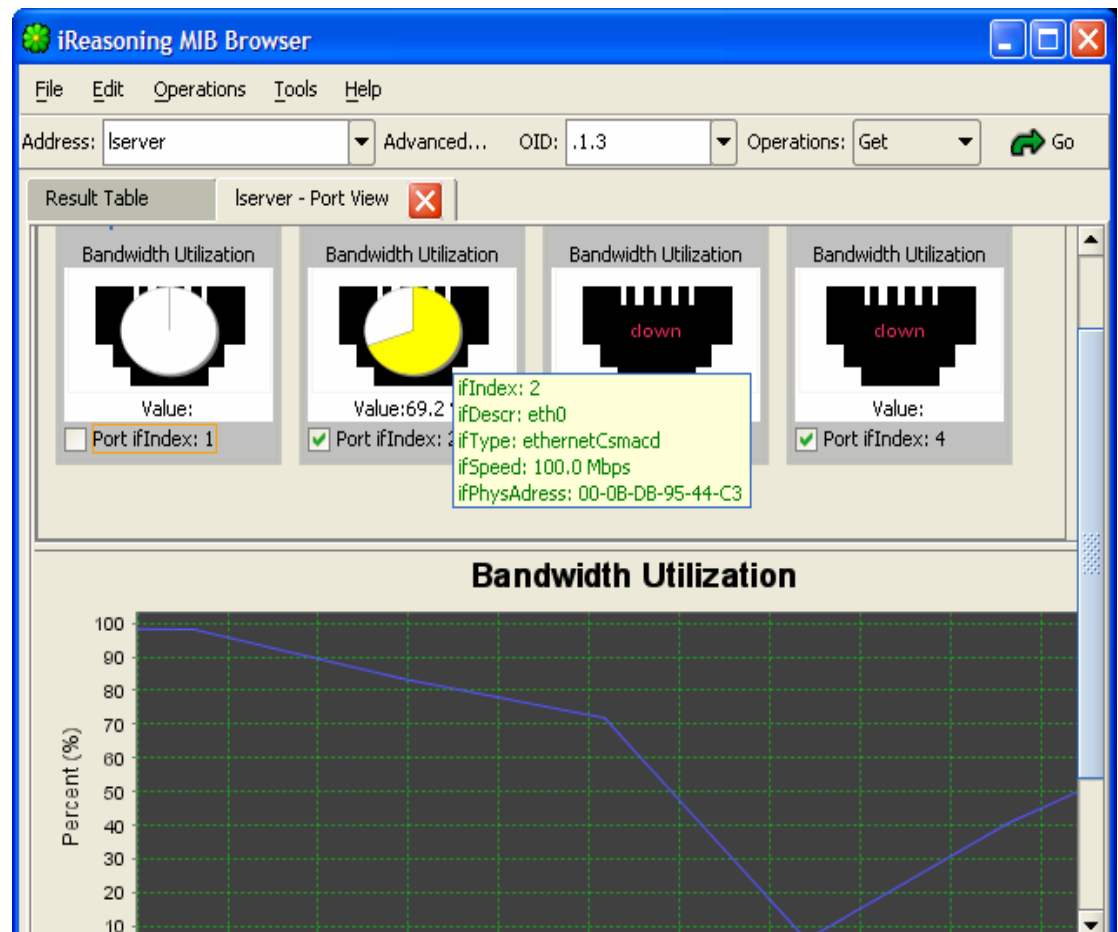
Cancel

## ■ Port View

It shows input/output bandwidth utilization and error percentage of all ports of a node. The tooltips of pie charts show port properties. You can uncheck the checkbox near port's name to ignore its values.

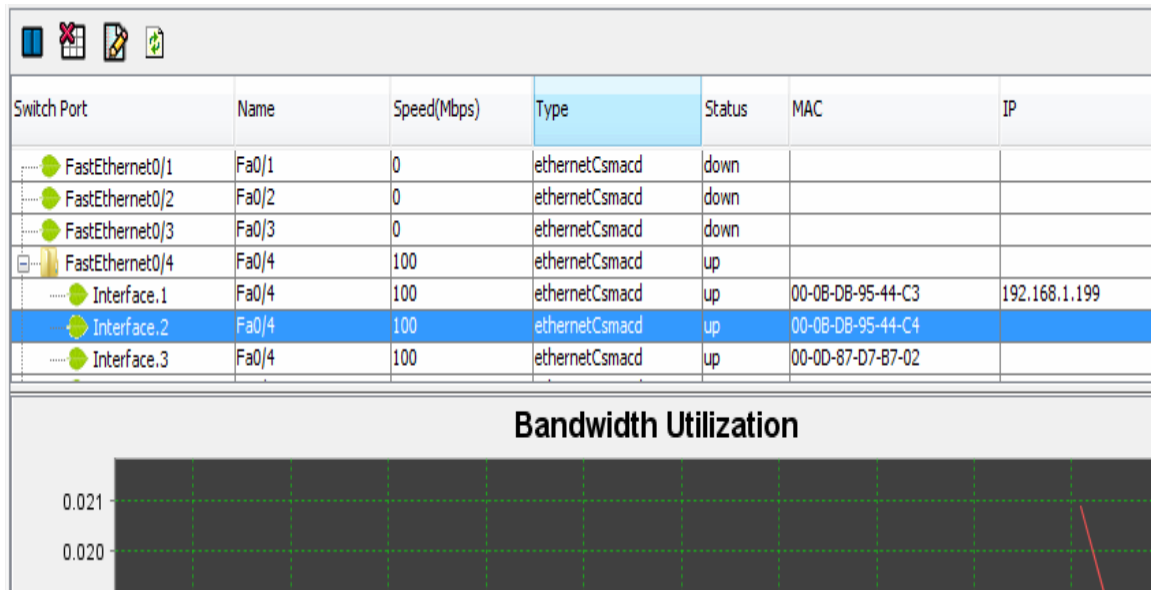
The color of pie charts indicates severity levels, and it can be customized on the settings page.





