IBM FileNet Image Services
Version 4.2

*Upgrade Procedure
for HP-UX
on HP Integrity Servers*

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Contents

ibm.com and related resources

Product support and documentation are available from ibm.com.

Support and assistance

Product support is available on the web. Click Support from the product website at:

FileNet Image Services Support

> http://www.ibm.com/software/data/content-management/filenet-image-services/

PDF publications

You can view the PDF files online using the Adobe Acrobat Reader for your operating system. If you do not have the Acrobat Reader installed, you can download it from the Adobe website at http://www.adobe.com.

See the following PDF publications website:

Product	Website
Product Documentation for FileNet Image Services	http://www.ibm.com/support/docview.wss?rs=3283&uid=swg27010558

How to send your comments

Your feedback is important in helping to provide the most accurate and highest quality information.

Send your comments by using the online reader comment form at https://www14.software.ibm.com/webapp/iwm/web/signup.do?lang=en_US&source=swg-rcf.

Consumability survey

You are invited to tell IBM how to improve the consumability of software products. If you want to help IBM make IBM® FileNet® P8 easier to use, take the Consumability Survey at http://www.ibm.com/software/data/info/consumability-survey/.

Contacting IBM

To contact IBM customer service in the United States or Canada, call 1-800-IBM-SERV (1-800-426-7378).

To learn about available service options, call one of the following numbers:

- In the United States: 1-888-426-4343
- In Canada: 1-800-465-9600

For more information about how to contact IBM, see the Contact IBM website at http://www.ibm.com/contact/us/.

Chapter 1. Upgrade planning and procedures

There are several upgrade planning steps that need to be completed before you can start to upgrade your IBM FileNet Image Services system.

The following procedures guide you through the process of upgrading your FileNet Image Services system.

Upgrade Paths

The following upgrade starting points have been tested and approved to upgrade to FileNet Image Services 4.2.0. Make sure that the server you are updating is at one of these FileNet Image Services starting points before beginning this upgrade.

- 4.0.SP5
- 4.1.0
- 4.1.1
- 4.1.2

For information about supported operating systems and databases see, *IBM FileNet Image Services, Image Services Resource Adapter, and Print Hardware and Software Requirements*.

To download these guidelines from the IBM support page, see "ibm.com and related resources" on page v.

Strategy for multiserver upgrades

When upgrading a multiserver FileNet Image Services system, you should upgrade your server types in a specific order and you should be familiar with some basic technologies to accomplish this.

When upgrading the software on a multiserver FileNet Image Services system, upgrade the servers in the following order:

- Root/Index server or Root/Index/Storage Library server
- Storage Library servers
- Application servers

After you have finished upgrading the new software on the first server, you can begin upgrading the software on the next server while you complete the configuration steps on the first server. In this manner, the upgrade of one server can overlap the upgrade of the next server, and so on.

For the HP-UX operating system you should be familiar with:

- UNIX operating system
- A text editor such as vi
- HP System Administration Manager tool (SAM)
- HP-UX 11i v2 and v3 administrative command for tunable kernel parameters (kctune)
- Peripheral device configuration methods (for example, tape drives, printers, and storage libraries)

- DB2 or Oracle Database Administration

Chapter 2. Upgrade planning considerations

The prerequisites for upgrading IBM FileNet Image Services are included in the following sections.

General prerequisites for all IBM FileNet Image Services operating systems

You need to be aware of the hardware and software requirements that are common to all FileNet Image Services platforms.

The hardware and software requirements include the following:

Hardware settings

Each of the operating systems supported in this version of FileNet Image Services, have specific hardware settings that must be obtained before upgrading the FileNet Image Services software.

Server memory

- Root/Index and Application Servers with Oracle:
  - 10g - 1024 MB memory for each processor in the server.
  - 11g - 1024 MB memory for each processor in the server.
- Root/Index and Application Servers with DB2:
  - 512 MB memory for each processor in the server.
- Storage Library and Application Servers without RDBMS:
  - 512 MB memory for each processor in the server.
- To determine the total amount of installed memory, enter on each server:
  - `dmesg | grep Physical`
  - `/usr/contrib/bin/machinfo | grep Memory`

Total swap space

Swap space should be two times the amount of server memory. For example, a server with 512 MB of memory should have at least 1 GB of swap space. However, if the server has more than 1 GB of server memory, the swap space should be 1.5 to 2 times that amount.

Total disk space

The amount of disk space required for RDBMS software depends on whether Server or Client software is installed and the products selected. For more information refer to the following guidelines:

- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers*
- *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*

To download these guidelines from the IBM support page, see "ibm.com and related resources" on page v.

Space for FileNet Image Services software

FileNet Image Services needs the minimum amounts of free disk space in the file systems shown here:

- 500 MB total space in `/fnsw`

If `/fnsw/local` is not a separate file system, the upgrade requires 1000 MB (1 GB) total space in `/fnsw`. Use the IBM Capacity Planning tool to estimate the actual amount of disk space needed for various datasets on this FileNet Image Services system.

Temporary space

The FileNet Image Services installer also needs a certain amount of temporary disk space in addition to the downloaded FileNet Image Services software modules. Check the following table for the amount of temporary space you will need on your servers and for the name of the directory where the installer intends to place the temporary files.

Operating system	Size in MB	Temporary directory
HP 9000	510	`/var/tmp`
HP Integrity	550	`/var/tmp`

- On UNIX servers, if the`/tmp` directory does not have adequate free space, the IATEMPDIR environment variable can be manually set to a location with sufficient temporary space. This optional temporary directory must be outside the `/fnsw` directory structure.

Operating system-specific prerequisites

Each of the operating systems supported in this version of IBM FileNet Image Services, have specific prerequisites that must be met for upgrading the FileNet Image Services software.

See the Hardware and Software requirements guide for the FileNet Image Services software, titled *IBM FileNet Image Services, Image Services Resource Adapter, and Print Hardware and Software Requirements*.

To download these guidelines from the IBM support page, see "ibm.com and related resources" on page v.

Hardware requirements

Each of the operating systems supported in this version of FileNet Image Services, have specific hardware requirements that must be met for upgrading the FileNet Image Services software.

Operating System	OS-specific Prerequisites
HP-UX	Server Hardware
	• HP 9000 (PA-RISC) server
	• Servers containing PA-RISC processors that support the HP-UX11i operating system are required.
	• 32-bit or 64-bit processors for servers without Oracle such as separate Storage Library servers and Application servers with only Batch, Print, and/or Cache Services.
	Important: Oracle 10g and 11g software is compatible with only 64-bit HP-UX servers.
	• HP Integrity (Itanium 2) Servers
	• HP Integrity servers containing 64-bit Intel Itanium 2 processors that support the HP-UX11i v2 operating system are required.
	• HP-UX operating system
	• FileNet Image Services software is compatible with HP-UX 11i v2 and HP-UX 11i v3 on both HP 9000 servers and HP Integrity servers
	HP-UX server
	• To determine the version of operating system software running on HP 9000 servers, enter `uname -r` *release*. The result must be one of the following versions:
	– `B.11.23` (HP-UX 11i v2)
	– `B.11.31` (HP-UX 11i v3)
	• If the version of HP-UX software is earlier than version B.11.11, or if no software has been installed on the system, see HP documentation.
	• Your server must already be running one of the following HP-UX releases:
	– HP_UX 11.23 (64-bit) or higher (HP 9000 and HP Integrity)
	– HP_UX 11.31 (64-bit) or higher (HP 9000 and HP Integrity)
	• To determine the version of operating system software running on the HP Integrity servers, enter `uname -m` *platform*. The result must be: `ia64`
	• Verify the character set used by the operating system by entering `locale charmap`
	HP-UX Patches
	• Locate the patch recommendations and requirements for your system on the IBM Customer Service and Support website.
	• If an earlier version of HP-UX is currently installed on the server, the System Administrator must upgrade to HP-UX 11i at the appropriate time.

Software requirements

An IBM FileNet Image Services system has specific software that is installed as part of the upgrade of the FileNet Image Services software.

FileNet Image Services software

Each operating system that is supported with FileNet Image Services is packaged separately and also includes the COLD software.

IBM FileNet Image Services 4.2 includes COLD 4.2 software and is titled as follows:

• *FileNet Image Services & COLD 4.2 for Windows*
• *FileNet Image Services & COLD 4.2 for Windows*

RDBMS software

The IBM FileNet Image Services release contains several supported relational database management system software options depending upon the operating system running on the server.

IBM DB2 RDBMS software

See the following document for more information:

- *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*

To download this document from the IBM support page, see "ibm.com and related resources" on page v.

Oracle RDBMS Software (FileNet-controlled)

Attention: The Database Administrator must install the appropriate version of Oracle and must supply the information described in the Oracle Guidelines to the System Administrator before FileNet Image Services can be upgraded.

