Compiling and customizing SNMP MIBs with HP Systems Insight Manager

Overview

HP Systems Insight Manager provides the capability of managing systems through SNMP and by receiving incoming SNMP trap events. This paper discusses the tools provided by HP Systems Insight Manager to integrate third-party (non-HP) SNMP v1/v2 MIBs into HP Systems Insight Manager to provide support for processing and displaying traps from other systems. This paper also discusses the MIB syntax extensions supported by HP Systems Insight Manager that provide additional value in customizing specific trap information. Finally, this paper discusses the set of MIBs included with HP Systems Insight Manager to provide out-of-the-box support for many HP systems.

Integration of third-party MIBs is a topic for advanced users of HP Systems Insight Manager. This paper assumes that the reader already has familiarity with SNMP-based management and MIBs in particular. Most vendors tend to loosely follow industry standards for the development of MIBs and MIB compilers so it is often the case that MIBs require some changes or customizations on the part of the end user to properly integrate the MIBs with a management application such as HP Systems Insight Manager.

NOTE: This paper frequently references directories and tool locations throughout the HP Systems Insight Manager directory structure. This directory structure will vary depending upon your installation choices and on the operating system under which you have installed HP Systems Insight Manager. Typical installation paths are as follows:

On Windows®:

C:\Program Files\HP\Systems Insight Manager\ as the **<BASE>** installation directory
C:\Program Files\HP\Systems Insight Manager\mibs for all MIB and CFG files
C:\Program Files\HP\Systems Insight Manager\lbin for **mcompile**
C:\Program Files\HP\Systems Insight Manager\bin for **mxmib**

On HP-UX and Linux:

/opt/mx as the **<BASE>** installation directory
/opt/mx/mibs for all MIB and CFG files
/opt/mx/bin for mcompile and mxmib

IMPORTANT: By default, if an event is received which applies to a MIB which is not registered, the event will be discarded. Receipt of unregistered events can be enabled from Options ➔ Events ➔ Event Filter Settings. Compiling MIBs into HP Systems Insight Manager enables HP Systems Insight Manager to automatically receive and decode SNMP traps from systems depending upon filter settings. This type of functionality is currently not available in HP Systems Insight Manager.

MIB management tools

HP Systems Insight Manager provides three separate tools for use with MIB integration and trap customization. Users register MIBs with HP Systems Insight Manager using two command-line tools. These tools are only accessible to the central management server (CMS) administrator of HP Systems Insight Manager. They are:

- **mcompile**
- **mxmib**

In addition, HP Systems Insight Manager provides a GUI tool to display and edit the trap settings for MIBs already compiled using the command-line tools listed above. This tool is the:

- **SNMP Trap Settings** page (**Options ➔ Events ➔ SNMP Trap Setting)**

The remainder of this section discusses each of the tools provided and elaborates on their specific usages.

mcompile

The **mcompile** tool verifies the syntax of all MIBs to be loaded into the system. **mcompile** resolves all MIB dependencies and, where necessary, converts SNMP v2 MIBs into v1 format for loading into the HP Systems Insight Manager database. **mcompile** is located in the <BASE>\lbin directory and should be run from the <BASE>\mibs directory. **mcompile** will look for all MIBs files in the <BASE>\mibs directory by default so any MIB that you intend to register should be copied to the <BASE>\mibs directory. While **mcompile** does provide some capability to specify a different directory in which to search for MIBs, as a best practice HP strongly recommends you place all MIBs in the <BASE>\mibs directory.

Usage for **mcompile** is as follows:

mcompile [-d <dirspec>] <mibfile>

Typical usage in almost all cases would be **mcompile** *test.mib* where *test.mib* is the target MIB you want to register with HP Systems Insight Manager.

Use of the -d switch is not necessary when you have copied all MIBs, including dependency MIBs, to the <BASE>\mibs directory and executes **mcompile** from the <BASE>\mibs directory. The -d switch specifies which directory contains the MIB files to be compiled into HP Systems Insight Manager. The directory path needs to be specified as relative as the full path or relative to the <BASE> directory.

