IMAGE SERVICES

SNMP Reference Manual

**IS 4.0 HP Integrity Edition
and IS 4.0 SP5**

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About This Manual

This manual contains the information network administrators need to export the statistics comprising the FileNet Management Information Base (MIB) to network management stations, through the Simple Network Management Protocol (SNMP) agent.

The contents include:

- SNMP overview
- SNMP traps
- SNMP port usage
- SNMP software configuration
- MIB organization and use
- SNMP components
- User configurable traps
- System monitor reports
- Appendix on SNMP daemon and trap configuration includes:
    - How to configure the Master SNMP Daemon
    - How to configure and use SNMP traps
    - How to read a trap
- Appendix with tables of the objects in the FileNet MIB file
- Appendix on SNMP services and functionality includes:
    - How to verify basic SNMP services and functionality
    - How to check FileNet SNMP functionality

- Appendix on SNMP processes and resources includes:

    - Platform-specific information

    - A bibliography of additional SNMP resources

FileNet does not provide any network management products. We assume you already have an SNMP-based network management system in place.

SNMP is a standard protocol for network management. You must be familiar with SNMP to access the FileNet MIB information. If you are not familiar with SNMP, refer to the resources listed in the **"SNMP Bibliography" on page 100** or see the manuals that came with your network management software.

To create an application to access the FileNet MIB information, you also need to know the application-building utility on your particular network management system.

We assume you are familiar with FileNet system operations and terminology as described in the *System Administrator's Handbook*.

New Features and Changes in This Release

This version of the manual clarifies FileNet support for only **SNMP version 1 (SNMPv1)**.

Also, a table of FileNet-supported TCP ports has been added to the section, **"How SNMP Software Uses Ports" on page 16**.

FileNet Education

FileNet provides various forms of education. Please visit Global Learning Services on FileNet's Web site at (**www.filenet.com**).

Comments and Suggestions

FileNet invites all customers to communicate with the Documentation group on any question or comment related to FileNet manuals and online help. Send email to **docs@filenet.com**. We will make every effort to respond within one week. Your suggestions help us improve the products we deliver.

Simple Network Management Protocol

Simple Network Management Protocol (SNMP) is the industry-standard protocol for network management. SNMP enables network administrators to manage network performance, find and solve network problems, and plan for network growth.

Note FileNet supports **SNMP version 1 (SNMPv1)** on all Image Services platforms.

Through FileNet's Management Information Base (MIB), you can use your SNMP-compliant network management software to access a wide variety of information in your FileNet system.

Examples of network management software include BMC Patrol, HP OpenView, IBM NetView/6000, SunNet Manager, CA Unicenter and Cabletron Spectrum. FileNet does not provide network management software.

Although the SNMP protocol is standard, there are many variations in specific implementations. Always refer to the manuals that came with your network management software for details. Also, refer to **"Appendix A: SNMP Daemon/Trap Configuration" on page 38** and **"Appendix D: SNMP Processes & Resources" on page 92** for platform-specific information.

For basic information about SNMP services and functionality refer to **"Appendix C: SNMP Services and Functionality" on page 87**.

For details, see the following topics:

- **"Overview" on page 11**
- **"How SNMP Traps Are Issued" on page 14**
- **"How SNMP Software Uses Ports" on page 16**
- **"How the MIB Is Organized and Used" on page 26**
- **"How the SNMP Components Work Together" on page 33**
- **"System Monitor Reports" on page 37**
- **"Appendix B: Objects in the FileNet MIB" on page 66**
- An SNMP Example in **"Appendix A: SNMP Daemon/Trap Con-figuration" on page 38**

Overview

SNMP is a TCP/IP-based protocol for managing (monitoring and controlling) an enterprise's resources across the network. Examples of managed resources might include hubs, routers, switches (hardware) and Image Services servers (software).

Every SNMP communication takes place between two entities:

- A management station, which is a workstation running network management software

- An agent, which is the hardware or software being monitored by the management station

The following illustration shows the relationship between the SNMP management station and its monitored agent.

SNMP management station   Agent being monitored

Physical Network Connection
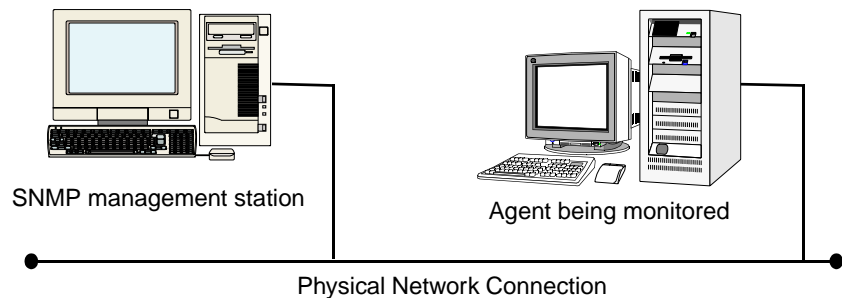
SNMP Management Station and Agent

The following topics illustrate the SNMP operations when configured to monitor a FileNet system:

SNMP Monitoring a FileNet System

When configured to monitor a FileNet system, the SNMP management station sees the Image Services server as its agent.

The following illustration depicts a local area connection between the SNMP management workstation when a FileNet system is the monitored agent.
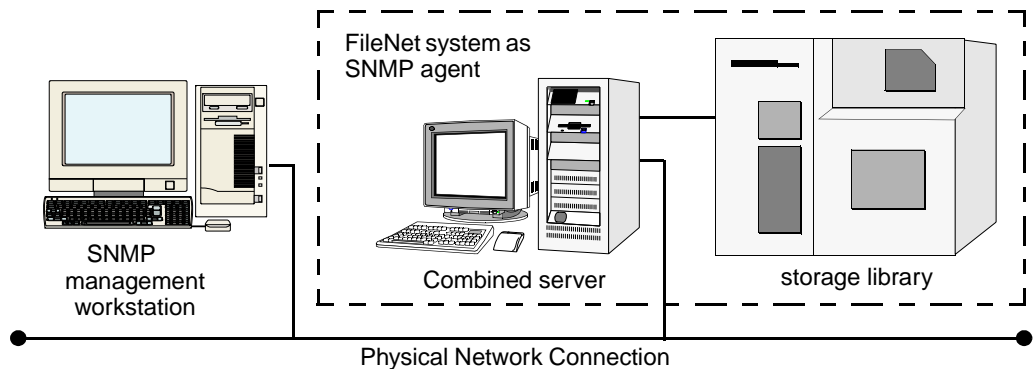
SNMP Management Station Monitoring a FileNet System

SNMP Operations

SNMP uses five internal operations to exchange information:

get	Retrieves the values of specific objects from the MIB
get next	Retrieves the value of the next object in the MIB
set	Alters specific MIB objects' values
get response	Responds to get, get next, or set requests
trap	Generates unsolicited event notifications sent to network management stations For example, an SNMP agent issues a trap when it reinitializes itself, an attached interface status changes, or an error condition occurs.

The first three operations are issued from the management station and sent to the agent. The agent sends a response. The agent also initiates the trap operation and sends it to the management station.

Physical Network Connection
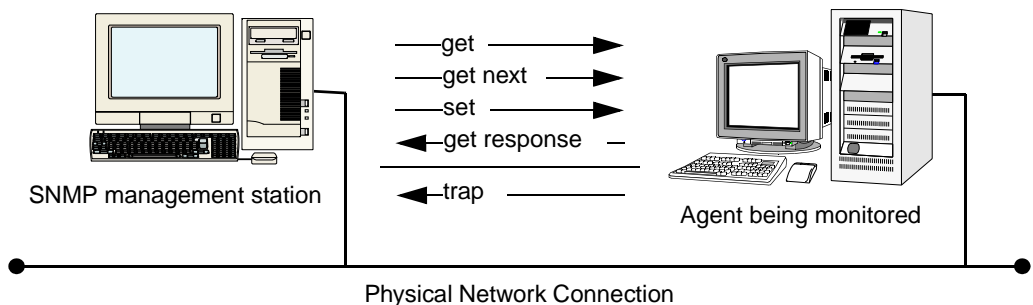
SNMP Operations

How SNMP Traps Are Issued

SNMP traps are alerts the agent software generates and sends to the third party SNMP-compliant network management system. When the Image Services server is the agent, there are seven possible default traps that can be sent:

- FileNet software stopped

- System aborted a process

- Signal killed a process

- SNMP has an internal error

- Server rejected an RPC connection due to a lack of service request handlers

- Error occurred, disabling the storage library or the optical drive

- Storage library needs operator intervention

You can also configure optional (fnPtt) traps.

Note   The FileNet default implementation of SNMP does not issue a trap when a user disables a library or a drive.

Also, the Image Services software has a trap table called fnPtt ("FileNet Poll Trap Table"). User-configured traps are enabled by adding entries to fnPtt. By default, fnPtt has no rows, which means no entries and no custom traps. Please note that the final row in the poll trap table fnPtt (see **"Poll Trap Table Group" on page 32**) always has an fnpttOID value of zero. This indicates "end of table." Through your SNMP management software, you can add or delete values you want to monitor.

Users can add and delete entries to fnPtt (thereby enabling or disabling specific custom traps) through their SNMP management software, or by modifying the clear-text file /fnsw/etc/ptt.ini. See **"FileNet Poll Trap Table Group" on page 84** and **"User Configurable Traps" on page 35** for more information on customizing traps. See **"Configure and Use SNMP Traps" on page 50** for examples of setting traps using an SNMP management console, OpenView, or manually editing the ptt.ini file with trap information using vi. It is important to note that the information that appears in a particular trap message depends on how the fnptt trap table has been configured.

How SNMP Software Uses Ports

Ports allow SNMP information to be sent to the correct application. Depending on the platform, Image Services uses two or more of the following SNMP ports.

Note   The following descriptions show file paths using the UNIX format. If you're using a Windows server, replace the forward slash (/) with a back slash (\).

SNMP Ports

Name	Configurable	Description
SNMP	/etc/services Default=161/udp	An external SNMP manager uses this port to communicate with any/all SNMP agents on the host where Image Services resides.
FileNet Port	/fnsw/bin/ MasterSnmpd_ start	FileNet SNMP daemon, fn_snmpd, uses this port to listen for requests from the SNMP multiplexer.
		• Image Services for the HP-UX and the Solaris Operating Environment systems requires matching values for the FileNet_port variable in fn_snmpd_start and MasterSnmpd_start. The default port number is decimal 8001.
		• Image Services for Windows Server requires a hard-coded port number of 9002 hexadecimal. To change the port number, change the fn_snmpd/udp entry in the services file.
		• Image Services for AIX/6000 does not use this port.

SNMP Ports, Continued

Name	Configurable	Description
Native Port	/fnsw/bin/ MasterSnmpd_ start ...AND... OS-specific (e.g., /etc/rc3.d/ S76snmpdx)	Native OS SNMP daemon uses this port to listen for requests from the SNMP multiplexer. • Image Services for HP-UX has a default port number of 8000 decimal. To change this default value, you must change the native_port variable in MasterSnmpd_start, located in the /fnsw/bin directory. • Image Services for AIX/6000 and Windows Server systems does not use this port.
FileNet Trap Daemon		FileNet trap daemon, fn_trapd, uses this port to listen for internal trap messages from fnsw. The port number is hard-coded to hexadecimal 8999. To change the port number, add an fn_trapd/udp trap entry in the /etc/services file.
Master-Snmpd Trap		MasterSnmpd multiplexer uses this port to listen for trap messages from fn_trapd. The port is hard-coded to hexadecimal 9001. To change the port number, add a master_trapd/udp entry in the /etc/services file. Image Services for AIX/6000 and Windows Server systems does not use this port.

The following table lists TCP Ports used by Image Services:

TCP Ports

Port	Description
32768/tcp	TMS
32769/tcp	COR
32770/udp	NCH
161/udp	fn_snmp
162/udp	snmp_trap

TCP Ports, Continued

Port	Description
35225/udp	fn_trapd
8000/udp (HP only)	Native default SNMP port
8001/udp (HP and Solaris only)	FileNet specific SNMP port
anonymous ports	Migration notify

How the SNMP Software Is Configured

Software daemons on the agent listen for requests from the management station and send traps alerting the station to problems. Different operating systems provide different SNMP mechanisms and native software. Image Services is designed to work appropriately with the native OS SNMP capabilities.

