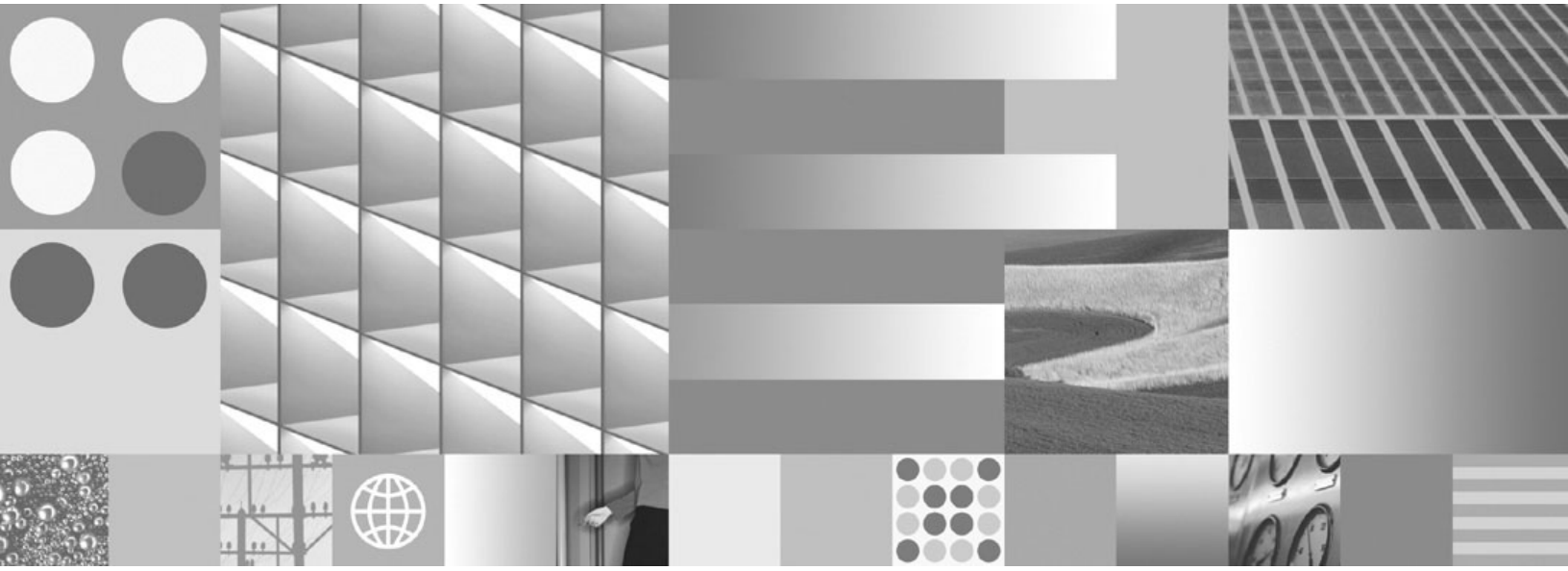
IBM FileNet Image Services

4.1.2

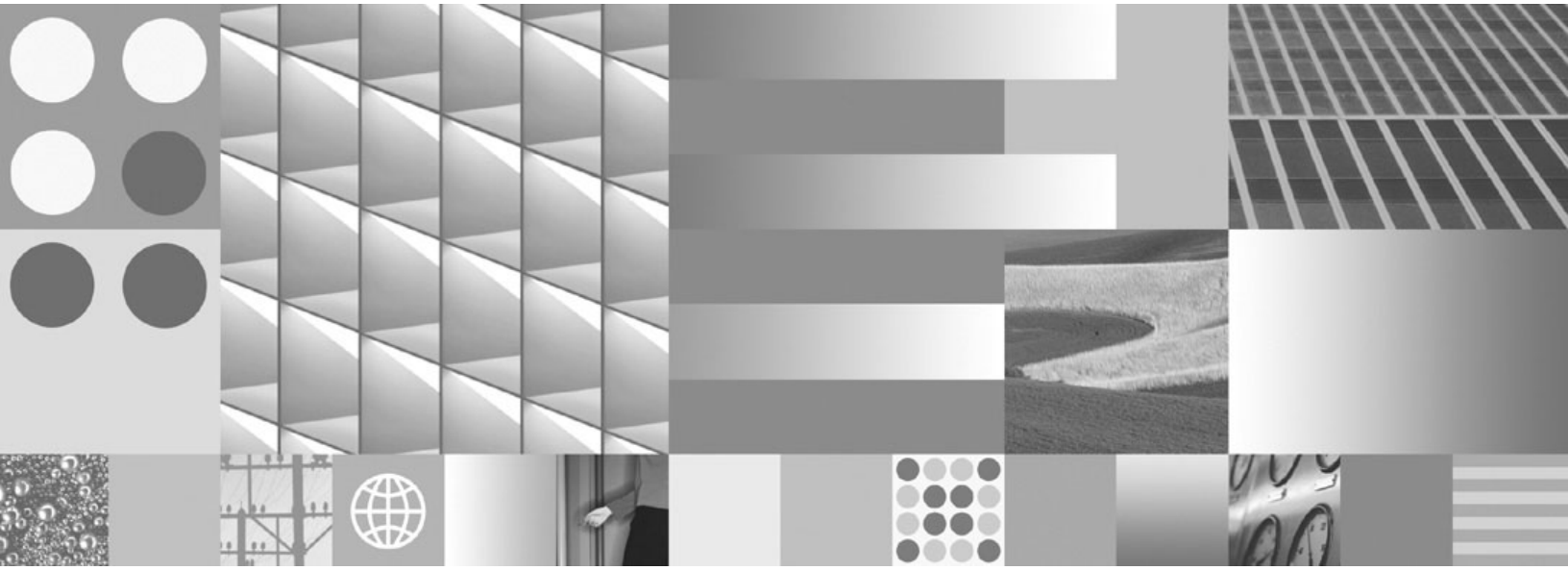


Installation and Configuration Procedures

SC19-2680-01

IBM FileNet Image Services

4.1.2



Installation and Configuration Procedures

SC19-2680-01

Note
Before using this information and the product it supports, read the information in "Notices" on page 273.

This edition applies to version 4.1.2 of IBM FileNet Image Services (product number 5724-R95) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this document

This document describes how to install IBM FileNet Image Services (IS) software on AIX, HP-UX, Solaris, and Windows servers. It also describes how to configure and initialize files and databases using initialization and configuration tools.

You can use the software installation and configuration procedures in this document to perform the following server-related tasks:

- Installing and configuring IS on either a Combined server system, a Dual server system, or a Remote Entry System (RES)
- Adding a single Storage Library server to an existing Root/Index server
- Installing and configuring multiple Storage Library servers on an existing system
- Installing and configuring (adding services to) an Application server on an existing system
- Installing and configuring IS in non-English environments

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

Every effort has been made to provide you with complete installation instructions. If information becomes available after the initial release of this document, we will provide an updated version of the guide on the IBM Image Services support Web site (www.ibm.com/software/data/support).

As a general rule, you should refer to the Web site to obtain the current version of this document.

Revision Log

The following table identifies changes made to this document since the initial release.

Date	Revision
December 2008	Added "Set shared memory for SQL Server" on page 151. Corrected the name of the max-shm-memory kernel parameter for Solaris 10.
November 2008	Initial release.

Typographical Conventions

This document uses the conventions in the following table to distinguish elements of text.

Convention	Usage
UPPERCASE	Environment variables, status codes, utility names.
Bold	Program names and selected terms such as command parameters or environment variables that require emphasis.
Bold Gray	Clickable user-interface elements (such as buttons).
Bold Olive	Paths and file names.
Italic	User-supplied variables and new terms introduced in text, names of additional documents (such as *Image Services Installation and Configuration Procedures*).
<*italic*>	User-supplied variables that replace everything between and including the angle bracket delimiters (< and >).
`Monospace`	Code samples, examples, display text, and error messages.

Accessing IBM FileNet documentation

To access documentation for IBM FileNet Image Services products:

1. Navigate to the Information Management support page (www.ibm.com/software/data/support).
2. Select the appropriate IBM FileNet product from the “Select a category” list.
3. From the Product Support page, click **Documentation** and then click **Product Documentation**.
4. From the Product Documentation page, click the icon in the appropriate release column to access the document you need.

Feedback

We value your opinion, experience, and use of our products. Please help us improve our products by providing feedback or by completing a consumability survey.

Documentation feedback

Send comments on this publication or other IBM FileNet Image Services documentation by e-mail to comments@us.ibm.com. Be sure to include the name of the product, the version number of the product, and the name and part number of the book (if applicable). If you are commenting on specific text, include the location of the text (for example, a help topic title, a chapter and section title, a table number, or a page number).

Product consumability feedback

Help us identify product enhancements by taking a Consumability Survey (http://www-306.ibm.com/software/data/info/consumability-survey/). The results of this comprehensive survey are used by product development teams when planning future releases. Although we are especially interested in survey responses regarding the most recent product releases, we welcome your feedback on any of our products.

The survey will take approximately 30 minutes to complete and must be completed in a single session; there is no option to save a partially completed response.

Installation Checklists and Required Skills

The following checklists provide a summary of installation instructions for each operating system.

- “Installation Checklist for AIX Servers” on page 18
- “Installation Checklist for HP-UX Servers” on page 20
- “Installation Checklist for Solaris Servers” on page 21
- “Installation Checklist for Windows Servers.” on page 22

Installation Checklist for AIX Servers

☐	Read the Image Services Release Notes for the latest information and known issues. To download this document from the IBM Information Management support page, see “Accessing IBM FileNet documentation” on page 16.
☐	“Installation Planning Considerations” on page 24
☐	“Operating System Requirements” on page 35
☐	“System Configuration Issues” on page 37
☐	“AIX Installation Worksheet” on page 44
☐	“Install the Relational Database Software” on page 99
☐	“Install FileNet Image Services Software” on page 102
☐	“Install the Required Pre-Startup Fixes” on page 112
☐	“Install the User Environment Templates” on page 112
☐	“Set File Ownerships and Permissions” on page 114
☐	“Reboot the Server” on page 116
☐	“Logon to the Configuration Database” on page 117
☐	“Build and Initialize the Root Server” on page 124
☐	“Complete the Configuration on AIX” on page 129
☐	“Configure RES. Cross-Committal, or Multi-Committal Systems” on page 147
☐	“Complete the Installation” on page 147
☐	“Install Service Packs and Fix Packs (optional)” on page 166
☐	“Software Tuning for COLD Users (optional)” on page 166
☐	“Create the cor_backoff_config File (AIX only)(optional)” on page 167
☐	“Edit the /etc/inittab File (AIX only)(optional)” on page 167

☐	“MSAR Systems” on page 168
☐	“Single Document Storage Systems – Install Tivoli 5.5” on page 169
☐	“Start the Image Services Software” on page 169
☐	“Start the Application Executive” on page 170
☐	“Begin production mode” on page 170

Installation Checklist for HP-UX Servers

☐	Read the Image Services Release Notes for the latest information and known issues. To download this document from the IBM Information Management support page, see “Accessing IBM FileNet documentation” on page 16.
☐	“Installation Planning Considerations” on page 24
☐	“Operating System Requirements” on page 49
☐	“System Configuration Issues” on page 55
☐	“HP-UX Installation Worksheet” on page 63
☐	“Install the Relational Database Software” on page 99
☐	“Install FileNet Image Services Software” on page 102
☐	“Install the Required Pre-Startup Fixes” on page 112
☐	“Install the User Environment Templates” on page 112
☐	“Set File Ownerships and Permissions” on page 114
☐	“Reboot the Server” on page 116
☐	“Logon to the Configuration Database” on page 117
☐	“Build and Initialize the Root Server” on page 124
☐	“Complete the Configuration on HP-UX” on page 130
☐	“Configure RES. Cross-Committal, or Multi-Committal Systems” on page 147
☐	“Complete the Installation” on page 147
☐	“Install Service Packs and Fix Packs (optional)” on page 166
☐	“Software Tuning for COLD Users (optional)” on page 166
☐	“Create the cor_backoff_config File (AIX only)(optional)” on page 167
☐	“Adapt the System for Xstation Use (HP-UX, Solaris only)(optional)” on page 167
☐	“MSAR Systems” on page 168
☐	“Single Document Storage Systems – Install Tivoli 5.5” on page 169
☐	“Start the Image Services Software” on page 169
☐	“Start the Application Executive” on page 170
☐	“Begin production mode” on page 170

Installation Checklist for Solaris Servers

☐	Read the Image Services Release Notes for the latest information and known issues. To download this document from the IBM Information Management support page, see “Accessing IBM FileNet documentation” on page 16.
☐	“Installation Planning Considerations” on page 24
☐	“Operating System Requirements” on page 68
☐	“System Configuration Issues” on page 74
☐	“SUN Installation Worksheet” on page 85
☐	“Install the Relational Database Software” on page 99
☐	“Install FileNet Image Services Software” on page 102
☐	“Install the Required Pre-Startup Fixes” on page 112
☐	“Install the User Environment Templates” on page 112
☐	“Set File Ownerships and Permissions” on page 114
☐	“Reboot the Server” on page 116
☐	“Logon to the Configuration Database” on page 117
☐	“Build and Initialize the Root Server” on page 124
☐	“Complete the Configuration on Sun” on page 141
☐	“Configure RES. Cross-Committal, or Multi-Committal Systems” on page 147
☐	“Complete the Installation” on page 147
☐	“Install Service Packs and Fix Packs (optional)” on page 166
☐	“Software Tuning for COLD Users (optional)” on page 166
☐	“Create the cor_backoff_config File (AIX only)(optional)” on page 167
☐	“Adapt the System for Xstation Use (HP-UX, Solaris only)(optional)” on page 167
☐	“Verify Window Manager Selection (Solaris only)” on page 168
☐	“Support for PCI-X Channel SCSI Adapter (Solaris only)” on page 168
☐	“MSAR Systems” on page 168
☐	“Single Document Storage Systems – Install Tivoli 5.5” on page 169
☐	“Start the Image Services Software” on page 169
☐	“Start the Application Executive” on page 170
☐	“Begin production mode” on page 170

Installation Checklist for Windows Servers.

☐	Read the Image Services Release Notes for the latest information and known issues. To download this document from the IBM Information Management support page, see “Accessing IBM FileNet documentation” on page 16.
☐	“Installation Planning Considerations” on page 24
☐	“Operating System Requirements” on page 90
☐	“System Configuration Issues” on page 91
☐	“Windows Installation Worksheet” on page 95
☐	“Install the Relational Database Software” on page 99
☐	“Install FileNet Image Services Software” on page 102
☐	“Grant “Logon as Service” Right to the fnsw User” on page 148
☐	“Verify TCP/IP Parameter Settings (Optional)” on page 148
☐	“Configure Windows Firewall with Advanced Security (Windows 2008 only)” on page 150
☐	“Turn off User Account Control (Windows 2008 only)” on page 150
☐	“Reboot the Server” on page 154
☐	“Install Required Pre-Startup Fixes” on page 154
☐	“Logon to the Configuration Database” on page 155
☐	“Optional Storage Library Configuration Procedures” on page 160
☐	“Exit the System Configuration Editor” on page 163
☐	“Initialize the Relational Database Software” on page 164
☐	“Initialize the Server Software” on page 164
☐	“Complete the Installation” on page 165
☐	“Setup Storage Library Server (optional)” on page 171
☐	“Configure RES, Cross-Committal, or Multi-Committal Systems (optional)” on page 176
☐	“Install Mods and Fix Packs (optional)” on page 178
☐	“Make System Backups” on page 178
☐	“Configure Image Services Processes to Start Automatically (optional)” on page 179
☐	“MSAR Systems” on page 179
☐	“Single Document Storage Systems – Install Tivoli 5.5” on page 180
☐	“Start the Application Executive” on page 180
☐	“Begin production mode” on page 180

Required Skills

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

If an FCP is used, at least ten days before the installation, the FCP should contact the Upgrade/ Install Assurance Team to schedule the installation and access the team's latest list of current scheduling procedures.

The procedures included in this document assume that you are familiar with the following topics:

Operating System	Required Skills
AIX	• UNIX operating System, especially the AIX operating system • System Management Interface Tool (SMIT) • AIX logical volume management • DB2 or Oracle Server Administration • text editor such as vi
HP-UX	• UNIX operating system, especially the HP-UX operating system • HP-UX System Administration Manager tool (SAM) • HP-UX 11i v2 administrative command for tunable kernel parameters (kctune) • Peripheral device configuration methods (for example, tape drives, printers, and storage libraries) • DB2 or Oracle Database Administration • text editor such as vi
Solaris	• UNIX operating system, especially the Solaris operating system • The Solaris administration utilities such as the Solaris Management Console (SMC) • Peripheral device configuration methods (for example tape drives, printers, and storage libraries) • Solaris and VERITAS volume manager configuration methods, and an understanding of general logical volume management concepts • text editor such as vi
Windows Server	• Knowledge of the Windows Server operating environment • Knowledge of Windows Server network models • Experience with Windows Server administrative tools • DB2, Oracle or Microsoft SQL Server Database Administration • text editor such as Notepad

Installation Planning Considerations

The prerequisites for upgrading IS are included in the following sections. You must complete all prerequisite steps and gather all pertinent information in order to complete this installation procedure correctly.

Hardware Requirements

Server Memory

- Root/Index and Application Servers with Oracle:

  10g - 1024 MB memory for each processor in the server.

  11g - 1024 MB memory for each processor in the server.

- Root/Index and Application Servers with DB2:

  512 MB memory for each processor in the server.

- Storage Library and Application Servers without RDBMS:

  512 MB memory for each processor in the server.

- To determine the total amount of installed memory, enter the appropriate command for your operating system on your server:

Operating System	Command to view total amount of installed memory
AIX	`lsattr -E -l sys0 -F 'description value' -a 'realmem'`
HP-UX	`dmesg | grep Physical`
HP Integrity	`/usr/contrib/bin/machinfo | grep Memory`
Solaris	To determine RAM: `prtconf | grep Memory` To determine Free Disk Space in KB: `df -k`

Total Swap Space

The recommended swap space is based on the amount of server memory.

RAM	Swap Space
Up to 1024 MB	2 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 of RAM

Total Disk Space

Space for RDBMS Software

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

- *Guidelines for Installing and Updating Oracle 10g Software for UNIX Servers*
- *Guidelines for Installing and Updating Oracle 11g Software for UNIX Servers*
- *Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server*
- *Guidelines for Installing and Configuring DB2 Software*

To download these guidelines from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.

Temporary Space

The installer needs the following amount of temporary space for decompressing files:

- 500 MB total space in /fnsw/local (AIX), /var/tmp (HP, SUN) or temp (Windows).

Tip If you don’t have enough temporary space, direct the installer to use another directory that does have enough space.

Available File System Space for IS

IS needs the minimum amounts of free disk space in the file systems shown here:

- 500 MB total space in /fnsw (UNIX) or \fnsw (Windows)
- 500 MB total space in /fnsw/local (UNIX) or \fnsw_loc (Windows)

Note If /fnsw/local is not a separate file system, the upgrade requires **1000 MB (1 GB)** total space in /fnsw.

In addition, the Installer needs the following amount of temporary space for decompressing files:

- **500 MB** total space in /fnsw/local (AIX), /var/tmp (HP, SUN) or temp (Windows)

Tip If you do not have enough space in this directory, direct the Installer to use another directory that does have enough space.

Note Use the System Configuration and Output Tool (SCouT) to estimate the actual amount of disk space needed for various datasets on this IS system.

Multicultural support

If you will be configuring your Image Services system in a non-English environment, there are several character set and configuration issues that you need to be aware of.

See “Appendix C – Installing Image Services in non-English Environments” on page 236.

Multicultural Keyboard (UNIX Servers)

If you are using an multicultural keyboard, remember to select the keyboard language when you first logon to CDE (Common Desktop Environment).

At the logon box, select Options, Language. Then choose the appropriate keyboard language from the pulldown menu.

Multicultural Xstation with keyboard (HP-UX only)

If you plan to setup an HP 700/RX Xstation with an AT/2 keyboard, see “Appendix H – HP Multicultural Support (HP-UX only)” on page 256.

Additional Requirements for AIX

Server Hardware

AIX 64-bit processors for all servers with Oracle 10g or 11g software including Root/Index servers and Application servers with either WorkFlo Queue Services, SQL Services, or VWServices.

Note Oracle 10g and 11g are compatible with only 64-bit servers. DB2 databases must be located on remote AIX or SUN servers.

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

Note For Oracle, the kernel can be 32- or 64-bit but the hardware must be 64-bit.

Operating System Software

The following AIX operating systems are supported with this release of IS:

- AIX 5.3 TL 7,8
- AIX 6.1

Note Upgrade to one of these versions of AIX **BEFORE** you upgrade the IS and RDBMS software.

Additional Requirements for HP-UX

HP 9000 (PA-RISC) Servers

Servers containing PA-RISC processors that support the HP-UX11i operating system are required.

32-bit or 64-bit processors for servers without Oracle such as separate Storage Library servers and Application servers with only Batch, Print, and/or Cache Services.

Note Oracle 10g/11g software is compatible with only 64-bit HP-UX servers.

HP Integrity (Itanium® 2) Servers

HP Integrity servers containing 64-bit Intel Itanium 2 processors that support the HP-UX11i v2 operating system are required.

HP-UX Operating System

IS software is compatible with:

- HP-UX 11i v2 (64-bit) (HP 9000 servers and HP Integrity servers)
- HP-UX 11i v3 (64-bit) (HP 9000 servers and HP Integrity servers)

HP-UX Version

To determine the version of operating system software running on the servers, enter the **uname -r** (release) command. The result must be:

B.11.23 (HP-UX 11i v2)
- or -
B.11.31 (HP-UX 11i v3)

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

Enter the **uname -m** (os) command. On an HP Integrity server you should see:

ia64

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

HP-UX Patches

Locate the patch recommendations and requirements for your system on the IBM Information Management support page (http://www.ibm.com/software/data/support).

Locate the *IBM FileNet Image Services, Image Services Resource Adapter, and Print Hardware and Software Requirements* and review the patch recommendations and requirements.

Font Server for COLD Preview (HP-UX only)

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

To configure the server on which you plan to run FileNet COLD software, go to “Appendix J – Configuring a Font Server for COLD Preview (HP-UX only)” on page 264 now.

TCP/IP Address

FileNet Image Services software requires that the server have a static IP address. Use SAM to verify that a specific IP address has been assigned to the server. Use of a dynamic IP address (DHCP) is not supported.

Additional Requirements for Solaris

Server Hardware

SUN Microsystems SPARC- or UltraSPARC server (32-bit or 64-bit processors).

Note Oracle 10g and 11g are compatible with only 64-bit servers. DB2 databases must be located on remote AIX or SUN servers.

Operating System Software

IS is compatible with:

- Solaris® version 9 (32-bit or 64-bit) or 10 (64-bit) Operating System

For the DB2 graphical tools, see *Guidelines for Installing and Configuring IBM DB2 Software.*

To download these guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Locate the patch recommendations and requirements for your system on the IBM Information Management support page (http://www.ibm.com/software/data/support).

Additional Requirements for Windows Server

Server Hardware

- Minimal Processor: 800Mhz Pentium 32-bit processor
- 512 MB or more memory per CPU

Tip To check the amount of memory, log on as **fnsw** or **Administrator**. From the Command Prompt window, enter the **winmsd** command. *Total Physical Memory* is located under *System Summary*.

- An NTFS file system with the required amount of disk space as described in the Total Disk Space section below.

Tip To see how much disk space is available, use the *Windows Explorer,* and select the drive where you plan to install IS. The available disk (free) space appears in the message area at the bottom of the window. Refer to the *FileNet Disk Sizing Spreadsheet* for actual dataset sizes.

- An HP Optical Disk Library (optional)

Note Oracle 10g and 11g software is compatible with 32-bit Windows servers.

- A DVD drive installed and configured for use on your Windows server.

Operating System Software

The following Windows operating systems are supported:

- Windows 2003 Release 2 SP2 (32-bit OS only)
- Windows 2008 (MS SQL Server 2000 not supported on Windows 2008)

Note Upgrade the Windows operating system **BEFORE** you upgrade the IS and RDBMS software.

Software Requirements

Server Naming Convention

Properly naming Image Services servers is an important step when setting up your Image Services system. Server names can have a maximum of **20 characters** and must only contain ASCII alpha-numeric characters and underscore characters.

Note Do not use non-alphanumeric characters and hyphens.

Every system resource is identified by a three-part name stored in the NCH database. 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 non-alphanumeric characters.

Object Name

An **object** is a resource like a tape, printer, database, software service, logon name, and so on. Some objects have names predefined by the system. For example, DefaultIMS is the name used to access the index database.

Domain Name

The **domain** (or system) name is set up at FileNet system configuration time using the **fn_setup** tool. In a multi-server 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. This can be your company or department name, such as ABCDEnterprises.

Image Services software image

Download the appropriate version of IS and COLD software for your system:

- *FileNet Image Services & COLD™ 4.1.2 for AIX/6000*
- *FileNet Image Services & COLD™ 4.1.2 for HP 9000*
- *FileNet Image Services & COLD™ 4.1.2 for HP Integrity*
- *FileNet Image Services & COLD™ 4.1.2 for Solaris*
- *FileNet Image Services & COLD™ 4.1.2 for Windows Server*

RDBMS software

IBM DB2 RDBMS Software

Note The DB2 software media are not supplied.

Refer to the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software* for more information. To download this document from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Oracle RDBMS Software (FileNet-controlled)

Note The Oracle software is supplied.

Refer to the *IBM FileNet Image Services Oracle 10g Installation Procedures (FileNet-Controlled)* or *IBM FileNet Image Services Oracle 11g Installation Procedures (FileNet-Controlled)* for more information. To download these guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Note The **Database Administrator** must install the appropriate version of Oracle and must supply the information described in the Oracle guidelines to the System Administrator before the IS software can be installed.

Oracle RDBMS Software (Site-controlled)

Note The Oracle software is not supplied.

Refer to the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle 10g and 11g Software on UNIX Servers* or *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server* for more information. To download these guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Note The **Database Administrator** must install the appropriate version of Oracle and must supply the information described in the Oracle guidelines to the System Administrator before the IS software can be installed.

MS-SQL RDBMS Software

Note The SQL software is not supplied.

Refer to the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server* for more information. To download this document from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Debugging Software

Debugging software is recommended for IS and, if present, must be installed on each server. A debugger enables support personnel to troubleshoot both IS and OS problems.

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. The IBM Debugger for AIX enables support personnel to troubleshoot both IS and AIX-related problems.

IBM Debugger for AIX is enabled for Internet Protocol Version 6 (IPv6).

Debugger - HP-UX

WDB 5.9

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

HP WDB 5.9 is the recommended debugger for Integrity systems running HP-UX 11i v2, or HP-UX 11i v3, and HP 9000 systems running HP-UX 11i v1, 11i v2, or 11i v3.