As output, **mcompile** produces a CFG file and save it to the <BASE>\mibs directory. This file has the same name as the source MIB except it has the .cfg suffix. In the typical usage mentioned above, the resulting output file would be test.cfg. Running **mcompile** several times against the same source MIB produces multiple revisions of the CFG with the latest version retaining the .cfg extension. CFG files are stripped-down versions of the original source MIBs where all comments have been removed, all imports from other MIBs have been resolved and substituted as needed, and the compiler has converted v2 syntax to v1 where appropriate.

NOTE: When compiling MIBs with dependencies, the dependent MIB must be located in the same directory as the target MIB and must follow a certain naming convention, typically MIBMODULE.MIB. An example follows using excerpts from the CPQFCA MIB:

```
CPQFCA-MIB DEFINITIONS ::= BEGIN

IMPORTS
       compaq
              FROM CPQHOST-MIB
       enterprises
              FROM RFC1155-SMI
       DisplayString
              FROM RFC1213-MIB
       OBJECT-TYPE
              FROM RFC-1212
       TRAP-TYPE
              FROM RFC-1215
       cpqSsChassisName
              FROM CPQSTSYS-MIB
```

mcompile searches for compaq by opening the file CPQHOST.MIB and **mcompile** looks for *cpqSsChassisName* in CPQSTSYS.MIB. The other imports are resolved automatically when **mcompile** runs from the <BASE>\mibs directory. HP provides versions of the RFC 1212, 1213, and 1215 MIBs for automatic import during compilation. **mcompile** automatically internally resolves imports from RFC1155.

Another example of imports during compilation comes from the BLADETYPE2-TRAP MIB used by the HP ProLiant BL p-Class GbE2 Interconnect Switch:

```
BLADETYPE2-TRAP-MIB DEFINITIONS ::= BEGIN

IMPORTS
        TRAP-TYPE
                FROM RFC-1215
        sysName
                FROM RFC1213-MIB
        hpSwitchBladeType2-Mgmt
                FROM HP-SWITCH-PL-MIB
        agSlotNumber
                FROM BLADETYPE2-SWITCH-MIB
        ipCurCfgGwIndex
                FROM BLADETYPE2-NETWORK-MIB
```

In this example, *TRAP-TYPE* and *sysName* are readily resolved as in the example above. *hpSwitchBladeType2-Mgmt* is resolved by **mcompile** checking HP-SWITCH-PL.MIB. *agSlotNumber* is resolved from BLADETYPE2-SWITCH.MIB and *ipCurCfgGwIndex* is resolved from BLADETYPE2-NETWORK.MIB.

To illustrate further how imports are resolved—the following procedure shows how **mcompile** would attempt to resolve the import for hpSwitchBladeType2-Mgmt:

1. Look for a file named HP-SWITCH-PL-MIB.mib (module name, uppercase).
2. Look for a file named HP-SWITCH-PL.mib (module name without -MIB, uppercase).
3. Look for hp-switch-pl.mib (convert name to lowercase for case sensitivity in Linux/HP-UX).
4. Look for hp-switch-pl-mib.mib (convert name to lowercase for case sensitivity in Linux/HP-UX).
5. Report an error indicating that the imported MIB could not be found.

A major consideration when importing MIBs is locating variables from other third-party MIBs. In many cases, MIBs are named to match module names. However, in some circumstances it might be necessary to rename MIB files to match the module names prior to compilation. For example, some vendors might provide MIB files with different extensions such as .my. In this case, before using **mcompile**, the mibfile.my file needs to be renamed to mibfile.mib.

mxmib

The **mxmib** tool registers MIBs into the HP Systems Insight Manager database by using their corresponding CFG files. This tool also has the capability to list all registered MIBs, to display a list of traps contained in each individually registered MIB, and to unregister MIBs that the user or the system has previously registered.

IMPORTANT: While it is possible to unregister any files currently registered in the HP Systems Insight Manager database, HP strongly advises that you do not unregister any files that have been registered by default. Doing so might impair HP Systems Insight Manager's ability to correctly process traps

from other HP devices on the network.

