IBM FileNet Image Services
Version 4.2

*Installation and Configuration
Procedures for AIX*

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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.

1. Navigate to the Information Management support page: www.ibm.com/software/data/support.
2. On the Support home page, click **Sign in** to access your authorized content and to customize your pages.

   The Support home page contains a wide variety of options:

   - Check the "Featured links" and "Flashes and alerts" for possible solutions.
   - Expand the "Support resources" menu for links to many tools and references.
   - Expand the "Contact support" menu and select **Directory of worldwide contacts**. Click the link for your country to view the contact information.

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?uid=swg27010558

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

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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/.

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On the Support home page, click Sign in to access your authorized content and to
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Document revision history

Table 1. Document revision history

FileNet Image Services version	Date	Description
4.2	November 2012	Revised the topic, "Installing the system libraries to support XVT" on page 34 in Chapter 5.
4.2	June 2011	Corrected steps in the topic, Installing the system libraries to support XVT in Chapter 5. (Resolved ecmdb00963999)
4.2	May 2011	Initial release.

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 hardware

Verify that your AIX server meets the hardware requirements to run IBM FileNet Image Services.

- AIX 64-bit processors for all servers with Oracle software including Root/Index servers and Application servers with either WorkFlo Queue Services, SQL Services, or VWServices.

  Restriction: Oracle is compatible with only 64-bit servers. The kernel can be either 32-bit or 64-bit, but the hardware must be 64-bit.

- AIX 32-bit processors for servers without Oracle such as separate Storage Library servers and Application servers with only Batch, Print, or Cache Services.

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

AIX operating system software requirements

IBM FileNet Image Services is compatible with several versions of the AIX operating system.

See the *Hardware and Software Requirements for FileNet Image Services* for the latest operating system support information.

Upgrade to one of these versions of AIX before you install the FileNet Image Services and relational database software.

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.

```
lsattr -E -l sys0 -F 'description value' -a 'realmem'
```

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 2. 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 v.

Temporary space

The installation program needs a certain amount of temporary space for extracting files.

- 500 MB total space in /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 `/fnsw/local`

WPAR support

IBM FileNet Image Services supports installation in a Workload Partitioning (WPAR) environment with AIX 6.1 and later.

Data sets must be based on file systems. WPARs do not allow the creation of raw logical partitions, so versions of FileNet Image Services prior to Version 4.2 are not supported on WPAR. Also, WPAR does not support optical storage due to access restrictions to physical devices under WPAR.

Configure the AIX operating system settings on the partition hosting the WPAR on which FileNet Image Services is being installed. These tasks are described in Chapter 2, "System Administrator Tasks - AIX," on page 7.

After you install the FileNet Image Services software, one of the configuration steps is to create a new FileNet Image Services Configuration Database by using the System Configuration Editor, `fn_edit`. When you are prompted, "Do you want to use file systems for MKF databases," accept the default: **file systems**.

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 E, "Installing FileNet Image Services in non-English Environments," on page 105.

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.

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 AIX/6000

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 v.

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 v

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 - AIX

The IBM Debugger for AIX is an interactive source-level debugger. It works on an AIX-based client that is connected locally or remotely through a network connection to a debugger engine running on AIX, or on a Windows-based client that is connected remotely to a debugger engine running on AIX.

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 E, "Installing FileNet Image Services in non-English Environments," on page 105 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.
  - DB2 relational databases must always be installed on remote AIX or Solaris servers.
  - 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 v.
- *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 - AIX

The System Administrator is responsible for completing the tasks in this section.

Operating system requirements

Verify the version of the AIX operating system by performing the steps in this section on all servers.

Procedure

To check AIX operating system version:

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

   ```
   oslevel -r
   ```

2. To check the maintenance level, enter the following command:

   ```
   instfix -i | grep AIX
   ```

Results

Compare the results of these commands with the information in the *Hardware and Software Requirements for IBM FileNet Image Services, IBM FileNet Image Services Resource Adapter, and IBM FileNet Print*. If necessary, upgrade the AIX operating system to match the requirements for this version of IBM FileNet Image Services. To download this document from the IBM Support page, see "ibm.com and related resources" on page v.

Verifying the App-Dev Bundle

IBM FileNet Image Services software requires that you install the Application Development (App-Dev) Bundle as part of the AIX operating system. The App-Dev Bundle is a set of software packages that are used for developing application programs and is included on the AIX operating system media.

About this task

If you are sure that the App-Dev Bundle is already installed on your server, you can skip to "Installing the latest patches" on page 8. If you have not installed the App-Dev Bundle or are not sure if the App-Dev Bundle is installed, follow these steps.

Procedure

To install the App-Dev bundle:

1. Start SMIT:

   ```
   smitty
   ```

   You might be instructed to insert Volumes 2 and 3 of the AIX operating system media during the installation.

2. In SMIT, choose **Software Installation and Maintenance** > **Install and Update Software** > **Install Software Bundle (Easy Install)**. From the list of input devices, select the **CD-ROM drive** > **select Server from the list** option.

3. From the list of installation defaults, accept all defaults and click **OK**.

4. At the warning, click **OK**.

   During the installation, the related files are marked as Installed (if the App-Dev Bundle was needed) or Already Installed (if the App-Dev Bundle was already present).

   The bundle installation automatically exits from SMIT when the installation is complete.

5. FileNet Image Services software also requires that bos.adt be installed as part of the AIX operating system. Verify that all the required parts of bos.adt are installed by entering the following commands:

```
lslpp -h bos.adt.debug
lslpp -h bos.adt.libm
lslpp -h bos.adt.base
lslpp -h bos.adt.lib
lslpp -h bos.perf.perfstat
```

   If they are not installed, use the `smitty install_latest` command to install the individual files.

6. If necessary, unmount the CD by entering:

```
cd /
umount /cdrom
```

Installing the latest patches

Check the IBM Information Management support page for patches that might be required before you install FileNet Image Services.

Installing X11 fonts for COLD Preview

If you are licensed to use Computer Output to Laser Disk (COLD), install the font package that is required for running COLD Preview.

Procedure

To install the X11 fonts for COLD Preview:

1. As a user with root privileges, mount the AIX operating system media by entering:

```
mount -rv cdrfs /dev/cd0 /cdrom
```

2. Start SMIT:

```
smitty
```

3. In SMIT, choose **Software Installation and Maintenance** > **Install and Update Software** > **Install and Update from Latest Available Software** > **List the input devices** and select the location of the input device..

4. In the List the input devices field, type:

```
X11.fnt.iso1
```

5. Click **OK** to continue. The font installation automatically exits from SMIT when the installation is complete.

System configuration issues

The System Administrator is responsible for completing additional system configuration tasks in the following sections.