See the following documents for more information:

- *IBM FileNet Image Services Oracle 10g Installation and Upgrade Procedures (FileNet-Controlled)*
- *IBM FileNet Image Services Oracle 11g Installation and Upgrade Procedures (FileNet-Controlled)*

To download these guidelines from the IBM support page, see "ibm.com and related resources" on page v.

Oracle RDBMS Software (Site-controlled)

Attention: The Database Administrator must install the appropriate version of Oracle and must supply the information described in the Oracle Guidelines to the System Administrator before FileNet Image Services can be upgraded.

See the following document for more information:

- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers*

To download these guidelines from the IBM support page, see "ibm.com and related resources" on page v.

Debugging software

Debugging software must be installed on each server. A debugger enables support personnel to troubleshoot both FileNet Image Services and operating system problems.

Debugging HP-UX software:

The HP Wildebeest Debugger (WDB) is an HP-supported implementation of the Open Source GNU debugger (GDB) as well as the GNU Project debugger. Debugging software is recommended for IBM FileNet Image Services and, if present, must be installed on each server.

WDB

A debugger enables support personnel to troubleshoot both FileNet Image Services and HP-related problems.

The HP Wildebeest Debugger (WDB) is an HP-supported implementation of the Open Source GNU debugger (GDB). HP WDB supports source-level debugging of object files written in HP C, HP aC++, and Fortran 90 on HP-UX 11i v1.6 and later for HP Integrity servers (Itanium-based), and HP-UX 11.0 and later for HP 9000 (PA-RISC) servers.

- HP WDB 5.9 is the recommended debugger for Integrity systems running HP-UX 11i v2, or HP-UX 11i v3, and HP 9000 systems running HP-UX 11i v1, 11i v2, or 11i v3.
- HP WDB GUI 5.9, the graphical front end for HP WDB, is supported on Integrity and HP 9000 systems.
- Other debuggers, such as xdb and HP DDE are no longer supported.
- You can download a version that is compatible with your current version of the HP-UX operating system for no charge from http://www.hp.com/go/wdb/. Documentation is also available for download.

GDB

GDB, the GNU Project debugger, allows you to see what is going on inside another program while it executes - or what another program was doing at the moment it crashed.

- GDB is free software, protected by the GNU General Public License (GPL). GDB can run on most popular UNIX and Microsoft Windows variants.
- You can download the current version for no charge from http://www.gnu.org/software/gdb/. Documentation is also available for download.

Related documentation

IBM FileNet Image Services has a variety of reference and procedural documents that you can download from the IBM support site.

To access the related documents, see "ibm.com and related resources" on page v.
- *IBM FileNet Image Services System Administrator's Handbook*
- *IBM FileNet Image Services System Administrator's Companion for UNIX*
- *IBM FileNet Image Services Installation and Configuration Procedures*
- *IBM FileNet Image Services Enterprise Backup and Restore User's Guide*
- *IBM FileNet Image Services Third-Party Backup/Restore Guidelines*
- *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*
- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers*
- *IBM FileNet Image Services MSAR Procedures and Guidelines*
- *IBM FileNet Image Services Integral Single Document Storage Procedures and Guidelines*
- *IBM FileNet Image Services Oracle 10g Installation Procedures (FileNet-controlled)*

Chapter 3. Preparing for the upgrade

Working with the FileNet Certified Professional (FCP) ensures a smooth upgrade. There are preliminary steps you must complete in order to upgrade your software.

Before you begin

Upgrade by a FileNet Certified Professional (FCP) is recommended. For more information on the FCP program, refer to the http://www.ibm.com/us, **Products > Software > Information Management > Training and certification > Professional Certification > FileNet Certified Professional Program (FCP)**.

Procedure

If an FCP performs the upgrade, at least four weeks before the upgrade, the FCP should do the following:

1. Backup the latest FileNet Image Services CDB file. The CDB file is built by the configuration editor (fn_edit) and is stored in the `/fnsw/local/sd/conf_db` directory. The naming convention is `IMS_n.cdb` where *n* is a sequentially assigned number that is incremented each time the CDB file is rebuilt. You will likely find several versions of the CDB file.

2. Run spacerpt.

   Send the results to your service representative, and keep a printed copy for comparison after the upgrade is complete.

Copy the MasterSnmpd_start file

Make a backup copy of the Simple Network Management Protocol (SNMP) file.

Before you begin

For more information on SNMP, see the *IBM FileNet Image Services SNMP Reference Manual*. To download this document, see "ibm.com and related resources" on page v.

Procedure

To copy the MasterSnmpd_start file:

1. Log on as a FileNet Image Services user.
2. Enter the following command:

   `cp /fnsw/bin/MasterSnmpd_start /fnsw/local/tmp/MasterSnmpd_save`

   Installing the new version of FileNet Image Services overwrites the current version of this file. At the end of this upgrade procedure, you will compare the newly installed version against this saved version.

Running spacerpt (Oracle only)

You can run spacerpt to generate information on your database configuration.

About this task

Your service representative can inspect your database configuration to verify that the Oracle RDBMS objects are correct. You must know the f_maint password to run spacerpt.

On servers with local Oracle databases

You can run spacerpt on site-controlled and FileNet-controlled Oracle installations to generate information about your database configuration.

Before you begin

If the Oracle databases, either on site-controlled or FileNet-controlled, are on the same server as FileNet Image Services, follow these steps to run spacerpt.

Procedure

To run spacerpt:

1. Log on as the FileNet Image Services user.
2. Verify that Oracle is up by entering:

   ```
   ps -ef | grep ora
   ```

   If Oracle is running, you see at least four Oracle processes.
3. Start the Oracle software if it is not running.
   - If Oracle is Site-controlled, ask the DBA to start Oracle.
   - If Oracle is FileNet-controlled and there are no Oracle processes running, start Oracle:

     ```
     fn_util startrdb
     ```
4. As an FileNet Image Services user:
   - In the Bourne or Korn shell enter:

     ```
     spacerpt > output_file_name
     ```
   - In the C shell enter:

     ```
     spacerpt > & output_file_name
     ```

     where *output_file_name* can be any name you choose.

   The spacerpt tool verifies that:
   - The FileNet Image Services logon and security are intact
   - The Advanced internal database structure is intact
   - The FileNet Image Services metadata are intact
5. Stop Oracle:
   - For Site-controlled Oracle, ask the DBA to stop Oracle.
   - For FileNet-controlled Oracle, enter:

     ```
     fn_util stoprdb
     ```
6. Print a copy of this file and keep it in a safe place. You can compare this copy with the spacerpt that you run at the end of this upgrade procedure.

Back up the server configuration file

You need to make a copy of the `/fnsw/etc/serverConfig` file and the `/fnsw/etc/serverConfig.custom` file, if it exists.

Procedure

To back up the server configuration file:

1. Logon as an FileNet Image Services user.
2. Make a copy of the `/fnsw/etc/serverConfig` file by entering commands similar to the following:

   ```
   cd /fnsw/etc
   cp serverConfig serverConfig.save
   ```

3. If the `/fnsw/etc/serverConfig.custom` file exists, then make a copy of that file by doing the following:

   ```
   cd /fnsw/etc
   cp serverConfig.custom serverConfig.custom.save
   ```

What to do next

After the upgrade procedure is complete, verify that the server configuration parameters are unchanged by checking the saved file.

Disable FileNet-related Cron jobs

You must disable any FileNet-related Cron jobs for the duration of the upgrade.

About this task

After the upgrade is complete, you can re-enable them. The `crontab` files are located in `/usr/spool/cron/crontabs`.

Stop the FileNet Image Services software

There are several things you must do to shut down FileNet Image Services and the associated processes as part of this upgrade.

About this task

Notify all users on the system to logout before you continue with the upgrade procedure. Warn them you are about to shut down the FileNet Image Services software and terminate all processes.

Attention: Startup must be in the opposite order with the root server first, followed by the storage library servers, and finally the application servers.

Tip: If FileNet System Monitor is installed, verify that the cala client and cala rex client are also stopped.

Exiting FileNet Image Services Toolkit applications

As part of the shutdown procedure, you must exit any FileNet Image Services Toolkit applications you have running.

Procedure

To exit from any FileNet Image Services Toolkit (ISTK) applications currently running on the server:

1. Log in as a user with root privileges.
2. Enter:

```
/fnsw/client/bin/wal_purge
```
Later in this procedure you will run the `killfnsw` command, which clears the FileNet Image Services shared memory.

Stopping the software

You need to perform a single procedure to shutdown the FileNet Image Services software. On a multi-server system, the procedure must be entered on the different server types in a specific sequence.