The following diagram shows a generic SNMP configuration. An SNMP multiplexer opens and listens to standard port 161. FileNet daemons communicate between Image Services applications and the multiplexer.
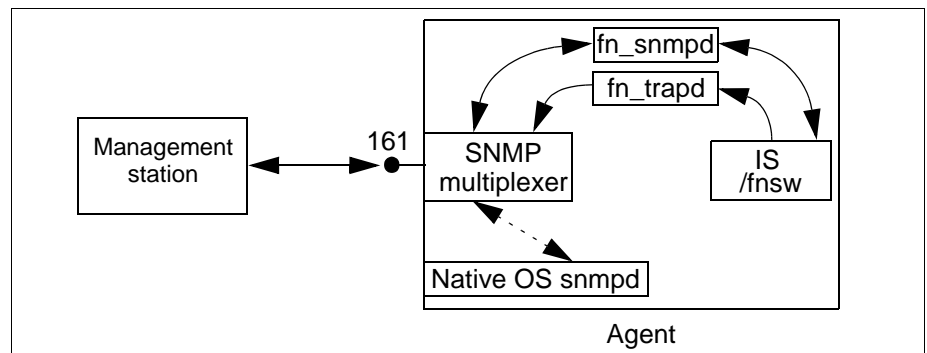
Generic SNMP Configuration

Image Services for HP-UX and the Solaris®

The FileNet SNMP implementation is similar on the Image Services for HP-UX and the Solaris Operating Environment systems. A FileNet master SNMP daemon, MasterSnmpd, acts as the SNMP multiplexer.

On both Image Services platforms, the MasterSnmpd_start script can start MasterSnmpd at boot time if it is configured to do so. When the

Image Services server starts up, the fn_snmpd_start script starts both fn_snmpd and fn_trapd.

The MasterSnmpd_start script includes variables to let you specify the SNMP manager host name and community to which traps should be sent. The default host name is "local," which disables trapping. The MasterSnmpd_start script allows you to set the FileNet port number. The default FileNet port is 8001. If you change the FileNet port in MasterSnmpd_start, you must also change the FileNet port in fn_ snmpd_start. For a complete list of MasterSnmp configurable parameters, see **"MasterSnmpd Configurable Parameters" on page 99**.

On the Solaris platform, the SNMP MIB2 standard requires support for certain operating system level MIBs (for example, #/bytes read, #/bytes written, etc.) by any agent. Since FileNet cannot guarantee the operating system will have a native SNMP, FileNet's Image Services for Solaris Operating Environment implements the MasterSnmpd to handle these MIB2 counters if nobody else can. So, FileNet provides a standard MIB2, as well as the FileNet MIB. By default, the FileNet MIB2 processes non-FileNet requests. However, if you have customized the native OS MIB2 file, you must change this option to implement the customized values.

- On Solaris, MasterSnmpd_start defaults to **MIB2_flag=1**, meaning MasterSnmpd answers MIB2 queries.

- On Solaris, **MIB2_flag=0** means that FileNet defers to Solaris' snmpdx to answer MIB2 queries.

To use the MIB2 file provided with the Solaris OS:

1 Change the MIB_flag in MasterSnmpd_start to 0 (zero).

2 Change the snmp/udp entry in the /etc/services file to match the native port in the MasterSnmpd_start file.

3 Start the native snmpd before you start fnsw.

The Image Services for HP-UX FileNet does not provide a standard MIB2. The native OS SNMP must process all non-FileNet requests. The default native port is 8000. For architectural information concerning the SNMP processes, see **"HP-UX Architecture" on page 95** and **"Solaris Architecture" on page 96**.

Image Services for AIX/6000

The FileNet SNMP implementation on the Image Services for AIX/6000 systems uses the native AIX SNMP daemon, /usr/sbin/snmpd, to communicate with the management station. The FileNet SNMP daemon, fn_snmpd, communicates with the native AIX daemon through the native AIX SNMP protocol information library, smux.lib.

AIX 5.1

To enable traps, you must configure a line to the configuration file (/etc/snmpd.conf) specifying where to send the trap:

    trap <community> <host> <view> fe

To allow users to change configurable MIB variables, configure the following line:

    community <community> <host> <netmask> readWrite

For more detailed information, see **"Configure the AIX Operating System" on page 44**.

The native snmpd must be started at boot time. Beginning with AIX 4.1x, startup is no longer automatic; Image Services must ensure that snmpd starts. For architectural information concerning the SNMP processes, see **"AIX Architecture" on page 93**.

AIX 5.2 and higher

With AIX 5.2 and higher, SNMPv3 has been introduced as the default SNMP version. FileNet does not support version 3 at this time. The only supported version is SNMP version 1.

Run the following command to check the SNMP version you are running:

ps -e | grep snmp

If you are running SNMP version 3 (SNMPv3), you need to switch to version 1. For example, you might enter:

snmpv3_ssw -1

Please refer to the *IBM System Management Guide* for complete information.

When running SNMPv1 on AIX 5.2 and higher, all of the configuration details remain the same as they are in AIX 5.1.

Image Services for Windows Server

The FileNet SNMP implementation on the Image Services for Windows Server systems uses a dynamic link library, fn_snmpd.dll, to communicate between the FileNet daemons and the native Windows Server SNMP executable, snmp.exe. The FileNet daemons are fn_snmpd.exe and fn_trapd.exe.

The FileNet SNMP agent uses the Native Win32 SNMP services.

To use FileNet traps, you must first enable traps through the Windows Service SNMP configuration. Click on the icon and follow the directions provided. For architectural information concerning the SNMP processes, see **"Windows Server Architecture" on page 98**.

The default SNMP security settings in Windows are **Read Only**. If you leave these defaults set, you cannot set custom SNMP poll traps. If you wish to use custom traps on an IS server running under Windows, you must set the security for your SNMP community to **Read Write**. You can do this from either the "Computer Management" or "Services" administrative applets, as shown below:
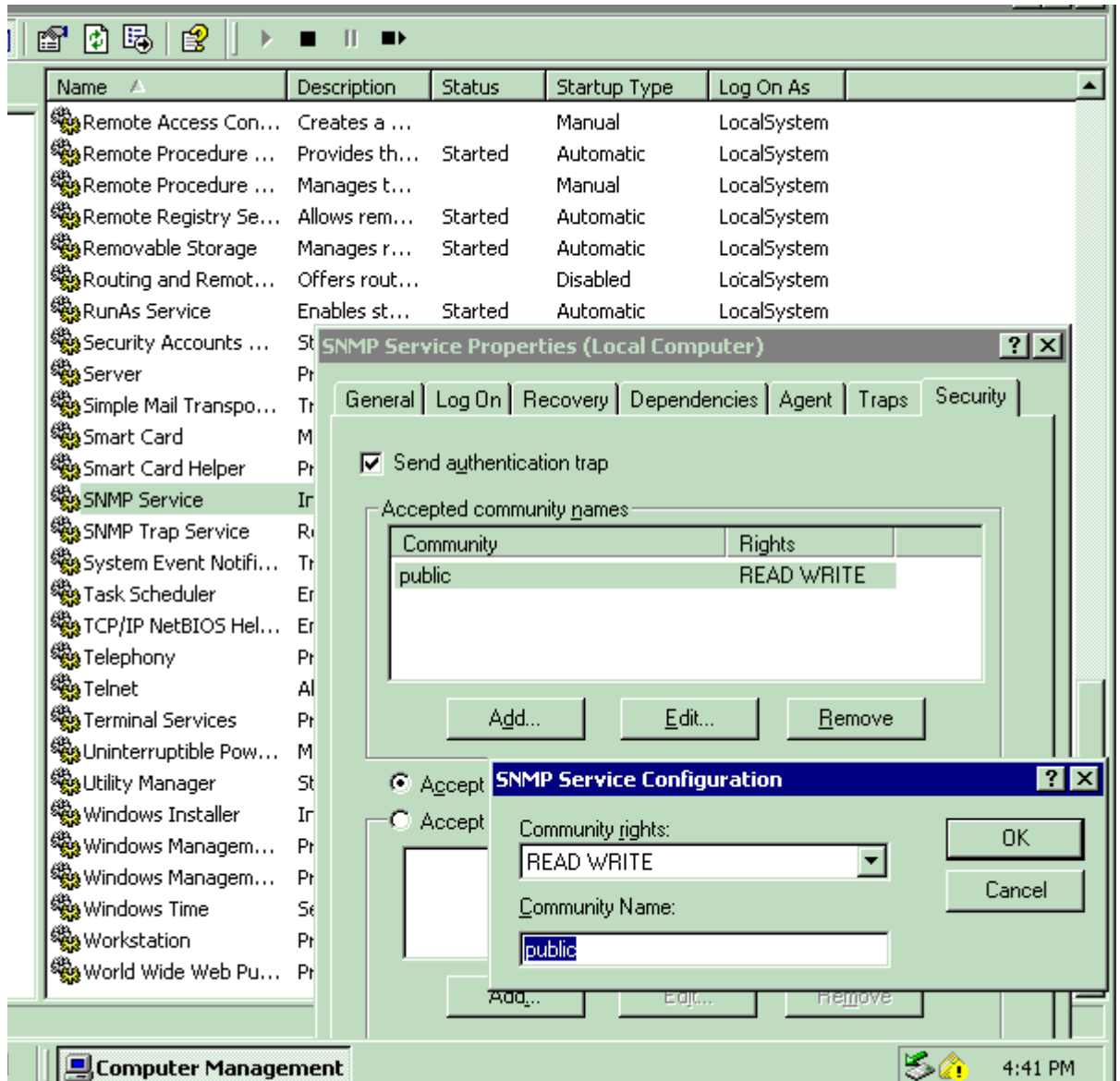
How the MIB Is Organized and Used

The Management Information Base (MIB) is a file stored on both the SNMP management station, as well as the agent it monitors.

The MIB file contains a set of objects an SNMP management station can access through an IP-based network. A MIB defines the information exchanged between a management station and an agent. The MIB contains a uniquely identifiable field for each status or configuration parameter the SNMP manager can monitor.

If it has loaded the appropriate MIB file, the network management station, as well as its agent, can correctly identify and respond to messages sent between them.

MIB File Location

When you install the FileNet software on the Image Services server, the installation program automatically copies the MIB file into the etc directory. For example, you'll find FileNet's MIB file using the default file path for your Image Services server's operating system:

For UNIX-based servers: /fnsw/etc/filenet.my

For Windows-based servers: \fnsw\etc\filenet.my

You must load a duplicate copy of this MIB file onto the workstation used as the SNMP management system that will monitor the FileNet system. The method used to load this file onto the SNMP management station varies, depending on the management software.

SNMP Elements

Note	FileNet supports only **SNMP v1.0** syntax.

The Internet Activities Board (IAB) defines SNMP elements using the OSI Abstract Syntax Notation One (ASN.1) format, a series of numbers separated by periods.

The IAB reserves the first six dotted notation numbers of **1.3.6.1.4.1** for assignment to hardware vendors requiring extensions for their SNMP MIB files. Adding a decimal digit to this numerical identifier, the IAB provides each of these private organizations with a unique enterprise-specific number that follows these first six numbers. See the figure below for the SNMP section of the MIB naming tree.
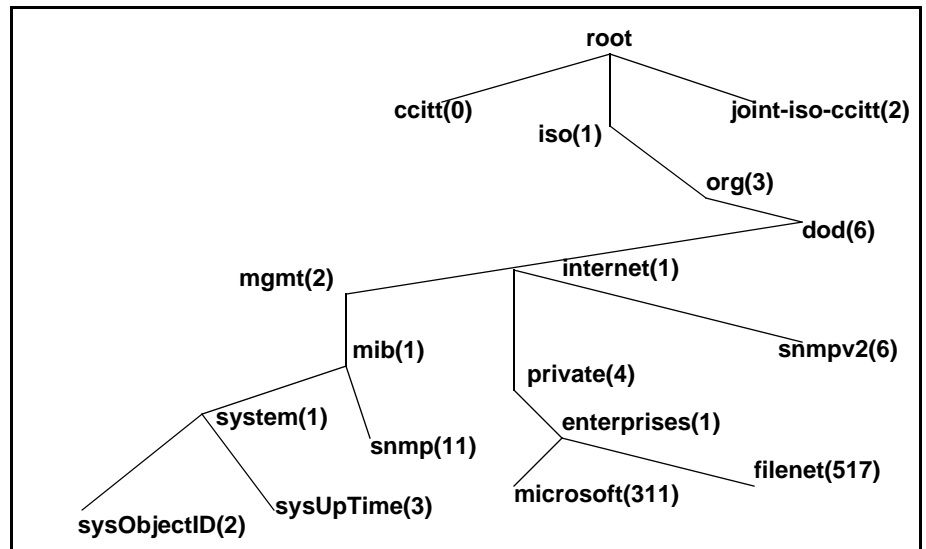
The SNMP section of the MIB naming tree

FileNet's unique identifier is **517**. Therefore, FileNet's MIB definition file, named **filenet.my**, is **1.3.6.1.4.1.517**.