- **Switch Port View**

It shows mapping of the devices connected to a managed switch, and similar to the port view, bandwidth utilization of ports is displayed.



#### ▪ Device Snapshot

Show a snapshot view of available device data, including system info, interfaces, disks, processes, installed software, etc.

#### Basic Information

System Name:	server
UpTime:	1 hour 8 minutes 31 seconds
System Services:	No Such Instance
System Descr:	Linux Server 2.6.9-5.0.3.ELsmp #1 SMP Sat Feb 19 ...
CPU Count:	4
CPU Type:	GenuineIntel: Intel(R) Xeon(TM) CPU 2.80GHz
Memory Size:	3042 MB

#### Interface Information

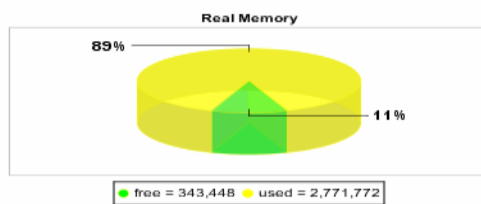
ifIndex	IP Address	MAC Address
2	192.168.1.199	00-0B-DB-95-44-C3
3	192.168.1.201	00-0B-DB-95-44-C4

#### Device Information

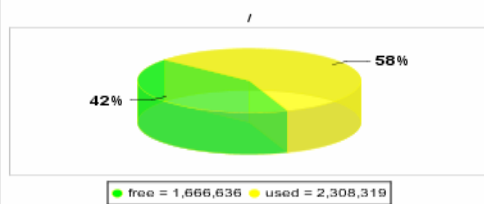
Descr	Status	Errors
GenuineIntel: Intel(R) Xeon(TM) CPU 2.80GHz		0
GenuineIntel: Intel(R) Xeon(TM) CPU 2.80GHz		0
GenuineIntel: Intel(R) Xeon(TM) CPU 2.80GHz		0
GenuineIntel: Intel(R) Xeon(TM) CPU 2.80GHz		0
network interface lo		0
network interface eth0		0
network interface eth1		0