Procedure

To shutdown the FileNet Image Services software:

1. Log in as a FileNet Image Services user.
2. Stop the FileNet Image Services software:
   ```
   initfnsw -y stop
   ```

   In a multi-server system, stop the software in the following order:
   a. the application server(s)
   b. the storage library server(s)
   c. the root server
3. Kill all remaining processes displayed:
   ```
   killfnsw -DAy
   ```
   - The **-D** option kills daemons (such as, TM_daemon).
   - The **-A** option removes all IPC segments.
   - The **-y** option automatically answers Yes to subsequent `killfnsw` prompts.
4. Check that all FileNet Image Services processes have been terminated:
   ```
   ps -ef | grep fnsw
   ```

   Attention: It is possible that some non-FileNet Image Services processes were started by the fnsw user. These processes will appear in the output of this command. Check the process names shown by this command against the applications in the /fnsw/bin directory to validate that the process belongs to FileNet Image Services.
5. If any FileNet Image Services processes remain active, kill each one explicitly:
   ```
   kill process_id
   ```
6. As a user with root privileges, check for any IPC resources that still remain:
   ```
   ipcs | grep fnsw
   ipcs | grep fnusr
   ```

   Attention: It is possible that some IPC resources are owned by user fnsw but do not belong to FileNet Image Services. This would occur if the fnsw user ran a non-FileNet Image Services application that created IPC resources. Only those IPC resources that belong to FileNet Image Services should be removed, but there is no method for easily determining if a resource belongs to FileNet Image Services. The UNIX ipcrm command can be used to remove the resources. See the online "man" instructions for ipcrm for details on its usage. If in doubt about what resources to remove, the easiest way to clean up the system is to shut it down and restart.

Shut down the MasterSnmpd processes

Depending upon the operating system of your system, there are different command you need to run to stop the MasterSnmpd processes.

Procedure

To shut down the MasterSnmpd processes:

1. Verify that no MasterSnmpd processes are running:

    ```
    ps -elf | grep MasterSnmpd
    ```
2. Stop any remaining MasterSnmpd processes:

    ```
    kill -9 <ProcessID>
    ```
3. If the FileNet Image Services Toolkit is also installed on this server, shut down all FileNet Image Services Toolkit applications, then enter: `wal_purge`

Modify the inittab file

Properly setting the `inittab` file parameters prevents the IBM FileNet Image Services software from starting automatically each time the server is restarted.

About this task

Run the steps in this section on all servers. Edit the `/etc/inittab` file to prevent the FileNet Image Services software from starting automatically each time the server is restarted. Later in this procedure you will have the opportunity to re-enable this feature.

Procedure

To edit the `/etc/inittab` file:

1. Log in as a user with root privileges.
2. Change to the `/etc` directory:

    ```
    cd  /etc
    ```
3. Edit the `inittab` file using a text editor such as vi).
4. Comment out a line similar to the following example. If the relational database software is site-controlled, this line might not exist.

    ```
    rcfn:234:wait:/bin/sh  /etc/rc.initfnsw </dev/console> /dev/console2 >&1
    ```
5. Exit the file and save your changes.

Check the logical volume sizes

You need to verify that the fnsw and local logical volumes have enough disk space.

Before you begin

Run the steps in this section on all servers. Verify that the fnsw, local, and Oracle file systems are not being accessed by anyone. Otherwise, the following steps will fail.

Procedure

To check the logical volume sizes:

1. Log in as a user with root privileges.
2. Start the volume management software.
3. Select the volume group where IBM FileNet Image Services is installed.
4. Compare the logical volume sizes displayed with sizes shown in the Table 1 table. Your logical volume sizes must be equal to or greater than the sizes in the table. (If any logical volumes are larger than the sizes shown, do not decrease them.)

Table 1. Logical Volume Sizes

Logical Volume Names	Logical Volume Sizes	Free Space	Mount Points
fnsw	500 MB	500 MB	/fnsw

You can increase the size of any of these logical volumes to match the sizes shown in the table, when you upgrade FileNet Image Services later in this procedure.

Continue with the Upgrade

Depending upon the operating you are using, you need to go to the appropriate section of the document to continue your upgrade.

About this task

- To continue upgrading an HP-UX system, "Preparing to upgrade FileNet Image Services on an HP-UX Server."

Preparing to upgrade FileNet Image Services on an HP-UX Server

There are several tasks you must complete in order to upgrade the IBM FileNet Image Services software on an HP-UX server.

Upgrading the HP-UX operating system

There are tasks you must complete to upgrade the server to a supported version of HP-UX before installing IBM FileNet Image Services. There are also steps you must complete after upgrading the FileNet Image Services software.

Upgrading to HP-UX v2 or v3 after upgrading FileNet Image Services

There are tasks you need to complete concerning your HP-UX upgrade after upgrading the IBM FileNet Image Services software.

Procedure

To complete you HP-UX operating system upgrade from a version of B.11.22 or lower after FileNet Image Services has already been installed or upgraded:

1. Remove two files: `/fnsw/local/sd/cfg_verify/cfg_requirements` `/fnsw/local/sd/cfg_verify/.cfg_req_stamp`
2. Restart the FileNet Image Services software. During the restart process, the cfg_gen script runs the uname **-r** command and uses the resulting version information to update the `/fnsw/lib/cfg_verify/cfg_requirements` file. Then cfg_verify automatically copies the `cfg_requirements` file to

`/fnsw/local/sd/cfg_verify/cfg_requirements`. The `/fnsw/local/sd/cfg_verify/.cfg_req_stamp` file is also updated automatically.

Debugging HP-UX software

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Verifying or changing the HP-UX operating system kernel limits

Both IBM FileNet Image Services and the RDBMS system software are very resource intensive. To satisfy the resource needs of the software, you can modify some default operating system parameters.

Procedure

To verify or change the kernel settings:

1. Check the Pending Value for the parameters shown below.

   Tip: On HP-UX 11i v2 and HP-UX 11i v3, you can also use the `kctune` command line tool to query and set tunable kernel parameters. See the man

page for `kctune`.

To use the traditional SAM method, enter the following commands.

a. As root user, enter: `sam &`

b. Select the **Kernel Configuration** option.

c. Select the **Configurable Parameters** option, and check the **Pending Value** for the kernel parameters in the following order:

> **Attention:** If the kernel parameters on your server are larger than the minimum values shown, do not lower them. However, if the values are smaller than any of these recommended minimum values, you must increase them. The only exception to this rule, is **dbc_max_pct**, which has a maximum setting of 30.)

Table 2. HP Kernel Parameters

Kernel Parameters	HP 9000 Recommended Minimum Settings	HP Integrity Recommended Minimum Settings
maxdsiz	117440512 (112 MB) 0x7000000 hex	268435456 (256 MB) 0x10000000 hex
maxfiles	256	1024
nproc	1005	1005
maxuprc	400	400
nfile	840 - Although the minimum value for **nfile** is 840, you might want to set this value much higher. A value of 3000, for example, would be acceptable.	2048 - Although the minimum value for **nfile** is 2048, you might want to set this value much higher. A value of 5000, for example, would be acceptable.
ninode	1085	1085
semmns	2000	2000
semmni	2000	2000
semmap		2002
shmmax	268435456 (256 MB) 0x10000000 hex	536870912 (512 MB) 0x20000000 hex
shmseg	120	120
semmnu	1000	1000
semume	500	500
msgmni	2048	2048
msgseg	6640	16384
msgtql	6640	6640
msgmap	msgtql + 2	msgtql + 2
dbc_max_pct	1 to 10 **	30 or less **
dbc_min_pct	5	5

** The **dbc_max_pct** kernel parameter must be set no higher than 30. A value of 7 would be acceptable. (The other recommended kernel parameter settings are minimum values)

Attention: These specific parameter values reflect FileNet Image Services requirements only. If you receive a "dependency error" when changing any of these parameters, change the dependent parameter mentioned in the error first.

If the values displayed by SAM are smaller than any of the recommended values shown above, increase them. On servers with DB2 software installed, verify these settings:

Table 3. HP kernel parameters using DB2 software

Kernel Parameters	Recommended Minimum Settings
msgmnb	65535
msgmax	65535

Also verify the timezone setting for your location:

Table 4. Time zones

Kernel Parameters	Default Setting
timezone	420*

*The default value is 420 minutes west of Greenwich Mean Time (GMT), which is the U.S. Mountain timezone. Determine the number of minutes east or west of GMT for your location by multiplying the number of hours east or west of GMT by 60 minutes per hour. For example, the U.S. Pacific timezone is 8 hours west of GMT. Multiply 8 x 60 to get 480 minutes. If your timezone location is east of GMT, use a negative number. For example, Middle European Time is one hour east of GMT. Multiply -1 x 60 to get -60 minutes for MET (Middle European Time).

Tip: You can easily determine the number of minutes for the timezone kernel parameter by multiplying the number of hours in the TZ environment variable (discussed later) by 60 minutes.

2. If you do not need to change any kernel parameters, skip to step 5 now. If you do need to make changes, continue with the next step.

3. Change the kernel parameter values by following these sub-steps:
   a. Select (highlight) the parameter you wish to change (for example, **maxfiles**).
   b. From the **Actions** menu, select the **Modify Configurable Parameter** option and press **Return**.
   c. In the window that opens, the **Specify New Formula/Value** option is selected.
   d. In the **Formula/Value** field, type the new value.
   e. Click **OK** and press **Return**. When the screen disappears, you see the new value in the Pending Value column.
   f. Repeat sub-steps a through e for each parameter you change.