Every SNMP MIB item can be represented by a number like this, or a meaningful name. This series of numbers is the same as a path. Each branch of the tree is associated with a number. The first six numbers are standard and 517 is FileNet's MIB.

Each group and field defined in filenet.my has its own name and number. For example, Image Services system uptime (the number of seconds since Image Services was last initialized) is identified in filenet.my as fnsysUpTime, with the unique number:

1.3.6.1.4.1.517.1.5.0

Translated into text, this MIB file extension breaks into the following MIB file definitions:

1.3.6.1.4.1	=	SNMP MIB file
517	=	Enterprise-specific identifier, assigned to FileNet
1	=	FileNet system group
5.0	=	Time passed since last system start up.

You may program any network management software that recognizes the FileNet MIB-defined numbers to request information from the Image Services software and to respond to IS-generated trap messages.

For example, the network management software at a customer site has loaded filenet.my. As a result, with the appropriate programming, a management station can determine how many seconds the Image Services software has been up by issuing the following command:

get (1.3.6.1.4.1.517.1.5.0)

If the FileNet system has been running 750 seconds when it receives the get command, Image Services sends the following response:

response, get, (1.3.6.1.4.1.517.1.5.0, value(750))

The network management software can process this information accordingly.

Monitoring Groups

The FileNet MIB, filenet.my, allows you to monitor eight different groups of information, as described in the following table.

For detailed descriptions of each MIB entry in these groups, see **"Appendix B: Objects in the FileNet MIB" on page 66**.

FileNet MIB Groups

Group	Description	Information You Can Monitor
System	General information regarding the FileNet server on which the SNMP proxy agent is running For object descriptions, see **"FileNet System Group" on page 66**.	Network Clearing House (NCH) domain and organization names System serial number (SSN) Server type FileNet software uptime Information on last trap sent; various trap flags Table listing each service running on the server

FileNet MIB Groups, Continued

Group	Description	Information You Can Monitor
Cache	Information regarding each cache that resides on the server's hard disk This group applies only when the server's Cache Services sub-system is running. For object descriptions, see **"FileNet Cache Group" on page 71**.	Cache ID, name, and description Minimum and maximum number of sectors Number of sectors free, in use, or locked Number of objects in use or locked
Document Services	Document services statistics This group applies only when the server's document services sub-system is running. For object descriptions, see **"FileNet Document Services Group" on page 73**.	Number of pages and documents migrated from storage media to magnetic disk Number of calls for pages already in cache or on the disk in the drive Number of prefetch calls Total number of migration calls and calls using asynchronous notification Number of pages and documents committed Number of documents read and committed through import Number of batches, pages, and documents committed through Fast Batch Committal

FileNet MIB Groups, Continued

Group	Description	Information You Can Monitor
Storage Library	Statistics for each storage library configured on a FileNet Storage Library server This group applies only when the server's storage library services subsystem is running. For object descriptions, see **"FileNet Storage Library Group" on page 77**.	Storage library ID, status, and type Number of times the arm has moved Number of times disks were loaded or unloaded Number of total drives and disabled drives
Courier	FileNet network connection management information For object descriptions, see **"FileNet Courier Group" on page 80**.	Number of connections approved, timed out, rejected, or aborted Number of client connections opened Number of failed client open calls
Database	Information on the databases in use on the FileNet server This group is mandatory. For object descriptions, see **"FileNet Database Group" on page 81**.	Database ID, description, location, and type FileNet application services that are clients of the database Total and in-use disk space for the database

FileNet MIB Groups, Continued

Group	Description	Information You Can Monitor
Security	FileNet security services information **"FileNet Security Group" on page 83**.	Number of users currently logged on Number of concurrent users licensed Number of rejected logon attempts
RSVP Group	Messages displayed on the Image Services console indicating when the storage library requires operator intervention **"FileNet RSVP Group" on page 85**.	When to replace new or existing surface When to remove current surface Operator intervention required

Poll Trap Table Group

The Poll Trap table permits user-configurable traps by setting thresholds against any MIB value in any of the eight FileNet MIB filenet.my allows you to monitor.

For detailed descriptions of each MIB entry in this group, see **"FileNet Poll Trap Table Group" on page 84**.

How the SNMP Components Work Together

SNMP queries, responses, and traps pass through a number of layers of software, including several Image Services shared libraries. The Network Management Interface (NMI) and Simple Network Management (SNM) shared libraries provide most of the FileNet SNMP functionality.

The NMI shared library retrieves FileNet MIB data, providing the following functions:

- Entry points holding all of the FileNet MIB data

- Links to SNM to get protocol process manager (PPM) and Courier (COR) statistics

- Links to performance counter (CNT), cache services manager (CSM), diagnostic interface (DIG), security (SEC), multi-keyed file (MKF), and the RDBMS database to collect statistics

The SNMP shared library provides the following functions:

- Holds COR statistics from the various COR_listen processes

- Holds PPM statistics from the various COR_listen processes

- Provides the PPM and COR statistics to clients

The following diagram illustrates the path of a query for the number of seconds the FileNet system has been up and the response of 750 seconds. The example is for an Image Services for HP-UX system. The interface daemons differ for other platforms.
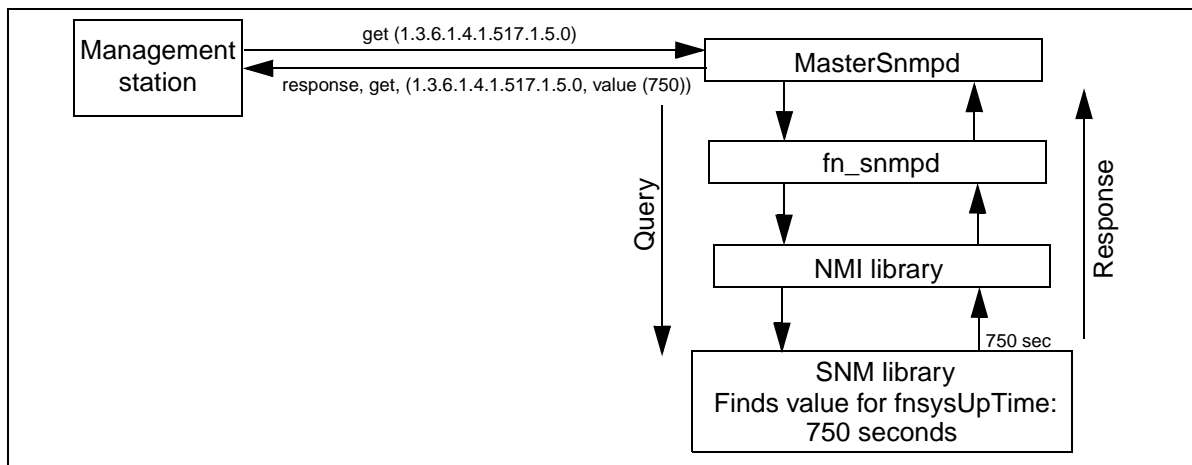
Query and Response, Image Services for HP-UX

User Configurable Traps

FileNet gives you the ability to set up custom traps. You can monitor the value of any object in the FileNet MIB and configure FileNet to send a trap if that value exceeds a threshold.

To add a trap value, you must create a new row in the fnptt table. Change the value of the field **fnpttOid** (object ID of the FileNet MIB object) from zero (0) to the fnpttOid you want to monitor. Use your SNMP manager to do a **Set** of each of the following fnptt values:

1   **fnpttOID**: OID of the value you wish to monitor
    MANDATORY
    Must be the first value you set for the new row

2   **fnpttThreshold**: threshold for the object ID polled
    MANDATORY

3   **fnpttInterval**: polling interval (in minutes)
    MANDATORY
    0 = disabled

4   **fnpttExact**: 0= normal checking, 1= exact match needed
    OPTIONAL (default= normal)

5   **fnpttRepeatence**: #/times hitting a threshold generates a trap
    OPTIONAL (default= 1)

6   **fnpttSeverity**: Severity level
    OPTIONAL (default= 1)
    Values= ok(1), warning(2), operator(3), severe(4)

To delete a trap value, change the **fnpttOid** field of the entry you want to delete to a value of zero (0); fn_snmpd deletes the entry and fn_trapd no longer checks the oid.

To disable monitoring temporarily, change the value of the **fnpttInterval** field of the entry to zero (0).

For each trap entry, fn_snmpd polls periodically, according to the value of fnpptOid. The fnpptOid is a dotted format Object ID entry, whose first digit starts after the FileNet MIB (1.3.6.1.4.1.517) subtree.

Note   All FileNet traps conform to SNMP v1.0 syntax.

See **"Appendix A: SNMP Daemon/Trap Configuration" on page 38** for a detailed, step-by-step example on setting up and using fnptt user-configurable traps.

System Monitor Reports

The Image Services System Monitor displays read-only reports generated from data in the FileNet MIB.

The System Monitor reports include:

- General system status information
- General user security status information
- Storage use
- Network activity
- Document services activity

The System Monitor automatically redisplays report information at intervals appropriate for the type of information being displayed. You can print the reports and save each report to a file.

See your ***System Administrator's Handbook*** for detailed information about using the System Monitor.

Appendix A: SNMP Daemon/Trap Configuration

An SNMP trap is an asynchronous message describing a predefined event sent by the SNMP agent (in our case FileNet Image Services) to a system managing SNMP. In other words, a trap has been sprung and an error or some other noteworthy event has occurred.

Traps are configurable using the **fnPttTable** in the FileNet MIB. This section will provide instructions for performing this configuration and using the trap data with HP OpenView's MIB browser utility. HP Open-View is a common SNMP Management program. At the end you will find a Microsoft Network Monitor screen that allows you to read a trap once one has been created. As an alternative, this section will also provide instructions for configuring traps by manually editing the **ptt.ini** file.

Configure the Master SNMP Daemon

The instructions for configuring the Master SNMP Daemon are quite different depending upon the operating system running on your IS server. Depending upon the operating system running on your server, click on the appropriate link:

Configure the HP-UX and Solaris Operating Systems

Ensure the system's SNMP daemon is configured to forward traps to the host computer running HP OpenView.

Note HP-UX and Solaris use /fnsw/bin/MasterSnmpd_start as their FileNet SNMP process.

---

1   Using your preferred editor (for example, vi), edit /fnsw/bin/ MasterSnmpd_start:

> **vi /fnsw/bin/MasterSnmpd_start**

After Step 5, there is a sample MasterSnmpd_start file with edits made for you to see as an example.

2   Edit the file and modify the **trap_host=** line by entering the IP address or the resolved name (in DNS) of the target host. The target host is the SNMP management system running HP OpenView (for example, **hp9seal**).

3   Edit the file to kill the MasterSnmpd daemon if it is active by entering:

> **kill -9 $pid**

4   Start the SNMP daemon by entering:

> **MasterSnmpd_start &**

Note   MasterSnmpd is started automatically at system boot by **/etc/rc.initfnsw**, if the file is set for "wait" or "boot" in the server configuration. The recommended setting is "wait."

