IBM FileNet Image Services
Version 4.2

Installation and Configuration Procedures 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

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

Chapter 1. Getting started

Hardware requirements

Verify that you have satisfied all of the installation hardware requirements for your IBM FileNet Image Services installation.

Use the *IBM Capacity Planning Tool* to estimate your system requirements. This tool helped you design your FileNet Image Services system, and now you can use the tool to verify that your system meets your requirements.

Server memory

Familiarize yourself with the minimum memory requirements for running an IBM FileNet Image Services system. Your servers must have at least the amount of memory shown here.

Root/Index and Application Servers with DB2

- 512 MB memory for each processor in the server.

Root/Index and Application Servers with Oracle

- Oracle 10g - 1024 MB memory for each processor in the server.
- Oracle 11g - 1024 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 the following command on your server.

- HP Integrity:

  `/usr/contrib/bin/machinfo | grep Memory`

Total paging space

The amount of server memory determines the amount of paging space that you need for Oracle and DB2 relational databases.

For DB2, the amount of paging space should be twice the size of physical memory.

For Oracle, the amount of paging space varies as shown in the following table.

Table 1. Required Total Paging Space for Oracle

RAM	Swap Space
Up to 1024 MB	Two times the size of RAM
Between 1025 MB and 2048 MB	1.5 times the size of RAM
Between 2049 MB and 8192 MB	Equal to the size of RAM
More than 8192 MB	0.75 times the size the RAM

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, see the following 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*

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

Temporary space

The installation program needs a certain amount of temporary space for extracting files.
- 500 MB total space in /var/tmp

Tip: If your server does not have enough temporary space, you can direct the installation program to use another directory that does have enough space.

File system space for FileNet Image Services

Each file system requires a minimum amount of available file system space for IBM FileNet Image Services.

FileNet Image Services requires the following minimum amount of free disk space:
- 1000 MB (1 GB) total space in /fnsw
- 500 MB total space in /fnsw/local

Important: If /fnsw/local is not a separate file system, the installation requires 1500 MB (1.5 GB) total space in /fnsw.

In addition, the installation program needs the following amount of temporary space for extracting files:
- 500 MB total space in /var/tmp

Network interface cards and peripheral devices

Check for network interface cards and peripheral devices that are necessary for your IBM FileNet Image Services installation.
- One or more Ethernet interface cards (Media Access Controller Type). Enter types in the "HP-UX Installation Worksheet" on page 23. See the back of the server for the card type.
- The appropriate media devices for the software you are installing. FileNet Image Services software is available as an eSD image or on software CD.
- An X-station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator to use the FileNet Image Services graphical user interface (GUI) capabilities.

Multicultural support

If you are configuring your IBM FileNet Image Services system in a non-English environment, there are several character set and configuration issues of which you must be aware.

See Appendix D, "Installing FileNet Image Services in non-English Environments," on page 113.

Multicultural Keyboard

If you are using a multicultural keyboard, select the keyboard language when you first logon to CDE (Common Desktop Environment). At the logon screen, select **Options** > **Language**. Then choose the appropriate keyboard language from the menu.

Multicultural X Station with keyboard

If you plan to install an HP 700/RX X Station with an AT/2 keyboard, see Appendix H, "HP Multicultural Support," on page 121.

Additional requirements for HP-UX

There are specific hardware requirements for the HP-UX and HP Itanium systems.

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

There are specific HP-UX operating system software requirements.

IBM FileNet Image Services software is compatible with the following HP-UX operating systems:
- HP-UX 11i v2 (64-bit)
- HP-UX 11i v3 (64-bit)

HP-UX version

You need to determine the version of the operating system running on the server.

To determine the version of operating system software running on the servers, enter the `uname -r` *release* command. The result must be:
- B.11.23 (HP-UX 11i v2) or
- B.11.31 (HP-UX 11i v3)

If the version of HP-UX software is earlier than version B.11.23, or if no software has been installed on the system, see Hewlett-Packard documentation.

Enter the `uname -m` *operating_system* command.

On an HP Integrity server, you should see: `ia64`

Verify the character set used by the operating system by entering the `locale charmap` command.

HP-UX patches

Locate the patch requirements for your system on the IBM Information Management support page.

Locate the IBM FileNet Image Services, IBM FileNet Image Services Resource Adapter, and Print Hardware and Software Requirements and review the patch recommendations and requirements athttp://www.ibm.com/software/data/content-management/filenet-image-services/.

Font server for COLD Preview

If you plan to run FileNet COLD Preview software from an X station, configure a Font Server so that fonts display and align correctly on the X station.

Install the Font server on the same server where the COLD software is installed, usually the Storage Library server. To configure the server on which you plan to run FileNet COLD software, go to Appendix J, "Configuring a Font Server for COLD Preview," on page 129.

TCP/IP address

IBM FileNet Image Services software requires that the server have a static IP address.

Use SAM to verify that a specific IP Address has been assigned to the server. Use of a dynamic IP address (DHCP) is not supported.

Software requirements

Verify that you have met all of the installation software requirements for your IBM FileNet Image Services installation.

Server naming conventions

Naming IBM FileNet Image Services servers is an important step when you install your FileNet Image Services system. Server names can have a maximum of 20 characters and must only contain ASCII alphanumeric characters.

Every system resource is identified by a three-part name stored in the Network Clearing House (NCH) database. Do not use nonalphanumeric characters or hyphens. The three parts of the resource name identify an object, a domain (system name), and an organization, in this format:

`object:domain:organization`

The maximum length of a three-part name is 82 characters: 40 for the object, 20 for the domain, 20 for the organization, and two for the colons separating the parts.

Important: When you specify an object from a PC workstation, the maximum length of a three-part name is 79 characters—39 for the object, 19 for the domain, 19 for the organization, and two for the colons. Be aware that when NCH (Network Clearing House) crosses a router to find a server, it could convert the domain name to an IP host name using specific criteria, one of which is dropping the underscore character and all nonalphanumeric characters.

Object name

An object is a resource like a tape, printer, database, software service, logon name, and such. Some object names are created by NCH_tool, while other objects have names predefined by the system.

DefaultIMS is an example of a predefined object name. DefaultIMS is used to access the index database.

Domain name

The domain (or system) name is set up at IBM FileNet Image Services system configuration time by using the **fn_setup** tool.

In a multiserver system, each server has a different server name, so the domain name is usually the server name of the Root/Index server.

Organization name

The third part of the NCH resource name is the organization name, which can be your company or department name, such as ExampleCo.

The organization name is case sensitive and must not exceed 20 characters. Your organization name can be registered with the American National Standards Institute (ANSI) for a fee. For more information, go to http://www.ansi.org and search for "organization name." ANSI requires that the name be alphanumeric: letters and numbers only. Registering your organization name ensures that it will be unique in the LDAP naming hierarchy.

FileNet Image Services software image

Download the IBM FileNet Image Services and COLD software to your system.

FileNet Image Services & COLD™ 4.2 for HP Integrity

Relational database management software

There are several versions of relational database management system (RDBMS) software supported with IBM FileNet Image Services. Your Database Administrator is responsible for installing the appropriate version of RDBMS software.

DB2 RDBMS software (client)

Your server must have a supported version of the DB2 RDBMS software to run IBM FileNet Image Services software.

Attention: The DB2 RDBMS software is not supplied with FileNet Image Services.

See the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software* for more information. To download these guidelines from the IBM support page, see "ibm.com and related resources" on page vii.

Oracle RDBMS software

Your server must have a supported version of the Oracle RDBMS software to run IBM FileNet Image Services software.

Attention: The Oracle software is not supplied with FileNet Image Services.

See the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers* for more information.

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

Debugging software

Debugging software enables support personnel to troubleshoot both IBM FileNet Image Services and operating system problems. If debugging software is installed on your FileNet Image Services, it must be installed on each server.

Debugger - HP-UX

There are two HP-UX debuggers supported with IBM FileNet Image Services.

The following two HP-UX debuggers are supported with FileNet Image Services:

- Debugger - HP-UX (WDB: The HP Wildebeest debugger)
  - WDB, the HP Wildebeest Debugger 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 C++, and Fortran 90 on HP-UX 11i v1.6 and later for HP Integrity servers (Itanium®-based).
  - HP WDB is the preferred debugger for Integrity systems running HP-UX 11i v2, or HP-UX 11i v3.
  - HP WDB GUI, the graphical front end for HP WDB, is supported on Integrity systems.

  Attention: 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.
- Debugger - HP-UX (GDB: The GNU project debugger)
  - 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.
  - The program being debugged can be written in C, C++, Pascal, Objective-C (and many other languages). Those programs might be executing on the same machine as GDB (native) or on another machine (remote).

  You can download the current version for no charge from http://www.gnu.org/software/gdb/. Documentation is also available for download.

Multicultural support

When you install the operating system, select the character set you plan to use with IBM FileNet Image Services and your relational database software, such as DB2 or Oracle. Likewise, when you install the relational database software, select the same character set as you did for the operating system.

Important: You must select the same character set for each software product that you install so that the character sets do not conflict.

When you install the FileNet Image Services software, select the appropriate character set on both the **System Attributes** tab in the **System Configuration Editor** and on the **Relational Databases/DB2** tab or the **Relational Databases/Oracle** tab. Later, when you create indexes, document classes, and media families, you will be able to use the appropriate alphanumeric characters for your locale.

- Folders are created and named using Desktop client software. Because the folders are stored in the index database, their names must also use the Windows

code page character set that is the equivalent of the character set used by the RDBMS and the FileNet Image Services software on the FileNet Image Services server.

- For FileNet Image Services systems configured with Western European character sets, valid alphanumeric characters must be in the 7-bit ASCII range. For FileNet Image Services systems configured with non-Western European character sets, any valid 8-bit alphanumeric character is acceptable.

- Both Western and non-Western 8-bit character sets (character values range from 0 to 255) have valid alphanumeric characters above the ASCII range. ASCII characters occupy the first half of all 8-bit character sets and range in value from 0 to 127. Non-ASCII characters have values ranging from 128 to 255.

See Appendix D, "Installing FileNet Image Services in non-English Environments," on page 113 for more information.

Heterogeneous support

It is important to be aware of the considerations when IBM FileNet Image Services uses different operating systems.

FileNet Image Services systems can be composed of servers that use a combination of different operating systems. However, the following limitations apply:

- A FileNet Image Services Root/Index server and Storage Library server must use the same operating system platform.

- An Application server that uses the Windows operating system can be configured with any UNIX or Windows FileNet Image Services system.

- A remote relational database server can use an operating system that is different from the FileNet Image Services Root/Index server and Storage Library server.
  - Oracle relational databases can be installed on either local or remote UNIX or Windows servers.
  - Oracle relational databases can also be installed on remote Linux servers.

For example, within these limitations, the main FileNet Image Services system can be composed of UNIX servers, while a remote relational database server can be either a UNIX or a Windows server. Conversely, the main FileNet Image Services system can be composed of Windows servers, and a remote relational database server can be either a UNIX or a Windows server.

Related documentation

Other documents that contain information related to the installation of IBM FileNet Image Services are available on the IBM support site.

To view these documents, see "ibm.com and related resources" on page vii.

- *IBM FileNet Image Services System Administrator's Handbook*
- *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*
- *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 and Retrieval Procedures and Guidelines*

Important: For primary information about DB2 or Oracle products, see the documentation that came with your relational database software.

Chapter 2. System Administrator Tasks - HP-UX

Put your short description here; used for first paragraph and abstract.

The following list summarizes the tasks that the System Administrator must complete.

1. Operating System Requirements
2. Check kernel parameters
3. Check swap space
4. Configure a TTY port for the serial robotic arm of a FileNet OSAR library
5. Extend the Root volume group (optional)
6. Create the FileNet Volume group (fnvg) (optional)
7. Update the /etc/hosts file
8. Create the fnadmin and fnop groups
9. Create FileNet users and fnusr group
10. Create file systems

The system administrator or your service representative will gather specific information about each server comprising the FileNet Image Services system.

Operating system requirements

Check the version of the HP operating system by performing the steps in this section on all servers.

Log on as a user with root privileges to check and gather the information in this section.

Check Server Memory

Checks the amount of memory available on your server.

About this task

Perform the steps in this section on all servers.
- Log on as a user with root privileges to check and gather the information in this section.
- Verify that the HP Integrity Server has at least 512 MB of memory.

Procedure

1. Enter the machinfo command and grep for the Memory line.
   ```
   /usr/contrib/bin/machinfo | grep Memory
   ```

   Note: If you have, or are going to have, an X Station on your system, you need to verify that your X Station also has enough memory to run the necessary FileNet applications (for example, COLD).
2. Enter your system memory in the "HP-UX Installation Worksheet" on page 23.

Verify HP-UX Debugger

Debugging software enables support personnel to troubleshoot both IBM FileNet Image Services and operating system problems. If debugging software is installed on your FileNet Image Services, it must be installed on each server.

For more information, see "Debugger - HP-UX" on page 6.

Verify HP-UX patches

Verify HP-UX patches

After installing HP-UX 11i, go to the IBM Information Management support page and locate the IBM FileNet Image Services,IBM FileNet Image Services Resource AdapterImage Services Resource Adapter, and Print Hardware and Software Requirements. To download this document from the IBM support page, see "ibm.com and related resources" on page vii.

Select your operating system from the list, and review the patch requirements. Verify that the most recent patch bundle has been installed. For example:

- HP-UX 11i v2 (11.23) (PA-RISC & Itanium) Standard Patch Bundles Dec. 2007
- HP-UX 11i v3 (11.31) (PA-RISC & Itanium) Standard Patch Bundles Sept. 2007/Mar. 2008

Note: Note HP periodically updates its patches, so be sure to check for the latest requirements.

Check the operating system kernel limits

You can use SAM or the kctune command to check the operating system kernel limits.

Procedure

To check the kernel parameters:

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

   Tip: On HP-UX 11i v2 and v3 systems, 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 a user with root privileges, enter: `sam &`
   b. Select the **Kernel Configuration** option.
   c. Then select the **Kernel configuration (character mode)** option, select (highlight) the **t - Tunables** option, and press **Enter** to view the **Current Value** for the kernel parameters in the following order:

   Important: If the kernel parameters on your server are larger than the minimum values shown in the following table, DO NOT lower them. However, if the values are smaller than any of these preferred 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. Optimal kernel parameter settings

Kernel parameters	HP Integrity minimum settings
maxdsiz	268435456 (256 MB) 0x10000000 hex
maxfiles	1024
nproc	1005
maxuprc	400
nfile	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
semmns	2000
semmni	2000
semmap	2002
shmmax	536870912 (512 MB) 0x20000000 hex
shmseg	120
semmnu	1000
semume	500
msgmni	2048
msgseg	16384
msgtql	6640
msgmap	msgtql + 2
dbc_max_pct	30 or less **
dbc_min_pct	5

[1]

Important: These specific parameter values reflect requirements for the IBM FileNet Image Services software only. If you receive a **dependency error** when changing any of these parameters, change the dependent parameter.

If the values displayed by SAM are smaller than any of the values shown above, increase them.

On servers with DB2 software installed, verify these settings:

Table 3. DB2 optimal kernel parameter settings

Kernel parameters	Minimum settings
msgmnb	65535
msgmax	65535

You must also verify the timezone setting for your location:

Table 4. Timezone kernel parameter setting

Kernel Parameters	Default Setting
timezone	420*

---

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

*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, you should 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 make any changes to these kernel parameters, you can 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 substeps:

   a. Select (highlight) the parameter you wish to change (for example, maxfiles).

   b. Select **m** (Modify).

   c. In the popup window that displays, locate the **New setting[Expression/Value]** field.

   d. In the **New setting[Expression/Value]** field, type the new value.

   e. Use the down arrow to get to the [Modify] option and press **Enter**. When the popup window disappears, you should see the new expression/value. Press the **Enter** key again to continue.

   f. Repeat substeps a through e for each parameter you need to 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 substeps:

   a. Select the **Kernel configuration (character mode)** option, and select (highlight) the **r - Restart System** option and press **Enter** to apply the changes you just made to the kernel parameters.

   b. In the popup window that displays, you should see the list of tunables/modules that are being held until the system is restarted. Select **r** (Restart System).

   c. On the next screen, enter the grace time in seconds or accept the default of 60. Press **Enter** and select **y** 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 Image Services utilities can report the time correctly. In Step 2, you verified that the **timezone kernel** parameter was set correctly.

   a. Now you must 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.)

Check swap space

Use SAM to check and set the amount of swap space. The preferred amount swap space is based on the amount of server memory. Check to see that the total swap

space size is set to at least 1000 MB. If there is more than one swap space, verify that the total of all of the swap spaces is greater than or equal to **1000 MB**.

Procedure

To check the swap space:

1. On the **Disk and File Systems** menu of SAM, select (highlight) the **Swap** option.

   Compare the amount of swap space available with the values in the following table.

RAM	Swap Space
Up to 1024 MB	2 times the size of RAM
Between 1025 MB and 2048 MB	1.5 time the size of RAM
Between 2049 MB and 8192 MB	Equal to the size of RAM
More than 8192 MB	0.75 the size of RAM

   If the total amount of swap space is equal or greater than the minimum required, skip to Step 10.

   If you need to add more swap space, continue with the next step.

2. Return to the **Disk and File Systems** menu and select the **Logical Volumes** option. The **Logical Volumes** menu displays.

3. From the **Action** menu, select the **Create** option and then press **Return**.

4. Click the **Select a Volume Group** option, and then select the appropriate volume group (for example, **vg00**). Click **OK** and press **Return**.

5. Click the **Define a New Logical Volumes** option. In the **LV Name** field type the name of the additional swap space logical volume (for example, **swap2**).

6. In the **LV Size (Mbyte):** field type the size of your logical volume. For example, if the server has 1 GB of memory, you can determine what number to enter into this field by completing the following formula:

	is the amount of memory currently installed in the server
current RAM	
multiplier	is 2 (or 1.5 if <current RAM> is between 1025 MB and 2048 MB
current swap size	is the amount of swap space already configured on this server
# Mbytes	is the amount of swap space you need to add

7. Click on the **Usage:** field and select **Swap Device**.

8. Click the **Swap Priority:** field and select **1**. Click **Add** and then click **OK**.

9. Click **OK** again to create the logical volume. The new swap logical volume displays in the Define New LV window.

10. Return to the main **System Administration Manager** menu of SAM.

System configuration issues

System configuration issues

Perform the steps in this section on these servers:
- Root/Index and Storage Library server during a Dual server installation.
- Root/Index/Storage Library server during a Combined server or Entry server installation.
- Application server during an Application server installation.

At this point, you must log on as a user with **root** privileges and use SAM to verify several configuration issues.

Note: Throughout this section, you will see the mention of **<volume group>**. You must determine what to name your volume groups (vg00, for example), how many you will have, and what software you will install on which **<volume group>**. The number of disk drives you have on your server will help determine your number of volume groups.

Extend the root volume group

Extend the root volume group

About this task

To extend the Root *Volume Group*; (**vg00**) by adding a second disk to the volume group, and you are not going to install FileNet software datasets in a new volume group, complete this section. To create a volume group for your FileNet Image Services data sets (**fnvg**) on a separate disks, skip this section.

Use SAM to extend the Root *Volume Group* (**vg00**) by completing the following steps:

Procedure

To extend the volume group:
1. At the System Administration Manager menu of SAM, select the **Disks and File Systems** option.
2. From the Disk and File Systems Manager menu, select the **Volume Groups** option.
3. From the Action menu, select the **Create or Extend** option.
   - Extend the Root *Volume Group* (**vg00**).
   - Select the disk to which you want to extend the volume group.

Create the FileNet Image Services volume group

Create the FileNet Image Services volume group

About this task

This section contains instructions for creating an optional volume group for your FileNet Image Services data sets (**fnvg**).

If you extended the Root *Volume Group*; (**vg00**) in the previous section, and you are going to install both the FileNet software and the FileNet data sets in vg00, skip this section.

Note: Note If you choose to create an optional fnvg volume group, install all software on the root volume group Disk (such as **vg00**), and install the FileNet Image Services data sets on the other Disks (such as **fnvg**).

In this section you will use SAM to create the FileNet *Volume Group* and name it **fnvg**.

Procedure

To create the FileNet volume group:

1. You should already be at the System Administration Manager menu of SAM. Select the Disks and File Systems option, and press **Return**.
2. From the Disk and File Systems Manager menu of SAM, select the **Volumes Groups** option.
3. You need to create a *Volume Group*; for the FileNet Image Services data sets (**fnvg**, for example). From the **Action** menu, select **Create or Extend**.
4. At the **Select a Disk** window, select the disks you want to add within the volume group.
5. At the **Add a Disk Using LVM** screen, select the **Create or Extend a Volume Group ...** option.
6. At the **Create a Volume Group** screen, decide a name for the new *Volume Group* (for example, **fnvg**) and type this name in the **Volume Group** name field and click **OK**.
7. At the Add a Disk Using LVM screen, click **OK**.
8. When you see a Note saying the volume group has been successfully created or extended, click **OK**.
9. The new volume group (**fnvg**) now displays in the **Disk and File Systems** menu. This information can be viewed in more detail by using the **vgdisplay** command. Enter:
   ```
   vgdisplay -v
   ```

Update the /etc/hosts file

Update the /etc/hosts file

Perform the steps in this section on **all servers**.

The /etc/hosts file must contain the four-part NCH service name of the local server. If an entry for your local server does not exist, you can add one now.

The general format of a hosts file entry is:

IP_address_of_IS_Domain IS_server NCH_four_part_service_name

For example:
```
IS Root/Index server IP address: 192.0.2.12
IS Root/Index server name: titian
IS Domain name: Titian:Yourco
```

The hosts file entry looks like this:

```
192.0.2.12          titian          titian-yourco-nch-server
```

If your FileNet Image Services system will be communicating with other FileNet Image Services domains, your /etc/hosts file might resemble the following example:

```
192.0.2.12                          titian          titian-yourco-nch-server
192.0.2.16                  bassanio          bassanio-yourco-nch-server
192.0.2.18                  atelier          atelier-yourco-nch-server
2001:DB2:FE80::2C0:FE35:9FFF:D28    atelier          atelier-yourco-nch-server
192.0.2.22                  sienna          sienna-yourco-nch-server
192.0.2.23                  vermeer          vermeer-yourco-nch-server
2001:DB2:2638::927:2638::          vermeer          vermeer-yourco-nch-server
2001:DB2:fe80::fefe:0927:2638::    vermeer          vermeer-yourco-nch-server
```

Important: Your hosts file might contain a combination of the familiar IPv4 network addresses and the more recent IPv6 network addresses. The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, FE80::2C0:FE35:9FFF:D28).

Create FileNet Image Services users and groups

Follow these procedure to create the fnadmin, fnop and fnusr groups.

Create fnadmin and fnop groups

Create fnadmin and fnop groups

About this task

Use SAM to create three groups; first the **fnadmin** group, then the **fnop** group, and finally the **fnusr** group:

- Members of the **fnadmin** group have the highest privileges. This group is reserved for System Administrators who must be able to make configuration changes, run diagnostics, and restore backups. Members of this group can read, write, and execute the FileNet Image Services software.

- Members of the **fnop** group are FileNet Operators. They have privileges to start and stop the FileNet Image Services software, perform backups, and run other everyday operation activities. Members of this group also have access to diagnostic and hard-coded passwords, such as MKF_tool and CSM_tool. Members of fnadmin group should also be members of this group.

- Members of the **fnusr** group, which will be created when you add the FileNet software user such as **fnsw** in the next section, can operate any FileNet software, including COLD. All administrators and operators must belong to this group.

Note: Members of the fnadmin and fnop groups should also be members of the fnusr group and the dba group in the next section.

Use SAM to set up the fnadmin and fnop users and groups.

Procedure

1. At the main System Administration Manager menu of SAM, select the Accounts for Users and Groups option.
2. Click the Groups option.
3. From the Action pull down menu, select **Add**.
4. On the **Add a New Group...**

    In the Group Name field, type **fnadmin**

In the **Users to Include in Group** field, select a user with administrative privileges, such as **root**. (Also select the names of any other users you wish to include in this group.)

5. Click **OK** button to create the **fnadmin** group.
6. Click **OK** at the Message screen to return to the Groups menu.
7. Once again, from the Action menu, click **Add**.
8. On the **Add a new group screen, ...**

   In the Group Name field, type **fnop**.

   In the **Users to Include in Group** field, if you wish to include the names of any existing users in this group, click on those users to select them.
9. Click **OK** to create the **fnop** group.
10. Click **OK** at the Note screen.
11. Return to the Accounts for Users and Groups screen.

Create FileNet Image Services users and the fnusr group

Use SAM to create FileNet Image Services users and the fnusr group. (There are no RDBMS users and groups on a Storage Library Server).

About this task

Important: Although using SAM to create users and groups is the preferred method, SAM makes it difficult to assign a primary group to a user. If you encounter this difficulty, you can edit the /etc/group file instead.

Procedure

To create FileNet Image Services users and the fnusr group:

1. If you are not already there, navigate to the Accounts for Users and Groups screen.
2. To create new users, click the **Users** icon. The Users window displays.
3. On the Action pull down menu, click **Add**.
4. In the **Add a User Account** window, type a name for the FileNet software user, such as fnsw, in the Login Name field and verify that the Create Home Directory option is checked.
5. Click on the **Primary Group Name** button and type the users primary group (for example, fnusr). Since the fnusr group does not exist yet, this will create it. (When you are prompted to create a new group, click **Yes** to create it.) Click **OK** to continue.