Setting the time zone parameter

Use SMIT to review and change the time zone parameter.

Procedure

To set the time zone parameter:

1. In SMIT, choose **System Environments** > **Change/Show Date and Time** > **Change Time Zone Using System Defined Values**.

2. Choose the **Daylight Savings Time** option, if applicable.

3. At the **CUT Time Zone** menu, choose the option associated with your site. For example, in California, set the time zone to the Pacific time zone (PST8PDT) Pacific U.S.; Yukon (cut -8).

   CUT is Coordinated Universal Time, also abbreviated UTC, the near equivalent of Greenwich Mean Time (GMT).

Setting the number of processes per user

Use SMIT to set the number of processes per user.

Procedure

To set the number of processes per user:

1. In SMIT, choose **System Environments** > **Change/Show Characteristics of Operating System**.

2. Change the `Maximum Number of PROCESSES allowed per user` to a minimum of 400.

3. Change the `Maximum Kbytes of real memory allowed for MBUFS` to 0.

   Tip: Setting the MBUFS parameter to 0 causes the system to use the default amount of available memory. This default amount is approximately 1/8 to 1/4 the amount of real memory.

4. Click **OK** followed by **Done**.

   Important: These are minimum values and each system differs. Do not change the values if they are already greater than the minimum requirements.

Setting the paging space

Use SMIT to check and set the current paging space. Earlier, in Chapter 1, you determined the amount of paging that your system configuration requires. If the total paging space size is less than the minimum size, increase the number of partitions until your total paging space size equals the minimum that is required for your server type.

Procedure

To check the paging space size:

1. In SMIT, choose **System Storage Management (Physical & Logical Storage)** > **Logical Volume Manager** > **Paging Space** > **List All Paging Spaces**. Typically, the hd6 file system is the primary file system.

2. Add up all paging spaces listed and click **Done** to return to the **Paging Space** menu.

3. If the paging space is not sufficient, you can add paging space as follows:

   a. Select the following SMIT choices from the **Paging Space** menu: **Change/Show Characteristics of a Paging Space** > **select the paging space to enlarge**.

b. Enter the additional paging space in the **NUMBER of additional logical partitions (Num.)** field.

Important: Enter the number of additional physical partitions for paging space, not the total amount of paging space. The partitions you enter are based on how the physical volume was added to the volume group. If your volume group is in partitions of 8 MB, each unit you enter in this field indicates an 8 MB addition to paging space. For example, if you enter '2' in this field, 16 MB is added to your paging space.

c. Enter the number of additional partitions and click **OK**. When SMIT finishes processing this command, click **Done** followed by **Cancel**.

Starting SNMP

Start the Simple Network Management Protocol (SNMP) and determine the SNMP version. AIX servers support either SNMP v1 or SNMP v3. The default is SNMP v3.

Procedure

To verify that SNMP is running and to determine the SNMP version:

1. Enter the following command:

   ```
   lssrc -s snmpd
   ```

2. If snmpd is not active, enter the following command to start snmpd:

   a. In SMIT, choose **Processes and Subsystems** > **Subsystems** > **Start a Subsystem**. List all the Subsystems by pressing the **F4** key and selecting the **snmpd** entry. Enter **Start the Subsystem** by selecting **Enter** again.

   b. Edit the /etc/rc.tcpip file by using **vi** or your preferred editor. Uncomment the following line:

   ```
   startsrc /usr/sbin/snmpd "$src_running"
   ```

3. Determine which version of SNMP is running:

   a. As a user with root privileges user, enter the following command to list the snmpd processes:

   ```
   ps -e | grep snmpd
   ```

   b. Review the results from the command. If your results included snmpdv1, you are running SNMP version 1. Enter the version number in System Information.

Results

"snmpdv1" or "snmpd64v1" indicate that SNMP v1 is running.

"snmpdv3ne" indicates that SNMP v3 non-encrypted is running.

After you determine which version of SNMP is installed and running, and which version you want configured, see the *IBM FileNet Image Services SNMP Reference Manual* for specific configuration instructions.

Updating the /etc/hosts file

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.

About this task

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, 2001:DB8::214:5eff:fe96:90ba).

The general format of a `hosts` file entry is:

```
IP_address_of_IS_Domain    IS_server   NCH_four_part_service_name
```

Add any server that you might access with a remote login (rlogin) to the `/etc/hosts` file of the AIX server that you are currently installing. Conversely, if you want another server to be able to communicate remotely with your AIX server, edit the `/etc/hosts` file on that server as well. You must have the names and IP addresses of the servers you want to communicate with remotely.

Procedure

To add an entry in the `/etc/host` file:

1. In SMIT, select **System Management menu** > **Communications** > **Applications and Services** > **TCP/IP** > **Further Configuration** > **Name Resolution** > **Hosts Table** > **Add a Host**.
2. Add the server name and address.

Example

Starting with the following information:

- Root/Index server IP address: 192.0.2.3
- Root/Index server name: titian
- Domain name: Titian:ExampleCo

The following example is the resulting host file entry:

```
192.0.2.3        titian            titian-exampleco-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:

```
192.0.2.3                        titian         titian-exampleco-nch-server
192.0.2.14                       bassanio       bassanio-exampleco-nch-server
192.0.2.24                       atelier        atelier-exampleco-nch-server
2001:DB8::2C0:FE35:9FFF:D28      atelier        atelier-exampleco-nch-server
192.0.2.17                       sienna         sienna-exampleco-nch-server
192.0.2.9                        vermeer        vermeer-exampleco-nch-server
2001:DB8:2638::927:2638          vermeer        vermeer-exampleco-nch-server
2001:DB8:fefe::0927:2638         vermeer        vermeer-exampleco-nch-server
```

Creating users and groups

Use SMIT to create the users and groups on your IBM FileNet Image Services system.

About this task

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.

Use SMIT to create three groups: **fnadmin**, **fnop**, and **fnusr**.

- 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 Image Services 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 hardcoded passwords, such as **MKF_tool** and **CSM_tool**. Members of **fnadmin** group should also be members of this group.
- Members of the **fnusr** group can use any FileNet Image Services software, including COLD. All administrators and operators must belong to this group.

Procedure

To create users and groups for FileNet Image Services administration:

1. In SMIT, choose **Security & Users** > **Groups** > **Add a Group**. Use the following values for the entry fields:

Table 3. FileNet Image Services Groups

SMIT Entry	Value
Group NAME:	**fnusr**
ADMINISTRATIVE Group	**False**
Group NAME:	**fnop**
ADMINISTRATIVE Group	**False**
Group NAME:	**fnadmin**
ADMINISTRATIVE Group	**False**

2. Click **Enter** to create the group.
3. Set the password for the user. Select the Normal password option.
4. Create the home directories for the appropriate users. For example, the fnsw home directory could be /home/fnsw.
5. Click **OK** to accept the new user.

Table 4. fnsw group assignment

User Name	Group Assignment
fnsw or the FileNet Image Services software user name that you choose.	Primary Group: **fnusr**
	Secondary Group: **fnadmin**, **fnop**

6. Add the root user to the fnusr and fnadmin groups
7. You can also add other users to these groups. If you add other users to **fnop** or **fnadmin**, you must also add them to the **fnusr** group.
8. Verify that all users are members of the appropriate groups.

Creating a password for the FileNet Image Services software user

If you have not previously set a password for the FileNet Image Services software user, create the password now before you continue with the FileNet Image Services software installation.

Procedure

To create a password for the FileNet Image Services software user, such as fnsw:

1. Enter the following command at the system prompt:

   passwd *fnsw*

2. When prompted, enter the password.
3. Enter the password again.

Creating the FileNet Image Services volume group

Use SMIT to create a volume group, such as fnvg, for FileNet Image Services software and data sets. If you cannot install FileNet Image Services data sets in a separate volume group, skip this step.

About this task

Install all operating system software on the root volume group, such as rootvg, and the FileNet Image Services software on another volume group, such as fnvg.

You can choose the names of your volume groups, such as rootvg or fnvg. The following example uses fnvg as a volume group name. Use the physical partition size that applies to your installation.

Procedure

To create a FileNet Image Services volume group:

1. On the System Management menu of SMIT, select System Storage Management
   (Physical & Logical Storage) > **Logical Volume Manager** > **Volume Groups** >
   Add a Volume Group.
2. Enter the following information for each SMIT value:

Table 5. SMIT values

SMIT Entry	Value
VOLUME GROUP Name	**fnvg**
Physical partition SIZE	**16**
PHYSICAL VOLUME name	Click **List**. Select a physical volume from the list and click **OK**.
Activate volume group AUTOMATICALLY at system restart?	**yes**

3. Accept the remaining default values.
4. Click **OK** to create the volume group.

Creating and mounting journaled file systems

Use SMIT to create and mount the journaled file systems on your IBM FileNet Image Services system.

Before you begin

Create separate file systems for the FileNet Image Services software (/fnsw) and for the FileNet Image Services data files (/fnsw/local).

Procedure

To create the journaled file systems:

1. In SMIT, choose System Storage Management **Physical & Logical Storage** > **File Systems** > **Add/Change/Show/Delete File Systems** > **Journaled File Systems** > **Add a Journaled File System** > **Add a Large File Enabled Journaled File System**. Select the volume group where you will create the file system.

   Tip: If you do not install the file system on the root volume group, such as rootvg, you will not have a backup of the file system during the **mksysb** backup process.

2. Enter the following information for each SMIT value:

Table 6. SMIT values for the /fnsw file system

SMIT Entry	Value
SIZE of file system:	**2097152**
(in 512-byte blocks)	(about 1000 MB or 1 GB)
Mount POINT	**/fnsw**
Mount AUTOMATICALLY at System Restart:	**yes**
PERMISSIONS:	**read/write**

3. Click **OK** to create the file system.

4. In a separate command window, manually mount the /fnsw file system before creating and mounting the /fnsw/local file system. Enter the following at the system prompt:

   ```
   mount  /fnsw
   ```

5. Return to SMIT and select **Add a Large File Enabled Journaled File System** as before. Create the /fnsw/local file system using the following values:

Table 7. SMIT values for the /fnsw/local file system

SMIT Entry	Value
SIZE of file system:	**1048576**
(in 512-byte blocks)	(about 500 MB)
Mount POINT	**/fnsw/local**
Mount AUTOMATICALLY at System Restart:	**yes**
PERMISSIONS:	**read/write**

6. In a separate command window, manually mount the /fnsw/local file system before continuing in this procedure. Type the following at the system prompt:

   ```
   mount  /fnsw/local
   ```

7. To create large file enabled journaled file systems for the MKF data sets (cache, permanent, transient, security), repeat the previous steps using the information in the following table. File systems are preferred for the MKF data sets.

Table 8. Minimum sizes for AIX file systems and volumes

File System Name	Minimum File System Size (MB)	Number of 512-byte blocks	Your File System Size (MB)	Mount Point
fnsw (All servers)	1000	2097152		/fnsw
local (All servers)	500	1048576		/fnsw/local
fn_cache0	100	209715		/fnsw/dev/1
fn_permanent_db0	100	209715		/fnsw/dev/1
fn_permanent_rl0	64	134217		/fnsw/dev/1
fn_transient_db0	320	671008		/fnsw/dev/1
fn_transient_rl0	256	524288		/fnsw/dev/1
fn_sec_db0	64	134217		/fnsw/dev/1
fn_sec_rl0	64	134217		/fnsw/dev/1

Verifying network options

Ephemeral ports are assigned for temporary use from a designated range of port numbers. When network traffic is heavy, your system might run out of ephemeral ports unless you specify a wider range of port numbers. Perform the steps in this section on all of the servers.

Procedure

To modify the ephemeral ports settings:

1. Use your preferred text editor, such as **vi**, to add the following lines to the /etc/tunables/nextboot file. Insert the following lines after the initial comment lines at the beginning of the file. These statements maximize the range of ephemeral ports:

   ```
   /usr/sbin/no -o tcp_keepidle=80
   /usr/sbin/no -o tcp_keepintvl=20

   /usr/sbin/no -p -o tcp_ephemeral_high=65535
   /usr/sbin/no -p -o tcp_ephemeral_low=42767
   /usr/sbin/no -p -o udp_ephemeral_high=65535
   /usr/sbin/no -p -o udp_ephemeral_low=42767
   ```

2. Add the following lines after the initial comment lines at the beginning of the /etc/rc.dt file .

   ```
   /usr/sbin/no -o tcp_keepidle=80
   /usr/sbin/no -o tcp_keepintvl=20