5   Start the FileNet IS software by entering:

> **initfnsw -y restart**

The following is a sample output of the MasterSnmpd_start file with edits made as directed in Steps 1 - 5:

```
#!/bin/sh
#
# This script starts FileNet MasterSnmpd called directly from reboot start up
# NOTE: User can direct change the following trap_host and trap_community
#       variables to refer to their snmp manager host name and community
#       name correspondingly. The "-t $trap_host" option can be used
#       multiple times to support multiple trap hosts, but "-c" option
#       only validate the last option value; The "-m $MIB2_flag" option
#       specify if fn_snmp need to support MIB2, while $MIB2_flag="1",
#       the fn_snmpd supports its own MIB2 implementation besides FileNet MIB;
#       and while $MIB_flag="0" the fn_dnmpd will only support FileNet MIB
#       and transfers non FileNet MIB query to the native snmpd (the native
#       snmpd can not use 161 port which was already used by MasterSnmpd,
#       you need to assign a nonused port number for native snmpd, start it
#       and replace the variable Native_poert here; Also assign another non
#       used port number for fn_dnmpd. put it in file /fnsw/bin/fn_snmpd_start
#       and replace variable FileNer_port with it).
#

trap_host="hp9seal"
trap_community="public"
MIB2_flag="0"
Native_port="8000"
FileNet_port="8001"

pid='ps -ef | sed -n -e /grep/d -e/snmpdm/p | awk '{print $2}'
# check to see if the native snmpd is running
if test "" -ne "$pid" ; then
      kill -9 $pid
fi
```

:

```
if test "$MIB2_flag" -eq "0" ; then
   /usr/sbin/snmpd -P $Native_port
fi

# check to see if MasterSnmpd is running
pid='ps -ef | sed -n -e /grep/d -e/MasterSnmpd_start/d -e /MasterSnmpd/p | awk
'{print $2}'
if test "" -ne "$pid" ; then
  kill -9 $pid
fi

# now let's start the FileNet MasterSnmpd
/fnsw/bin/MasterSnmpd -t $trap_host -c $trap_community -m $MIB2_flag -n
$Native_port -f $FileNet_port &


#stamp
0G^RXCR5RwGpGW:T4KkE\BVNP5OfD[>U;a2IaC'=[MU1HcB^<S6_B[^C^CR<LcL]@WOX<KhM\?WAP7Ja
D]CV8T9I'EZ=e7N3HuW'BS6M
```

      6   Finally, verify the following processes are running:

- **MasterSnmpd** (the SNMP master daemon)

- **snmpdm** (an HP-UX process that should always be running, even when MasterSnmpd is down)(**HP Only**)

- **fn_snmpd** (FileNet's SNMP daemon)

- **fn_trapd** (FileNet's SNMP Trap daemon)

Verify these processes are running by entering the following command:

ps -ef | grep nmp

The following is a sample output of the ps -ef | grep nmp command:

```
Hpdoheny(root)/> ps -ef | grep nmp
    root 3580  1 0 17:09:25 ?    0:00 /usr/sbin/snmpdm
    fnsw 3860  1 0 17:10:33 ?    0:00 /fnsw/bin/fn_snmpd -f 8001
    root 3585  1 1 17:09:26 pts/tb   0:00 /fnsw/bin/MasterSnmpd -t hp9seal -c
public -m 0 -n 8000 -f 8001
```

> **Note**   The target host for the traps is displayed (**hp9seal**).

Solaris Host with snmpdx (Solaris Only)

If your Solaris host has **snmpdx** (the Solstice Enterprise Agents SNMP master daemon), complete the following steps:

1   Edit /fnsw/bin/MasterSnmpd_start:

a   Change MIB2_flag from 1 to 0.

Example: **MIB2_flag="0"**

b   Change Native_port from 0 to 8000 (or any free UDP port):

Example: **Native_port="8000"**

2 In the snmpdx startup file (e.g., /etc/init.d/init.snmpdx file), the port specified in the MasterSnmpd_start file must be added as follows:

```
if [ -f ${SNMP_RSRC) -a -x /usr/lib/snmp/snmpdx l; then
                if /usr/bin/egrep -v '^[              ]*(#|$)' ${SNMP_RSRC} > \
                   /dev/null 2&2l; then
                        /usr/lib/snmp/snmpdx -y -c /etc/snmp/conf -p 8000
          else
```

The necessary line is the one above the "else" condition. Notice the **-p 8000** (meaning Port 8000) is at the very end of the line. Anywhere else and the port configuration will not take effect.

3 Kill the snmpdx and Master_Snmpd processes

4 Restart the snmpdx process, then start the Master_Snmpd process.

5 Verify these processes are running by entering the following command:

ps -ef | grep nmp

The following is a sample output of this ps -ef command:

```
# ps -ef | grep nmp
   root   533    1  0  Mar 24 ?   0:00 /fnsw/bin/MasterSnmpd -t local -c hp9seal
-m l -n 8000 -f 8001
   root   503    1  0  Mar 24 ?   0:00 /usr/lib/snmpx -y -c /etc/snmp/conf -p
8000
   fnsw  2655    1  0 10:12:48 ?   0:00 /fnsw/bin/fn_snmpd -f 8001
```

The target host for the traps is displayed (**hp9seal**).

Configure the AIX Operating System

AIX 5.2 and higher

With AIX 5.2 and higher, SNMPv3 has been introduced as the default SNMP version. FileNet does not support version 3 at this time. The only supported version is SNMP version 1.

Run the following command to check the SNMP version you are running:

ps -e | grep snmp

If you are running SNMP version 3 (SNMPv3), you need to switch to version 1. For example, you might enter:

snmpv3_ssw -1

Please refer to the *IBM System Management Guide* for complete information. .

When running SNMPv1 on AIX 5.2 and higher, all of the configuration details remain the same as they are in AIX 5.1.

AIX 5.1

Ensure the AIX SNMP daemon is configured to forward traps to the host computer running the SNMP Management software (for example, HP OpenView).

Note   AIX 5.1 uses /etc/snmpd.conf for its FileNet SNMP process.

1   Using your preferred editor (for example, vi), prepare to make edits the the snmpd.conf file:

vi /etc/snmpd.conf

After Step 3, there is a sample snmpd.conf file with edits made for you to see as an example.

2　Edit the file and modify the **community public** line by making sure the line reads as in the example below. Note that "public" is the default.

3　Edit the file and modify the **trap** line by entering the IP address or the resolved name (in DNS) of the target host. The target host is the SNMP management system (for example, HP OpenView). In the example, **costa2** is the target.

The following is a sample output of the snmpd.conf file with edits made as directed in Steps 1 - 3

```
# THIS FILE MODIFIED TO SUPPORT SNMP TRAP TESTING.

Logging         file=/usr/tmp/snmpd.log  enabled
Logging         size=0                   level=0

Community       public  0.0.0.0  0.0.0.0    readWrite
Community       private 127.0.0.1 255.255.255.255    readWrite
Community       private 127.0.0.1 255.255.255.255    readWrite
1.17.2

view            1.17.2           system enterprises view

trap            public          costa2     1.2.3   fe    #  loopback
# snmp         maxpacket=1024 querytimeout=120 smuxtimeout=60

smux      1.3.6.1.4.1.2.3.1.2.1.2     gated_password # gated
smux   1.3.6.1.4.1.2.3.1.2.2.1.1.2  dpid_password  # dpid
smux          1.3.6.1.4.1.517              fndp_password
# fnpd
```

> **Note**   The section of the snmpd.conf file shown above is the only modifiable part of this file.

4   If the snmpd deamon is running, kill it by running a command similar to the following:

stopsrc -s snmpd

5   Start the AIX SNMP daemon by running

startsrc -s snmpd

6   Start the FileNet IS software If it is not already started, by running:

initfnsw start

7   Finally, verify the following processes are running:

- **snmpd** (The AIX SNMP master daemon)
- **fn_snmpd** (FileNet's SNMP daemon)
- **fn_trapd** (FileNet's SNMP Trap daemon)

Verify these processes are running by entering the following command:

ps -ef | grep nmp or **ps -ef | grep fn_**

The following is a sample output of the ps -ef | grep nmp command:

```
costa2(root)/> ps -ef | grep nmp
    root 3580  1 0 17:09:25 ?   0:00 /usr/sbin/snmpd
    fnsw 3860  1 0 17:10:33 ?   0:00 /fnsw/bin/fn_snmpd -f 8001
```

Configure the Windows 2000 Server or 2003 Server Operating Systems

Ensure the Windows SNMP daemon is configured to forward traps to the host computer running HP OpenView.

Note The Windows operating system uses the SNMP.EXE service as its FileNet SNMP process.

1 On your Windows server, open Services using one of the common Windows methods.
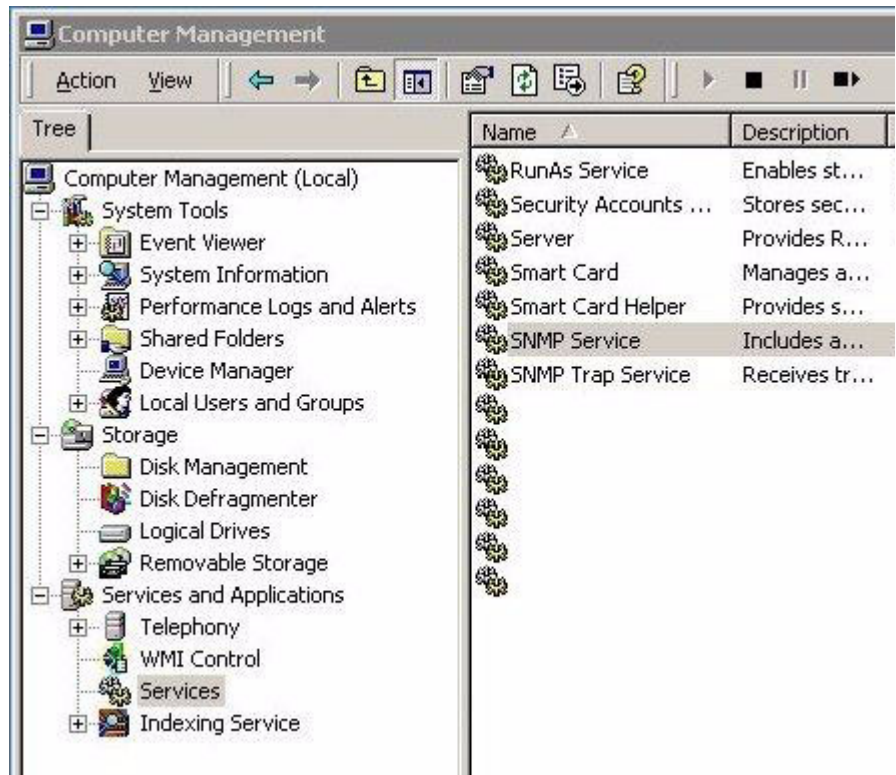
2 In the Computer Management screen, double-click the **SNMP Service** option from the list in the right hand pane.

3 On the General tab, stop the SNMP Service.

4 In the SNMP Service Properties window, select the Traps tab.
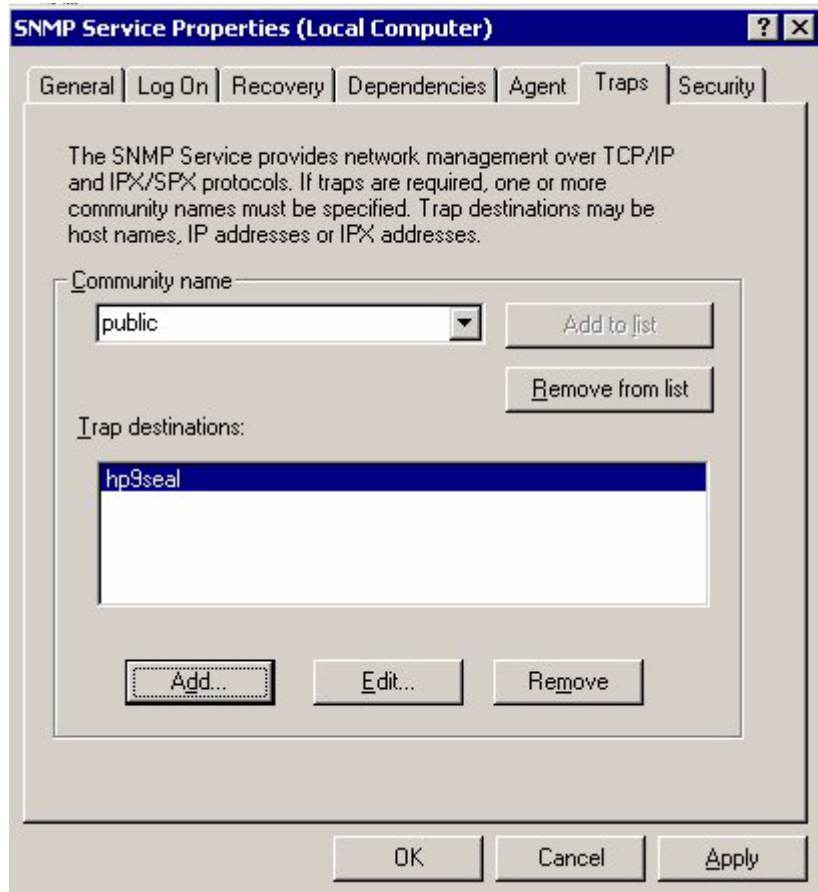
5   In the Community name field, enter a value. The default value is "public." Also, enter the name of the target host on the Trap destinations field. The target host is the SNMP management system running HP OpenView (for example, **hp9seal**).

6   Select the Security tab.

7   Edit the Community entry (i.e., "public"), and change the secuity to "READ WRITE."

8   Click **Apply**.

9   On the General tab, start the SNMP Service.

10   If "Startup type" is not set to "Automatic," you should consider changing it so the SNMP Service will start automatically whenever the server is rebooted.

11   Click **OK** to close the SNMP Server Properties dialog box.

Configure and Use SNMP Traps

This section describes how to test the SNMP Trap mechanisms and then describes how to configure the fn_trapd daemon.