HP WDB GUI 5.9, the graphical front end for HP WDB, is supported on Integrity and HP 9000 systems.

Other debuggers, such as xdb and HP DDE are no longer supported.

You can download a version that's compatible with your current version of the HP-UX operating system for no charge from http://www.hp.com/go/wdb/. Documentation is also available for download.

GDB 6.8

GDB, the GNU Project debugger, allows you to see what is going on `inside' another program while it executes – or what another program was doing at the moment it crashed. GDB is free software, protected by the GNU General Public License (GPL). GDB can run on most popular UNIX and Microsoft Windows variants.

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

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

Debugger - Solaris

Debugging software is recommended for IS and, if present, must be installed on each server. A debugger enables support personnel to troubleshoot both IS and Solaris-related problems.

To determine if the debugger is already installed, enter the following command on each server:

```
pkginfo | grep SPROdbgr
```

If this file is present, the debugger is installed. If this file is **not** present, and if the media and license are available, install it. Otherwise, contact your Sun representative for complete ordering information.

Note A command-line debugger is included with SunStudio, Compiler Collection, which includes C, C++ and Fortran compilers “for the creation of high-performance, high-quality applications for the Solaris SPARC system.”

Debugger - Windows Server

Debugging software is recommended for IS and, if present, must be installed on each server. The debugger enables support personnel to troubleshoot both IS and Windows-related problems.

Multicultural Support

When you install the operating system, select the character set you plan to use with 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’ll be able to use the appropriate alphanumeric characters for your locale.

Note 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 IS on the Image Services server.

For FileNet systems configured with Western European character sets, valid alphanumeric characters must be in the 7-bit ASCII range. For FileNet 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 C – Installing Image Services in non-English Environments” on page 236 for further information.

Heterogeneous Support

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

- An IS Root/Index server and Storage Library server must use the same version of the same operating system.

- An Application server that uses the Windows operating system can be configured with any UNIX or Windows IS system.
- A remote relational database server can use an operating system that is different from the IS Root/Index server and Storage Library server.
  - DB2 relational databases must always be installed on remote AIX or Solaris servers.
  - MS SQL relational databases can only be installed on local or remote Windows servers.
  - Oracle relational databases can be installed on either local or remote UNIX or Windows servers.

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

Related Documentation

To download these documents, see “Accessing IBM FileNet documentation” on page 16.

- *IBM FileNet Image Services System Administrator’s Handbook*
- *IBM FileNet Image Services System Administrator’s Companion for UNIX*
- *IBM FileNet Image Services System Administrator’s Companion for Windows Server*
- *IBM FileNet Image Services Upgrade Procedures*
- *IBM FileNet Image Services Enterprise Backup and Restore User’s Guide*
- *IBM FileNet Image Services Third-Party Backup/Restore Guidelines*
- *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*
- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle 10g Software on UNIX Servers*
- *IBM FileNet Image Services Oracle 10g Installation Procedures (FileNet-Controlled)*
- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server*
- *IBM FileNet Image Services MSAR Procedures and Guidelines*
- *IBM FileNet Image Services Integral Single Document Storage Procedures and Guidelines*

Note For information on DB2, Oracle, or Microsoft products, refer to the documentation that came with your relational database software.

Continue the Installation

To continue upgrading the AIX server, go to “System Administrator Tasks – AIX” on page 35.

To continue upgrading the HP-UX server, go to “System Administrator Tasks – HP-UX” on page 49.

To continue upgrading the Solaris server, go to “System Administrator Tasks – Solaris” on page 68.

To continue upgrading the Windows server, go to “System Administrator Tasks – Windows Server” on page 90.

System Administrator Tasks – AIX

The following checklist summarizes the tasks detailed in this chapter which the System Administrator is responsible for completing.

1. ❒ Operating System Requirements
2. ❒ Set Number of Processes per User
3. ❒ Set a Paging Space
4. ❒ Turn on SNMP
5. ❒ Update the /etc/hosts File
6. ❒ Create the IS Volume Group (fnvg) (optional)
7. Create Logical Volumes and File Systems
8. ❒ Create and Mount the /fnsw and /fnsw/local Journaled File Systems.
9. ❒ Create FileNet Users and Groups
10. ❒ Verify Network Options

Peer Server Names and Addresses: _____
_____

Operating System Requirements

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

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

To check which version of the operating system software is installed on your servers, complete the following steps:

- As **root** user, enter the following command:

  ```
  oslevel -r
  ```

- To check the maintenance level, type the following command:

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

- The following versions will display at the system prompt:
  - AIX 5.3 TL 7,8 or AIX 6.1
  - APAR IY50083

Enter the information in “System Information” on page 44.

If you are using SNMP, see the SNMP document for the latest requirements.

To download the guide from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.

Verify App-Dev Bundle

FileNet software requires that the **App-Dev Bundle** be installed as part of the AIX operating system (OS). If you know that your server has the App-Dev Bundle, you can skip to “Install Latest Patches” on page 36.

If you haven't installed the App-Dev Bundle or are not sure if the App-Dev Bundle is installed, follow these steps:

1. Launch SMIT:

   ```
   smitty
   ```

Note You might be instructed to insert Volumes 2 and 3 of the AIX operating system media during the install, if needed.

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.
3. You will see a list of installation defaults. Accept all the defaults and click **OK**.
4. You will receive a warning. Click **OK**.
5. During the bundle installation, note that 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).
6. The bundle installation will automatically exit from SMIT when the installation is complete.
7. FileNet software requires that **bos.adt** be installed as part of the AIX operating system (OS).

   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.
8. Unmount the CD by entering:

   ```
   cd  /
   umount  /cdrom
   ```

Install Latest Patches

Check the IBM Information Management support page for patches that might be required prior to this installation.

X11 Fonts for COLD Preview

If you're licensed to use COLD, you must install a font package necessary for running COLD Preview.

1. As **root** user, mount the AIX operating system media by entering:

   ```
   mount  -rv  cdrfs  /dev/cd0  /cdrom
   ```
2. Launch 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 CD-ROM drive.
4. In the Software to install box, type:

   `X11.fnt.iso1`
5. Click **OK** to continue. The font installation will automatically exit from SMIT when the installation is complete.

System Configuration Issues

Set Time Zone Parameters

Review and change the time zone parameters if necessary. In SMIT choose System Environments ➔ Change/Show Date and Time ➔ Change Time Zone Using System Defined Values. Choose the Daylight Savings Time option if applicable. At the CUT Time Zone menu, choose the option associated with your site. For example, in California, the time zone needs to be set to the Pacific time zone (PST8PDT) Pacific U.S.; Yukon (cut -8).

Set Number of Processes per User

In SMIT choose System Environments ➔ Change/Show Characteristics of Operating System. Do the following:

- Change Maximum Number of PROCESSES allowed per user to at least **400**.
- Change Maximum Kbytes of real memory allowed for MBUFS option to **0**.

Note 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.

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

Note These are minimums and each system differs. Do not change the values if they are already greater than our minimum requirements.

Set a Paging Space

Recommended paging space is **2 times** the amount of server memory.

However, if the server has more than 1 GB of server memory, we recommend that paging space be **1.5 to 2** times that amount.

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 for your server type.

Check Current Paging Space

In SMIT choose System Storage Management (Physical & Logical Storage) → Logical Volume Manager → Paging Space → List All Paging Spaces. Usually the hd6 file system is the primary file system. Add up all paging spaces listed and click **Done** to return to the Paging Space menu.

Add Paging Space

If the paging spaces are not sufficient, enter the following SMIT choices from the Paging Space menu: Change/Show Characteristics of a Paging Space → select the paging space you want to enlarge. You will enter the additional paging space in the field entitled "NUMBER of additional logical partitions (Num.)

CAUTION Enter the number of **additional physical partitions** for paging space, **not** the total desired paging space size. 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 8MB, each unit you enter in this field will indicate an 8MB addition to paging space. For example, if you enter '2' in this field, you will have 16MB added to your paging space.

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

Turn On SNMP

To check if SNMP is running, enter the following command:

```
lssrc  -s  snmpd
```

If snmpd is **not** listed as active, enter:

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

Next edit the **/etc/rc.tcpip** file using **vi** or your preferred editor. Uncomment the following line:

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

Follow these steps to determine what version of SNMP you are running:

1. As root user, enter

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

2. If your output included snmpdv1, you're running SNMP version 1. Enter the version number in "System Information" on page 44.

3. If your output included another version of SNMP, refer to the *IBM System Management Guide* for information on converting back to SNMP version 1.

   To download the guide from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Update the /etc/hosts File

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

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

The general format of a hosts file entry is:

<IP_address_of_IS_Domain> <IS_server> <NCH_four_part_service_name>

For example:

IS Root/Index server IP address: 9.42.31.3

IS Root/Index server name: titian

IS Domain name: Titian:Yourco

The hosts file entry looks like this:

```
9.42.31.3        titian          titian-yourco-nch-server
```

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

```
9.42.31.3                   titian          titian-yourco-nch-server
9.42.31.14                  bassanio        bassanio-yourco-nch-server
9.42.28.32                  atelier         atelier-yourco-nch-server
FE80::2C0:FE35:9FFF:D28     atelier         atelier-yourco-nch-server
9.42.29.42                  sienna          sienna-yourco-nch-server
9.42.28.56                  vermeer         vermeer-yourco-nch-server
2002:927:2638::927:2638     vermeer         vermeer-yourco-nch-server
fe80::fefe:0927:2638        vermeer         vermeer-yourco-nch-server
```

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

If the IS system uses DNS (Domain Name Service) or NIS (Network Information Service), skip the remainder of this section. Skip to the section, "Create the IS Volume Group (fnvg) (optional)" on page 41.

Add any server on the network that you'll be accessing with a remote login (**rlogin**) to the /etc/hosts file of the Series 6000 server you are currently installing. Conversely, if you want another server to be able to communicate remotely with your Series 6000 server, edit the /etc/hosts file on that other server as well. You need the names and IP addresses of the servers you want to communicate with remotely.

To add an entry in the /etc/host file, enter:

In SMIT, from the System Management menu, choose Communications → Applications and Services → TCP/IP → Further Configuration → Name Resolution → Hosts Table → Add a Host. Add the server name and address.

Create IS Users and Groups

Server Types Perform the steps in this section on these servers for the FileNet groups and users:

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.

In this section, you will use **smitty** to create groups and users (with the appropriate IDs) for FileNet administration.

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

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.

User Name	Group Assignment
fnsw	Primary Group: fnusr Secondary Group: fnadmin, fnop

Verify that all necessary users and groups exist and are configured correctly.

Note If you want to use the FileNet tools and software when logged on as a specific user, add the user to either the **fnop** or **fnadmin** groups. Users in the **fnop** group can start and stop FileNet software only, while users in the **fnadmin** can read, write, and execute FileNet software. Additionally, if you add other users to **fnop** or **fnadmin**, you must also add them to the **fnusr** group.

Set Up Password for the FileNet Software User

If you have not previously established a password for **fnsw**, create the password now before proceeding with the Image Services software installation.

1. To set up the FileNet software user such as **fnsw** password, at the system prompt enter:

   ```
   passwd  <fnsw>
   ```

2. Enter the password when prompted.

3. Re-enter the password.

Create the IS Volume Group (fnvg) (optional)

Do this step if you will be installing the DB2 software in a volume group other than the root volume group (such as rootvg). Do this step if you want to create another volume group (such as fnvg) for your FileNet datasets. If you are not going to install FileNet datasets in a new volume group, skip this step.

Note You should install all operating system software on the root volume group disks (for example, rootvg), and the FileNet software on another volume group (for example, fnvg). Throughout the remainder of this document, you will see the mention of **<volume group>.** You must decide what you want to call your volume groups (rootvg or fnvg, for example). The following example uses fnvg as a volume group name. This might not apply to your installation. **Use the physical partition size that applies to your installation**.

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 for each SMIT value:

SMIT Entry	Value
VOLUME GROUP Name	**fnvg**
PHYSICAL VOLUME name	Click the List button to get a list. Select a physical volume from the list and press OK.
Activate volume group AUTOMATICALLY at system restart?	**yes**

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

Create and Mount the /fnsw and /fnsw/local Journaled File Systems

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

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 Standard Journaled File System. Select the volume group where you will create the file system.

Note If you do not install the file system to rootvg, you will not have a backup of the file system during the **mksysb** backup process.

2. Enter the following for each SMIT value:

SMIT Entry	Value
SIZE of filesytem:	**1048576**
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. Type the following at the system prompt:

```
mount  /fnsw
```

5. Return to SMIT and access the Add a Standard Journaled File System option as already described above. Create the /fnsw/local file system in SMIT using the following values:

SMIT Entry	Value
SIZE of filesytem:	**1048576**
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
```

Verify Network Options

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

Ephemeral ports are assigned for temporary use from a designated range of port numbers. When network traffic is extremely heavy, your system might run out of ephemeral ports unless you specify a wider range of port numbers.

1. Use the vi editor to add the following lines to the **/etc/tunables/nextboot** file. These will maximize the range of ephemeral ports:

```
/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
```

Reboot the Server

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

Note In a multi-server system, you must stop Image Services in the following order:

1 - the Application servers
2 - the Storage Library servers
3 - the Root server.

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

As a user with **root** privileges, reboot the server by entering the following command:

```
shutdown  -Fr
```

Image Services error messages will display during reboot because the system is not yet configured.

AIX Installation Worksheet

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

Server Types 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.

With Xwindows open, use SMIT to complete the system configuration steps described in this chapter. For more information about using SMIT, refer to the on-line referencing tool for the version of AIX on your system.

Use the following worksheet to help you gather information needed to do the installation. You will need this information to complete a successful installation.

System Information

Note Root access is required for AIX installation and configuration.

1. Obtain the following information:
   - You can accept the standard names for the Image Services user or database users or you can choose your own.

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

Standard User Name	New User Name (optional)	Password
f_open The default database logon user used by the SQI sub-system of IS Toolkit.		

- NCH Domain Names:_____
- Organization Name:_____
- FileNet System Software SSN:_____

Important The SSN is written onto all storage media and **must** be unique for each Image Services system. If you have more than one Image Services system (domain), each **must** use its own unique SSN to prevent potential problems if media are ever transferred from one IS system to another. The valid range of SSNs is 1000 through 2147483646.

2. Find out the system serial numbers (SSNs) of any other systems that this system must be compatible with (for example, for the sharing of optical disks). The system serial numbers contain, at most, 10 digits.

SSNs here: _____ _____

_____ _____ _____

This can be determined by entering the **ssn** command on each compatible system's Root server.

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

Versions here: _____ _____

_____ _____ _____

4. What version of SNMP you are running: _____

Network Information and Test

1. Determine the following for each Image Services server in your system:

   HOST NAME: _____

2. Find out the IP addresses of the Series 6000 servers, IS/WorkFlo Print/Fax stations, and any servers that will be communicating remotely with the server. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **197.0.0.146**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:252:0:1::2008:6**).

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

IP address(es) here: _____ _____

_____ _____

3. Before you test your network, start the network service on your servers. In SMIT, choose Communication Applications and Services → TCP/IP → Minimum Configuration & Startup.

   Select Ethernet (en0) .

   Complete the following fields:

   - The HOSTNAME is the name of the server .
   - The Internet Address is the server's TCP/IP address.
   - The Cable Type is usually set to dix. It could be N/A if you don't have a choice, as with the Model 7011.

   Click **OK** to save your changes.

   Note FileNet Image Services software requires that the servers have a static IP address. Use SMIT to verify that a specific IP address has been assigned. Use of dynamic IP addresses (DCHP) is not supported.

4. Test your network by entering the command:

   `ping <hostname>`

   where **<hostname>** is the name of your server. If you get messages concerning your server's name, your server's network configuration is properly configured. At this point, type Ctrl C.

   If you get the following message back, you need to check further:

   host name <hostname> NOT FOUND

   If your server uses the /etc/hosts file for address resolution, enter the following command to look at your /etc/hosts file:

   `more /etc/hosts`

   If your server name is in the /etc/hosts file yet you get the "Not Found" message, you have some network problem that won't allow the **ping** command to complete and you must fix the problem.

   If your server is configured to use NIS or DNS for address resolution, contact your network administrator to resolve this problem before proceeding.

File System Free Space Requirements

1. Determine how much free space the file systems need to have, in available megabytes.

Logical Volume	Minimum Size (MB)	Size (MB)	File System
Image Services:			
fnsw	500		/fnsw
local	500		/fnsw/local

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

   Note If your volume group contains more than one hard disk (physical volume), you should set up the databases with recovery logs on a disk different than the one on which their associated recovery log resides.

   Later in this document you can change the default settings for logical volume sizes that the FileNet program sets for you. The dataset names map to logical volume names as follows:

cache0	-----	fn_cache0
permanent_db0	-----	fn_perm_db0
permanent_rl0	-----	fn_perm_rl0
transient_db0	-----	fn_trans_db0
transient_rl0	-----	fn_trans_rl0
sec_db0	-----	fn_sec_db0
sec_rl0	-----	fn_sec_rl0

   The FileNet datasets should reside in the **fnvg** volume group, unless you have only a single disk drive. In the case of a single disk drive, use the **rootvg** volume group.

3. Determine the cache min./max. sizes (in %) for the following caches:

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

   Use SCouT to find this information.

4. Complete the following table appropriately for your system.

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

5. Exit SMIT and return to the system prompt.

Continue the AIX Installation

Continue the AIX Installation with "Install the Relational Database Software" on page 99.

System Administrator Tasks – HP-UX

The following checklist summarizes the tasks described in this chapter that the **System Administrator** is responsible for completing.

1. ❒ Operating System Requirements
2. ❒ Check Kernel Parameters
3. ❒ Check Swap Space
4. ❒ Configure a TTY Port for the Serial Robotic Arm of a FileNet OSAR Library
5. ❒ Extend the Root Volume Group (Optional)
5. ❒ Create the FileNet Volume Group (fnvg) (Optional)
6. ❒ Update the /etc/hosts File
7. ❒ Create fnadmin and fnop Groups
8. ❒ Create FileNet Users and fnusr Group
9. ❒ Create File Systems

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

Operating System Requirements

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

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

Check Server Memory

1. Verify that the system has the following hardware/software configuration:

   - An HP 9000 Series 800 Business Servers (HP 9000/800).

     ```
     dmesg | grep Physical
     ```

   - An HP Itanium Server with at least **512 MB** of memory.

   Enter the **machinfo** command and grep for the Memory line.

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

   Note If you have, or are going to have, an X Station on your system, you need to verify that your X Station also has enough memory to run the necessary FileNet applications (for example, COLD).

   Enter your system's memory in the "HP-UX Installation Worksheet" on page 63.

   - One or more Ethernet interface cards (Media Access Controller Type). Enter types in the "HP-UX Installation Worksheet" on page 63. Refer to the back of the server for the card type.
   - The appropriate Media devices for the software you are installing. FileNet Image Services software is available as an eSD image or on software CD.
   - An X-station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator to use the FileNet software's graphical user interface (GUI) capabilities.

Verify HP-UX Debugger

Debugging software is recommended for IS and, if present, must be installed on each server. A debugger enables support personnel to troubleshoot both IS and HP-related problems. For more information, see "Debugger - HP-UX" on page 31.

Verify HP-UX Patches

After installing HP-UX 11i, go to the IBM Information Management support page and locate the *IBM FileNet Image Services, Image Services Resource Adapter, and Print Hardware and Software Requirements*. To download this document from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

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

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

Note HP supersedes its patches from time to time, so be sure to check for the latest requirements.

Check the Operating System Kernel Limits

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

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

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

   a. As a user with **root** privileges, enter:

      ```
      sam &
      ```

   b. Select the Kernel Configuration option.

   c. Then select the **Kernel configuration (character mode)** option, and select (highlight) the **t - Tunables** option and press **Enter** to view the **Current Value** for the kernel parameters in the following order:

   Note If the kernel parameters on your server are larger than the minimum values shown in the following table, **DO NOT** lower them. However, if the values are smaller than any of these recommended minimum values, you MUST increase them. (The only exception to this rule, is **dbc_max_pct**, which has a maximum setting of 30.)

FileNet Recommended Kernel Parameter Settings

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

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

Note These specific parameter values reflect requirements for the FileNet software only. If you receive a “dependency error” when changing any of these parameters, change the dependent parameter mentioned in the error first.

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

On servers with DB2 software installed, verify these settings:

DB2 Recommended Kernel Parameter Settings

Kernel Parameters	Recommended Minimum Settings
msgmnb	65535
msgmax	65535

You must also verify the timezone setting for your location:

Timezone Kernel Parameter Setting

Kernel Parameters	Default Setting
timezone	420*

*The default value is 420 minutes west of Greenwich Mean Time (GMT), which is the U.S. Mountain timezone.

Determine the number of minutes east or west of GMT for your location by multiplying the number of hours east or west of GMT by 60 minutes per hour. For example, the U.S. Pacific timezone is 8 hours west of GMT. Multiply 8 x 60 to get 480 minutes.

If your timezone location is east of GMT, you should use a negative number. For example, Middle European Time is one hour east of GMT. Multiply -1 x 60 to get -60 minutes for MET (Middle European Time).

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

2. If you do not need to make any changes to these kernel parameters, you can skip to Step 5 now. If you do need to make changes, continue with the next step.
3. Change the kernel parameter values by following these substeps:
   a. Select (highlight) the parameter you wish to change (for example, **maxfiles**).
   b. Select **m** (Modify).
   c. In the popup window that displays, locate the New setting[Expression/Value] field.
   d. In the New setting[Expression/Value] field, type the new value.
   e. Use the down arrow to get to the [Modify] option and press **Enter**. When the popup window disappears, you should see the new expression/value. Press the **Enter** key again to continue.
   f. Repeat substeps a through e for each parameter you need to change.

4. If you changed any of the kernel parameters in the previous step, you might need to rebuild the kernel by completing the following substeps:

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

   b. In the popup window that displays, you should see the list of tunables/modules that are being held until the system to rebooted. Select r (Reboot System).

   c. On the next screen, enter the grace time in seconds or accept the default of 60. Press **Enter** and select **y** to reboot the server and put the new changes into effect.

5. Verify the TZ (timezone) environment variable. HP-UX has two timezone settings: the kernel parameter 'timezone' and the environment variable 'TZ'. Both timezone settings must agree so that Image Services utilities can report the time correctly. In Step 2, you verified that the 'timezone' kernel parameter was set correctly.

   a. Now you must verify that the TZ environment variable is set correctly. As a user with **root** privileges, enter:

      ```
      /sbin/set_parms  timezone
      ```

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

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

Check Swap Space

The recommended Swap Space is based on the amount of server memory as shown in the following table:

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

Check to see that the total swap space size is set to at least **1000 MB**.

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

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

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

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

2. Return to the Disk and File Systems menu and select the Logical Volumes option. The Logical Volumes menu displays.
3. From the Action menu, select the Create option and then press **Return**.
4. Click the Select a Volume Group option, and then select the appropriate volume group (for example, **vg00**). Click **OK** and press **Return**.
5. Click the Define a New Logical Volumes option. In the LV Name field type the name of the additional swap space logical volume (for example, **swap2**).
6. In the LV Size (Mbyte): field type the size of your logical volume. For example, if the server has 1 GB of memory, you can determine what number to enter into this field by completing the following formula:

   (<current RAM> x multiplier) - <current swap size> = # Mbytes

   where:

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

7. Click on the Usage: field and select Swap Device.
8. Click the Swap Priority: field and select **1**. Click the **Add** button and then click **OK**.
9. Click **OK** again to create the logical volume. The new Swap logical volume displays in the Define New LV window.
10. Return to the main System Administration Manager menu of SAM.

System Configuration Issues

Server Types Perform the steps in this section and its subsections on these servers:

Root/Index and **Storage Library** server during a Dual server installation.

Root/Index/Storage Library server during a Combined server or Entry server installation.

Application server during an Application server installation.

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

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

Extend the Root Volume Group (vg00) (optional)

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

In this section you will extend the Root <Volume Group> (**vg00**) using SAM. To extend the Root volume group, you will have to complete the following steps:

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

Create the IS Volume Group (fnvg) (optional)

This section contains instructions for creating an optional volume group for your FileNet datasets (**fnvg**).

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

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

In this section you will use SAM to create the FileNet <Volume Group> and call it **fnvg**. To create the FileNet volume group, follow these steps:

1. You should already be at the System Administration Manager menu of SAM. Select the Disks and File Systems option, and press **Return**.

2. From the Disk and File Systems Manager menu of SAM, select the Volumes Groups option.
3. You need to create a <Volume Group> for the FileNet datasets (**fnvg**, for example). From the Action pulldown menu, select the Create or Extend.
4. At the Select a Disk pop-up window, select the disks you want to add within the volume group.
5. At the Add a Disk Using LVM screen, select the Create or Extend a Volume Group ... option.
6. At the Create a Volume Group screen, decide a name for the new <Volume Group> (for example, **fnvg**) and type this name in the Volume Group name field and click **OK**.
7. At the Add a Disk Using LVM screen, click **OK**.
8. When you see a Note saying the volume group has been successfully created/extended, click **OK**.
9. The new volume group (**fnvg**) now displays in the **Disk and File Systems** menu.

   This information can be viewed in more detail by using the **vgdisplay** command. Enter:

   ```
   vgdisplay -v
   ```

Update the /etc/hosts File

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

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

The general format of a hosts file entry is:

<IP_address_of_IS_Domain> <IS_server> <NCH_four_part_service_name>

For example:

IS Root/Index server IP address: 9.42.31.3

IS Root/Index server name: titian

IS Domain name: Titian:Yourco

The hosts file entry looks like this:

```
9.42.31.3        titian          titian-yourco-nch-server
```

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