Group Name	Required Members	Group Description
fnusr	<fnsw>, root, <dba user>	Members can operate any FileNet Image Services software (including COLD). All operators and administrators must belong to this group.
fnadmin	<fnsw>, root	Members can perform administrative functions. Administrators must belong to this group to change configuration, perform diagnostics, or restore backups.

Group Name	Required Members	Group Description
fnop	<fnsw>	Members can start and stop all FileNet Image Services software (including COLD). Administrators must also belong to this group.

Tip: To log in as a specific user and want to run the FileNet tools and software, you need to add this user into the fnadmin and fnop groups.

If Oracle software is installed on the local server, you also need to create a <dba group>, such as oragrp.

Group Name	Members	Group Description
<dba group>	<dba user>, <fnsw>	The Database Administration group <dba group> and user <dba user> are created by the Database Administrator. The FileNet Image Services user, fnsw, needs to be a member of the <dba group>.

6. Click the **Start-Up Program** button and select the users start-up program (shell) from the list. Click **OK** to continue.

7. Fill in the other optional fields as desired.

8. Click the **Set Password Options** button and select the appropriate password behavior option from the drop-down list. Click **OK** to continue.

9. In the Set User Password window, type the user password. Click **OK**.

10. Re-type the password and click **OK** again.

11. When the Note screen displays to let you know the user has been added to the system, click **OK** to continue.

12. Select the **fnadmin** group.

13. On the **Action** menu, select **Modify**. Then in the **Users not in Group** field, select the FileNet Image Services software user, such as fnsw. Click **Add** to add this user to the fnadmin group.

14. Click the **OK** button to modify the fnadmin group. Also click **OK** at the message screens until you return to the Accounts for Users and Groups screen.

15. Repeat Steps 12 through 14 for the fnop and fnusr groups (and <dba group>, if present on this server) and add the users as indicated above.

16. Exit the Groups screen and return to the **System Administration Manager** main menu.

File system sizes

Determine how large the file systems need to be, in Megabytes. A certain portion of disk space is lost during the creation of a file system, depending on the type of file system selected. Verify that the total amount of space in each file system is equal to or greater than these minimum sizes.

Table 5. Minimum sizes for HP-UX file systems and volumes

FileNet Logical Volume Name	Usable File System Space (MB)	Minimum Logical Volume Size (MB)	Your Logical Volume Size (MB)	Mount Directory
fnsw (All servers)	500	510		/fnsw
local (All servers)	500	510		/fnsw/local
fn_cache0	100	100		/fnsw/dev/1
fn_permanent_db0	100	100		/fnsw/dev/1
fn_permanent_rl0	64	64		/fnsw/dev/1
fn_transient_db0	320	320		/fnsw/dev/1
fn_transient_rl0	256	256		/fnsw/dev/1
fn_sec_db0	64	64		/fnsw/dev/1
fn_sec_rl0	64	64		/fnsw/dev/1

Create logical volumes and file systems

Create the `/fnsw` and `/fnsw/local` file systems using the sizes determined by the IBM Capacity Planning Tool.

About this task

Perform the steps in this section on all servers.

Procedure

To create the logical volumes and file systems:

1. Verify that you are at the System Administration Manager menu of SAM.
2. On the **System Administration Manager** menu, select the **Disks and File Systems** option.
3. From the **Disk and File Systems Manager** menu, select the **Logical Volumes** option.
4. From the **Action** pull down menu, select the **Create** option.
5. Select the appropriate volume group for logical volume you are going to create and click **OK**.
6. Press **Return** at the Define new Logical Volumes field.

   Fill in the LV Name field with the Logical Volume Names (begin by typing in **fnsw** for the first Logical Volume entry listed in FileNet Logical Volume Sizes table above.) Add the logical volume name for **local** as well.
7. See the **Minimum Logical Volume Size (MB)** column in **FileNet Logical Volume Sizes** table in the previous section for the suggested logical volume sizes. See the **Your Logical Volume Size (MB)** column for your selected logical volume and then type the `Size in MB` for the logical volume you are adding in the **LV Size (Mbytes)** field.
8. Select **VxFS** (Journaled) File System.
9. Click **Modify FS Defaults**.

   Verify that the following **When to Mount** options are checked:
   - Now

- Every System Boot

10. Also verify that Enable Set User ID Execution is checked.

11. Set the Usage: field to **File System**, and type in the file system mount directory. Then click **Add**.

12. Repeat Steps 3 - 11 for all the file systems you need to create.

13. When you are finished adding all the File Systems, click **OK**.

14. At the Create New Logical Volumes screen, click **OK**.

15. At the Logical Volumes screen, the new logical volumes are listed on the display.

Determine dataset sizes

Determine dataset sizes

Determine how large the datasets need to be, in Megabytes, and which volume group to install each dataset on.

The dataset names map to raw Logical Volume names as follows:

Table 6. Raw Logical Volume for Datasets

Dataset	Raw Logical Volume
cache0	fn_cache0
permanent_db0	fn_perm_db0
permanent_rl0	fn_perm_rl0
transient_db0	fn_trans_db0
transient_rl0	fn_trans_rl0
sec_db0	fn_sec_db0
sec_rl0	fn_sec_rl0

The FileNet datasets should reside in the **fnvg** volume group unless you have a single disk drive. In the case of a single disk drive, use the **vg00** volume group. Complete the following table appropriately for your system.

Note: Each of your servers should have at least three magnetic disks (one for the vg00 volume group and at least two for the fnvg volume group, or whatever you name it, in which the master database resides). Mirroring this database will minimize your downtime and avoid interruption of business in the event of a hardware failure.

Table 7. Minimum Size for Datasets

Dataset	Minimum Size (MB)	Your Actual Size (MB)	Volume Group
cache0	100		
permanent_db0	100		
permanent_rl0	64		
transient_db0	320		
transient_rl0	256		
sec_db0	64		
sec_rl0	64		

Note: The actual minimum dataset size depends on how the volume manager configures the partitions. They can be multiples of 16 or 32.

When you are setting up an Application server, logical volumes or file systems will be created so they apply to the services that are being configured as shown in the table below - (fs) - File System:

Table 8. Logical Volume Requirements

Logical Volume	Batch Entry/ Print/Cache	SQL/ WorkFlo Queue	Storage Library
Cache0	X		X
transient_db0	X		X
transient_rl0	X		X
permanent_db0			X
permanent_rl0			X

Creating logical volumes for Image Services data sets

Use SAM to create the logical volumes for IBM FileNet Image Services MKF data sets

Procedure

To add logical volumes for FileNet Image Services datasets:

1. From the **System Administration Manager** menu of SAM, select the **Disks and File Systems** option and press **Return**.
2. From the **Disk and File Systems Manager** menu, select the **Logical Volumes** option. When the entry is highlighted press **Return**.
3. From the **Action** pull down menu, select the **Create** option.
4. Select the appropriate volume group for logical volume and click **OK**. Click **Return** at the **Add new Logical Volumes** field. See the "HP-UX Installation Worksheet" on page 23 to see the listing of the volume groups.
5. Fill in the LV Name field with the Logical Volume Names (for example, type in fn_cache0 for the first Logical Volume entry listed in the table in step 8). Add logical volume names for all of the applicable logical volumes listed in the table.
6. See the **Minimum Size (in MB)** column of the table in step 8 for the minimum logical volume sizes. Refer to the **Size (MB)** column for your selected logical volume and then type the **<in MB>** for the logical volume you are adding in the **LV Size (Mbytes)** field.
7. In the Usage field, display the options (File System, Swap, or None). Select **None**, and press **Return**. Then tab to **add**, and press **Return**.
8. Repeat Steps 3-7 for all of the logical volumes you need to create on each server.

Logical Volume Name	Combined Server	Root/Index Server	Storage Library Server	Minimum Size of Logical Volumes (in MB)	Your Size (in MB)
fn_cache0	x	-	x	100	
fn_perm_db0	x	-	x	100	

fn_perm_rl0	x	-	x	64	
fn_trans_db0	x	-	x	320	
fn_trans_rl0	x	-	x	256	
fn_sec_db0	x	x	-	64	
fn_sec_rl0	x	x	-	64	

> **Note:** Note The minimum logical volume sizes on your server might be slightly higher, depending on the server type and its configuration. (For example, fn_cache0 could be 112 MB instead of 100 MB.) If you are going to increase the size of any of the logical volumes, you must increase the size by a multiple of the minimum logical volume size.

9. When you are finished adding all the logical volumes, click **OK**.
10. On the Create New Logical Volumes screen, click **OK**.
11. On the Logical Volumes screen, the new logical volumes are listed.
12. Exit SAM and return to the system prompt.

Modify the port settings (optional)

You can optionally set up the `/sbin/rc2.d/S340net` file to improve the throughput of your IBM FileNet Image Services system. Perform the steps in this section on all servers.

About this task

This addition expands the number of available ephemeral ports and reduces the time-out delay. This addition is not required, but has been found to be optimal when runningFileNet Image Services software. Make these changes unless you have set these options for other system reasons:

- Ephemeral ports are temporary ports assigned by the IP stack on the server, and are assigned from a designated range of ports for this purpose. When network traffic is extremely heavy, it is possible to run out of ephemeral ports unless you specify a wider range of port numbers in `/sbin/rc2.d/S340net`.
- The **tcp_time_wait_interval** parameter determines the length of time the server waits before reusing a closed ID socket. Although the default value is typically around 240000 milliseconds (four minutes), this parameter can safely be reduced to as little as 30000 milliseconds (30 seconds) on high-speed networks.

Procedure

To modify the port settings:

1. As a user with root privileges, use your preferred text editor (such as vi) to edit the `/sbin/rc2.d/S340net` file.
2. Add the following lines to the end of the file:
   ```
   ndd -set /dev/udp udp_smallest_anon_port 42767
   ndd -set /dev/udp udp_largest_anon_port 65535
   ndd -set /dev/tcp tcp_smallest_anon_port 42767
   ndd -set /dev/tcp tcp_largest_anon_port 65535
   ndd -set /dev/tcp tcp_time_wait_interval 30000
   ```
3. Save your changes and exit. These changes will go into effect when the server is restarted.

HP-UX Installation Worksheet

HP-UX Installation Worksheet

This section contains a worksheet to record system information for your service representative to use during the Image Services software installation and configuration.

Perform the steps in this section on these servers:
- Root/Index server during a Dual server installation.
- Root/Index/Storage Library server during a Combined server or Entry server installation.
- Application server if adding an Application server to your system.

System information

System information

Procedure

- Obtain the following user name information:

  You can accept the standard names for the Image Services user or database users or you can choose your own.

Standard User Name	New User Name (optional)	Password
fnsw The primary user and administrator of the Image Services software.		
f_sw The primary user of the Image Services relational databases and eProcess.		
f_maint Used by GDB_exim, a generic database export/ import utility. Also used for troubleshooting the relational database.		
f_sqi Used to access features of IS Toolkit and IS Process Analyzer.		
f_open The default database logon user used by the SQI subsystem of IS Toolkit.		

- Version of the HP-UX operating system software:_____ (use uname -r) (needs to be version **B.11.11, B.11.2**3, or **B.11.31**, for example)
- Character set used by the operating system:_____ (USASCII7, ISO8859-1, ISO8859-2, for example) (use **locale charmap**)
- Media Device Types (CD-ROM, DAT Cartridge, 8mm, for example):

  Device Types: _____

  Device Driver Names (path):_____(use **ioscan -fn**) (**/dev/dsk/c2t2d0** for CD-ROM, for example) (**/dev/rmt/0m** for tape, for example)
- System memory (in MB):_____(use **/usr/contrib/bin/machinfo**)
- FileNet Domain Name:_____ Organization Name:_____

- System Serial Number (ssn):_____

  Important: The ssn is written onto all storage media and **must** be unique for each Image Services system. If you have more than one 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. The valid range of SSNs is 1000 through 2147483646.
- Media Access Controller Type (Ethernet, FDDI, for example)

  _____

System server information

System server information

The server names, network addresses, and descriptions of servers comprising this Image Services system. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **192.0.2.20**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:DBA:0:1::2008:6**). The description can be Combined, Root/Index, Storage Library, Application, etc.

Make sure the server's name, IP address, and the IP addresses of any remote systems that will be connected are properly configured in the /etc/hosts file, or with NIS. This is especially important if your system is using IPv6 protocol.

Table 9. Server Information

Server Names	Network Address	Description

Printer server information

Printer server information

If your Image Services system contains a Printer Server, record the NCH Name, Printer Type, and Printer Server IP Address for all of the printers on the system. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **192.0.2.15**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:DB8:0:1::2008:6**).

Table 10. NCH Names, Printer Types, and Printer Server IP Addresses

NCH Name	Printer Type	Printer Server IP Address

NCH Name	Printer Type	Printer Server IP Address

Storage library server information

Storage library server information

Procedure

To determine storage library unit connections:

1. Determine the number of storage library units that you plan to connect to the Image Services system (up to 8 per server; 64 per system),(1-8): _____

   Important: Verify that the SCSI adapter card is configured for a **maximum of 80 MB/second** data transfer for best optical library performance. See Appendix I, "Setting the maximum data transfer rate for SCSI host bus adapters," on page 125

2. Collect the following information for each Storage Library on your system:
   - Storage Library Type (HP Autochanger, FileNet OSAR Library, Plasmon ODU, for example):_____
   - Bus Device Location: _____ (Skip this if your system does not have a bus converter.)
   - SCSI Board Slot ID: _____
   - Number of Optical Drives: _____
   - If you have a FileNet OSAR Library and it has an RS-232 ARM device, collect the following information:
     – Logical Unit Number of RS-232 port:_____
     – RS-232 of TTY port number (0-31): _____
   - For each Optical Drive in the Storage Library, collect the following information:
     – SCSI Board Slot ID: _____ (This number is usually the same as the Library Slot ID above.)
     – Optical Drive Type: _____ (This can be C1716T, and so on)
     – Optical Drive SCSI ID: _____ (See the storage library manual for instructions on how to obtain the SCSI ID for each library device.)
     – Optical Drive Logical Unit (LU) Number: _____ (This number is usually 0, unless you have a FileNet OSAR library, which is configured as "Master/Slave." Then the LU number of the Master drive would be 0 and the Slave drive would be 1.)

Cache percentages

Use the *IBM Capacity Planning Tool* to determine the minimum and maximum sizes (percents) for the following caches:

Table 11. Cache Information

Cache Type	Default Size Min./Max.(%)	Min. Size (%)	Max. Size (%)
Retrieval	20% / 20%		
System Print	10% / 20%		
Application Print	10% / 30%		
Batch	10% / 60%		

Chapter 3. Installing the relational database software

The Database Administrator is responsible for installing the appropriate version of the Relational Database Management software.

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

IBM FileNet Image Services on HP Integrity supports the following two Relational Database Management Systems. Skip to the section for the one that is going to be installed on this FileNet Image Services system:
- "Installing IBM DB2" on page 28
- "Oracle 10g and Oracle 11g"

For more information, see the appropriate document:
- *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*

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

Oracle 10g and Oracle 11g

After Oracle has been installed, the Database Administrator must provide Oracle variables and table space information.

Oracle variables

Your IBM FileNet Image Services system has Oracle variables that must be determined and configured along with password information.

$ORACLE_HOME: _____

$ORACLE_SID: _____

Oracle user name:_____

DBA group name: _____

f_sw password: _____

f_sql password: _____

f_maint password: _____

f_open password: _____

Table space names and sizes

Your IBM FileNet Image Services system can be set up with the standard table space names and the minimum table space sizes.

Table 12. Table space name and size information

Standard table space names	Table space name you assign	Minimum table space size (MB)	Table space size you create (MB)
fnsys_ts		200	
fntmp_ts		400	
fnidx_ts (optional for indexes)		200	
fnusr_ts (optional for WorkFlo Queue Services)		200	

After you have this information, you are ready to install the IBM FileNet Image Services software, continue with Chapter 4, "Installing FileNet Image Services software," on page 31.

Installing IBM DB2

The Database Administrator is responsible for installing the DB2 software and creating the DB2 database for IBM FileNet Image Services.

- The DB2 server software must be installed on a dedicated remote AIX or Solaris server. See Chapter 2 of the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software* for further information.
- The DB2 client software must be installed on the FileNet Image Services server and linked to the remote DB2 database. See Chapter 3 of the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software* for details.

You can give the DB2 Guidelines document to the Database Administrator. To download the guidelines from the IBM support page, see "ibm.com and related resources" on page vii.

Gathering DB2 database information

The Database Administrator must provide system-specific user information and table space information associated with the DB2 database. This information includes default user and group names and table space names with minimum sizes.

After DB2 has been installed, the Database Administrator must provide the following information.

Table 13. User information

Owner/User	Default user name	User name you choose	Default group name	Group name you choose
Instance Owner	**db2inst1**		**db2iadm1**	
Fenced user	**db2fenc1**		**db2fadm1**	
DB2 Administrator server user	**db2as**		**db2asgrp**	

Table 14. Tablespace information

Standard table space name	Tablespace name you assigned	Minimum size (MB)	Tablespace size you create (MB)
userspace1		200	

```
f_sw password: _____

f_sqi password: _____

f_maint password: _____

f_open password: _____

DB2 Database Alias Name: _____   (indexdb, for example)

User Tablespace location: _____   (userspace1, for example)
```

After you have this information, you are ready to install the IBM FileNet Image Services software, continue with Chapter 4, "Installing FileNet Image Services software," on page 31.

Chapter 4. Installing FileNet Image Services software

The System Administrator is responsible for completing the tasks in this chapter. As part of installing the IBM FileNet Image Services software, install the user environment templates, set up passwords, and set file ownerships and permissions.

This chapter explains how to install the FileNet Image Services software. It covers software installation issues that include:

- Double-checking the connection to a remote relational database, if necessary.
- Installing FileNet Image Services software
- Installing the user environment templates
- Setting up FileNet Image Services passwords
- Setting file ownerships and permissions

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

Checking the connection to a remote Oracle database

If the Oracle database is located on a remote server, set a system environment variable, **LOCAL** equal to the **GLOBAL_DBNAME** set in the `tnsnames.ora` file.

About this task

Perform the steps in this section only on servers with Oracle Client software. Check the connection between the Oracle Client and the remote Oracle database.

Procedure

To verify that the internal Oracle networking is active and functional:

1. Enter a `sqlplus` command in this format: `sqlplus` *user*/ *password*`@`*GLOBAL_DBNAME*. For example, if the *user* is sys, the *password* is passSYSword, and the *GLOBAL_DBNAME* is Michigan_IDB.world, you might enter:

   `sqlplus sys/`*passSYSword*`@Michigan_IDB.world`

2. If there are no errors, Oracle networking is working successfully. Exit from `sqlplus`.

   Tip: To double-check, enter:

   `tnsping Michigan_IDB.world`

Checking the connection to the remote DB2 database

You need to enter DB2 commands to check the link to the DB2 database.

About this task

Perform the steps in this section only on servers with DB2 Client software.

Procedure

To check the link to the DB2 database:

1. Log onto the IBM FileNet Image Services server as the DB2 Client instance owner (such as **fnsw**).

2. Enter DB2 commands:

```
db2
DB2>  connect to db_alias_name user f_sw using f_sw password
```

where *db_alias_name* is the database alias name of the DB2 database on the remote server, and *f_sw password* is the password of the **f_sw** user set up by the Database Administrator.

Running the FileNet Image Services installation program

You can now install the IBM FileNet Image Services software on all the servers on your system.

Perform the steps in this section on all servers.

- If you are installing FileNet Image Services on a multiserver system, install, configure, and start FileNet Image Services on the Root server before installing the software on the other servers.

- Verify that the `/fnsw` and `/fnsw/local` file systems are mounted before you install the FileNet Image Services software.

- At the system prompt, enter the `mount` command to see a list of what is currently mounted. If you are installing from CD, verify that Info Explorer is not mounted on the CD. If it is, unmount it.

- When you install FileNet Image Services software, the COLD software is also installed. However, you must be licensed to use the COLD application.

- The FileNet Image Services installation program performs two tasks:
  - Checks the system to verify configuration prerequisites.
  - Installs the FileNet Image Services software.

  You can choose to run both, or only the system check.

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

Finding the FileNet Image Services installation log files

The IBM FileNet Image Services installation program creates two log files to record the progress and status of the installation. The information in these log files is useful in diagnosing problems that occur during the installation.

The log files are located in the `/fnsw/local/logs/install/4.2.0` directory.

- **IS_4.2.0.log**: Contains the progress, results, and completion status for the installation. See this file to get further information about any errors or warnings that you received during the installation.

- **FileNet_Image_Services_InstallLog.log**: This secondary installation log file contains more detailed information about the installation status for each file and installation step. See this file for more information if the `IS_4.2.0.log` file reports an Installation Status of FATAL_ERROR or NONFATAL_ERROR.

Starting the FileNet Image Services installation program

You can run the IBM FileNet Image Services installation program in graphical, console, or silent mode. The graphical mode is the default graphical interface, console mode offers a plain text interface for workstations that do not support graphical mode, and silent mode displays nothing on the screen while the installation program is running.

Procedure

To start the FileNet Image Services installation program:

1. Log on as a user with root privileges.
2. For Graphical Installation only: If you plan to run this program from a remote terminal, export the display from the server to your current terminal.
   - 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.
3. For Graphical Installation only: If you are running the installation program from a remote terminal, allow access to the host display by entering the following command at the remote terminal: `xhost +` If the server has an X Console, rather than an ASCII terminal, enter the `xhost +` command there, too.

   Attention: If you used the `su` command to switch from any user to root user, you must enter the `xhost +` command at the original CDE login window. Test your DISPLAY setting by entering the following command:
   ```
   xclock &
   ```

   If the clock appears on your remote terminal screen, the *DISPLAY* variable was exported correctly. If you do not see the clock, use the export or setenv command again by using the IP address rather than the server name.
4. For silent installation only: Locate the appropriate `options.txt` file in the downloaded software image or on the software CD, and copy the file to a local directory on your server. (You can rename it to something shorter, like `opt.txt`) The `options.txt` file contains standard responses to the installation prompts. Edit this file to make any appropriate changes and save the file. The options and their default values are fully described in the file. Review the silent installation log file to determine the progress and results of the installation.
5. 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.