#### Storage Information

##### Memory

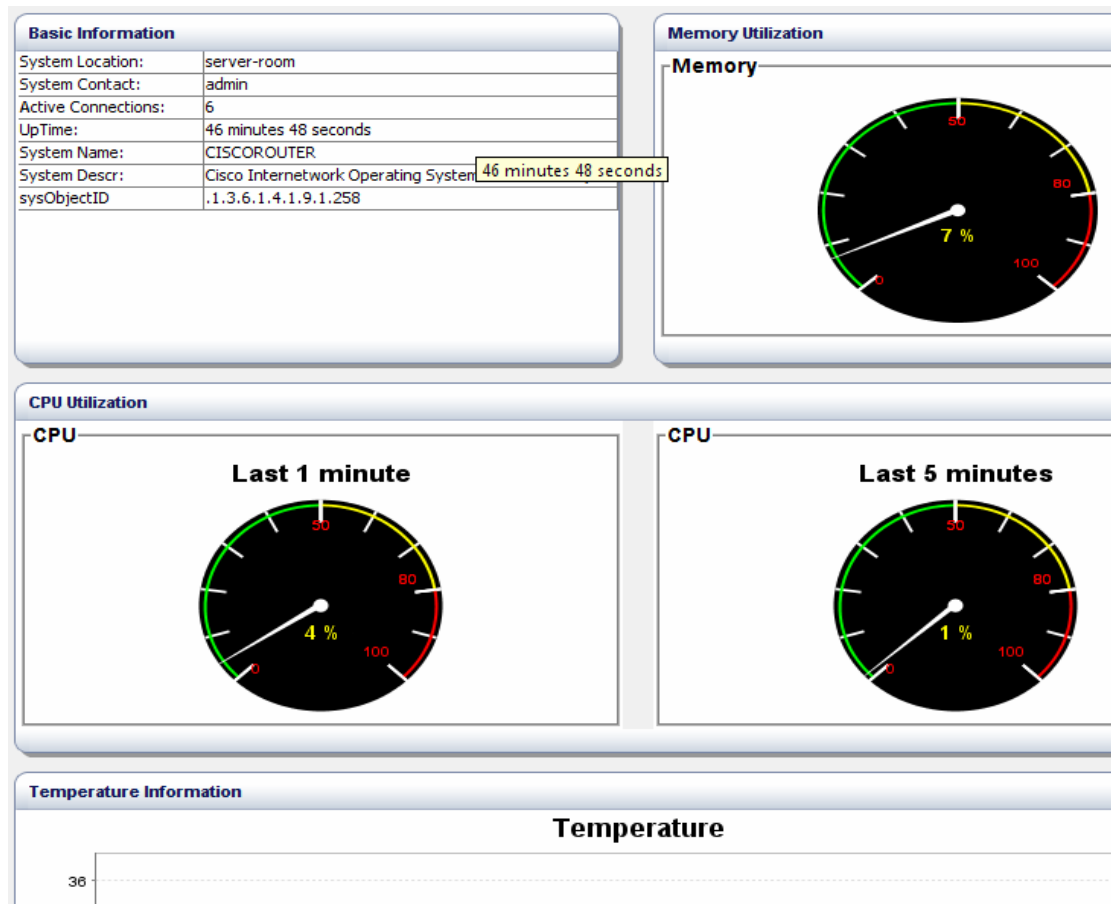


##### Hard Disk



- **Cisco Device Snapshot**

Show a snapshot view of Cisco devices.



If you have more OIDs to monitor, you can use the settings screen to add additional OIDs. The values of them will be shown in the “Basic Information” panel.

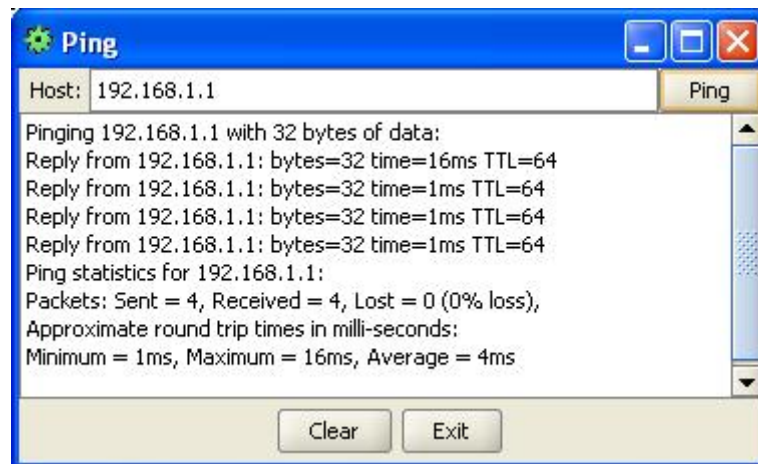
The utilization charts can have two types: meter or pie charts.

- **Log Window**

Open application log window that displays application's log information. To clear the content, right click on this pane and select "Clear text" menu item.

- **Ping**

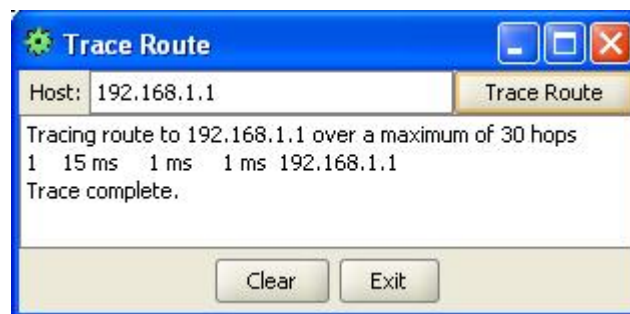
Open ping tool window:



Enter an IP address and press "Ping" button. The results will be displayed in the text area.

- **Trace Route**

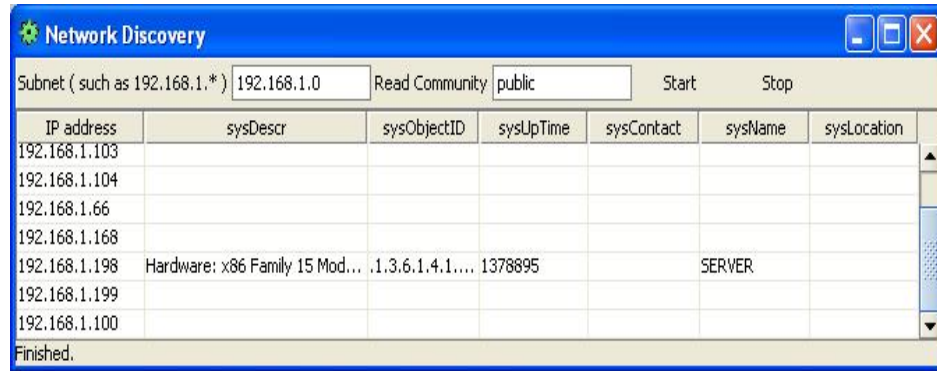
Open traceroute tool window:



Enter an IP address and press "Trace Route" button. The results will be displayed in the text area.


- **Network Discovery**

Open LAN discovery tool window:



Enter a subnet IP address such as 192.168.1.0 and then press “Start” button. It can discover all hosts in the subnet. And if SNMP agent is running on a host, its system table will be queried as well.

- **Manage SNMPv3 USM Users**

	Clone	Enable	Password	Disable	Delete	 Refresh
	User Name	Auth Protocol	Priv Protocol	Storage	Status	
1	fomike	HMAC-MD5	DES	nonVolatile (3)	active (1)	
2	ludwig	HMAC-SHA-1	DES	nonVolatile (3)	active (1)	
3	user88	HMAC-SHA-1	DES	nonVolatile (3)	active (1)	
4	user99	HMAC-MD5	DES	nonVolatile (3)	active (1)	
5	initial	HMAC-MD5	DES	nonVolatile (3)	active (1)	

The initial window displays a list of existing SNMPv3 users. You then can edit user’s properties or delete it.