```
9.42.31.3                   titian          titian-yourco-nch-server
9.42.31.14                  bassanio        bassanio-yourco-nch-server
9.42.28.32                  atelier         atelier-yourco-nch-server
FE80::2C0:FE35:9FFF:D28     atelier         atelier-yourco-nch-server
9.42.29.42                  sienna          sienna-yourco-nch-server
9.42.28.56                  vermeer         vermeer-yourco-nch-server
2002:927:2638::927:2638     vermeer         vermeer-yourco-nch-server
fe80::fefe:0927:2638        vermeer         vermeer-yourco-nch-server
```

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

Create IS Users and Groups

Create fnadmin and fnop Groups

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

- Members of the **fnadmin** group have the highest privileges. This group is reserved for System Administrators who must be able to make configuration changes, run diagnostics, and restore backups. Members of this group can read, write, and execute the FileNet Image Services software.
- Members of the **fnop** group are FileNet Operators. They have privileges to start and stop the FileNet Image Services software, perform backups, and run other everyday operation activities. Members of this group also have access to diagnostic and hard-coded passwords, such as MKF_tool and CSM_tool. Members of fnadmin group should also be members of this group.
- Members of the **fnusr** group, which will be created when you add the FileNet software user such as **fnsw** in the next section, can operate any FileNet software, including COLD. All administrators and operators must belong to this group.

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

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

1. At the main System Administration Manager menu of SAM, select the Accounts for Users and Groups option.
2. Click the Groups option.
3. From the Action pulldown menu, select **Add**.
4. On the Add a new group screen, ...

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

   In the Users to Include in Group field, select a user with administrative privileges, such as **root**. (Also select the names of any other users you wish to include in this group.)
5. Click **OK** button to create the **fnadmin** group.
6. Click **OK** at the Message screen to return to the Groups menu.
7. Once again, from the Action menu, click **Add**.
8. On the Add a new group screen, ...

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

In the Users to Include in Group field, if you wish to include the names of any existing users in this group, click on those users to select them.

9. Click **OK** to create the **fnop** group.
10. Click **OK** at the Note screen.
11. Return to the Accounts for Users and Groups screen.

Create FileNet Users and fnusr Group

Note There are no RDBMS users and groups on a Storage Library Server.

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

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

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

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

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

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

6. Click the Start-Up Program... button and select the user's start-up program (shell) from the list. Click **OK** to continue.
7. Fill in the other optional fields as desired.
8. Click the Set Password Options... button and select the appropriate password behavior option from the drop-down list. Click **OK** to continue.
9. In the Set User Password window, type the user's password. Click **OK**.
10. Re-type the password and click **OK** again.
11. When the Note screen displays to let you know the user has been added to the system, click **OK** to continue.
12. Select the **fnadmin** group.
13. On the Action pulldown menu, select the Modify. Then in the Users not in Group field, select the FileNet software user, such as **fnsw**. Click **Add** to add this user to the fnadmin group.
14. Click the **OK** button to modify the fnadmin group. Also click **OK** at the message screens until you return to the Accounts for Users and Groups screen.
15. Repeat Steps 12 through 14 for the **fnop** and **fnusr** groups (and <dba group>, if present on this server) and add the users as indicated above.
16. Exit the Groups screen and return to the System Administration Manager main menu.

File System Sizes

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

FileNet Logical Volume Sizes

FileNet Logical Volume Name	Usable File System Space (MB)	Minimum Logical Volume Size (MB)	Your Logical Volume Size (MB)	Mount Directory
fnsw (All servers)	500	510		/fnsw
local (All servers)	500	510		/fnsw/local

Create Logical Volumes and File Systems

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

Tip The Actual Size You Create each file system is determined by FileNet's SCouT planning tool.

In this section you will create the **/fnsw** and **/fnsw/local** file systems for Image Services.

1. Now you can use SAM to create the file systems and logical volumes. You should already be at the System Administration Manager menu of SAM.
2. On the **System Administration Manager** menu, select the **Disks and File Systems** option.
3. From the Disk and File Systems Manager menu, select the **Logical Volumes** option.
4. From the Action pulldown menu, select the **Create** option.
5. Select the appropriate volume group for logical volume you're going to create and click **OK**.
6. Press **Return** at the Define new Logical Volumes field.

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

   Verify that the following When to Mount options are checked:

   - Now
   - Every System Boot
10. Also verify that Enable Set User ID Execution is checked.
11. Set the Usage: field to **File System**, and type in the file system mount directory. Then click **Add.**
12. Repeat Steps 3 - 11 for all the file systems you need to create.
13. When you are finished adding all the File Systems, click **OK**.
14. At the Create New Logical Volumes screen, click **OK**.
15. At the Logical Volumes screen, the new logical volumes are listed on the display.

Determine Dataset Sizes

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

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

Dataset		Raw Logical Volume
cache0	-----	fn_cache0
permanent_db0	-----	fn_perm_db0
permanent_rl0	-----	fn_perm_rl0
transient_db0	-----	fn_trans_db0

Dataset		Raw Logical Volume
transient_rl0	-----	fn_trans_rl0
sec_db0	-----	fn_sec_db0
sec_rl0	-----	fn_sec_rl0

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

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

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

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

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

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

Create Logical Volumes for Image Services Datasets

You are now going to add the logical volumes for all of the FileNet datasets.

1. From the **System Administration Manager** menu of SAM, select the **Disks and File Systems** option and press **Return**.
2. From the Disk and File Systems Manager menu, select the **Logical Volumes** option. When the entry is highlighted press **Return**.
3. From the Action pulldown menu, select the **Create** option.
4. Select the appropriate volume group for logical volume and click **OK**. Press Return at the **Add new Logical Volumes** field. Refer to the "Installation Worksheet" for your operating system (for example, "AIX Installation Worksheet" on page 44) to see the listing of the volume groups.
5. Fill in the LV Name field with the Logical Volume Names (for example, type in fn_cache0 for the first Logical Volume entry listed in Table 2-4). Add logical volume names for all of the applicable logical volumes listed in Table 2-4.
6. See the "Minimum Size (in MB)..." column of Table 2-4 for the minimum logical volume sizes. Refer to the "Size (MB)" column for your selected logical volume and then type the **<Size in MB>** for the logical volume you are adding in the LV Size (Mbytes) field.
7. In the Usage field, display the options (File System, Swap, or None). Select **None**, and press **Return**. Then tab to **add**, and press **Return**.
8. Repeat Steps 3-7 for all of the logical volumes you need to create on each server.

Logical Volume Name	Server Type			Minimum Size of Logical Volumes (in MB)	Your Size (in MB)
	Com-bined	Root/ Index	Stor. Libr.		
fn_cache0	x	-	x	100	
fn_perm_db0	x	-	x	100	
fn_perm_rl0	x	-	x	64	
fn_trans_db0	x	-	x	320	
fn_trans_rl0	x	-	x	256	
fn_sec_db0	x	x	-	64	
fn_sec_rl0	x	x	-	64	

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

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

HP-UX Installation Worksheet

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

Server Types 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 the following worksheet to help you gather the information needed to successfully complete this Image Services installation.

System Information

1. Obtain the following user name information:

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

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

2. Version of the HP-UX operating system software:_____
   (use **uname -r**) (needs to be version **B.11.11**, **B.11.23,** or **B.11.31**, for example)
3. Character set used by the operating system:_____
   (USASCII7, ISO8859-1, ISO8859-2, for example)
   (use **locale charmap**)
4. Media Device Types (CD-ROM, DAT Cartridge, 8mm, for example):

   Device Types:_____

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

Important The ssn is written onto all storage media and **must** be unique for each Image Services system. If you have more than one Image Services system (domain), each **must** use its own unique ssn to prevent potential problems if media are ever transferred from one IS system to another. The valid range of SSNs is 1000 through 2147483646.

8. Media Access Controller Type (Ethernet, FDDI, for example)

   _____

System Server Information

The server names, network addresses, and descriptions of servers comprising this Image Services system. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **197.0.0.146**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:252:0:1::2008:6**). The description can be Combined, Root/Index, Storage Library, Application, etc.

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

Server Information

Server Names	Network Address	Description

Print Server Information

If your Image Services system contains a Printer Server, record the NCH Name, Printer Type, and Printer Server IP Address for all of the printers on the system. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **197.0.0.146**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:252:0:1::2008:6**).

NCH Names, Printer Types, and Printer Server IP Addresses

NCH Name	Printer Type	Printer Server IP Address

NCH Names, Printer Types, and Printer Server IP Addresses

NCH Name	Printer Type	Printer Server IP Address

Storage Library Information

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

Important Verify that the SCSI adapter card is configured for a **maximum of 80 MB/second** data transfer for best optical library performance. See "Appendix I – Setting the Maximum Data Transfer Rate for SCSI Host Bus Adapters (HP-UX ONLY)" on page 260

1. Collect the following information for each Storage Library on your system:
   - Storage Library Type (HP Autochanger, FileNet OSAR Library, Plasmon ODU, for example):

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

Cache Percentages

Determine the cache min./max. sizes (in%) for the following caches:

Cache Information

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

Use the SCouT program to find this information.

Continue the Installation on HP-UX

Continue the IS Installation with “Install the Relational Database Software” on page 99.

System Administrator Tasks – Solaris

The following checklist summarizes the tasks detailed in this chapter which the **System Administrator** is responsible for completing.

1. ❒ Check Server Memory
2. ❒ Check Solaris Version
3. ❒ Verify Solaris Zones Support
4. ❒ Check Kernel Limits
5. ❒ Verify the Character Set
6. ❒ Update the /etc/hosts File
7. ❒ Create FileNet Users and Groups
8. ❒ Install Volume Management Software
9. ❒ Create Logical Volumes for Image Services
10. ❒ Set Up Links for Image Services

Peer Server Names and Address(es):

In this chapter you will gather pertinent information, configure the operating system to optimize the system for the Image Services software. In addition, you will install and configure the volume management software.

Operating System Requirements

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

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

Check Server Memory

Verify that the server has the appropriate amount of RAM:

1024 MB or more memory for each processor on Root/Index servers or Application servers with Oracle 10g and 11g.

500 MB or more memory for each processor on Root/Index servers or Application servers with DB2.

500 MB or more memory for each processor on Storage Library servers or Application servers without RDBMS.

Use the following commands to check your system requirements.

System Item	Command
RAM	prtconf | grep Memory
Free Disk Space in KB	df -k

Enter the server's memory in the "SUN Installation Worksheet" on page 85.

Verify Solaris Debugger

Debugging software is recommended for IS and, if present, must be installed on each server. A debugger enables support personnel to troubleshoot both IS and Solaris-related problems. For more information, see “Debugger - Solaris” on page 31.

Check Solaris Operating System Version

Your server must already be running the following Solaris release:

- Solaris® version 9 (32-bit or 64-bit) or 10 Operating System (64-bit only)

After installing the Solaris operating system, locate the *IBM FileNet Image Services, Image Services Resource Adapter, and Print Hardware and Software Requirements*. To download this document, go to the IBM Information Management support page (http://www.ibm.com/software/data/support). Select your operating system from the list and review the patch requirements. Verify that you have the latest release level. For example:

- Solaris 9 09/06 Release
- Solaris 10 05/08 Release

Verify Solaris Zones Support

IS 4.1.2 supports Solaris Zones with Solaris version 10.

- Global Zone
- Local Zones
- Create MKF dataset from Global Zone and then export to Local Zone. See “Set up Solaris zones” on page 80.

Verify/Change the Operating System Kernel Limits

Both the FileNet and the RDBMS system software are very resource intensive. To satisfy the resource needs of the software, you may need to increase some default operating system parameters.

Regardless of which version of Solaris you are running, complete the following steps:

1. Edit the /etc/logindevperm file, using your preferred editor (such as, vi):

   ```
   vi  /etc/logindevperm
   ```

2. Append the following line to the end of the file:

   /dev/console 0666 /dev/console

Note This line changes the login-based permissions of the console, and will prevent console warning messages from being logged in the error log file.

3. Exit the file and save your changes.

If you are using Solaris 9, continue with the next sub-section. If you are using Solaris 10, skip to "Checking Solaris 10 Kernel Limits" on page 70.

Checking Solaris 9 Kernel Limits

1. Make a copy of the system file (with a new name). Logon the server as a user with root privileges, and enter a command similar to the following:

   ```
   cp  /etc/system  /etc/system.save
   ```

2. Edit the /etc/system file, using your preferred editor (for example, **vi**):

   ```
   vi  /etc/system
   ```

3. Enter the parameters listed below (if necessary), and be sure that they are set to at least the values shown. (If your values are higher, enter the actual values needed for your system.)

CAUTION Use extreme care when entering the commands shown below. Entering some of the settings incorrectly may cause general system errors. Before rebooting the server, verify the accuracy of each of the lines added to the /etc/system file.

Solaris 9 Kernel parameters in **/etc/system**

```
set semsys:seminfo_semmap=50
set  semsys:seminfo_semmni=2000
set  semsys:seminfo_semmns=2000
set  semsys:seminfo_semmnu=500
set  semsys:seminfo_semmsl=512
set  semsys:seminfo_semopm=256
set  semsys:seminfo_semume=500
set  semsys:seminfo_semvmx=32767
set  semsys:seminfo_semaem=16384
set  shmsys:shminfo_shmmax=4294967295
set  shmsys:shminfo_shmmni=2000
set  msgsys:msginfo_msgmni=2048
set  msgsys:msginfo_msgtql=65536
set max_nprocs=400
set fnsod:sod_Debug=0
set rlim_fd_max=1024
set rlim_fd_cur=256
set noexec_user_stack=1
```

DB2 also requires these settings:

```
set msgsys:msginfo_msgmax=65535
set msgsys:msginfo_msgmnb=65536
```

4. Continue with the section, "Verify the Character Set and Time Settings" on page 73.

Checking Solaris 10 Kernel Limits

Solaris 10 provides the Resource Control Facility feature for setting kernel parameters. Refer to the Solaris 10 documentation on the Sun Web site for information about this feature. The values of the parameters in the project file override the values of the parameters in the /etc/system file. Make sure that the values of the parameters in the project file are the same as or greater than the values of the parameters in the /etc/system file.

Note IS kernel parameter changes should be made to the Solaris Resource Control Facility whether or not you are using zones in Solaris 10.

1. Since a project is dependent upon a user or a group, logon as a FileNet software user (for example, fnsw) to get the resource controls for that user. Then enter the following command at the shell prompt:

   ```
   prctl $$
   ```

2. Make sure the values are set as indicated in the Solaris 10 for IS column of the table below. If you have not specified kernel parameters in the /etc/project file, the system will use the default values. In most cases these default values will be adequate.

Note All IPC kernel parameters in the /etc/system file are obsolete and it is fine to have obsolete parameters in the /etc/system file on a Solaris 10 system. These parameters are used to initialize the default resource control values as in previous Solaris releases. Refer to the *Solaris Tunable Parameters Reference Manual* on the Sun Web site for details.

Parameter Name	Solaris 10 Default	Solaris 10 for IS
max-sem-nsems	512	512
max-sem-ops	512	512
max-sem-ids	128	2048
max-shm-ids	128	2048
max-msg-ids	128	2048
max-shm-memory	1/4 Physical memory	4GB
max_nprocs	10 + (16 x maxusers)*	default
Rlim_fd_max	65536	65536
Rlim_fd_cur	256	256
Noexec_user_stack	0	1
max-msg-qbytes	65536	65536
Msgtql (process.max-msg-messages)	8192	65536

Recommended kernel parameter values for IS 4.1.2 and later with Solaris 10
*maxusers - 2048 or server physical memory (in MB), whichever is less

3. Make a copy of the project and the system file (with a new name). Logon the server as a user with root privileges, and enter:

   ```
   cp  /etc/project  /etc/project.save
   mv /etc/system  /etc/system.save
   ```

4. View the current settings for the FileNet software user and the Oracle user.

   For FileNet software user, enter:

   ```
   su - fnsw
   projects -l
   ```

For Oracle user, enter:

```
su - oracle
projects -l
```

Return to the user with root privileges.

5. If a project does not exist for the FileNet software user, such as fnsw, enter a command similar to the following to create the necessary parameter:

   ```
   projadd -U fnsw -K “project.max-shm-memory=(priv,4GB,deny)” user.fnsw
   ```

6. If a project does exist for the FileNet user, such as fnsw, enter a command similar to the following to modify it:

   ```
   projmod  -sK “project.max-shm-memory=(priv,4GB,deny)” user.fnsw
   ```

   Update other kernel parameters required for the FileNet software user, such as fnsw, in etc/project. Their values should match the values in the Solaris for IS column of the table. As an example:

   ```
   projmod -sK “project.max-shm-ids=(priv,2048,deny)” user.fnsw
   projmod -sK “project.max-msg-ids=(priv,2048,deny)” user.fnsw
   projmod -sK “project.max-sem-ids=(priv,2048,deny)” user.fnsw
   projmod -sK “process.max-msg-messages=(priv,65536,deny)” user.fnsw
   ```

7. If a project does not exist for the RDBMS software user, such as oracle, enter a command similar to the following to create one:

   ```
   projadd -U oracle -K “project.max-shm-memory=(priv,4GB,deny)” user.oracle
   ```

8. If a project does exist for the RDBMS user, such as oracle, enter a command similar to the following to modify it:

   ```
   projmod  -sK “project.max-shm-memory=(priv,4GB,deny)” user.oracle
   ```

9. Edit the /etc/system file, using your preferred editor (for example, vi). Make sure to also add the additional values required by your system’s existing applications.

   ```
   vi  /etc/system
   ```

   Add the following value to the file:

   ```
   set noexec_user_stack=1
   ```

Note If an /etc/system file does not exist, create one and add the value to the file.

10. Exit the file and save your changes.

11. Verify the new active kernel values for both FileNet and Oracle users match the projects -l output you saw in Step 4 on page 71.

    For FileNet software user, enter:

    ```
    su - fnsw
    prctl $$
    ```

    For Oracle user, enter:

    ```
    su - oracle
    prctl $$
    ```

12. Verify the /etc/system file by entering:

```
more /etc/system
```

Verify the Character Set and Time Settings

The NLT library does not support the UNIX substitution string “%r” mask. When the mask is set to “%r”, Image Services defaults to a good mask. However, when the IS software posts messages to the log file, NLT errors are reported for each new message.

The default time mask varies on UNIX depending on the LANG and LC_TIME environment settings. Verify the current time format setting by entering:

```
locale  -k  t_fmt
```

The result might appear similar to this:

```
t_fmt=″%r″
```

This example illustrates an incorrect mask. To change the default mask to one that can be used with the NLT library, reset the LC_TIME environment setting.

The LC_TIME setting must be configured for the entire system, so change the /etc/profile file (or each user’s .profile file) to include the following lines:

```
LC_TIME=C
export LC_TIME
```

After you make this change, verify that the environment is correct for each user by logging in and running the **locale** command again:

- To check the time format, enter:

  ```
  locale  -k  t_fmt
  ```

  The result is:

  ```
  t_fmt=″%H:%M:%S″
  ```

  Note the new value shown for t_fmt. This is the correct output.

- To check the character set settings, enter:

  ```
  locale
  ```

  The result looks like this:

  LANG=
  LC_CTYPE=”C”
  LC_NUMERIC=”C”
  LC_TIME=C
  LC_COLLATE=”C”
  LC_MONETARY=”C”
  LC_MESSAGES=”C”
  LC_ALL=

  Note that “C”, the system default, is being used. This is also the correct output. Be sure the character set specified on your server is appropriate for your locale.

System Configuration Issues

Start Solaris X Windows (if necessary)

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

Note If X Windows or CDE is already running, you can skip this section.

1. Logon the server as a user with **root** privileges, and start the Solaris X Windows environment by entering the following command:

   `/usr/openwin/bin/Xsun`

   X Windows starts immediately.

Tip When necessary, you may use the built-in text editor provided with the Solaris 10 Operating System until you install the Image Services software. After the Image Services software is installed, DO NOT attempt to start X Windows using the command shown above.

Update the /etc/hosts File

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

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

The general format of a hosts file entry is:

<IP_address_of_IS_Domain> <IS_server> <NCH_four_part_service_name>

For example:

IS Root/Index server IP address: 9.42.31.3

IS Root/Index server name: titian

IS Domain name: Titian:Yourco

The hosts file entry looks like this:

```
9.42.31.3        titian          titian-yourco-nch-server
```

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

```
127.0.0.1                   localhost
::1                         localhost
9.42.31.3                   titian          titian-yourco-nch-server
9.42.31.14                  bassanio        bassanio-yourco-nch-server
9.42.28.32                  atelier         atelier-yourco-nch-server
FE80::2C0:FE35:9FFF:D28     atelier         atelier-yourco-nch-server
9.42.29.42                  sienna          sienna-yourco-nch-server
9.42.28.56                  vermeer         vermeer-yourco-nch-server
2002:927:2638::927:2638     vermeer         vermeer-yourco-nch-server
fe80::fefe:0927:2638        vermeer         vermeer-yourco-nch-server
```

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

If this server uses DNS (Domain Name Service) or NIS (Network Information Service), skip the remainder of this section. Contact the network administrator for further information. Skip to the section, "Verify Volume Management Software" on page 79.

You must include the names and IP address of each workstation/server with which you want to communicate. Without a description of other workstations/servers included in the /etc/hosts file, your host will not communicate with other systems. In addition, verify that the name and address of your host is included in the /etc/hosts file on your system.

1. Logon as a user with **root** privileges.
2. Edit the /etc/hosts file, using your preferred editor (for example, **vi**):

   ```
   vi /etc/hosts
   ```

3. Verify that the word "localhost" displays on a line along with an IP address. If "localhost" does not appear on a line as shown in the example below, the FileNet software will not work.
4. Also, verify that there is a line containing the names and IP address of your server.

   If there is no current entry for your server name, you must add your server/host name and IP address to the file.

Note The screen shown is an example screen. Enter the appropriate information for your system.

```
# @(#)hosts     Revision: 2.1   2004/02/18 21:02:29
#ident  "@(#)cmd-inet:etc/hosts 1.1"
#
# Internet host table
127.0.0.0 loopback
127.0.0.1 localhost
135.0.0.150 <your server name>
135.0.0.151 athena
135.0.0.152 medea
135.0.0.154 theseus
135.0.0.156 perseus
```

You can configure a total of 16 peer systems.

Note While the /etc/hosts file is open, also add the server/host name and IP address of any other server that you will need to communicate with. Also, the example above shows only IPv4 addresses. When adding addresses for peer systems in fn_edit, use the IPv4 format rather than the IPv6 format.

Create IS Users and Groups

Server Types Perform the steps in this section on these servers for the FileNet groups and users:

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.

Note On servers with Oracle software, add the FileNet software user such as **fnsw** to the <dba group> that administers the database.

Users and Groups on Solaris 9

In this section, you will use the **admintool** to create groups and users (with the appropriate IDs) for FileNet administration. (There will be a directory in the root file system called home. Solaris uses this directory for the user's home directory. If you want to use this, you will have to make a filesystem for it.) Refer to Solaris documentation for more information.

1. Verify that you are logged on as a user with **root** privileges and that you are running X Windows.
2. Open a window and launch the **admintool** by entering:

   ```
   admintool &
   ```

3. From the Admintool:Users window, select **Browse** and **Groups**.
4. Select **Edit** and **Add**.
5. Enter the Group name for the group you are creating. a group ID will be assigned automatically. Click **OK** to accept the new group. Repeat Steps 3 and 4 to create the following groups:

Group Name	Required Members	Group Description
fnusr	<fnsw>, root, <dba user>	Members can operate any FileNet software (including COLD). All operators and administrators must belong to this group.
<dba group>	<dba user>, <fnsw>	The Database Administration group <dba group> and user <dba user> are created by the Database Administrator. The FileNet user, fnsw, must be a member of the <dba group>.
fnadmin	<fnsw>, root	Members can perform administrative functions. Administrators must belong to this group to change configuration, perform diagnostics, or restore backups.
fnop	<fnsw>	Members can start and stop all FileNet software (including COLD). Administrators must also belong to this group.

From the Admintool window, select the **Browse** option, then select Users.

6. Select **Edit** and then select **Add**.
7. Enter the User name, primary and secondary group, and login shell for each user.
8. Set the password for the user. (Select the Normal password option.)
9. Create the home directories for the appropriate users. (For example, the fnsw home directory could be /home/fnsw.)
10. Click **OK** to accept the new user. Repeat steps 6 through 10 to create the FileNet software user, such as fnsw:

User Name	Group Assignment
fnsw (for example)	Primary Group: fnusr Secondary Group: fnadmin, fnop

Verify that all necessary users and groups exist and are configured correctly.

Note If you want to use the FileNet tools and software when logged on as a specific user, you must add the user to either the **fnop** or **fnadmin** groups. Users in the **fnop** group can start and stop FileNet software only, while users in the **fnadmin** can read, write and execute FileNet software. Additionally, if you add other users to **fnop** or **fnadmin**, you must also add them to the **fnusr** group.

Users and Groups on Solaris 10

In this section, you will use the **Solaris Management Console (SMC)** to create groups and users (with the appropriate IDs) for FileNet administration. Refer to Solaris documentation for more information.

Note If you are setting up a system using Solaris Zones, this section needs to be completed on all servers in the Global Zone.

1. Verify that you are logged on as a user with **root** privileges.
2. Open a window and launch the **Software Management Console** tool by entering:

   ```
   smc &
   ```

3. From the main SMC window, expand **This Computer**, then expand **System Configuration**.

4. Create the users and groups from the following table.

Group Name	Required Members	Group Description
fnusr	<fnsw>, root, <dba user>	Members can operate any FileNet software (including COLD). All operators and administrators must belong to this group.
<dba group>	<dba user>, <fnsw>	The Database Administration group <dba group> and user <dba user> are created by the Database Administrator. The FileNet user, fnsw, must be a member of the <dba group>.
fnadmin	<fnsw>, root	Members can perform administrative functions. Administrators must belong to this group to change configuration, perform diagnostics, or restore backups.
fnop	<fnsw>	Members can start and stop all FileNet software (including COLD). Administrators must also belong to this group.

5. Create the home directories for the appropriate users. (For example, the fnsw home directory could be /home/fnsw.)
6. Click **OK** to accept the new user. Repeat steps to create the FileNet software user, such as fnsw:

User Name	Group Assignment
fnsw (for example)	Primary Group: fnusr Secondary Group: fnadmin, fnop, <dba group>

Verify that all necessary users and groups exist and are configured correctly.

Note If you want to use the FileNet tools and software when logged on as a specific user, you must add the user to either the **fnop** or **fnadmin** groups. Users in the **fnop** group can start and stop FileNet software only, while users in the **fnadmin** can read, write and execute FileNet software. Additionally, if you add other users to **fnop** or **fnadmin**, you must also add them to the **fnusr** group.

Set Up Password for the FileNet Software User

Note Skip the steps in this procedure if you set the user passwords while creating users in "Create IS Users and Groups" on page 75.

If you have not previously established a password for **fnsw**, create the password now before proceeding with the Image Services software installation.

1. To set up the FileNet software user (**fnsw**) password, at the system prompt enter:

   ```
   passwd  fnsw
   ```

2. You are then prompted New password:.
3. After you enter the password, you are then prompted Re-enter new password:.
4. After you enter the password a second time, you return to the system prompt.

Verify Volume Management Software

- Before you can modify or create file systems and volumes for the FileNet Image Services software, the **System Administrator** must verify that VERITAS Volume Manager, Solaris Volume manager, or ZFS software is installed on each server.
- The system must meet the requirements specified in the volume manager documentation.

Create Logical Volumes for Image Services

Create the following file systems and volumes using either the virtual administrator or the storage administrator. The sizes shown in the following table are **minimum** sizes. Refer to the table below for the appropriate sizes for this FileNet system.

Note **For Sites with Disk Arrays ONLY:** Disk arrays managed by the Veritas volume management software, do not always “grow” to an even MB boundary. You must verify the new size, after “growing” a volume, by displaying the volume information. The new volume size will display in Kilobytes if it did not “grow” to an even Megabyte boundary. Previous installations with a disk array (configured for RAID-5) have determined that the correct procedure for accurately “growing” a volume to an even Megabyte boundary is to make the new volume size evenly divisible by seven. It is uncertain if the suggestion is applicable for all disk arrays. (Check the most current version of the Release Notes for more information.)

Volume Name	Mount Point	Minimum Size	Actual Size You Create	User	Group	Mode
fnsw	/fnsw	500m		fnsw	fnusr	770
local	/fnsw/local	500m		fnsw	fnusr	770
vartmp	/var/tmp	500m		fnsw	fnusr	770
fn_cache0	n/a	100m		fnsw	fnusr	664
fn_permanent_db0	n/a	100m		fnsw	fnusr	664
fn_permanent_rl0	n/a	64m		fnsw	fnusr	664
fn_transient_db0	n/a	320m		fnsw	fnusr	664
fn_transient_rl0	n/a	256m		fnsw	fnusr	664
fn_sec_db0	n/a	64m		fnsw	fnusr	664
fn_sec_rl0	n/a	64m		fnsw	fnusr	664

Tip The Actual Size You Create each volume is determined by FileNet’s SCouT planning tool.

Set up Solaris zones

Note You need to make sure you created users and groups on your Global Zones systems as described in "Users and Groups on Solaris 10" on page 77.

Note Optical libraries are NOT supported in a Solaris Zones environment.

1. If you are setting up a system using Solaris Zones, you need to first create the MKF datasets in a Global Zone using VERITAS Volume Manager, Solaris Volume Manager, or ZFS. In our example, we will use ZFS, where fnzfs is a name of a zpool. it can be named anything. Commands similar to the following need to be executed to create the datasets:

```
zfs create -V 100m fnzfs/zone1/fn_cache0
zfs create -V 100m fnzfs/zone1/fn_permanent_db0
zfs create -V 64m fnzfs/zone1/fn_permanent_rl0
zfs create -V 320m fnzfs/zone1/fn_transient_db0
zfs create -V 256m fnzfs/zone1/fn_transient_rl0
zfs create -V 64m fnzfs/zone1/fn_sec_db0
zfs create -V 64m fnzfs/zone1/fn_sec_rl0

zfs set reservation=100m fnzfs/zone1/fn_cache0
zfs set reservation=100m fnzfs/zone1/fn_permanent_db0
zfs set reservation=64m fnzfs/zone1/fn_permanent_rl0
zfs set reservation=320m fnzfs/zone1/fn_transient_db0
zfs set reservation=256m fnzfs/zone1/fn_transient_rl0
zfs set reservation=64m fnzfs/zone1/fn_sec_db0
zfs set reservation=64m fnzfs/zone1/fn_sec_rl0

#chown fnsw:fnusr  /dev/zvol/rdsk/fnzfs/zone1/*
#chown fnsw:fnusr /devices/pseudo/zfs@0:*
```

2. Configure the datasets in the Local Zone:

```
Zonecfg:zone1>add device
Zonecfg:zone1>set match=/dev/zvol/rdsk/fnzfs/zone1/fn_cache0
Zonecfg:zone1>end
Zonecfg:zone1>add device
Zonecfg:zone1>set match=/dev/zvol/rdsk/fnzfs/zone1/fn_permanent_db0
Zonecfg:zone1>end
Zonecfg:zone1>add device
Zonecfg:zone1>set match=/dev/zvol/rdsk/fnzfs/zone1/fn_permanent_rl0
Zonecfg:zone1>end
Zonecfg:zone1>add device
Zonecfg:zone1>set match=/dev/zvol/rdsk/fnzfs/zone1/fn_transient_db0
Zonecfg:zone1>end
Zonecfg:zone1>add device
Zonecfg:zone1>set match=/dev/zvol/rdsk/fnzfs/zone1/fn_transient_rl0
Zonecfg:zone1>end
Zonecfg:zone1>Add device
Zonecfg:zone1>set match=/dev/zvol/rdsk/fnzfs/zone1/fn_sec_db0
Zonecfg:zone1>end
Zonecfg:zone1>add device
Zonecfg:zone1>set match=/dev/zvol/rdsk/fnzfs/zone1/fn_sec_rl0
Zonecfg:zone1>end
```

3. Verify (export) and save (commit) the datasets to the Local Zone by entering the following series of commands:

```
zonecfg -z <zonename>
zonecvg> export
zonecvg> commit
```

Set Up Links Required for Image Services

Server Types Perform the steps in this section on these servers for the FileNet groups and users:

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.

In this section you will link the Image Services and RDBMS database names to their volume names by creating the **filenet.links** file, entering the correct soft link information, and executing the file.

1. Verify that you're logged on as a user with **root** privileges.
2. Enter the following commands to create, and go to the /fnsw/dev/1 directory:

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

Note The /dev and/or /1 directories may already exist. If you get a message similar to the following: mkdir: cannot create dev: File exists, one or both of the directories already exist.

3. Create (and edit) the **filenet.links** file using your preferred editor (for example, **vi**).

   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/vx/<disktype>/<diskgroup>/<logical volume> dbname
```

```
ln -s /dev/zvol/<disktype>/<zpool>/<zone>/<logical volume>  dbname (ZFS)
```

   where **<logical volume>** is the disk location of the volume and **dbname** (plus the path, /fnsw/dev/1) is the data base name. For example:

```
ln -s /dev/vx/rdsk/fndg/fn_cache0  /fnsw/dev/1/cache0
```

```
ln -s /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_cache0  /fnsw/dev/1/cache0  (ZFS)
```

Note 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 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 must contain link information similar to the following:

Using VERITAS Volume Manager

On a Combined (Root/Index/Storage Library) Server

```
ln -s  /dev/vx/rdsk/fndg/fn_cache0  /fnsw/dev/1/cache0
ln -s  /dev/vx/rdsk/fndg/fn_permanent_db0  /fnsw/dev/1/permanent_db0
ln -s  /dev/vx/rdsk/fndg/fn_permanent_rl0  /fnsw/dev/1/permanent_rl0
ln -s  /dev/vx/rdsk/fndg/fn_transient_db0  /fnsw/dev/1/transient_db0
ln -s  /dev/vx/rdsk/fndg/fn_transient_rl0 /fnsw/dev/1/ transient_rl0
ln -s  /dev/vx/rdsk/fndg/fn_sec_db0  /fnsw/dev/1/sec_db0
ln -s  /dev/vx/rdsk/fndg/fn_sec_rl0  /fnsw/dev/1/sec_rl0
```

On a Root/Index Server

```
ln -s  /dev/vx/rdsk/fndg/fn_sec_db0  /fnsw/dev/1/sec_db0
ln -s  /dev/vx/rdsk/fndg/fn_sec_rl0  /fnsw/dev/1/sec_rl0
```

On a Storage Library Server

```
ln -s  /dev/vx/rdsk/fndg/fn_cache0  /fnsw/dev/1/cache0
ln -s  /dev/vx/rdsk/fndg/fn_permanent_db0  /fnsw/dev/1/permanent_db0
ln -s  /dev/vx/rdsk/fndg/fn_permanent_rl0  /fnsw/dev/1/permanent_rl0
ln -s  /dev/vx/rdsk/fndg/fn_transient_db0  /fnsw/dev/1/transient_db0
ln -s  /dev/vx/rdsk/fndg/fn_transient_rl0  /fnsw/dev/1/transient_rl0
```

Using ZFS

On a Combined (Root/Index/Storage Library) Server

```
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_cache0  /fnsw/dev/1/cache0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_permanent_db0  /fnsw/dev/1/permanent_db0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_permanent_rl0  /fnsw/dev/1/permanent_rl0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_transient_db0  /fnsw/dev/1/transient_db0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_transient_rl0 /fnsw/dev/1/ transient_rl0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_sec_db0  /fnsw/dev/1/sec_db0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_sec_rl0  /fnsw/dev/1/sec_rl0
```

On a Root/Index Server

```
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_sec_db0  /fnsw/dev/1/sec_db0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_sec_rl0  /fnsw/dev/1/sec_rl0
```

On a Storage Library Server

```
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_cache0  /fnsw/dev/1/cache0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_permanent_db0  /fnsw/dev/1/permanent_db0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_permanent_rl0  /fnsw/dev/1/permanent_rl0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_transient_db0  /fnsw/dev/1/transient_db0
ln -s  /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_transient_rl0  /fnsw/dev/1/transient_rl0
```

4. Save the changes.

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

```
chmod  755  filenet.links
```

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

6. Execute the **filenet.links** file by entering the following commands:

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

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

```
ls -l
```

   The -l option displays the mode, number of links, owner, group, size (in bytes), and time of last modification for each file.

Note 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 the /fnsw/dev/1 directory does not contain the links as shown above, verify and, if necessary, update the **filenet.links** file with any changes and verify the permissions are correct for the file. Execute the links file again.

Modify TCP/IP Port Settings (optional)

Server Types Perform the steps in this section on all servers.

Note If the steps in this section does not work, Sun suggests Solaris 10 users use SMF (Service Management Facility) manifest files. You can download and enable the sample manifest files (network-anon.xml) from http://opensolaris.org/os/community/smf/manifests/. If you have questions, please contact Sun technical support.

In this section, you will set up the /etc/rc2.d/S69inet file to improve the throughput of your FileNet system. This addition expands the number of available ephemeral ports and reduces the time-out delay. This addition is not required, but has been found to be optimal when running FileNet software. Unless you have set these options for other system reasons, we recommend that you make these changes.

- Ephemeral ports are temporary ports assigned by a server's IP stack, and are assigned from a designated range of ports for this purpose. When network traffic is extremely heavy, it's possible to run out of ephemeral ports unless you specify a wider range of port numbers in /etc/rc2.d/S69inet.
- The tcp_time_wait_interval parameter determines the length of time the server waits before reusing a closed ID socket. Although the default value is typically around 240000 milliseconds (four minutes), this parameter can safely be reduced to as little as 30000 milliseconds (30 seconds) on high-speed networks.

1. Create a new, blank /etc/rc2.d/S69inet file.
2. As a user with root privileges, verify you have write permission on the this file by entering:

```
chmod 754 /etc/rc2.d/S69inet
```

3. Use your preferred text editor (such as vi) to modify the /etc/rc2.d/S69inet file.

4. Add the following lines to the end of the file:

```
ndd -set /dev/udp udp_smallest_anon_port 42767
ndd -set /dev/udp udp_largest_anon_port 65535
ndd -set /dev/tcp tcp_smallest_anon_port 42767
ndd -set /dev/tcp tcp_largest_anon_port 65535
ndd -set /dev/tcp tcp_time_wait_interval 30000
```

5. Save your changes and exit. These changes will go into effect when the server is rebooted.

SUN Installation Worksheet

The following sections contain tables intended to allow you to organize the necessary information in a single place for easy reference during the installation process.

System Information

1. Obtain the following user name information:

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

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

2. Version of the Solaris Operating System:_____
   (must be Solaris 9 or 10 OS, either 32-bit or 64-bit)
3. Character set used by the operating system:_____
   (for example, USASCII7, ISO8859-2, ISO8859-2, and so on)
4. Record the appropriate server information in the table below.

Installation Information	System Information
Server Memory	
Server IP Address	

Installation Information	System Information
Network Address	
System Serial Number (ssn)*	
Domain Name	
Organization Name	

Important The ssn is written onto all storage media and **must** be unique for each Image Services system. If you have more than one Image Services system (domain), each **must** use its own unique ssn to prevent potential problems if media are ever transferred from one IS system to another. The valid range of SSNs is 1000 through 2147483646.

Note The Solaris Operating System does not allow an underscore ("_") as part of the server name. However, the Image Services software will accept the underscore as part of the domain name. The FileNet domain name does not necessarily have to be the same as the server name.

Peer System Information

The Domain name, System Serial Number (SSN), and IP address of each Image Services system (peer system) that is going to be communicating with this Image Services system. The serial numbers must contain 10 digits. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **197.0.0.146**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:252:0:1::2008:6**).

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

Domain:Organization Name	System Serial Number (SSN)	Network Address

(You can configure a total of 16 peer systems.)

Note When adding addresses for peer systems in fn_edit, use the IPv4 format rather than the IPv6 format.

Print Server Information

Record the information for each printer on your system in the table below. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **197.0.0.146**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:252:0:1::2008:6**).

NCH Name	Printer Type	Printer Server IP Address

Storage Library Information

1. Determine the following Sun optical device SCSI parameters. The table below provides a description of each SCSI parameter and provides space to record the correct setting for your system.

SCSI Parameter	Setting	Parameter Description
System Board Number		The System Board Number corresponds to the system board that the SCSI bus is connected to. (Only SPARCserver 1000 and 2000 models currently utilize multiple system boards.)
SBus Slot Number		The SBus Slot Number is the slot number that the SCSI controller connected to the particular device resides in within the server. (Some servers also provide an integrated SCSI controller that does not utilize a SBus slot; however, these integrated SCSI controllers always are assigned a SBus Slot Number which may vary depending on the server model.)
SCSI Target Number		The SCSI Target Number is the SCSI Target ID that the device has been configured for. (This value is determined by inspecting switches or control panels on the particular device.)
SCSI Logical Unit Number (LUN)		The SCSI Logical Unit Number is the SCSI LUN that the device has been configured for. (This value is determined by inspecting switches or control panels on the particular device.)

Note During the **fn_edit** configuration process, you might need to enter one or more values for these parameters.

2. The following table shows acceptable values for the System Board and SBus Slot Number attributes by SPARCserver Model.

Model	System Board Number	Internal SCSI Board Slot	SBUS Slot Number
SPARCserver 5	0	0	1-3
SPARCserver 20	0	15	0-3

If necessary, refer to the Sun server specific documentation to determine how the physical SBus slots or System boards are numbered. (For SPARCserver 1000 and 2000 models, refer to your Sun documentation.)

3. Record the appropriate Storage Library device information for each Storage Library device on your system in the table below using the two previous tables.

Storage Library Device (SLD) Information	SLD 1	SLD 2	SLD 3	SLD 4
Storage Library Type (ODU, OSAR 96, OSAR 125, and so on)				
RS-232 Port Number (1-9)				
System Board Number				
SBUS Slot Number				
SCSI Target Number				
SCSI Logical Unit Number				

Record the path for the Storage Library Device Driver here: _____.

Optical Drive Information

Record the appropriate Optical Drive information for each optical drive on your system in the table below.

Optical Drive Information	Drive 1	Drive 2	Drive 3	Drive 4
Drive Type (Hitachi_II, and so on)				
SCSI Adapter Number (0-3)				
SCSI ID Number (0-6)				
Logical Unit Number (0-3)				

Record the path for the Optical Drive Driver here: _____.

Cache Percentages

Determine the minimum and maximum cache sizes (in %) for the following caches. Record the cache information you gather in the table below.

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

Use SCouT to find this information.

Continue the Installation on Solaris

Continue the IS Installation with “Install the Relational Database Software” on page 99.

System Administrator Tasks – Windows Server

This chapter contains procedures that are necessary to modify your system environment. These procedures must be performed before beginning your installation.

Note If you are reinstalling previously installed FileNet and RDBMS software, the criteria specified in this chapter should already have been met. However, you may still want to read this chapter to ensure that all prerequisites are satisfied before updating your software.

Operating System Requirements

Verify Windows Debugger

Debugging software is recommended for IS and, if present, must be installed on each server. A debugger enables support personnel to troubleshoot both IS and Windows-related problems. For more information, see “Debugger - Windows Server” on page 32.

Download the Help Viewer (Windows 2008 only)

When you install IS on a Microsoft Windows 2008 server, you must also download the WinHlp32.exe file from the Microsoft Download Center. This file is needed to view 32-bit .hlp files. WinHlp32.exe was included in previous versions of Windows, but it was not included in the Windows 2008 release.

To download WinHlp32.exe, visit the following Microsoft Web site:

http://support.microsoft.com/kb/917607

Check/Configure Paging File Size

1. Open the Control Panel, and double-click *System*. The System Properties window opens.
2. Click the Advanced tab of the System Properties window and click **Performance**.
3. In the Virtual Memory section, click the **Change** button. The Virtual Memory dialog box opens.
4. In the Virtual Memory dialog box, select the drive where you want to allocate the virtual memory.

   Tip Performance is enhanced if virtual memory is not on the same drive as the FileNet datasets. In addition, you can allocate virtual memory on more than one drive.
5. Ensure that the initial paging file size for FileNet software (alone) is at least 1 GB. In addition, the Maximum Size value must be equal to, or greater than, the Initial Size value.

   a. If you DO NOT need to increase the paging file size:

   – Click **Cancel** in the Virtual Memory dialog box.

   – Click **Cancel** in the Performance Options dialog box.

   – Click **OK** in the System Properties dialog box.

– Close the Control Panel, and skip to the next section, "Configure TCP/IP and SNMP Protocol (Required For All Systems)" on page 93.

b. If you DO need to increase the paging file size, enter the initial size and maximum size (in Mb) in the Virtual Memory dialog box.

Note If your system requires more virtual memory than specified here, the error message: "System running low on virtual memory. Please close some applications...." will display during normal Image Services operation. Use this procedure to increase the virtual memory paging size.

6. Click **Set** to accept the new settings.
7. Click **OK** to close the Virtual Memory window.
8. Click **OK** to close the Performance Options window.
9. Click **OK** to exit the System Properties window.
10. The System Settings Change dialog appears next with a message asking if you want to restart your computer now. Click **No**. (Do Not reboot the server at this time.)

Determine if Your Storage Management System Supports Synchronous Writes

If your system uses a storage management system such as NAS (Network Attached Storage) to store database files or CSM cache data files, it **must** support synchronous writes. This requirement is not unusual. Directories which are used for storing database files, and any directories used for storing CSM cache files must support synchronous writes. Otherwise, data might be lost. It is also a specific requirement of database vendors for storing database files.

A program called the **sync_write_test** program is used to determine if a given storage management system directory supports synchronous writes. This stand-alone program can also be used without other IS software.

Note Local SCSI magnetic disk drives and SAN devices always support synchronous writes. So, it is not necessary to run this tool on SCSI or SAN devices. Local ATA magnetic disk storage devices do not always support synchronous writes, so they must be tested.

For information on how the sync_write_test program works and how to run the test, see the *IS System Tools Reference Manual*.

To download this document from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

System Configuration Issues

This section contains procedures that must be followed to ensure that your system is properly configured before installing Image Services and RDBMS software.

Update the etc\hosts File

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

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

Note The location of the hosts file can change, depending on where the Windows Server software is installed.

The general format of a hosts file entry is:

<IP_address_of_IS_Domain> <IS_server> <NCH_four_part_service_name>

For example:

IS Root/Index server IP address: 9.42.31.3

IS Root/Index server name: titian

IS Domain name: Titian:Yourco

The hosts file entry looks like this:

```
9.42.31.3        titian          titian-yourco-nch-server
```

If your IS system will be communicating with other IS domains, your \etc\hosts file might resemble the following example:

```
9.42.31.3                   titian          titian-yourco-nch-server
9.42.31.14                  bassanio        bassanio-yourco-nch-server
9.42.28.32                  atelier         atelier-yourco-nch-server
FE80::2C0:FE35:9FFF:D28     atelier         atelier-yourco-nch-server
9.42.29.42                  sienna          sienna-yourco-nch-server
9.42.28.56                  vermeer         vermeer-yourco-nch-server
2002:927:2638::927:2638     vermeer         vermeer-yourco-nch-server
fe80::fefe:0927:2638        vermeer         vermeer-yourco-nch-server
```

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

The hosts file is typically located in C:\WINDOWS\system32\drivers\etc\.

Create IS Users and fnusr Group

Important After you add all the users to the groups, you have to log out and then log back in for the group settings to take effect.

To add the following users and groups, click **Start** > **Control Panel** > **Users and Groups**.

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

Note If you want to log in as a specific user and want to run the FileNet tools and software, you need to add the user into the **fnadmin** and **fnop** groups.

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

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

Configure TCP/IP and SNMP Protocol (Required For All Systems)

FileNet software requires that TCP/IP protocol be installed on your server for complete functionality. If TCP/IP is not currently installed on your server, you can install it by opening the Network and Dial-up Connections dialog box. Click the **Start** button, point to Settings, and double-click the Network and Dial-up Connections icon.

You must also install the SNMP (Simple Network Management Protocol) service. Refer to your Windows Server documentation for further details on installing both these components.

Verify NetBiOS Setting on Windows 2003 Servers

This procedure prevents a SLAC Entry License error, tuple <232,0,1068>.

1. From the Taskbar, click the **Start** button, point to Control Panel, point to Network Connections, and right-click the Ethernet Adapter that you want to configure, and choose Properties.

   The Ethernet Adapter dialog box opens.

2. On the General tab, select Internet Protocol (TCP/IP) and click **Properties**.

   The Internet Protocol (TCP/IP) Properties window appears.

3. Click the **Advanced** button to open the Advanced TCP/IP Settings dialog box, and select the WINS tab.
4. Verify that the Enable NetBIOS over TCP/IP option is selected, or select it if necessary, and click **OK**.
5. Click **OK** to close the Internet Protocol (TCP/IP) Properties window.
6. Close any other remaining windows.

Set Server Optimization Level (Recommended)

While the steps in this section are optional, FileNet Image Services software operates more efficiently when the system is optimized for network applications.

1. From the Taskbar, click **Start** > **Settings** > **Network and Dial-up Connections**.
2. Right-click “Local Area Connection,” and choose **Properties**.

   The Local Area Connection Properties dialog box opens.

3. Select “File and Printer Sharing for Microsoft Networks” and click **Properties**. The following window appears.
4. Select Maximize data throughput for network applications radio button, and click **OK**.
5. Close the Network and Dial-up Connections window.

Windows Installation Worksheet

This worksheet contains useful tables that can be used as an installation worksheet. These worksheet tables are intended to help you organize the information you have gathered in a single place for easy reference during the installation process.

Print these pages and use them for recording the specified required information. You will refer to them often during the installation of your software.

In addition, this section details specific file system and dataset information that you must gather (or determine) to complete the Image Services installation successfully.

System Information

1. Obtain the following user name information:

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

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

2. Password for the user **Administrator**: _____

   Record the appropriate information in the table below. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **197.0.0.146**). The IPv6 addresses

contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:252:0:1::2008:6**).

Installation Information	System Information
Server Static IP Address	
Network Address (cluster servers only)	
FileNet System Serial Number (SSN)	
NCH Domain Name	
Organization Name	

Important The ssn is written onto all storage media and **must** be unique for each Image Services system. If you have more than one Image Services system (domain), each **must** use its own unique ssn to prevent potential problems if media are ever transferred from one IS system to another. The valid range of SSNs is 1000 through 2147483646.

Compatible System Information

Record information about compatible (peer) servers and systems in the table below. Find out the IP addresses of any servers that will be communicating remotely with the server. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **197.0.0.146**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:252:0:1::2008:6**).

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

Record information about compatible (peer) servers and systems in the table below.

NCH Domain Name	Static IP Address	SSN

Note When adding addresses for peer systems in fn_edit, use the IPv4 format rather than the IPv6 format.

Storage Library Information

Record the appropriate Storage Library device information for each Storage Library device on your system in the table below.

Storage Library Device (SLD) Information	SLD 1	SLD 2	SLD 3	SLD 4
Storage Library Type (for example, ODU, OSAR 96, OSAR 125, and so on)				
SBUS Slot Number				
SCSI Target Number				
SCSI Logical Unit Number				

Record the path for the Storage Library Device Driver here: _____

Print Server Information

Record the information for each printer on your system in the table below. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **197.0.0.146**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:252:0:1::2008:6**).

NCH Name	Printer Type	Printer Server Static IP Address

Optical Drive information

Record the appropriate Optical Drive information for each optical drive on your system in the table below.

Optical Drive Information	Drive 1	Drive 2	Drive 3	Drive 4
Drive Type (for example, Hitachi_II)				
SCSI Adapter Number (0-3)				
SCSI ID Number (0-6)				
Logical Unit Number (0-3)				

Record the path for the Optical Drive Driver here: _____

File System and Dataset Information

You must determine the expected size of the datasets (in Mb), and on which NTFS file system to install each dataset. Refer to your SCouT analysis report and complete the following table appropriately for your system.

Dataset Name	RDBMS	Required Minimum Size	Actual System Size (Mb)
cache0	Oracle/SQL/DB2	100 Mb	
permanent_db0	Oracle/SQL/DB2	100 Mb	
permanent_rl0	Oracle/SQL/DB2	64 Mb	
transient_db0	Oracle/SQL/DB2	320 Mb	
transient_rl0	Oracle/SQL/DB2	256 Mb	
sec_db0	Oracle/SQL/DB2	64 Mb	
sec_rl0	Oracle/SQL/DB2	64 Mb	

Note The FileNet Image Services software and all FileNet configuration files and datasets must reside on NTFS file systems to maintain data integrity, security, and file naming requirements.

System Cache Information

You must determine the minimum and maximum cache sizes (in%) for the following caches. Refer to your SCouT analysis report and record the cache information for your system in the table below.

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

Continue the Installation on Windows Server

Continue the IS Installation with “Install the Relational Database Software” on page 99.

Install the Relational Database Software

Server Types 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.

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

Image Services supports the following Relational Database Management Systems.

Operating System	Relational Database System
UNIX	Oracle, DB2
Windows	Oracle, DB2, MSSQL

For more information, see the appropriate document:

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

To download these documents, see “Accessing IBM FileNet documentation” on page 16.

Skip to the section for the one that is going to be installed on this IS system:

- “Oracle 10g and Oracle 11g” on page 100
- “IBM DB2” on page 100
- “MS SQL Server” on page 102

Oracle 10g and Oracle 11g

After Oracle has been successfully installed, the Database Administrator must provide the following Oracle variables and tablespace names and sizes.

Oracle Variables

```
$ORACLE_HOME:  _____________________________
$ORACLE_SID:  ______________________________
<Oracle User name>:  _______________________________
<DBA Group>:  ______________________________
f_sw password: _____________________________
f_sqi password: ____________________________
f_maint password: __________________________
f_open password: ___________________________
```

Tablespace Names and Sizes

Recommended Tablespace Names	Tablespace Names You Actually Assign	Minimum Tablespace Size (MB)	Tablespace Size You Actually Create
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're ready to install the FileNet Image Services software. Continue with "Install FileNet Image Services Software" on page 102.

IBM DB2

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

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

Give the Guidelines document to the Database Administrator.

To download the guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

DB2 Database Information

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

	Default User Name	User Name You Chose	Default Group Name	Group Name You Chose
Instance Owner	db2inst1		db2iadm1	
Fenced User	db2fenc1		db2fadm1	
DB2 Administration Server User	db2as		db2asgrp	

Recommended Tablespace	Tablespace Name Actually Assigned	Minimum Size (MB)	Tablespace Size Actually Created
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're ready to install the FileNet Image Services software. Continue with "Install FileNet Image Services Software" on page 102.

MS SQL Server

Refer to the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server* for more information on acquiring and installing MS SQL Server software.

To download the guidelines from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.