6. 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/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
   ```

7. As a user with root privileges, change to the directory where the FileNet Image Services installation program is located and start the installation program.

   * Graphical mode
   ```
   ./is_4.2.0_hpintegrity.bin &
   ```

   Tip: The trailing "&" character detaches the installation program from the console window so that it can run in a separate window. Use the console window to correct any configuration errors reported by the installation program.

   * Console mode:
   ```
   ./is_4.2.0_hpintegrity.bin -i console
   ```

   * Silent mode:
   ```
   ./is_4.2.0_hpintegrity.bin -i silent -f /tmp/opt.txt
   ```

   Important: `/tmp/opt.txt` is the location of the text file you modified in an earlier step. Specify its full path on the command line. For example, **... -i silent -f /fnsw/local/tmp/opt.txt**.

   If you run the system checks 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`.

8. During the system check, the installation program verifies the status of server characteristics in these categories:

   * FileNet Image Services users and groups
   * Operating system checks
   * Hardware checks

   The same checks are performed for both the **System Checks only** and the **System Checks and Install Image Services** options. The labels in the status column are also color-coded:

   * **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 the FileNet Image Services software:

Condition	Severity
Not logged on as superuser	Prevents installation
Insufficient file system space	Prevents installation
Insufficient swap space	Optional - installation continues
Incompatible host name	Prevents installation
Incompatible O/S	Prevents installation
Missing debugger	Optional - installation continues
Kernel parameter out of range	Optional - installation continues
Missing FileNet user/group	Prevents installation
Incorrect FileNet user/group membership	Prevents installation

The system check information is recorded in the `IS_4.2.0.log` file for your reference.

Hardware checks

In the first system check screen, the installation program lists the resource, how much you need, how much you have, and either Pass or Fail. If a configuration item, such as `insufficient file system space` or `kernel parameter out of range`, does not pass the system check, you can correct it while the installation program is still running.

Procedure

To run the hardware checks after correcting a configuration item:

1. Open another window on the desktop and make the necessary change, such as one of the following items:
   - free disk space
   - memory
   - swap space
2. Then, click **Previous** on the installation program display to return to the previous screen, and click **Next** again to rerun the checks.

Operating system checks

The Operating System Checks screen displays system information pertaining to the operating system and the kernel parameters.

Check the following values for your system:
- Host name
- O/S version
- Debugger
- Kernel parameters

Tip: If any kernel parameters fail the system check, click **Previous** to return to the previous screen. Open another window and correct kernel parameters. Click **Next** on the installation program screen to run the kernel parameter check again.

FileNet Image Services user and groups check

The FileNet User and Groups Check screen displays the required user and group memberships for IBM FileNet Image Services.

The FileNet User and Groups Check window displays the following information:
- FileNet Image Services groups
- FileNet Image Services users
- Database user and group (Oracle only)

The **Status** column indicates whether the group in the **Name** column exists and contains the appropriate users listed in the **Required Members** column.
- Green plus sign (+) indicates that the group and member users are present.
- Red minus sign (-) indicates that the group or member users are missing.

Tip: Click **Previous** to create the missing users and add the users to the appropriate groups. After creating the missing users and adding them to the groups, exit the installation program, log out, and log back in for the new users and groups to take affect. Then, restart the installation program. Then click **Next** again to rerun this check. Oracle requires an additional user and group (DB2 does not). Since the Installer does not know whether FileNet Image Services will be configured to use Oracle or DB2, it shows a place holder for the Oracle user and group. This is for informational purposes only, and does not prevent the system check from completing successfully.

Finishing the system checks

You need to determine if the system checks were successful. If there are errors or warnings, you need to take corrective action and run the checks again.

When the System Check is complete it has either passed or failed.
- If the System Checks failed with errors, you must fix all the error conditions reported. You can then run the System Checks again.
- If the System Checks passed all the tests, but generated warnings for the swap space, debugger, or kernel parameter tests the final screen will indicate this. Check the log file for additional items you might want to correct.
- If the System Checks completed successfully and you selected the option to install IBM FileNet Image Services software, the installation program continues with the section, "Install FileNet Image Services software" on page 70.

Rerunning the FileNet Image Services installation program

If the System Checks do not pass, review the log file in the `/fnsw/local/logs/ install/4.2.0/` directory. The most recent information is appended to the end of this file.

After you have made the changes required by the System Checks, return to "Starting the FileNet Image Services installation program" on page 33 and run the System Checks again.

Installing FileNet Image Services

After you start the IBM FileNet Image Services installation program, the product software installs automatically. The installation takes from 10 to 20 minutes, depending on the processor speed of your server.

Procedure

To complete the software installation:

1. As the FileNet Image Services installation program continues, the Summary screen displays your system information. Verify that the information is correct.
2. As the FileNet Image Services software installs, the installation program displays a progress bar. If you are installing FileNet Image Services on several servers simultaneously from the same location, the installation might take a while longer.
3. When the software installation is finished, the installation program creates an uninstallation program. For example, the installation program creates `/fnsw/IS_uninstaller/uninstall_is.bin`, and then verifies the version information.
4. The final screen indicates success and reminds you to check the installation program log in the `/fnsw/local/logs/install/4.2.0/`. directory.

Chapter 5. Configuring the FileNet Image Services software

Configure your IBM FileNet Image Services by following the software configuration procedures in this section.

Software configuration procedures include:
- Setting theFileNet Image Services software user environment
- Using the System Configuration Editor to configure databases and services
- Building and initializing the root server
- Configuring RES, Cross-Committal, or Multi-Committal systems

Install the required pre-startup fixes

At this time, install only the fixes that are required to start the IBM FileNet Image Services software. Install these fixes on all servers.

You can retrieve these fixes from the IBM Information Management support page "ibm.com and related resources" on page vii.

Install any other fixes after the FileNet Image Services installation has been completed.

Install the user environment templates

Use the inst_templates tool to set up profile and environment files that are customized for IBM FileNet Image Services.

Perform the steps in this section on all servers.

Run the inst_templates tool as either the FileNet Image Services user (such as fnsw) or a user with root privileges.

The inst_templates tool creates or modifies environment files (for example, `.cshrc`, `.login`, `.profile`, and others). Before each file is modified, you are prompted to confirm 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 by using the original file name.
- If you decline the change (by entering **n**), the file is not changed or moved.

If you already have customized the environment files in a particular user directory, answer **n** (No) to each of the prompts. Merge the settings in the templates with your customized environment files. The templates are in `/fnsw/etc`. If you run the inst_templates tool more than one time, the existing `.old` files are not overwritten. The `.old` files are given number extensions (`.old.n`), and each time you run the inst_templates tool after that, n increases (such as `.old.1`, `.old.2`).

Set up FileNet Image Services software user environment

The FileNet Image Services user, such as fnsw, must have its own environment variables set.

About this task

Depending upon the shell you are using, an appropriate environmental setup can be installed by copying the corresponding template file from `/fnsw/etc` and adding your own preferences.

Procedure

To install the user templates:
1. If you are logged on as root user, switch user to fnsw (su - fnsw).
2. Enter the following command to copy all of the template files into the correct directory, and set up the fnsw user environment:

   `/fnsw/etc/inst_templates`

   a. Answer the prompts as appropriate for your server. Do not assume the defaults are correct.

   b. Relational databases are only configured on servers with Index services, WorkFlo Queue Services (WQS), VWServices, or SQL services. If you are configuring a separate Storage Library server, or an Application server without one these services, select **0=none**; if the server has Oracle software installed, select **1=Oracle**, if the server has DB2 software installed, select **2=DB2**.

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

   If you are planning to use an existing Oracle or DB2 instance, accept the default RDBMS-related values listed at each prompt.

   c. If DB2 software exists on this server, enter the user ID of the relational database instance owner.

   `Enter the DB2 instance owner [fnsw]:`

   d. If Oracle software (either client or server software) exists on this server, enter the full pathname of the directory on this server where that software is located. If DB2 software exists on this server, enter the path to the sqllib directory within the DB2 Client instance owner's DB2 home directory.

   `Enter the relational database home directory [/home/fnsw/sqllib]:`

3. When inst_templates is finished, log out as the FileNet Image Services software user and log back in to put the templates into effect.

Set up the root user environment

Setting up the root user environment is **required** for servers with DB2 or Oracle relational database software. Setting up the root user environment is **optional** for all other servers such as Storage Library servers and certain Application servers that do not have relational database software.

Before you begin

The root user might need its own FileNet Image Services environment variables set. Complete the steps in this section if you do not already have a specialized root environment already established on your system (For example, a .login file with specific system-related entries). Otherwise, skip this section.

Depending on the shell you are using, you can install an appropriate environmental setup by using the inst_templates command to copy the corresponding template files from the`/fnsw/etc` directory. After the templates have

been copied, you can add your own preferences to these files.

Procedure

To set up the root user environment:

1. Log on as a user with root privileges.
2. Enter the following command to copy all of the template files into the correct directory, set up the root user environment:

   `/fnsw/etc/inst_templates`

   a. Answer the prompts as appropriate for your server. Do not assume the defaults are correct.
   b. Answer the relational database prompts exactly the same as you did for the FileNet Image Services software user such as fnsw on this server.
3. When inst_templates is finished, log out to the system prompt and log back in as root user to put the templates into effect.

Set file ownership and permissions

The fn_setup program sets the permissions for all files under `/fnsw` and `/fnsw/local` directories using a permission_table that is upgraded with each new FileNet Image Services release.

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 `/fnsw` and `/fnsw/local` directories using a permission_table that is upgraded with each new FileNet Image Services release. If non-Image Services files are placed in the `/fnsw` directory structure, a local_permission_table needs to specify the appropriate permissions for these files. See *IBM FileNet Image Services System Administrator's Companion for UNIX* for details. To download this document from the IBM support page, see "ibm.com and related resources" on page vii.

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. Answer all prompts with information related to your system.

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

```
                    Enter NCH  server name [aixvenice:ExampleCo]:
```

   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  [11008016nn]:
```

   Important: The 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 system must use its own unique SSN
   to prevent potential problems if media are ever transferred from one FileNet
   Image Services system to another. The valid range of SSNs is 1000 through
   2147483646.

   d. Relational databases are only configured on servers with Index services,
      WorkFlo Queue Services (WQS), VWServices, or SQL services. If you are
      configuring a separate Storage Library server, or an Application server
      without one these services, select **0=none**; if the server has Oracle software
      installed on it, select **1=Oracle**; if the server has DB2 software installed,
      select **2=DB2**.
```
   Enter the relational database type configured on this server (0=none, 1=Oracle, 2=DB2) [1]:
```
   If you plan to use an existing DB2 or Oracle instance, accept the default
   RDBMS-related values listed at each prompt.

   e. If DB2 software exists on this server, enter the DB2 home directory of the
      owner of the DB2 Client instance. If Oracle software (either client or server
      software) exists on this server, enter the full path name of the directory on
      this server where that software is located.
```
   Enter the RDBMS home directory [/opt/oracle/client/11gR1]:
```

   Tip: If you are configuring a FileNet Image Services system with a **remote
   Oracle database server**, the RDBMS home directory is the location of the
   client software on the FileNet Image Services server.

   f. If Oracle software (either client or server software) 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. The fn_setup tool then displays the information that you supplied so you can
   confirm your entries:
```
This is the setup configuration:
    NCH server name:  aixvenice:ExampleCo
    SSN:  11008016xx
    Relational database type:  Oracle
    Relational database home:  /opt/oracle/client/11gR1
    Relatioal database user ID:  oracle
    Relational database group ID:  dba
    Relational database ID:  IDB
Do you want to continue (y/n) [y]:
```
   Click **Return** to continue with the next step. If you type **n** for no, you exit to
   the system prompt; return to Step 1 and run fn_setup again.

Restart the server

Restart the server to complete your changes.

About this task

Perform the steps in this section on all servers.

Important: All RDBMS users must be logged off the server and the RDBMS instance must be shutdown before you run the following system shutdown command. Failure to do so could result in a corrupted database.

Procedure

To restart the server:

As a user with root privileges, restart the server by entering the following command (depending upon your operating system): **shutdown -ry 0**.
The restart process might display FileNet Image Services error messages because the system is not yet configured.

Continue with the server configuration

Depending on the type of server that you are configuring, combined or dual server, application server or storage library server, skip to the appropriate section to continue the server configuration.

Procedure

To continue with the software installation:
1. For a Combined server or Dual server system, continue with the next section, "Log on to the configuration database."
2. If you are adding an Application server, skip to the section, "Configuring the Application server" on page 76.
3. If you are adding a Storage Library server, skip to the section, "Configure the Root server" on page 89.

Log on to the configuration database

This procedure verifies system information as well as database and domain names.

About this task

Perform the steps in this section on the following servers:
- Root/Index server during a Dual server installation
- Root/Index/Storage Library server during a Combined server or Entry server installation)
- Application server running WorkFlo Queue Services or SQL Services.

Procedure

To create a new configuration database:
1. Log on to the FileNet Image Services server as the FileNet Image Services software user, such as **fnsw** from an X station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator.
2. 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. Allow access to the server display by entering this command at your current terminal:

```
xhost +
```

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

Tip: Test your DISPLAY setting by entering: `xclock &`

If the clock appears on your remote terminal screen, the DISPLAY variable was exported correctly. If you do not see the clock, try the export or setenv command again using the IP address rather than the server name.

4. As the FileNet Image Services software user, such as fnsw, start X Windows (if you have not already done so).

5. Open a new X window, and enter the following command:

```
fn_edit  &
```

Important: If the Open Configuration Database dialog box displays instead of the New Configuration Database dialog box, you have an existing FileNet Image Services configuration (cdb) file. Click **Cancel**, then from the **File** menu, select **New**.

If you are installing FileNet Image Services software on the system for the first time, the Configuration Editor program will detect that no databases exist and will open a New Configuration Database automatically. Otherwise, Configuration Editor will determine your database name and use it, along with your Domain Name.

6. Verify that the database and domain names are correct. (The two-part domain name is set up as follows: *Domain:Organization*.)

7. From the **Database Template** menu, select a template type from the following template choices:

   - **Combined server System**
   - **Dual servers System**
   - **Remote Entry System**
   - **WorkFlo Management System**

8. After you have verified the domain information and selected the template type, click **OK**.

9. You receive several query prompts. The prompts you receive depend on which template you selected earlier.

   Tip: Use the online help for more instruction on answering the prompts for each template type. Select the **Help** menu option in the Configuration Editor. Also you will be prompted to enter information from the worksheet that you completed earlier. Refer to the Installation worksheet for your operating system.

   When you are prompted for information about your relational database management system, DB2 or Oracle, use the information that was supplied to you by the Database Administrator when the RDBMS software was installed. When you are prompted for the relational database type and release version, select the appropriate type and version for your installation. See Chapter 3, "Installing the relational database software," on page 27.

   In addition to prompts for other system information, you are prompted:

- Do you want to use file systems for MKF databases?
- Select the relational database type (DB2 or Oracle).
- For DB2, enter and verify the passwords assigned to:
  - f_sw
  - f_maint
  - f_sqi
  - f_open
- Enter the DB2 home directory (for example, /home/db2inst2/sqllib)
- Enter the relational database name.
- Enter the user tablespace name.

After you have answered all of the template prompts, you will receive a message stating that the configuration is complete.

10. Now you can select any of the available tabs from the FileNet Image Services System Configuration Editor window to review or change the current configuration settings.

Tip: When you use the various configuration tabs in the System Configuration Editor window, click on a tab, complete the fields as instructed, and immediately click on the next tab (without exiting), as directed. Each window has a help button that provides information you might need to complete the fields.

Select and configure a relational database instance (if applicable)

This procedure assumes that the table spaces and databases that you specify in the System Configuration Editor either already exist or that you will create them before you initialize the IBM FileNet Image Services databases.

For **DB2**, see the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*. For **Oracle**, see the *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 vii. The Database Administrator might have supplied this information in the section, Chapter 3, "Installing the relational database software," on page 27.

Continue with the appropriate subsection:
- "DB2"
- "Oracle" on page 46

DB2
Verify the database and user table space names and settings.

Procedure

To verify the database and user table space names and settings:

1. Click **Relational Databases**, then click the **RDB Objects** subtab.
2. On the **RDB Objects** subtab, verify the database name and the tablespace name in the **Location** column:
   - **Database name**, such as indexdb.
   - **User Tablespace name**, such as userspace1.
3. On the **DB2** subtab, verify:

- **Version** - must match one of the compatible versions shown in the *Hardware and Software Requirements for FileNet Image Services* document.
- **Password Expiration Policy** - This field lists the number of days that the f_sw, f_maint, f_sqi, and f_open passwords remain in effect before they expire. The default value is 60 days. To change the default, enter a new value in this field. A blank field is not permitted, and a value of 0 is equivalent to "Never Expires."
- **Notify Administrator** - This field lists the number of days before password expiration that the administrator will be reminded to update the password. The default value is 14 days before the password expires. To change the default, enter a new value in this field. This value must always be less than or equal to the password expiration value. A blank field is not permitted, and a value of 0 would mean notification on the day the password expires.

Oracle

Define the table space names for an Oracle database.

Procedure

To define the table space names:

1. Click the **Relational Databases** tab, then click the **RDB Objects** subtab.
2. In the **Location** column of the RDB Objects window, click a cell and replace the default FileNet Image Services table space names with the site-specific table names. While replacing the table space names, use the following criteria:
   - Change all occurrences of fnsys_ts to the name of your dedicated FileNet Image Services default table space.
   - Change all occurrences of fntmp_ts to the name of your dedicated FileNet Image Services temporary table space.
   - If an optional fnusr_ts was created for WorkFlo Queue Services, change all occurrences of the name to your dedicated FileNet Image Services user table space.
   - If an optional fnidx_ts was created for indexes, change all occurrences of the name of your dedicated FileNet Image Services index table space.

   The FileNet Image Services software uses the table space names entered in the **RDB Objects** subtab. The table space names specified in the RDB Objects list must exist before you initialize the FileNet Image Services databases.
3. On the **Oracle** subtab, verify that the Version matches one of the compatible versions shown in the *Hardware and Software Requirements for FileNet Image Services* document.
4. Skip to the section, "Verify the FileNet Image Services character set."

Verify the FileNet Image Services character set

The default character set should match the current operating system character set and the RDBMS character set.

Procedure

To verify the FileNet Image Services character set

1. On the **System Attributes** tab, scroll to the right and check the settings for **Default Character Set** and **Former Character Set**. On a new server, both are initially set to ISO 8859-1.

2. Change the **Default Character Set** to match the current operating system character set and the RDBMS character set; for example, ISO 8859-2.

If the FileNet Image Services system has been converted from an older character set, such as FileNet Image Services International, set the **Former Character Set** appropriately. If the system has never been converted, set the **Former Character Set** to match the **Default Character Set**. 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.

Modify dataset file sizes

You can modify the logical volumes to match volume data determined by the *IBM Capacity Planning Tool*.

Click the **Datasets** tab from the main edit menu to view a list of the data sets added by default. All of the data set sizes are set by default by the system. If you want to change any of them, change them in their respective File Size (MB) spreadsheet cells.

See the volume data determined by the *IBM Capacity Planning Tool*, to create your logical volume. Your data set sizes must match the sizes recorded in that table.
- "Create logical volumes and file systems" on page 19

When creating larger data sets, note the following:
- The sizes of all of the data sets can be changed in this **Datasets** tab in the **Dataset Size** column.
- Maximum and minimum sizes in number of megabytes is checked by the Editor program.
- Minimum size for security datasets is 64 MB.
- Maximum size is 16 GB for dataset caches.
- If you need a larger cache, run the **Add Additional Dataset** procedure under the **Procedures** tab.
- You can have a total of 255 dataset volumes, each 16 GB in size. Supporting 255 cache dataset volumes, each 16 GB in size, allows for terabyte caches. The maximum cache size is 4080GB, or 4 terabytes.

Configure logical cache (optional)

Use the System Configuration editor to modify the minimum or maximum allocation for each cache configured.

Procedure

To configure the logical cache:
1. Click on the **Server Application Services** tab in the System Configuration Editor window.
2. Select the **Cache** subtab to view a list of caches configured on your server. Default values are automatically given to each of the caches.
3. To modify the minimum or maximum allocation for each cache configured, click on the white box below the minimum or maximum column of each cache allocation you want to change, and enter the new value into the field.
4. The **Locked**, **Daemon**, and **Write Threshold (%)** values are set to default values. Leave these values set to their defaults.

The following subtabs in the **Server Application Services** tab do not need to be configured unless you want to assign non-default values to the application parameters:

- **Scheduling**: sets up station document services parameters.
- **Cache Duration**: sets up the prefetch, migrate, and refresh duration for the System Cache.
- **Batch**: sets up station batch services parameters.

Configure system Document Services parameters (optional)

Use the **System Application Services** tab in fn_edit to configure the system Document Services parameters.

Procedure

To configure the Document Services parameters:

1. Click the **System Application Services** tab in the System Configuration Editor window.
2. Select the **Document Services** subtab to change the values of any of the document services parameters. Document and surface id ranges can be changed from this menu.

   Consult Help text regarding the parameter options.
3. To change the way images are sent to the optical disk, select the **Others** subtab.

   These parameters are set to default values by the software. To change any of these parameters, click on the field of each parameter you want to change, and type the new value.

Modify the System and Server Parameters (Optional)

This procedure modifies the system processes parameters (for example, ds_notify, rmt_commit).

Procedure

1. Select the **Performance Tuning** tab in the System Configuration Editor window.
2. To modify the system processes parameters (for example, ds_notify, rmt_commit, and so on), click on the **System Processes** subtab and type the new values in the fields of the system processes you want to change.

   Consult the Help regarding the parameter options.
3. To modify the server processes parameters (for example, bes_commit, dtp, and so on), click on the **Server Processes** subtab and type in the new values in the fields of the system processes you want to change.
4. To modify other specific server processes parameters (for example, Document Buffer Count, Document Buffer Size, and so on), click on the **Server Memory** subtab. These parameters should be left at their default values unless changes are necessary.

Configure MKF database parameters

Configure the MKF database parameters on servers that have an MKF database.

Procedure

To configure the MKF database parameters:

1. Select the MKF Databases tab in the System Configuration Editor window.

2. The MKF database parameters are set to default values by the software. These parameters should be left at their default values.

   Important: The security database **SEC_db** and redo log **SEC_rlmust use 8 KB blocks**.

   Tip: The default MKF database block size is **8 KB**. You can also choose a block size of 16 KB. Click Help if you have any questions about the parameter values.

Configure network parameters

After you have installed and configured the network protocol on the Root/Index server, configure the network parameters for IBM FileNet Image Services in fn_edit.

Procedure

To configure the network parameters:

1. In the System Configuration Editor window, select the **Network Addresses** tab.
2. Enter the Network Name. The Network Name is the DNS host name of the server. The name must be unique, less than 256 characters, and composed of alpha, digits, dot, dash, underline characters only (No Spaces).

   If you enter a Network Name, you do not need to enter a Network Address, unless the server is multi-homed. In dual and multi-server systems, the FileNet Image Services installation program only populates the Network Name field on the Root/Index server. On all other servers, such as storage library and application servers, you must enter the Network Name in this field manually.
3. Enter Network Addresses. For Multi-Homing support, you can enter up to eight IPv4 network addresses, one for each network adapter in the server. Each field displays the four-part IPv4 address for the corresponding server name. You can add or modify network addresses in any of these fields.

   Important: If your FileNet Image Services system uses IPv6 network addresses, leave the Network Address fields blank, and enter only the network name in the Network Name field.

   An IPv4 address is a four part decimal number. Each part must be between 0 and 255 and is separated by a period. For example:

   `192.0.2.24`

Results

After the FileNet Image Services software restarts, the fn_build tool determines if any changes have occurred in the fn_edit configuration.

Exit the System Configuration Editor

Save your settings and exit the configuration editor.

Procedure

1. From the FileNet Image Services - System Configuration Editor window, select the **File** menu and click **Exit**.
2. Click **Yes** to save the configuration and exit the System Configuration Editor.

Build and initialize the root server

Build and initialize the RDBMS on the root server.

Perform the steps in this section on these servers:
- Root/index server during a dual server installation.
- Root/index/storage library server during a combined server or entry server installation.

Initialize the RDBMS on the root server

Initialize Oracle and DB2 software on the root server.

Skip to the appropriate subsection:
- "On servers with DB2 Client software"
- "On servers with Oracle software"

On servers with DB2 Client software

Verify the DB2 instances. Before initializing the FileNet Image Services databases, ask the Database Administrator to start both local and remote DB2 instances

Procedure

To verify the DB2 variables:

1. Ask the Database Administrator to start the RDBMS software before you initialize the FileNet Image Services databases.
2. Connect to the remote DB2 database. As the instance owner defined in "Gathering DB2 database information" on page 28, enter the following command:

   ```
   $db2 connect to dbname user f_sw
   ```

   Enter the f_sw password to connect to the database.
3. Verify that the DB2 Home and Instance environment variables are set appropriately for both root and the FileNet Image Services software user, such as fnsw.

   ```
   DB2_HOME   (set to the sqllib directory within the DB2 Instance owner's
   DB2_INST   (set to the name of the DB2 instance owner, such as fnsw)
              DB2 home directory, such as /home/fnsw/sqllib).
   ```
4. As each user, enter the following commands:

   ```
   echo  $DB2_HOME
   echo  $DB2_INST
   ```
5. Compare the output of the previous commands to the settings determined in the *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 vii.
6. If the *DB2_HOME* and the *DB2_INST* variables are not set correctly, return to "Install the user environment templates" on page 39 and run the inst_templates command again.
7. Skip to the section, "Set up links required for FileNet Image Services MKF data sets that use raw partitions" on page 52.

On servers with Oracle software

Verify the Oracle variables. Before initializing the FileNet Image Services databases, ask the Database Administrator to start both local and remote Oracle instances.

Procedure

To verify the Oracle variables:

1. The following Oracle variables must match the existing Oracle instance:

   ```
   ORACLE_HOME (set for instance)
   ORACLE_SID  (set for System ID)
   ORACLE_UID  (set for Oracle database administrator user)
   TWO_TASK    (set if Oracle database is on a remote Oracle server)
   ```

2. As each user, enter the following commands:

   ```
   echo  $ORACLE_HOME
   echo  $ORACLE_SID
   echo  $ORACLE_UID
   echo  $TWO_TASK
   ```

3. Compare the output of the previous commands to the setting determined in "Oracle 10g and Oracle 11g" on page 27 If the *ORACLE_SID* and the *ORACLE_HOME* variables are not set correctly, see the Database Administrator for the system to have the settings changed.

   Important: In addition, the Database Administrator must create the default table spaces with the names you entered in the FileNet Image Services System Configuration Editor. See the Table space table in "Oracle 10g and Oracle 11g" on page 27 for this information. If the Oracle software is not running and if the new table spaces have not been created, the initialization process will fail.

4. On FileNet Image Services systems with remote Oracle databases:

   Important: Verify with the Database Administrator that the Oracle Client software has been successfully installed on the FileNet Image Services server.

   a. As the FileNet Image Services software user, such as fnsw, run the following command on the FileNet Image Services server:

      ```
      fn_oracle setquotas
      ```

      This command creates the /fnsw/local/oracle/ora_users.sql file.

   b. Copy the following scripts from the FileNet Image Services server to the corresponding directories on the Oracle server:

      ```
      /fnsw/oracle/FileNet.sql
      /fnsw/local/oracle/ora_users.sql
      ```

   c. Ask the Database Administrator to run these scripts on the remote Oracle server:

      ```
      SQL>@FileNet.sql (grants privileges toFileNet Image
      Services users)
      SQL>@ora_users.sql (assigns quotas, default tablespaces, and temporary tablespaces)
      ```

Set up links required for FileNet Image Services MKF data sets that use file systems

The standard location for the IBM FileNet Image Services MKF databases is the /fnsw/dev/1/ directory. To prevent performance issues, you might choose to keep some or all of the MKF databases in other locations. The mkf_fs_link.sh script creates zero-byte files and symbolic links to them. The input to this script is the mkf_fs_links_input.txt file that you can customize. If your MKF data sets are stored in raw partitions, skip this section.

About this task

Repeat the steps in this section on these servers for the FileNet Image Services groups and users:

- Root/index/storage library server during a combined server or entry server installation
- Root/index and storage library server during a dual server installation
- Application server during an application server installation.

Procedure

To create the symbolic links:

1. As as the FileNet Image Services software user, locate the template file, `mkf_fs_links_input.txt` file, in the `/fnsw/etc/` directory.

2. Use your preferred text editor to modify this file with the locations of your MKF databases.

   Tip: List the contents of the `/fnsw/dev/1` directory on each server to see the current MKF database links for comparison.

3. Update the file system location column of the template. For example, on an HP-UX combined server, you might update the template to look like the following example.

   ```
   #dataset names        file system location
   #--------------       ---------------------
   cache0                /dev/fnvg
   permanent_db0         /dev/fnvg
   permanent_rl0         /dev/fnvg
   transient_db0         /dev/fnvg
   transient_rl0         /dev/fnvg
   sec_db0               /dev/fnvg
   sec_rl0               /dev/fnvg
   ```

4. Run the mkf_fs_link.sh script to create a zero-byte file for each of the MKF databases and to create the symbolic links to those files in the /fnsw/dev/1/ directory.