   /usr/sbin/no -p -o tcp_ephemeral_high=65535
   /usr/sbin/no -p -o tcp_ephemeral_low=42767
   /usr/sbin/no -p -o udp_ephemeral_high=65535
   /usr/sbin/no -p -o udp_ephemeral_low=42767
   ```

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

Restarting the FileNet Image Services server

Stop and then restart the FileNet Image Services servers.

About this task

Perform the steps in this section on all servers.

Important: In a multiserver system, stop FileNet Image Services in the following order:
1. Application servers
2. Storage Library servers
3. Root server

Start the servers in the opposite order with the Root server first, followed by the storage library servers, and finally the application servers.

Procedure

To restart the servers:
1. As a user with root privileges, restart the server by entering the following command:

   ```
   shutdown -Fr
   ```

   Some FileNet Image Services error messages might display during the restart process because the system is not fully configured.
2. Repeat the restart command on each of the other servers.

AIX installation worksheet

Use the installation worksheet to help you gather information about your hardware and software environment. You need this information to complete a successful installation.

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

Use the worksheet in this section to gather system information that is required for your FileNet Image Services installation.

About this task

Except where indicated, perform the procedures 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 if adding an Application server to your system

Use SMIT to complete the system configuration steps described in this chapter. For more information about using SMIT, see the online referencing tool for the version of AIX on your system.

Use the following worksheet to help you gather information that is needed for installing the FileNet Image Services software.

Tip: Root access is required for AIX installation and configuration.

Procedure

To make the FileNet Image Services software installation easier:,

1. Obtain the following information from the Database Administrator:

Table 9. User and database names

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 Image Services Toolkit and Image Services Process Analyzer.		
f_open The default database logon user used by the SQI subsystem of Image Services Toolkit.		

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

- NCH Domain Names:_____
- Organization Name:_____
- FileNet Image Services SSN:_____

Important: The system serial number (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 SSN contains a maximum of 10 digits. The valid range is 1000 through 2147483646.

2. If you are adding one or more Application servers to your FileNet Image Services system, or if you are configuring a multisystem-committal or cross-committal system, determine the SSN of the other systems that your system must be compatible with (for example, for the sharing of optical disks).

SSNs here: _____ _____ _____
_____

The serial number can be determined by entering the **ssn** command on the Root server

3. Determine the version of the operating system software that is installed on your servers:

Versions here: _____ _____ _____
_____

Determining file system free space requirements

Use SMIT to determine how much free space is needed on your system for FileNet Image Services software and data sets.

Procedure

To determine the amount of free space:

1. Complete the following table with the amounts of space that are needed for the /fnsw and /fnsw/local file systems.

Table 10. Free space requirements

Logical Volume	Minimum Size (MB)	Actual Size needed (MB)	File System
fnsw	1000		/fnsw
local	500		/fnsw/local

2. Determine how large the data sets must be, in megabytes, and on which volume group to install each data set.

   Important: If your volume group contains more than one disk drive (physical volume), create the data sets and their associated recovery logs on separate disks.

   Later in this document you can change the default settings for logical volume sizes that the FileNet Image Services program sets for you. The following table shows which data set names map to logical volumes:

Data Set Name	Logical Volume Name
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

   Place the FileNet Image Services data sets in the fnvg volume group, unless you have only a single disk drive.

3. Use the IBM Capacity Planning Tool to determine the individual cache minimum and maximum sizes (as percentages of total cache) for the following caches:

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

4. Use the IBM Capacity Planning Tool to complete the following table for your system.

MKF Data set	Min. Size (MB)	Size (MB)	Volume Group
cache0	100/128		
permanent_db0	100/128		
permanent_rl0	64		
transient_db0	320		
transient_rl0	256		
sec_db0	64		
sec_rl0	64		

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 AIX 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 22
- "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 v.

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 11. 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 25.

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 v.

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 12. 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 13. 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 25.

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.

- When you install FileNet Image Services software on an AIX server that is set to any Japanese locale such as ja_JP, you must set the **LANG** environment variable to en_US (English) before running the installation program. Setting the LANG variable to en_US prevents garbled characters from displaying during the installation. After the FileNet Image Services installation is finished, you can reset the **LANG** variable to its original locale, such as ja_JP.

- 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/bin:.:$PATH
     export PATH
     ```
   - In the Korn shell, enter:
     ```
     export PATH=/usr/bin:.:$PATH
     ```
   - In the C shell, enter:
     ```
     setenv PATH /usr/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.

   Tip: If you are installing from CD-ROM, do not change to the `/cdrom` directory to run the program. Run the installation program from the / (root) file system.

   - Graphical mode
     ```
     ./is_4.2.0_aix.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_aix.bin -i console
     ```
   - Silent mode:
     ```
     ./is_4.2.0_aix.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 62.

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 27 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

Verify or update the /etc/services file

A customizing script runs automatically after the sf file set has been successfully loaded.

This script modifies the following two files:
- Adds cor, nch and tms entries to /etc/services if they are not present.
- Adds an rcfnsw entry to the /etc/inittab file to automatically start up FileNet Image Services software if this entry is not present.

AIX 5.3 servers only

On servers with version 5.3 of the AIX operating system, you might find entries similar to the following in your /etc/services file:

```
filenet-tms      32768/tcp           # FileNet TMS
filenet-tms      32768/udp           # FileNet TMS
filenet-rpc      32769/tcp           # FileNet RPC
filenet-rpc      32769/udp           # FileNet RPC
filenet-nch      32770/tcp           # FileNet NCH
filenet-nch      32770/udp           # FileNet NCH
filenet-rmi      32771/tcp           # FileNet RMI
filenet-rmi      32771/udp           # FileNet RMI
filenet-pa       32772/tcp           # FileNet Process Analyzer
filenet-pa       32772/udp           # FileNet Process Analyzer
filenet-cm       32773/tcp           # FileNet Component Manager
filenet-cm       32773/udp           # FileNet Component Manager
filenet-re       32774/tcp           # FileNet Rules Engine
filenet-re       32774/udp           # FileNet Rules Engine
```

If so, edit the file and add the following lines:

```
tms    32768/tcp
cor    32769/tcp
nch    32770/udp
fn_trapd  35225/udp
fn_snmp  161/udp
snmp_trap  162/udp
```

Then comment out the corresponding **filenet-xxx** lines.

If you just installed FileNet Image Services software and you have NIS (Network Information Service) configured on your system, you must enter the **ypcat** services command on your Master server to check for the following entries near the end of the file:

```
tms     32768/tcp
cor     32769/tcp
nch     32770/udp
fn_trapd  35225/udp
fn_snmp   161/udp
snmp_trap  162/udp
```

If the **cor**, **nch** and **tms** entries are present, all is well. If the entries are not present, add the above entries to the /etc/services file on the "Master" server. Then ask the System Administrator to enter the following **yppush** command to make the changes permanent.