After MS SQL Server has been successfully installed, the Database Administrator must provide the following information:

```
f_sw password: _____________________________

f_sqi password: _____________________________

f_maint password: _____________________________

f_open password: _____________________________
```

Note MS SQL 2005 users: To avoid shared memory errors when you install Image Services, shut down any MS SQL 2005 applications before continuing the installation.

After you have this information, you’re ready to install the FileNet Image Services software. Continue with “Install FileNet Image Services Software” on page 102.

Install FileNet Image Services Software

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

- Installing FileNet Image Services software
- Installing the user environment templates
- Setting up FileNet passwords
- Setting file ownerships and permissions

Note If you want to log in as a specific user to run the FileNet tools and software, you must add this user to the **fnadmin** and **fnop** groups.

Check the Link to the Remote Oracle Database

Server Types Perform the steps in this section only on **servers with Oracle Client software**.

If the Oracle database is located on a remote server, set a system environment variable, LOCAL equals, to the GLOBAL_DBNAME set in the tnsnames.ora file. Check the connection between the Oracle Client and the remote Oracle database.

Verify that the internal Oracle networking is active and functional, by entering an sqlplus command in this format:

```
sqlplus <user>/<password>@<GLOBAL_DBNAME>
```

For example, you might enter:

```
sqlplus sys/<sys_password>@Michigan_IDB.world
```

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

Tip As a double-check, enter: **`tnsping  Michigan_IDB.world`**

Check the Link to the DB2 Database

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

Since the DB2 database is located on a remote AIX server, use the Command Line Processor (CLP) to check the connection between the DB2 Client and the remote DB2 database.

Log onto the Image Services server as the DB2 Client instance owner (such as **fnsw**), and enter:

```
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 f_sw user's password set up by the Database Administrator.

Check the Link to the Remote SQL Server Database

Server Types Perform the steps in this section only on servers with SQL Server Client software.

If the SQL Server database is located on a remote server, check the connection between the SQL Server and the remote Oracle database.

Verify that the remote SQL Server is a trusted SQL. That means you can use Windows authentication to connect form an IS server to the remote SQL Server. This is done by entering a command in this format:

```
osql -E -S <remote server>/<instance_name>
```

For example, you might enter:

```
osql -E -S hawaii/volcano
```

If there are no errors, the connection is working successfully.

Mount the Image Services CD-ROM

Server Types Perform the steps in this sub-section on **all servers**.

Note If you plan to run the installer from a network drive, skip to the section, "Launch the IS Installer" on page 105.

1. Create a directory to mount the CD-ROM drive if you have not already done so:

   ```
   mkdir  /cdrom
   ```

2. Mount the CD-ROM drive to the directory you just created:

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

   where /dev/cd0 is the appropriate device name.

3. To verify the CD-ROM mounted correctly, type:

   ```
   mount
   ```

   You should see the CD-ROM device listed.

Run the Image Services Installer

Server Types Perform the steps in this section on **all servers**. If you are installing a multi-server system, verify that the Root server is installed and running first.

Important If this server is configured to use Network Information Services (NIS or NIS+, formerly known as Yellow Pages), ask the Network Administrator to disable it temporarily. Disabling NIS allows the Image Services installation routine to automatically create the necessary FileNet users and groups on the server.

Note for AIX When you install or upgrade 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 IS installation is finished, you can reset the LANG variable to its original locale, such as ja_JP.

Note Verify the /fnsw and /fnsw/local file systems are mounted before you install the Image Services software. At the system prompt, type **mount** to see a list of what is currently mounted. Verify that Info Explorer is not mounted on the CD. If it is, unmount it.

Note When you install FileNet Image Services software, **COLD 4.1.2** is also installed.

The IS installer performs two tasks.

- It runs a System Check to verify configuration prerequisites.
- It installs the Image Services software.

You can choose to run both, or just the System Check only.

The Installer System Check inspects the server for prerequisites and lists any warning and error conditions in two locations:

- Informational windows on your screen.
- Report and log files in the /fnsw/local/logs/install/4.1.2/ directory.

Note COLD 4.1.2 is included on the Image Services eSD image or software CD-ROM. However, you must be licensed to use the COLD application.

Launch the IS Installer

The Image Services Installer can be run in graphical, console, or silent mode.

- Graphical mode is the default graphical interface and is described later in this section.
- Console mode offers a plain text interface for workstations that do not support graphical mode.
- Silent mode displays nothing on the screen while the installer is running. The user should review the Silent install log file for access to the progress and results of the installation.

1. Log on as a user with **root** privileges.
2. If you are running 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 IP address.
3. If you are running the Installer from a remote terminal, allow access to the host display by entering this command at the remote terminal:

   ```
   xhost  +
   ```

   If the server has an Xconsole, rather than an ASCII terminal, enter the xhost + command there, too.

   Note 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: **xclock &**

   If the clock appears on your remote terminal screen, the DISPLAY variable was exported correctly. If you don't see the clock, try the export or setenv command again using the IP address rather than the server name.
4. **For Silent Installation only**, locate the appropriate options.txt file on the eSD image or software CD. The options file contains standard responses to the installer's prompts. Copy the file to a local directory on your server. (You can rename it to something shorter, like **opt.txt**.) Use your

preferred text editor to make any appropriate changes and save the file. The options and their default values are fully described in the file.

5. As a user with **root** privileges, change to the directory where the IS software is located and invoke the appropriate installer.

CAUTION If you are installing from CD-ROM, do not **cd** to /cdrom to run the program. Run the Installer from the / (root) file system.

- Graphical mode

OS	Command to launch the installer in graphical mode
AIX	**./is_4.1.2_aix.bin &**
HP 9000	**./is_4.1.2_hp.bin &**
HP Integrity	**./is_4.1.2_hpintegrity.bin &**
SUN	**./is_4.1.2_sun.bin &**
WINDOWS	**is_4.1.2_win.exe**

Note The trailing "&" (HP, AIX, SUN) detaches the installer from the console window. Use the console window to correct any configuration errors reported by the installer.

- Console mode – plain text interface:

OS	Command to launch the installer in console mode
AIX	**./is_4.1.2_aix.bin -console**
HP 9000	**./is_4.1.2_hp.bin -console**
HP Integrity	**./is_4.1.2_hpintegrity.bin -console**
SUN	**./is_4.1.2_sun.bin -console**
WINDOWS	Windows does not have a console mode.

- Silent mode – no screen display:

OS	Command to launch the installer in silent mode
AIX	**./is_4.1.2_aix.bin -silent -options /tmp/opt.txt**
HP 9000	**./is_4.1.2_hp.bin -silent -options /tmp/opt.txt**
HP Integrity	**./is_4.1.2_hpintegrity.bin -silent -options /tmp/opt.txt**

OS	Command to launch the installer in silent mode
SUN	**./is_4.1.2_sun.bin -silent -options /tmp/opt.txt**
WINDOWS	**is_4.1.2_win.exe -silent -options <drive>:\tmp\opt.txt**

Note **/tmp/opt.txt** or **\tmp\opt.txt** (Windows) is the location of the text file you modified in step 2. Specify its full path on the command line. For example, "... -options /fnsw/local/tmp/opt.txt" or "... -options \fnsw_loc\tmp\opt.txt (Windows).

Note If you run the System Check in silent mode, check the log file in /fnsw/local/logs/install/4.1.2 or \fnsw_loc\logs\install\4.1.2 (Windows) to determine the results. The name of the log file is IS_4.1.2.log.

If you determined earlier that the /var/tmp or \tmp (Windows) directory does not have enough space, specify an alternate directory. Adding **-is:tempdir <directory>** to the command line overrides the default /var/tmp directory, as long as the <directory> you specify already exists. This optional temporary directory must be outside the /fnsw directory structure. For example, you might enter:

OS	Command to Specify an Alternative Directory
AIX	**./is_4.1.2_aix.bin -is:tempdir /othertmp**
HP 9000	**./is_4.1.2_hp.bin -is:tempdir /othertmp**
HP Integrity	**./is_4.1.2_hpintegrity.bin -is:tempdir /othertmp**
SUN	**./is_4.1.2_sun.bin -is:tempdir /othertmp**
WINDOWS	**is_4.1.2_win.exe -is:tempdir <drive>:\othertmp**

Note /othertmp or \othertmp (Windows) is the specific temporary directory you want to use.

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

6. Run either the **System Check only** or the **System Check and Install IS**.
   - If you select **System Check only**, skip to **Step 9 on page 107.**
   - If you select **System Check and Install Image Services**, continue with the following steps.
7. On the Select database type screen, select the type of relational database installed on this server. If this is a Storage Library server or an Application server without an RDBMS, select None.
8. Configure the FileNet software user account name. Enter the name of the user account you created earlier for the FileNet software user, such as **fnsw**.

   The installer will check for the existence of this user and the default IS groups later in the installation. If the user or the groups do not exist, the installer will not install the IS software.
9. During the System Check, the Installer verifies the status of server characteristics in these categories:

- Hardware checks
- Operating System checks
- FileNet users and groups

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

- **Green** indicates the check has passed
- Yellow indicates that the item has failed but the installer can continue
- **Red** indicates that a check has failed and the installer cannot continue

Some Installer System Checks produce only warnings while others prevent the installation of the Image Services software:

Condition	Severity
Not logged on as superuser	Will prevent install
Insufficient file system space	Will prevent install
Insufficient swap space	Warning only
Incompatible host name	Will prevent install
Incompatible O/S	Will prevent install
Missing debugger	Warning only
Kernel parameter out of range	Warning only
Missing FileNet user/group	Will prevent install
Incorrect FileNet user/group membership	Will prevent install
Image Services running	Will prevent install

Hardware Checks

The first System Check screen displays:

- Free disk space
- Memory
- Swap Space

The Installer 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 Installer is still running.

1. Open another X Window on the desktop and make the necessary change.
2. Then, click the **Back** button on the Installer display to return to the previous screen, and click **Next** again to rerun the check.

Operating System Checks

The Operating System Checks screen displays:

- Host name
- O/S version
- Debugger
- Kernel parameters

Tip If any kernel parameters fail the system check, click the **Back** button to return to the previous screen. Enter the correct kernel parameters and click **Next** on the installer screen to run the kernel parameter check again.

FileNet Users and Groups Check

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

- FileNet groups
- FileNet 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 indicates the group and member users are present;
– red indicates the group or member users are missing.

Tip Click the **Back** button, 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 installer, log out, and log back in for the new users and groups to take affect. Then, restart the installer. Then click **Next** again to rerun this check.

Note Oracle requires an additional user and group (DB2 does not). Since the Installer doesn't know whether 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 Check

When the System Check is complete it has either passed or failed.

If the System Check failed with errors, you must fix all the error conditions reported. You can then run the System Check again.

If the System Check passed all its 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 Installer System Check completed successfully and you selected the option to install Image Services software, the Installer continues with the section, "Install Image Services" on page 110.

Rerun the IS Installer

If the Installer System Check does not pass, be sure to review the log file in the /fnsw/local/logs/install/4.1.2/ directory. The most recent information is appended to the end of this file.

After you have made the changes required by the Installer System Check, return to "Launch the IS Installer" on page 105 and run the System Check again.

Install Image Services

1. As the Image Services installer continues the Summary screen displays. Verify that the information is correct for your system.
2. As the Image Services software installs, a progress bar displays.

   Depending on your server's processor speed, expect the installation to take approximately **20 minutes**. (If you're installing image Services on several servers simultaneously from the same location, it might take a while longer.)
3. When the software installation is finished, the Installer creates an uninstaller (for example, /fnsw/etc/uninstaller/uninstall_is), and then verifies the version information.
4. The final screen indicates success. It also reminds you to check the Installer log.

Unmount the CD-ROM (if necessary)

Unmount the Image Service CD-ROM and remove the Image Services media from the drive.

Continue the Installation

- To continue the installation on AIX,
  see "Configuring the Image Services Software (UNIX)" on page 111.
- To continue the installation on HP-UX,
  see "Configuring the Image Services Software (UNIX)" on page 111.
- To continue the installation on Solaris,
  see "Configuring the Image Services Software (UNIX)" on page 111.
- To continue the installation on Windows Server,
  see "Configuring the Image Services Software (Windows Server)" on page 148.
- To continue the Application Server Install,
  see "Configure the Root Server" on page 182.

Configuring the Image Services Software (UNIX)

Verify/Update the /etc/services File (AIX only)

A customizing script runs automatically after the “sf” fileset has been successfully loaded. This script does the following:

- Adds cor, nch and tms entries to /etc/services if they are not there yet (See the paragraph below concerning Yellow Pages [YP]).
- Adds an rcfnsw entry to the /etc/inittab file to automatically start up FileNet software if an entry does not exist there yet.

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
```

Then comment out the corresponding “filenet-xxx” lines.

If you just installed Image Services software and you have NIS (Network Information Service) set-up 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
```

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 Image Services software.

Install the Required Pre-Startup Fixes

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

At this time, install only the fixes that directly relate to IS initial configuration issues. The Release Notes and fixes are available from the IBM Information Management support page (www.ibm.com/software/data/support).

Note These are only the fixes required to start IS successfully. Install any other fixes after the installation has been successfully completed.

Install the User Environment Templates

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

In this section use the **inst_templates** script to set up profile and environment files that are customized for IS. (Run **inst_templates** as either the IS user (**fnsw**) or a user with **root** privileges.)

The install templates program creates or modifies environment files (for example, .cshrc, .login, .profile, and others). You will be asked before each file is modified if you want to proceed with the change to the file.

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

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

Set Up FileNet Software User Environment

The IS user, such as **fnsw** must have its own environment variables set. 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.

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]:
```

Note If you're 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 path-name 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 software user and log back in to put the templates into effect.

Set Up the root User Environment (Optional)

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

The **root** user might need its own FileNet environment variables set. You need to complete this section if you do not 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 upon the shell you are using, an appropriate environmental setup can be installed by copying the corresponding template file from /fnsw/etc. Once they have been copied, you can add your own preferences to these files.

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 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 Ownerships and Permissions

Use the **fn_setup** tool to verify the following:

- Permissions are set correctly for the IS 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 IS release. If non-IS files are placed in the /fnsw directory structure, a local_permission_table needs to specify the appropriate permissions for these files. See Chapter 3, "Directories and Files," of the *System Administrator's Companion for UNIX* for details. To download this document from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

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.

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're updating a separate Storage Library server or an Application server, select 2=no.

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

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

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

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

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

Important The ssn is written onto all storage media and **must** be unique for each Image Services system. If you have more than one Image Services system (domain), each **must** use its own unique ssn to prevent potential problems if media are ever transferred from one IS system to another. The valid range of SSNs is 1000 through 2147483646.

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]:
```

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

e. 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 DB2 Client instance owner's DB2 home directory.

```
Enter the RDBMS home directory [/home/client_920]:
```

Note If you're configuring a FileNet system with a **remote Oracle database server**, the RDBMS home directory is the location of the client software on the FileNet 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 you supplied so you can confirm your entries:

```
This is the setup configuration:
     NCH server name:  aixvenice: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]:
```

Press 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.

Reboot the Server

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

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

As a user with **root** privileges, reboot the server by entering the following command (depending upon your operating system):

```
shutdown  -Fr (AIX)
shutdown  -ry  0 (HP-UX)
/etc/shutdown  -i6  -g0  -y (Solaris)
```

Image Services error messages will display during the reboot because the system is not yet configured.

Continue with Server Configuration

For a **Combined server or Dual server** system, continue with the next section, “Logon to the Configuration Database” on page 117.

If you’re adding an **Application server,** skip to the section, “Configure the Root Server” on page 182.

If you’re adding a **Storage Library server,** skip to the section, “Configure the Root Server” on page 208.

Logon to the Configuration Database

Server Types Perform the steps in this section on these servers:

Root/Index server during a Dual server installation

Root/Index/Storage Library server during a Combined server or Entry server installation)

Application server running WorkFlo Queue Services or SQL Services.

1. Logon to the Image Services server as the FileNet 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  +
   ```

Note 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 don't see the clock, try the export or setenv command again using the IP address rather than the server name.

4. As the FileNet 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  &
   ```

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

If you are installing 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 pull-down list, 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 will receive several query prompts. The prompts you receive depend on which template you selected earlier.

Tip Use the on-line 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 you completed earlier. Refer to the Installation worksheet for your operating system.

When you're prompted for information about your relational database management system, Oracle or DB2, use the information that was supplied to you by the Database Administrator when the RDBMS software was installed. When you're prompted for the relational database type and release version, select the appropriate type and version for your installation. Refer to "Install the Relational Database Software" on page 99.

In addition to prompts for other system information, you'll be asked to:

- Select the relational database type (Oracle10g/11g, DB2 8.1/8.2/9.1/9.5).
- For DB2, enter and verify the passwords assigned to:
  - f_sw
  - f_maint
  - f_sqi
  - f_open
- Enter the relational database name.
- Enter the user tablespace name.

After you've answered all of the template prompts, you'll receive a message stating that the configuration is complete.

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

Note When using 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 screen and pop-up window has an on-line help button designed to provide information you might need to complete the screen or window.

Select and Configure Relational Database Instance (if applicable)

Important 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 databases. For **Oracle**, see the *Guidelines for Installing and Updating Oracle 10g Software for UNIX Servers* or the *Guidelines for Installing and Updating Oracle 11g Software for UNIX Servers*. For **DB2**, see the *Guidelines for Installing and Configuring DB2 Software*.
To download the guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

The Database Administrator might have supplied this information in the section, "Install the Relational Database Software" on page 99.

Continue with the appropriate sub-section:

- "Oracle 10g/11g" on page 119
- "DB2 V8.1/V8.2/V9.1/V9.5" on page 119

Oracle 10g/11g

Define the Tablespace Names

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 the 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.

Note The tablespace names specified in the RDB Objects list must exist before you initialize the FileNet Image Services databases.

1. On the Oracle subtab, verify that the **Version** is **9.2.0.8** or **10.2.0.2** or later.
2. Skip to the section, "Verify the Image Services Character Set" on page 120.

DB2 V8.1/V8.2/V9.1/V9.5

Verify the Database and User Tablespace Names

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:
   - **Version** - must be **8.1.16** or later (DB2 version 8.1.0 plus FixPak 16 or later), **8.2.9** or later (DB2 version 8.2.0 plus FixPak 9 or later), **9.1.4a** (DB2 version 9.1.0 plus FixPak 4a or later), **9.5.0** (DB2 version 9.5.0), or **9.5.1** (DB2 version 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.

Note 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.

Note 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.

Verify the Image Services Character Set

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.

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 system has been converted from an older character set, such as FileNet 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.

Modify Dataset File Sizes

Click on the Datasets tab from the main edit menu to view a list of the datasets added by default. All of the dataset 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.

Refer to your operating system-specific Create Logical Volumes and File Sizes section (for example, for HP-UX - "Create Logical Volumes and File Systems" on page 59) that were determined by the SCouT planning tool. Your dataset sizes must match the sizes recorded in that table.

When creating larger datasets, note the following:

- The sizes of all of the datasets 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, you need to run the Add Additional Dataset procedure under the Procedures tab.
- You can have a total of 255 dataset volumes, each 16 GB in size.

Note 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)

1. Click on the Server Application Services tab in the System Configuration Editor window.
2. Select the Cache sub-tab 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. It is recommended that these values remain set to their default values.

The following sub-tabs 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)

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

Note Consult Help Text regarding the parameter options.

3. If you want to change the way images are sent to the optical disk, select the Others sub-tab.

   you 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 in the new value.

Modify the System and Server Parameters (Optional)

1. Click on 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 sub-tab and type the new values in the fields of the system processes you want to change.

Note Consult Help Text regarding the parameter options.

3. To modify the server processes parameters (for example, bes_commit, dtp, and so on), click on the Server Processes sub-tab 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 sub-tab. These parameters should be left at their default values unless changes are necessary.

Configure MKF Database Parameters

Note Perform the steps in this section on servers that have an MKF database.

1. Click 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.

Note The default MKF database block size in Image Services 4.1.2 is **8 KB**. You can also choose a block size of 16 KB. Click Help if you have any questions on the parameter values.

Important The Security database **SEC_db** and redo log **SEC_rl must use 8 KB blocks**.

Configure Network Parameters

This section assumes that you have already installed and configured the network protocol on the Root/Index server.

To configure the network parameters complete the following steps:

1. In the System Configuration Editor window, select the Network Addresses tab.

2. Enter the network address (if one is not already present).

   For Multi-Homing support you can enter up to eight network addresses, one for each network card in the server. The format for a TCP/IP address is shown in the following example:

   ```
   10.2.53.33
   ```

   After the FileNet Image Services software restarts, fn_build will determine if any changes have occurred in the **fn_edit** configuration.

Exit the System Configuration Editor

Save the changes you made and exit fn_edit.

Modify the /etc/vold.conf file (Solaris 9 only)

Server Types Perform the steps in this section on **all servers** running volume management software (for example, VERITAS Volume Manager).

The Images Services software does not expect any other software to communicate with the optical drives attached to the system which might cause interference. To prevent this possible interference, edit the /etc/vold.conf file, if one exists.

1. Use your preferred text editor, such as vi, to edit the vold.conf file in the /etc directory:

   ```
   vi /etc/vold.conf
   ```

2. If you find statements in the file that look similar to the **rmdisk** line, place a pound sign in front of them, so they will be turned off:

   ```
   #ident  "@(#)vold.conf 1.26  00/07/17 SMI"
   #
   #Volume Daemon Configuration file
   .
   .
   #Devices to use
   use cdrom drive /dev/rdsk/c*s2 dev_cdrom.so cdrom%d
   use floppy drive /dev/rdiskette[0-9]dev_floppy.so flopp
   #use rmdisk drive /dev/rdsk/c*s2 dev_rmdsk.so rmdsk%d
   ```

3. Close the file and save the changes.

4. To make these changes go into affect, enter the following commands depending upon your version of Solaris:

   - On Solaris 9 systems, enter the following commands:

     ```
     ps -ef | grep vold    (to get the process id of the vold process)
     kill -HUP <process id)
     ```

     This kills and restarts the vold process. When it restarts, it reads the edited vold.conf file.

   - On Solaris 10 systems, enter the following commands:

     ```
     svcadm disable volfs
     svcadm enable volfs
     ```

     This disables and re-enables the vold process. When the vold process is re-enabled, the edited vold.conf file is used.

Build and Initialize the Root Server

Server Types Perform the steps in this section on these servers:

Root/Index - (Multi-server installation)

Root/Index/Storage Library - (Combined server or Entry server installation)

Initialize RDBMS on the Root Server

Skip to the appropriate subsection:

- "On Servers with Oracle Software" on page 124
- "On Servers with DB2 Client Software" on page 125

On Servers with Oracle Software

Note This section applies to both local and remote Oracle instances.

Ask the **Database Administrator** to start Oracle before initializing the FileNet databases.

1. 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_SID
   echo  $ORACLE_HOME
   ```

2. Compare the output of the above command to the setting determined in "Oracle 10g and Oracle 11g" on page 100. If the ORACLE_SID and the ORACLE_HOME are not set correctly, see the Database Administrator for the system to have the settings changed.

CAUTION In addition, the Database Administrator must create the default table-spaces with the names you entered in the FileNet System Configuration Editor. Refer to the Tablespace table in "Tablespace Names and Sizes" on page 100 for this information. If the Oracle software is not running and if the new tablespaces haven't been created, the initialization process will fail.

3. **On IS systems with remote Oracle databases:**

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

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

      ```
      fn_oracle  setquotas
      ```

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

b. Copy the following scripts from the 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 to FileNet Image Services users)
```
SQL>@ora_users.sql
```
(assigns quotas, default tablespaces, and temporary tablespaces)

4. Skip to the section, "Set Up Links Required for Image Services" on page 125.

On Servers with DB2 Client Software

Verify DB2 instances.

1. Ask the **Database Administrator** to start the RDBMS software before initializing the FileNet databases.
2. Connect to the remote DB2 database. As the FileNet software user, such as **fnsw,** do the following:

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

Enter f_sw password to connect.

Note This section applies only to remote DB2 instances.

Verify that the DB2 Home and Instance environment variables are set appropriately for both **root** and the FileNet software user, such as **fnsw**. As each user, enter the following commands:

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

echo $DB2_HOME
should be set to the sqllib directory within the DB2 Instance owner's DB2 home directory, such as /home/fnsw/sqllib.

Compare the output of the above commands to the settings determined in the *Guidelines for Installing and Configuring DB2 Software*. To download the guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

If DB2_HOME and the DB2_INST are not set correctly, return to "Install the User Environment Templates" on page 112 and run the **inst_templates** command again.

Set Up Links Required for Image Services

Note If you are using a Sun system you already set up links in the section "Set Up Links Required for Image Services" on page 81, so you can skip to "Initialize All Databases" on page 127.

In this section you will create links to the actual logical volumes that will be used to create the FileNet Image Services datasets.

1. Verify that you're logged on as the FileNet software user, such as **fnsw**.
2. Change to the /fnsw/dev/1 directory:

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

   Tip If one or more of the sub-directories in this path don't exist yet, create them with the **mkdir** command.
3. Create (and edit) the **filenet.links** file using your preferred editor (for example, **vi**).

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
```

Note 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 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 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
```

4. Close the file and save the changes.
5. Use **chmod** to change the permission of the **filenet.links** file by entering the following:

   `chmod 755 filenet.links`

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

6. Execute the **filenet.links** file by entering the following commands:

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

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

   `ls -l`

   The -l option displays the mode, number of links, owner, group, size (in bytes), and time of last modification for each file.

Tip To list the file or directory contents that the link references enter
`ls -lL`

The directory should contain the linked directories specified in the **filenet.links** file. If the /fnsw/dev/1 directory does not contain the links as shown above, verify and, if necessary, update the **filenet.links** file with any changes and verify the permissions are correct for the file. Execute the links file again.

Initialize All Databases

1. As the FileNet software user, such as **fnsw**, enter the following command to created 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 will be prompted for the passwords for the database users and you can consult the Installation Worksheet you completed earlier for your operating system (for example, “AIX Installation Worksheet” on page 44).

2. Initialize all datasets 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 messages, 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.

Note 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.

Continue the Configuration Procedure

To continue installing on AIX, see "Complete the Configuration on AIX" on page 129.

To continue installing on HP-UX, see "Complete the Configuration on HP-UX" on page 130.

To continue installing on Sun, see "Complete the Configuration on Sun" on page 141.

Complete the Configuration on AIX

Bring Up Image Services Software on the Root/Index or Combined Server

Server Types 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.

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

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
```

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

```
echo $ORACLE_SID
```

Compare the output of the above command to the setting determined in “Oracle Variables” on page 100. If it is not set correctly, check with the System Database Administrator to have it reset.

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

From the command line prompt, log on as the FileNet software user, such as **fnsw,** and enter the following command to bring up the FileNet software:

```
initfnsw start
```

Continue with the AIX Installation

Continue with the AIX installation configuration with the section “Configure RES. Cross-Committal, or Multi-Committal Systems” on page 147.

Complete the Configuration on HP-UX

Bring Up Image Services Software on the Root/Index or Combined Server

Server Types 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.

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

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
```

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

```
echo $ORACLE_SID
```

Compare the output of the above command to the setting determined in “Oracle Variables” on page 100. If it is not set correctly, check with the System Database Administrator to have it reset.