   `/fnsw/etc/mkf_fs_link.sh`

5.

6. Examine the contents of the `/fnsw/dev/1` directory by entering the following command:

   `ls  -lL`

   The `-l` option displays the mode, number of links, owner, group, size (in bytes), and time of last modification for each file. The `L` option displays the file or directory referenced by a symbolic link.

   The directory must contain the linked directories specified in the `mkf_fs_links_input.txt` file. If the `/fnsw/dev/1` directory does not contain the correct links, verify and, if necessary, update the `mkf_fs_links_input.txt` file with any changes, verify the permissions on the mkf_fs_link.sh script, and run the script again.

7. When the links are set correctly, skip to the section, "Initialize all databases" on page 54

Set up links required for FileNet Image Services MKF data sets that use raw partitions

Create links to the actual logical volumes that will be used to create the FileNet Image Services MKF data sets. If your MKF data sets will be stored in file systems, skip this section.

About this task

Repeat the steps in this section on these servers for the FileNet Image Services groups and users:

- Root/index/storage library server during a combined server or entry server installation
- Root/index and storage library server during a dual server installation
- Application server during an application server installation.

Procedure

To create the symbolic links:

1. As as the FileNet Image Services software user, change to the `/fnsw/dev/1` directory:

   ```
   cd  /fnsw/dev/1
   ```

   Tip: If one or more of the subdirectories in this path do not exist yet, use the mkdir -p command to create them.

2. Use your preferred text editor to create and edit the filenet.links file. Include a soft link command for each of the databases that you created or configured in the previous sections. Link the database name to the logical volume where you placed the database by entering a command structured similar to the following:

   ```
   ln -s /dev/volume_group/logical_volume dbname
   ```

   where *logical_volume* is the disk location of the volume and *dbname* is the data base name. For example:

   ```
   ln -s /dev/fnvg/rfn_cache0 cache0
   ```

   Important: The filenet.links file contents shown here are examples ONLY. The links you create must reflect the actual allocation of the volumes on your system. In the filenet.links file, you MUST have unique logical volume assignments for all volumes. Verify that no two volumes share the same logical volume assignment and that no volume is assigned to a logical volume occupied by any part of the operating system.

   Your filenet.links file should contain link information similar to the following:

   On a combined (root/Index/storage library) server:

   ```
   ln -s /dev/fnvg/rfn_cache0 cache0
   ln -s /dev/fnvg/rfn_perm_db0 permanent_db0
   ln -s /dev/fnvg/rfn_perm_rl0 permanent_rl0
   ln -s /dev/fnvg/rfn_trans_db0 transient_db0
   ln -s /dev/fnvg/rfn_trans_rl0 transient_rl0
   ln -s /dev/fnvg/rfn_sec_db0 sec_db0
   ln -s /dev/fnvg/rfn_sec_rl0 sec_rl0
   ```

   On a root/Index Server:

   ```
   ln -s /dev/fnvg/rfn_sec_db0 sec_db0
   ln -s /dev/fnvg/rfn_sec_rl0 sec_rl0
   ```

   On a storage library server:

   ```
   ln -s /dev/fnvg/rfn_cache0 cache0
   ln -s /dev/fnvg/rfn_perm_db0 permanent_db0
   ln -s /dev/fnvg/rfn_perm_rl0 permanent_rl0
   ln -s /dev/fnvg/rfn_trans_db0 transient_db0
   ln -s /dev/fnvg/rfn_trans_rl0 transient_rl0
   ```

3. Close the file and save the changes.

4. Use chmod to change the permission of the filenet.links file by entering the following:

```
chmod 755 filenet.links
```

> **Tip:** If you do not change the permission of filenet.links, you cannot run the file.

5. Run the filenet.links file by entering the following commands:

```
cd  /fnsw/dev/1
./filenet.links
```

6. Examine the contents of the /fnsw/dev/1 directory by entering the following command:

```
ls  -lL
```

The -l option displays the mode, number of links, owner, group, size (in bytes), and time of last modification for each file. The L option displays the file or directory referenced by a symbolic link.

The directory must contain the linked directories specified in the **filenet.links** file. If the /fnsw/dev/1 directory does not contain the correct links, verify and, if necessary, update the **filenet.links** file with any changes, verify the permissions on the **filenet.links** file, and run the file again.

7. When the links are set correctly, continue with the section, "Initialize all databases"

Initialize all databases

Create the relational database users and provide other information to initialize the databases.

Procedure

1. As the FileNet Image Services software user, such as fnsw, enter the following command to create the relational database users (standard names, f_sw, f_sqi, f_maint, f_open):

```
fn_setup_rdb -f
```

Follow the prompts to enter the requested information for your relational database. You are prompted for the passwords for the database users and you can consult the Installation Worksheet you completed earlier for your operating system.

2. Initialize all datasets that are configured on your server by entering the following command:

```
fn_util init -y
```

This command could take about 10 or 15 minutes to complete, so wait for the system prompt to return before continuing.

3. Check the /fnsw/local/logs/fn_util/fn_util.log file after the fn_util init command is complete. If you see any of the following Oracle messages, you can ignore them:

```
ORA-00942: table or view does not exist.
ORA-01432: public synonym to be dropped does not exist.
ORA-01434: private synonym to be dropped does not exist.
ORA-01919: role 'EXP_FULL_DATABASE' does not exist.
ORA-01919: role 'IMP_FULL_DATABASE' does not exist.
```

These warning messages might result from the system trying to remove RDBMS tables when they have already been removed.

The message MKF irrecoverable read error might appear in the fn_util.log file. Due to the current state of the system, you can ignore this message.

Complete the configuration

Follow these procedures to complete the installation on HP-UX servers.

Start the IBM FileNet Image Services software

Verify database information before starting the FileNet Image Services software.

About this task

Important: For remote Oracle databases: If the Oracle database is located on a remote server, verify that the Oracle instance is running.

Procedure

1. For local Oracle databases: If the Oracle database is located on this server, verify that the Oracle Instance has the correct SID. As a user with root privileges, enter:

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

   The output is similar to the following example in which the SID appears at the end of process name. In this example, the SID is IDB.

   ```
   oracle_user  1127    1  0  Mar 11  ?         0:18 ora_pmon_IDB
   oracle_user  1129    1  0  Mar 11  ?         0:34 ora_dbwr_IDB
   oracle_user  1131    1  0  Mar 11  ?         0:18 ora_lgwr_IDB
   oracle_user  1133    1  0  Mar 11  ?         0:01 ora_smon_IDB
   ```

2. Verify that the Oracle SID is set appropriately for both root and fnsw users. As each user, enter the following command to determine how they are set:

   ```
   echo $ORACLE_SID
   ```

   Compare the output of the command to the setting set for Oracle Variables in the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers*. If it is not set correctly, check with the System Database Administrator to have it reset. To download this document, see "ibm.com and related resources" on page vii.

   Important: The Database Administrator must start the RDBMS software before attempting to start the FileNet Image Services software for the first time. If the DB2 or Oracle software is not available when the FileNet Image Services software starts, the FileNet Image Services software fails and displays error messages. If you receive error messages, start the RDBMS software and restart the FileNet Image Services software.

3. From the command-line prompt, log on as the FileNet Image Services software user, such as fnsw, and enter the following command to start the FileNet Image Services software:

   ```
   initfnsw start
   ```

4. Start the updated FileNet Image Services application software by entering:

   ```
   Xtaskman &
   ```

Automatic HP-UX kernel parameter checking

Each time you start FileNet Image Services, the software automatically runs the cfg_verify program, which verifies the HP-UX kernel parameter settings.

If cfg_verify detects an invalid kernel parameter, it logs an error for each incorrect parameter. For example, you might see an error similar to this during FileNet Image Services startup:

```
Exec of 'cfg_verify' returned non-zero status of '0x1'.
```

To fix the error, read the system log to determine which kernel parameter is set incorrectly. Use the vl tool to find the cfg_verify assertion errors. From any directory, enter:

vl

The system log might contain an entry similar to this:
```
07/02/20 10:17:06.222 212,4,7 &ltroot> cfg_verify (2958) ... [WARNING]
cfg_verify: HP.HPUX.MAXFILES (0x80 )
            must be greater than or equal to ( 0x200 )
```

In this case, the value of the maxfiles kernel parameter was set to an incorrect value of 0x80, the hexadecimal equivalent of 128 decimal. However, the value of the **maxfiles** parameter must be at least 512 decimal (200 hexadecimal). Note that a minimum value of 1024 decimal (400 hexadecimal) should be set for Remote Entry servers.

Use SAM or kctune to modify the incorrect kernel parameter maxfiles to a preferred value of 0x200 (512 decimal), or 0x400 (1024 decimal) and restart the server to make it take effect.

Tip: Even though SAM and kctune display the kernel parameters in decimal, you can enter modified values in hexadecimal, like this: 0x200 SAM and kctune automatically translate the hex value to decimal.

Fix all invalid kernel parameters, restart the server indicated by SAM or kctune, and return to Step 1 of the previous section to try starting FileNet Image Services again.

If you are configuring a Root/Index server, skip to the section, "Modify the /etc/inittab file on the root server" on page 63.

Verify HP storage library device drivers on a combined server

In this section, you need to verify that the HP optical disk drive software and the HP storage library system software have been configured correctly.

About this task

Perform the steps in this section on these servers: Root/Index/Storage Library - (Combined server or Entry server installation)

If you are configuring a Root/Index server, skip to the section, "Modify the /etc/inittab file on the root server" on page 63. If you are configuring a cache-only or MSAR system (no optical devices attached to the Storage Library server), skip to the section, "Configure storage library devices" on page 60.

Tip: Even though an ODU (Optical Disk Unit) is technically not a storage library because it lacks a robotic arm, for the purposes of configuration be sure to perform the same steps for an ODU that you would perform for a storage library.

To verify the new driver for the HP optical disk drive and the HP Storage Library system, follow these steps:

Procedure

1. Verify that the SCSI adapter card is configured for a maximum of 80 MB/second data transfer for best optical library performance. See Appendix I, "Setting the maximum data transfer rate for SCSI host bus adapters," on page 125.

2. Verify that the storage library devices are powered on and are active.

3. Return to your server's terminal, and as a user with root privileges, use ioscan to determine the addresses of the HP optical drives and storage libraries.

   `ioscan -fn | more`

   Look in the ioscan display for your storage libraries and drives. You can identify the storage drives by locating the vendor ID and the product ID in the Description column.

   If necessary, see the documentation that accompanies your storage library to determine the vendor and product IDs to look for.

```
Class      I  H/W Path    Driver    S/W State  H/W Type   Description
=========================================================================
...
ba         2  0/2         lba       CLAIMED    BUS_NEXUS  Local PCI-X Bus Adapter (122e)
ba         3  0/3         lba       CLAIMED    BUS_NEXUS  Local PCI-X Bus Adapter (122e)
ext_bus    4  0/3/2/0     c8xx      CLAIMED    INTERFACE  SCSI C1010 Ultra2 Wide LVD A6829-60101
target     6  0/3/2/0.1   tgt       CLAIMED    DEVICE
disk      10  0/3/2/0.1.0 sdisk     UNCLAIMED  UNKNOWN    HP      C1118J
target     7  0/3/2/0.2   tgt       CLAIMED    DEVICE
disk       3  0/3/2/0.2.0 sdisk     CLAIMED    DEVICE     HP      C1113J
target     8  0/3/2/0.3   tgt       CLAIMED    DEVICE
disk       4  0/3/2/0.3.0 sdisk     CLAIMED    DEVICE     HP      C1113J
target    10  0/3/2/0.7   tgt       CLAIMED    DEVICE
ctl        5  0/3/2/0.7.0 sctl      CLAIMED    DEVICE     Initiator
ext_bus    5  0/3/2/1     c8xx      CLAIMED    INTERFACE  SCSI C1010 Ultra2 Wide LVD A6829-60101
Wide LVD A6829-60101
target    12  0/3/2/1.7   tgt       CLAIMED    DEVICE
...
```

   In the previous example, the vendor ID is HP and the product IDs are C1118J and C1113J.

   Notice that for HP C1118J, the S/W State and H/W Type are UNCLAIMED and UNDEFINED, which indicates that this device is the robotic arm. The two HP C1113J devices are the optical drives.

   Tip: If you cannot locate the storage library devices in the ioscan display, you can try this method as a last resort:

   a. Shutdown the server and turn power off to all the storage library devices.

   b. Turn power back on only to the server and run the ioscan command, saving the output to a file. For example:

      `ioscan -fn > /fnsw/local/tmp/ioscan_pwr.off`

   c. Shutdown the server again and turn power back on to all the storage library devices.

   d. Turn power on to the server and run the ioscan command, saving the output to a different file. For example:

      `ioscan -fn > /fnsw/local/tmp/ioscan_pwr.on`

   e. Find the differences between the two files by entering:

      `diff /fnsw/local/tmp/ioscan_pwr.off /fnsw/local/tmp/ioscan_pwr.on`

   f. The resulting display should contain only the lines pertaining to the storage library devices.

Write down the full H/W Paths (for example, 0/3/2/0.1.0), the Class, and the Description (model numbers) of each storage library device shown on the display.

_____
_____
_____

Create the `/fnsw/local/sd/sod.conf` file

Create entries in the `/fnsw/local/sd/sod.conf` for both optical and robotic arm devices.

Procedure

1. Change to the appropriate directory and use your preferred text editor, such as vi, to create the sod.conf file:

```
cd   /fnsw/local/sd
vi   sod.conf
```

2. Add a line for each of the storage library devices shown on the ioscan display. The sod.conf file should include lines for both optical devices and robotic arm devices, using the following format:

```
driver  <H/W Path>;  <driver>
driver  <H/W Path>  <driver>
  . . .
driver  <H/W Path>  <driver>
```

where:

The <H/W Path> is the entire H/W path field shown on the ioscan display line for each library device.

The <driver> is **sctl**.

3. The sod.conf file must specify a driver for each storage library device shown on the **ioscan** display. Your sod.conf file might have lines that look similar to this:

```
driver  0/3/2/0.1.0  sctl
driver  0/3/2/0.2.0  sctl
driver  0/3/2/0.3.0  sctl
```

4. Save your changes to the file, and exit the editor.

Create optical device files

Use the FNPoll command to create the optical device files. Verify that the optical device is powered on and active. (You can use the ioscan tool to check this.) If the optical device is not powered on, or has to have a disk in the drive to be recognized, FNPoll cannot find it and report `No FileNet Image Services Device Found`.

About this task

If there are no optical devices attached to your server, skip this section.

Procedure

1. As a user with root privileges, enter the following command at the system prompt:

```
/fnsw/bin/FNPoll
```

FNPoll reports the following information:

```
Found HPUX Version 11.23

Removing old device nodes and files used by FNPoll.

Determining model, series and device driver information.

This appears to be a(n) i-Series platform (ia64 hp server rx4640).
Looking up driver and class information for this platform.

Expected  driver-class for single-ended SCSI: sctl-ctl
Alternate driver-class for single-ended SCSI: unknown-unknown
Allowable single-ended controller(s): C1010 and (alternate) none

Expected  driver-class for differential SCSI: sctl-ctl
Alternate driver-class for differential SCSI: unknown-unknown
Allowable differential controller(s): C87x and (alternate) none

HP SCSI Pass-Through Driver:
        Single-Ended Major # 203  and (alternate) -1 unknown.
        Differential Major # 203 and
(alternate) -1 unknown
```

If FNPoll is successful, you also see the following information::

```
Searching for FileNet Image
Services Devices:

disk      10 0/3/2/0.1.0    sdisk      UNCLAIMED    UNKNOWN      HP       C1118J
disk       3 0/3/2/0.2.0    sdisk      CLAIMED      DEVICE       HP       C1113J
disk       4 0/3/2/0.3.0    sdisk      CLAIMED      DEVICE       HP       C1113J

Building FileNet Image
Services Devices, Mon Jun  5 15:45:59 PDT 2006


crw-rw-rw-  1 fnsw       fnusr     203 0x041000 Jun  5 15:45 /dev/fnsod.4,0,1,0
crw-rw-rw-  1 fnsw       fnusr     203 0x042000 Jun  5 15:45 /dev/fnsod.4,0,2,0
crw-rw-rw-  1 fnsw       fnusr     203 0x043000 Jun  5 15:45 /dev/fnsod.4,0,3,0
-rw-rw-rw-  1 fnsw       fnusr           4 Jun  5 15:45 /dev/fnsod.major
-rw-rw-rw-  1 fnsw       fnusr           4 Jun  5 15:45 /dev/fnsod.major.DIFF
-rw-rw-rw-  1 fnsw       fnusr           4 Jun  5 15:45 /dev/fnsod.major.DIFF1
-rw-rw-rw-  1 fnsw       fnusr          11 Jun  5 15:45 /dev/fnsod.major.DIFF2
-rw-rw-rw-  1 fnsw       fnusr           4 Jun  5 15:45 /dev/fnsod.major.SE
-rw-rw-rw-  1 fnsw       fnusr           4 Jun  5 15:45 /dev/fnsod.major.SE1
-rw-rw-rw-  1 fnsw       fnusr          12 Jun  5 15:45 /dev/fnsod.major.SE2
```

After FNPoll has completed successfully, you can continue with the section
"Configure storage library devices" on page 60

However, if FNPoll is not able to locate the /fnsw/local/sd/sod.conf file, you
see:

```
Searching for FeleNet Images Services Devices:
ERROR: /fnsw/local/sd/sod.conf must be created with the configuration
       information for your system.

 The entries in /fnsw/local/sd/sod.conf are of the form:

   sctl 56/52.5.0 sctl
        ^^^^^^^^ This is the 'H/W Path' from the output of a call to
        'ioscan -f'.  Put in a line for every device (library and disk
        drive) to be used by the Image Services.

ERROR: No devices created.
```

2. Verify that the sod.conf file is in the correct directory, and that it contains the
   appropriate entries for your system. Then return to the beginning of this
   section and run FNPoll again.

Configure a TTY port for a FileNet Image Services serial OSAR arm

If you are connecting a FileNet Image Services OSAR storage library to the server, use SAM to set up a tty port for the OSAR's TTY robotic arm. Within SAM you will have to Add a terminal and select the mux card as opposed to a Serial card. You will also need to enter the Port number of the OSAR arm. Also, verify that the mux card is installed on your system before proceeding with this step by looking at the back of your server and locating the card.

About this task

Note: If the storage library devices in this system do not include a FileNet Image Services OSAR storage library with a TTY robotic arm, skip this section.

Procedure

1. On the **System Administration Manager** menu, select the **Peripheral Devices** option.
2. Next, select the **Terminals and Modems** option.
3. From the **Action** pulldown menu, select the **Add Terminal** option.
4. In the **Port Number** field, type in the port number that the OSAR arm is going to be connected to.
5. In the **Speed (Baud Rate). . .** field type 9600 for your terminal.
6. Click **OK** to create device files.
7. Click **OK** at the Messages screen to return to the Terminals and Modems screen. Note the name of the device file created (for example, /dev/tty1p0).
8. Return to the main System Administration Manager menu of SAM.
9. Press F8 to return to the system prompt.
10. Change the permission of the device file by entering the command below. Assuming the device file created is named **/dev/tty1p0**, you would enter:
    `chmod 777 /dev/tty1p0`
11. Use a text editor to remove the `ao.2:respawn:/etc/getty -h  <dev> 9600` entry from the /etc/inittab file (where <dev> is the name of the device file mentioned in Step 7.
12. Enter the following command to re-read the updated `/etc/inittab` file and kill the getty process you removed from the file in the previous step.
    `/etc/init q`

Configure storage library devices

Use this procedure to verify that the database and domain names are correct.

About this task

Note: If there are no storage libraries on the server, skip to the next section, "Modify the /etc/inittab file on the root server" on page 63.

Tip: Even though an ODU (Optical Disk Unit) is technically not a storage library because it lacks a robotic arm, for the purposes of configuration be sure to perform the same steps for an ODU that you would perform for a storage library.

Procedure

1. As the FileNet Image Services software user such as **fnsw**, start the FileNet Image Services Configuration Editor by entering: `fn_edit &:`

2. Verify that the database and domain names are correct, and click OK. (The two-part domain name is set up as follows: <Domain>:<Organization>). The System Configuration Editor window displays.

   Note: The online help contains information on all of the tabs. You can access the online template information by selecting the Help menu option in the System Configuration Editor window.

3. To view the information concerning the storage library devices configured on your server, select the Storage Libraries tab from System Configuration Editor window.

What to do next

If you need to configure a storage library or an ODU, you have two choices:
- "Automatically configure storage library"
- "Manually configure a storage library"

Automatically configure storage library

Storage libraries can be configured automatically if they are attached correctly to the server, and if they are fully powered on.

Procedure

To configure a storage library automatically, follow these steps:

1. Click on the **Procedures** tab.

2. Scroll through the list of available procedures and select **Automatically Configure Storage Library**.

   fn_edit gets all the information it needs directly from the storage library and does not display any messages unless it encounters an error.

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

4. After the storage library has been configured, skip to Step 3.

Manually configure a storage library

As an alternative, you can configure the storage library manually.

Procedure

To configure a storage library manually:

1. At the server to which the storage library is attached, log on as a user with root privileges.

2. Verify that the storage library is cabled to the server correctly and that power is turned on.

3. Use ioscan to determine the addresses of the storage libraries:

   ```
   ioscan  -fn  |  more
   ```

   The ioscan display on an HP Integrity server looks similar to this:

   ```
   Class     I  H/W Path     Driver     S/W State H/W Type  Description
   ====================================================================
   ...
   ba        2  0/2          lba        CLAIMED    BUS_NEXUS  Local PCI-X Bus Adapter (12
   ```

```
ba          3  0/3          lba     CLAIMED     BUS_NEXUS   Local PCI-X Bus Adapter (122e)
ext_bus     4  0/3/2/0      c8xx    CLAIMED     INTERFACE   SCSI C1010 Ultra2 Wide LVD A68
target      6  0/3/2/0.1    tgt     CLAIMED     DEVICE
disk       10  0/3/2/0.1.0  sdisk   UNCLAIMED   UNKNOWN     HP      C1118J
target      7  0/3/2/0.2    tgt     CLAIMED     DEVICE
disk        3  0/3/2/0.2.0  sdisk   CLAIMED     DEVICE      HP      C1113J
target      8  0/3/2/0.3    tgt     CLAIMED     DEVICE
disk        4  0/3/2/0.3.0  sdisk   CLAIMED     DEVICE      HP      C1113J
target     10  0/3/2/0.7    tgt     CLAIMED     DEVICE
ctl         5  0/3/2/0.7.0  sctl    CLAIMED     DEVICE      Initiator
ext_bus     5  0/3/2/1      c8xx    CLAIMED     INTERFACE   SCSI C1010 Ultra2 Wide LVD A68
target     12  0/3/2/1.7    tgt     CLAIMED     DEVICE
...
```

4. Locate the lines that apply to the storage library you are going to configure. For example, in the previous display, locate the lines that contain **sctl** in the Class and Driver columns.

5. Determine the Instance number for the storage library devices by locating ext_bus in the Class column above the storage library devices. Find the Instance number in the I column. (The Instance number in the example above is 4.) Use the same Instance number for all devices in the storage library.

6. Now write down the last three numbers (separated by dots) of the hardware paths for each storage library device in the H/W Path column. Also write down the description (model number) of each device. The Configuration Editor fn_edit will ask you for this information in a later step.

```
Instance         H/W Path        Description
_____
_____
_____
_____
```

7. Return to the server that is running fn_edit.

8. Click on the **Procedures** tab.

9. Scroll through the list of available procedures and select **Manually Configure Storage Library**.

10. Respond to the prompts with the appropriate information. You are prompted to 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.

    Tip: The four part SCSI address values are taken from the information you wrote down from the ioscan display earlier. For example, you might enter:

    ` 4  0 1  0`

    where:

    the first number is the SCSI adapter ID (the number you copied from the I (Instance) column of the ioscan display) the second number is the bus ID (the first of the three numbers from the H/W Path column) the third number is the target device ID (the second of the three numbers from the H/W Path column) the fourth number is the Logical Unit Number (LUN) (the third number from the H/W Path column) After you have answered all the prompts, fn_edit completes the configuration.

11. To view the result of the procedure and to see information on other storage libraries already configured on the system, select the **Storage Libraries** tab.
12. After the storage library has been configured, continue with Step 3.
13. Exit the Configuration Editor and save your changes.
14. To put your changes into effect, stop the FileNet Image Services software and rebuild the system files by entering the following commands as a user with privileges:

    ```
    killfnsw  - DAy
    fn_build  -a
    ```
15. Restart the Configuration Editor by entering:

    ```
    fn_edit   &
    ```

Modify the /etc/inittab file on the root server

You can edit the inittab file to have the IBM FileNet Image Services software start automatically when the server is restarted.

About this task

If the relational database is not available when the FileNet Image Services software starts, the FileNet Image Services software generates error messages. If you receive error messages of this type, start the DB2 or Oracle software, and then restart the FileNet Image Services software. If you do not know whether relational database software will be started when the FileNet Image Services software starts, do not uncomment the line in the inittab file.

Procedure

To modify the inittab file:

1. Log on as a user with root privileges and change to the /etc directory by entering:

    ```
    cd  /etc
    ```
2. Using a preferred editor (for example, vi), open and edit the inittab file.

    Important: If this command is re-enabled, the Database Administrator must ensure that the DB2 or Oracle software is running before the FileNet Image Services software restarts.
3. Locate and re-enable the following line by removing the comment character:

    ```
    rcfn:234:wait:/bin/sh /etc/rc.initfnsw </dev/console >/dev/console 2>&1
    ```
4. Save the file and then exit. This completes the basic configuration of your Root/Index or Combined server.