Test Functionality of SNMP Traps

To test the functionality of the SNMP traps, you must use a FileNet utility, **traptest**, that exercises the SNMP Trap mechanisms.

1   At the command prompt on your IS server, enter the following:

traptest

2   You should see the following output:

```
hpdpheny(root)/> # traptest
Entering traptest program!!
Sent trap successfully - leaving traptest program!!
hpdoheny(root)/>
```

3   Look at the system log and it should have an entry similar to the following:

```
2000/06/20 11:41:38.408 202,9,4 <root> traptest (5081) ...
An SNMP trap was issued for this error with trap code ce000002, trap severity '4'
Severe
```

4   Activate HP OpenView on the SNMP management system.

5   Look at the **All Alarms Browser**. If SNMP is configured and running correctly, the browser will show a **Normal** trap from the IS server where you earlier ran the traptest command.

Configure SNMP Traps from within the FileNet MIB

Configuring the fn_trapd daemon can be done from within the FileNet MIB. This section describes the method for configuring the fn_trapd daemon using HP OpenView. For the purposes of this configuration, you will set a Poll Trap on the permanent database to be sent every five minutes. This trap will be one indicating the size of the database is larger than the specified Poll Trap threshold level.

Run the HP OpenView MIB Browser

1 Activate HP OpenView on the SNMP management system.

2 Select the **Tools** option and then select the **SNMP MIB Browser** option.

3 In the Name or IP Address box, type in the name of the target IS server. Use the IS system's Root/Index server on multiple server systems.

4 Click the Down Tree button to move down the MIB naming tree through **Private**, through **enterprises** to **filenet**.

5 Highlight the fnptt MIB Object ID (OID) and click the **Start Query** button. You should see query result similar to the following.

Browse MIB		

File   View   **Help**

Name or IP Address   **Community Name**

sundeck

MIB Object ID

.iso.org.dod.internet.private.enterprises.filenet

fnsys	**Up Tree**
fncache	
fndoc	**Down Tree**
fnlib	
fncor	**Describe**
fndb	
fnsec	**Start Query**
fnptt	Stop Query
fnRSVP	Graph

MIB Instance   **SNMP Set Value**   Set

MIB Values

fnpttTable.fnpttEntry.fnpttIndex. 1 : 1
fnpttTable.fnpttEntry.fnpttOid. 1 : 0
fnpttTable.fnpttEntry.fnpttThreshold. 1 : 0
fnpttTable.fnpttEntry.fnpttInterval. 1 : 30
fnpttTable.fnpttEntry.fnpttRepeatence. 1 : 1
fnpttTable.fnpttEntry.fnpttExact. 1 : normal
fnpttTable.fnpttEntry.fnpttSeverity. 1 : 4

| **Note** | If you get an error, you will have to make sure everything is properly configured. You will need to return to **"Configure the Master SNMP Daemon" on page 38** to start troubleshooting where the problem is. |

Configure Poll Trap on the Permanent Database

1 From the same **SNMP MIB Browser**, run a MIB Query on the **fndb** MIB Object ID to discover the **DBUsedSpace** for the permanent database as show below:

In this example, OID number **4** is the permanent database.

Browse MIB		

File View   **Help**

Name or IP Address   **Community Name**

costa20

MIB Object ID

.iso.org.dod.internet.private.enterprises.filenet

fnsys	**Up Tree**
fncache	
fndoc	**Down Tree**
fnlib	
fncor	**Describe**
fndb	
fnsec	**Start Query**
fnptt	Stop Query
fnRSVP	**Graph**

MIB Instance   **SNMP Set Value**

ry.fndbDBUsedSpace.4   Set

MIB Values

fndbDBTable.fndbDBEntry.fndbDBTotalSpace.2 : 16384
fndbDBTable.fndbDBEntry.fndbDBTotalSpace.3 : 327680
fndbDBTable.fndbDBEntry.fndbDBTotalSpace.4 : 229376
fndbDBTable.fndbDBEntry.fndbDBTotalSpace.5 : 786408
fndbDBTable.fndbDBEntry.fndbDBUsedSpace.1 : 189
fndbDBTable.fndbDBEntry.fndbDBUsedSpace.2 : 568
fndbDBTable.fndbDBEntry.fndbDBUsedSpace.3 : 33139
fndbDBTable.fndbDBEntry.fndbDBUsedSpace.4 : 16547
fndbDBTable.fndbDBEntry.fndbDBUsedSpace.5 : 621788

> **Note** For details on the FileNet MIB table, go to **"How the MIB Is Organized and Used" on page 26**.

2 In the above example, the permanent database has a value of 16547, and you want to establish a Poll Trap threshold smaller than that number. Highlight the **fnptt** Mib **OID**, and then click the **Start Query** button.

3 Next, select the **fnpttTable.fnpttEntry.fnpttOid.1:0** entry.

4 In the SNMP Set Value box, input **6.1.1.7.4** and then click the **Set** button and click **Close** at the Information Window.

5 Start the query on the **fnptt** OID again by repeating Step 2. Once this completes, you see that a new OID numbered 2 has been created with a value of 0. In this example, you will be working with OID number 1, which has a value of 6.1.1.7.4.

> **Note** There will always be an Object ID with a value of 0, by default. After recycling the FileNet software, this Object ID will become OID number 1 with a value of 0. When a new OID is entered, then there will be an OID number two with a value of 0 in addition to the new one just entered.

6 Next, select the **.fntppThreshold.1** MIB Value.

7 In the SNMP Set Value box, enter **16000** and then click the **Set** button and click **Close** at the Information Window.

8 Next, select the **.fnpttInterval.1** MIB Value.

9 In the SNMP Set Value box, enter 5 (for every 5 minutes) and then click the **Set** button and click **Close** at the Information Window.

Note	If you get a **Warning** window, click **Close**. This warning is common with the HP OpenView MIB Browser.

10 Select the **fnptt** MIB OID and then click the **Start Query** button. The query results should match the output shown below:

Browse MIB		
File View		Help

Name or IP Address

costa20

Community Name

MIB Object ID

.iso.org.dod.internet.private.enterprises.filenet

fnsys	**Up Tree**
fncache	**Down Tree**
fndoc	
fnlib	**Describe**
fncor	
fndb	**Start Query**
fnsec	Stop Query
fnptt	
fnRSVP	Graph

MIB Instance   **SNMP Set Value**

Set

MIB Values

fnpttTable.fnpttEntry.fnpttIndex.1 : 1
fnpttTable.fnpttEntry.fnpttIndex.2 : 2
fnpttTable.fnpttEntry.fnpttOid.1 : 6.1.1.7.4
fnpttTable.fnpttEntry.fnpttOid.2 : 0
fnpttTable.fnpttEntry.fnpttThreshold.1 : 16000
fnpttTable.fnpttEntry.fnpttThreshold.2 : 0
fnpttTable.fnpttEntry.fnpttInterval.1 : 5
fnpttTable.fnpttEntry.fnpttInterval.2 : 30
fnpttTable.fnpttEntry.fnpttRepeatence.1 : 1
fnpttTable.fnpttEntry.fnpttRepeatence.2 : 1

11 After a few moments, your SNMP Management system's Alarm Browser will start receiving Poll Trap Messages as shown below:

```
Ack Cor Severity  Date/Time              Source        Message
        Normal   Tue Jun 20 15:25:26  Costa20        Received event 1.3.6.1.4.1.517
        Normal   Tue Jun 20 15:30:26  Costa20        Received event 1.3.6.1.4.1.517
        Normal   Tue Jun 20 15:35:26  Costa20        Received event 1.3.6.1.4.1.517
```

By scrolling to the right, you will see the Poll Trap shows the FileNet OID number, the Threshold and the Current data, indicating the size of the permanent database has become bigger than the specified Poll Trap threshold. This Poll Trap will occur every 5 minute as you specified earlier in the Poll Trap configuration.

Delete the Poll Trap

1 From the same **SNMP MIB Browser**, select the **fnptt** MIB OID and then click the **Start Query** button.

2 Next, select the **fnpttTable.fnpttEntry.fnpttOid.1:6.1.1.7.4** entry.

3 In the SNMP Set Value box, enter **0** and then click the **Set** button and click **Close** at the Information Window.

4 Start the query on the **fnptt** Object ID again by repeating Step 2. Once this completes, you see that OID.2 still has a value of 0, indicating there are now no Poll Traps configured.

Configure SNMP Traps by Editing the ptt.ini File

Configuring poll traps can be done by manually editing the **ptt.ini** file This section describes the method for configuring poll traps by editing the ptt.ini file using vi. For the purposes of this configuration, you will set three Poll Traps: one for system uptime, one for library status, and one for used database space.

Note It is important to note that a ptt.ini file does not exist until a Poll Trap is configured, or until the file is manually created. Also, once created, the file is not automatically deleted.

1 Edit the ptt.ini by shutting down the FileNet software and then entering the following command:

vi /fnsw/etc/ptt.ini UNIX
edit \fnsw\etc\ptt.ini Windows

Because the ptt.ini file is periodically updated by the system, the software may need to be shutdown to ensure that your changes aren't overwritten while editing. Changes to the file will take effect immediately after Image Services is brought up or recycled. If you edit the ptt.ini file while Image Services is up, the changes will take effect on the next cycle of the Poll Trap Daemon.

2 Add a table similar to the following to the file:

```
#Oid Threshold Interval Repeatence Exact Severity
#--- --------- -------- ---------- ----- --------
1.5.1 0 2 0 2 4                #fnsysUpTime
4.1.1.3.2 2 10 0 1 4           #fnlibLibStatus (library 2 disabled)
6.1.1.7.4 100 5 0 1 4          #fndbDBUsedSpace (DB 4)
0 0 30 0 1 4
```

Keep all comments ("#") at the top of the file and note that any in-line comments (comments to the right of the data values) can be erased if you mix manual updates with SNMP manager updates. Some important points to note:

- Deconfiguring all Poll Traps will result in a ptt.ini file with a default entry as shown in the last line in the previous example with the Interval value of 30.

- When using a MIB browser, you may have occasion to see a ptt.ini file like the following:

```
#Oid Threshold Interval Repeatence Exact Severity
#--- --------- -------- ---------- ----- --------
#--- Everything below this line will be deleted ---
0 0 30 0 1 4
```

This is not a cause for alarm. It is stating that everything below the line is subject to deletion. This occurs after removing all the OIDs using a MIB browser (such as the one in HPOpenView) rather than manually editing the file. Additionally, to get this deletion notification, a ptt.ini file with comments in it already must exist.

- The final row in the ptt.ini file always has an fnpttOID value of **zero**. This indicates "end of table".

3 Save the file.

Reading a Trap

PDU Overview

An SNMP trap has a distinct Protocol Data Unit (PDU) with various fields, each with a purpose. The following graphic (Copyright © *Miller, Mark A, P.E., Managing Internetworks with SNMP, M&T Books, 1999*) is an attempt to show you the general contents of each of those fields.

SNMP Trap PDU Structure
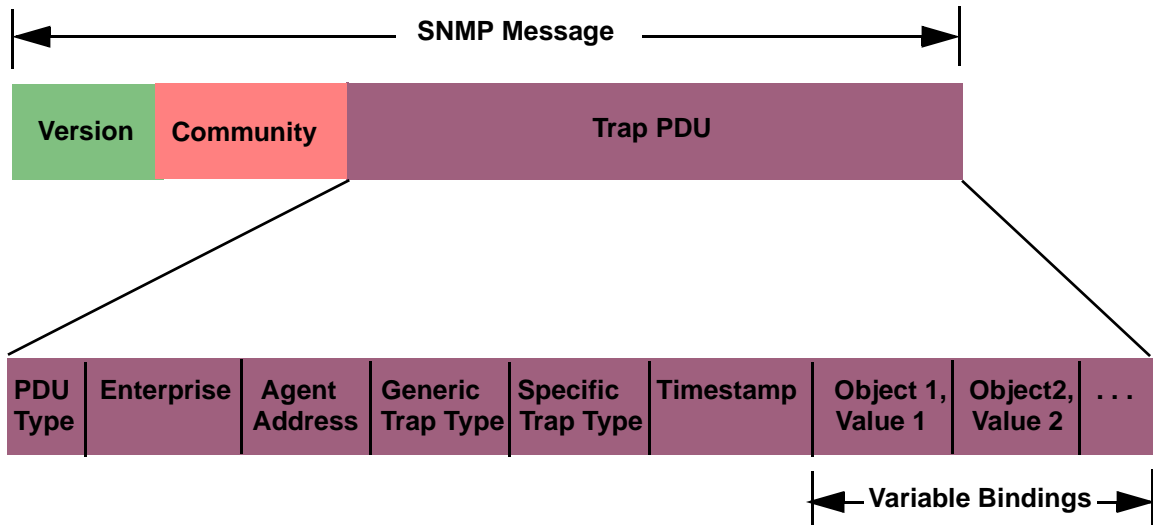
Specific FileNet PDU Formats

There are two types of FileNet PDU formats: poll traps and default traps.