4. If you changed any of the kernel parameters in the previous step, you might need to rebuild the kernel by completing the following sub-steps:
   a. From the **Action** menu, click the **Process New Kernel** option.
   b. Click **Yes** when asked if you want to process your kernel modification now.
   c. On the next window, verify that the **Move Kernel into Place** and **Shutdown/Restart the System Now** options are selected. The **Overwrite /stand/system** option must also be selected, unless the System Administrator has a reason not to overwrite this file. Refer to HP's on-line Help for complete information.
   d. Click **OK** to restart the server and put the new changes into effect.

5. Verify the TZ (timezone) environment variable. HP-UX has two timezone settings: the kernel parameter **timezone** and the environment variable *TZ*. Both

timezone settings must agree so that FileNet Image Services utilities can report the time correctly. In step 2, you verified that the **timezone** kernel parameter was set correctly.

a. Now verify that the *TZ* environment variable is set correctly. As a user with root privileges, enter: `/sbin/set_parms timezone`

b. Choose the correct timezone from the menus displayed. (If you change the current setting, you will be prompted to restart the server.)

If the HP-UX `set_parms` command is not available on your server, the System Administrator must check the documentation for the currently installed version of the HP-UX operating system for the appropriate way to set this variable.

Continue with the HP-UX Upgrade

It is necessary for you to upgrade your RDBMS software on your HP-UX system.

About this task

To continue with the upgrade, go to Chapter 4, "Upgrading the relational database software," on page 19.

Chapter 4. Upgrading the relational database software

Verify that the relational database software has been upgraded, if necessary.

Obtain the necessary parameters from the Database Administrator. See the following documents for more information:

- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers*
- *IBM FileNet Image Services Oracle 10g Installation and Upgrade Procedures (FileNet-Controlled)*
- *IBM FileNet Image Services Oracle 11g Installation and Upgrade Procedures (FileNet-Controlled)*
- *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*

To download these documents, see "ibm.com and related resources" on page v.

Chapter 5. Upgrading the FileNet Image Services software

At this point, compatible versions of the operating system software and the relational database software have already been installed on your FileNet Image Services system. Perform the steps in this section on all servers.

Before you start the installation program

Complete the tasks in this section before you start the IBM FileNet Image Services installation program.

Procedure

To export the display from a remote terminal:

1. Log in as a user with root privileges.
2. If you are running this program in graphical mode from a remote terminal, export the display from the server to your current terminal.
   - In the Bourne or Korn shell, enter:
     ```
     export  DISPLAY=host_identifier:0
     ```
   - In the C shell, enter:
     ```
     setenv DISPLAY host_identifier:0
     ```
   where *host_identifier* is the server identifier, either a name or IP address.
3. If you are running the installation program in graphical mode from a remote terminal, allow access to the host display by entering this command at the remote terminal:
   ```
   xhost  +
   ```
4. If the server has an Xconsole, rather than an ASCII terminal, enter the *xhost +* command there, too.

   Important: If you used the su command to switch from any user to root user, enter the `xhost +` command at the original CDE login window.

   Tip: To test your DISPLAY setting enter:
   ```
   xclock &
   ```

   If the clock appears on your remote terminal screen, the DISPLAY variable was exported correctly. If you don't see the clock, try the export or setenv command again using the IP address rather than the server name.
5. Start the FileNet Image Services Software Installation.

Common desktop environment

The Common Desktop Environment (CDE) is a graphical user interface that runs in conjunction with the X Windows System. Like X Windows, CDE automatically opens an Error Log window and a FileNet Image Services DT term window when you logon.

Procedure

- To enable CDE manually, you can run the following script as a user with root privileges: `/fnsw/etc/DTwindows`.

- Non-GUI commands can be performed at either the GUI terminal or the ASCII terminal.
- If you are using an international keyboard, remember to select the keyboard language when you first logon to CDE. At the logon box, select **Options** > **Language**. Then choose the appropriate keyboard language from the menu.

Starting the installation program

Run a System Check to verify the configuration prerequisites and upgrade the FileNet Image Services software.

About this task

You can choose to run both the System Check and FileNet Image Services installation program, or the System Check only.

Important: The current version of FileNet Image Services can run while you are performing the System Check.

The System Check inspects the server for prerequisites and lists any warning and error conditions in two locations:
- Pop-up windows on your screen.
- Report and log files in the `/fnsw/local/logs/install/4.2.0/` directory.

The FileNet Image Services Installation program can run in graphical, console, or silent mode.
- Graphical mode is the default graphical interface and is described later in this section.
- Console mode offers a plain text interface for workstations that do not support graphical mode.
- Silent mode displays nothing on the screen while the installation program is running. Review the install log file for access to the progress and results of the installation.

Procedure

To start the FileNet Image Services installation program:
1. Log on as a user with root privileges.
2. For Silent Installation only, locate the appropriate options.txt file. The option file contains standard responses to the installation program prompts. Copy the file to a local directory on your server. (You can rename it to something shorter, such as opt.txt.) The options and their default values are fully described in the file. Use your preferred text editor to make changes and save the file.
3. If you plan to run the installation program in silent mode, and you determined earlier that the `/var/tmp` directory does not have enough free space, set the IATEMPDIR environment variable to an alternate directory. The alternate temporary directory must be outside the `/fnsw` directory structure. For example, you might enter:
   - In the Bourne shell, enter:
     ```
     IATEMPDIR=/othertemp
     export IATEMPDIR
     ```
   - In the Korn shell, enter:
     ```
     export IATEMPDIR=/othertemp
     ```

- In the C shell, enter:

  ```
  setenv IATEMPDIR /othertemp
  ```

  where */othertemp* is the full file path to the alternate temporary directory.

  The amount of free temporary space necessary for HP Integrity is 330 MB

4. The InstallAnywhere installation program requires that the PATH environment variable contain the location of the gzip program. InstallAnywhere uses the gzip program to uncompress the software files. . For example, you might enter:

   - In the Bourne shell, enter:

     ```
     PATH=/usr/bin:.:$PATH
     export PATH
     ```

   - In the Korn shell, enter:

     ```
     export PATH=/usr/bin:.:$PATH
     ```

   - In the C shell, enter:

     ```
     setenv PATH /usr/bin:.:$PATH
     ```

   - In the Bourne shell, enter:

     ```
     PATH=/usr/contrib/bin:.:$PATH
     export PATH
     ```

   - In the Korn shell, enter:

     ```
     export PATH=/usr/contrib/bin:.:$PATH
     ```

   - In the C shell, enter:

     ```
     setenv PATH /usr/contrib/bin:.:$PATH
     ```

5. As a user with root privileges, change to the directory where the FileNet Image Services software is located and invoke the appropriate installation program.

   Important: If you are upgrading from CD-ROM, do not cd to `/cdrom` to run the program. Run the installation program from the / (root) file system.

   - Graphical mode: `./is_4.2.0_hpintegrity.bin &`

     Tip: The trailing ampersand (&) in the command causes the installation program to open in a new console window. Use the console window to correct any configuration errors reported by the installation program.

   - Console mode - plain text interface: `./is_4.2.0_hpintegrity.bin -console`
   - Silent mode - no screen display: `./is_4.2.0_hpintegrity.bin -i silent -options /tmp/opt.txt`

   Important: `/tmp/opt.txt` is the location of the text file you modified in step 2 on page 22. Specify its full path on the command line. For example, `-options /fnsw/local/tmp/opt.txt`.

   If you run the System Check in silent mode, check the log file in `/fnsw/local/logs/install/4.2.0` to determine the results. The name of the log file is IS_4.2.0.log.

6. In graphical mode, you will see a series of screens. It might take a few minutes to display.

7. When prompted by the Installer, select the **Upgrade** option.

8. Run either the System Check only or the System Check and Install FileNet Image Services.

   During the System Check, the installation program verifies the status of server characteristics in these categories:

   - Hardware checks
   - Operating system checks

The same checks are performed for both the System Check only and the System Check and Install FileNet Image Services options. Items in the status column are color-coded to indicate:

- **Pass** (green) indicates that the check has passed.
- **Optional** (yellow) indicates that the check encountered a value that might affect the performance of the FileNet Image Services system, if it is not corrected. However, the installation program can continue.
- **Fail** (red) indicates that a check has failed and the installation program cannot continue.

Some System Checks produce only warnings, while others prevent the installation of FileNet Image Services:

Table 5. System check warnings and errors

Condition	Severity
Not logged on as superuser	Prevents installation
Insufficient file system space	Prevents installation
Insufficient swap space	Warning only
Incompatible host name	Prevents installation
Incompatible O/S	Prevents installation
Missing debugger	Warning only
Kernel parameter out of range	Warning only
Image Services is running	Prevents installation

Upgrade FileNet Image Services

Depending on the processor speed of your server, expect the upgrade to take approximately 20 minutes.