- **Compare Devices**

Compare the SNMP values of two devices:

**Compare Devices**

Device 1: \_\_\_\_\_

Address 1: 192.168.1.199 ▼ Advanced...

Device 2: \_\_\_\_\_

Address 2: 192.168.1.197 ▼ Advanced...

OID: .1.3.6.1.2.1.1 ▼

Operation: Get Subtree ▼

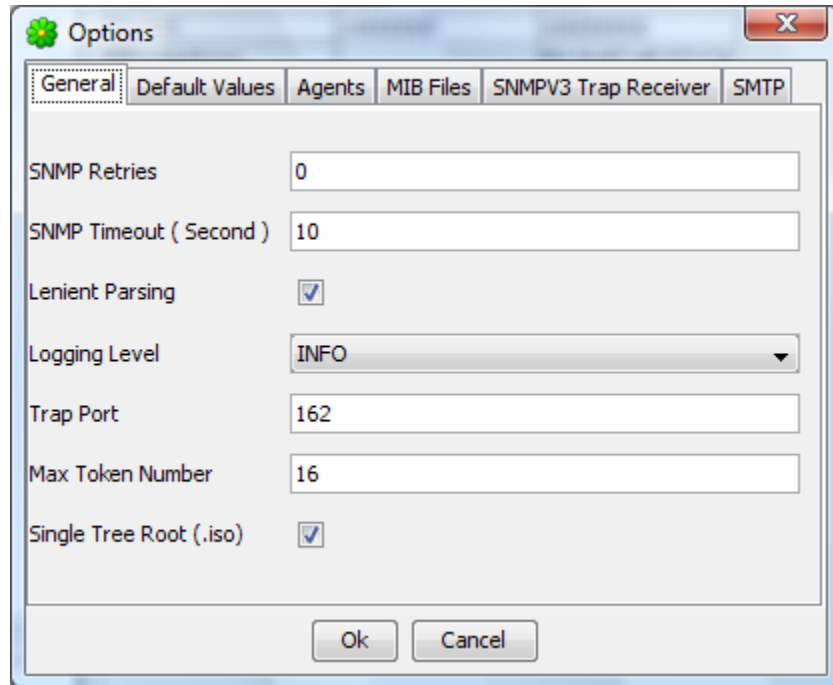
OK Cancel

If the values of them are different, the font color is changed to blue:

Name/OID	Value ( 192.168.1.199 )	Value ( 192.168.1.197 )
sysDescr.0	Linux lserver 2.6.9-5.0.3.ELs...	Windows XP (Build Number: ...
sysObjectID.0	.1.3.6.1.4.1.8072.3.2.10	.1.3.6.1.4.1.99.1.1.3.11
sysUpTime.0	2936216	2952313

- **Options**

Open options window for customizing MIB browser:



The image shows a Windows-style dialog box titled "Options" with a green icon and a close button (X). The dialog has a tabbed interface with the following tabs: "General", "Default Values", "Agents", "MIB Files", "SNMPV3 Trap Receiver", and "SMTP". The "General" tab is currently selected. Inside the "General" tab, there are several configuration options:

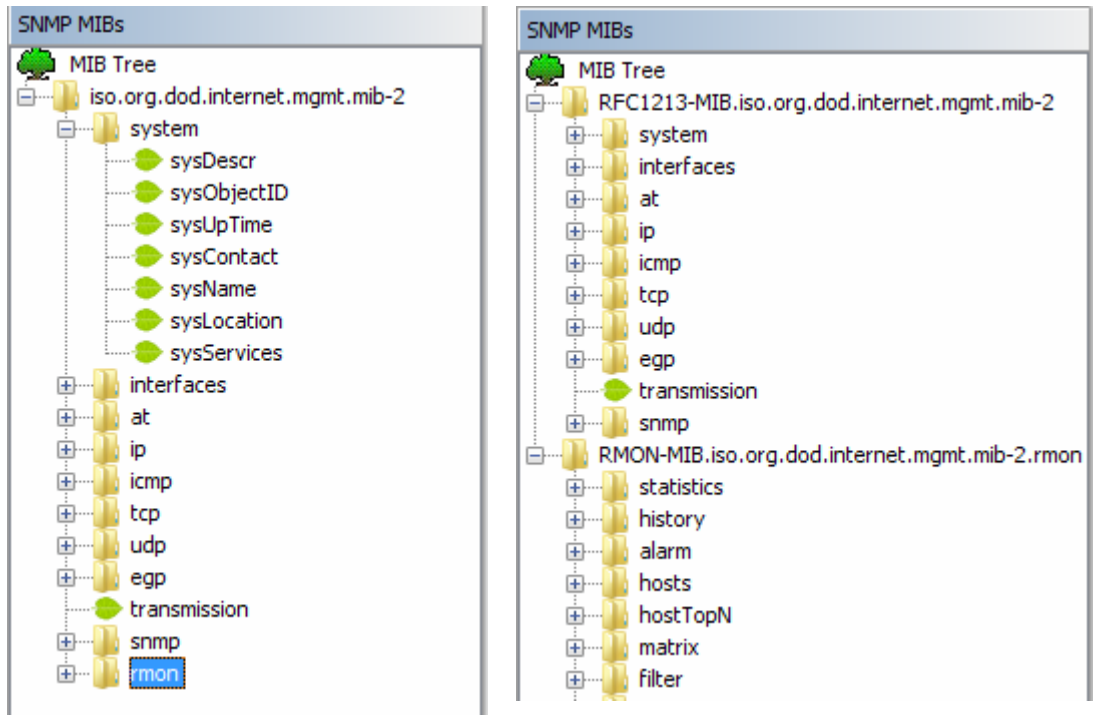
- SNMP Retries**: A text input field containing the value "0".
- SNMP Timeout ( Second )**: A text input field containing the value "10".
- Lenient Parsing**: A checkbox that is checked (indicated by a blue checkmark).
- Logging Level**: A dropdown menu currently showing "INFO".
- Trap Port**: A text input field containing the value "162".
- Max Token Number**: A text input field containing the value "16".
- Single Tree Root (.iso)**: A checkbox that is checked (indicated by a blue checkmark).