```
yppush -d server_domain_ name /etc/services
```

Where *server_domain_ name* is the domain name of the server onto which you have just installed FileNet Image Services software.

Modifying the cfg_requirements file for WPAR

On AIX 6.1 systems that use Workload Partitioning (WPAR), the paging space check on startup of IBM FileNet Image Services must be removed. WPAR systems do not have direct access to paging space information, so the automated check for paging space could prevent FileNet Image Services from starting.

About this task

Perform the steps in the section only on AIX 6.1 systems that use WPAR.

Procedure

To modify the cfg_requirements file:
1. As a user with root privileges, change to the /fnsw/local/sd/cfg_verify directory.
2. Use your preferred text editor, such as **vi**, to open the cfg_requirements file.
3. Remove all instances of the line:
   ```
   assert(software.IBM.AIX.PAGING >= 1024);
   ```
4. Close the file and save your changes.

Installing the system libraries to support XVT

IBM FileNet Image Services uses the XVT (eXtensible Virtual Toolkit) software development environment to run its GUI applications. For the AIX platform, the XVT libraries require additional Filesets and RPM packages that must be installed on top of the base operating system.

About this task

Without these libraries in place, FileNet Image Services applications cannot display images and might generate an error message about these missing libraries.

The following tables list the required RPM packages and Filesets:

Table 14. Required versions for each RPM package

Package	Description
libpng	RPM package – A library of functions for manipulating PNG image. Use version 1.2.32.-2 as a minimum.

Table 14. Required versions for each RPM package (continued)

Package	Description
libjpeg	RPM package – A library for manipulating JPEG image format files. Use version 6b-6 as a minimum.

Table 15. Required Filesets

File	Description
libz.a	FileSet rpm.rte
libXpm.a	FileSet X11.base.lib

Procedure

This procedure applies to both AIX 6.x and 7.x. To verify that the required AIX Filesets and RPM packages are installed:

1. As a user with root privileges, enter the following commands to list all the required files:

   ```
   #cd /usr/lib
   #ls -l libz.a
   lrwxrwxrwx  1 root  system  29 Sep 18 15:28 libz.a -> ../../opt/freeware/lib/libz.a
   #ls -l libjpeg.a
   lrwxrwxrwx  1 root  system  32 Sep 18 15:28 libjpeg.a ->../../opt/freeware/lib/libjpeg.a
   #ls -l libpng.a
   lrwxrwxrwx  1 root  system  31 Sep 18 15:28 libpng.a -> ../../opt/freeware/lib/libpng.a
   #ls -l libXpm.a
   lrwxrwxrwx  1 bin   bin   28 May 14 14:26 libXpm.a@ ->/usr/lpp/X11/lib/R7/libXpm.a
   ```

   Tip: The RPM packages can be installed from the CD or DVD with the label "AIX Toolbox for Linux applications."

2. Extract the `libz.so.1` library from the `libz.a` archive. Use the **ar** command to extract `libz.so.1` from `libz.a`.

   ```
   # cd /opt/freeware/lib
   # ar x libz.a
   ```

3. Create the symbolic link `libz.so`.

   ```
   # cd /usr/lib
   # ln -s /opt/freeware/lib/libz.so.1 libz.so
   ```

   The link appears as follows:

   ```
   # ls -l libz.so
   lrwxrwxrwx  1 root  system  27 Oct 12 15:28 libz.so@ -> /opt/freeware/lib/libz.so.1*
   ```

4. Verify the symbolic link for `libXpm.a`.

   ```
   #ls -l /usr/lib/libXpm.a
   lrwxrwxrwx   1 bin  bin   28 May 14 14:26 libXpm.a@ ->/usr/lpp/X11/lib/R7/libXpm.a
   ```

   If `/usr/lib/libXpm.a` is not linked to `/usr/lpp/X11/lib/R7/libXpm.a`, remove the link and link it using the **ln** command.

   ```
   #cd /usr/lib
   #ln –s /usr/lpp/X11/lib/R7/libXpm.a libXpm.a
   ```

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 v.

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 v.

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

Procedure

1. As a user with root privileges, enter:

   ```
   fn_setup
   ```

2. 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 -Fr**.
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 69.
3. If you are adding a Storage Library server, skip to the section, "Configure the Root server" on page 81.

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 21.

   In addition to prompts for other system information, you are prompted:
   - Do you want to use file systems for MKF databases?

     (File systems are preferred on all systems. File systems are required for Workload Partitioning (WPAR) on AIX 6.1.)
   - 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 v. The Database Administrator might have supplied this information in the section, Chapter 3, "Installing the relational database software," on page 21.

Continue with the appropriate subsection:
- "DB2"
- "Oracle"

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.

- "Creating the FileNet Image Services volume group" on page 13

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 page 47
- "On servers with Oracle software" on page 47

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 22, 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 v.

6. If the *DB2_HOME* and the *DB2_INST* variables are not set correctly, return to "Install the user environment templates" on page 36 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 49.

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 21 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 21 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 AIX 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 51

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 AIX 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 v.

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 &
```

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 v.

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.

Configuring FIPS mode - optional

The US Federal Information Processing Standard 140-2 (FIPS 140-2) is a validation program that defines security standards for validating cryptographic modules that encrypt user credentials (user name and password) between servers.

About this task

The cryptographic modules are certified through the National Institute of Standards and Technology (NIST). The IBM Tivoli group has built certified cryptographic libraries, which are now included with IBM FileNet Image Services.

FIPS mode controls which cryptographic modules are used by FileNet Image Services. When a FIPS-compliant mode is enabled, you can run FileNet Image Services by using NIST certified cryptographic modules.

Configuring FIPS mode on your FileNet Image Services system is optional. You can configure FIPS mode on your FileNet Image Services system now or at any time in the future. You can also turn off FIPS mode at any time. If you do not want to configure FIPS mode now, skip to the next section, "Install the latest fix pack" on page 59.

For more information about FIPS 140-2 support, see the *IBM FileNet Image Services System Administrator's Handbook*.

Procedure

To configure FIPS mode on your server:

1. If the FileNet Image Services software is running, as the FileNet Image Services software user, such as fnsw, stop it by entering:

   `initfnsw –y stop`

2. Stop all remaining FileNet Image Services processes by entering:

   `killfnsw  –DAy`

   The -D option terminates FileNet daemons (such as TM_daemon). Use this option to terminate the TM_daemon process. Normally, this process stays running across **initfnsw** stop cycles, but on occasion, it is necessary to terminate TM_daemon as well.

   The -A option removes all IPC segments.

   The -y option automatically answers Yes to subsequent **killfnsw** prompts.

   The **killfnsw** command also stops the IS ControlService on Windows servers.

3. Enter the following command at the system prompt:

   `convert2fips xxxx_xxxx`

   Where xxxx_xxxx is one of the following FIPS modes:

   FIPS_NONE – turn off FIPS encryption. This mode is the default.