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

From the command line prompt, log on as the FileNet software user, such as **fnsw,** and enter the following command to bring up the FileNet software:

```
initfnsw start
```

Automatic HP-UX Kernel Parameter Checking

Server Types If you receive a **cfg_verify** error, 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 or Entry server installation.

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

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

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

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

```
vl
```

The system log might contain an entry similar to this:

```
07/02/20 10:17:06.222 212,4,7 <root> cfg_verify (2958) ... [WARNING]
cfg_verify: HP.HPUX.MAXFILES (0x80 )
            must be greater than or equal to ( 0x200 )
```

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

You would need to use SAM or kctune to modify the incorrect kernel parameter maxfiles to a recommended value of 0x200 (512 decimal), or 0x400 (1024 decimal) and reboot the server to make it take effect.

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

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

If you're configuring a Root/Index server, skip to the section, "Modify the /etc/inittab File on the Root Server (Optional)" on page 140.

Verify HP Storage Library Device Drivers on a Combined Server

Server Types Perform the steps in this section on these servers:

Root/Index/Storage Library - (Combined server or Entry server installation)

If you're configuring a Root/Index server, skip to the section, "Modify the /etc/inittab File on the Root Server (Optional)" on page 140. If you're configuring a cache-only or MSAR system (no optical devices attached to the Storage Library server), skip to the section, "Configure Storage Library Devices" on page 137.

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

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

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

1. Verify that the SCSI adapter card is configured for a **maximum of 80 MB/second** data transfer for best optical library performance. Refer to "Appendix I – Setting the Maximum Data Transfer Rate for SCSI Host Bus Adapters (HP-UX ONLY)" on page 260.
2. Verify that the storage library devices are powered on and are active.
3. **Return to your server's terminal,** and as a user with **root** privileges, use **ioscan** to determine the addresses of the HP optical drives and storage libraries.

   ```
   ioscan  -fn  |  more
   ```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

_____

_____

_____

Create the /fnsw/local/sd/sod.conf File

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

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

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

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

   where:

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

   The <driver> is **sctl**.

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

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

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

Create Optical Device Files

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

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

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

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

The FNPoll display is similar to this:

```
Found HPUX Version 11.23

Removing old device nodes and files used by FNPoll.

Determining model, series and device driver information.

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

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

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

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

If FNPoll is successful, you will also see:

```
Searching for FileNet Devices:

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

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


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

After FNPoll has completed successfully, you can continue with the section “Configure Storage Library Devices” on page 137

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

```
Searching for FileNet Devices:

ERROR: /fnsw/local/sd/sod.conf must be created with the configuration
       information for your system.

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

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

ERROR: No devices created.
```

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

Configure a TTY Port for a FileNet Serial OSAR Arm

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

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

1. On the System Administration Manager menu, select the Peripheral Devices option.
2. Next, select the Terminals and Modems option.
3. From the Action pulldown menu, select the Add Terminal option.
4. In the Port Number field, type in the port number that the OSAR arm is going to be connected to.
5. In the Speed (Baud Rate). . . field type **9600** for your terminal.
6. Click **OK** to create device files.
7. Click **OK** at the Messages screen to return to the Terminals and Modems screen. Note the name of the device file created (for example, **/dev/tty1p0**).
8. Return to the main System Administration Manager menu of SAM.
9. Press F8 to return to the system prompt.
10. Change the permission of the device file by entering the command below. Assuming the device file created is named **/dev/tty1p0**, you would enter:

    `chmod 777 /dev/tty1p0`

11. Use a text editor to remove the **ao.2:respawn:/etc/getty -h <dev> 9600** entry from the /etc/inittab file (where <dev> is the name of the device file mentioned in Step 7.
12. Enter the following command to re-read the updated /etc/inittab file and kill the getty process you removed from the file in the previous step.

    ```
    /etc/init  q
    ```

Configure Storage Library Devices

Note If there are no storage libraries on the server, skip to the next section,"Modify the /etc/inittab File on the Root Server (Optional)" on page 140.

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

1. As the FileNet software user such as **fnsw**, launch the FileNet Configuration Editor by entering:

    ```
    fn_edit  &:
    ```

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

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

3. If you want to view the information concerning the storage library devices configured on your server, select the Storage Libraries tab from System Configuration Editor window.
4. If you need to configure a storage library or an ODU, you have two choices:
    - "Automatically Configure Storage Library" on page 137
    - "Manually Configure Storage Library" on page 138

Automatically Configure Storage Library

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

To configure a storage library automatically, follow these steps:

a. Click on the Procedures tab.

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

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

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

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

Manually Configure Storage Library

As an alternative, you can configure the storage library manually by following these steps:

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

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

c. Use **ioscan** to determine the addresses of the storage libraries:

```
ioscan  -fn  |  more
```

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

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

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

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

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

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

g. Return to the server that is running **fn_edit**.

h. Click on the Procedures tab.

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

j. Respond to the prompts with the appropriate information. You will be asked to supply the following details:

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

Note 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.

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

l. After the storage library has been configured, continue with Step 3.

5. Exit the Configuration Editor and save your changes.

6. To put your changes into effect, stop the FileNet software and rebuild the system files by entering the following commands as a user with **root** privileges:

```
killfnsw  -DAy
fn_build  -a
```

7. Restart the Configuration Editor by entering:

```
fn_edit  &
```

Modify the /etc/inittab File on the Root Server (Optional)

Edit the /etc/inittab file so the Image Services software will start automatically during a server/system restart.

Note If you do not know whether the Relational Database software will be started when the 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 Image Services software starts, the Image Services software generates error messages. If you receive error messages of this type, start the DB2 or Oracle software, and then restart the Image Services software.

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

   ```
   cd  /etc
   ```

2. Using your preferred editor, such as **vi**, open and prepare to edit the inittab file.

Important If this command is re-enabled, the Database Administrator must ensure the Oracle or DB2 software is up and running before the FileNet Image Services software restarts.

3. Locate and re-enable the following line by removing the comment character:

   ```
   rcfn:234:wait:/bin/sh /etc/rc.initfnsw </dev/console >/dev/console 2>&1
   ```

4. Save the file and then exit. This completes the basic configuration of your Root/Index or Combined server.

Continue with the HP Installation

Continue with the HP installation configuration with the section “Configure RES. Cross-Committal, or Multi-Committal Systems” on page 147.

Complete the Configuration on Sun

Bring Up Image Services Software on the Root/Index or Combined Server

Server Types 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.

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

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
```

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

```
echo $ORACLE_SID
```

Compare the output of the above command to the setting determined in “Oracle Variables” on page 100. If it is not set correctly, check with the System Database Administrator to have it reset.

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

1. From the command line prompt, log on as the FileNet software user, such as **fnsw,** and enter the following command to bring up the FileNet software:

   ```
   initfnsw start
   ```

2. Start the updated FileNet application software 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. (The FileNet Event Logs window displays.)
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 Task Manager window, but do not close the Event Logs window.
6. From the FileNet Task Manager window, select **START**.

   You will receive system messages in the Current Status window as the FileNet software starts. After the FileNet software startup process finishes, the CLOSE button is highlighted.
7. Select the **CLOSE** button. (The Current Status window closes.)
8. Review the contents of the Event Log window to verify that there are no error messages from the software startup.

Configure TTY Ports (optional)

Server Types Perform the steps on all server.

If your site has already configured a tty port for the modem or the optical disk device used for Image Services, skip this section.

If you are using a FileNet OSAR (64, 90, 96, and so on), use the admintool (Solaris 9) or the SMC (Solaris 10) to configure a tty port for a modem or for the optical disk device arm.

Note If you are using a multi-port serial/parallel board in your server, insure that the board is configured for RS232 protocol. In addition, OSAR arms and modems must address serial ports ttyy00 through ttyy07.

Configure the Optical Device Port on Solaris 9

1. Logon as a user with root privileges.
2. In X Windows, open a new window and enter the following command:

   ```
   admintool &
   ```

   The Admintool window displays.
3. From the Admintool window, select the Browse menu option, then select **Serial Ports**.
4. Select the tty port number you wish to use (a or b).
5. Select **Edit**.
6. Select **Modify**. (The Admintool: Modify Serial Port window displays.)
7. From the Admintool: Modify Serial Port window, select Template. (A pull-down list displays.)
8. From the pull-down list, select **Dial-out only**.
9. In the Detail section, select **Expert**.
10. In the Options section, select **Software Carrier**.

11. Select **Apply** to configure the port.
12. Select **OK**.

Configure the Optical Device Port on Solaris 10

1. Logon as a user with root privileges.
2. In X Windows, open a new window and enter the following command:

   ```
   smc &
   ```

   The main SMC screen displays.
3. From the main SMC window, expand This Computer, then expand Devices and Hardware.
4. From the SMC window, select **Serial Ports**.
5. In the right pane, select the tty port name you want to use (a or b) and right-click on that port name.
6. Select **Configure and choose the Modem (Dial Out) template** from the list of choices.
7. Click **OK** to close the dialog.
8. Right-click the tty port name again and select **Properties**.
9. Select the Advanced tab and at the Carrier Detection: option click the **Software** radio button.
10. Click **OK** to close the dialog.

Verify Storage Library Device Drivers on a Combined Server

Server Types Perform the steps in this section on the **Root/Index/Storage Library** - (Combined server or Entry server installation)

If you're configuring a Root/Index server, skip to the section, "Modify the /etc/inittab File on the Root Server (Optional)" on page 145.

If you're configuring a cache-only or MSAR system (no optical devices attached to the Storage Library server), skip to the section, "Configure Storage Library Devices on the Combined Server" on page 145.

Connect Optical Storage Library Devices

Note Optical libraries are NOT supported in a Solaris Zones environment.

1. Logoff the system, and power off your server.
2. Connect the optical storage device to the appropriate SCSI port on your server.
3. Power on the optical storage device. (If necessary, wait for the optical device to enter the ready state before continuing with the next step.)
4. Power on your server. After the server finishes booting, logon as a user with **root** privileges.

CAUTION If you have an HP 600FX (configured in multi-LUN mode) connected to your server, do not use **probe-scsi-all** to interrogate the SCSI bus device status. The command will cause errors, and will not detect devices properly.

5. If you are on an AIX or Sun system and plan to install optical libraries, complete this step.

   The IS installer cannot install a new fnsod (FileNet SCSI Optical Device) driver automatically, so you must install it manually. As a user with **root** privileges, enter:

   ```
   fnsod.install /fnsw/bin/fnsod
   ```

   The new driver will go into affect when you reboot the server in the next step.

6. At the system prompt, enter the following command:

   ```
   reboot -- -r
   ```

   All currently connected optical devices must be configured automatically after the system restarts.

7. After the station finishes booting, logon as a user with **root** privileges.

8. Verify that all devices are configured properly. List the currently installed optical device drivers by entering the following commands:

   ```
   ls  /dev/fnsod*
   ```

You must receive output similar to the following:

```
/dev/fnsod.0,2,5,0
/dev/fnsod.0,2,6,0
```

Verify/Configure Optical Storage Library Devices

If you want to view the information concerning the optical library devices configured on your server, select the Storage Libraries tab from FileNet System Configuration Editor window.

Note If you select the Manually configure optical library option from the Procedure list, then consult your Help Text to configure the optical library. The id format for both the optical library arm and drive devices must be:

<#> <#> <#> <#> for example: **1 2 3 4** where:

The **first** number is the **SCSI adapter id**
The **second** number is the **bus id**
The **third** number is the **device id**
The **fourth** number is the **LU#**

Use the **probe-scsi-all** tool to retrieve the scsi parameter output for the optical devices connected to your system. (If you have an HP 600FX connected to your server, DO NOT use the **probe-scsi-all** command. The command will cause errors, if the device is configured in multi-LUN mode.)

Refer to the Installation worksheet for your operating system (for example, “AIX Installation Worksheet” on page 44) for information concerning your optical library devices.

Configure Storage Library Devices on the Combined Server

Note If there are no physical storage libraries attached to the server (as in an MSAR or cache-only system), skip to the next section, "Modify the /etc/inittab File on the Root Server (Optional)" on page 145.

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

1. As the FileNet software user such as **fnsw**, launch the FileNet Configuration Editor by entering:

   ```
   fn_edit  &
   ```

2. Verify that the domain names are correct, and click **OK**. (The two-part domain name is structured as follows:<Domain>:<Organization>.)
3. From the Procedures tab in the FileNet System Configuration Editor window, locate and select the Automatically configure storage library procedure from the list of available procedures.
4. Select **Run**.
5. Check the Storage Libraries tab to verify that the correct Storage Library devices were configured.

Manually Configure an Optical Disk Unit (ODU)

To manually configure the ODU on your system, perform the following steps:

1. Select the Procedures tab from the FileNet System Configuration Editor window.
2. Select the Manually configure storage library option from the procedures list. Click **Run**. (A new dialog box displays.)
3. From the new dialog box, locate and highlight the HP Optical Drive Unit option. Click **OK**.
4. Respond to the prompts as appropriate for your system.

Exit the Configuration Editor

Exit the Configuration Editor and save your changes.

Rebuild the System Configuration Files

To put your changes into effect, stop the FileNet software and rebuild the system files by entering the following commands as a user with **root** privileges:

```
killfnsw  -DAy
fn_build  -a
```

Modify the /etc/inittab File on the Root Server (Optional)

Edit the /etc/inittab file so the Image Services software will start automatically during a server/system restart.

Note If you do not know whether Relational Database software will be started when the Image Services software starts, you may choose not to uncomment the line in the inittab file. If the Relational Database is not available when the Image Services

software generates error messages. If you receive error messages of this type, start the DB2 or Oracle software, and then restart the Image Services software.

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

   ```
   cd  /etc
   ```

2. Using a preferred editor (for example, **vi**), open and edit the **inittab** file.

Important If this command is re-enabled, the Database Administrator must ensure the DB2 or Oracle software is up and running before the FileNet Image Services software restarts.

3. Locate and re-enable (by removing the **:** symbol) the following line:

   ```
   : fn:3wait:/bin/sh /etc/rc.initfnsw </dev/console>/dev/console>&1
   ```

4. Save the file and then exit. This completes the basic configuration of your Root/Index or Combined server.

Continue with the SUN Installation

Continue with the SUN installation configuration with the section “Configure RES. Cross-Committal, or Multi-Committal Systems” on page 147.

Configure RES. Cross-Committal, or Multi-Committal Systems

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

To download this document from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.

Each of the FileNet systems in an RES 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.

- A Cross-Committal System is composed of a **source** Image Services system and a **target** Image Services system. The source system commits images to the target system, but does not retain the images locally.
- A Remote Entry Server (RES) 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 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 system. Multi-Committal Systems are not required to be “compatible” systems with non-overlapping document IDs. If they aren’t compatible, new doc IDs are assigned on the target system, which could impact performance.

Complete the Installation

To complete the installation, continue with “Complete the Installation on UNIX Systems” on page 166.

Configuring the Image Services Software (Windows Server)

Grant “Logon as Service” Right to the fnsw User

"Logon as Service" right will automatically be granted when the user manually re-enters the password in the Service properties panel for the IS ControlService. A '1069 logon failure' error will occur if the IS ControlService user does not have that right. This should be done whether the user is local or a domain level user.

To guard against this error, the System Administrator, must reset the password for the user with fnsw privileges in the Service Control Panel for the IS service (ISControlService).

1. Logon as the FileNet software user, such as **fnsw**, if you aren’t already.
2. From the Control Panel, open the Administrative Tools folder, and double-click the Services icon.
3. Right-click IS ControlService.
4. In the IS ControlService Properties window, complete the following:
   a. Select the Logon tab.
   b. Re-enter the password and confirm the password.

Verify TCP/IP Parameter Settings (Optional)

In this section you will verify the maximum number of available temporary ports and the length of time the server waits before reusing a closed socket ID. If either of these parameters do not yet exist, this section provides steps to define them.

Note These modifications are not required, but they have been found to be favorable for optimal FileNet performance. Unless you have set these parameters differently for other system reasons, we suggest you use these parameter settings.

- The **MaxUserPort** parameter determines the number of temporary ports that can be assigned on the server. These temporary ports are assigned by a server’s IP stack from a designated range of ports for this purpose. When network traffic is extremely heavy, it’s possible to run out of temporary ports unless you increase the MaxUserPort setting.
- The **TcpTimedWaitDelay** parameter determines the length of time the server waits before reusing a closed socket ID. Although the default value is typically around 240 seconds (four minutes), this parameter can safely be reduced to as little as 30 seconds on high-speed networks.

1. From a Command Prompt window, enter the following command to open the Registry editor:

   REGEDT32

Note You can also enter the above command in the taskbar Run dialog box.

2. In the HKEY_Local_Machine on Local Machine window, open the *System* folder and navigate to the Tcpip Parameters folder using this path:

   `SYSTEM>CurrentControlSet>Services>Tcpip>Parameters`

3. Locate the **MaxUserPort** Parameter.
   - If this parameter is already set to 65534 (decimal) or FFFE (hex), skip to Step 4 on page 149.
   - If this parameter is less than 65534 (decimal) or FFFE (hex), you need to increase it.
     i. Double-click on the entry to open the DWORD Editor dialog box.
     ii. In the DWORD Editor dialog box, set the Radix to decimal or hex, and change the value to 65534 (decimal) or FFFE (hex).
     iii. Click **OK**, and skip to Step 4 on page 149.
   - If this parameter does not exist, you need to define it.
     i. From the Registry Editor Edit menu, select Add Value.
     ii. Enter MaxUserPort in the Value Name box, and select REG_DWORD from the Data Type box drop-down list; then click **OK**.
     iii. Set the Radix to decimal or hex, enter 65534 (decimal) or FFFE (hex) in the Data box, and click **OK**.

     The Registry Editor now shows the new MaxUserPort in hex.

4. Locate the **TcpTimedWaitDelay** parameter.
   - If this parameter is already set to 30 seconds (decimal) or 1E (hex), skip to the next section.
   - If this parameter is more than 30 seconds (decimal) or 1E (hex), you need to reduce it.
     i. Double-click on the entry to open the DWORD Editor dialog box.
     ii. In the DWORD Editor dialog box, set the Radix to decimal or hex, and change the value to 30 (decimal) or 1E (hex).
     iii. Click **OK** and go to the next section.
   - If this parameter does not exist, you need to define it.
     i. From the Registry Editor Edit menu, select Add Value.
     ii. Enter TcpTimedWaitDelay in the Value Name box, and select REG_DWORD from the Data Type box drop-down list; then click **OK**.
     iii. Set the Radix to decimal or hex, enter 30 (decimal) or 1E (hex) in the Data box, and click **OK**.

     The Registry Editor now shows the new TcpTimedWaitDelay entry in hex.

Configure Windows Firewall with Advanced Security (Windows 2008 only)

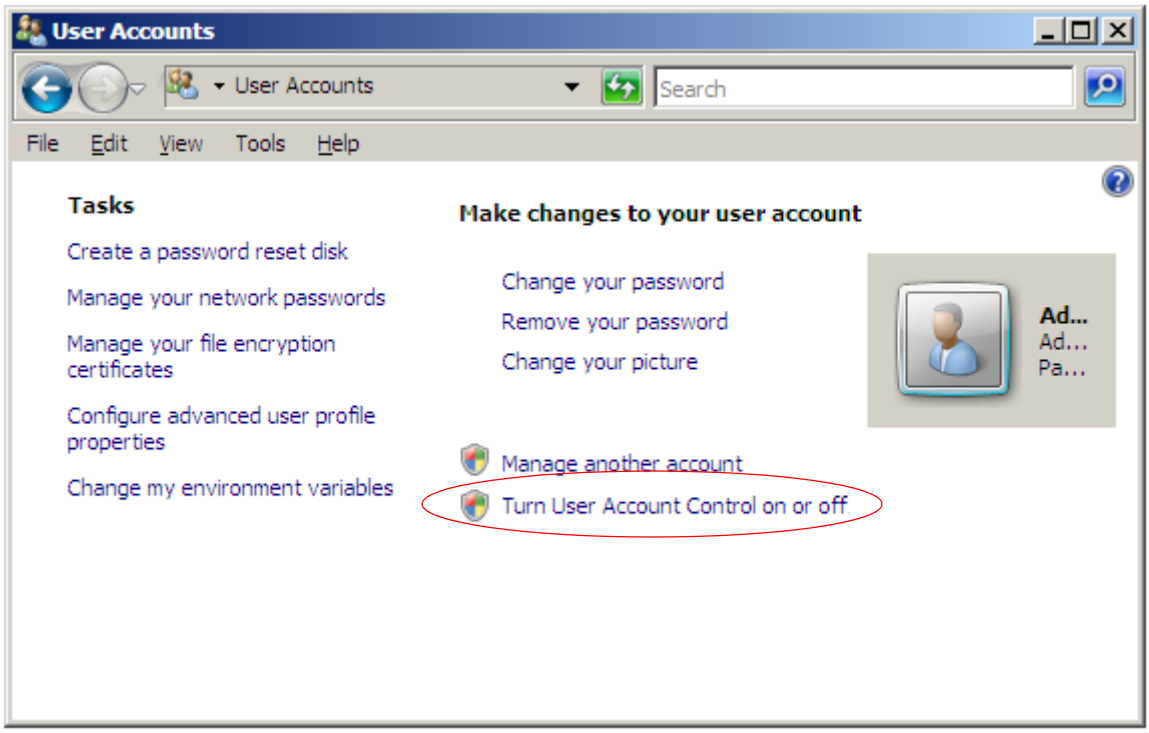
After installing IS on a Windows 2008 server, you need to confirm that the inbound rules are configured correctly.

1. As Administrator, launch the Server Manager, and under Configuration > “Windows Firewall with Advanced Security” and click **Inbound Rules**.
2. Click **New Rule** in the Actions column on the right side, then select the Port option on the Rule Type screen and click **Next**:
3. On the Protocol and Ports screen, select TCP for the port type, and enter 32768, 32769 in the “Specific local ports” field and click **Next**.
4. On the Action screen, select “Allow the connection” and click **Next**.
5. On the Profile screen, verify that all of the boxes are checked and click **Next**.
6. On the Name screen, enter a Name for this rule (such as FN_COR_TMS), an optional description, and click **Finish**.
7. Repeat Steps 2 through 6 to create a new rule. This time select UDP instead of TCP and enter 32770 in the “Specific local ports” field in Step 3. Also give the rule a new name (such as FN_NCH) in Step 6.
8. When you are done, double-click each rule to confirm it has the correct settings for your system.

Turn off User Account Control (Windows 2008 only)

The User Account Control (UAC) feature of Windows 2008 must be turned off for Image Services. To turn off UAC, follow these steps:

1. Launch the Control Panel.
2. Double-click the User Accounts icon.
3. Click Turn User Account Control **on** or **off**.



4. Clear the check box.

   The new setting will take effect after you reboot the server.

Set shared memory for SQL Server

If your system uses Oracle or DB2 relational databases, skip to "Reboot the Server" on page 154.

If SQL Server is accessed remotely and not installed on the same system as Image Services, this procedure is not necessary. Before following this procedure please check with your Image Services technical support representative.

There is a potential memory conflict between Image Services and Microsoft SQL Server. A Windows library occupies a space in memory close to the starting address for SysV shared memory. As SysV shared memory grows due to system use, SysV eventually attempts to allocate memory already used by the Windows library. This conflict causes the process to abort. Systems that only use a small amount of SysV shared memory may not encounter this memory conflict right away, but may encounter this conflict in the future.

The following event log error is created when a shared memory conflict occurs:

```
SysV: Error 487 mapping file view.  Process Aborting...
```

This is most likely due to a shared memory conflict.

Note Due to the complex nature of shared memory conflict issues, the types of error messages generated in the event log can vary, and thus the above error may not actually appear. The event log should be analyzed by IBM support to determine the cause.

This release of Image Services includes a feature for changing the memory address where SysV allocates shared memory. The start address can be moved to take advantage of the largest available area of free memory. This address will vary from system to system based on configuration and other installed software. Therefore, the best address must be determined individually for each system.

Determine starting address

The following procedure will determine the best starting address on your Image Services system and set the SysV shared memory to start at this address.

1. After installing SQL Server, Image Services 4.1.2, and starting the IS software, it is possible that the shared memory conflict will occur during the startup. If Image Services fails to start successfully, skip to Step 3; otherwise, continue with the next step.
2. A new SysV feature allows for the examination of process memory to determine the best location for the start of SysV shared memory. Create a trigger file containing the name of the process to examine. Use process gdbcheckdb (this links to SQL Server and is thus useful for examining how SQL libraries occupy memory). At a DOS command prompt, run the following commands:

   ```
   cd \fnsw_loc\sd\1
   echo gdbcheckdb > dump_vmap.txt
   gdbcheckdb 1
   ```

   Note You can also enter any other IS process name in the trigger file to get its memory map. The *gdbcheckdb* process is used in this example because it links with the SQL library that conflicts with SysV shared memory.

   The trigger file causes SysV to examine memory allocation for gdbcheckdb and create files that you will use to avoid the memory conflict. It creates an entry in the elog. Your entry might look similar to the following:

   ```
   The Windows Registry may be updated to change the starting
   SysV shared memory address to the largest free area in memory
   (at address 0x11000000).