Configure BES, cross-committal, or multi-committal systems

Each of the FileNet Image Services systems in an BES configuration, Cross-Committal configuration, or a Multi-Committal System configuration is technically an independent system with a Root/Index server and is considered a peer system by all the others.

This section presents a brief description of these systems. For detailed information, see the *IBM FileNet Image Services Multi-Committal and Cross-Committal Configuration Handbook*.

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

The following describe the three systems:

- A Cross-Committal System is composed of a source Image Services system and a target FileNet Image Services system. The source system commits images to the target system, but does not retain the images locally.

- A Batch Entry Server (BES) is a specific type of Cross-Committal system that has no storage library and is used only for entering images for committal to another independent system (the target) that does have a storage library. The target system is also capable of entering and committing images, so in this situation the two systems must be "compatible," that is, they must have non-overlapping document IDs and surface IDs.

- A Multi- Committal System is an independent FileNet Image Services system that contains a Storage Library server and commits images both to its own Storage Library and to the Storage Library of another independent FileNet Image Services system. Multi-Committal Systems are not required to be "compatible" systems with non-overlapping document IDs. If they are not compatible, new document IDs are assigned on the target system, which might impact performance.

Chapter 6. Complete the Installation

To complete the installation of your system, continue with the final procedures. Several of the procedures are optional and are identified as such.

Procedure

- Configuring FIPS mode - optional

  Configuring FIPS mode controls which cryptographic modules are used by your FileNet Image Services system. You can choose to configure FIPS mode at this time of the installation or later.

- Install the latest fix pack

  Install the latest fix pack that is available for this FileNet Image Services release.

- Software tuning for COLD users

  On servers that have the COLD software installed, you might need to set the DISPLAY environment variable. The instructions to do so are provided in this topic.

- Create the cor_backoff_config file - optional

  Create the cor_backoff_config file, which allows you to modify the "connection failure or retry" behavior for the Courier protocol, if your system is encountering errors or a slow network.

- Edit the etc/inittab file - optional

  Modify the etc/inittab file so that the FileNet Image Services software start automatically when the system is restarted.

- MSAR systems

  You are instructed to see the IBM support page for information about installing and configuring the Magnetic Storage and Retrieval (MSAR) storage solution.

- Single document storage systems - Install Tivoli 5.5

  You must install the Tivoli Storage Manager API Client Package on FileNet Image Services systems that use IBM DR550 storage libraries. Follow the instructions provided in this topic.

- Start the FileNet Image Services software

  Perform the steps in this topic to start the FileNet Image Services software.

- Start the Application Executive

  Perform the steps in this topic to start the FileNet Image Services Application Executive software.

Software tuning for COLD users

Perform the steps in this section on the server that has COLD software installed on it, usually the Storage Library server.

About this task

When the following circumstances occur, the DISPLAY environment variable, normally set by the system, might change, and there appears to be no automatic way of correctly setting this variable:

- User switches user (su -) from another login (typically root).
- User performs an rlogin from another system.

- User resets the default host from an x-station hooked to another system.

The following work around exists:

Procedure

To set the DISPLAY variable:

1. Log on as a user with root privileges. Before running COLD, you should check the value of DISPLAY. This can be done with the following UNIX command:

   ```
   echo  $DISPLAY
   ```

2. If it has a value, it will print. If it has no value, or was never set, you will either see an empty line (Bourne/Korn shell) or an error message (C shell). In that case, you must provide a value, as follows:

   - 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 IP address.

     If the DISPLAY environment variable is not set, Motif fails by displaying errors and fails. What should happen instead is that COLD should verify that DISPLAY is set, and if not, log a clear error message, then cease.

Adapt the system for Xstation use (optional)

If you plan to run Xapex from an X station, you must modify some of the system parameters.

Perform the steps in this section on these servers:

- Root/index server during a dual server installation
- Root/index/storage library server during a combined server or entry server installation)
- Application server running WorkFlo Queue Services or SQL Services or VW services.

(The modified parameters disable your access control option and allow you to run applications from an X station.) To modify the appropriate parameters, enter commands similar to the following:

```
cd  /usr/lib/X11
xset q
xset +fp  /usr/lib/X11/fonts/100dpi
xset q
```

If you plan to run Xapex on an IBM Xstation, enter the additional line: **xhost +**

These settings disable your access control option and allow you to run applications from an Xstation.

Start the FileNet Image Services software

Start the IBM FileNet Image Services software on all servers and view the Event Logs window to make sure that there are no error messages from the software startup.

About this task

Perform all of the steps in this section on all servers.

Important: If RDBMS software is installed on this server, ask the Database Administrator to start it. If the relational database is on a remote server, both the remote database and the local client software must be running. If the RDBMS software is not available when the FileNet Image Services software starts, the FileNet Image Services software fails and displays error messages. If you receive FileNet Image Services error messages, start the RDBMS software and restart the FileNet Image Services software.

Procedure

To start the FileNet Image Services software:

1. As the FileNet Image Services software user such as fnsw, stop any FileNet Image Services processes that might already be running by entering the following command:

   ```
   killfnsw -DAy
   ```

2. Start the FileNet Image Services Task Manager by entering:

   ```
   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, and select **Dynamic**. (The **Dynamic** option enables screen refreshes each time the messages are logged.) Return to the FileNet Image Services Task Manager window, but do not close the Event Logs window.

6. From the FileNet Image Services Task Manager window, click **START**.

   System messages display in the Current Status window as the FileNet Image Services software starts. After the FileNet Image Services software startup process finishes, the **CLOSE** button is highlighted.

7. Click **CLOSE**.

8. Review the contents of the Event Logs window to make sure that there are no error messages from the software startup.

Start the Application Executive

To begin customizing your IBM FileNet Image Services system by defining media families and document classes, start the FileNet Image Services Application Executive (Xapex).

Procedure

To start the Application Executive:

1. As a FileNet Image Services software user, such as fnsw, start the Application Executive by entering:

```
Xapex &
```

2. Log on as SysAdmin. (The default password is SysAdmin.)

   See the *IBM FileNet Image Services System Administrator's Handbook* for complete information about using the Application Executive. To download FileNet Image Services documentation, see "ibm.com and related resources" on page vii.

Install the latest fix pack

Install the latest fix pack that is available for this FileNet Image Services release. The accompanying README file contains instructions for installing the fix pack software.

Install the fix pack software on all servers.

Fix packs are available for download from the IBM, see "ibm.com and related resources" on page vii.

MSAR systems

On FileNet Image Services systems that use the Magnetic Storage and Retrieval (MSAR) storage solution, MSAR provides high speed and high capacity storage libraries on magnetic disk media.

For information on installing and configuring an MSAR System, see the *IBM FileNet Image Services MSAR Procedures and Guidelines* document for information.

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

Single document storage systems - Install Tivoli 5.5

On FileNet Image Services systems that use IBM DR550 storage libraries, you must install the Tivoli TSM API Client Package.

The Readme files that accompany the software contain the installation instructions for each operating system and a link to the *IBM Tivoli Storage Manager Backup-Archive Clients Installation and User's Guide*.

```
ftp://ftp.software.ibm.com/storage/tivoli-storage-management/maintenance/client/v5r5/
```

For information on installing and configuring Single Document Storage devices, see the *IBM FileNet Image Services Integral Single Document Storage and Retrieval Procedures and Guidelines* for information.

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

Begin production mode

This concludes the FileNet Image Services Installation and Configuration Procedures. The FileNet Image Services system is now ready to put into production.

Appendix A. Adding an application server

Use the procedures in this appendix to guide you through the process of adding an Application server to your IBM FileNet Image Services system.

Complete all of the steps in this appendix on the Application server unless stated otherwise. In addition to installing and configuring a new Application server, use this appendix to accomplish the following steps.

- Add services to an existing server (for example, adding Batch Entry Services to an existing Application server). See the section, "Add server services" on page 72.
- Reconfigure an existing server because the functions it currently performs are no longer required. (Reconfiguring an existing server must be handled the same as installing and configuring a new Application server.)

Installation Prerequisites

Verify that the server is ready for the software installation by completing the procedures on the System Administrator Tasks checklist for your operating system.

This chapter assumes that the IBM FileNet Image Services 4.2 and the Relational Database software have already been installed and configured on a Combined or Dual server system. The Combined or Root/Index server will be the Root server for the Application server. If a Root server has not already been established, follow the procedures in this manual for installing and configuring the Root server, then return to this appendix to set up the Application server.

Verify that the server is ready for the software installation by completing the procedures on the System Administrator Tasks checklist in the section, systemChapter 2, "System Administrator Tasks - HP-UX," on page 9.

Transfer all of the requested information to the appropriate sections on the Installation Worksheet. All of the information necessary to complete the FileNet Image Services installation on the Application server will be in one easy-to-find place.

When the server is ready, you can begin installing the necessary software:

- If you are configuring an Application server with only Batch, Print, and/or Cache Services, which do not require RDBMS software, skip to "Install FileNet Image Services software" on page 70.
- If the DB2 or Oracle relational database software is already installed, you can also skip to "Install FileNet Image Services software" on page 70.
- If you are configuring an Application server with either WorkFlo Queue Services, SQL Services, or VWServices, continue with the next section to install the relational database software.

Install relational database software (if applicable)

Perform the steps in this section only on an Application server with either WorkFlo Queue Services, SQL Services, or VWServices.

IBM DB2

Install the IBM DB2 software.

For guidelines on installing the DB2 RDBMS software on the Application server, see the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*. To download the guidelines from the IBM support page, see "ibm.com and related resources" on page vii.

Oracle 10g and Oracle 11g

Install the Oracle software on the Application server.

For guidelines on installing Oracle software on the Application server, see:
- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers*

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

Install FileNet Image Services software

Install IBM FileNet Image Services on the Application server.

Procedure

Install the FileNet Image Services 4.2 software on the Application server by completing the procedures in the section, Chapter 4, "Installing FileNet Image Services software," on page 31.

Configuring the Root server

Modify the configuration database on the Root server to allow for the presence of an Application server on your system.

Procedure

To configure the Root server:
1. Perform the steps in this section and its sub-sections on these servers: Root/Index server during a Dual server installation and Root/Index/Storage Library server during a Combined server installation
2. Modify the configuration database on the Root server to allow for the presence of an Application server on your system.

Select and configure the relational database instance (if applicable)

You need to install and configure the RDBMS instance for your particular relational database type before you initialize the IBM FileNet Image Services databases.

Before you begin

This procedure assumes that the tablespaces and databases that you specify in the System Configuration Editor either already exist or that you will create them before you initialize the FileNet Image Services databases.

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

To download the guidelines from the IBM support page, see "ibm.com and related resources" on page vii. The Database Administrator might have supplied this information in the section, Chapter 3, "Installing the relational database software," on page 27.

About this task

Continue with the appropriate sub-section:
- "Select and configure DB2"
- "Oracle10g release 2 and 11g release 1" on page 72

Select and configure DB2

Verify the database and user tablespace names for DB2 V8.x and V9.x.

Procedure

To select and configure DB2:

1. Click the **Relational Databases** tab, then click the **RDB Objects** subtab.
2. On the **RDB Objects** subtab, verify the database name and the tablespace name in the Location column:
   - Database name, such as indexdb
   - User Tablespace name, such as userspace1.
3. On the **DB2** subtab, verify the following fields:
   - **Version** - must be 8.1.16 or later (DB2 version 8.1.0 plus FixPak 16 or later) or 8.2.9 or later (DB2 version 8.2.0 plus FixPak 9 or later) or 9.5 or later (DB2 version 9.5.0 or 9.5.0 plus FixPak 1 or later).
   - **Password Expiration Policy** - This field lists the number of days that the f_sw, f_maint, f_sqi, and f_open passwords remain in effect before they expire. The default value is 60 days. To change the default, enter a new value in this field.

     A blank field is not permitted, and a value of 0 equals `Never Expires`.
   - **Notify Administrator** - This field lists the number of days before password expiration that the administrator will be reminded to update the password. The default value is 14 days before the password expires. To change the default, enter a new value in this field.

     This value must always be less than or equal to the password expiration value. A blank field is not permitted, and a value of 0 would mean notification on the day the password expires.
4. Skip to the section, Add Server Services.

What to do next

Add Server Services.

Oracle10g release 2 and 11g release 1

Change the default Oracle tablespace names to match the tablespace names that the Database Administrator created when the Oracle software was installed. Also, verify that the version of Oracle is compatible with this release of FileNet Image Services.

Procedure

To change the default tablespace names and verify the Oracle version:

1. Click the Relational Databases tab, then click the RDB Objects subtab.
2. In the Location column of the RDB Objects window, click on a cell and replace the default FileNet tablespace names with your site-specific table names. While replacing the tablespace names, use the following criteria:
   - Change all occurrences of fnsys_ts to the name of your dedicated FileNet default tablespace.
   - Change all occurrences of fntmp_ts to the name of your dedicated FileNet temporary tablespace.
   - If an optional fnusr_ts was created for WorkFlo Queue Services, change all occurrences of the name to your dedicated FileNet user tablespace.
   - If an optional fnidx_ts was created for indexes, change all occurrences of the name of your dedicated FileNet index tablespace.

   The Image Services software will use the tablespace names entered in the RDB Objects subtab.

   Important: The tablespace names specified in the RDB Objects list must exist before you initialize the FileNet Image Services databases.
3. On the Oracle subtab, verify that the Version is 10.2.0.3, 10.2.0.3 or 11g R1 or later.

Add server services

Add the services you want to use on the Application server.

Procedure

To add services to an Application server:

1. Configure all Application server services on the Root server.
   - Batch Entry Services
   - Print Services
   - Cache Services
   - Structured Query Language (SQL) Services
   - WorkFlo Queue Services (WQS)
   - VWServices
2. If you plan to add VWServices to this Application server, use the procedures in the appendix to install and configure the FileNet Image Services and RDBMS software, and configure a SQL Service on this Application server. After you complete those procedures, see the installation handbook for your IBM FileNet Process Engine for instructions on adding VWServices to the server.

Add batch entry services

Use the **Add a Service to a Server** procedure to add batch entry services to an IBM FileNet Image Services Application server.

Procedure

To add batch entry services:

1. On the **Procedures** tab, select the **Add a Service to a Server** procedure, and click **Run**.
2. From the list of available servers, choose your Application server.
3. From the list of available services, choose **Batch Entry Services**.
4. Enter the dataset path for the FileNet Image Services cache on your Application server.

   For example: `/fnsw/dev/1/cache_0`

   Tip: The path must be on the Application server, NOT the root/index server.
5. Enter the size of the cache. (The default is 100 MB.)
6. Enter the transient dataset paths on your Application server.
   - The default transient dataset path is `/fnsw/dev/1/transient_db0`.
   - The default transient redolog dataset path is `/fnsw/dev/1/transient_rl0`.
7. Enter the size of the transient dataset sizes. The defaults are as follows: transient_db0 -3 20 MB and transient_rl0 - 256 MB.
8. Click **yes** or **no** to the `Do you want to use fast batch committal?` prompt. (If you select yes, default settings are automatically entered into the system. You can change the settings later if necessary.)

   If fast batch committal is configured, you cannot use cluster indexes. See the *IBM FileNet Image Services System Administrator's Handbook* for more details on fast batch committal and clustering. The maximum document size for remote committals using fast batch is 2.1 GB. See the *IBM FileNet Image Services Multi-Committal and Cross-Committal Configuration Handbook* for more information on remote committal. To download these handbooks, see "ibm.com and related resources" on page vii.
9. Enter the number of BES commitment processes. Choose 2 (the default) or 4.
10. To add more services, continue to the next appropriate procedure below. If this is the last service you are adding to the Application server, skip to the section, "Exit the configuration editor" on page 76.

Add print services and printers

Use the **Add a Service to a Server** procedure to add print services and a printer to IBM FileNet Image Services.

Procedure

To add print services and printers:

1. On the **Procedures** tab, select the **Add a Service to a Server** procedure, and click **Run**.
2. From the list of available servers, choose your Application server.
3. From the list of available services, choose **Print Services**.
4. Click **Yes** to add Print Services. (When you select Yes, default settings are automatically entered into the system. You can change the settings later, if necessary.)
5. On the **Procedures** tab, select the **Add a printer** procedure, and click **Run**. A dialog box prompts you to select your printer from a list of supported printers.
6. Click **Yes** if this printer is your default printer.

7. Enter a printer name. Click **OK**. (The printer name can be user-defined.)

8. Enter the Network Clearing House (NCH) Printer name (for example, LJ5SiMX).

9. Enter the network address for the printer (for example, 192.0.2.6).

10. Select the printer paper size.

11. Select the printer Eject Tray (default: Default)

12. Add other printers as necessary by repeating steps 5 through 12.

13. To add more services, continue to the next appropriate procedure. If this service is the last one you are adding to the Application server, skip to the section, "Exit the configuration editor" on page 76.

Add cache services

Use the **Add a Service to a Server** procedure to add cache services to an IBM FileNet Image Services Application server.

Before you begin

If you have already added Batch Entry services, and have set up the appropriate default caches for Cache Services (as well as Batch Entry services), you DO NOT need to complete this section. You have already configured Cache Services.

Procedure

To add cache services:

1. On the **Procedures** tab, select the **Add a Service to a Server** procedure, and click **Run**.

2. From the list of available servers, choose your Application server.

3. From the list of available services, choose **Cache Services**.

4. Answer the remaining prompts appropriately.

5. Click **OK**.

6. To add more services, continue to the next appropriate procedure below. If this is the last service you are adding to the Application server, skip to the section, "Exit the configuration editor" on page 76.

Add Structured Query Language (SQL) services

Use the **Add a Service to a Server** procedure to add SQL services to an IBM FileNet Image Services Application server.

Before you begin

If you add SQL services to your system, you MUST install RDBMS software on the Application server or on a remote RDBMS server.

Procedure

To add SQL services:

1. On the **Procedures** tab, select the **Add a Service to a Server** procedure, and click **Run**.

2. From the list of available servers, choose your Application server.

3. From the list of available services, choose **SQL Services**.

Tip: If RDBMS passwords have already been set using the **Add WorkFlo Queue Service** procedure, prompts for Step 4 and Step 5 will not be appear. In this case, skip to Step 6.

4. For Oracle, go to the **RDB Object** tab and verify that the correct table space names associated with the Application server are shown. This information was supplied by the DBA earlier in this procedure.

5. For DB2 servers, answer the following prompts:
   - f_sw password
   - f_maint password
   - f_sqi password
   - DB2 Database Alias Name
   - User Tablespace Location

6. To add more services, continue to the next appropriate procedure below. If this service is the last one you are adding to the Application server, skip to the section, "Exit the configuration editor" on page 76.

Add Workflo Queue Services (WQS)

Use the **Add a Service to a Server** procedure to add Workflo Queue services to an IBM FileNet Image Services Application server.

Before you begin

If you add WorkFlo Queue Services to your system, you MUST install RDBMS software on the Application server, or on a site-controlled remote RDBMS server.

Procedure

To add WQS services:

1. On the **Procedures** tab, select the **Add a Service to a Server** procedure, and click **Run**.

2. From the list of available servers, choose your Application server.

3. From the list of available services, choose **Add WorkFlo Queue Service**. If RDBMS passwords have already been set using the "Add Structured Query Language (SQL) services" on page 74 procedure, prompts for Step 4 and Step 5 will not be appear. In this case, skip to Step 6.

4. For Oracle, go to the **RDB Object** tab and verify that the correct table space name associated with the Application server appear.

5. For DB2 servers, complete the following when prompted:
   - f_sw password
   - f_maint password
   - f_sqi password
   - DB2 Database Alias Name
   - User Tablespace Location

6. To add more services, continue to the next appropriate procedure below. If this is the last service you are adding to the Application server, skip to the section, "Exit the configuration editor" on page 76.

Add Visual WorkFlo (VWServices)

See the installation handbook for your Process Engine system for instructions about adding VWServices to the server.

Add a tape drive (optional)

Use the **Add a Tape Drive** procedure to add a tape drive to an IBM FileNet Image Services Application server.

Procedure

To add a tape drive:

1. Click on the **Tape Drives** tab in the System Configuration Editor window.
2. If no tape drive is shown in the **Tape Drives** tab, click the **Procedures** tab and select the procedure to **Add a Tape Drive**.
3. Select the **Tape Drives** tab to verify that it was configured successfully.

Exit the configuration editor

After you have finished adding services and devices to the Application Server, follow these steps to exit the configuration editor.

Procedure

To exit the configuration editor:

1. From the **System Configuration Editor** window, click on **File** and click **Exit**.
2. Click **Yes** to save the configuration and exit the **System Configuration Editor**.

Rebuilding the Root server configuration files

Rebuild the configuration files on the Root server by running a command when the IBM FileNet Image Services software is not running. Perform the steps in this section on the Root server only.

Procedure

To rebuild the Root server configuration files:

1. Verify that the FileNet Image Services software is not running. If the software is running, enter the following command as the FileNet Image Services software user such as fnsw:

   ```
   initfnsw -y stop
   ```

2. Enter the following command to build the system configuration files:

   ```
   fn_build -a
   ```

   This command generates the configuration files that are used by components of the FileNet Image Services software. The fn_build command automatically creates the Network Clearinghouse database file (`/fnsw/local/NCH_db0`) if the file does not already exist.

3. Verify that this command runs successfully by checking that no errors have occurred. Correct any errors that occurred before you run the fn_build command again.

4. Start the FileNet Image Services software:

   ```
   initfnsw  start
   ```

Configuring the Application server

Configure the Application server for compatibility with the services that you added earlier on the Root server.

Before you begin

Perform all of the procedures in this section (and associated subsections) on the Application server. The IBM FileNet Image Services software must be running on the Root server.

About this task

The same version of FileNet Image Services software must be installed on both the Root server and the Application server.

Important: Run thewhatsup on both the Root server and the Application server to verify that the FileNet Image Services software is running on the Root server, but not running on the Application server.

Procedure

To stop the FileNet Image Services software:

If the FileNet Image Services software is running on the Application server, enter the following commands:

```
initfnsw  -y  stop
killfnsw  -DAy
```

Set ownerships and permissions

Create all directories needed for the installation using fn_setup and set the appropriate file ownerships and permissions for the directories. You will need information from the Installation Worksheet to complete this procedure.

Procedure

To run fn_setup:
1. Verify that you are logged on as a user with root privileges (the first time).
2. Run fn_setup by entering the following command:

   ```
   /fnsw/bin/fn_setup
   ```

   Answer all the prompts with appropriate information for this server.
   a. The NCH server is the generally the Root server. On an Application server, select 2=no.

      ```
      Is this the NCH server? (1-yes, 2=no) [2]:
      ```
   b. The NCH server name is generally the name of the Root server. On an Application server, enter the name of the Root server.

      ```
      Enter NCH server name [clark:ExampleCo]
      ```
   c. The system serial number must be the serial number of the Root server that you specified in the previous step.

      ```
      Enter system serial number [1234567890]:
      ```

      Tip: You can run the ssn tool on the Root server to determine its system serial number.
   d. Relational databases are only configured on servers with Index services, WorkFlo Queue Services (WQS), VWServices, or SQL services. If you are configuring an Application server without one these services, select 0=none; if the server has Oracle software installed, select 1=Oracle; if the server has DB2 software installed, select 2=DB2.

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

If you are planning to use an existing RDBMS instance, accept the default RDBMS-related values listed at each prompt.

e. If DB2 software exists on this server, enter the DB2 Client instance owner's DB2 home directory.

If Oracle software (either client or server software) exists on this server, enter the full pathname of the directory where that software is located.