Poll Traps

Poll traps are user-configurable traps in the sense that you can set thresholds against any MIB value in any of the eight FileNet MIB filenet.my allows you to monitor. See **"FileNet Poll Trap Table Group" on page 84**.

The FileNet Poll Trap reports three objects in the trap PDU:

Object1	Poll Trap index
Object2	fnsysLastErrorSeverity
Object3	fnsysLastErrorText

Default Traps

Default traps are traps that are not configurable by the user.

The FileNet default traps reports five objects in the trap PDU:

Object1	fnsysLastErrorCategory
Object2	fnsysLastErrorFunction
Object3	fnsysLastErrorNumber
Object4	fnsysLastErrorText
Object5	fnsysLastErrorSeverity

Default traps include:

- FileNet software stopped

- System aborted a process

- Signal killed a process

- SNMP has an internal error

- Server rejected an RPC connection due to a lack of service request handlers

- Error occurred, disabling the storage library or the optical drive

- Storage library needs operator intervention

PDU Example

Once a trap has been created, there are various third party tools that can be used to help you read and understand it. The following screens are just such an example using Microsoft's Network Monitor. Notice how the fields described in the graphic on **page 61** above are depicted in the screens below.

Network Monitor - [C:\NM\CAPTURES\Mike001117c.cap (Detail)]

File Edit Display Tools Options Window Help

Frame	Time	Src MAC Addr	Dst MAC Addr	Protocol	Description
1	3848.63(	Sun BFB6AD	GENESIS	SNMP	SNMPv1; community
2	3968.659	Sun BFB6AD	GENESIS	SNMP	SNMPv1; community
3	4088.66:	Sun BFB6AD	GENESIS	SNMP	SNMPv1; community
4	0.000	000000000000	000000000000	STATS	Number of Frames

```
FRAME: Base frame properties
ETHERNET: ETYPE = 0x0800 : Protocol = IP:  DOD Internet Protocol
IP: ID = 0x6657; Proto = UDP; Len: 207
UDP: Src Port: Unknown, (33333); Dst Port: SNMPTRAP (162); Length = 187 (0xB
SNMP: SNMPv1; community = public; SNMPv1 Trap; Length = 179 (0xB3)
   SNMP: Message type = SNMPv1
   SNMP: Version = 0 (0x0)
   SNMP: Community = public
  SNMP: PDU type = SNMPv1 Trap
    SNMP: Enterprise = 1.3.6.1.4.1.517.1.1
    SNMP: Agent IP address = 10.2.50.44
    SNMP: Generic trap = enterpriseSpecific (6)
    SNMP: Specific trap = 4 (0x4)
    SNMP: Time stamp = 5809 (0x16B1)
   SNMP: Sequence
    SNMP: Sequence
      SNMP: OID = 1.3.6.1.4.1.517.8.1.1.1.1
      SNMP: Integer Value = 1 (0x1)
    SNMP: Sequence
      SNMP: OID = 1.3.6.1.4.1.517.1.11.0
      SNMP: Integer Value = 4 (0x4)
    SNMP: Sequence
      SNMP: OID = 1.3.6.1.4.1.517.1.9.0
      SNMP: String Value = PollTrap entry 1(for OID filenet.2.1.1.8.1), thre:
```

```
00000000   00 90 27 78 71 3F 08 00 20 BF B6 AD 08 00 45 00   .É'xq?.. +¦¡..E.
00000010   00 CF 66 57 40 00 FF 11 9A 9C 0A 02 32 2C 0A 02   .-fW@. .Ü£..2,..
00000020   33 FA 82 35 00 A2 00 BB F7 94 30 82 00 AF 02 01   3·é5.ó.+"ö0é.»..
00000030   00 04 06 70 75 62 6C 69 63 A4 81 A1 06 09 2B 06   ...publicñüí..+.
00000040   01 04 01 84 05 01 01 40 04 0A 02 32 2C 02 01 06   ...ä...@...2,...
00000050   02 01 04 43 02 16 B1 30 82 00 82 30 82 00 11 06   ...C..¦0é.é0é...
00000060   0C 2B 06 01 04 01 84 05 08 01 01 01 01 02 01 01   .+....ä.........
00000070   30 82 00 0F 06 0A 2B 06 01 04 01 84 05 01 0B 00   0é.¤..+....ä....
00000080   02 01 04 30 82 00 56 06 0A 2B 06 01 04 01 84 05   ...0é.V..+....ä.
00000090   01 09 00 04 48 50 6F 6C 6C 54 72 61 70 20 65 6E   ....HPollTrap en
000000A0   74 72 79 20 31 28 66 6F 72 20 4F 49 44 20 66 69   try 1(for OID fi
000000B0   6C 65 6E 65 74 2E 32 2E 31 2E 31 2E 38 2E 31 29   lenet.2.1.1.8.1)
000000C0   2C 20 74 68 72 65 73 68 68 6F 6C 64 3D 35 30 30   , threshhold=500
000000D0   2C 20 63 75 72 72 65 6E 74 3D 35 33 37            , current=537
```

Appendix B: Objects in the FileNet MIB

The tables in this appendix list the objects in the FileNet MIB that an SNMP-compliant network manager can monitor. Many of these MIBs can be configured for poll traps (**page 32**). For more information, go to **"Configure and Use SNMP Traps" on page 50**. Using standard SNMP-management software, you can modify entries in the poll trap table (see **"FileNet Poll Trap Table Group" on page 84**) to customize traps.

Note   In these tables (except for the Poll Trap Table Group itself), you will see a column to the right of the OID column. This column is designed to help you set Poll Traps by adding either an additional **.1** as shown or a .number (**.#**) as shown that corresponds to the number of the specific database, cache, or library you want to be monitored and set the Poll Trap to. For example, on many IS systems the Permanent Database is number 4. So, any Poll Trap to be configured on the Permanent Database would have the OID end with "**.4**". For more detail, see **"Configure Poll Trap on the Permanent Database" on page 53**.

FileNet System Group

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnsysDomain	...1.1	...1.1**.1**	Name of the domain to which this server belongs
fnsysOrganization	...1.2	...1.2**.1**	Organization to which this server belongs
fnsysSSN	...1.3	...1.3**.1**	System serial number for this server

FileNet System Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnsysServerType	...1.4	...1.4.**1**	Type of FileNet server
fnsysUpTime	...1.5	...1.5.**1**	Time (in hundredths of a second) since the FileNet system software was last re-initialized
fnsysLastErrorCategory	...1.6	...1.6.**1**	Category (upper 8 bits) of the FileNet error tuple corresponding to the last error for which a trap was sent A zero value is meaningless.
fnsysLastErrorFunction	...1.7	...1.7.**1**	The error function code (bits 16 through 23) of the FileNet error tuple corresponding to the last error for which a trap was sent This function code represents an area within a FileNet logical subsystem. A zero value is meaningless.
fnsysLastErrorNumber	...1.8	...1.8.**1**	The error number (least significant 16 bits) of the FileNet error tuple corresponding to the last error for which a trap was sent This error number represents a specific FileNet error condition. A zero value is meaningless.
fnsysLastErrorText	...1.9	...1.9.**1**	A human-readable description of the condition which caused the last trap to be sent and suggested corrective actions
fnsysLastErrorTime	...1.10	...1.10.**1**	The value of fnsysUpTime when the last FileNet trap was sent

FileNet System Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnsysLastErrorSeverity	...1.11	...1.11**.1**	The severity level of the last trap issued: ok (1): Normal status warning (2): Low resource condition or non-fatal error operator (3): Normal condition requiring operator intervention severe (4): Fatal error causing (or may soon cause) one or more services to become disabled invalid (100): Invalid entry— disregard
fnsysOKTrapFlag	...1.12	...1.12**.1**	Flag used to disable the cold start trap normally issued when the FileNet Proxy Daemon (fn_snmpd) process is started
fnsysWarningTrapFlag	...1.13	...1.13**.1**	Flag used to disable FileNet traps with a severity level of WARNING These traps normally indicate low resource conditions or non-fatal software problems. Low resource conditions may lead to error conditions if not attended to.

FileNet System Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnsysOperatorTrapFlag	...1.14	...1.14**.1**	Flag used to disable FileNet traps that indicate when a normal event which requires operator intervention has occurred
fnsysSevereTrapFlag	...1.15	...1.15**.1**	Flag used to disable FileNet traps that are very severe or fatal These traps normally indicate that one or more FileNet services has been shut down, or may soon be shut down, due to a fatal error or resource problem.

fnsysServiceTable	...1.16	Cannot set Poll Traps	The FileNet available services table This table contains one row for each FileNet service type that supports SNMP running on this server. The next two objects define the table:
			
			    fnsysServiceEntry
			
			    FnsysServiceEntry

fnsysServiceEntry	...1.16.1	Cannot set Poll Traps	An entry in the FileNet available services table

FileNet System Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
FnsysServiceEntry	- - - - - - - -	- - - - - - - -	The sequence of objects in the FileNet available services table: fnsysServiceIndex fnsysServiceType fnsysServiceDescription fnsysServiceProcesses fnsysServiceMaxProcesses fnsysServiceRejects
fnsysServiceIndex	...1.16.1.1	Cannot set Poll Traps	An index that uniquely identifies a service on a FileNet server
fnsysServiceType	...1.16.1.2	Cannot set Poll Traps	The type of FileNet service: nch, csm, doc, inx, pri, bes, osar, sec, sql, file, wqs
fnsysServiceDescription	...1.16.1.3	Cannot set Poll Traps	A human-readable description of a FileNet service
fnsysServiceProcesses	...1.16.1.4	Cannot set Poll Traps	The number of server processes running for this service type
fnsysServiceMaxProcesses	...1.16.1.5	Cannot set Poll Traps	The maximum number of server processes that may be started for this service type
fnsysServiceRejects	...1.16.1.6	Cannot set Poll Traps	The number of times connections were rejected because no processes of this server type were available

See the **Note** on **page 66** for information on the use of **.#** in the OID.

FileNet Cache Group

Description	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Object
fncacheTable	...2.1	- - - - - - - -	The FileNet available caches table
fncacheEntry	...2.1.1	- - - - - - - -	An entry in the FileNet available caches table
FncacheEntry	- - - - - - - -	- - - - - - - -	The sequence of objects in the FileNet available caches table: fncacheID fncacheName fncacheDescription fncacheMinSectors fncacheMaxSectors fncacheFreeSectors fncacheLockedSectors fncacheInUseSectors fncacheLockedObjects fncacheInUseObjects
fncacheID	...2.1.1.1	...2.1.1.1.**#**	The CSM cache ID of this cache
fncacheName	...2.1.1.2	...2.1.1.2.**#**	The NCH name of the FileNet cache
fncacheDescription	...2.1.1.3	...2.1.1.3.**#**	A human-readable description of the FileNet cache
fncacheMinSectors	...2.1.1.4	...2.1.1.4.**#**	The minimum number of sectors allocated for this cache
fncacheMaxSectors	...2.1.1.5	...2.1.1.5.**#**	The maximum number of sectors allocated for this cache

FileNet Cache Group, Continued

Description	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Object
fncacheFreeSectors	...2.1.1.6	...2.1.1.6.**#**	The number of sectors reserved for this cache, but unused
fncacheLockedSectors	...2.1.1.7	...2.1.1.7.**#**	The number of sectors locked in this cache
fncacheInUseSectors	...2.1.1.8	...2.1.1.8.**#**	The number of sectors currently in use in this cache
fncacheLockedObjects	...2.1.1.9	...2.1.1.9.**#**	The number of CSM objects currently locked in this cache
fncacheInUseObjects	...2.1.1.10	...2.1.1.10.**#**	The number of CSM objects in use in this cache

FileNet Document Services Group

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fndocPagesMigrated	...3.1	...3.1**.1**	Requested Pages Migrated to Magnetic Disk: • Reports the number of pages requested to be migrated to optical disk on this Storage Library server since Image Services was last recycled. • The number of pages will always be greater than or equal to the number of individual documents.
fndocDocsMigrated	...3.2	...3.2**.1**	Requested Documents Migrated to Magnetic Disk: • Reports the number of documents requested to be migrated to optical disk. • The number of documents will always be less than or equal to the number of individual documents.
fndocCacheHits	...3.3	...3.3**.1**	Magnetic Disk Cache Hits: Reports the number of times a request was satisfied by finding a document in cache.