   FIPS_PREFERRED – use FIPS encryption unless the server is communicating with a server that does not have either FIPS_PREFERRED or FIPS_ONLY encryption configured. Do not use FIPS encryption if the server is communicating with a server that does not have FIPS configure or is configured for FIPS_NONE.

   FIPS_ONLY – use only FIPS-compliant encryption. Rejects connections from other FileNet Image Services clients or servers that do not have FIPS-compliant encryption supported and configured. FIPS_ONLY mode strictly enforces the use of FIPS-compliant encryption between this server and any clients or other servers.

   Your choice is stored in the Network Clearinghouse (NCH) database.

4. Click **OK** to exit.

5. Use the Task Manager to restart FileNet Image Services.

6. Verify the current FIPS mode by entering:

   `convert2fips`

   Tip: You can determine the current FIPS mode at any time, even while FileNet Image Services is running, by entering the **convert2fips** command with no options.

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.

Create the cor_backoff_config file (optional)

The cor_backoff_config configuration file allows you to modify the connection failure and retry behavior that applies to the Courier protocol for both an FileNet Image Services and an ISTK system.

You should consider creating this configuration file:

- If you have a slow network.
- If the courier default values are not sufficient for your network.
- If the TCP/IP parameters have been set up correctly but are encountering errors.

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

Edit the /etc/inittab file

Because you previously blocked network error messages from broadcasting to other systems, you must uncomment the **rc.initfnsw** statement in the /etc/inittab file so that the FileNet Image Services software starts when you restart the server.

About this task

Perform the steps in this section on all servers.

Procedure

To edit the /etc/initab file:

1. Make a backup copy of the inittab file.
2. As a user with root privileges, change to the /etc directory by entering:

   cd /etc
3. Use your preferred text editor, such as **vi**, to open the inittab file.
4. Locate and remove the colon (:) that begins the line. The statement should read as follows:

   rcfn:234:wait:/bin/sh /etc/rc.initfnsw </dev/console>/dev/console>&1
5. Uncomment any other fnsw processes that were commented out in this file.
6. Save your changes and exit the text editor.

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 v.

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 v.

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 v.

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/

On AIX systems, you might also need to install gskta.rte and gsksa.rte, depending on the current gsk version. The gskta.rte and gsksa.rte are included in the same zip file as the Tivoli TSM API Client Package: 5.5.0.0-TIV-TSMBAC-AIX.tar.Z.

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 v.

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 65.
- 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, Chapter 2, "System Administrator Tasks - AIX," on page 7.

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 62.
- If the DB2 or Oracle relational database software is already installed, you can also skip to "Install FileNet Image Services software" on page 62.
- 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 v.

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 v.

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 25.

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.

Define the new application server

Use the IBM FileNet Image Services System Configuration Editor to define the new application server.

Procedure

To define the new application server:
1. For UNIX Servers, 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 log in to the server as the FileNet software user.
   a. Open a new X Window, and enter the following command: `fn_edit &`

b. Verify that the database and domain names are correct, and click OK. (The two-part domain name is structured as follows: Domain:Organization.) The FileNet System Configuration Editor window displays.

c. Click the **Procedures** tab in the System Configuration Editor Window.

2. Select the **Add an Application Server** option from the procedure list and click **Run**.

   If you need further help, use the online help to complete the following steps.

3. In the new dialog box, enter the name of the new Application server. The server name of the Application server is user-defined. Click **Next**.

4. At the prompt. `Is this a Windows Application Server?`, answer **No**. (The default is **No**.)

5. When you are prompted to enter the network address of the Application server, see the Installation Worksheet for appropriate information.

   Important: Leaving the **Network Address** field blank and entering just the **Network Name (Host Name)** in the next step is the preferred method for all servers. For servers that use IPv6 networking, it is required.
   Click **Next** to continue.

6. Enter the **Network Name** for the server. This field is optional for IPv4 protocol users, but it is required for IPv6. Enter the **Network Name**, or leave blank, and click **Next**. For more information, see the System Configuration online help.

7. After completing the Add an Application Server procedure, verify that you entered the information correctly. To verify, click on the **Network Addresses** tab in the System Configuration Editor window. You should see the Application server listed.

8. To add additional Application servers to your system, click on the **Procedure** Tab in the System Configuration Editor window and repeat Steps through 7.

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 v. The Database Administrator might have supplied this information in the section, Chapter 3, "Installing the relational database software," on page 21.

About this task

Continue with the appropriate sub-section:
- "Select and configure DB2" on page 64

- "Oracle10g release 2 and 11g release 1"

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 v.

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 68.

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 68.

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 68.

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 68.

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 67 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."

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:

   > With X windows running, enter: `Xtaskman`
   >
   > Click **Restart**.

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 the`whatsup` 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.

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:

   - AIX 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:

   - AIX 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 75.

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 74

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 v.

What to do next

Skip to the section, "Initialize the FileNet Image Services databases" on page 75.

Verify DB2 instances
Verify that the DB2 Home and Instance environment variables are set appropriately for both the root user and the IBM FileNet Image Services software user.

Procedure

To verify the DB2 instance:

1. Connect to the remote DB2 database. As the FileNet Image Services software user, such as fnsw, enter the following command:

   $db2 connect to *dbname* user f_sw

   Enter the f_sw password to connect.

2. 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. As each user, enter the following commands:

   echo $DB2_INST

   The $DB2_INST variable should be set to the name of the DB2 instance owner, such as fnsw.

   echo $DB2_HOME

   The $DB2_HOME variable should be set to the sqllib directory within the DB2 home directory of the DB2 Instance owner, such as /home/fnsw/sqllib.

   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 FileNet Image Services documentation, see "ibm.com and related resources" on page v.

3. If DB2_HOME and the DB2_INST are not set correctly, return to "Install the user environment templates" on page 36 and run the **inst_templates** command again.

What to do next

Skip to the section, "Initialize the FileNet Image Services databases" on page 75.

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 21. 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 21 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 the **fn_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 v.

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 - AIX," on page 7.

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.

Storage Library device information

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. Enter the number of Storage Libraries you are connecting to the server

   (1-8): _____ (up to 8 libraries per server/ 64 libraries per system)

2. Enter the following information for each Storage Library on your system:

   Storage Library Device Type:

   _____

   If the Storage Library uses RS-232, port number (0 - 9): _____

   Tip: CSI connections on optical devices are configured automatically.