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mxmib expects to find all files located in the <BASE>\mibs directory. Usage for **mxmib** is as follows:

```
mxmib -a <myfile.cfg>
mxmib -f <mylist.list>
mxmib –l
mxmib -t <myfile.mib>
mxmib -d <myfile.mib>
```

The switches work as follows:

- -a —Registers a new CFG, <myfile.cfg>, or replaces the data of a previously registered MIB.
- -f — Reads and processes a list of CFGs from a file, <mylist.list>, to register with HP Systems Insight Manager. This file must reside in the <BASE>\mibs directory and the full CFG filename must be listed on individual lines. Each line in the file is processed as it would be by running the **mxmib** –a command individually on each individual file.
- -l — Lists all the MIBs registered in HP Systems Insight Manager. Supplying no arguments to **mxmib** defaults to running **mxmib** –l.
- -t — Lists the traps in the specified <myfile.mib>.
- -d — Unregisters a MIB, <myfile.mib>, from the HP Systems Insight Manager database.

The following is an example of a file containing a list of MIBs to be complied:

Cfglist9.list

```
rfc1213.cfg
rfc1215.cfg
cpqhost.cfg
asmib.cfg
atmf.cfg
avsnmpv1.cfg
```

Note the initial command to register the file uses the .cfg extension, but all subsequent commands refer to the file by its .mib extension.

IMPORTANT: mxmib is order sensitive. While the command allows you to compile MIBs whose dependencies have not been compiled, for optimal results HP recommends that you register MIBs with HP Systems Insight Manager in order of dependency. If you do not compile MIBs in order of dependency, HP Systems Insight Manager might not properly resolve varbind data for incoming traps from MIB X when a varbind has been imported from a MIB Y that was not registered prior to registering MIB X. MIB dependencies are typically identified at the top of MIB files in the IMPORTS section and are discussed in the mcompile section. Note that failing to compile import MIBs properly does not block reception of traps; it only limits the data captured for some traps.

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mxmib MIB keyword customization

After using **mcompile** to parse and validate the source MIB, you can customize the resulting CFG file for support in HP Systems Insight Manager. Specifically, there are special keywords that can be defined on a per-trap basis. At the conclusion of this section, there is a full example. The keywords and their usage are as follows.

--#TYPE

The *TYPE* keyword provides a way to add a short description of the trap to HP Systems Insight Manager. This short description can be used when sending a paging message. This enhances the ability to transmit information without being verbose. This keyword does not provide any functional purpose. However, it does represent the primary display string for the trap when it is displayed in HP Systems Insight Manager. While the *TYPE* field does not need to be unique, HP recommends that the combination of *TYPE* and *CATEGORY* fields form a unique pair so that this event can be effectively searched for using the Event by Category/Type search criteria.

--#SEVERITY

The *SEVERITY* keyword may be used to alter the severity of a trap. The vendor who created the MIB might have decided that the trap under most circumstances only warrants a severity level of Informational. However, you might need to escalate the trap's severity based on operational importance. Therefore, this keyword overrides default severity. The allowable severity levels are shown below. Many vendors have different severities specified in their MIBs such as Normal, Warning, Degraded, Broken, and so on. These severities need to be changed in the base MIB or CFG to one that matches HP Systems Insight Manager. For example, Degraded can be mapped to Minor or Major, depending on the degradation. Editing the MIB or CFG and doing a search and replace on the severities is the easiest way to tweak the MIB. HP Systems Insight Manager also provides a GUI to change the *SEVERITY* after MIB compilation.

- Informational—Events of this type require no attention. They are provided as useful information.
- Minor—Events of this type indicate a warning condition that may escalate into a more serious problem.
- Major—Events of this type indicate an impending failure.
- Critical—Events of this type indicate a failure and signal the need for immediate attention.

--#ENABLE

The *ENABLE* flag can be set to ***TRUE*** or ***FALSE*** and can effectively enable or disable a trap from being processed by HP Systems Insight Manager. The usage for the keyword is either ***TRUE*** to indicate that that trap should be processed or ***FALSE*** to indicate that this trap should not be processed. By default, this keyword is set to ***TRUE*** and should only be explicitly overwritten on an exception basis.