```
Enter the RDBMS home directory [/home/fnsw/sqllib]:
```

If you are configuring a FileNet system with a remote database server, the RDBMS home directory is the location of the client software on the FileNet server.

f. If an Oracle 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. The fn_setup tool then displays the information you supplied so you can confirm your entries:

```
This is the setup configuration:
NCH server name:  hpvenice:YourCorp
SSN:  11008016xx
Relational database type:  oracle
Relational database home:  /home/client_920
Relational database user ID:  oracle
Relational database group ID:  dba
Relational database ID:  IDB
Do you want to continue (y/n) [y]:
```

4. Determine whether or not you want to continue: y/n (default: yes).

You then receive messages similar to the following:

```
fn_setup: Creating file /fnsw/local/setup_config
fn_setup: Changing permission on FileNet software and databases
```

When fn_setup is finished, you return to the system prompt.

Building configuration files on the Application server

Use the fn_setup_rdb tool to build configuration files on Application server.

Before you begin

Verify that the IBM FileNet Image Services software is running on the Root server. (You can run whatsup on the Root server.)

About this task

Now you need to build the correct configuration files and initialize the Application server. The same version of FileNet Image Services software must already be installed on both the Root server and Application server.

Important: There must be no NCH database already existing on the Application server.

Procedure

To build the configuration files on the Application server:

1. As the FileNet software user such as fnsw, verify that the FileNet Image Services software is not running. If the software is running, enter the following commands:

```
initfnsw -y stop
killfnsw -DAy
```

2. Enter the following command to build the system configuration files:

```
fn_setup_rdb -f
```

3. Verify that the following files do not exist on your Application server:
   - /fnsw/local/sd/root_station
   - /fnsw/local/sd/1/as_conf.s

   If the files exist, delete them from the Application server only.

Create logical volumes on the application server (HP systems only)

Use SAM to add the logical volumes for all of the IBM FileNet Image Services data sets used by the Application server.

Procedure

To create the logical volumes:

1. As a user with root privileges, enter: sam

2. From the System Administration Manager menu of SAM, select the Disks and File Systems option by pressing the Arrow Up or Arrow Down keys. When the option is highlighted, press **Return**.

3. From the Disk and File Systems Manager menu of SAM, select the Logical Volumes option. When the entry is highlighted press **Return**.

4. On the menu bar, select **Action** > **Create** and press **Return**.

5. Select the appropriate volume group for logical volume and Tab to **OK**. Press **Return** at the Add new Logical Volumes field. See the "HP-UX Installation Worksheet" on page 23 to see the listing of the volume groups.

6. Fill in the LV Name field with the Logical Volume Names (for example, enter fn_trans_db0 for the first Logical Volume entry listed in the table below). Add logical volume names for all of the applicable logical volumes listed.

Table 15. Logical volume names and minimum sizes

Logical Volume Name	Minimum Size Logical Volumes (in MB)	Increment (in MB)
fn_cache0	100	100
fn_trans_db0	320	320
fn_trans_rl0	256	256

Tip: If you are going to increase the size of any of the logical volumes, you must increase the size by a multiple of the number shown in the Increment column.

7. See the **Minimum Size (in MB)** column of for the suggested logical volume sizes. Also see the Installation Worksheet for your customer-specific sizing requirements. See the Size (MB) column for your selected logical volume and then type the <Size in MB> for the logical volume you are adding in the LV Size (Mbytes) field.

8. Next, in the Usage field, press Return to display the options (File System, Swap, or None), Arrow Down to None, and press **Return**. Then Tab to Add, press **Return**.

9. Repeat Steps 6-8 for all of the logical volumes you need to create.

10. When you are finished adding all of the logical volumes, tab to **OK** and press **Return** again. Finally, at the Create New Logical Volume screen tab to **OK** and press **Return** to create the logical volumes.

11. Return to the System Administration Manager menu and exit SAM.

Set up links required for IBM FileNet Image Services for raw partitions

Create a `filenet.links` file to link the FileNet Image Services and RDBMS database names to their raw partitions.

About this task

Perform the steps in this section on the Application server. In this topic you will link the Image Services and RDBMS data base names to their partitions by creating the `filenet.links` file and entering the correct soft link information into the new file.

Procedure

To create the `filenet.links` file:

1. As a user with root privileges, enter the following command to change to the `/fnsw/dev/1` directory:

   ```
   cd /fnsw/dev/1
   ```

   If that directory does not exist, enter the following commands to create it and change to it:

   ```
   mkdir -p /fnsw/dev/1
   cd /fnsw/dev/1
   ```

2. Create and edit a file called `filenet.links` using your preferred editor (such as vi).

   Include a soft link command for each of the data bases that you created in the previous section. Link the data base name to the logical volume where you placed the data base by entering a command structured similar to the following, depending on your operating system:

   - HP-UX systems

     ```
     ln  -s  /dev/<volume group>/<logical volume>  dbname
     ```

     where <logical volume> is the disk location of the volume and dbname is the data base name. For example:

     ```
     ln  -s  /dev/fnvg/fn_cache0  cache0
     ```

   Important: The `filenet.links` file contents shown below are examples ONLY. (The links you create must reflect the actual allocation of the volumes on your system.) In the `filenet.links` file, you MUST have unique logical volume assignments for all partitions. (Verify that no two partitions share the same logical volume assignment and that no partition is assigned to a logical volume occupied by the any part of the operating system.)

   Your file must look similar to the following:

   - HP-UX systems

```
        ln -s /dev/fnvg/fn_cache0 cache0
        ln -s /dev/fnvg/fn_trans_db0 transient_db0
        ln -s /dev/fnvg/fn_trans_rl0 transient_rl0
```

3. Close the file and save the changes.

4. Use chmod to change the permission of the `filenet.links` file by entering the following:

   ```
   chmod  755 filenet.links
   ```

   If you do not change the permission of `filenet.links`, you will not be able to execute the file.

5. Run the `filenet.links` file by entering the following commands:

   ```
   cd  /fnsw/dev/1
   ./filenet.links
   ```

6. Examine the contents of the `/fnsw/dev/1` directory.

   To display the volume owner and group use information, enter the following command:

   ```
   ls -lL
   ```

   The -L option lists the file or directory contents that the link references.

   The directory must contain the linked directories specified in the `filenet.links` file. If not, verify the permission on the `filenet.links` file, and run the file again.

Initialize application server data sets

If there is NO relational database software, either server or client, installed on this application server, skip to "Initialize the FileNet Image Services databases" on page 83.

Perform procedures in this section (and associated subsections) on the application server.

If relational database software is installed on this Application server, continue with the following sections.

Configure FileNet data sets on the application server

Configure the FileNet data sets with DB2 and Oracle software.

Configure the FileNet data sets by following instructions for your relational database system:
- "On Application Servers with DB2 client software"
- "On Application servers with Oracle software" on page 82

On Application Servers with DB2 client software

Ask the Database Administrator to start the DB2 software before initializing the IBM FileNet Image Services databases.

Procedure

To start the DB2 software:

Ask the Database Administrator to start the DB2 software before initializing the FileNet Image Services databases.

See the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*. To download FileNet Image Services documentation, see "ibm.com and related resources" on page vii.

What to do next

Skip to the section, "Initialize the FileNet Image Services databases" on page 83.

On Application servers with Oracle software

Verify that the Oracle software is configured correctly for both local and remote Oracle instances.

Before you begin

Ask the Database Administrator to start Oracle before initializing the IBM FileNet Image Services databases.

Procedure

To verify the Oracle software:

1. Verify that the Oracle Instance has the correct SID. As a user with root privileges, enter:

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

   The output looks similar to the following example where the SID appears at the end of process name. (In this example, the SID is IDB.)

   ```
   oracle user 1127  1  0  Mar 11 ?  0:18  ora_pmon_IDB
   oracle user 1129  1  0  Mar 11 ?  0:34  ora_dbwr_IDB
   oracle user 1131  1  0  Mar 11 ?  0:18  ora_lgwr_IDB
   oracle user 1133  1  0  Mar 11 ?  0:01  ora_smon_IDB
   ```

2. Verify that the following Oracle variables are set to match the existing Oracle instance:

   ```
   ORACLE_HOME (set for instance)
   ORACLE_SID (set for System ID)
   ORACLE_UID (set for Oracle database administrator user)
   TWO_TASK (set if Oracle database is on a remote Oracle server)
   ```

   As each user, enter the following commands:

   ```
   echo  $ORACLE_HOME
   echo  $ORACLE_SID
   echo  $ORACLE_UID
   echo  $TWO_TASK
   ```

3. Compare the output of the above command to the setting determined in "Oracle variables" on page 27. If the ORACLE_SID and the ORACLE_HOME are not set correctly, see the Database Administrator for the system to determine the correct settings.

   Important: In addition, the Database Administrator must create the default table-spaces with the names you entered in the FileNet System Configuration Editor. See the Tablespace table in "Table space names and sizes" on page 27 for this information. If the Oracle software is not running and if the new table spaces have not been created, the initialization process will fail.

4. Remote Oracle Servers Only:

   Important: Verify with the Database Administrator that the Oracle Client software has been successfully installed on the FileNet Image Services server.

a. As the FileNet Image Services software user such as fnsw, run the following command on the FileNet Image Services server to create the ora_users.sql file:

```
fn_oracle setquotas
```

b. Copy these scripts from the FileNet Image Services server to the corresponding directories on the Oracle server:

```
/fnsw/oracle/FileNet.sql/
/fnsw/local/oracle/ora_users.sql
```

c. Ask the Database Administrator to run this script on the remote Oracle server:

```
SQL>@FileNet.sql
(grants privileges to FileNet Image Services users)

SQL>@ora_users.sql
(assigns quotas, default tablespaces, and temporary tablespaces)
```

Initialize the FileNet Image Services databases

Use thefn_util init command to initialize the IBM FileNet Image Services databases for the Application server.

Procedure

To initialize the databases:

As the FileNet Image Services software user such as fnsw, enter the following command to initialize all FileNet Image Services databases configured on this server:

```
fn_util  init
```

After the databases are initialized, the program checks for the presence of transient.ddl file in the /fnsw/local/sd/1 directory. A message displays as the new database partitions are initialized and zeroed out.

Reset file ownerships and permissions

After you have created the IBM FileNet Image Services data sets, you must reset the RDBMS ownership and permissions.

Procedure

To reset the file ownerships and permissions:

1. As a user with root privileges, enter the following command:

```
/fnsw/bin/fn_setup -d
```

The -d option accepts all the default settings for all prompts, and sets only file permissions.

2. After fn_setup finishes, continue with the next section.

What to do next

To continue with the Application Server configuration, skip to "Start the FileNet Image Services software."

Start the FileNet Image Services software

Perform the procedures in this section (and associated subsections) on the Application server to start the FileNet Image Services software.

Procedure

To start the FileNet Image Services software:

1. As the FileNet software user such as fnsw, start X Windows (if you have not already done so).
2. Stop all FileNet processes:
   ```
   killfnsw -DAy
   ```
3. Start the updated FileNet Application server software:
   ```
   Xtaskman &
   ```
   The FileNet Task Manager interface is displayed.

   Important: If RDBMS software is installed on this Application server, start it before you start FileNet Image Services for the first time. If the RDBMS software is not available when the FileNet Image Services software starts, the FileNet Image Services software displays error messages. If you receive FileNet Image Services error messages, start the RDBMS software and restart the FileNet Image Services software.
4. After the TM_daemon message displays in the Process table, select the **Monitor** menu.
5. From the Monitor menu, select the **Event Logs** option.
6. From the Event Log window, select **DISPLAY** > **Dynamic**. (The Dynamic option enables screen refreshes each time the messages are logged.) Return to the FileNet Task Manager window, but do not close the Event Log window.
7. From the FileNet Task Manager window, click **START**.
8. After the FileNet software startup process finishes, click **CLOSE**.
9. Review the contents of the Event Log window to verify that there are no error messages from the software startup.

Modify the /etc/inittab file (optional)

Edit the /etc/inittab file to allow the IBM FileNet Image Services software to automatically start during the boot process.

Before you begin

If you do not know whether the relational database software will be started when the FileNet Image Services software starts, you might choose not to uncomment the line in the inittab file. If the relational database is not available when the FileNet Image Services software starts, the FileNet Image Services software generates error messages. If you receive error messages of this type, start the DB2 or Oracle software, and then restart the FileNet Image Services software.

Procedure

To edit the /etc/inittab file:

1. Make a backup copy of the inittab file.
2. As a user with root privileges, change to the /etc directory by entering the following command:
   ```
   cd /etc
   ```
3. Using your preferred editor, such as vi, to open and edit the inittab file.
4. Locate the following line:
   ```
   rcfn:234:wait:/bin/sh /etc/rc.initfnsw </dev/console>/dev/console>&1
   ```

5. Remove the comment symbol from the beginning of the line.

6. Save the change and exit the text editor.

Make system backups

Make complete system backups for the Root/Index server and the Application server. After you have backed up the system, the Application server is ready for production.

About this task

Perform the steps in this section on all servers.

Procedure

To make complete backups of your system configuration:

See the following documents:

- *IBM FileNet Image Services System Administrator's Handbook*
- *IBM FileNet Image Services System Administrator's Companion for UNIX*
- *IBM FileNet Image Services Enterprise Backup and Restore User's Guide* Use EBR to back up the MKF databases: transient and cache.

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

What to do next

After you have backed up the system, the Application server is ready for production.

Begin production mode for the application server

The Application server is now ready for production.

Appendix B. Adding a storage library server

To configure multiple storage library servers on your IBM FileNet Image Services system, gather the information requested in the "Installation Worksheet."

Before you begin

To successfully complete the instructions in this appendix, you must have already gathered the information requested in the Installation Worksheet for your operating system for appropriate information, performed all of the steps in the Operating System Requirements, and transferred the information to the Installation Worksheet.

If you still have to complete the Installation Worksheet, go to Chapter 2, "System Administrator Tasks - HP-UX," on page 9.

Transfer all of the requested information to the appropriate sections on the Installation Worksheet. All of the information necessary to complete the Image Services installation on the Storage Library server will be in one easy-to-find place.

If you have not completed these tasks for the Storage Library server, do them now before continuing with the rest of this appendix.

Multiple storage library server uses

Multiple storage library servers enhance system capacity and performance.

The portion of the IBM FileNet Image Services software that stores and retrieves document images is known as Storage Library Services. This software controls every activity in the storage library to verify that all documents are stored and retrieved from the optical disks in an orderly manner. Storage library services can be added to any system on a combined server, dual server, or multiserver installation. The storage library server maintains the name and location of every document stored in the storage library. In addition, the server contains one or more magnetic disk drives to store images temporarily before they are written to optical disk permanently.

Multiple storage library servers are set up on a system to enhance capacity and performance:

- If you already have as many storage libraries on a server as possible, or if you cannot physically fit another optical disk library in close enough proximity to the existing server, you need another server to add an optical disk library to the system and to enable the system to handle more disks online.
- If the processor, I/O bus, or magnetic disks on a storage library server are already pushed to their maximum throughput, adding another storage library server can increase system performance. However, if the existing server has not reached its performance limit, adding another storage library server can decrease system performance slightly because of the overhead of controlling the additional server.

Multiple storage library servers are not a solution for a disaster recovery plan because you cannot write the primary copy of one document to one storage library

server and the transaction log copy to another storage library server. Both copies are always written to the same storage library server. Database Maintenance does not let you select destination storage library servers for a transaction log family.

Prepare the storage library servers for optical devices

Perform the procedures only on the storage library servers. Perform the referenced procedures listed below in the order in which they appear.

Prepare HP-UX systems

To prepare for your IBM FileNet Image Services installation, gather the following information.

Procedure

To prepare for your FileNet Image Services installation, gather the following information:

1. Set up the volume groups by completing either "Extend the root volume group" on page 14, or "Create the FileNet Image Services volume group" on page 14, depending on your preference.
2. Create the FileNet Image Services file systems by completing "Create logical volumes and file systems" on page 19.
3. Create the fnadmin and fnop groups by completing "Create fnadmin and fnop groups" on page 16.
4. Use the procedures in "Create FileNet Image Services users and the fnusr group" on page 17, to create the FileNet Image Services software user and the fnusr and dba groups.

   Tip: On the Storage Library server you do not need to create an RDBMS user or group.

Installing IBM FileNet Image Services software

Follow these instructions to install the FileNet Image Services software on a Storage Library server.

Procedure

To install the FileNet Image Services software:

1. Install the FileNet Image Services software on the Storage Library servers by completing the section "Running the FileNet Image Services installation program" on page 32.
2. On UNIX systems, install show stopper fixes on the Storage Library servers by completing "Install the required pre-startup fixes" on page 39.
3. On UNIX systems, set up the installation environment using the inst_templates tool on the Storage Library servers by completing "Install the user environment templates" on page 39.
4. Restart the servers. First restart the Root server, then restart the Storage Library servers.

What to do next

Continue with "Configure the Root server." Perform the procedures only on the server indicated at the beginning of each section. (You might not need to perform some of the procedures included in this section.)

Configure the Root server

Perform the steps in this section and its subsections on the Root server, or on each server with a cache.

Clearing the transient database

If you are adding a storage library server to an already existing and operational IBM FileNet Image Services system, you must commit documents in the transient database to ensure that the batches that have not yet been committed are not lost while you configure the Storage Library server.

Procedure

To verify that the transient database is clear:

1. Verify that the FileNet Image Services software is running by entering the following command: `whatsup`

   The whatsup display is similar to the following example. Your local System Administrator can tell you if anything appears to be abnormal.

   ```
   USER    PID    PPID   Start Time    Processes
   fnsw    12427  1      06/14/2008    COR_Listen -px -s5 -d20
   fnsw    21133  1      06/14/2008    COR_Listen -px -s1099
   fnsw    21385  1      06/14/2008    COR_Listen -pt -d20
   fnsw    22708  1      06/14/2008    CSM_daemon
   fnsw    14810  1      06/14/2008    CSMs
   fnsw    15256  1      06/14/2008    DOCs
   fnsw    16275  1      06/14/2008    INXbg -s IndexServer
   fnsw    16515  1      06/14/2008    MKF_clean
   fnsw    11420  1      06/14/2008    PRI_daemon
   fnsw    12193  1      06/14/2008    PRI_fetch 0
   ```

2. Print or delete all outstanding print requests.
3. Commit or delete all uncommitted batches.
4. Examine the remaining contents of cache by entering: `CSM_tool`

   Important: The FileNet Image Services software must be running for CSM_tool to work properly.

5. To obtain statistics on bes_cache, page_cache, and print_cache, enter the following command at the CSM_tool prompt: `st`

   All caches should show no locked objects. These locked objects represent uncommitted batches, unwritten images, and pending print jobs.

   Tip: If you have any FAX servers, there will be two locked objects per FAX server in print_cache.

6. Enter the following command to quit the CSM_tool: `q`

Add storage library servers to the configuration database

Procedure

To add an additional storage library server:

1. At an X station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator, login to your server as the FileNet software user such as fnsw.

2. Open a new window and enter the following command:

   `fn_edit &`

3. Verify that the two-part domain information is correct. (The two-part domain name is set up as follows: <Domain>:<Organization>

   The System Configuration Editor window displays.

4. On the Procedures tab in the System Configuration Editor window, select the Add a Storage Library server option from the Procedure List Box, and click **Run**.

   Tip: Use online help when completing the following steps.

5. Enter the name of the Storage Library server. The server name of the storage library server is user defined. Click **Next**.

6. Enter the network address of the Storage Library server. See the "Installation Worksheet" for appropriate information. Click **Next**.

7. Respond to the **Do you want to use fast batch committal?** prompt by clicking yes or no. (If you select yes, default settings are automatically entered into the system. You can change the settings later if necessary.)

   Important: If fast batch committal is configured, you cannot use cluster indexes. See the System Administrator's Handbook for more details on fast batch committal and clustering. The maximum document size for remote committals using fast batch is 2.1 GB. See the Multi-Committal and Cross-Committal Configuration Handbook for more information about remote committal. To download these documents from the IBM support page, see "ibm.com and related resources" on page vii.

8. Choose the number of BES commitment processes (1-4).

9. Enter the path for the cache partition (default: `/fnsw/dev/1/cache0`).

10. Enter the cache dataset size.

11. Enter the path for the transient database (default: `/fnsw/dev/1/transient_db0`).

12. Enter the dataset size for the transient database.

13. Enter the path for the transient database redo log (default: `/fnsw/dev/1/transient_rl0`).

14. Enter the dataset size for the transient database redo log.

15. Enter the path for the permanent database (default: `/fnsw/dev/1/permanent_db0`).

16. Enter the dataset size for the permanent database.

17. Enter the path for the permanent database redo log (default: `/fnsw/dev/1/permanent_rl0`).

18. Enter the dataset size for the permanent database redo log.

19. Verify that you have entered the information correctly:
    - Click the Network Addresses Tab to verify that the Storage Library server is listed.

- Click the Server Application Services Tab to verify that the Storage Library server is listed.
- Click the Datasets Tab to see the datasets you added to the Storage Library server, including cache0, transient_db0, transient_rl0, permanent_db0, permanent_rl0.

20. Exit from the System Configuration Editor and save your changes.

Rebuilding the configuration files on the root server

Stop the IBM FileNet Image Services software and rebuild the configuration files on the root server. Perform the steps in this section on the root server only.

Procedure

To rebuild the configuration files on the root server:

1. On the root server, logon as the FileNet Image Services software user.
2. Verify the FileNet Image Services software is not running. If the software is running, enter the following command:

   ```
   initfnsw  -y  stop
   ```

3. Update the configuration files for the server by entering the following command:

   ```
   fn_build -a
   ```

   This command generates the configuration files used by the components of the FileNet Image Services software. Each file is produced in two steps. First a temporary file is produced with a .new extension. Then, if there is a difference between the .new version and the existing version, the .new version of the file is copied over the existing version of the file.

4. Verify that the command runs to completion by checking that no errors have occurred. Correct any error that occurs before you run the command again.
5. Start the FileNet Image Services software by entering:

   ```
   initfnsw start
   ```

Configure the storage library server

Perform this section and its subsections on each Storage Library server being added to the system. IBM FileNet Image Services software must be running on the Root server.

Before you begin

The procedures in this section assume that the same version of FileNet Image Services software is installed on both the Root server and the Storage Library server.

Important: Verify that FileNet Image Services is running on the Root server, and not running on the Storage Library server. (You can run whatsup on the Root server.)

Procedure

If the FileNet Image Services software is running on the Storage Library server, enter the following commands:

```
initfnsw  -y  stop
killfnsw  -DAy
```

Set file ownerships and permissions

Use the fn_setup tool to set the Storage Library server file ownerships and permissions. You will need information from the Installation Worksheet to complete this procedure.

Procedure

To run fn_setup:

1. Verify that you are logged on as a user with root privileges (the first time).
2. Run fn_setup by entering the following command:

   `/fnsw/bin/fn_setup`

   Several prompts display. Answer the prompts with information related to your system.

3. Determine whether or not this is the NCH server, 1 = yes, 2 = no (default: no). Reply No for the Storage Library server.
4. Enter the NCH server name (for example, root/index_domain:YourCorp). Enter the domain and organization of the Root server.
5. Enter the `system serial number (SSN)`. Enter the SSN of the Root server (for example, 1234567890).

   Important: The 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 FileNet Image Services system to another. The valid range of SSNs is 1000 through 2147483646.

6. Enter the RDBMS software configured on the server: 0 = None, 1 = Oracle, 2 = DB2. (For a Storage Library server, select 0 = None.)

   Relational databases are only configured on servers with Index services, WorkFlo Queue Services (WQS), SQL services, or VWServices.

7. Determine whether or not you want to continue: y/n (default: yes).

   You then receive messages similar to the following:

   ```
   fn_setup: Creating file /fnsw/local/setup_config
   fn_setup: Changing permission on FileNet software and databases
   ```

   When fn_setup is finished, you might receive a message indicating `exit status = 0 (success)`(this is not an error.) If necessary, press **Return** to go the system prompt.

Build configuration files on the storage library server

Use the procedures in this section to create the logical volumes for all of the FileNet data sets that are used by the storage library server.

Procedure

To build the configuration files on the storage library server:

1. At an X station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator, log on to the server as a user with root privileges (a member of the fnadmin group) (the first time).
2. Verify the FileNet Image Services software is not running. If the software is running, enter the following command:

   `initfnsw -y stop`

3. Update the configuration files for the server by entering the following command:

```
fn_build -a
```

This command generates the configuration files used by the components of the FileNet Image Services software. Each file is produced in two steps. First a temporary file is produced with a .new extension. Then, if there is a difference between the .new version and the existing version, the .new version of the file is copied over the existing version of the file.

4. Verify that the command runs to completion by checking that no errors have occurred. Correct any error that occurs before you run the command again.

5. Start the FileNet Image Services software by entering:

```
initfnsw start
```

Create logical volumes on the storage library server

To manually add the logical volumes for all of the FileNet Image Services data sets used by the storage library server.

Procedure

To create the logical volumes:

1. As a user with root privileges, enter: sam

2. From the System Administration Manager menu of SAM, select the **Disks and File Systems** option.

3. From the Disk and File Systems Manager menu of SAM, select the **Logical Volumes** option. When the entry is highlighted press **Return**.

4. On the menu bar, select the **Action** > **Create** option and press **Return**.

5. Select the appropriate volume group for logical volume and Tab to **OK**. Press Return at the Add new Logical Volumes field. See the "Installation Worksheet" to see the listing of the volume groups.

6. Fill in the **LV Name** field with the Logical Volume Names (for example, type in fn_perm_db0 for the first Logical Volume entry listed in the following table). Add logical volume names for all of the applicable logical volumes listed in the table.

Table 16. Logical volume names and sizes

Logical Volume Name	Minimum Size of Logical Volumes (in MB)	Increment (in MB)
fn_cache0	100	100
fn_perm_db0	100	100
fn_perm_rl0	64	64
fn_trans_db0	320m	320
fn_trans_rl0	256m	256

Important: If you are going to increase the size of any of the logical volumes, you must increase the size by a multiple of the number shown in the **Increment** column.

7. See the **Minimum Size (in MB)** column of the table for the suggested logical volume sizes. Also see the "Installation Worksheet" to see your customer-specific sizing requirements. See the **Size (MB)** column for your selected logical volume and then type the size in MB for the logical volume you are adding in the **LV Size (Mbytes)** field.

8. Next, in the **Usage** field, press **Return** to list the options (File System, Swap, or None), Arrow down to **None**, and press **Return**. Then select add, press **Return**.

9. Repeat Steps 6-8 for all of the logical volumes you plan to create.

10. When you are finished adding all of the logical volumes, select **OK** and press **Return** again. Finally, at the Create New Logical Volume screen tab to **OK** and press **Return** to create the logical volumes.

11. Return to the System Administration Manager menu of SAM and exit SAM.

Create symbolic links for each MKF data sets that use raw partitions

Link the IBM FileNet Image Services and MKF data set names to their volume names by creating the `filenet.links` file, entering the correct soft link information, and running the file.

About this task

Repeat the steps in this section on these servers for the FileNet Image Services groups and users:

- Application server during an application server installation.

Procedure

To create the symbolic links:

1. As a user with root privileges, change to the `/fnsw/dev/1` directory:

   ```
   cd  /fnsw/dev/1
   ```

   Tip: If one or more of the subdirectories in this path do not exist yet, use the mkdir -p command to create them.

2. Use your preferred text editor to create and edit the filenet.links file by using your preferred text editor. Include a soft link command for each of the data bases that you created in the previous section. Link the data base name to the logical volume where you placed the data base by entering a command structured similar to the following, depending on your operating system:

   ```
   ln  -s  /dev/volume_group/logical_volume dbname
   ```

   Where *logical_volume* is the disk location of the volume and *dbname* is the database name. For example:

   ```
   ln  -s  /dev/fnvg/fn_cache0  cache0
   ```

   Important: The filenet.links file contents shown below are examples ONLY. (The links you create must reflect the actual allocation of the volumes on your system.) In the filenet.links file, you MUST have unique logical volume assignments for all partitions. (Verify that no two partitions share the same logical volume assignment and that no partition is assigned to a logical volume occupied by the any part of the operating system.)

   Your file might look similar to the following example:

   On an application server:

   ```
   ln  -s  /dev/fnvg/fn_cache0  cache0
   ln  -s  /dev/fnvg/fn_trans_db0  transient_db0
   ln  -s  /dev/fnvg/fn_trans_rl0  transient_rl0
   ```

3. Close the file and save the changes.

4. Use the chmod command to change the permission of the filenet.links:

   ```
   chmod 755 filenet.links
   ```

Tip: If you do not change the permission of filenet.links, you cannot run the file.

5. Run the filenet.links file by entering the following commands:

```
cd /fnsw/dev/1
./filenet.links
```

6. Examine the contents of the /fnsw/dev/1 directory by entering the following command:

```
ls -lL
```

The -l option displays the mode, number of links, owner, group, size (in bytes), and time of last modification for each file. The L option displays the file or directory referenced by a symbolic link.

The directory must contain the linked directories specified in the **filenet.links** file. If the /fnsw/dev/1 directory does not contain the correct links, verify and, if necessary, update the **filenet.links** file with any changes, verify the permissions on the filenet.links file, and run the file again.

Initialize MKF data sets on the storage library server

Perform the steps in this section on the storage library server.

Procedure

As the IBM FileNet Image Services software user, enter the following command to initialize all FileNet Image Services databases configured on this server:

```
fn_util init -y
```

The fn_util init command initializes the transient and permanent databases on the storage library servers. After the databases are initialized, the scripts check for the presence of permanent.ddl and transient.ddl files in the /fnsw/local/sd/1 directory. A message identifies the new database partitions as they are initialized and zeroed.

Configure network parameters (optional)

This section assumes that you have already installed and configured the appropriate network protocol on the Root/Index server.

Before you begin

Before beginning the steps in this section, you must know the following information: the Internal Network Number for your system, the File server name, and the Media Access Controller (MAC) address. See the "Installation Worksheet" for the correct information.

Important: If you are configuring Dual Homing support, you must have two network adapter cards installed on your system: one for Ethernet, one for Token Ring.) Configure the appropriate protocol for each network adapter card on your system.

Procedure

To configure the network parameters:

1. Go to an X-station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator and login to your server as the FileNet Image Services software user, such as fnsw.

2. Open a new window, and enter the following command:

```
fn_edit &
```

3. Verify that the two-part domain information is correct. (The syntax of the two-part domain name is: *Domain*:*Organization*.)

4. Select the **System Attributes** Tab and select **Network Protocols** from the **Options** list.

5. From the **Protocol Preference** option choose the **TCP** option for TCP/IP protocol.

6. From the **Protocol Preferences** option field, select the system appropriate preference from the pull down options list.

7. From the **System Configuration Editor** window, select the **Network Addresses** Tab.

8. Enter the network address (if one is not already present).

   You can enter up to eight network addresses for each network card in the server. The format for a TCP/IP address is shown in the following example:

```
192.0.2.5
```

   After the FileNet Image Services software restarts, fn_build will determine if any changes have occurred in the fn_edit configuration.

Starting databases and network software

Initialize the transient and permanent databases on your storage library server and then start the IBM FileNet Image Services software.

Procedure

To initialize the MKF databases and start the FileNet Image Services software:

1. On the new storage library servers, log on as the FileNet Image Services software user such as fnsw.

2. Initialize the permanent and transient databases by entering the following commands:

```
fn_util  inittrans
fn_util  initperm
```

   The fn_util inittrans and fn_util initperm scripts initialize the transient and permanent databases on the Storage Library server. (After the databases are initialized, the scripts check for the presence of permanent.ddl and transient.ddl files in the /fnsw/local/sd/1 directory.)

   If you are attaching an existing storage library server to a new system, you may receive the following message:

```
63,0,10  <fnsw >  ds_init (14983) ... CRITICAL
The Scalar Numbers Table is behind the snt.chkpt file.
```

   This message indicates the scalar numbers table and the checkpoint file are out of synchronization. Continuing in this condition may cause multiple documents to be committed with the same document ID. To solve this problem, run the following commands to start the permanent database and update the scalar numbers table:

```
fn_util  startdb
SNT_update
```

   Document Services cannot function until this problem is resolved.

3. After SNT_update is finished, run fn_util init again.

4. Start the FileNet Image Services application software by entering:

```
Xtaskman  &
```

5. From the FileNetTask Manager window, select **RESTART**.
6. Run a start database command on every storage library server to start up the MKF databases and the Network Clearinghouse background processes that are needed during the installation process.

   As the FileNet Image Services software user, enter the following command on every storage library server:

   ```
   fn_util startdb
   ```

   Running the fn_util startdb command shuts down the FileNet Image Services software and starts up all FileNet Image Services databases present on the storage library server.

Adding a new storage library server

After you have run the fn_util startdb script on every storage library server, you are ready to run the add_osvr utility, which adds a new storage library server to the system configuration files.

About this task

In addition to adding a new storage library server, the add_osvr utility updates the permanent and transient databases on each storage library server to reflect the new servers. The add_osvr utility also updates the family and surface locator tables on the Document Locator server and the family disk table on each new storage library server.

Procedure

To add the storage library server:

1. Go to an X-station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator and login to your server as the FileNet Image Services software user.
2. Enter Xtaskman at the system prompt. Click **Backup**. This command also starts COR.listen.
3. Obtain the server ID assigned to each new Storage Library server by using one of the following methods:
   - The server ID is assigned and viewed by using the fn_edit utility. Run fn_edit. Click the Server Application Services tab, then the Scheduling subtab. Scroll to the right to see the **Storage Library ID** for each server.
   - Start nch_tool.

     ```
     nch_tool
     ```
   - List the properties to view the storage library server ID in the NCH database.

     In the following example, OsarServer2 is the new OSAR server. On the line beginning: `osarDesc, 0 3 ... 3` is the number used for the add_osvr command. The nch_tool command would be:

     ```
     nch_tool>listprop OsarServer1

     Properties for OsarServer1:<domain>:FileNet
     (addressList, [192.0.2.1,32769])
     (osarService, "Library Service")
     (osarDesc,0 2 DocServer:<domain>:FileNet page_cache1:Persistent:FileNet

     nch_tool>listprop OsarServer2
     Properties for OsarServer2:<domain>:FileNet
     ```

```
(addressList, [192.0.2.2,32769])
(osarService, "Library Service")
(osarDesc,0 3 DocServer:<domain>:FileNet page_cache2:<domain>:FileNet)
```

4. To run add_osvr, enter the following command from any station with Storage Library Services:

   `add_osvr` *server id 1 server id 2 ... server id n*

   where *server id 1 server id 2 ... server id n* are the storage library server identification numbers of the servers you are adding. (These numbers are not the station numbers.) Enter a space between each server ID.

   The add_osvr command creates the family_locator table on the Combined server and updates the family_disk table on the new storage library server.

   After running the add_osvr command, a message in the event log instructs you, "Run Database maintenance to resave all media families." On a new installation of root or Storage Library servers there are no media families, so you can ignore this message.

   Entering add_osvr with no parameters displays a description of the program and a usage statement. After the add_osvr utility has completed, you will see the following message:`program terminated successfully`

   If the system crashes or is restarted while add_osvr is running, you can rerun the program. If add_osvr fails for any reason, correct the problem and rerun the program. DO NOT run any other programs until add_osvr completes. If the process cannot be completed, restore your system from a backup.

Verify optical device files on the storage library server

Use the ioscan tool to verify the new driver for the HP optical disk drive and the HP Storage Library system.

Before you begin

If you are configuring a cache-only server (no optical devices are attached to the server), skip to section, "Restart the Root server" on page 102.

Verify that the optical devices are powered on and active (you can use ioscan to check this). If the optical device is not powered on, the optical device will not be found.

Procedure

To verify the optical device files:

1. Verify that the storage library devices are powered on and are active.
2. At your Storage Library server's terminal, and as a user with root privileges, use ioscan to determine the addresses of the HP optical drives and storage libraries.

   `ioscan -fn | less`

   Look in the ioscan display for your storage libraries and drives. You can identify the storage drives by locating the vendor ID and the product ID in the Description column.

   If necessary, see the documentation that accompanies your storage library to determine the vendor and product IDs to look for.

```
Class       I  H/W Path     Driver     S/W State   H/W Type    Description
=========================================================================
...
ba          2  0/2          lba        CLAIMED     BUS_NEXUS   Local PCI-X Bus
 Adapter (122e)
ba          3  0/3          lba        CLAIMED     BUS_NEXUS   Local PCI-X Bus
 Adapter (122e)
ext_bus     4  0/3/2/0      c8xx       CLAIMED     INTERFACE   SCSI C1010 Ultra2
 Wide LVD A6829-60101
target      6  0/3/2/0.1    tgt        CLAIMED     DEVICE
disk       10  0/3/2/0.1.0  sdisk      UNCLAIMED   UNKNOWN     HP      C1118J
target      7  0/3/2/0.2    tgt        CLAIMED     DEVICE
disk        3  0/3/2/0.2.0  sdisk      CLAIMED     DEVICE      HP      C1113J
target      8  0/3/2/0.3    tgt        CLAIMED     DEVICE
disk        4  0/3/2/0.3.0  sdisk      CLAIMED     DEVICE      HP      C1113J
target     10  0/3/2/0.7    tgt        CLAIMED     DEVICE
ctl         5  0/3/2/0.7.0  sctl       CLAIMED     DEVICE      Initiator
ext_bus     5  0/3/2/1      c8xx       CLAIMED     INTERFACE   SCSI C1010 Ultra2
 Wide LVD A6829-60101
target     12  0/3/2/1.7    tgt        CLAIMED     DEVICE
...
```

In the previous example, the vendor ID is HP and the product IDs are C1118J
and C1113J.

Notice that for HP C1118J, the S/W State and H/W Type are UNCLAIMED
and UNDEFINED, which indicates that this device is the robotic arm. The two
HP C1113J devices are the optical drives.

Tip: If you cannot locate the storage library devices in the ioscan display, you
can try this method as a last resort:

a. Shutdown the server and turn power off to all the storage library devices.

b. Turn power back on only to the server and run the ioscan command, saving
   the output to a file. For example:

   `ioscan -fn > /fnsw/local/tmp/ioscan_pwr.off`

c. Shutdown the server again and turn power back on to all the storage library
   devices.

d. Turn power on to the server and run the ioscan command, saving the
   output to a different file. For example:

   `ioscan -fn > /fnsw/local/tmp/ioscan_pwr.on`

e. Find the differences between the two files by entering:

   `diff /fnsw/local/tmp/ioscan_pwr.off /fnsw/local/tmp/ioscan_pwr.on`

f. The resulting display should contain only the lines pertaining to the storage
   library devices.

   Write down the full H/W Paths (for example, 0/3/2/0.1.0), the Class, and
   the Description (model numbers) of each storage library device shown on
   the display.

   _____

   _____

   _____

Verify the /fnsw/local/sd/sod.conf file

The sod.conf file contains the driver and hardware path specifications for SCSI
optical devices and SCSI robotic arm devices. Perform the steps in this subsection
on all HP-UX servers.

Procedure

To verify the sod.conf file:

1. Change to the appropriate directory and display the contents of the file:

   ```
   cd  /fnsw/local/sd
   more  sod.conf
   ```

   (If the sod.conf file does not exist, use vi or your preferred text editor to create it.)

2. Look for a line for each of the storage library devices shown on the ioscan display. The sod.conf file should include lines for both optical devices and robotic arm devices, using the following format:

   ```
   driver  H/W Path  driver
   driver  H/W Path  driver
   . . .
   driver  H/W Path  driver
   ```

   where:

   The *H/W Path* is the entire H/W path field shown on the ioscan display line for each library device.

   The *driver* is sctl.

3. The sod.conf file must specify a driver for each storage library device shown on the ioscan display. Your sod.conf file might have lines that look similar to this:

   ```
   driver  0/3/2/0.1.0  sctl
   driver  0/3/2/0.2.0  sctl
   driver  0/3/2/0.3.0  sctl
   ```

   If lines similar to this already appear and are correct, the file has been updated successfully.

   If you are not able to locate these lines or if they are inaccurate, you must add or change them manually. Use your preferred text editor, such as vi, to edit the file.

4. Save your changes to the file, and exit the editor.

   Important: Verify that the SCSI adapter card is configured for a maximum of 80 MB/second data transfer for best optical library performance. See Appendix I, "Setting the maximum data transfer rate for SCSI host bus adapters," on page 125.

Create optical device files

Use the FNPoll command to create the optical device files.

Before you begin

If there are no optical devices attached to your server, skip this section.

Verify that the optical device is powered on and active. (You can use ioscan to check this.) If the optical device is not powered on, or needs to have a disk in the drive to be recognized, FNPoll will not find it. FNPoll will report No FileNet Device Found.

Procedure

As the FileNet software user such as fnsw, enter the following command at the system prompt: /fnsw/bin/FNPoll
The FNPoll display is similar to this:

```
Found HPUX Version 11.23

Removing old device nodes and files used by FNPoll.

Determining model, series and device driver information.

This appears to be a(n) i-Series platform (ia64 hp server rx4640).
Looking up driver and class information for this platform.

Expected  driver-class for single-ended SCSI: sctl-ctl
Alternate driver-class for single-ended SCSI: unknown-unknown
Allowable single-ended controller(s): C1010 and (alternate) none

Expected  driver-class for differential SCSI: sctl-ctl
Alternate driver-class for differential SCSI: unknown-unknown
Allowable differential controller(s): C87x and (alternate) none

HP SCSI Pass-Through Driver:
        Single-Ended Major # 203  and (alternate) -1 unknown.
        Differential Major # 203 and (alternate) -1 unknown
```

If FNPoll is successful, you will also see:

```
Searching for FileNet Devices:

disk      10  0/3/2/0.1.0    sdisk     UNCLAIMED   UNKNOWN     HP      C1118J
disk       3  0/3/2/0.2.0    sdisk     CLAIMED     DEVICE      HP      C1113J
disk       4  0/3/2/0.3.0    sdisk     CLAIMED     DEVICE      HP      C1113J

Building FileNet Devices, Mon Jun  5 15:45:59 PDT 2006

crw-rw-rw-  1 fnsw      fnusr      203 0x041000 Jun  5 15:45 /dev/fnsod.4,0,1,0
crw-rw-rw-  1 fnsw      fnusr      203 0x042000 Jun  5 15:45 /dev/fnsod.4,0,2,0
crw-rw-rw-  1 fnsw      fnusr      203 0x043000 Jun  5 15:45 /dev/fnsod.4,0,3,0
-rw-rw-rw-  1 fnsw      fnusr        4 Jun  5 15:45 /dev/fnsod.major
-rw-rw-rw-  1 fnsw      fnusr        4 Jun  5 15:45 /dev/fnsod.major.DIFF
-rw-rw-rw-  1 fnsw      fnusr        4 Jun  5 15:45 /dev/fnsod.major.DIFF1
-rw-rw-rw-  1 fnsw      fnusr       11 Jun  5 15:45 /dev/fnsod.major.DIFF2
-rw-rw-rw-  1 fnsw      fnusr        4 Jun  5 15:45 /dev/fnsod.major.SE
-rw-rw-rw-  1 fnsw      fnusr        4 Jun  5 15:45 /dev/fnsod.major.SE1
-rw-rw-rw-  1 fnsw      fnusr       12 Jun  5 15:45 /dev/fnsod.major.SE2
```

After FNPoll has completed successfully, you can continue with the section
"Restart the Root server" on page 102.
However, if FNPoll is not able to locate the /fnsw/local/sd/sod.conf file, you will
see:

```
Searching for FileNet Devices:

ERROR: /fnsw/local/sd/sod.conf must be created with the configuration
       information for your system.

  The entries in /fnsw/local/sd/sod.conf are of the form:

  spt 56/52.5.0 spt
      ^^^^^^^^^ This is the 'H/W Path' from the output of a call to
      'ioscan -f'.  Put in a line for every device (library and disk
      drive) to be used by the FileNet Image Services.

ERROR: No devices created.
```

Verify that the sod.conf file is in the correct directory, and that it contains the
appropriate entries for your system. Then return to the beginning of this section
and run FNPoll again.

Restart the Root server

For the changes you just made to take affect, you must restart the Root server after shutting down the RDBMS instance.

Before you begin

Important: All DB2 or Oracle users must be logged off the server and the RDBMS instance must be shutdown before you enter the following system shutdown command. Failure to do so could result in a corrupted database.

Procedure

To restart the Root server:

As a user with root privileges, move to the root directory and enter the following command to restart the server:

```
cd  /
shutdown  -ry  0
```

Logon to the configuration database

Start the IBM FileNet Image Services System Configuration Editor

Procedure

To start the FileNet Image Services System Configuration Editor:

1. Go to an X-station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator and login to your server as the FileNet Image Services software user, such as fnsw.
2. Open a new window, and enter the following command:
   ```
   fn_edit  &
   ```
3. Verify that the database and domain names are correct, and click **OK**. (The two-part domain name is set up as follows: *Domain*:*Organization*.) The System Configuration Editor window displays.

   Tip: The online help contains information about all of the tabs. You can access the online information by selecting the Help menu option in the System Configuration Editor window.

Configure storage library devices

You can configure storage library devices on the storage library server automatically or manually.

Before you begin

If there are no storage libraries on the server, skip to the next section, "Start the FileNet Image Services software" on page 104.

About this task

Tip: Even though an ODU (Optical Disk Unit) is technically not a storage library because it lacks a robotic arm, for the purposes of configuration you must perform the same steps for an ODU that you would perform for a storage library.

Procedure

To configure a storage library:

1. To view the information concerning the optical library devices configured on your server, select the **Storage Libraries** tab from the System Configuration Editor window.

   See the "Installation Worksheet" for information concerning your optical library devices.

2. Click the Procedures tab. To configure a storage library, you have two choices:

3. **Automatically Configure a Storage Library**

   Storage libraries can be configured automatically if they are attached correctly to the server, and if they are fully powered on.

   a. Scroll through the list of available procedures and select **Automatically Configure Storage Library**.

      The fn_edit program gets all the information it needs directly from the storage library and does not display any messages unless it encounters an error.

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

   c. Exit the Configuration Editor and save your changes.

   d. Skip to the next section.

4. **Manually Configure a Storage Library**

   To configure a storage library manually:

   a. Scroll through the list of available procedures and select **Manually Configure Storage Library**.

   b. Respond to the prompts with the appropriate information from the Worksheet. You are prompted to 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 robotic arm in the library.

      Tip: The four part SCSI address values are taken from the information you wrote down from the ioscan display earlier. For example, you might enter:

      ```
      4 0 1 0
      ```

      where:
      - the first number is the SCSI adapter ID (the number you copied from the I (Instance) column of the ioscan display)
      - the second number is the bus ID (the first of the three numbers from the H/W Path column)
      - the third number is the target device ID (the second of the three numbers from the H/W Path column)
      - the fourth number is the Logical Unit Number (LUN) (the third number from the H/W Path column)

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

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

   d. Exit the Configuration Editor and save your changes.

Set file ownerships and permissions (if necessary)

After configuring optical devices, you must reset the file permissions. Use the fn_setup tool to set the file ownerships and permissions on the Storage Library server.

Before you begin

Perform the steps in this section on the Storage Library servers only if you configured optical devices.

About this task

See the "Installation Worksheet" for correct information.

Procedure

To set the file ownerships and permissions:

1. Logon as the FileNet software user.
2. Run the fn_setup utility by entering the following command:

   `/fnsw/bin/fn_setup -d /`

   The -d option causes fn_setup to set ownerships and permissions only, starting at the root (/) directory, and not to prompt you to verify system information.

   You then receive messages similar to the following:

   ```
   fn_setup: Creating file /fnsw/local/setup_config
   fn_setup: Changing permission on FileNet software and databases
   ```

   When fn_setup is finished, you might receive a message indicating "exit status = 0 (success) (this message does not indicate an error.)" If necessary, press **Return** to go the system prompt.

Start the FileNet Image Services software

Start the IBM FileNet Image Services software on each server in your FileNet Image Services system.

About this task

Perform the steps in this section on all servers: Root server first, then the Storage Library servers.

Procedure

To start the software:

1. From the command line prompt, logon as the FileNet Image Services software user such as fnsw and enter the following command to start the FileNet Image Services software on all servers; Root server first, then the Storage Library server:

   `initfnsw  restart`

2. Start Xapex, and use Database Maintenance (on any server) to re-save all media families, and resolve any warning or error messages that appear.
3. Use the vl command to check the event log. If any documents were committed before the media families were re-saved, you might see a warning message. If so, add or change the preferred library information to match the current storage library configuration.

Storage library server utilities (optional)

You can use the move_disk and del_osvr utilities to address optical disk and library issues concerning your storage library server.

This section briefly describes the function and uses of the following storage library server utilities: move_disk and del_osvr.

- move_disk - move optical disks from one optical disk library to another.
- del_osvr - remove a storage library server from your system.

Do not use the utilities described in this section on any storage library server unless a specific need exists. For more information about storage library server utilities, see the *IBM FileNet Image Services System Tools Reference Manual*. To download the document from the IBM support page, see "ibm.com and related resources" on page vii.

Important: Whenever any change in storage library configuration occurs, especially when a storage library is deleted, it is important to resave all the media families manually and resolve any errors. See the Database Maintenance chapter of the *IBM FileNet Image Services System Administrator's Handbook* for information about saving media families. To download the document from the IBM support page, see "ibm.com and related resources" on page vii.

Moving disks between storage library servers

Run the move_disk utility if you want to move optical disks from an Optical Disk Library attached to your old Storage Library server to an Optical Disk Library attached to your new Storage Library server in order to balance disks equally between each server.

About this task

The move_disk utility does the following:

- Reads optical disk information from the Storage Library server database where it currently resides.
- Inserts the optical disk information into the destination Storage Library server database.
- Updates the surface locator table to point to the new location of the optical disk.
- Deletes the optical disk information from the source Storage Library server database where the disk previously resided.

Procedure

To run the move_disk utility:

1. Eject all disks to be moved from the Optical Disk Library as described in the "Storage Library Control" chapter of the *IBM FileNet Image Services System*

Administrator's Handbook. To download the document from the IBM support page, see "ibm.com and related resources" on page vii.

2. Run the move_disk utility from the source Storage Library server attached to the Optical Disk Library where the disks currently reside. Enter:

   ```
   move_disk surfid 1 ... surfid n dest_server_name
   ```

   where *surfid 1 ... surfid n* represents the surface ids and *dest_server_name* represents the server id of the Storage Library server attached to the Optical Disk Library to which you want to move the disks.

3. Insert the disks into the Optical Disk Library attached to the destination Storage Library server using Storage Library Control (SLC). This is described in the "Storage Library Control" chapter of the *IBM FileNet Image Services System Administrator's Handbook*. To download the document from the IBM support page, see "ibm.com and related resources" on page vii.

Deleting a storage library server

You can delete a Storage Library server using the del_osvr utility. This utility removes a Storage Library server from a system and moves references to the optical disks from the deleted Storage Library server to a remaining Storage Library server.

About this task

The del_osvr utility does the following:

- Checks the Storage Library servers for documents not written yet. If it finds any unwritten documents, it notes the problem and terminates. You must then either start the Storage Library server and let it finish the outstanding write_requests, or run WRT_clean to remove them. See the *IBM FileNet Image Services System Tools Reference Manual* for information about WRT_clean. To download the document from the IBM support page, see "ibm.com and related resources" on page vii.

- Copies all optical disk database information from each Storage Library server to be deleted to the destination Storage Library server. It then deletes this information from the Storage Library server being deleted.

- Updates the family disk information on each deleted Storage Library server to remove all current, future, and previous write surfaces. It adds this information to the destination Storage Library server so that partially full disks will continue to be written. If a partially full disk cannot be added to the destination family's current surfaces because the current surface array is full, a message is logged to the system error log.

- Updates the surface locator and family locator tables. If only one Storage Library server remains, the entries in the surface and family locator tables are deleted. If multiple Storage Library servers remain, the pointer in the surface locator table is changed to point to the destination Storage Library server, and the pointer to the deleted Storage Library server in the family locator table is removed. Optical disks assigned to deleted Storage Library servers will be assigned to the destination Storage Library server. However, families referencing a deleted Storage Library server will have that reference removed, but will not have a reference to the destination Storage Library server explicitly added. Also, if all the servers referenced by a family are deleted, that family will be changed to reference all remaining Storage Library servers.

Run the del_osvr utility from the source Storage Library server (the server that you are deleting) to update the permanent and transient MKF databases on each Storage Library server with the necessary changes.

Procedure

To use thedel_osvr utility:

1. Backup the system to tape.

   Important: If you get partially through deleting a Storage Library server and have a problem, restoring the backups is the only way to return to the original state. There is no other program that can undo an uncompleted attempt to delete a Storage Library server.

2. Verify that there are no pending write requests for the Storage Library servers to be deleted. If there are, delete them.

3. Eject all disks to be moved from the Optical Disk Libraries of the Storage Library server to be deleted.

4. Stop the IBM FileNet Image Services software on all Storage Library servers by entering:

   ```
   initfnsw  stop
   ```

5. Run the fn_util startdb tool on every Storage Library server to start up the permanent and transient databases by entering the following command:

   ```
   fn_util  startdb
   ```

6. On each server, enter a command similar to the following:

   ```
   del_osvr  svrid1 svrid2 ... svridndest_server_num
   ```

   svrid1 svrid2 ... svridn are the server ids of the Storage Library servers to be deleted, and <dest_server_num> is the destination Storage Library server to move information to from the Storage Library servers being deleted.

   Tip: If the Storage Library server on which optical disks are referenced is not correct, or the Storage Library server's families referenced are not the desired ones after you run the del_osvr utility, you can run the move_disk utility to move optical disks, and you can also run database maintenance to change families.

7. After del_osvr is completed, run fn_edit on the Root server to delete the Storage Library server. Be sure to delete the logical cache allocation before removing the station.

8. In Xapex, use Database Maintenance to re-save all media families, and resolve any warning or error messages that appear by adding or changing the preferred library information to match the current storage library configuration.

Make system configuration backups

Regular backups of the system configuration and data are essential.

About this task

Perform the steps in this appendix on both the Root server and the Storage Library servers.

Procedure

To make a system backup:

1. At an X-station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator, login to your server as a user with root privileges.

2. Make a copy of the inittab file, and stop the FileNet software by entering the following series of commands:

```
cd  /
cp  /etc/inittab  /fnsw/etc/inittab.backup
initfnsw  stop
```

Note: If you have a Dual server, shutdown the IBM FileNet Image Services software on the Storage Library servers before the Root/Index server.

3. Create a backup of your LVM configuration to protect the system from potential disk crashes. See the man page for more information regarding the vgcfgbackup command. Complete the following bullets:

   - If you have only the root volume group (rootvg) on your system, enter the following command: `vgcfgbackup /dev/vg00`
   - If you have the FileNet volume group (fnvg) (or some other volume group) on your system, also enter the following command: `vgcfgbackup /dev/fnvg`
   - This step will make restores easier if the system ever crashes. These LVM configuration backups are stored in an area that is automatically accessed during a restore.

   Important: In the event of a disk crash, it will be helpful to have copies of the following files or command output listings (hard copies at least) to help in the recovery:

```
system
fstab
vgdisplay -v vg00 (command output)
vgdisplay -v fnvg (if applicable) (command output)
ioscan  -fn (command output)
```

4. Make a system backup tape using the Backup and Recovery option in SAM. This backup will take about 45 minutes. See the HP-UX System Administration Tasks for information about system backups and restores.

5. From the command line prompt, enter the following command to bring up the FileNet Image Services software: `initfnsw restart`

Begin production mode for the storage library server

The Storage Library server is now ready for production.

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

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*.

Appendix D. 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 E. Uninstalling FileNet Image Services

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 F. Guidelines for servers with high server stub usage

Servers can run out of operating system resources if they use a high number of server stubs. The COR_Listen process reports a "System out of resource" message in the elog when it tries to start more server stub processes than the operating system allows.

About this task

COR_Listen places the following WARNING message in the elog:

```
155,18,215<fnsw>COR_Listen -pt -s32769 -t3600 -d100
(2830478.25444.300 0x2b308e.6364) ... [WARNING]
COR_Listen: pthread_created() failed, err=11.System out of resource.
Please contact system administrator or upgrade your system!
```

One master COR_Listen process creates each server stub that is configured in the /fnsw/etc/serverConfig or /fnsw/etc/serverConfig.custom file, rather than creating a separate COR_Listen process for each server stub process. Thus, the master COR_Listen process uses operating system resources differently than in earlier FileNet Image Services releases. If you receive the "System out of resource" message, consider changing your operating system configuration settings with this usage in mind.

Procedure

To avoid this system resource problem:

1. Configure your operating system settings to accommodate your usage according to the following table. The kernel settings are not hard requirements and might vary depending on your usage of both FileNet Image Services and non-FileNet Image Services processes. The "Total number of stubs" column is the number of concurrent server stubs in use and configured in the /fnsw/etc/serverConfig file.

Table 17. Guidelines for servers with high server stub usage

Total number of stubs	ulimit data (MB)	Kernel Guidelines
135	1024	max_thread_proc 256, maxuproc 400, msgmni 2048
350	1024	max_thread_proc 1000, maxuproc 400, msgmni 2048
900	1024	max_thread_proc 2000, maxuproc 2000, msgmni 4096

2. Your changes go into effect the next time you restart the server.

Appendix G. Installing the HP AD278A PCI MUX 8-port adapter card

The AD278A PCI MUX adapter is a high-speed serial communication multiple port product. It combines various signals for transmission over a single channel and provides intelligent communication functions to off-load CPU serial communication processing tasks.

About this task

The AD278A PCI MUX 8-port adapter is supported with the following versions of the HP-UX operating system:

- HP-UX 11i v2 (B.11.23)
- HP-UX 11i v3 (B.11.31)

Procedure

To install the adapter:

1. Shutdown IBM FileNet Image Services, and turn power off to the FileNet Image Services storage library server.
2. Follow the manufactures's instructions to install the AD278A adapter into the storage library server.
3. Connect the serial OSAR library to the MUX cable using one of the following cables:
   - 3100611-025 (25 feet long)
   - 3100611-050 (50 feet long)
4. Apply power on to the storage library server and restart HP-UX.
5. For HP-UX 11i v2, follow the instructions to download the device driver software from the HP website.

   For HP-UX 11i v3, locate the driver on the HP-UX 11i v3 media.
6. Install the driver software.
7. After you install the driver, the server automatically restarts.
8. List the MUX ports by entering the following command:

   `ioscan -knfC tty`

   Verify that the newly configured adapter appears in the list.
9. Determine the MUX port number the OSAR library is connected to. Using that port number, find the device name. For example, the port 1 (P1) Connector has a device name like:

   /dev/tty2a1
10. Change the owner to fnsw.

    ```
    chmod 660 /dev/tty2a1
    chown fnsw /dev/tty2a1
    ```
11. And change the permissions.
12. Start the FileNet Image Services System Configuration Editor:

    `fn_edit &`

13. Select the **Storage Libraries** tab, and enter that name (/dev/tty2a1, for example) into the device address for the serial FileNet OSAR library. Exit and save your changes.

14. Rebuild the system configuration files by entering:

    ```
    fn_build  -a
    ```

15. Start FileNet Image Services.

Appendix H. HP Multicultural Support

This appendix contains steps to setup an HP 700/RX Xstation with an AT/2 keyboard so you can enter the characters for any of the supported languages.

The following prerequisites must be met in order to complete the Multicultural Environment setup:

- You must have one of the HP 700/RX Xstations with an AT/2 keyboard.
- You must be running the HP VUE application on your Xstation.

The steps in this topic can be performed on any of the HP 700/RX Xstations, but the only keyboard supported for the imaging software is the AT/2 keyboard.

The HP Server that the Xstation boots from must contain certain items to be configured correctly for a Multicultural environment.

Configuring the HP-UX Server

Verify that the server contains the Multicultural ISO 8859-1 character set for the language you want the Xstation to be dedicated to.

Procedure

To verify the multicultural character set:

1. Logon to the HP-UX or HP Integrity server as a user with root privileges.
2. Check for the `/usr/lib/nls/config` file by listing it with the ls command. If it does not exist, you need to have your HP System Administrator install the Multicultural product on your HP Integrity server. This product is an optional product, but more than likely is installed on your server when the operating system is installed.

   You cannot continue with the next step until the Multicultural product has been installed on your server.
3. Verify that the following line exists in the `/usr/lib/nls/config` file:

   locale`.iso88591`

   where *locale* is the abbreviated national language name your Xstation is dedicated to. For example:

   ```
   French is fr_FR.iso88591
   German is de_DE.iso88591
   ```

   If the line does not exist in the config file, see your HP documentation or have your HP System Administrator set it up.
4. Verify that the `/usr/lib/nls/`*language*`/iso88591` directory exists. If the directory does not exist, see your HP documentation or ask your HP System Administrator to set it up.
5. Verify that the locale.inf file exists in the `/usr/lib/nls/`*language*`/iso88591` directory.

   Regardless of which version of HP-UX you are running, if the files do not exist, see your HP documentation or have your HP System Administrator set them up.

Setting up the Xstation

You can set up an Xstation by changing settings in the system's **Configuration** menu.

Procedure

To set up the Xstation:

1. Turn on the Xstation (if it is not already). If you are in a current session, exit completely by selecting the exit button in the bottom right corner of the screen.
2. At the login screen, click the Options box, press and hold down the F12 function key while selecting the Restart Server option until the **Configuration** menu displays.
3. Click the **Terminal** button at the top left of the Configuration menu.
4. In the **Terminal** menu, click the box to the right of the AT/2 keyboard field.
5. From the AT/2 keyboard language menu, select the language you want the Xstation to be dedicated to and click **OK** to return to the Configuration menu.
6. Click the **Server** button at the top left of the Configuration menu.
7. At the bottom of the Server menu, verify that the Font Path field includes the following lines:

   ```
   /usr/lib/X11/700X/fonts/iso_8859.1/100dpi/
   /usr/lib/X11/700X/fonts/iso_8859.1/75dpi/
   ```

   If these font paths are not specified in this menu and you want to add them, try clicking on the Reset Font Path button and these paths should be added to your font menu setting by default. If the paths are not added automatically, add them manually at the bottom of the font menu.
8. Save and exit out of the Configuration menu by clicking on the **OK** button. Wait about two seconds and then power cycle the Xstation to force the Xstation to boot and download the files form your HP Integrity server. The Xstation should take a few minutes to finish booting.

   If you receive error messages concerning the iso_8859 fonts, you need to contact your HP System Administrator to load the necessary fonts.

   Note: Complete the following Steps 9 through 16 for every user.
9. At the login screen, click the Options box and select the HP VUE Session option.

   Then, log in with your User Name and Password.
10. From the HP VUE User Interface screen, select a window and export the DISPLAY environment variable by completing one of the following bulleted steps, depending upon the shell you are using:

    - For Bourne and Korn shell users, enter:

      ```
      export  DISPLAY=Xstation-name:0
      ```

      where *Xstation-name* is the name given to your Xstation when it is setup on your HP Integrity server.

    - For C shell users, enter:

      ```
      setenv  DISPLAY  Xstation-name:0
      ```

      where *Xstation-name* is the name given to your Xstation when it is setup on your HP Integrity server.

11. Using your preferred editor (vi, for example), edit the /fnsw/etc/
Xresources.template file. First, in this file look for a line similar to the
following line:

```
vuesession*sessionLanguage:      en_US.iso88591
```

Replace the word en_US with the language you want. Then save the change to
this file.

12. Enter the following command to merge the Xresources.template file content to
your current HP VUE session resources file:

```
xrdb -merge /fnsw/etc/Xresources.template
```

This command updates your VUE session with the information in the given
resources file.

13. To permanently save the changes made to the Xresources.template file in your
home resources file, complete the following bullets. Otherwise, skip this step
completely and go to the next step.

- Activate the Style Manager icon from the VUE front panel and click on the
  Startup icon.
- Click on the Set Home Session button and select **OK** to update your home
  session with the current session, which you have just modified with the
  xrdb command in Step 13.
- When this is completed, exit out of the Style Manager window completely.

14. Set up the *LANG* variable in your shell environment files using your preferred
editor (vi, for example). From your HOME directory, edit the necessary files
by completing one of the following bulleted steps, depending upon the shell
you are using:

- For sh and ksh, add the following lines to both your .profile and .vueprofile
  files:

  ```
  LANG=locale.iso88591 export  LANG=C
  ```

  where *locale*> is the abbreviated national language name your Xstation is
  dedicated to. For example:

  For example, for French add these lines:

  ```
  export LC_ALL=fr_FR.iso88591
  export LANG=C
  ```

  For German, add these lines:

  ```
  export LC_ALL=de_DE.iso88591
  export LANG=C
  ```

- For csh, add the following line to both your .login and .vueprofile files:

  ```
  setenv  LANG  language.iso88591
  ```

  where *language* is the language your Xstation is dedicated to.

  For example, for French you would add this line:

  ```
  setenv  LANG  fr_FR.iso88591
  ```

  Or for German you would add this line:

  ```
  setenv  LANG  de_DE.iso88591
  ```

15. Continue to edit the .vueprofile by adding the following lines at the end of
the file:

```
xmodmap  -e  "keysym  Print  =  F13"
xmodmap  -e  "keysym  Scroll_Lock  =  F14"
xmodmap  -e  "keysym  Pause  =  F15"
xmodmap  -e  "keysym  Insert  =  F16"
xmodmap  -e  "keysym  Home  =  F17"
xmodmap  -e  "keysym  Delete  =  F18"
xmodmap  -e  "keysym  End  =  F19"
```

Verify that there are no errors, otherwise the function keys will not be mapped properly. These key mappings allow APEX to map its function keys to the AT/2 keyboard.

16. Restart the Xstation by selecting the **exit** button in the bottom right corner of the screen to exit from HP VUE, and then log back in.

What to do next

This concludes the procedure to configure National Language Support on IBM FileNet Image Services for HP-UX. The server is now ready to put into production.

Return to production mode

This concludes the procedure to configure National Language Support on FileNet Image Services for HP-UX. The server is now ready to put into production.

Appendix I. Setting the maximum data transfer rate for SCSI host bus adapters

You can set the maximum data transfer rate for a SCSI host bus adapter (HBA) installed in your HP Itanium-based server. For best performance, the speed of the SCSI adapter channel that an optical library is connected to might need to be adjusted.

The A7173A SCSI adapter runs at 320 MB per second. UDO libraries can operate at these maximum SCSI adapter rates. For use with all other storage library types, the SCSI adapter channel must be set to 80 MB per second.

Using the HP Lights-Out Configuration Utility

Use the HP Lights-Out Configuration Utility and the Extended Firmware Interface flash utility to verify and set the data transfer rate for your SCSI host bus adapters.

About this task

The HP Lights-Out Configuration Utility is a Windows-based utility that connects to iLO (integrated Lights-Out) using a secure connection over the network. This utility requires a valid user ID and password with the appropriate privileges.

Procedure

To start the Lights-Out Configuration Utility:
1. Using your preferred Internet browser, enter the TCP/IP address of the HP Integrity server console on the address line and press Enter to display the iLO login window.
2. When the Lights-Out window displays, select the Remote Console tab, and click the View Console button.
3. In the console window, logon to the HP Integrity server as a user with root privileges and restart the server by entering: `shutdown -r -y 0`
4. Wait until a menu appears with several options including go to an EFI shell.

   Important: Immediately scroll down with the arrow key to the EFI shell option and press Enter. You have only a few seconds before this menu disappears. You now have access to enter EFI commands.

Entering EFI commands

The Extended Firmware Interface (EFI) flash utility allows you to set the maximum data transfer rate for a SCSI host bus adapter.

Procedure

To set the maximum data transfer rate:
1. At the EFI shell prompt, enter: `drivers`
   The resulting display is shown in the following example.

```
Shell > drivers
             T  D          _____ Number of Connections
D            Y C I              |
R            P F A              |
V  VERSION   E G G #D #C DRIVER NAME                        IMAGE NAME
== ========  = = = == == ================================== ==================
11 00000010  B - -  6 13 PCI Bus Driver                     PciBus
1B 01030000  D X X  1  - LSI Logic Ultra320 SCSI Driver     PciROM:20:01:01:000
1C 01030000  B X X  1  2 LSI Logic Ultra320 SCSI Driver     PciROM:20:01:00:000
1D 00002160  B - -  1  1 Intel(R) PRO/1000 v2.16 EFI-64     PciROM:20:02:01:000
1E 00002160  B - -  1  1 Intel(R) PRO/1000 v2.16 EFI-64     PciROM:20:02:00:000
23 01030000  B X X  1  3 LSI Logic Ultra320 SCSI Driver     PciROM:80:01:01:000
24 01030000  D X X  1  - LSI Logic Ultra320 SCSI Driver     PciROM:80:01:00:000
27 0000002A  D - -  2  - Usb Ohci Driver                    UsbOhci
28 00000010  B - -  2  4 USB Bus Driver                     UsbBus
29 00001010  D X -  1  - Usb Keyboard Driver                UsbKb
2A 00000011  ? - -  -  - Usb Mouse Driver                   UsbMouse
2B 00000010  ? - -  -  - Usb Bot Mass Storage Driver        UsbBot
2C 00000010  ? - -  -  - Usb Cbi0 Mass Storage Driver       UsbCbi0
2D 00000010  ? - -  -  - <UNKNOWN>                          UsbCbi1
2E 00000011  ? - -  -  - Generic USB Mass Storage Driver    UsbMass Storage
2F 00000010  ? - -  -  - UGA Console Driver                 GraphicConsole
```

2. First you need to find the driver handle designation (<drvr_handle>) in the DRV column for your optical library on this display.

   To do this, you need to know which driver is associated with your SCSI device. For example, for an A7173A host bus adapter that uses the LSI Logic Ultra320 SCSI Driver, look in the DRIVER NAME column.

   Four occurrences of this driver are listed in the sample display, so look for the one that has the appropriate number of connections in the #C (number of connections) column.

   If your storage library has three connections (for two optical drives and a robotic arm), locate the LSI Logic Ultra320 SCSI Driver line that has 3 in the #C column.

   Now you can find the driver handle designation (<drvr_handle>) in the DRV column, which is 23 in the sample display.

3. Next you need to find the controller handle designation, <cntrl_handle>.

   At the EFI shell prompt, enter:

   drvcfg

   The command display is shown in the following example.

   From the output of the drvcfg command, look for the lines where the NN in Drv[NN] is same as the <drvr_handle> for the drivers you determined in the previous step. For example, locate Drv[23].

   The second column, Ctrl [NN], contains the corresponding <cntrl_handle>, where NN is the controller handle. In the example, the controller handle that corresponds to driver handle 23 is Ctrl [26].

4. Now that you have identified both the driver handle and the controller handle, you can display the SCSI parameters and set them for any driver and corresponding host bus adapter on the SCSI bus.

   At the EFI shell prompt, enter:

   drvcfg -s <drvr_handle> <cntrl_handle>

   The **Global Properties** screen displays containing information about the host bus adapter to which the controller handle corresponds, as in this example:

```
Shell > drvcfg -s 23 26
LSI Logic Host Bus Adapters
Adapter  PCI  PCI  PCI     RAID    FW Revision  Pro-  LSI       RAID    IRQ
         Bus  Dev  Fnc    Alert                 duct  Control  Status
<53C1030  80   01   01>   -----    192.0.2.0    IT    Enabled  -------  0
```

Press **Enter** to display the **Adapter Properties** screen containing the host bus adapter settings.

On the **Adapter Properties** screen, use the arrow keys to highlight the **Device Properties** option, and press **Enter**.

The Device Properties screen displays, as shown in this example:

```
Device Properties
SCSI  Device Identifier            MB/Sec  MT/Sec  Data   Scan   Scan
 ID                                               Width  ID     LUNs > 0
  0    HP      C1118M       5.14    80     [40]   [16]   [Yes]  [Yes]
  1    HP      C1113M       1.18    80     [40]   [16]   [Yes]  [Yes]
  2    -                            80     [40]   [16]   [Yes]  [Yes]
  3    -                            80     [40]   [16]   [Yes]  [Yes]
  4    -                            80     [40]   [16]   [Yes]  [Yes]
  5    HP      C1113M       1.18    80     [40]   [16]   [Yes]  [Yes]
  6    -                            80     [40]   [16]   [Yes]  [Yes]
  7    53C1030                      80     [40]   [16]   [Yes]  [Yes]
  8    -                            80     [40]   [16]   [Yes]  [Yes]
  9    -                            80     [40]   [16]   [Yes]  [Yes]
 10    -                            80     [40]   [16]   [Yes]  [Yes]
...
```

The default speed is the maximum for the SCSI adapter:

- 320 MB/second for A7173A adapters

  UDO libraries can operate at these maximum SCSI adapter rates. But for use with all other storage library types, the SCSI adapter channel needs to be set to 80 MB/second.

  Tip: Assign the data transfer rate to the SCSI host bus adapter (in this example, 53C1030, SCSI ID 7), so the same maximum data transfer rate is set to all the devices attached to the adapter.

  To change the maximum data transfer rate, use the arrow keys to highlight the corresponding option under the MT/Sec column, and then use the plus (+) or minus (-) keys to change the values.

  Important: For example, to change the transfer rate to 80 MB/Sec, you must change the MT/Sec transfer rate to 40.

5. After making the necessary changes, press **Esc** to exit the **Device Properties** screen. This takes you back to the **Adapter Properties** screen.

6. Press **Esc** again to exit the **Adapter Properties** screen.

   If you did not modify any of the SCSI parameters, then the **Global Properties** screen displays.

   However, if you modified any of the SCSI parameters, then the following screen displays:

```
Adapter and/or device property changes have been made.
 <Cancel Exit>
 Save changes then exit this menu
 Discard changes then exit this menu
 <Exit the Configuration Utility>
```

   Use the arrow keys to highlight your selection from the listed choices, and then press **Enter** to return to the **Global Properties** screen.

7. Press **Esc**. The following screen displays:

```
Are you sure you want to exit?
 <Cancel Exit>
 Save changes then exit this menu
 Discard changes then exit this menu
 <Exit the Configuration Utility>
```

Use the arrow keys to highlight your selection from the listed choices, and then press **Enter** to return to the EFI shell prompt.

8. At the EFI shell prompt, enter the following command to restart the system:
   reset

   The system restart is required for the new setting to take effect.

Appendix J. Configuring a Font Server for COLD Preview

On each existing HP-UX or HP Integrity Storage Library server that will be running FileNet COLD Preview software, set up and test a Font Server.

These 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.

Configuring 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 the X Window System. For CDE to function correctly, these fonts must be available to the X servers (X terminals) that display CDE.

Edit the `/etc/X11/fs/config` file

As a user with root privileges, use your preferred text editor, such as vi, to edit the `/etc/X11/fs/config` file.

Procedure

To edit the file:
1. Locate the "catalogue = ..." line.
2. Verify that the first item in the catalogue list is:
   `/usr/lib/X11/fonts/type1.st`
3. At the end of the catalogue line append the following phrase:
   `,/usr/dt/config/xfonts/C`
4. Save your changes and exit the file.

Edit the `/etc/rc.config.d/xfs` file

As a user with root privileges, you also need to edit the `/etc/rc.config.d/xfs` file.

Procedure

To edit the file:
1. As a user with root privileges, you also need to edit the `/etc/rc.config.d/xfs` file.
2. Add or modify the line for the following variable:
   `RUN_X_FONT_SERVER=1`

Start the font server

Start or restart your IBM FileNet Image Services system's Font server.

Procedure

To start the Font server:

As a user with root privileges,enter: `/sbin/init.d/xfs start`
If the Font Server is already running, kill it and repeat the xfs start command.

Edit the `/etc/dt/config/Xsetup` file

As a user with root privileges, edit the`/etc/dt/config/Xsetup` file.

Before you begin

Before you edit this file, copy it from the `/usr/config` directory.

Procedure

To edit the file:

1. As a user with root privileges, enter: `cp /usr/config/Xsetup /etc/dt/config/Xsetup`
2. Edit the /etc/dt/config/Xsetup file you just copied.

   Add this line at the end of the file:

   `$XDIR/xset fp+  tcp/server_id:7000  1>/dev/null`

   where *server_id* is either the server name as found in the `/etc/hosts` file, or the TCP/IP address of the server. If you need to find out the TCP/IP address, enter:

Install HP-UX patches, if necessary

Depending on the version of HP-UX operating system installed on your server, you might need to install patches from Hewlett-Packard.

Procedure

To install HP-UX patches:

1. Go to the IBM Information Management support page and find the IBM FileNet Image Services, Image Services Resource Adapter, and Print Hardware and Software Requirements. To download this document from the IBM support page, see "ibm.com and related resources" on page vii.
2. Select your version of the HP-UX operating system from the list, and scroll down to review the patch requirements.

Restarting the Root server

For the changes you just made to take affect, you must restart the Root server.

Procedure

To restart the Root server:

Enter the following command: `shutdown -ry 0`

Verify the Font Server

After the server restarts, log in as a user with root privileges and verify that the Font Server is working properly.

Procedure

To verify the Font Server:

1. Verify that the Font Server has started by entering: `ps -ef | grep xfs`

   If the Font Server has started successfully, the process status information displays.

2. Verify that the Font Server is at the head of the Xserver's font path by entering: `xset -q`

   You should see a section that says, "Font Path:", then an entry similar to this:

   `tcp/:7000`

   This entry should 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 should see a list of fonts. The first fonts on the list should be from Adobe.

Verifying the Xstation

Perform the steps in this section on the Xstation you will be using to run the COLD Preview application.

Before you begin

If you are not already running COLD software on the server, you might have to postpone this test until after you have completed the rest of the Image Services update procedure.

About this task

Procedure

To verify that the Xstation is selecting the correct font:

1. Run the Xstation's Configuration Diagnostics (for example, hold down the F12 key and select the Diagnostics icon. You should see a button to display font logging.)

2. Run COLD Preview. The font logging shows whether font selections are coming from the Font Server or the Xserver, and it also shows you which specific font is being selected.

What to do next

After you have finished configuring and verifying the Font Server, return to "TCP/IP address" on page 4.

Return to the main procedure

You have finished configuring and verifying the font server.

What to do next

Return to the section "TCP/IP address" on page 4 to verify that the server has a static IP address.

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This product incorporates technology covered by one or more of the following patents: U.S. Patent Numbers: 6,094,505; 5,768,416; 5,625,465; 5,369,508; 5,258,855.

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