At the bottom of the dialog, there are two buttons: "Ok" and "Cancel".



- **General tab**

<b>SNMP Retries</b>	Number of retries for SNMP queries.
<b>SNMP Timeout</b>	Timeout value for SNMP queries, in seconds.
<b>Lenient Parsing</b>	If checked, MIB parser will ignores some syntax errors in MIB files.
<b>Logging Level</b>	Logging level of the logger. If it is “DEBUG”, the SNMP PDU will be printed in the Log window, but it may degrade the performance of the MIB browser.
<b>Trap Port</b>	The port number of trap receiver.
<b>Max Token Number</b>	The maximum number of tokens allowed in the description field of trap receiver. For instance, if the value is 6, then the message “.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifAdminStatus.3” will be truncated to “. . .mib-2.interfaces.ifTable.ifEntry.ifAdminStatus.3”.
<b>Single Tree Root</b>	If checked, MIB tree will have a single root node, that is, the <i>.iso</i> node. Otherwise, each MIB module has its own root node. MIB browser needs to be restarted for this option to take effect.
<b>Agent’s Charset</b>	For an SNMP agent on a non western language OS, it may return values in a different character encoding. You can change the charset in order to correctly display values returned from the agent.
<b>Max Graph Data Count</b>	Maximum number of data in memory of a graph.
<b>Non Repeaters</b>	Non repeaters value for SNMP GET-BULK requests.
<b>Max Repetitions</b>	Max repetitions value for SNMP GET-BULK requests.
<b>Minimize to system tray</b>	If checked, the MIB browser will be minimized to the system tray when you close it.



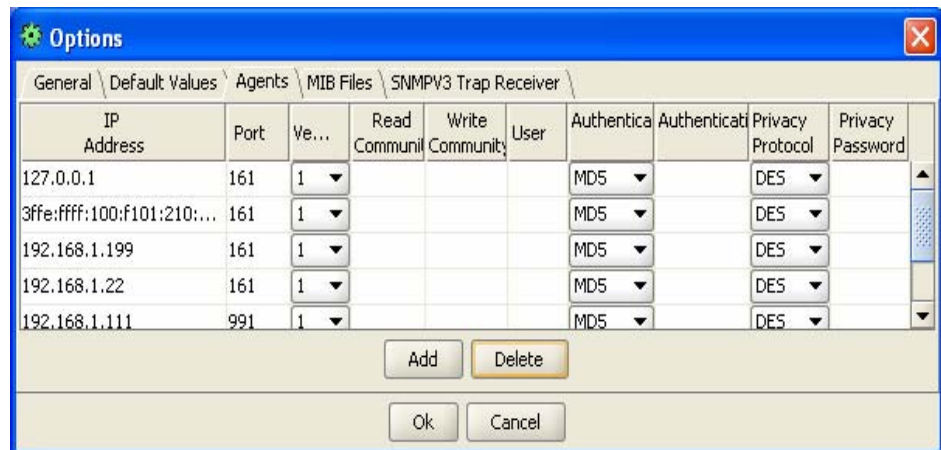
*Single tree root*

*Each Module has its own root node*

- **Default Values tab**

This tab allows the user to set default properties for new SNMP agents.

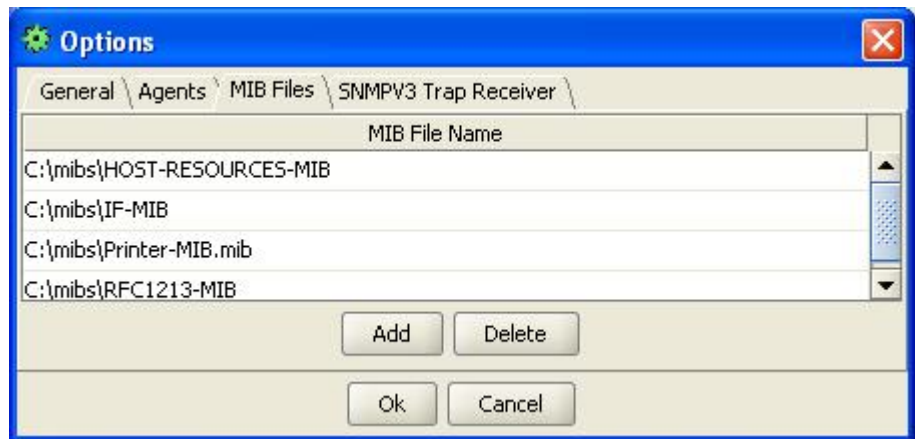
- **Agent tab**



This table stores the properties of visited SNMP agents. You can add or delete agents from this table.