As the FileNet Image Services upgrade progresses, check the log file to verify that the information displayed is correct for your system.

When the software upgrade is finished, the upgrade installation program creates an uninstaller, and then verifies the version information. After a successful upgrade, the final screen prompts you to restart your computer so that the upgrade can take effect.

Important: Do not start any server until the Root/Index server upgrade is complete.

Tip: If you have several FileNet Image Services servers to upgrade in a multiserver environment, you can begin installing the FileNet Image Services software on the next server while you continue to configure the FileNet Image Services software on the current server. Upgrade the FileNet Image Services servers in the following order:

1. Root/Index server
2. Storage Library server
3. Application server

Chapter 6. Configuring the IBM FileNet Image Services software

This section describes the steps to configure the FileNet Image Services software on UNIX platforms.

About this task

Tip: To log in as a specific user to run the FileNet Image Services tools and software, add this user to both the fnadmin and fnop groups.

Install the required pre-startup fixes

Perform this task only if you upgraded the relational database management system (RDBMS).

Procedure

To install the fixes:

At this time, install only the fixes that directly relate to IBM FileNet Image Services upgrade issues. Search through the Release Notes file for the key words PRE-STARTUP and REQUIRED. To download this document, see "ibm.com and related resources" on page v
These are only the fixes required to start FileNet Image Services successfully. Wait to install any other fixes until after the upgrade has been successfully completed.

Installing the user environment templates

Use the inst_templates tool to install the user environment templates.

Before you begin

Perform this task only if you upgraded the RDBMS. If you did not upgrade your RDBMS software, you can skip to the section, "Modify TCP/IP port settings" on page 29.

Procedure

To install the templates:

The inst_templates tool sets up profile and environment files that are customized for IBM FileNet Image Services.
In the following subsection, if applicable, you will run inst_templates as the

- FileNet Image Services user
- a user with root privileges
- an RDBMS user (DB2 or Oracle)

The inst_templates program creates or modifies environment files (such as .cshrc, .login, .profile, and others). You will be prompted before each file is modified if you want to proceed with the change to the file.

- If you accept the change (by entering y), the existing file is renamed with a old.n extension (where n is incremental). A new file is created using the original file name.
- If you decline the change (by entering n), the file will not be changed or moved.

If you customized the environment files in a particular user's directory, answer n (No) to each of the prompts. After you have finished running inst_templates, merge the settings in the templates with your customized environment files. The templates can be found in /fnsw/etc/*.template.
If you run inst_templates more than once, existing .old files are not overwritten. The new .old files are given .old.0 extensions, and each time you run inst_templates after that, the last digit of the file name increases.
For example, if you have run inst_templates several times, you might see .login, .login.old, .login.old.0, .login.old.1, and .login.old.2 files in the user's home directory. The .login file is the current file, while the .login.old.2 is the most recent .old file.

Configuring the software user environment

Use the inst_templates tool to configure the environment for the IBM FileNet Image Services software user.

Procedure

To configure the software user environment:

1. Logon as the FileNet Image Services user. (Do not su to change your user name.)
2. Enter the following command:

   /fnsw/etc/inst_templates
3. Enter y (Yes) to confirm all prompts that display.
4. On servers with Oracle software, verify that the *ORACLE_HOME* variable (for Oracle software) is set correctly and that the *ORACLE_SID* variable is set correctly in the .profile and .cshrc files.

Configuring the root user environment (optional)

Use the inst_templates tool to configure the environment for the root user.

Procedure

To configure the environment for the root user:

1. Log on as a user with root privileges.
2. Verify that the *ORACLE_HOME* (for RDBMS software) and the *ORACLE_SID* variables are set correctly in the environment. Enter:

   env | grep ORACLE

   Complete the remaining steps in this section only if you do not have a specialized root environment already established on your system (for example, a .login file with specific system-related entries). If you already have a root environment established, skip the rest of this section.
3. Enter the following command:

   /fnsw/etc/inst_templates
4. Enter **y** (Yes) to confirm all prompts that display.

Configuring the RDBMS (DB2 or Oracle) user environment (if applicable)

If the Database Administrator wants the RDBMS user to use IBM FileNet Image Services environment variable settings, complete the steps in this section.

Procedure

To configure the environment for the db2 or oracle user:

1. Logon as an RDBMS user, such as db2 or oracle.
2. Enter the following command:

   `/fnsw/etc/inst_templates`
3. Enter y (Yes) to confirm all prompts that display.

Resetting the environment variables

Log out and log in again to reset the environment variables.

Procedure

To reset the environment variables:

If you initially logged in to Common Desktop Environment (CDE) as a user with root privileges, as the FileNet Image Services user, such as fnsw, or as the RDBMS user, such as oracle, log completely out of CDE and log back in again to reset the environment variables. Otherwise, close all the current windows for these users and open new windows to apply the new environment variable settings.

Setting file ownerships and permissions

Use the fn_setup tool to verify that the permissions are set correctly for IBM FileNet Image Services files and directories.

About this task

Use the fn_setup tool to verify the following:

- permissions are set correctly for the FileNet Image Services software.
- all the necessary directories have been created
- permissions for these directories and system files are set correctly

Tip: The fn_setup program attempts to set the permissions for all files under the `/fnsw` and `/fnsw/local` directories using a permission_table that is upgraded with each new FileNet Image Services release. If non-FileNet Image Services files are placed in the `/fnsw` directory structure, a local_permission_table needs to specify the appropriate permissions for these files. See Chapter 3, "Directories and Files," of the System Administrator's Companion for UNIX for details. To download these guidelines from the IBM support page, see "ibm.com and related resources" on page v.

Even though fn_setup runs as the root user, fn_setup might not be allowed to set permissions on some secured files. If fn_setup cannot change permissions on a file, it logs an error and continues. Run fn_setup the first time as a user with root privileges.

Procedure

1. As a user with root privileges, enter: `fn_setup`

2. Reply to the prompts with the requested information. If the default value shown in brackets is correct, press **Return** to continue.

   a. The NCH server is generally the Root server. If you are updating a separate Storage Library server or an Application server, select 2=no.

      ```
      Is this the NCH server (1=yes, 2=no) [1]:
      ```

   b. The NCH server name is generally the name of the Root server. If you are updating a separate Storage Library server or an Application server, enter the name of the Root server.

      ```
      Enter NCH server name [sunrise:YourCorp]:
      ```

   c. The system serial number should be the serial number of the server you specified in the previous step, generally the Root server.

      ```
      Enter system serial number [11008016xx]:
      ```

      Important: The 10-digit ssn is written onto all storage media and must be unique for each FileNet Image Services system. If you have more than one FileNet Image Services system (domain), each must use its own unique ssn to prevent potential problems if media are ever transferred from one IS system to another.

   d. Relational databases are only configured on servers with Index services, WorkFlo Queue Services (WQS), or SQL services. If you are updating a separate Storage Library server, or an Application server without one of these services, select 0=none.

      ```
      Enter the relational database type configured on this server (0=none,
      1=Oracle, 2=DB2) [1]
      ```

   e. If a relational database exists on the server, enter the full pathname of the directory where the RDBMS software is located.

      ```
      Enter the RDBMS home directory [/usr/ora/11g]:
      ```

   f. If a relational database exists on the server, enter the user and group IDs at the following prompts.

      ```
      Enter the RDBMS user ID [oracle]:
      Enter the RDBMS group ID [dba]:
      ```

3. Confirm your entries and continue.

   ```
   This is the setup configuration:

   Do you want to continue (y/n) [y]:
   ```

4. After fn_setup completes, review the log file.

   ```
   less /fnsw/local/logs/fn_setup/fn_setup.log
   ```

   - If fn_setup logged no errors, it finished successfully. Skip to "Modify TCP/IP port settings" on page 29.

   - If fn_setup returns any errors that do not pertain to optical libraries, correct the error and run fn_setup again.

   - If fn_setup returned errors pertaining only to the optical libraries, as shown in this example, remove the old device links.

   ```
   fn-setup: Cannot set /fnsw/dev/1/osara to have permission mode: 0770
   fn-setup: Cannot set /fnsw/dev/1/osara to have owner/group: 80/80
   fn-setup: Cannot set /fnsw/dev/1/odda1 to have permission mode: 0770
   fn-setup: Cannot set /fnsw/dev/1/odda1 to have owner/group: 80/80
   fn-setup: Cannot set /fnsw/dev/1/osara to have permission mode: 0770
   fn-setup: Cannot set /fnsw/dev/1/osara to have owner/group: 80/80
   ```

These errors are caused by a change in the optical library driver addressing formulas. New drivers were generated when you installed FileNet Image Services earlier. Continue with the next section to remove the old optical device links.

Removing optical device links (if necessary)

The steps in this section are necessary only if you received errors that pertain to optical devices during fn_setup.