FileNet Document Services Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fndocDriveHits	...3.4	...3.4.**1**	Optical Drive Hits: • Reports the number of times a request was satisfied by finding a document on storage media already in a drive. • Disk loads are **not** counted when the requested platter is in a slot but needs to be loaded, or for RSVPs, the platter isn't in the library at all, and must be loaded by an operator. • Therefore, the number of Magnetic disk cache hits plus the number of Optical drive hits is less than or equal to the number of requested pages migrated to magnetic disk.
fndocPrefetchCalls	...3.5	...3.5.**1**	Number of DOC_prefetch_from_ optical_disk calls made
fndocAsyncMigrateCalls	...3.6	...3.6.**1**	Number of DOC_migrate_from_optical_ disk calls that used asynchronous notification
fndocMigrateCalls	...3.7	...3.7.**1**	Total number of DOC_migrate_from_ optical_disk calls
fndocPagesCommitted	...3.8	...3.8.**1**	Pages Committed: This field shows how many pages were committed to the permanent database.

FileNet Document Services Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fndocDocsCommitted	...3.9	...3.9**.1**	Documents Committed: This field shows how many documents were committed to the permanent database.
fndocImportReads	...3.10	...3.10**.1**	Optical Disk Reads for Import • This counts the number of short descriptors read from storage media during import. • There can legitimately be multiple short descriptors in the optical disk directory per document. • Therefore, the optical disk reads per import is greater than or equal to the actual number of documents imported.
fndocImportedDocs	...3.11	...3.11**.1**	Documents Imported to System: • This field shows the number of documents committed to the permanent database by the import operation. • This is a count of the updates to the docs table database.
fndocFastBatches	...3.12	...3.12**.1**	This field shows how many batches committed used Fast Batch Committal. In addition to be a configuration option, remote committal and COLD both use Fast Batch Committal.

FileNet Document Services Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fndocFastPages	...3.13	...3.13**.1**	This field shows how many pages used Fast Batch Committal.
fndocFastDocs	...3.14	...3.14**.1**	This field shows how many documents used Fast Batch Committal.

See the **Note** on **page 66** for information on the use of **.#** in the OID.

FileNet Storage Library Group

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnlibLibTable	...4.1	- - - - - - - - -	The FileNet storage libraries table
fnlibLibEntry	...4.1.1	- - - - - - - - -	An entry in the FileNet storage libraries table
FnlibLibEntry	- - - - - - - - -	- - - - - - - - -	The sequence of objects in the FileNet storage libraries table: fnlibLibID fnlibLibType fnlibLibStatus fnlibLibTotalDrives fnlibLibDisabledDrives fnlibLibArmMoves fnlibLibLoads fnlibLibUnloads
fnlibLibID	...4.1.1.1	...4.1.1.1.**#**	Library services ID of this storage library

FileNet Storage Library Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnlibLibType	...4.1.1.2	...4.1.1.2.**#**	Type of a storage library. They are as follows: standard(1) - FileNet OSAR mini(2) - Hitachi Library (MOSAR) access(3) - Access Library rapidc(4) - Philips Rapid Changer LF4500 hp(5) - HP Library ibm(6) - IBM Library fnodset(7) - FileNet Optical Drive Set hitodset(8) - Hitachi Optical Drive Set hpodset(9) - HP Optical Drive Set ibmodset(10) - IBM Optical Drive Set rapidc2(11) - Philips Rapid Changer LF6600 rapidc3(12) - Philips Rapid Changer LF8600 msar(13) - MSAR ivalid(100) - Invalid value!
fnlibLibStatus	...4.1.1.3	...4.1.1.3.**#**	Status of a FileNet storage library: enabled, disabled, manual, invalid
fnlibLibTotalDrives	...4.1.1.4	...4.1.1.4.**#**	Number of drives in a FileNet storage library
fnlibLibDisabledDrives	...4.1.1.5	...4.1.1.5.**#**	Number of disabled drives in a FileNet storage library

FileNet Storage Library Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnlibLibArmMoves	...4.1.1.6	...4.1.1.6.**#**	Number of times this storage library's arm has moved
fnlibLibLibLoads	...4.1.1.7	...4.1.1.7.**#**	Number of times an operator loaded media into the storage library
fnlibLibUnloads	...4.1.1.8	...4.1.1.8.**#**	Number of times an operator unloaded media from the storage library

FileNet Courier Group

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fncorApprConns	...5.1	...5.1.**1**	Number of connections approved by COR_ listen
fncorBadConns	...5.2	...5.2.**1**	Number of connections that timed out or terminated abnormally
fncorRejectConns	...5.3	...5.3.**1**	Number of connections rejected by COR_ listen/PPM
fncorAbortConns	...5.4	...5.4.**1**	Number of connections aborted by COR
fncorClientConns	...5.5	...5.5.**1**	The number of client connections opened through COR_Open
fncorClientFails	...5.6	...5.6.**1**	The number of client COR_Open attempts that failed for any reason

See the **Note** on **page 66** for information on the use of **.#** in the OID.

FileNet Database Group

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fndbDBTable	...6.1	- - - - - - - - -	The FileNet database table
fndbDBEntry	...6.1.1	- - - - - - - - -	An entry in the FileNet database table
FndbDBEntry	- - - - - - - - -	- - - - - - - - -	The sequence of objects in the database table: fndbDBID fndbDBType fndbDBClients fndbDBLocation fndbDBDescription fndbDBTotalSpace fndbDBUsedSpace
fndbDBID	...6.1.1.1	...6.1.1.1.**#**	The unique integer assigned to this row
fndbDBType	...6.1.1.2	...6.1.1.2.**#**	The type of the FileNet database: mkf, oracle, mssql, DB2, or invalid
fndbDBClients	...6.1.1.3	...6.1.1.3.**#**	A value, indicating the set of FileNet services that store data in this database The services include inx, wqs, sqi, nch, doc, bes, csm, sec, pri.
fndbDBLocation	...6.1.1.4	...6.1.1.4.**#**	The file system pathname for the database file or partition
fndbDBDescription	...6.1.1.5	...6.1.1.5.**#**	A human-readable database description: permanent, transient, index, queue, sql, nch

FileNet Database Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fndbDBTotalSpace	...6.1.1.6	...6.1.1.6.**#**	The total magnetic disk space (in KB) allocated to the database
fndbDBUsedSpace	...6.1.1.7	...6.1.1.7.**#**	The amount of magnetic disk space (in KB) currently in use in this database

FileNet Security Group

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnsecCurrentUsers	...7.1	...7.1.**1**	The number of connections approved by COR_listen
fnsecLicenseLimit	...7.2	...7.2.**1**	The maximum number of concurrent users this security service is configured to support (and for which the service is licensed)
fnsecSoftLicenseLimit	...7.3	...7.3.**1**	The maximum number of concurrent users this security service is configured to support (and for which the service is licensed)
fnsecLogonRejects	...7.4	...7.4.**1**	The number of attempts to log onto Security Services which have been rejected due to the maximum number of concurrent users being exceeded. This value may be configured on a per-user basis in Xapex, Security Maintenance.
fnsecSoftHits	...7.5	...7.5.**1**	The number of attempts to log onto Security Services which soft_limit SLU is exceeded. This value is determined by your SLAC key and cannot be configured.

FileNet Poll Trap Table Group

Object	OID 1.3.6.1.4.1.517...	Description
fnpttTable	...8.1	The FileNet poll trap table
fnpttEntry	...8.1.1	An entry in the FileNet poll trap table
FnpttEntry	- - - - - - - - -	The sequence of objects in the poll trap table: fnpttIndex fnpttOid fnpttThreshold fnpttInterval fnpttRepeatence fnpttExact fnpttSeverity
fnpttIndex	...8.1.1.1	An index that uniquely identifies an entry in the FileNet poll trap table
fnpttOid	...8.1.1.2	The object ID for fn_snmpd to poll periodically The default is 0.
FnpttThreshold	...8.1.1.3	The threshold for the object ID polled
fnpttInterval	...8.1.1.4	The interval in minutes between two pollings (0 = disabled)
fnpttRepeatence	...8.1.1.5	The number of times polling results hitting a threshold generates a trap
fnpttExact	...8.1.1.6	Value for threshold checking (0 = normal checking; nonzero = exact match is needed to send a trap)
fnpttSeverity	...8.1.1.7	The severity level for a trap

FileNet RSVP Group

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnRSVPTable	...9.1	- - - - - - - - -	FileNet RSVP request entry table
fnRSVPEntry	...9.1.1	- - - - - - - - -	An entry in the FileNet RSVP entry table
FnRSVPEntry	- - - - - - - - -	- - - - - - - - -	Sequence of objects in the FileNet RSVP entry table: fnRSVPNum fnRSVPType fnRSVPAge fnRSVPTime fnRSVPSurfaceID fnRSVPMsg
fnRSVPNum	...9.1.1.1	...9.1.1.1.**1**	Index number that uniquely identifies one RSVP entry
fnRSVPType	...9.1.1.2	...9.1.1.2.**1**	RSVP request type (If RSVPs are enabled, every RSVP trap will be one of these types): mountNew(1) - Mount new surface mountExist(2) - Mount existing surface ejectMedia(3) - Eject one surface ejectFullTran(4) - Eject full tranlog surface ejectErrMedia(5) - Eject surface that contains errors libraryFault(6) - Operator intervention required ErrMsar(7) - MSAR-related error (specific MSAR error RSVPs)

FileNet RSVP Group, Continued

Object	OID 1.3.6.1.4.1.517...	Poll Trap OID 1.3.6.1.4.1.517...	Description
fnRSVPAge	...9.1.1.3	...9.1.1.3.**1**	Time (in hundredths of a second) since the RSVP was posted. This is an integer that says how old the RSVP is in 100s/second) This information available for any RSVP type.
fnRSVPTime	...9.1.1.4	...9.1.1.4.**1**	The absolute time the specified RSVP request was made or posted. This is a text string that says when the RSVP was initiated. This value is a string generated either by the FileNet "DTM_TimeToString()" entry or by the standard "ctime()"library function. This information available for any RSVP type.
fnRSVPSurfaceID	...9.1.1.5	...9.1.1.5.**1**	The surface ID to which the RSVP message refers This information available for any RSVP type.
fnRSVPMsg	...9.1.1.6	...9.1.1.6.**1**	The RSVP operator request text This information available for any RSVP type.

Appendix C: SNMP Services and Functionality

This Appendix provides basic information about SNMP services and functionality. It covers the following information:

- Determining whether SNMP services is installed and running on your system.

- Determining whether SNMP is functioning properly on your system in a basic sense and also specifically with FileNet Image Services.

Verify Basic SNMP Services

There is an easy, platform-specific way to verify SNMP is running on your system. Depending upon the type of Image Services system you have, you either need to run the appropriate **ps** command (UNIX) or navigate (Windows Server).

Determine if SNMP Services is Installed on a UNIX System

Enter the following command to determine if SNMP is installed/running on your UNIX system:

ps eaf|grep -i -e snmp -e trap

If your system is an AIX system, you should receive output similar to the following:

```
root   9306  6448   0 17:09:31   - 0:00  /usr/sbin/snmpd
fnsw   8722     1   0 17:11:29   - 0:00  fn_snmpd
fnsw  18192     1   0 17:11:27   - 0:00  fn_trapd
```

Note   fn_snmpd and fn_trapd are FileNet processes. fn_snmpd handles FileNet queries, and fn_trapd handles FileNet traps. These processes are started and stopped with the FileNet software. snmpd is the AIX SNMP daemon that comes up with the operating system.

If your system is an HP-UX system, you should receive output similar to the following:

```
root    3211    1   0 Feb 7 ?   - 0:12  /usr/sbin/snmpdm -P 8000
fnsw    3396    1   0 Feb 7 ?   - 0:01  /fnsw/bin/fn_snmpd -f 8001
fnsw    3397    1   0 Feb 7 ?   - 0:01  /fnsw/bin/fn_trapd
root    3226    1   0 Feb 7 ?   - 0:24  /fnsw/bin/MasterSnmpd -t local -c
public -m 1 -n 0 -f 8001
```

Note   MasterSnmpd is another FileNet process for HP-UX and Solaris only. It is designed to multiplex all SNMP activities on the box, including FileNet-related SNMP traffic. On these two platforms, MasterSnmp is needed to make sure FileNet can coexist with SNMP services, because SNMP is sold separately from the base operating system (as opposed to AIX and Windows Server, where SNMP services are built-in). For a complete list of MasterSnmp configurable parameters, see **"MasterSnmpd Configurable Parameters" on page 99**.

snmpdm is the HP-UX SNMP daemon that comes up with the operating system. As with AIX, the fn_* processes are started and stopped with the FileNet software.