3. Use the following chart to keep track of optical devices that use a serial port connection for its arm. Look at the back of the server or the jack number on the 8-port asynchronous adapter (if there is one), which is located between the Storage Library and the server, and then reference the following chart:

Table 16. Port numbers for Storage Library devices

If the Storage Library device is plugged into...	Then enter RS-232 port number ...
Server port S1	0
Server port S2	1
Extension port 0	2
Extension port 1	3
Extension port 2	4
Extension port 3	5
Extension port 4	6
Extension port 5	7
Extension port 6	8
Extension port 7	9

4. Enter the number of Optical Drives (1 - 12): _____

   This can be determined by looking at the AC front panel LCD or by looking inside the Storage Library (2 or 4 for AC Model 60C and 100C).

5. Enter the information below for each Optical Drive within the Storage Library

   Optical Drive Type (for example, Hitachi_I, HP C1716C, and so on)

For Hitachi drives, open the front doors on the Storage Library to find the number (for example, OD-301) on the label of the drive.

OD-301 -- Hitachi_I

OD-321 -- Hitachi_II

OD-F321 -- Hitachi_III

For HP Autochanger drives, remove the rear cover of the device and look at the model number of the Autochanger (for example, C1700C) on the top of the assembly.

Autochanger Model C17xxC = HP C1716C (650MB) drives

Autochanger Model C17xxT = HP C1716T (1.3GB) drives

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 26.
2. On UNIX systems, install show stopper fixes on the Storage Library servers by completing "Install the required pre-startup fixes" on page 35.
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 36.
4. Set up the installation environment as described in "Verifying network options" on page 15.
5. 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 v.

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.

Set up and configure networks (optional)

You can configure your IBM FileNet Image Services system on a single network or on multiple networks.

About this task

If you are setting up your system on more than one network, see Appendix G, "Setting up multiple networks," on page 109.

To configure network parameters for TCP/IP, see "Configure network parameters (optional)" on page 87.

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 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.

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 94.

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.

Configure optical peripheral devices

The IBM FileNet Image Services installation program cannot install a new fnsod (FileNet SCSI Optical Device) driver automatically, so you must install it manually.

About this task

Perform all of the procedures in this section on all of the Storage Library servers on the system.

Procedure

To configure the optical peripheral devices:

1. As a user with root privileges, enter:

   `fnsod.install`

   The new driver will go into effect after you restart the server in the next step.

2. Shut down your system:

   `shutdown -h`

   Turn off the server.

3. Connect the optical peripheral devicesto the system and turn them on. (If necessary, wait for the optical devices to enter the ready state before you continue with the next step.)

4. Turn on the AIX server and logon as a user with root privileges. After the server starts, **FNPoll** automatically runs to configure the storage library peripheral devices. You can view messages from **FNPoll** in the following log file,`/var/adm/ras/bootlog`.

   Tip: Do not run **/fnsw/bin/FNPoll** manually, as it can cause SCSI errors or corruption of magnetic disks.

   Instead, use `/sdev -C | grep sod` to see the optical device files in created.

5. Logon as fnsw user.

6. To configure the storage library, start the FileNet Configuration Editor by entering the following command:

   `fn_edit &`

7. On the **Procedures** tab in the System Configuration Editor window, choose the **Automatically Configure a Storage Library** option. Click **Run**.

8. Choose **File**, then **Close**. When a dialog box prompts you to save changes, click **Yes**. Choose **File**, then **Exit**.

9. Rebuild the system configuration:

   `fn_build -a`

10. Using **Xtaskman**, restart the Image Services software on all servers; Root server first, then the Storage Library server.

11. When the system is running again, log on as fnsw user and start Xapex. Use Database Maintenance (on any server) to resave all media families, and resolve any warning or error messages.

12. Use the **vl** command to check the event log. If any documents were committed before the media families were resaved, you might see a warning message. If so, add or change the preferred library information to match the current storage library configuration.

Configure a TTY port for a FileNet OSAR robotic arm

Complete the steps in this section only if the FileNet-manufactured OSAR storage library uses a serial (RS232) connection to the server for control of the robotic arm.

Before you begin

If the storage devices in this system do not include a FileNet Optical Storage and Retrieval (OSAR) library, or use a SCSI connection, skip this section.

Procedure

To configure the TTY port:

Use SMIT to set up a TTY port for the robotic arm in the Storage Library.
FileNet OSAR libraries have two types of serial ports:

- Host Control Port - each OSAR library has two Host Control ports to connect the library to the server.
- F.E. Port - used by Field Engineers to connect a notebook computer directly to the Storage library to run diagnostic programs. This port is configured differently than the Host Control Port. For details, see the Maintenance Manual for your FileNet OSAR Storage Library.

Verify that the storage library is connected to the server at the Host Control Port labeled Host2 on the FileNet OSAR.

Host control port

Follow the steps in this section to set up a TTY port for the FileNet OSAR storage library arm connected to one of the two Host Control ports.

Procedure

To set up a TTY port for the Storage Library arm:

1. In SMIT on the System Management menu, select **Devices** > **TTY** > **Add a TTY**.
2. Select the tty rs232 Asynchronous Terminal for TTY and select the port that the RS232 cable is attached to.

   For example, sa1 Available 00-00-S2 Standard I/O Serial Port 2. Make a note of the tty address, such as `/dev/tty2a1`, so you can add it later to the configuration database in **fn_edit**.

   To add a tty with a PORT number of s2, enter the following values for each SMIT entry:

Table 17. SMIT values

SMIT Entry	Value
enable LOGIN	disable
BAUD rate	9600
PARITY	odd
BITS per character	7
Number of START BITS	1
Number of STOP BITS	1
FLOW CONTROL	none

3. This procedure creates the device for the FileNet OSAR storage library arm. Click **Enter**.
4. After you complete all the required configuration steps, exit SMIT.
5. Repeat these steps for each FileNet OSAR storage library arm.

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 v.

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 v.

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 v.

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 v.

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 v.

- 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 the**del_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.

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. Configure independent vendor access to optical libraries (optional)

IBM FileNet Image Services normally reserves all of the optical drives and library arms on the SCSI bus for its own use. However, if other independent vendor software products that access these devices will also be running on this server, a text file needs to be created to specify which devices are available for use by the independent vendor products.

Before you begin

If this server is dedicated to running FileNet Image Services only, skip this section.

If this server is going to be used for both FileNet Image Services and independent vendor software, continue with the following steps.

Important: Stop FileNet Image Services before starting this procedure.

About this task

FileNet Image Services normally reserves all of the optical drives and library arms on the SCSI bus for its own use. However, if other third-party software products that access these devices will also be running on this server, a text file named `fnsod.foreign` needs to be created in the `/fnsw/local/sd` directory to specify which devices are available for use by the independent vendor products.