   A new registry edit script was created with the name:

       e:\fnsw\etc\shm_s_3172-1320.reg.txt

   To change the SysV shared memory address execute this script
   after completely shutting down the IS software and running 'killfnsw -Dy'
   To execute the script first remove the '.txt' extension then
   double-click the script from Windows explorer.
   ```

3. Use vl to examine the event log and locate the following message with a recent time-stamp:

   ```
   fn_NT_VMMap: saving virtual memory map in ims_logs directory
   ```

   If this message does not appear, the virtual memory map code was not executed. Contact IBM support.

4. SysV automatically generates the following files to fix the problem:
   - A virtual memory map of the process that failed
   - A registry edit file to change the SysV shared memory starting address with new settings in the Windows Registry

   The virtual memory map file gives a detailed listing of every section of memory used by the process. This file is primarily of interest to support personnel when they require a detailed understanding of memory allocation. The map file is created in the \fnsw_loc\logs\ims_logs directory and is named according to the process name and ID that generated the file. For example, if the process was Xslc.exe with a process ID of 1234 and a thread ID of 5678, the file is named sl_Xslc.exe_1234_5678.txt.

   SysV automatically examines the virtual memory map data to determine the address of the largest available area of free memory. It then creates a registry edit file that sets the best starting address of SysV shared memory. The registry edit file is created in the \fnsw\etc directory and is named according to the process that encountered the problem. (This allows multiple processes to create separate edit files). For example, if the process ID is 1234 and the thread ID is 5678, the file is named shm_s_1234-5678.reg.txt.

   Note The ".txt" extension prevents you from running the file accidentally.

   You can either rename this file and run it to automatically add a new key to the Windows Registry or you can view the contents of this file with Notepad and manually update the Windows Registry. The registry path and key for setting SysV shared memory are given in the file. Note: the registry key "StartShmAddress" by default does not exist in the Windows registry. This key is only created on systems that need to modify their start SysV shared memory address to be different from the default value that is embedded inside the code. This default value is 0x45000000 - this is the address where SysV starts its shared memory unless directed otherwise by the "StartShmAddress" registry key.

Automatically update the Windows Registry

To run the registry edit file and change the start address of SysV shared memory, complete the following steps:

1. Make a copy of the file without the ".txt" extension (for example, the file name becomes: shm_s_1234-5678.reg).
2. If IS is running, shutdown the software:

   ```
   initfnsw -y stop
   ```
3. Cleanup all IS processes and resources:

   ```
   killfnsw -Dy
   ```
4. Backup the Windows Registry before running the registry edit script.
5. Run the registry edit script by double-clicking its icon in Windows Explorer.
6. Restart IS. The software should now come up without any problems.
7. Skip to Verify new shared memory start address.

Manually update the Windows Registry

To manually update the Windows Registry and change the start address of SysV shared memory, complete the following steps:

1. Use Notepad to view the contents of the registry edit file. Your file might look similar to the following:

```
REGEDIT4
[HKEY_LOCAL_MACHINE\SOFTWARE\FileNet\WAL\CurrentVersion]
"StartShmAddress"=dword:13000000
```

2. Use the regedt command on your server to add or update the StartShmAddress key using the path and value in the file.

Verify new shared memory start address

Verify the new start address by running the following command:

```
ipc_tool -A
```

The new start address will appear as in the "Address" column for segment #0 under the title "Shared Memory Address Manager Information."

Reboot the Server

At this point you must reboot the server so that newly installed device drivers can take effect. The time needed for the shutdown and reboot process varies for each system.

1. Reboot the server.
2. After the server reboots, logon as the FileNet software user, such as **fnsw,** with password **fnsw.**

Note When the IS software is first installed, the fnsw password is set to fnsw.

Install Required Pre-Startup Fixes

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

At this time, install only the fixes that directly relate to Image Services 4.1.2 initial configuration issues. (You'll install any general Image Services 4.1.2 fix packs in a later section.)

Note These are only the fixes required to start the FileNet Image Services software successfully. Install any other fixes after the Image Services installation has been successfully completed.

You can retrieve these fixes either from the Tech Info media or from the IBM Information Management support page (www.ibm.com/software/data/support).

Continue with Server Configuration

For a **Combined server or Dual server** system, continue with the section, “Logon to the Configuration Database” on page 155.

If you’re adding an **Application server**, skip to the section, “Configure the Root Server” on page 182.

If you’re adding a **Storage Library server**, skip to the section, “Configure the Root Server” on page 208.

Logon to the Configuration Database

This section describes how to construct an Image Services system configuration database customized to your installation.

When using the various Tabs in the FileNet Image Services - System Configuration Editor window, you will click on a tab, complete the fields, and then click on the next tab as directed.

Note If you want to configure Image Services with SQL Server 2005, you must install IS 4.1.2 **BEFORE** completing any of the configuration steps.

Tip Every screen or dialog box in the FileNet Image Services - System Configuration Editor has Online Help available for it. In addition, most screens can be re-sized (for example, “maximized”) to your preference.

Note The text shown in some screens or dialog boxes may not appear exactly as depicted in this chapter. This results because some text in screens or dialog boxes is dependent on the template you select or the type of relational database that you have installed on your server. The overall examples, however, should still apply to all configurations.

Server Types Perform the steps in this section on these servers:

Root/Index server during a Dual server installation

Root/Index/Storage Library server during a Combined server or Entry server installation)

Application server running WorkFlo Queue Services or SQL Services.

1. If you have not already done so, logon as the FileNet software user, such as **fnsw**.
2. Open the Configuration Editor.

   From the Taskbar, click the **Start** button, point to Programs, point to the FileNet Image Services, point to System Configuration, and click the **Configuration Editor** icon.

   The Configuration Editor program will detect that no databases exist and will open the New Configuration Database dialog box automatically.

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

If you are installing 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.

3. Verify that the two-part domain information is correct in the New Configuration Database dialog box. (The proper syntax is: <Domain>:<Organization>.)
4. From the Database Template: pull-down list, select a template type from the following template choices:
   - Combined server system
   - Dual server system
   - Remote entry system
   - WorkFlo Management System
5. Click **OK**. In the **Initialize Combined Server Template** dialog box, enter the base directory for all datasets, and click the *Next* button. In the next dialog box, select the type of database installed on your system.
6. A series of dialog boxes and prompts for the specific template you selected above, appear next. Answer each prompt to configure your system. In necessary, refer to your "Accessing IBM FileNet documentation" on page 16 for dataset sizes.

   Tip Use the on-line help for more instruction on answering the prompts for each template type. Select the Help menu option in the Configuration Editor.

   When you're prompted for information about your Relational Database Management system, Oracle or DB2, use the information that was supplied to you by the Database Administrator when the RDBMS software was installed.

   In addition to prompts for other system information, you'll be asked to:

   - Select the relational database type (Oracle10g/11g, DB2 8.1/8.2/9.1/9.5).
   - For DB2, enter and verify the passwords assigned to:
     – f_sw
     – f_maint
     – f_sqi
     – f_open
   - Enter the relational database name.
   - Enter the user tablespace name.

Note Accept the default values offered for dataset names. This information will not be saved and you will have the opportunity to change the table names before exiting the Configuration Editor.

7. When your configuration is complete, a Configuration Complete message appears. Click *Next* to continue. The Configuration Editor opens. You can select tabs in the Configuration Editor to verify that you entered the information correctly.

Note When using the various configuration tabs in the System Configuration Editor window, you will click on a tab, complete the fields as instructed, and immediately click on the next tab (without exiting), as directed. Each screen and pop-up window has an on-line help button designed to provide information you might need to complete the screen or window.

8. Before you exit the Configuration Editor, complete any remaining configuration sections in this chapter that apply to your system.

Select and Configure Relational Database Instance (if applicable)

Important 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 databases. For **Oracle**, see the *Guidelines for Installing and Updating Oracle 10g Software for UNIX Servers* or the *Guidelines for Installing and Updating Oracle 11g Software for UNIX Servers*. For **DB2**, see the *Guidelines for Installing and Configuring DB2 Software*.
To download the guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

The Database Administrator might have supplied this information in the section, "Install the Relational Database Software" on page 99.

Continue with the appropriate sub-section:

- "Oracle 10g/11g" on page 157
- "DB2 V8.1/V8.2/V9.1/V9.5" on page 158
- "MS SQL Server Software" on page 158

Oracle 10g/11g

Define the Tablespace Names

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 the 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.

Note The tablespace names specified in the RDB Objects list must exist before you initialize the FileNet Image Services databases.

1. On the Oracle subtab, verify that the **Version** is **9.2.0.8** or **10.2.0.2** or later.
2. Skip to the section, "Verify the Image Services Character Set" on page 158.

DB2 V8.1/V8.2/V9.1/V9.5

Verify the Database and User Tablespace Names

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:
   - **Version** - must be **8.1.16** or later (DB2 version 8.1.0 plus FixPak 16 or later), **8.2.9** or later (DB2 version 8.2.0 plus FixPak 9 or later), **9.1.4a** (DB2 version 9.1.0 plus FixPak 4a or later), **9.5.0** (DB2 version 9.5.0), or **9.5.1** (DB2 version 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.

Note 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.

Note 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.

MS SQL Server Software

Follow the procedures in this section to configure the MS SQL Server software on your server.

1. On the server, click **Start** --> MicroSoft SQL Server and

   Client Network Utility OR

   Server Network Utility
2. Click on the DB-Library Options tab and verify that the Automatic ANSI to OEM conversion option is NOT checked.

Verify the Image Services Character Set

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.

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 system has been converted from an older character set, such as FileNet 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. See "Image Services configuration" on page 240.

Modify Dataset File Sizes

Click on the Datasets tab from the main edit menu to view a list of the datasets added by default. All of the dataset 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.

Refer to the "File System and Dataset Information" on page 98 that were determined by the SCouT planning tool. Your dataset sizes must match the sizes recorded in that table.

When creating larger datasets, note the following:

- The sizes of all of the datasets 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, you need to run the Add Additional Dataset procedure under the Procedures tab.
- You can have a total of 255 dataset volumes, each 16 GB in size.

Note 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)

1. Click on the Server Application Services tab in the System Configuration Editor window.
2. Select the Cache sub-tab 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. It is recommended that these values remain set to their default values.

The following sub-tabs 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)

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

Note Consult Help Text regarding the parameter options.

3. If you want to change the way images are sent to the optical disk, select the Others sub-tab.

   you 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 in the new value.

Configure MKF Database Parameters

Note Perform the steps in this section on servers that have an MKF database.

1. Click 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.

Note The default MKF database block size in Image Services 4.1.2 is **8 KB**. You can also choose a block size of 16 KB. Click Help if you have any questions on the parameter values.

Important The Security database **SEC_db** and redo log **SEC_rl must use 8 KB blocks**.

Optional Storage Library Configuration Procedures

The following optional Storage Library procedures are for configuring a **combined** server (Root/Index/Storage Library).

- "Verify/Configure Storage Library Device Settings (Optional)" on page 161
- "Connect/Configure Storage Library Devices (Optional)" on page 161
- "Configure Third-Party Access to Optical Libraries (Optional)" on page 162

Read these sections and perform any procedures that are needed for your system. If you do not need to perform any of these procedures, continue to the section, "Exit the System Configuration Editor" on page 163.

Note Procedures for configuring a **Dual server** (separate Root/Index and Storage Library servers) are found in "Setup Storage Library Server (optional)" on page 171. To configure an MSAR System, refer to the *MSAR Procedures and Guidelines* document for information. To download this document from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Verify/Configure Storage Library Device Settings (Optional)

To view the information concerning the storage libraries configured on your server, select the Storage Libraries tab from FileNet Image Services - System Configuration Editor window.

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

Note If you select the Manually configure optical storage library option from the Procedure list, consult your Help Text to configure the storage library. The ID format for both the storage library arm and drive devices must be:

<#> <#> <#> <#> for example: **1 2 3 4** where:

The *first* number is the *SCSI adapter id*
The *second* number is the *bus id*
The *third* number is the *device id*
The *fourth* number is the *LU#*

Refer to "Windows Installation Worksheet" on page 95 for information concerning your storage library devices.

Connect/Configure Storage Library Devices (Optional)

Complete the steps in this section only if the following criteria are met:

- Your system is a combined Root/Index/Storage Library server.
- You did not attach a Storage Library device before installing and configuring the FileNet Image Services software on your server.

1. Logoff the Windows Server, and turn the server off.
2. Connect the storage library device, and power the device on.
3. Logon as the FileNet software user, such as **fnsw**.
4. Open a Command Prompt window, and enter the following command:

   ```
   fnddcfg
   ```

   Once the command is finished, you will receive a message instructing you to reboot the server to make the changes effective.
5. Reboot the server, and logon as the FileNet software user, such as **fnsw** again.
6. Open a Command Prompt window, and enter the following command:

   ```
   fndev
   ```

   The physical addresses of all attached storage library devices should appear.
7. Open the Configuration Editor. From the Taskbar, click **Start**, point to Programs, point to the FileNet Image Services Configuration folder, and click the Configuration Editor icon.
8. Verify that the two-part domain information is correct, and click **OK**.

The FileNet Image Services - System Configuration Editor window opens with the Procedures tab displayed.

9. From the Procedures tab, select Automatically Configure a Storage Library from the list of available procedures.
10. Click **Run** and respond to each of the dialog box prompts that display.

Configure Third-Party Access to Optical Libraries (Optional)

Image Services normally reserves all 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 are also going to run on this server, a text file named fnsod.foreign needs to be created in the <drive>:\fnsw_loc\sd directory to specify which devices are available for use by the third-party products.

If this server is dedicated to running Image Services only, skip this section and continue to "Exit the System Configuration Editor" on page 163.

If this server is going to be used for both Image Services and third-party software, continue with the following steps.

Note Image Services must not be running during this procedure.

1. List the available devices by opening a command prompt and entering:

   `fndev`

   The fndev display from a server that has a 160ex library and a 2.6GB ODU would look similar to this:

```
SOD.1010 1 1 0 1 0 HP C1113F 1.22
ARM.1020 1 1 0 2 0 HP C1160J 1.47
SOD.1030 1 1 0 3 0 HP C1113J 1.06
SOD.1040 1 1 0 4 0 HP C1113J 1.06
```

2. Open Notepad to create the fnsod.foreign file.

   In this file, list all the SCSI device nodes that the third-party application will use. The format is:

```
ARM.bctl   or
SOD.bctl
```

   where:

   `ARM` indicates the device is a robotic arm.

   `SOD` indicates the device is a SCSI Optical Device.

   `bctl` are the bus, controller, target, and lun (logical unit number).

To exclude the 160ex storage library as shown in step 2, the contents of your fnsod.foreign file would look similar to this:

```
ARM.1020
SOD.1030
SOD.1040
```

To exclude just the ODU, the fnsod.foreign file would look like this:

```
SOD.1010
```

To exclude a tape library, only an ARM.bctl entry is required for the library's robotic arm. No SOD.bctl entry is needed.

3. When you've finished adding entries to the file, exit Notepad and save the file as fnsod.foreign.

Note Notepad adds a .txt extension to the file name when you save it, so you must rename the file in the next step to remove the .txt extension.

4. Locate the fnsod.foreign.txt file in the <drive>:\fnsw_loc\sd folder and remove the .txt extension.
5. As Administrator, reconfigure the device driver by entering:

   fnddcfg -u
   fnddcfg

6. Then restart the server.
7. When the server has finished restarting, list the available SCSI devices by entering:

   fndev

   The resulting list of devices should contain all the attached optical arms and disks NOT listed in the fnsod.foreign file 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 would cause problems with auto-configuration routines.

Exit the System Configuration Editor

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

Initialize the Relational Database Software

Use the procedures below to initialize the FileNet databases.

As the FileNet software user such as **fnsw**, initialize the index database and all the MKF databases (includes permanent, transient, and security databases) by entering the following commands on the Image Services server:

```
fn_setup_rdb -f
fn_util init -y > \fnsw_loc\logs\init.log
```

This process could take a while (sometimes up to 30 minutes without any feedback to the user); the larger the datasets, the longer the wait. After the initialization process finishes, the prompt returns.

Note View the **init.log** file after initializing to verify that there were no errors in the database initialization process.

Initialize the Server Software

This section includes the procedure for initializing the server software. Verify that you perform the correct procedures for your system.

CAUTION You must start the database before initializing the FileNet databases. If you do not start the database, the initialization process will fail.

Initialization Procedures for Local Installations

The initialization procedure in this section is required for local installations of an IS connected to a remote AIX DB2 database server.

1. If you aren't already, logon as the FileNet software user, such as **fnsw.**
2. To initialize the index database and all the MKF databases (includes permanent, transient, and security databases), enter the following command at the Command Prompt:

   ```
   fn_build -a
   fn_util init -y
   ```

Note During the initialization process you will receive several "Could not find <file>" error messages. You can ignore these messages because during the initialization process these files do not yet exist.

The initialization will take approximately 10 - 30 minutes during which there is very little status feedback to the display. The larger the datasets, the longer the process will take.

3. During the initialization, the following warning message appears:

   Enter Y to continue the initialization.

4. When initialization is complete, view the following files to verify that there were no errors in the database initialization process:

- \fnsw_loc\logs\fn_util\init.log and/or
- DB2.log (for DB2), or
- oracle.log (for Oracle), or
- FileNet.log (for SQL Server)

Note The init.log file does not always display.

Tip You can monitor the progress of the initialization by viewing the fn_util.log, and init.log, DB2.log, or FileNet.log files in a command prompt window. These files are located in the following directories:

\fnsw_loc\logs\fn_util\fn_util.log
\fnsw_loc\logs\fn_util\DB2.log
\fnsw_loc\logs\fn_util\init.log
\fnsw_loc\logs\fn_util\FileNet.log
The file size increases each time you view the log files, indicating the progress of the initialization.

Verify FileNet Dataset Permissions (Optional)

If the FileNet datasets reside on a different disk than the FileNet Image Services software, you must set the user and group permissions.

1. As the FileNet software user, such as **fnsw**, open Windows Explorer and select the directory containing the FileNet datasets. For example, fnsw\dev\1.
2. Right-click on the folder containing the FileNet datasets and select Properties. The Properties dialog box opens.
3. In the Properties dialog box, select the Security tab, and set the following permissions for the users and groups in the table below:

Group	Permissions
Administrators	Full Control
Everyone	Read
fnadmin	Full Control
fnop	Read & Execute and Write
fnusr	Read & Execute and Write

4. Click **OK** to close the Properties dialog box.

Complete the Installation

To complete the installation, continue with “Complete the Installation on Windows Systems” on page 171.

Complete the Installation on UNIX Systems

Install Service Packs and Fix Packs (optional)

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

You can install any fix packs or service packs that apply to Image Services 4.1.2. Read the accompanying README file, which contains the instructions for installing the software. Service packs are available on CD. Fix packs are available on the IBM Information Management support page (**http://www.ibm.com/software/data/support**).

Software Tuning for COLD Users (optional)

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

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:

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'll 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 (AIX only)(optional)

The cor_backoff_config configuration file allows you to modify the connection failure/retry behavior that applies to the Courier protocol for both an 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 located on the IBM Information Management support page (http://www.ibm.com/software/data/support).

Edit the /etc/inittab File (AIX only)(optional)

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

Since you previously blocked network error messages from broadcasting to other systems, you must “uncomment” the rc.initfnsw statement in the /etc/inittab file so the FileNet software will start when you reboot.

1. Back up 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 reenable by removing the colon (:) that begins the line. The statement should read as follows:

   ```
   rcfnsw:2:once:/etc/rc.initfnsw > /dev/console 2>&1
   ```

5. Uncomment any other **fnsw** processes that were commented out in this file. Save your changes and exit the file editor.

Adapt the System for Xstation Use (HP-UX, Solaris only)(optional)

Server Types Perform the steps in this section on these servers:

Root/Index server during a Dual server installation.

Root/Index/Storage Library server during a Combined server or Entry server installation.

Application server running WorkFlo Queue services,
SQL services, or VWServices.

If you plan to run Xapex from an Xstation, you must modify some of the system parameters. (The modified parameters disable your access control option and allow you to run applications from an Xstation.) To modify the appropriate parameters, enter commands similar to the following:

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

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

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

Verify Window Manager Selection (Solaris only)

Server Types Perform the steps in this section on the PC workstations that log in remotely to the Solaris server.

To verify that the Storage Administrator screens display correctly, follow these steps:

1. Click the Start menu, point to Programs, Exceed, and click on **Xconfig**.
2. When the Xconfig window displays, double-click the Window Mode icon (Exceed 5.1.3) or the Screen Definition icon (Exceed 6.0).
3. In the resulting window, verify that the Window Manager selection is set to **Native**.
4. If necessary, select the correct option from the pull-down menu.

Support for PCI-X Channel SCSI Adapter (Solaris only)

Some HP optical libraries have been found to have specific issues when configured on Solaris 10 using the PCI-X Dual channel Ultra320 SCSI (LVD/SE) Adapter. This configuration works correctly on Solaris 9 and diagnostic information has been submitted to Sun service. A patch was not yet available at the time of this release, but there are workarounds for a couple of issues. For more information, see “Appendix K – Support for PCI-X Dual Channel Ultra320 SCSI (LVD/SE) Adapter (Sun only)” on page 267.

MSAR Systems

The Magnetic Storage and Retrieval (MSAR) storage solution provides high speed and high capacity storage libraries on magnetic disk media instead of using optical media or large magnetic disk caches (Cache-only systems).

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

To download this document from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.

Single Document Storage Systems – Install Tivoli 5.5

On IS 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 *Integral Single Document Storage and Retrieval Procedures and Guidelines* document for information.

To download this document from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.

Start the Image Services Software

Server Types Perform all of the procedures in this section on **all servers**.

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

   ```
   killfnsw  -DAy
   ```

2. Start the Image Services software by entering:

   ```
   Xtaskman  &
   ```

CAUTION If RDBMS software is installed on this server, be sure to start it before attempting to start the FileNet Image Services for the first time. If the RDBMS software is not available when the Image Services software starts, the Image Services software will fail and will display error messages. If you receive Image Services error messages, start the RDBMS software and restart the Image Services software.

3. After the **TM_daemon.exe** message displays in the Process table, select the Monitor menu.
4. From the Monitor menu, select the Event Logs option. (The FileNet Event Logs window displays.)
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 Task Manager window, but do not close the Event Logs window.
6. From the FileNet Task Manager window, select **START**.

You will receive system messages in the Current Status window as the IS software starts. After the IS software startup process finishes, the CLOSE button is highlighted.

7. Select the **CLOSE** button. (The Current Status window closes.)
8. Review the contents of the Event Log window to make sure that there are no error messages from the software startup.

Start the Application Executive

To begin customizing your IS system by defining media families and document classes, launch the IS Application Executive (Xapex).

1. As a FileNet software user, such as **fnsw**, launch the Application Executive by entering:

   ```
   Xapex &
   ```

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

See the *IS System Administrator's Handbook* for complete information about using the Application Executive. To download IBM FileNet documentation, see “Accessing IBM FileNet documentation” on page 16.

Begin production mode

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

Complete the Installation on Windows Systems

This section contains the final procedures necessary to complete the installation of your system.

Setup Storage Library Server (optional)

Server Types Complete the procedures in this section *only* on the Storage Library server of a **Dual** server configuration. If you **do not** have a separate Storage Library server skip to the section, "Configure RES, Cross-Committal, or Multi-Committal Systems (optional)" on page 176.

Note If your system is not configured for Dual server operation, skip this section, and go to the section, "Start Image Services" on page 177.

Install Image Services Software on Storage Library Server

See the section, "Install FileNet Image Services Software" on page 102 to install FileNet software on the Storage Library server.

Note The Image Services software that you will install on the Storage Library Server must be the same version as the software installed on the Root/Index server.

Once the Image Services software is installed on the Storage Library server, verify that the Image Services software is running on the Root/Index server before proceeding with the next section.

Connect Storage Library Devices

1. Logoff the server, and turn the server off.
2. Connect the ODU or storage library device, and power the device on.
3. Logon as the FileNet software user, such as **fnsw**.
4. Before running the command in this step, verify that the SCSI devices and not configured to be bootable devices.

   Open a Command Prompt window, and enter the following command:

   ```
   fnddcfg
   ```

   Once the command is finished, you will receive a message instructing you to reboot the server to make the changes effective.
5. Reboot the server, and logon as the FileNet software user, such as **fnsw** again.
6. Open a Command Prompt window, and enter the following command:

   ```
   fndev
   ```

   The physical addresses of all attached storage library device will display on the screen.
7. Open the Configuration Editor.

   From the Taskbar, click the **Start** button, point to Programs, point to the FileNet Image Services, point to System Configuration, and click the Configuration Editor icon.
8. Verify that the two-part domain information is correct, and click *OK*.

The FileNet Image Services - System Configuration Editor window opens with the Procedures tab displayed.

9. From the Procedures tab, select Automatically Configure a Storage Library from the list of available procedures.

10. Click **Run**.

Note If you are configuring an RES template, a dialog box prompting you for the domain name of the peer system will display. Respond to these prompts as appropriate. When adding addresses for peer systems in fn_edit, use the IPv4 format rather than the IPv6 format.

11. From the FileNet Image Services - System Configuration Editor window, click the **File** menu and select the **Exit** option.

12. Click the **Yes** button to save the configuration and exit the System Configuration Editor.

Configure Third-Party Access to Optical Libraries (optional)

Image Services normally reserves all 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 are also going to run on this server, a text file named fnsod.foreign needs to be created in the <drive>:\fnsw_loc\sd directory to specify which devices are available for use by the third-party products.

If this server is dedicated to running Image Services only, skip this section and continue to "Build Configuration Files on the Storage Library Server" on page 173.

If this server is going to be used for both Image Services and third-party software, continue with the following steps.

Note Image Services must not be running during this procedure.

1. List the available devices by opening a command prompt and entering:

   fndev

   The fndev display from a server that has a 160ex library and a 2.6GB ODU would look similar to this:

```
SOD.1010 1 1 0 1 0 HP C1113F 1.22
ARM.1020 1 1 0 2 0 HP C1160J 1.47
SOD.1030 1 1 0 3 0 HP C1113J 1.06
SOD.1040 1 1 0 4 0 HP C1113J 1.06
```

2. Open Notepad and create the fnsod.foreign file.

   In this file, list all the SCSI device nodes that the third-party application will use. The format is:

```
ARM.bctl  or
SOD.bctl
```

   where:

`ARM` indicates the device is a robotic arm.

`SOD` indicates the device is a SCSI Optical Device.

`bctl` are the bus, controller, target, and lun (logical unit number).

To exclude the 160ex storage library as shown in step 2, the contents of your fnsod.foreign file would look similar to this:

```
ARM.1020
SOD.1030
SOD.1040
```

To exclude just the ODU, the fnsod.foreign file would look like this:

```
SOD.1010
```

To exclude a tape library, only an ARM.bctl entry is required for the library's robotic arm. No SOD.bctl entry is needed.

3. When you've finished adding entries to the file, exit Notepad and save the file as fnsod.foreign.
4. Locate the file in the <drive>:\fnsw_loc\sd folder and remove the .txt extension.

Note Notepad adds a .txt extension to the file name when you save it, so you must rename the file to remove the .txt extension.

5. As Administrator, reconfigure the device driver by entering:

```
fnddcfg  -u
fnddcfg
```

6. Then restart the server.
7. When the server has finished restarting, list the available SCSI devices by entering:

```
fndev
```

The resulting list of devices should contain all the attached optical arms and disks NOT listed in the fnsod.foreign file 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 would cause problems with auto-configuration routines.

Build Configuration Files on the Storage Library Server

This section assumes that the FileNet Image Services software has already installed and configured on the Storage Library server. The Image Services version on the Storage Library server must match the version installed on the Root/Index server.

Note You must start the FileNet software on the Root/Index server before starting the Image Services software on the Storage Library server.

1. Verify that the FileNet Image Services software is running on the Root/Index server before continuing.
2. On the Storage Library server, logon as the FileNet software user, such as **fnsw**.
3. If necessary, shutdown the FileNet software on the Storage Library Server by entering the following command:

   ```
   initfnsw stop
   ```

4. Build the appropriate configuration files by entering the following at the Command Prompt:

   ```
   fn_build -a
   ```

5. Still as **fnsw** on the Storage Library server, switch to the directory containing the links to the Storage Library device drivers and databases (for example, **\fnsw\dev\1**).
6. Look at the directory contents. The following items should appear in the directory listing:
   - cache0
   - oddX1 (X=device ID, one for each optical drive)
   - osarx (x=arm ID, one for each optical library arm)
   - permanent_db0
   - permanent_rl0
   - transient_db0
   - transient_rl0

Note If the datasets do not exist in the /fnsw/dev/1 directory, you must run the FileNet System Configuration Editor program on the Root/Index server again and configure the appropriate partitions for the Storage Library server.

(In addition, you must run the fn_build -a tool on the Root/Index server and start the FileNet Image Services software before repeating the steps in this section.)

7. Finally, as the FileNet software user, such as **fnsw**, enter the following commands:

   ```
   fn_util init -y
   ```

   The fn_util init program will initialize the transient and permanent databases on the Storage Library server. (When the fn_util programs are done, a message displays indicating that the new database partitions are initialized and zeroed out.)

Note You can monitor the progress of the initialization by viewing the init.log file in a command prompt window. The directory location of this file is, \fnsw_loc\logs\init.log.

Note 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 doc 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
```

After SNT_update is finished, run fn_util init -y again.