For SNMPv1/v2c agents, values of User, Authentication Protocol, Authentication Password, Privacy Protocol and Privacy Password, are ignored. For SNMPv3 agents, values of Read Community and Write Community are ignored.

- **MIB Files tab**

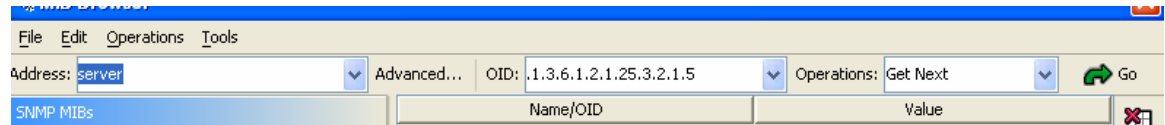


This table stores file names of loaded MIBs. You can add or delete MIBs from this table.

- **Bookmarks menu**

This menu contains all your stored bookmarks. Bookmarks are links to OIDs and their associated operations that you use frequently. By adding an OID to your bookmarks, you can use it by simply clicking its name, instead of having to type it again.

## ✧ Toolbar



### ■ Address field

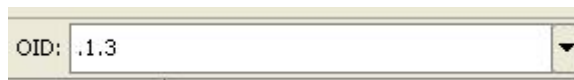
Enter the IP address and port number of SNMP agent, in the format of “ipAddress@port” or “ipAddress:port” (IPv4 only). The “@port” or “:port” are not necessary if the port number is 161.

### ■ Advanced button

Customize the properties of current SNMP agent, such as community names, SNMPv3 USM parameters, etc.

For an SNMPv3 agent, its engineID, authKey and privKey properties will be updated after first successful query.

### ■ OID field



Object identifier to be used for SNMP queries. This field is updated when the user selects a node in MIB tree or a row in the result table. You can also type new value directly in this field.

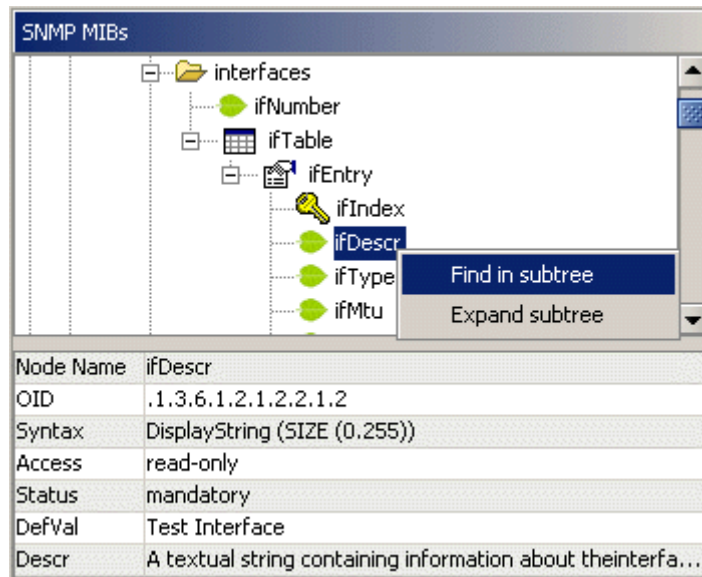
### ■ Operations

Select one of the SNMP operations from the list. Operation will be performed immediately when it is selected.

- **Go button**

Press this button to perform the selected operation.

- ✧ **MIB Tree Pane**



It is divided into two panes: Tree pane on the top and properties pane on the bottom.







- **Tree Pane**

Display MIB trees. Right click on a node, a popup menu shows up. Depending on the node properties, if right clicking on a root node of a MIB module, popup menu includes three menu items: Find, Expand and Unload MIB. On other nodes, their respective popup menus have only two menu items: Find and Expand.

- **Node Properties Pane**

Display properties of selected node. Tooltips of second column show more information.

## ✧ Result Pane

Name/OID	Value	Type	
sysDescr.0	Hardware: x86 Family 15 Model ...	OctetString	
sysObjectID.0	.1.3.6.1.4.1.311.1.1.3.1.3	OID	
sysUpTime.0	2 hours 37 minutes 58 seconds	TimeTicks	
sysContact.0		OctetString	
sysName.0	SERVER	OctetString	
sysLocation.0		OctetString	
sysServices.0	76	Integer	
			

Display the result of SNMP queries in a table.