If your system is a Solaris system, you should receive output similar to the following:

```
fnsw   13204    1   0 13:57:34 ?       - 0:01  /fnsw/bin/fn_snmpd -f 8001
root   13437    1   0 15:55:58 pts/0   - 0:00  /fnsw/bin/MasterSnmpd -t
local -c public -m 1 -n 0 -f 8001
```

Determine if SNMP Services is Installed on a Windows Server System

To determine if SNMP is installed/running on your Windows Server system, complete the following steps:

1 Right-click on your system's Network Neighborhood icon and click on Properties*.*

2 Click on the Services tab and you should see **SNMP Service** and be able to view its properties.

3 From the Taskbar, click on the **Start** button, point to Settings, and click on Control Panel.

4 From the Control Panel window, locate and double-click on the Services icon.

The Services window displays. In the window, you should see both the **SNMP Service** and the **SNMP Trap Service** with a Status of **Started** and a Startup setting of **Automatic**.

You should also see **fn_snmpd.exe** and **fn_trapd.exe** in the Windows Server Process List.

5 Click the *Close* button to close the Services window.

> **Note** You should be able to query non-FileNet SNMP MIBs whether or not Image Services is running. However, you do need to have Image Services up (along with the fn_snmpd process) in order to be able to query FileNet MIBs.

Check FileNet SNMP Functionality

SNMP is used internally by Image Services (for example, some of the Xapex reports screens). In this section, you can check to see if this internal functionality is working by seeing if you can do FileNet SNMP queries on the same box. You can do this by using the **nmi_test** command.

1 Change directory to the **/fnsw/bin** and enter the nmi_test command:

nmi_test

2 You should receive output similar to the following:

```
NMI_get_system_info - completed successfully!
    Domain     : sas1
    Organization: FileNet
    SSN        : 1100106785
    ServerType : Combined
    Uptime     : 62700 hundreths of a second
    LastTrapErr : <77,0,1>
    LastTrapText: You don't need a weatherman to know ...
    LastTrapTime: 62700
    LastTrapSev : Operator

(continued on next page)
```

```
(continued from previous page)

   TrapFlags  : OK     : 0
               Warning : 1
               Operator: 1
               Severe  : 1
   Service Table
   I Type      Prc Max Rej Desc
   - ---------- --- --- --- -------------------------------------- ...
```

> **Note** The information in **nmi_test** is exactly the same as the reports in
> Xapex.

Appendix D: SNMP Processes & Resources

This appendix is strictly a reference section detailing the processes and files associated with SNMP as well as providing other resources for you to look at. It is comprised of the following sections:

- SNMP Process and Files

  This section lists, by platform, all of the main SNMP-related processes and files on your system. Refer to **"SNMP Processes and Files" on page 93**.

- MasterSNMP Configurable Parameters

  This section lists the different parameters available with the MasterSnmpd_start script. Refer to **"SNMP Processes and Files" on page 93**.

- SNMP Bibliography

  This section lists texts and URLs available to help you gain a greater understanding about SNMP. Refer to **"SNMP Bibliography" on page 100**.

SNMP Processes and Files

Below you will find a separate section for each of the four supported FileNet platforms. Each section will list the processes created with SNMP and the files created by SNMP.

AIX Architecture
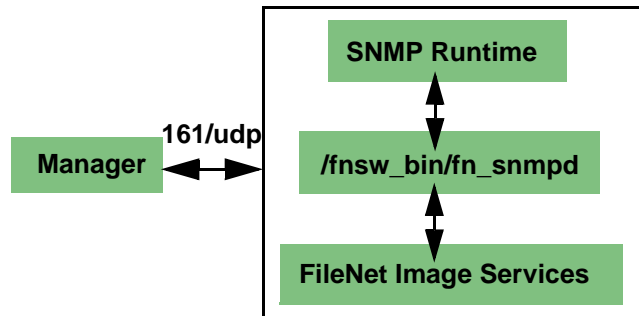
AIX 5.1 Processes

```
ps -eaf | grep -i -e snmp -e trapd =>
    root   9306  6448   0 17:09:31   - 0:00  /usr/sbin/snmpd
    fnsw   8722     1   0 17:11:29   - 0:00  fn_snmpd
    fnsw  18192     1   0 17:11:27   - 0:00  fn_trapd
```

Note   No FileNet MasterSnmpd process on AIX (HP-UX and Solaris only).

With AIX 5.2 and higher, SNMPv3 has been introduced as the default SNMP version. FileNet does not support version 3 at this time. The only supported version is SNMP version 1.

Run the **ps -e | grep snmp** command to check the SNMP version you are running.

If you are running SNMP version 3 (SNMPv3), you need to switch to version 1. For example, you might enter:

snmpv3_ssw -1

Please refer to the *IBM System Management Guide* for complete information.

When running SNMPv1 on AIX 5.2 and higher, all of the configuration details remain the same as they are in AIX 5.1.

HP-UX Architecture

```
                                        ┌────────────────────────────────────────┐
                                        │  /usr/sbin/snmpdm -P 8000                │
                                        │                                          │
                                        │                  ↕ 8000                  │
                                        │                                          │
                          161/udp       │  /fnsw/bin/MasterSnmpd -n 8000 -f        │
         ┌──────────────┐               │  8001 -m0                                │
         │ Manager      │ ◄──────────►  │                                          │
         │ (e.g., OpenView)             │                  ↕ 8001                  │
         └──────────────┘               │                                          │
                                        │  /fnsw/bin/fn_Snmpd -f 8001              │
                                        │                                          │
                                        │                  ↕                       │
                                        │                                          │
                                        │  FileNet Image Services                  │
                                        └────────────────────────────────────────┘
```
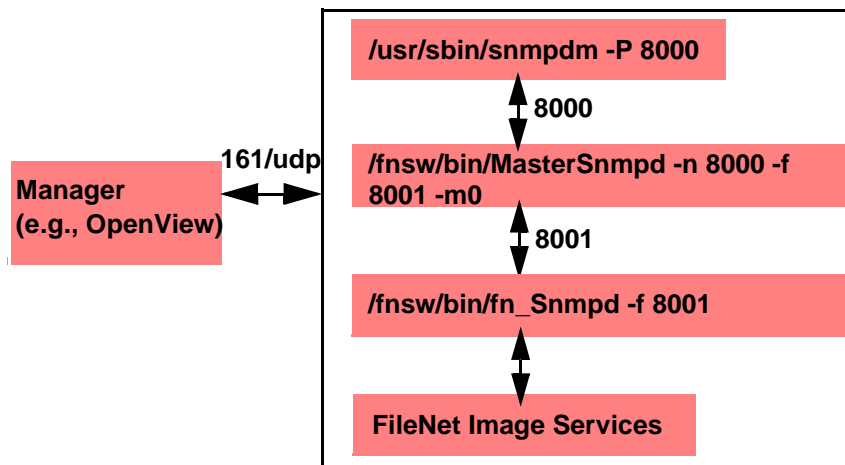
Processes

```
ps -eaf | grep -i -e snmp -e trapd =>
root    3211     1   0 Feb 7 ?               0:12  /usr/sbin/snmpdm -P 8000
fnsw    3396     1   0 Feb 7 ?               0:01  /fnsw/bin/fn_snmpd -f 8001
fnsw    3397     1   0 Feb 7 ?               0:01  /fnsw/bin/fn_trapd
root    3226     1   0 Feb 7 ?               0:24  /fnsw/bin/MasterSnmpd -t
   local -c public -m 0 -n 8000 -f 8001
```

Note   traphost = local, community = public, .MIB2 = NO (using HP-UX MIBs Master), Native port = 8000 (matches snmpdm port), F/NET port = 8001

Files

/fnsw/bin/MasterSnmpd_start
/etc/rc.config.d/SnmpMaster, SnmpMib2, etc (HP-UX Master Agent
    config)
/etc/snmp.conf
/var/adm/snmpd.log
/etc/services => snmp 161 /udp, snmp-trap 162/udp (both HP-UX)

Solaris Architecture
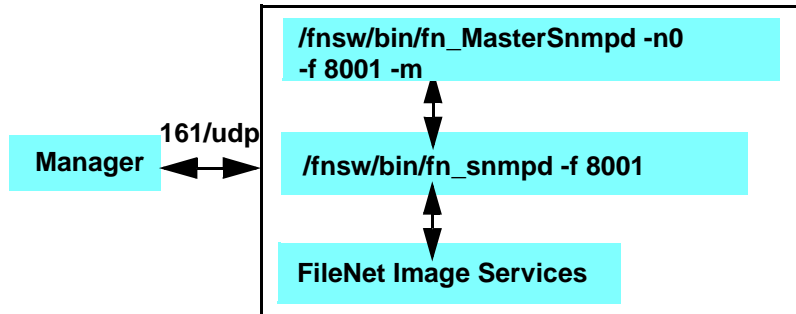
Processes

```
# ps -eaf | grep nmp -e =>
    fnsw  660    1  0 10:21:19 ?          0:01  /fnsw/bin/fn_snmpd -f 8001
    root  420    1  0 09:32:36 ?          0:00  /fnsw/bin/MasterSnmpd -t
hp9seal -c public -m 1 -n 8000 -f 8001
    root  363    1  0 09:32:34 ?          0:00  /usr/lib/snmp/snmpdx -y -
c /etc/snmp/conf -p 8000
```

> **Note**   traphost = local, community = public, .MIB2 = YES (using F/NET as
> Master), Native port = 0 (F/Net is master), F/NET port = 8001

Files

/fnsw/bin/MasterSnmpd_start
/var/adm/messages*
/etc/services =>
  fn_snmpd   161 /udp,
  fn_trapd   35225/udp <- Default: Port 161 owned by FileNet

Windows Server Architecture
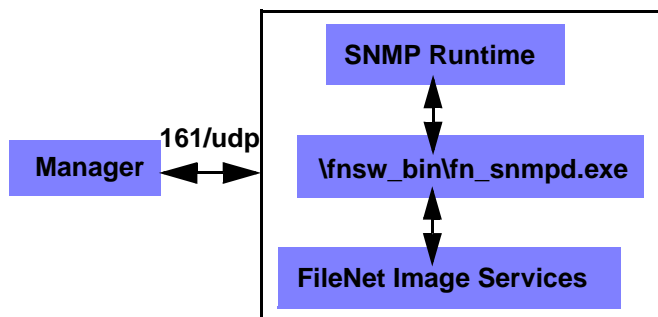
Processes

```
snmp.exe (SNMP Service)
snmptrap.exe (SNMP Service)
fn_snmpd.exe
fn_trapd.exe
```

Files

Event Viewer

Note No FileNet MasterSnmpd process on Windows Server (HP-UX and Solaris only).

MasterSnmpd Configurable Parameters

Switch	MasterSnmpd_Start	HPUX	Solaris	Description
-t TRAPHOST	trap_host	"local"	"local"	Trap Destination
-c COMMUNITY	trap_community	"public"	"public"	SNMP Community
-m FLAG	MIB2_flag	0	1	1 = Use FN MasterSnmp 2 = Use OS MasterSnmp
-n NATIVE_PORT	Native_port	8000	0	Native port
-f FN_PORT	FileNet_port	8001	8001	FileNet port
-p TRAP_PORT	None	None	None	Trap port
-d	None	None	None	DEBUG: dump packets
-a	None	None	None	DEBUG: log addresses

Examples:

HPUX: /fnsw/bin/MasterSnmpd -t local -c public -m 0 -n 8000 -f 8001

Solaris: /fnsw/bin/MasterSnmpd -t local -c public -m 1 -n 0 -f 8001

SNMP Bibliography

Below you will fin a list of texts and URLs to help you gain a better understanding of SNMP.

Texts

Miller, Mark A, P.E., Managing Internetworks with SNMP, M&T Books, 1999, ISBN 0-7645-7518-X

Covers SNMP and network management in general, includes CD

Murray, James D., Windows NT SNMP, O'Reilly, 1998, ISBN 1-56592-338-3

Covers both SNMP Architecture and Win 32 APIs, includes CD

URLs

http://www.ietf.org/rfc.html (SNMP RFCs)

http://cio.cisco.com/warp/public/535/3.html (Tutorial)

http://xva2k.bradley.edu/AdventNet/docs/tutorial1.html (Java-based mgr)

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