About this task

If you received fn_setup errors that pertain to optical devices, remove the old device links by following these steps:

Procedure

To remove the old device links:

1. Change to the /dev directory and list the fnsod entries.

   ```
   cd  /dev
   ls  -l  fnsod*
   ```

2. Review the dates of each of the entries. As a user with root privileges, remove all the old fnsod device links. For example, `rm fnsod.0,1,2,0`

What to do next

Later in this procedure, you must reconfigure the storage libraries to use the new device links. For now, continue with the section, Modify TCP/IP Port Settings (HP-UX).

Modify TCP/IP port settings

You can modify TCP/IP port settings.

About this task

In this section you will make your FileNet Image Services system run more efficiently by making changes to the /etc/rc.initfnsw file. This modification expands the number of available ephemeral ports. These modifications are not required, but have been found to be optimal when running FileNet Image Services software. So unless you have set these options for other system reasons, we suggest you make these changes.

Ephemeral ports are temporary ports assigned by a server's IP stack, and are assigned from a designated range of ports for this purpose. When network traffic is extremely heavy, it's possible to run out of ephemeral ports unless you specify the high_port_enable option in /etc/rc.initfnsw.

Procedure

To modify the TCPIP port settings:

1. Back up the /etc/rc.initfnsw file.
2. As a user with root privileges, verify that you have write permission on the this file:

   ```
   chmod  754  /etc/rc.initfnsw
   ```

3. Use your preferred text editor (such as vi) to modify the `/etc/rc.initfnsw` file. Locate the following statement near the end of the file:

   # Set up network options HP-UX (parameters in half-seconds)

4. Add the following line somewhere after that statement:

   `/usr/contrib/bin/nettune  -s  tcp  high_port_enable 1`

5. Save your change and exit from the file. These changes will go into effect when the server is restarted in the next section.

Restart the server

Use the appropriate command for your operating system to restart the server.

Procedure

To restart the server:

As a user with root privileges, enter the shutdown command:

`shutdown -ry 0`

After the server has restarted, log on as a user with root privileges.

Additional relational database tasks

The database administrator is responsible for completing the remaining tasks for configuring the relational database.

Before you begin

Perform the steps in this section on these servers:
- Root/Index server during a Dual server upgrade.
- Root/Index/Storage Library server during a Combined server or Entry server installation.
- Application server with WorkFlo Queue services, SQL services, or VWServices.

Important: If you are upgrading a FileNet-controlled Oracle installation, skip to the appropriate document to upgrade your Oracle software:
- *IBM FileNet Image Services Oracle 10g Installation and Upgrade Procedures (FileNet-Controlled)*
- *IBM FileNet Image Services Oracle 11g Installation and Upgrade Procedures (FileNet-Controlled)*

To download these documents, see "ibm.com and related resources" on page v.

For non-clustered FileNet Image Services systems

If the IBM FileNet Image Services system is configured with a site-controlled relational database (on a local or on a remote database server), verify that the relational database is started before running the fn_setup_rdb command.

Procedure

As a FileNet Image Services user, enter the following command to upgrade the FileNet Image Services configuration files and relational database-related files:

`fn_setup_rdb -u`

For clustered FileNet Image Services systems

When upgrading a clustered system to IBM FileNet Image Services 4.2, the configuration command must not be run until all nodes have been installed.

Procedure

As a FileNet Image Services user, enter the following command to upgrade the FileNet Image Services configuration files and relational database-related files:

```
fn_setup_rdb -u
```

Results

The configuration command issues the following warning prompt when it is started.

```
WARNING: If this is a cluster installation, fn_setup_rdb -u must NOT be run
until all nodes of the cluster have been upgraded. Enter Y to continue or N
to abort:
```

Verify the setup_config file

Verify that the value of RDBMS_HOME is set to the location of the Oracle Client software.

Procedure

To verify the setup_config file:

1. As a user with root privileges, use your preferred text editor to view the setup_config file. Enter:
   ```
   cd/fnsw/local
   vi setup_config
   ```
2. Verify that the value of RDBMS_HOME is set to the location of the Oracle Client software.
3. Exit from the file and save changes, if necessary.

Configure optical libraries

You can optionally configure optical libraries either automatically or manually.

Before you begin

Attention: Optical libraries are not supported in a Solaris Zone environment.

Procedure

To configure optical libraries:

If you encountered fn_setup errors pertaining to the optical libraries earlier in this procedure, you can now reconfigure them automatically or manually. If fn_setup ran successfully, go to Chapter 7, "Completing the upgrade," on page 35.

Starting the configuration editor

The fn_edit tool starts the IBM FileNet Image Services Configuration Editor.

Procedure

To start the Configuration Editor:

As the FileNet Image Services user, start the Configuration Editor by entering:
```
fn_edit &
```

Automatically configure a storage library or Optical Disk Unit

A storage library can be configured automatically if it is powered on, and if it is physically connected to the server where you are running fn_edit.

Procedure

To configure a storage library automatically:

1. On the **Procedures** tab, scroll through the list of available procedures and select **Automatically Configure a Storage Library**.

   The fn_edit program acquires all the information it needs directly from the storage library or Optical Disk Unit, and does not display any messages unless it encounters an error.

2. After the storage library has been configured, skip to the section, "Verifying storage library information."

Manually configure a storage library or Optical Disk Unit (ODU)

You can manually configure optical disk units.

About this task

Configure the storage library or Optical Disk Unit manually with these steps:

Procedure

To manually configure a storage library:

1. On the **Procedures** tab, scroll through the list of available procedures and select **Manually Configure a Storage Library**.

2. Respond to the prompts with the appropriate information, and supply the following details:

   - Library type
   - Library number
   - Number of optical drives in the library
   - Types of optical drives in the library
   - Position of the optical drives in the library
   - SCSI address of each optical drive and the library's robotic arm

3. After you have answered all of the prompts, fn_edit completes the configuration.

Verifying storage library information

To view the result of the procedure and to see information on other storage libraries that are already configured on the system, select the **Storage Libraries** tab.

Exit the configuration editor

When you have finished configuring optical libraries, exit the system configuration editor.

Procedure

To exit the system configuration editor:

Exit `fn_edit` by selecting Exit from the **File** pull down menu. If you have not made any changes, it is not necessary to save the file.

Build the system configuration files

Use the fn_build tool to rebuild the system configuration files.

Procedure

To build the system configuration files:

1. As fnsw user, rebuild the system configuration files by entering:

   `fn_build -a`

2. Verify that this command runs successfully by checking that no errors have occurred. If errors were reported, identify and correct the cause of the errors before continuing to the next section.

Chapter 7. Completing the upgrade

This is the final phase of the upgrade procedure. In this topic you will verify that the upgrade was successful.

About this task

In this section you will:
- Verify the Configuration Database and Other Files
- Perform Various System Tests
- Re-enable cron jobs

Verify the server configuration

The processes that use the `serverConfig` file search for a file named `serverConfig.custom`. If it does not exist, the processes use the default `serverConfig` file.

Before you begin

When the installation program upgrades the `serverConfig` file, it copies the existing `serverConfig` file to a temporary `serverConfig.bak` file and installs the new `serverConfig` file in its place.
- If the contents of the two files are different (except for the file stamps), the installation program renames the temporary file to `serverConfig.custom`.
- If the contents of the two files are identical (except for the file stamps), the installation program removes the temporary `serverConfig` file, and the newly installed `serverConfig` file becomes the default.

About this task

Perform the steps in this section on all servers. At the beginning of this upgrade procedure, you made a backup copy of the `/fnsw/etc/serverConfig` file. The serverConfig file was named `serverConfig.save` and placed in the `/fnsw/install/backup/fnsw/etc` directory. If applicable, the `/fnsw/etc/serverConfig.custom` file was saved as `serverConfig.custom.save` in the `/fnsw/install/backup/fnsw/etc` directory.

Compare the files for the following circumstances:
- If a `/fnsw/etc/serverConfig.custom` file was **not** in use before the FileNet Image Services upgrade, then compare the new `/fnsw/etc/serverConfig` to the `/fnsw/install/backup/fnsw/etc/serverConfig.save` file. If they are different, change the values of the new `/fnsw/etc/serverConfig` with the ones from the `/fnsw/install/backup/fnsw/etc/serverConfig.save` file.
- If a `/fnsw/etc/serverConfig.custom` file was in use before the FileNet Image Services upgrade, then compare the new `/fnsw/etc/serverConfig` to the `/fnsw/install/backup/fnsw/etc/serverConfig.custom.save` file. If they are different, change the values of the new `/fnsw/etc/serverConfig` file with the ones from the `/fnsw/install/backup/fnsw/etc/serverConfig.custom.save`. file.

Important: A new request handler has been introduced called password encryption and decryption (PED). If you are using a serverConfig.custom file verify it includes the following entry for a proper functioning system.

```
PEDs           0134231080 1 12 0 0
```

Procedure

To verify the `serverConfig` file:

1. As fnsw user, compare the file you saved (`/fnsw/install/backup/fnsw/etc/serverConfig.save`, for example) with the newly installed `serverConfig` file by entering the following commands:

   ```
   cd  /fnsw/etc
   diff  serverConfig  serverConfig.save  |  more
   ```

2. If the file `serverConfig.save` contains parameters that are different from the new `serverConfig`. Use your preferred text editor to edit the `serverConfig.save` file.