--#CATEGORY

This provides a categorization of the trap for ease of viewing and use in forming HP Systems Insight Manager lists. You can use predefined categories or, if none of these fit your need, you can create a category befitting your circumstances. The HP Systems Insight Manager **SNMP Trap Settings** page provides a GUI to change the *CATEGORY* after MIB compilation. The predefined categories in HP Systems Insight Manager are shown below.

HP Netserver Events
Altiris Connector for HP SIM Notifications
Altiris Notifications
ARCserve Events
General Backup Events
HP ProLiant BL p-Class GbE2 Interconnect Switch Events
Giga Switch Events
Data Protector Events
HP ProLiant Operating System Events
HP OVSAM Events
WYSE Events
NetWare Server Events
PATROL Events

Unisys Configuration Agent Events
HP ProLiant Miscellaneous Events
HP ProLiant Storage Events
HP ProLiant Cluster Events
HP ProLiant Application Events
HP ProLiant NIC Events
HP ProLiant ICA Events
HP ProLiant UPS Events
HP ProLiant System and Environmental Events
HP ProLiant Rack Events
HP Service Events
HP ProLiant Threshold Events
HP ProLiant Remote Management Events
SWCC Events
ServerNet Events
TruCluster Events
Common Cluster Events
Serviceguard Events
Tandem EMS Events
SAN Appliance Events
Compaq 5226A Switch Events
APC PowerNet Events
Integrity Server Events
HP StorageWorks HSV Controller Events
HP StorageWorks SAN Switch Events

--#MSG_FORMATTER

This keyword has a number of HP Systems Insight Manager specific commands. These commands are parsed and executed when a paging or e-mail Automatic Action on Event rule is created and exercised within HP Systems Insight Manager. You can view these commands as a paging or e-mail command language. The general layout of each command contains an operand and descriptive text associated with the operand. The descriptive text must be delimited by a # pair. If the parser within HP Systems Insight Manager does not recognize a command, it disregards that command without providing any additional feedback.

IMPORTANT: Changing the *MSG_FORMATTER* string is only recommended for extremely advanced users. Always back up any files that are modified so that they can be easily restored. Also, note that for HP ProLiant traps, HP has already generated intelligent messages that are registered by default with HP Systems Insight Manager.

Referring to the following tables, the ***V*** keyword represents varbind information specific to individual traps. Numerically, all ***V*** definitions match the varbinds as they appear in the trap.

$VnV#Some text#	Includes value for varbind and descriptive text (in this case, "Some text")	Label reflects the value selected. This will vary on a trap-to-trap basis.
$VnD#Some text#	Includes the varbind description that is only available within HP Systems Insight Manager	Label reflects the valve selected. This will vary on a trap-to-trap basis.

In addition, a special keyword can be used to form varbind data into text sentences.

$Hdr#Some text#	Used to add text or formatting to headers	Text that could be added to add clarity to output data.

Also, if the beginning keyword in the trap definition file is a $!, that tells the HP Systems Insight Manager parser to disregard the global settings and to use only the trap definition file keywords. See example below.

Example

```
cpqDa5PhyDrvStatusChange TRAP-TYPE
 ENTERPRISE compaq
 VARIABLES { sysName, cpqHoTrapFlags, cpqDaPhyDrvStatus,
   cpqDaPhyDrvCntlrIndex, cpqDaPhyDrvBusNumber,
   cpqDaPhyDrvBay, cpqDaPhyDrvModel, cpqDaPhyDrvFWRev,
   cpqDaPhyDrvSerialNum, cpqDaPhyDrvFailureCode }
DESCRIPTION  "Physical Drive Status Change. This trap signifies that the
agent has detected a change in the status of an
HP Drive Array physical drive. The variable cpaDaPhyDrvStatus indicates
the current physical drive status. User Action: If the physical drive
status is failed(3) or predictiveFailure(4), replace the drive."


   --#TYPE "Physical Drive Status Change"
   --#SUMMARY "Physical Drive Status is now %d."
   --#ARGUMENTS {2}
   --#SEVERITY CRITICAL
   --#TIMEINDEX 99
   --#MSG_FORMATTER "$V1V#Computer: # $V3V#Drive Status: # $V9V#Serial
   Number: #"
   ::= 3029
```