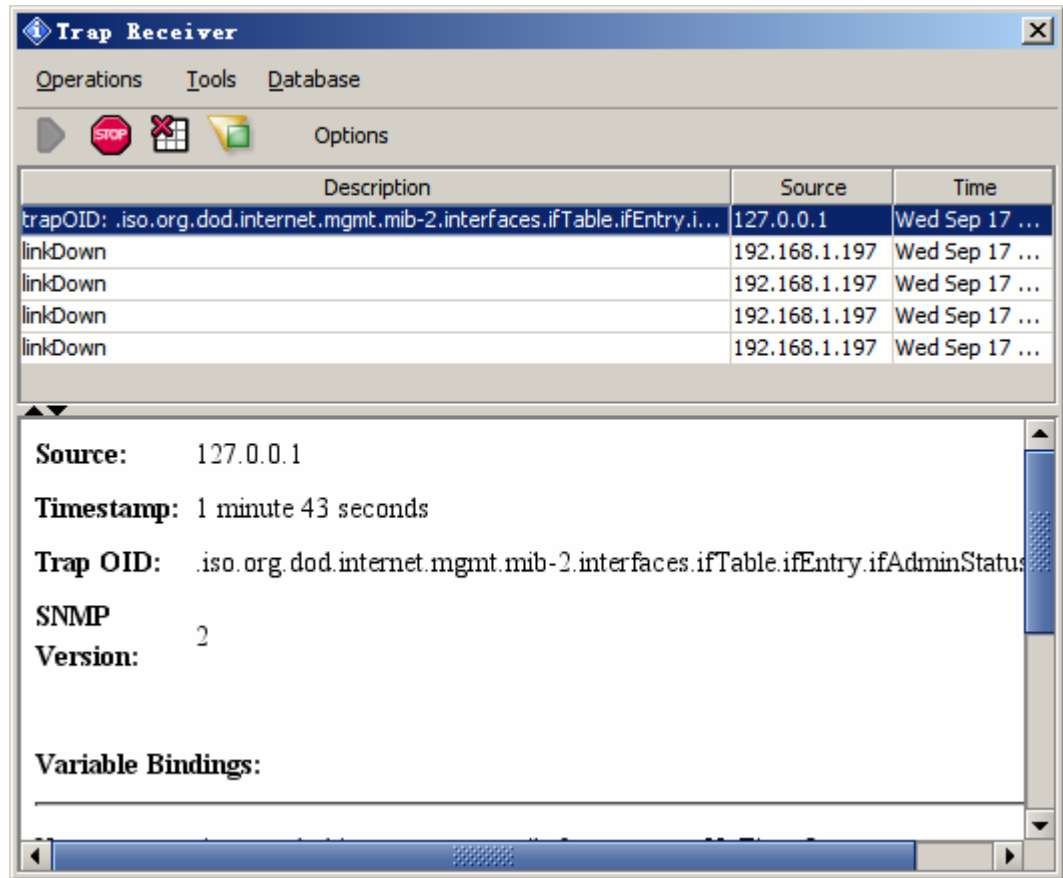
There are three buttons on the right toolbar:

<b>Stop button</b>	Stop pending SNMP queries.
<b>Clear Table button</b>	Clear the result table.
<b>Raw Data button</b>	Launch a new dialog window showing the raw results of SNMP queries.
<b>Find button</b>	Find strings in the result pane.
<b>Save button</b>	Save values in result pane to an XML file.
<b>Open button</b>	Load values from an XML file to the result pane.

# Trap Receiver

## ✧ Main Window

Trap receiver can be opened from MIB browser window or started independently.



Trap receiver window is divided into two panels. The upper panel displays summaries of traps. The lower panel displays details of selected trap.

There are three buttons on the right side toolbar:

<b>Trap Filter button</b>	Apply filter to all received traps. Only traps that meet the conditions will show up.
<b>Start Trap Receiver button</b>	Start the trap receiver. It'll be grayed out if trap receiver is running. Trap receiver is not started automatically when the window is opened.
<b>Stop button</b>	Stop the trap receiver.
<b>Clear Table button</b>	Clear the content of the trap table.
<b>Options</b>	Trap receiver's settings.

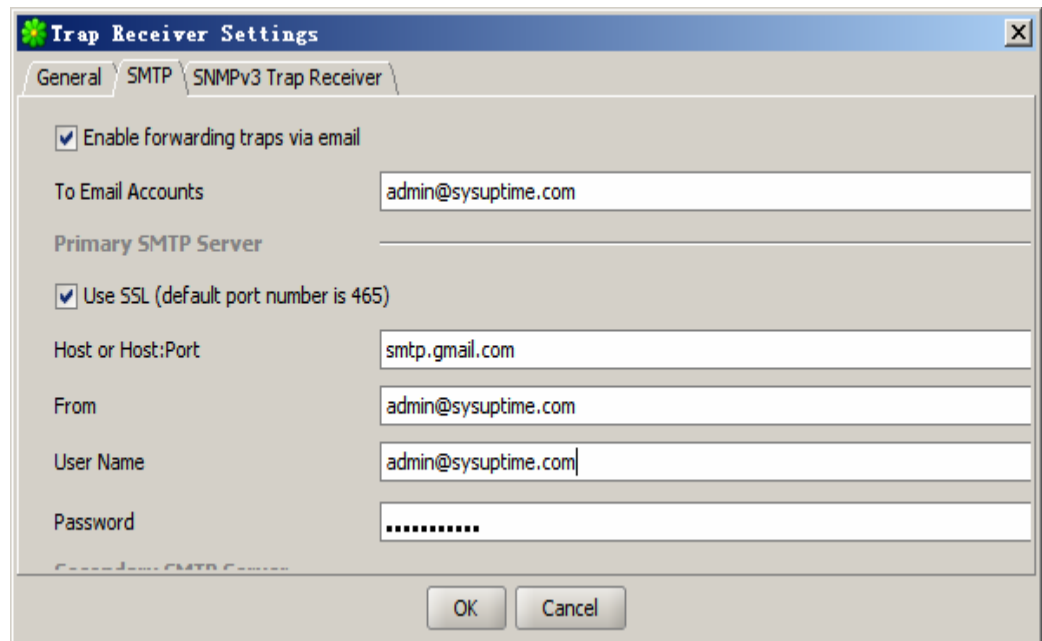
## ✧ Options

### ■ General Tab

<b>Trap Port</b>	The port number of trap receiver.
<b>Forward Trap To</b>	Forward traps to another trap receiver in SNMPv1 PDUs.
<b>Save trap data to database</b>	If enabled, received traps will be saved to the bundled database. Then they can be loaded again.
<b>Show trap message window</b>	If enabled, a trap message window will show up around system tray when a new trap is received.