3. If any values in the new `serverConfig` file are higher than those in the `serverConfig.save` file, always keep the higher value.

4. Rename the resulting file `serverConfig.custom`.

Verify the MasterSnmpd_start file

Check the destination (IP address or server name) of the System Administrator's SNMP Management station.

Before you begin

At the beginning of this upgrade procedure, you made a backup copy of the `/fnsw/bin/MasterSnmpd_start` file. View the file that you saved (`/fnsw/local/tmp/MasterSnmpd_save`, for example) and check the destination (IP address or server name) of the System Administrator's SNMP Management station. In the newly installed `MasterSnmpd_start` file, the destination address is set to local by default, so you might need to edit this file to insert the correct destination.

Procedure

To edit the `MasterSnmpd_start` file:

1. Use a text editor to edit the file:

   ```
   vi /fnsw/bin/MasterSnmpd_start
   ```

2. For example, change: `trap_host='local'` to either

   ```
   trap_host="135.10.0.44"
   ```

   or to

   ```
   trap_host="venice"
   ```

   where 135.10.0.44 is the IP address of SNMP Management station and venice is the DNS resolvable server name of the station.

   Tip: If your system uses IPv6 network addressing, enter the DNS resolvable server name.

   If the destination address is not set correctly, the SNMP Management station will no longer receive event notifications (traps).

Start FileNet Image Services

Start the software and review the status using the event log.

Before you begin

Important: If you are using a remote database, make sure that the remote database is started.

Procedure

To start the IBM FileNet Image Services software:

1. Logon as the FileNet Image Services user, such as fnsw, and stop all processes:
   `killfnsw -DAy`
2. Start the Task Manager:
   `Xtaskman &`
3. After the `TM_daemon` message displays in the Process table, select the **Monitor** menu.
4. From the **Monitor** menu, select the **Event Logs** option.
5. From the Event Logs window, select the **DISPLAY** menu. Select **Dynamic**. The **Dynamic** option enables screen refreshes each time the messages are logged.
6. Switch to the Task Manager window.
7. From the Task Manager window, select **START**.

   You will receive system messages in the Current Status window as FileNet Image Services starts. Once the software startup process finishes, the **CLOSE** button is highlighted.
8. Select **CLOSE**.
9. Review the contents of the Event Logs window to verify that there are no error messages from the software startup.

Run spacerpt (Oracle only)

If the Oracle databases, either Site-controlled or FileNet-controlled, are on the same server as IBM FileNet Image Services, run spacerpt after the upgrade and compare the results to the spacerpt you ran before the upgrade.

On servers with local Oracle databases

If the Oracle databases, either Site-controlled or FileNet-controlled, are on the same server as IBM FileNet Image Services, follow these steps to run spacerpt.

Procedure

To run the spacerpt tool:

1. As an FileNet Image Services user, verify that Oracle is up:
   `ps -ef | grep ora`
   If Oracle is running, you will see at least four Oracle processes. If not, start the Oracle software.
   - If Oracle is Site-controlled, ask the DBA to start Oracle.
   - If Oracle is FileNet-controlled and there are no Oracle processes running, start Oracle:
     `fn_util startrdb`

2. As an FileNet Image Services user, enter:
   - In the Bourne or Korn shell:

     ```
     spacerpt > <output_file_name>
     ```
   - In the C shell:

     ```
     spacerpt > <output_file_name>
     ```

     where <output_file_name> can be any name you choose.

   The spacerpt tool verifies that:
   - the FileNet Image Services logon and security are intact
   - the Advanced internal database structure is intact
   - the FileNet Image Services metadata are intact
3. If spacerpt does not run, verify that the f_maint password has been set and exported correctly.
4. Print a copy of this file and keep it in a safe place. You can compare this copy with the spacerpt run at the beginning of this upgrade procedure.

Test the FileNet Image Services and user applications

Verify that IBM FileNet Image Services is running properly by testing the system in native mode. Verify that you can scan, index, commit, fax, and print manually using IBM FileNet Capture Professional or IBM FileNet IDM Desktop.

Before you begin

Native mode is preferred in this case for two reasons:
- Only FileNet Image Services errors will be displayed. API-oriented errors can be tested after FileNet Image Services processes have been tested.
- FileNet Image Services errors will display during their specific stage of document entry or retrieval. This reduces your troubleshooting time.

Procedure

To test the user applications:
1. If COLD is installed, run COLD preview to test it.
2. Test user applications on the server to verify that they run successfully.

Install fix packs (optional)

Install any fix packs that apply to this release of IBM FileNet Image Services. Perform the steps in this section on all servers.

Procedure

To install FileNet Image Services fix packs:

Read the accompanying README file, which contains the instructions for installing the software. Retrieve the latest fixes from the IBM Information Management support page at "ibm.com and related resources" on page v.

Re-enable Cron jobs

If you disabled any cron jobs at the beginning of this upgrade, you can re-enable them now.

Modify the inittab file

If you modified the `/etc/inittab` file at the beginning of this procedure, you can now edit the file again to remove the comment character. Removing the comment character enables the IBM FileNet Image Services software to start automatically whenever the server is restarted.

About this task

Perform the steps in this section on all servers.

Procedure

To modify the `inittab` file:

1. As a user with root privileges, change to the `/etc` directory by entering the following command:

   `cd /etc`

2. Using your preferred editor, open and edit the `inittab` file.

3. Locate and uncomment (remove the # symbol from) the line that is similar to the following example:

   `rcfn:234:wait:/bin/sh  /etc/rc.initfnsw /dev/console>  /dev/console2 >&1`

4. Exit the file and save your changes.

Configure font server for COLD preview

If you plan to run COLD Preview from an Xstation, configure a Font Server to enable fonts to display and align correctly on the Xstation. The Font Server must be the same server where the COLD software is installed, usually the Storage Library Server.

About this task

Perform the steps in this section on these servers:

- Storage Library - (Multi-server upgrade)
- Root/Index/Storage Library - (Combined server upgrade)

If you plan to run COLD Preview from an Xstation, configure a Font Server to enable fonts to display and align correctly on the Xstation. The Font Server must be the same server where the COLD software is installed, usually the Storage Library Server.

Procedure

To configure the server where you plan to run COLD:

See Appendix B - Configuring a Font Server for COLD Preview (HP-UX only).

Upgrading storage library servers and applications servers

Repeat these procedures to upgrade any additional storage library servers or application servers.

Procedure

To upgrade storage library servers and application servers:

1. If you have not already begun to upgrade any additional storage library servers or application servers, return toChapter 3, "Preparing for the upgrade," on page 9 and repeat these procedures for each server that needs to be upgraded.

2. When you have upgraded all the servers in your IBM FileNet Image Services system, continue with the next section.

Back up the system

After you have upgraded the root/index server and any other application or storage library servers, you should make a full system backup.

About this task

For complete information on making system backups see:
- *IBM FileNet Image Services System Administrator's Companion for UNIX*
- *IBM FileNet Image Services Enterprise Backup and Restore User's Guide*
- *IBM FileNet Image Services Third-Party Backup/Restore Guidelines*

To download these documents from the IBM support page, see "ibm.com and related resources" on page v.

The FileNet Image Services upgrade is complete

You have completed the IBM FileNet Image Services Upgrade procedure. You can now start FileNet Image Services and return to production mode.

About this task

After you have verified that FileNet Image Services and the RDBMS run successfully, you can remove the old versions of the software as long as no other applications are using them.

MKF database migration from raw partitions to file systems on UNIX servers

IBM FileNet Image Services now supports either file systems or raw partitions for its Multi-Keyed File (MKF) databases on UNIX servers.

File systems is the default for fresh installations. Existing FileNet Image Services users can choose to continue using raw partitions as before, or migrate to file systems. After your current UNIX-based FileNet Image Services server has been upgraded to FileNet Image Services version 4.2, you can optionally convert the MKF databases from raw partitions to file systems.

For complete information about migrating your MKF database, see the document *MKF Database Migration from Raw Partitions to File Systems on Unix Servers*. To download this document from the IBM Support page, see"ibm.com and related resources" on page v.

Chapter 8. Configuring a font server for COLD preview (HP-UX only)

The following instructions are adapted from Hewlett-Packard procedures, and are designed to be run by an HP professional. For further information on configuring and testing the Font Server, contact HP.

Configure the font server

The Common Desktop Environment (CDE) includes a small set of fonts and font aliases that are not part of the standard distribution of XWindows.