The e-mail or pager output would appear as:

```
Event Notice ID: 3029
Computer: CRONUS
Drive Status: FAILED
Serial Number: WS7000134715
Event Description: Physical Drive Status Change. This trap signifies that
the agent has detected a change in the status of an HP Drive Array
physical drive. The variable cpaDaPhyDrvStatus indicates the current
physical drive status. User Action: If the physical drive status is
failed(3) or predictiveFailure(4), replace the drive.
Event Time: 01/09/2003 15:46: PM
```

Note that *Event Notice ID, Event Description* and *Event Time* are inserted by HP Systems Insight Manager into all event notifications and that *Computer (V1, sysName), Drive Status (V3, cpqDaPhyDrvStatus)* and *Serial Number (V9, cpaDaPhySerialNum)* are customized to this specific trap.

Using the preceding example and adding the $!

```
--#MSG_FORMATTER "$! $V1V#System Name: # $V3V#Drive Status: # $V9V#Serial Number: #"
```

The e-mail or pager output would be:

```
System Name: CRONUS
```

```
Drive Status: FAILED
Serial Number: WS7000134715
```

```
Using the $Hdr keyword in conjunction with $! to further customize the
display could be as follows:
```

```
  --#MSG_FORMATTER "$! $Hdr#The # $V1V#system # $Hdr#had the following # $V3V#Drive
  Status:# $Hdr#. The system Serial Number # $V9V#is # $Hdr#.#"
```

The e-mail or pager output would be:

```
The system Cronus had the following Drive Status: failed. The system
Serial Number is WS7000134715.
```

IMPORTANT: For the *TYPE, CATEGORY,* and *MSG_FORMATTER* keywords described above, the values for these keywords must be encapsulated in quotes such as "XXX" in order for mxmib to successfully register the MIB in question. Other keywords such as *SEVERITY* and *ENABLE* do not require quoted values.

SNMP Trap Settings page

The **SNMP Trap Settings** page (**Options ➔ Events ➔ SNMP Trap Setting)** has the capability to modify the attributes of any trap that has been registered with the HP Systems Insight Manager database. The attributes that are available for modification include the short and long descriptions, severity, and category as well as the trap enable/disable flag. Use the interface on this page to first select the registered MIB containing the trap in which you are interested, and then select the specific trap you wish to modify.

Fields can be modified as follows:

- The **Description** field is the long description stating the nature of the trap. The **Description** field is used on the Event detail page and can be included in paging and e-mail notifications. This field corresponds to the *DESCRIPTION* keyword in the CFG files.
- The **Type** field is the short description and is used as the display string when viewing a list of events. The type can also be used as part of a paging or e-mail notification. Type fields have been custom-created for all of the HP ProLiant hardware events. However, for many other MIBs they have not been customized. Tailoring this field to present a clear message is crucial to presenting meaningful Event data in HP Systems Insight Manager. This field corresponds to the *#TYPE* keyword in the CFG files.
- The **Severity** field can be set to Critical, Major, Minor, or Informational. The default is Informational when no other severity has been set by the base MIB. Many vendors have different severities specified in their MIBs such as Normal, Warning, Degraded, Broken, and so on. These severities need to be changed in the base MIB or CFG to one that matches HP Systems Insight Manager. For example, Degraded can be mapped to Minor or Major, depending on the degradation. Editing the MIB or CFG and doing a search and replace on the severities is the easiest way to tweak the MIB. This field corresponds to the *#SEVERITY* keyword in the CFG files.
- The **Category** field is used to logically group similar events for display purposes in HP Systems Insight Manager. These groups are shown when you create event lists and when configuring Automatic Event Handling. This is extremely helpful when wanting to group specific networking, storage, and other traps to be easily found in the user interface. This field corresponds to the *#CATEGORY* keyword in the CFG files.
- The **Enable/Disable** field can be toggled to support or suppress events on a per-trap basis. HP recommends that all traps remain Enabled and are only disabled when they are well-understood and can be ignored without any impact. By disabling a specific trap, you are telling HP Systems

Insight Manager to ignore that trap once received. If a trap is disabled, then the trap is dropped and not logged in the database. This field corresponds to the *#ENABLE* keyword in the CFG files.