- **SMTP Tab**



The image shows the 'Trap Receiver Settings' dialog box with the 'SMTP' tab selected. The 'General' tab is also visible. The 'SMTP' tab contains the following fields:

- ☒ Enable forwarding traps via email
- To Email Accounts: admin@sysuptime.com
- Primary SMTP Server: (empty)
- ☒ Use SSL (default port number is 465)
- Host or Host:Port: smtp.gmail.com
- From: admin@sysuptime.com
- User Name: admin@sysuptime.com
- Password: (masked with dots)

Buttons: OK, Cancel

This tab specifies whether to enable forwarding SNMP traps via email. If it is enabled, at least the primary SMTP server should be configured. If the secondary SMTP server is also configured, it will be used for sending emails when the primary SMTP server fails.

- **SNMPv3 Trap Receiver Tab**



The image shows the 'Options' dialog box with the 'SNMPv3 Trap Receiver' tab selected. The 'General' and 'Agents' tabs are also visible. The 'SNMPv3 Trap Receiver' tab contains a table with the following data:

Username	Engine ID	Authentication Protocol	Authentication Password	Privacy Protocol	Privacy Password	Security Level
test	12345	MD5	*****	DES	*****	auth, priv
newUser	myEngineID	MD5	*****	DES	*****	auth, priv

Buttons: Add, Delete, Ok, Cancel

This table stores the properties of SNMPv3 trap senders and the receiver itself. You can add or delete items from this table.

For the engine ID of the trap receiver itself, *myEngineID* must be used, which will be replaced by actual engine ID being used internally. If trap receiver wants to process SNMPv3 INFORM messages, then its SNMPv3 Engine information, including engineID, user name and passwords etc., needs to be specified. In other words, at least one entry of *myEngineID* must be added.

All the valid engineIDs and user information of trap senders need to be added.

Note: For engineID fields, you can enter hexadecimal string using the format such as 0X11ACEF, starting with “0X” and followed by hexadecimals.

## Command Line Options

- ◆ MIB browser can be launched from the command line with the following options:

<b>-h</b> (or <b>-help</b> , <b>-?</b> )	Print usage
<b>-h</b> <h>	Specify the host name or IP address of SNMP agent.
<b>-p</b> <p>	Specify the port number of the SNMP agent. Default value is 161.
<b>-v</b> <1 2 3>	Specify the SNMP version number. Possible values are 1, 2, and 3.
<b>-c</b> <c>	Specify the SNMP community name. Default value is public.
<b>-o</b> <o>	Specify OID.
<b>-a</b> <a>	Specify the SNMP action. Possible values are (get getnext getsubtree walk gettable).
<b>-f</b> <filename>	Output CSV file name. Used with gettable action.

- ◆ Command Line Graph Tool

*graph.bat* script is used to record an SNMP agent's values to a file, which can be opened by the MIB browser using the "File/Open Graph Data" menu.

Running *graph.bat* without any arguments will print usage and examples.

## Keyboard Shortcuts

CTRL-L	Load MIB file
CTRL-F	Find a MIB node.
CTRL-G	Perform SNMP GET operation.
CTRL-N	Perform SNMP GET-NEXT operation.
CTRL-E	Perform Get-Subtree operation.
CTRL-S	Perform SNMP SET operation.
CTRL-W	Perform walk operation.
CTRL-D	Compare devices.
CTRL-P	Stop current operation.
Enter	If Operations or Go button have focus, pressing "Enter" key will repeat last operation.
CTRL-T	Table view
CTRL-R	Plot graph.

## About personal and professional editions

The free personal edition is intended exclusively for private use on a single workstation. You may copy the complete program package and pass it on to others for private use only. The free personal edition may not be used for commercial or professional purposes.

The professional edition has many more features and can be used for commercial or professional purposes.

### Features table

Feature	Personal Edition	Professional Edition
Runs on Windows, Mac OS X, Linux and other UNIX platforms	✓	✓
Supports basic SNMP operations	✓	✓
Table view for MIB tables	✓	✓
SNMPv3 USM user management		✓
Trap Receiver	✓	✓
Trap Sender	✓	✓
Supports IPv6	✓	✓
Supports SNMPv1/v2c	✓	✓
Supports loading any standard or private MIB	✓	✓
Maximum number of MIBs loaded	10	No restrictions
Free	✓	
Supports SNMPv3		✓
Watches		✓
Network discovery		✓
ICMP Ping tool		✓
ICMP Traceroute tool		✓
Performance graph		✓
Port view		✓
Switch port view		✓
Device snapshot		✓
Cisco device snapshot		✓
Compares devices		✓
Forwards traps via email		✓
Periodically refreshes MIB table		✓
Dynamic table row creation and deletion		✓