About this task

For CDE to function correctly, add the CDE fonts to the font server catalogue:

Procedure

To add the CDE fonts:
1. As a user with root privileges, use your preferred text editor to edit the `/etc/X11/fs/config` file.
2. Locate the `catalogue = ...` line.
3. Verify that the first item in the catalogue list is: `/usr/lib/X11/fonts/type1.st`
4. At the end of the catalogue line append the following phrase: `,/usr/dt/config/xfonts/C`
5. Save your changes and exit.
6. Edit the `/etc/rc.config.d/xfs` file by adding or modifying the line for the following variable: *RUN_X_FONT_SERVER=1*
7. Verify that the font server is not running. Start the Font Server `/sbin/init.d/xfs start`
8. Copy `/etc/dt/config/Xsetup` from the `/usr/config` directory. Enter: `cp /usr/config/Xsetup /etc/dt/config/Xsetup`
9. Edit the `/etc/dt/config/Xsetup` file you just copied. Append this line to the end of the file: `$XDIR/xset fp+ tcp/server_id:7000 1>/dev/null`

   where *server_id* is either the server name in the `/etc/hosts` file, or the TCP/IP address of the server. To find the TCP/IP address: `nslookup 'hostname'`

Restart the server

Enter the shutdown command to restart the server.

Procedure

To restart the font server:

Enter the following command: `shutdown -ry 0`

Verifying the font server

Display a list of available fonts to verify that the font server is configured.

About this task

After the server restarts, log in as a user with root privileges and verify that the
Font Server has started.

Procedure

To display a list of available font and verify that the font server is configured:

1. Verify that the Font Server has started: `ps -ef | grep xfs`
2. Verify that the **Font Path:** section is at the beginning of the Xserver's font path
   by entering: `xset -q`

   You will see a **Font Path:** section followed by an entry similar to this: `tcp/:7000`

   This entry must appear before you see any specific font directory path names.
3. Verify that your Xserver can find scalable fonts by entering: `xlsfonts -fn`
   `'*-0-0-0-0-*'` You will see a list of fonts. The first fonts on the list will be from
   Adobe.
4. After you have finished configuring and verifying the Font Server, return to the
   section, Install MSAR and SDS System (Optional) of the main procedure.

Verifying the Xstation

Run configuration diagnostics and COLD Preview on the Xstation where you will
run the COLD Preview application. If you are not already running COLD software
on the server, postpone this test until after you have completed the rest of the IBM
FileNet Image Services upgrade procedure.

Procedure

To verify that the Xstation is selecting the correct font:

1. Run the Xstation's Configuration Diagnostics. Hold down the F12 key and
   select the Diagnostics icon. You will see a button to display font logging.
2. Run COLD Preview to determine if the font selections are coming from the
   Font Server or from the Xserver and to see which specific font is being selected.

Return to the main procedure

After you have finished configuring and verifying the Font Server, return to the
main procedure.

Appendix A. Uninstalling FileNet Image Services

Uninstall the FileNet Image Services software from your server.

Procedure

To uninstall the FileNet Image Services software:

1. Verify that you are logged on with root privileges.
2. Stop the FileNet Image Services software.
3. Back up any log files or other data in the `/fnsw` and `/fnsw/local` directories that you want to save.

   Tip: Unless you specify otherwise, the uninstallation program uses the same mode that you used during the installation. For example, if you installed FileNet Image Services using Silent mode, the uninstallation program automatically defaults to Silent mode, too, even if you do not specify the **silent** option.

4. Change to the root directory and run the uninstallation program. The uninstallation program defaults to the same mode that you used for installation, unless you choose a different mode. Enter:

   `cd /`

   - Graphical mode

     `/fnsw/IS_uninstaller/uninstall_is.bin -i gui`

   - Console mode

     `/fnsw/IS_uninstaller/uninstall_is.bin -i console`

   - Silent mode

     `/fnsw/IS_uninstaller/uninstall_is.bin -i silent`

   Important: You must use the uninstall_is.bin command to uninstall the FileNet Image Services software. You cannot use the operating system tools to remove FileNet Image Services.

5. The uninstallation program leads you through the necessary steps and prompts you when it is finished.

   Tip: The uninstallation program leaves certain critical directories intact to protect existing data.

6. After the uninstallation program has finished, go to the `/fnsw` directory and examine the remaining contents. Manually remove any unwanted files (such as the uninstall-output.txt file) and directories.

Appendix B. Installing FileNet Image Services in non-English Environments

IBM FileNet Image Services supports several languages for installation, configuration, error reporting, and indexing.

Refer to the *IBM FileNet Image Services System Administrator's Handbook* for setting the supported language preference for the operating system, databases, and the FileNet Image Services software.

Appendix C. Troubleshooting the installation program

If you encounter any problems during the IBM FileNet Image Services software installation, see the following problems and solutions for additional help.

Problem

Some of the FileNet Image Services files did not copy onto the server correctly.

Solution

Verify that all FileNet Image Services-related programs are shut down.
`/fnsw/client/bin/wal_purge`

Then run the installation again.

Problem

After I start the FileNet Image Services installation program on my server, I get this cryptic message:
`Unable to load input file: /tmp/isj92q67a/jvm`

Solution

You might be logged on as fnsw or some other user. The installation program must be run as the root user. Log on as root user and run the installation again.

Problem

In Graphical mode, the Welcome screen does not display.

Solution

Verify that the DISPLAY environment variable has been set correctly. If you used the su command to log on as root user, the *DISPLAY* variable might not be correct.

1. Check the *DISPLAY* variable by entering:

   `echo  $DISPLAY`

2. Examine the *DISPLAY* setting. Verify that the variable is set to 0:0 to display on your local monitor. If you are installing FileNet Image Services remotely on another server, the *DISPLAY* variable on that server must be set to direct the display to the server you are working from.

Problem

The FileNet Image Services installation program cannot find enough temporary space to proceed with the installation. In Graphical mode, a message displays on the screen and is logged in the log file. In Silent mode, the installation program returns to the command prompt and no log file is created.

Solution

Locate another directory that has the amount of space you need. Then redirect the installation program to that directory by setting the *IATEMPDIR* environment variable to that alternate directory. The alternate temporary directory must be outside the /fnsw directory structure. For example, you might enter:

- In the Bourne shell:

  ```
  IATEMPDIR=/othertemp
  export IATEMPDIR
  ```

- In the Korn shell:

  ```
  export IATEMPDIR=/othertemp
  ```

- In the C shell:

  ```
  setenv IATEMPDIR /othertemp
  ```

Where */othertemp* is the full file path to the alternate temporary directory.

After you set the *IATEMPDIR* variable, run the installation program again.

Problem

When upgrading a clustered FileNet Image Services system to FileNet Image Services version 4.2, the configuration command fn_setup_rdb –u was run before all nodes of a clustered FileNet Image Services system were installed.

Solution

FileNet Image Services on a clustered node can encounter and log read errors regarding therdbup.bin and filenet.podf files. To correct the problem therdbup.bin file and the filenet.podf file (if it exists) must be restored to their old formats through the following steps before continuing upgrades of other nodes:

- Create the trigger file /fnsw/local/tmp/HOLD_CONVERSION. The trigger file is a touch file only. This file causes the creation of the rdbup.bin file to be written in a format prior to the FileNet Image Services version 4.2.
- Force the rdbup.bin file to be written by running Xdbconnect -r and entering the user password.
- Runfn_pso_encrypt_podf -p -o [full path of an output file]. Rename the current filenet.podf file in the /fnsw/local directory to a different name. Copy the specified output file over the filenet.podf file in the /fnsw/local directory.

Important: Data limits and sizes, including password lengths, have increased in FileNet Image Services version 4.2. Except for the case where files must be restored to a format before FileNet Image Services version 4.2, do not update the Programmable Security Objects (PSO) and RDB password data until after fn_setup_rdb -u has been run. This ensures the safe upgrade of the existing data.

Problem

The FileNet Image Services installation terminates with the following exception message:

```
This Application has Unexpectedly Quit: Invocation of this Java Application has caused
an InvocationTargetException. This application will now exit. (LAX)
```

This error occurs because the *DISPLAY* environment variable might have been set to an empty string, which causes the installation program to default to console mode. For example, the following commands were run:

```
export DISPLAY

run <installer binary>
```

where the *<installer binary>* is the installation program file such as *./is_4.2.0_aix.bin*

Solution

Set the *DISPLAY* environment variable and then restart the installation program by doing the following steps:

1. Reset the *DISPLAY* environment variable by entering either of the following commands:

   ```
   unset DISPLAY
   ```

   or

   - In the Bourne shell, enter:
     ```
     DISPLAY=<host_identifier>:0
     export DISPLAY
     ```
   - In the Korn shell, enter:
     ```
     export DISPLAY=host_identifier:0
     ```
   - In the C shell, enter:
     ```
     setenv DISPLAY host_identifier:0
     ```

   where *host_identifier* is the server identifier, either a name or an IP address.

2. Start the installation program in console mode by entering:

   ```
   <installer binary> -i console
   ```

   where *<installer binary>* is the installation program file such as *./is_4.2.0_aix.bin*.

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Index

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