Troubleshooting MIB compilation issues

IMPORTANT: Most MIB compilation issues are caused by syntactical errors in the source MIB from the original hardware vendor. Due to the vast number of MIBs available, HP is only able to test and certify the set of MIBs that ship by default with HP Systems Insight Manager. Other MIBs may need to be edited in order to compile with HP Systems Insight Manager.

Troubleshooting mcompile

- If the MIB file being compiled includes *IMPORTS* from other MIBs, the imported MIB files should also be located in the same directory as the MIB file being compiled.
- Comment lines in MIB files start with `--` and end with a new line or the next occurrence of `--`. Beware of MIBs with `-` characters across the entire line. These lines are intended to be comments. However, extra dashes have cancelled the first set of `--` characters. As a general rule, for comment lines, only use `--` to denote the comment. No further `--` are allowed on that line.

  For example:

  `-- xyz` comments out xyz

  However

  `-- -- xyz` effectively uncomments xyz
- **mcompile** expects the *END* keyword at the end of a module on a line by itself. Make sure there is a new line in the MIB file after the *END* keyword.
- **mcompile** does not allow redefinition of standard data types. If the MIB file being compiled contains such redefinitions, they should be commented out before running **mcompile**.

Troubleshooting mxmib

- In order for the CLI to list a MIB file as registered, the MIB file must reside in the MIBs directory and have the same name as the MIB file that was registered.
- **`mxmib`** `-a <file.cfg>` relies on `file.cfg` being in the MIBs directory.
- Re-registering a previously registered MIB can be slow. HP recommends un-registering first and then re-registering.

Appendix

"Out of the box" MIB support in HP Systems Insight Manager

The following table represents the key MIBs that ship with HP Systems Insight Manager. Those MIBs that are marked as preloaded are registered as part of every HP Systems Insight Manager installation. The rest of the MIBs have been pre-compiled into `.cfg` format and are in the MIB directory for you to compile, if necessary, for managing those types of systems in your environment.

MIB name	Supports	Preloaded
ADAPTEC	HP Netserver	
ASMIB	ArcServe	X
AVSNMPV1		X
BKUPEXEC	General Backup	X
BLADETYPE2-NETWORK	HP ProLiant BL p-Class GbE2 Interconnect Switch	X
BLADETYPE2-PHYSICAL	HP ProLiant BL p-Class GbE2 Interconnect Switch	X
BLADETYPE2-SWITCH	HP ProLiant BL p-Class GbE2 Interconnect Switch	X
BLADETYPE2-TRAP	HP ProLiant BL p-Class GbE2 Interconnect Switch	X
BRIDGE		X
CAGEAGT		
COMPAQ-AGENT		
CPQ-ID-REC		
CPQ--TRAPS		
CPQ54NN	HP Giga Switch	X
CPQAPLI	HP ProLiant	X
CPQAPPG80	HP Storage	X
CPQCLUS	HP ProLiant Cluster	X
CPQCMC	HP ProLiant Remote Management	X
CPQCR	HP ProLiant Cluster	X
CPQDMII	HP DMI Mapper MIB	X
CPQFCA	HP ProLiant Storage	X
CPQFIX	HP ProLiant Generic	X
CPQGEN	HP ProLiant Miscellaneous	X
CPQHLTH	HP ProLiant System and Environmental	X
CPQHOST	HP ProLiant Application/NIC	X
CPQHOSTB	HP ProLiant Generic	X
CPQHSV110V3	HP StorageWorks HSV Controller	X
CPQICA	HP ProLiant ICA	X
CPQIDA	HP ProLiant Storage	X