Procedure

To create the `fnsod.foreign` file:

1. Attach the device or group of devices (such as an ODU or Storage Library).
2. As fnsw user, use your preferred text editor, such as **vi**, to create the `fnsod.foreign` file. For example:
   ```
   cd /fnsw/local/sd
   vi fnsod.foreign
   ```
3. In this file, list all the SCSI device nodes that the independent vendor application will use. The format is:
   ```
   b,c,t,l
   ```
   where:

   b,c,t,l are the bus, controller, target, and lun (logical unit number).

   Tip: In another window, run `/fnsw/bin/FNPoll` as root user to list the available SCSI devices on the server.

   The contents of your `fnsod.foreign` file might look like this:
   ```
   4,8,0,0
   4,8,1,0
   4,8,3,0
   ```
4. As a user with root privileges, install a copy of **FNPoll** in the `/etc/config` directory:
   ```
   fnsod.install
   ```

Running this command as a user with root privileges installs a copy of **FNPoll** in the /etc/config directory. This is done so that AIX can run **FNPoll** during its startup process.

5. Run **FNPoll** to list the available devices:

   /fnsw/bin/FNPoll

   The resulting list of devices must contain all of the attached optical arms and disks NOT listed in the /fnsw/local/sd/fnsod.foreign file that you just created.

   Important: DO NOT use the fnsod.foreign file to exclude a broken drive within a storage library. The library arm informs the system software of the drives in the library, and this can cause problems with auto-configuration routines.

Appendix E. 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 F. 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.

   Uninstalling FileNet Image Services also uninstalls the Tivoli GSKit modules from the /fnsw/lib/shobj/tiv directory. The Tivoli GSKIT contains cryptographic libraries that are used by FileNet Image Services to provide compliance with Federal Information Processing Standards (FIPS 140-2).

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 G. Setting up multiple networks

In an AIX environment, you can set up your system on more than one network, but tasks must be completed before using the **fn_edit** tool provided with the IBM FileNet Image Services software.

About this task

Complete all steps in this topic before completing the modification steps in **fn_edit** to configure your system onto more than one network for the IBM FileNet Image Services software. This procedure reflects changes to the operating system as it relates to configuring your system on more than one network. The sections in this topic include:

- Removing current network interfaces
- Modifying network adapter characteristics
- Adding network interfaces
- Restarting the servers

Important: You can configure a dual server system with one or both servers on more than one network. If you are configuring the dual server system, with both servers on more than one network, you must complete all of the sections in this appendix on both servers.

Removing current network interfaces

Before you modify the network adapter characteristics, remove the current Ethernet interfaces.

Procedure

To remove current network interfaces:

1. As a user with root privileges, stop all IBM FileNet Image Services software to terminate all remote network activities. Start the Task Manager by entering the following command:

   `Xtaskman`

2. Click **Stop**.

3. Next, to run the Network Interface Selection menu in SMIT, enter the following SMIT fast path command:

   `smitty inet`

4. From the **Network Interface Selection** menu, select the **Change/Show Characteristics of a Network Interface** option and click **Enter**.

5. From the **Available Network Interfaces** menu, select the **en0 Standard Ethernet Network Interface** option and press **Enter**.

6. From the **Change/Show a Standard Ethernet Interface** menu, write down the current entries for the **INTERNET ADDRESS**, **Network MASK**, and **BROADCAST ADDRESS** fields, if applicable.

   INTERNET ADDRESS_____

   Network MASK_____

   BROADCAST ADDRESS_____

7. Press **F3** to return to the **Network Interface Selection** menu.

8. From the **Network Interface Selection** menu, select the **Remove a Network Interface** option by using the arrow keys and click **Enter**.

9. From the **Available Network Interfaces** menu, select the **en0 Standard Ethernet Network Interface** option and click **Enter** to remove the Standard Ethernet Network Interface.

10. When you receive a message that the network interface has been removed, press **F10** to exit SMIT.

Modifying network adapter characteristics

Use SMIT to modify the network adapter characteristics for Ethernet.

Procedure

To modify characteristics of the network adapter:

1. To get to the **Communication** menu in SMIT, enter the following SMIT fast path command:

   smitty commodev

2. From the **Communication** menu, select the **Ethernet Adapter** option and click **Enter**.

3. Select the **Adapter** option and click **Enter**.

4. Select the **Change/Show Characteristics of an Ethernet Adapter** option and press **Enter**.

5. At the **Ethernet Adapter pop-up** menu, click **Enter** to select **ent0 Available 00-05 Ethernet High-Performance LAN Adapter**.

6. At the **Change/Show Characteristics of an Ethernet Adapter** menu, navigate to the **Enable ALTERNATE ETHERNET address** field and use the Tab key to toggle this field to **yes**.

   a. Locate the **ALTERNATE ETHERNET address** field, and enter the address you wrote down in Step 2 of the previous section with the following exceptions:

   b. After you finish typing the number into the **ALTERNATE ETHERNET address** field, click **Enter** to save the change.

7. Click **F3** three times to return to the **Communication** menu.

8. Exit SMIT.

Adding network interfaces

You can add network interfaces for Ethernet.

Procedure

To add network interfaces:

1. Start the **Add a Network Interface** menu in SMIT with the following SMIT fast path command:

   smitty mkinet

2. From the **Add a Network Interface** menu, select the **Add a Standard Ethernet Network Interface** option and click **Enter**.

3. From the **Available Network Interfaces** menu, select the **en0 Standard Ethernet Network Interface** option and click **Enter**.

4. At the **Add a Standard Ethernet Network Interface** menu, type in all the numbers you wrote down in Step 6 of the "Removing current network interfaces" on page 109 section in the appropriate fields. Also, make sure the **ACTIVATE the Interface after Creating it?** field is set to **yes** and click **Enter**.

5. Press **F3** to return to the **Add a Network Interface** menu.

6. Exit SMIT.

Restarting the Root server

For the network changes to take affect, you must restart the Root server.

Procedure

To restart the Root server:

1. Enter the following command for the network changes to take affect: `shutdown -Fr`

2. Logon as the IBM FileNet Image Services user, such as fnsw, and start the System Configuration Editor program, fn_edit.

3. Go to "Configure network parameters" on page 45.

Appendix H. 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 18. Guidelines for servers with high server stub usage

Total number of stubs	ulimit data (MB)	Kernel Guidelines
500	128	The default ulimit data size is 128 MB. The command **ulimit -d** shows "131072," and the /etc/security/limits file contains "data = 262144."
900	unlimited	Set ulimit to unlimited. When the ulimit data size is set to unlimited, the process memory limit uses the data segment size. The default data segment size is 1 segment at 256 MB. The number of data segments is configured with the LDR_CNTRL setting.

2. Your changes go into effect the next time you restart the server.

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