MIB name	Supports	Preloaded
CPQIDE	HP ProLiant Storage	X
CPQINFO	HP ProLiant System and Environmental	
CPQN5226A	Compaq 5226A Switch	X
CPQNIC	HP ProLiant NIC	X
CPQRACK	HP ProLiant Blade	X
CPQRECOV	HP ProLiant Cluster	X
CPQRPM	HP ProLiant UPS	X
CPQSANAPP	HP Storage	X
CPQSANEVENT	HP Storage	X
CPQSCSI	HP ProLiant Storage	X
CPQSERVICE	HP Service	X
CPQSINFO	HP ProLiant System and Environmental	X
CPQSM2	HP ProLiant Remote Management	X
CPQSRVMN	HP ProLiant System and Environmental	X
CPQSTAT	HP ProLiant	X
CPQSTDEQ	HP ProLiant System and Environmental	X
CPQSTSYS	HP ProLiant Storage	X
CPQSWCC	HP StorageWorks Command Console	X
CPQTHRSH	HP ProLiant Threshold	X
CPQUPS	HP ProLiant UPS	X
CPQWINOS	HP ProLiant Operating System	X
DATAPROTECTOR	Data Protector	X
DELL10892	Dell Server	
DELLARYMGR	Dell Server	
DLGHWINF		X
EMS	HP-UX EMS	
EMSMIBAX	Tandem EMS	X
ENTITY-MIB	RFC MIB	
ETHERLIKE	RFC MIB	X
FPIPES		X
H22AGENT	HP StorageWorks Command Console	X
HOST-RESOURCES-MIB		
HP-MCCLUSTER.MIB	Serviceguard	
HP-SGCLUSTER	Serviceguard	X
HP-SWITCH-PL		X

MIB name	Supports	Preloaded
HPECCMIB	HP Netserver	X
HPIPFTRAP	HP Integrity Server	
HPN	HP Netserver	X
HPNETCTZ	HP Netserver/HP Integrity Server/HP Storage	X
HPNR	HP Netserver	X
HPOVSAM	HP OVSAM	X
HPPRFMIB	HP Netserver	X
HPSANMGR	HP OVSAM	X
HPSWA	HP Netserver	X
HPTAT	HP Netserver	X
HPTRAP	HP Netserver	
HS_AGENT	HP StorageWorks Command Console	X
HUBNYLE		
IBMMMALERT		
IBMUMS	IBM Server	
IBMUMSEVENTS	IBM Server	
IBMSERVERAID	IBM Storage	
IF-MIB	RFC MIB	
ISCSI		X
LSF001		X
MLXRAID		
NDSTRAP	NetWare	
NSAASR	HP Netserver	X
NSADIMM	HP Netserver	X
NSAEVENT	HP Netserver	X
NSAINFO	HP Netserver	X
NSAPCI	HP Netserver	X
NSARPS	HP Netserver	X
NSASCSI	HP Netserver	X
NSATRCFG	HP Netserver	X
NSATRMGR	HP Netserver	X
NSAVOLCP	HP Netserver	X
NSNICMIB	HP Netserver	X
NWALARM	NetWare	
NWSERVER	NetWare	

MIB name	Supports	Preloaded
OVIS-2		X
PARSELOG		X
PCISNET	ServerNet	X
PFC	PATROL	X
POWERNET	APC PowerNet	
RFC-1155		
RFC-1215		
RFC-1212	RFC MIB	
RFC1155-SMI	RFC MIB	
RFC1155	RFC MIB	
RFC1213	RFC MIB	
RFC1215	RFC MIB	X
RFC1514	RFC MIB	X
RMON-MIB	RFC MIB	X
SMSAGENT	Unisys Configuration Agent	X
SNMP-TARGET-MIB	RFC MIB	
SNMPV2-CONF	RFC MIB	
SNMPV2-SMI	RFC MIB	
SNMPV2-TC	RFC MIB	
SVRCLU	HP Common Cluster	X
SVRMGT		
SVRNTC		
SWITCH	RFC MIB	X
SYMTRAP	HP Integrity Server	X
TOKEN		X
TRUCLU	HP TruCluster	X
UNIFIED		
V3_0FA	HP StorageWorks SAN Switch	X
V3_0FE	HP StorageWorks SAN Switch	X
V3_0SW	HP StorageWorks SAN Switch	X
V3_0TRP	HP StorageWorks SAN Switch	X
V5_0SW	HP StorageWorks SAN Switch	
WBT3MIB	WYSE	X
ZESA	NSK	X
ZHRM	NSK	X

MIB name	Supports	Preloaded
ZTMX	NSK	X
ZTSA	NSK	X
ZSMP	NSK	X

For more information

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