Configure Storage Devices on Storage Library Server

1. On the Storage Library server, logon as the FileNet software user, such as **fnsw**.
2. Open the Configuration Editor.

   From the Taskbar, click the **Start** button, point to Programs, point to the FileNet Image Services, point to System Configuration, and click the Configuration Editor icon.
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 FileNet Image Services - System Configuration Editor window opens with the Procedures tab displayed.
4. From the Procedures tab, select Automatically Configure a Storage Library from the list of available procedures.
5. Click **Run**.
6. Check the Optical Library tabs to verify that the correct Storage Library devices were configured.
7. Finally, still as the FileNet software user, such as **fnsw**, open a Command Prompt window, and enter the commands similar to the following:

   ```
   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. Once the databases are initialized, the scripts check for the presence of permanent.ddl and transient.ddl files in the /fnsw/local/sd/1 directory.
8. Start the FileNet Image Services software on all servers: Root/Index server first, then Storage Library server. (See “Start Image Services” on page 177 for instructions on starting the FileNet software.)

Configure RES, Cross-Committal, or Multi-Committal Systems (optional)

This section is optional. If you **do not** have a Remote Entry Server (RES), Cross-Committal, or Multi-Committal System, continue to the section "Verify the System Serial Number" on page 176.

This section presents a brief description of these systems, for detailed information refer to the *Image Services Multi-Committal and Cross-Committal Configuration Handbook*.

To download IBM FileNet documentation "Accessing IBM FileNet documentation" on page 16.

Each of the FileNet systems in an RES 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.

- A Cross-Committal System is composed of a **source** Image Services system and a **target** Image Services system. The source system commits images to the target system, but does not retain the images locally.
- A Remote Entry Server (RES) 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 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 system. Multi-Committal Systems may or may not be "compatible" systems with non-overlapping document IDs. If they aren't compatible, new doc IDs are assigned on the target system, a minor performance consideration.

Verify the System Serial Number

Use the **ssn** command to display the system serial number. At a Command Prompt, enter the following command:

```
ssn
```

Important The ssn is written onto all storage media and **must** be unique for each Image Services system. If you have more than one Image Services system (domain), each **must** use its own unique ssn to prevent potential problems if media are ever transferred from one IS system to another. The valid range of SSNs is 1000 through 2147483646.

Start Image Services

Use these procedures to start the IS ControlService and the Image Services software.

Note If you configured your system as a Dual server, verify that the FileNet Image Services software in started first on the Root/Index server and then on the Storage Library server. Complete the steps in this section on both servers.

Start the IS ControlService

1. Logon as the FileNet software user, such as **fnsw**, if you aren't already.
2. From the Control Panel, open the Administrative Tools folder, and double-click the Services icon.
3. In the Services dialog box, in the list of Services, verify that the IS ControlService is *Started* and the Startup Type is set to *Automatic*.
   (If the service is not started the TM_daemon is not running.)

   If the settings for IS ControlService are correct, skip to Step 6.
4. If the properties are **not** correct, right-click *IS ControlS*ervice.
5. In the IS ControlService Properties window do the following as necessary:
   a. Set the Startup type to *Automatic*
   b. Click the *Start* button to start the IS ControlService
   c. Click *OK* to exit the IS ControlService Properties window
6. Close the Services window.

Start the Image Service Software

1. Open the FileNet Task Manager.

   From the Taskbar, point to Programs, FileNet Image Services, Server Applications, and click the **Task Manager** icon.

   Because the Image Services ControlService is running, the TM_daemon.exe process will be listed in the Process column.
2. Click the **Monitor** menu and select the Event Logs... option.
3. In the Event Logs window, click the Display pull down menu and select the Dynamic option. This will enable the event window to be refreshed whenever messages are logged. Leave the Event Logs window open.
4. At the FileNet Task Manager window, click **Start** to bring up the FileNet software. Messages will display in the Current Status window as FileNet software is being started.
5. After the FileNet software has been started, click the **Close** button to close the Current Status window.
6. View the Event Logs window to verify that there are no error messages.
7. After viewing the Event Logs, close any other open windows.

Install Mods and Fix Packs (optional)

Now you can install any mods and fix packs that apply to Image Services 4.1.2. Be sure to read the accompanying Readme file, which contains the instructions for installing the software.

Mods and fix packs are available on the IBM Downloads Web site.

If you have not already set up an account on the IBM Downloads Web site, you will be asked to create an account before downloading any of the mods or fix packs that have been posted. Follow the prompts on the Web site to create an account.

Make System Backups

Backups should be made of your system configuration in case something unforeseen occurs. You should do this for both the root and application servers.

1. If you aren't already, logon as the FileNet software user, such as **fnsw**.
2. Shutdown the FileNet software by entering the following command:

   ```
   initfnsw stop
   ```
3. Load a blank tape into the tape drive.
4. Double-click on the *Administrative Tools* icon to open the Administrative Tools window.
5. From the Administrative Tools window, locate and double-click the Backup icon.
6. The backup tool should list all of the drives on your server which can be backed up. Locate and select the drives containing the files and databases for both the operating system and FileNet system (for example, drive *C* and *D*.) This can be done by clicking on the white box to the left of the drives you intend to backup.
7. Click the Operations pull down menu, and select the Backup... option.
8. Select the following options in the Backup Information window:
   - Verify After Backup
   - Backup Registry
   - Restrict Access to Owner or Administrator

   Also, if you need to, you may change the tape name in this window.
9. Type in the back up type (for example, *Full Backup, <System Name>, W/E 2-26-95*) in the *Description* field.

   Note the location of the backup log file and record the location for future reference.
10. Click the **OK** button to begin the backup. The backup program will display its status while it is in progress. The backup and verification will take about 20 - 30 minutes to complete, depending on the system.
11. When the backup is complete, verify that it can successfully verify the database file, and click the **OK** button.

12. To exit the backup tool, click the Operations pull down menu and select the **Exit** option.
13. Unload and label the backup tape.

Configure Image Services Processes to Start Automatically (optional)

This procedure allows you to configure your system to automatically start the Image Services processes immediately after the IS ControlService has started. This preference will prevent you from having to start the Image Services processes manually from the FileNet Task Manager every time you restart your computer.

1. From the Start menu, select Programs, FileNet Image Services, System Configuration, and click **Setup**.
2. When you are asked whether you are logged on using a Domain User account, select either **Yes** or **No** as appropriate for your site.
3. At the FileNet Image Services Installation Maintenance screen, click the **Edit Parameters** button.
4. At the Edit Installation parameters dialog box, check the AUTOSTART Image Services PROCESSES option and click **OK**.
5. At the CONFIRM SAVE dialog box, click **Yes** to save the installation parameters.
6. Exit the FileNet Image Services Installation Maintenance window.
7. Click the **Yes** button at the CONFIRM EXIT window.

MSAR Systems

The Magnetic Storage and Retrieval (MSAR) storage library provides high speed and high capacity storage libraries on magnetic disk media instead of using optical media or large magnetic disk caches (cache-only systems).

If you will be configuring and setting up an MSAR System, see the *MSAR Procedures and Guidelines* document for complete information.

To download IBM FileNet documentation, see “Accessing IBM FileNet documentation” on page 16.

Single Document Storage Systems – Install Tivoli 5.5

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

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

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

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

To download this document from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.

Start the Application Executive

To begin customizing your IS system by defining media families and document classes, launch the IS Application Executive (Xapex).

1. Click **Start** on the Taskbar, and point to Programs > FileNet Image Services Server Applications.
2. Click the Application Executive icon.
3. Log on as SysAdmin. (The default password is SysAdmin.)

See the IS System Administrator's Handbook for complete information about using the Application Executive. To download IBM FileNet documentation, see “Accessing IBM FileNet documentation” on page 16.

Begin production mode

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

Appendix A – Adding an Application Server

This appendix describes how to add an Application server to your Image Services system, and uses some of the procedures in the main body of this document. Perform 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:

- 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 185.
- Reconfigure an old server because the functions it performs are no longer required. (Reconfiguring an old server must be handled the same as installing and configuring a new Application server.)

Before you begin

This appendix assumes that FileNet Image Services 4.1.2 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.

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:

- "System Administrator Tasks – AIX" on page 35.
- "System Administrator Tasks – HP-UX" on page 49
- "System Administrator Tasks – Solaris" on page 68
- "System Administrator Tasks – Windows Server" on page 90

An "Installation Worksheet" is available for your use in each one of the above sections. You should 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 Application server will be in one easy-to-find place.

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

- If you're configuring an Application server with only Batch, Print, and/or Cache Services, which do not require RDBMS software, skip to "Install Image Services Software" on page 182.
- If the DB2 or Oracle relational database software is already installed, you can also skip to "Install Image Services Software" on page 182.
- 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)

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

IBM DB2 V8.1, V8.2, V9.1, and V9.5

For guidelines on installing the DB2 RDBMS software on the Application server, refer to the *Guidelines for Installing and Configuring IBM DB2 Software*.

To download the guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Oracle 10g and Oracle 11g

For guidelines on installing Oracle RDBMS software on the Application server, refer to the *Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers* or *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server*. To download the guidelines from the IBM support page, see"Accessing IBM FileNet documentation" on page 16.

MS SQL 2000 and 2005

For guidelines on installing MS SQL software on the Application server, refer to the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server*. To download the guidelines from the IBM support page, see"Accessing IBM FileNet documentation" on page 16.

Install Image Services Software

Server Types Perform the steps in the section on the Application server.

Install the Image Services 4.1.2 software on the Application server by completing the procedures in the section "Install FileNet Image Services Software" on page 102.

At the end of that chapter there is a link to return to this appendix. Continue with the next section, and perform the procedures only on the server indicated at the beginning of each section. (You may not need to perform some of the procedures included in this appendix.)

Configure the Root Server

Server Types 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

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

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 such as fnsw.

   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.

For Windows Server Servers, log in to the server as the FileNet software user such as fnsw.

a. Open the Configuration Editor. From the Taskbar, click the **Start** button, point to Programs, point to the FileNet Image Services, point to System Configuration, and click the **Configuration Editor** icon.

Note The configuration database on the root server contains configuration information for the entire NCH domain of this FileNet system. Since this is an Application server, it does not have its own configuration database. The configuration information you entered when setting up your root server will be displayed. Keep in mind that the Image Services software must be running on the root server when you open the configuration database.

b. In the Open Configuration Database dialog box, verify that the two-part domain information is correct and click **OK**. (The two-part domain name is set up as follows: <Domain>:<Organization>.) The FileNet Image Services - System Configuration Editor window displays with the Procedures tab opened by default.

Note If your system has a workgroup Image Services license, some screens may not appear as shown in this document.

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

Note If you need further help, use the on-line 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 Yes if the new Application server is a Windows Server server. The default is No.

5. Enter the network address of the Application server. Refer to the “Installation Worksheet” for your operating system for appropriate information. Click **Next**.

Note If you are using IPv6 protocol, leave the Network Address field blank and just enter the Network Name (Host Name) in the next step.

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 2 through 7.

Select and Configure the Relational Database Instance (if applicable)

Note 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 databases.
For DB2, see the *FileNet Guidelines for Installing and Configuring IBM DB2 Software*.
For Oracle, see *Guidelines for Installing and Configuring Oracle Software on UNIX Servers (Site-controlled)* for more information.To download these guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

The Database Administrator has already supplied this information in the section, "Install Relational Database Software (if applicable)" on page 182.

Continue with the appropriate sub-section:

- "DB2 V8.x/V9.x" on page 184
- "Oracle 10g Release 2/11g Release 1" on page 184

DB2 V8.x/V9.x

Verify the Database and User Tablespace Names

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.

Note 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.

Note 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" on page 185.

Oracle 10g Release 2/11g Release 1

Verify the Tablespace Names

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 the site-specific tablespace 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 for FileNet tables.
   - 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 to your dedicated FileNet index tablespace.

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

Note 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 the Version is 10.2.0.3, 10.2.0.4 or 11g R1 or later.

Add Server Services

Server Types You must configure all Application server services on the Root server.

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

- Batch Entry Services
- Print Services
- Cache Services
- Structured Query Language (SQL) Services
- WorkFlo Queue Services (WQS)
- VWServices

  If you will be adding VWServices to this Application server, use the procedures in the appendix to install and configure the Image Services and RDBMS software, and configure a SQL Service on this Application server. After completing those procedures, see the installation handbook for your Process Engine for instructions on adding VWServices to the server.

Add Batch Entry Services

1. On the Procedures tab, use the scroll bar to locate the Add a Service to a Server procedure from the list of available procedures.
2. Select the Add a Service to a Server option from the Procedure List Box, then click **Run**.
3. Select the Application server domain name when prompted.
4. Choose Batch Entry Services from the list of services that can be added to the Application server.

5. Enter the dataset path for the Image Services cache on your Application server.
   - On UNIX systems for example: /fnsw/dev/1/cache_0.
   - On Windows Server systems for example: D:\FNSW\dev\1\cache_0.

Note The path must be on the Application server, NOT the root/index server.

6. Enter the size of the cache. (The default is 100 MB.)
7. 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.
8. Enter the size of the transient dataset sizes. (The defaults are as follows: transient_db0 -3 20 MB and transient_rl0 - 256 MB.)
9. Click **yes** of 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.)

Note 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 on remote committal. To download these handbooks from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.

10. Enter the number of BES commitment processes. Choose 2 (the default) or 4.
11. If you want to add more services, continue to the next appropriate procedure below. If this is the last service you’re adding to the Application server, skip to the section, “Exit the Configuration Editor” on page 189.

Add Print Services and Printer

1. From the Procedures tab, using the scroll bar, select the Add a Service to a Server procedure from the list of available procedures.
2. Click **Run**. (A dialog box displays prompting you for the domain name in which the Application server resides.)
3. Select the Application server domain name. (A new dialog box displays containing a list of services that can be added to an Application server.)
4. From the list of available services, choose Print Services.
5. Click **Yes** to add Print Services. (If you select Yes, default settings are automatically entered into the system. You can change the settings later, if necessary.)
6. From the Procedures tab, using the scroll bar, select the Add a printer procedure from the list of available procedures.
7. Click **Yes** if this is your default printer.
8. Enter a printer name. Click **OK**. (The printer name can be user defined.)

9. Enter the Network Clearing House (NCH) Printer name (for example, LJ5SiMX).
10. Enter the network address for the printer (for example, 10.0.85.245).
11. Select the Printer paper size.
12. Select the printer Eject Tray (default: Default)
13. Add other printers as necessary by repeating steps 6 through 12.
14. If you want to add more services, continue to the next appropriate procedure below. If this is the last service you're adding to the Application server, skip to the section, "Exit the Configuration Editor" on page 189.

Add Cache Services

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

1. From the Procedures tab, using the scroll bar, select the Add a Service to a Server procedure from the list of available procedures.
2. Click **Run**. (A dialog box displays prompting you for the domain name in which the Application server resides.)
3. Select the Application server domain name. (A new dialog box displays containing a list of services that can be added to an Application server.)
4. From the list of available services, choose Cache Services.
5. Click **OK**.
6. If you want to add more services, continue to the next appropriate procedure below. If this is the last service you're adding to the Application server, skip to the section, "Exit the Configuration Editor" on page 189.

Add Structured Query Language (SQL) Services

Use this procedure to add SQL services.

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

1. Click on the Procedures tab in the FileNet System Configuration Editor window.
2. Select the Add a Service to a Server option from the Procedure List Box, then click **Run**.
3. Click on the domain name of the Application server.
4. Choose SQL Services.

Note If RDBMS passwords have already been set using the "Add WorkFlo Queue Service" procedure, prompts for Step 5 and Step 6 will not be appear. In this case, skip to Step 7.

5. **For Oracle or SQL servers**, go to the RDB Object Tab and verify that the correct tablespace name associated with the Application server appear.
6. **For DB2 servers**, complete the following when prompted:

- f_sw password
- f_maint password
- f_sqi password
- DB2 Database Alias Name
- User Tablespace Location

7. If you want to add more services, continue to the next appropriate procedure below. If this is the last service you're adding to the Application server, skip to the section, "Exit the Configuration Editor" on page 189.

Add WorkFlo Queue Services (WQS)

Follow these steps to add WorkFlo Queue Services (WQS).

Note 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.

1. Click on the Procedures tab in the FileNet System Configuration Editor window.
2. Select the Add a Service to a Server option from the Procedure List Box, then click Run.
3. Click on the domain name of the Application server.
4. Choose WorkFlo Queue Service.

Note If RDBMS passwords have already been set using the "Add SQL Service" procedure, prompts for Step 5 and Step 6 will not be appear. In this case, skip to Step 7.

5. **For Oracle or SQL servers**, go to the RDB Object Tab and verify that the correct tablespace name associated with the Application server appear.
6. **For DB2 servers**, complete the following when prompted:
   - f_sw password
   - f_maint password
   - f_sqi password
   - DB2 Database Alias Name
   - User Tablespace Location
7. If you want to add more services, continue to the next appropriate procedure below. If this is the last service you're adding to the Application server, skip to the section, "Exit the Configuration Editor" on page 189.

Add VWServices

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

Add Tape Drive (Optional)

Follow these steps to add a tape drive to your Application server:

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 run the procedure to Add a Tape Drive.
3. Select the Tape Drives tab to verify that it was configured successfully.

Exit the Configuration Editor

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

Rebuild the Root Server's Configuration Files (UNIX systems only)

Server Types Perform the steps in this section on the Root server only.

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

   ```
   initfnsw -y stop
   ```

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

   ```
   fn_build -a
   ```

This will generate configuration files used by components of the Image Services software. Running fn_build automatically creates the Network Clearinghouse database file (/fnsw/local/NCH_db0 or fnsw_loc\NCH_db0) if the program does not find an existing file.

3. Verify that this command runs successfully by checking that no errors have occurred. (Any errors that occurred must be corrected before running the command again.)
4. Start the Image Services software by entering:
   - On Sun and HP-UX systems:

     ```
     initfnsw start
     ```

   - On AIX systems, with Xwindows running:

     ```
     Xtaskman
     ```

     Click on **Restart**.

Reboot the Root Server (Windows Server systems only)

Server Types Perform the steps in this section on the Root server only.

In order for the configuration changes you made in the preceding procedures to take effect, you must restart the Image Services on the root server.

1. Reboot the server.

2. After the server reboots, logon as the FileNet software user, such as fnsw.

To configure a Windows Server Application Server, skip to “Configure the Application Server (Windows Server systems)” on page 199.

Configure the Application Server (UNIX systems)

Server Types Perform all of the procedures in this section (and associated sub-sections) on the Application server. FileNet Image Services software must be up and running on the Root server.

You will now configure the Application server for compatibility with the services you added earlier on the Root server.

The procedures in this section assume that the same version of Image Services software is installed on both the Root server and the Application server.

Important Even though RDBMS software may already be installed, there must be no RDBMS database or NCH database already existing on the Application server.

Note Verify that Image Services is running on the Root server, and not running on the Application server. (You can run whatsup on the Root server.)

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

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

Set Ownerships and Permissions (UNIX systems only)

In this section, you will create all directories needed for the installation using fn_setup. In addition, you will set the appropriate file ownerships and permissions for the directories. You will be asked for system-specific information. Refer to the “Installation Worksheet” for your operating system for appropriate information (for example, “AIX Installation Worksheet” on page 44).

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:YourCorp]:
```

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

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

Important The ssn is written on all storage media and must be unique for each Image Services system. If you have more than one Image Services system (domain), each must use its own unique ssn to prevent potential problems if media are ever transferred from one IS system to another. The valid range of SSNs is 1000 through 2147483646.

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]:
```

Note If you're 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]:
```

Note If you're 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, the system prompt will display.

Build Configuration Files on the Application Server (UNIX systems only)

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

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

Note There must be no NCH database already existing 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 exists, delete them from the Application server only.

Create Logical Volumes (Sun Systems Only)

Server Types Perform all of the procedures in this section (and associated sub-sections) on the Application server.

To create the appropriate volumes, complete the following general instructions. (These general instructions are valid for the partitions shown below.)

1. As a user with root privileges, use the Volume Manager.

Tip To place the file system on a specific disk, click the disk on which you want to configure the file system.

2. Create the necessary volumes by entering the appropriate information for each volume needed in your system.

   Place the volume on any disk with available space. However, be aware that these Image Services data bases are raw data volumes. The table below shows the volume sizes recommended by FileNet, and provides space to record your own volume sizes.

Volume Name	Minimum Size	Your Size (in MB)
fn_cache0	100m	
fn_transient_db0	320m	
fn_transient_rl0	256m	

Change Volume Settings (Sun only)

After you have created the appropriate volumes, you must configure the remaining volumes for proper operation. (Use the settings shown in Step 3 for each volume you modify.)

1. Select the fndg disk group.
2. Select the volume you wish to configure (for example, fn_cache0).
3. A new menu displays. From the new menu change the following settings:

Parameter	Setting
User	fnsw
Group	fnusr
Mode	664

4. Select **Apply** to save and exit.
5. Repeat steps 2 through 4 for each volume that needs to be changed.
6. After you have modified all of the necessary volumes, exit the Veritas software.

Create Logical Volumes on the Application Server (HP Systems Only)

Server Types Perform the steps in this section on the Application server.

Use SAM to add the logical volumes for all of the FileNet datasets used by the Application server.

1. As a user with root privileges, enter:

   ```
   sam
   ```

2. From the System Administration Manager menu of SAM, select the Disks and File Systems option by pressing the Arrow Up or Arrow Down keys. When the option is highlighted, press Return.
3. From the Disk and File Systems Manager menu of SAM, select the Logical Volumes option. When the entry is highlighted press Return.
4. On the menu bar, select Action > Create and press Return.
5. Select the appropriate volume group for logical volume and Tab to OK. Press Return at the Add new Logical Volumes field. Refer to the "Installation Worksheet" on page 92 to see the listing of the volume groups.
6. Fill in the LV Name field with the Logical Volume Names (for example, type in fn_trans_db0 for the first Logical Volume entry listed in the table below). Add logical volume names for all of the applicable logical volumes listed.

Logical Volume Name	Minimum Size Logical Volumes (in MB	Increment (in MB)
fn_cache0	100	100
fn_trans_db0	320	320
fn_trans_rl0	256	256
NOTE: If you are going to increase the size of any of the logical volumes, you must increase the size by a multiple of the number shown in the "Increment" column.		

7. See the "Minimum Size (in MB)..." column of Table A-1 for the suggested logical volume sizes. Also refer to the "Installation Worksheet" on page 92 for your customer-specific sizing requirements. Refer to the "Size (MB)" column for your selected logical volume and then type the <Size in MB> for the logical volume you are adding in the LV Size (Mbytes) field.
8. Next, in the Usage field, press Return to display the options (File System, Swap, or None), Arrow Down to None, and press Return. Then Tab to Add, press Return.
9. Repeat Steps 6-8 for all of the logical volumes you need to create.
10. When you are finished adding all of the logical volumes, tab to OK and press Return again. Finally, at the Create New Logical Volume screen tab to OK and press Return to create the logical volumes.
11. Return to the System Administration Manager menu and exit SAM.

Set Up Links Required for Image Services (UNIX systems only)

Server Types Perform the steps in this section on the Application server.

In this section 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.

1. As a user with root privileges, enter the following commands to create the /fnsw/dev/1 directory and change to that directory:

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

Note The /dev and/or /1 directories may already exist. If you get a message similar to the following: mkdir: cannot create dev: File exists. You can ignore the message.

2. Create and edit a file called filenet.links using your preferred editor (for example, 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:

   - Sun systems

     On the Sun system, depending on the volume management software you are using:

     VERITAS Volume Manager

     ln -s /dev/vx/<disktype>/<diskgroup>/<logical volume> dbname (with path, /fnsw/dev/1)

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

     ```
     ln  -s  /dev/vx/rdsk/fndg/fn_cache0   /fnsw/dev/1/cache0
     ```

     Solaris Volume Manager

     ln -s /dev/md/rdisk/d##/ dbname (with path, /fnsw/dev/1)

     where md stands for meta device, d## is the disk location of the partition and dbname is the database name. For example:

     ```
     ln  -s  /dev/md/rdisk/d1  /fnsw/dev/1/cache0
     ```

   - HP-UX systems

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

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

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

Note 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, depending on your operating system:

Sun systems - VERITAS Volume Manager

```
ln  -s  /dev/vx/rdsk/fndg/fn_cache0  /fnsw/dev/1/cache0
ln  -s  /dev/vx/rdsk/fndg/fn_transient_db0  /fnsw/dev/1/transient_db0
ln  -s  /dev/vx/rdsk/fndg/fn_transient_rl0  /fnsw/dev/1/transient_rl0
```

Sun systems - Solaris Volume Manager

```
ln  -s  /dev/md/rdisk/d1 /fnsw/dev/1/cache0
ln  -s  /dev/md/rdisk/d1  /fnsw/dev/1/transient_db0
ln  -s  /dev/md/rdisk/d1  /fnsw/dev/1/transient_rl0
```

HP-UX and 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. Execute 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.

Note 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 execute the file again.

Initialize Application Server Datasets (UNIX systems)

Server Types Perform procedures in this section (and associated sub-sections) on the Application server.

Note If there is NO relational database software, either server or client, installed on this Application server, skip to “Initialize the FileNet Databases” on page 199.

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

Configure FileNet Datasets on the Application Server

Skip to the appropriate section:

- "On Application Servers with DB2 Client Software" on page 197
- "On Application Servers with Oracle Software" on page 197

On Application Servers with DB2 Client Software

Note This section applies only to remote DB2 instances.

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

See the *FileNet Guidelines for Installing and Configuring IBM DB2 Software*. To download the guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Skip to the section, "Initialize the FileNet Databases" on page 199.

On Application Servers with Oracle Software

Note This section applies to both local and remote Oracle instances.

Ask the Database Administrator to start Oracle before initializing the FileNet databases.

1. Verify that the Oracle Instance has the correct SID. As a user with root privileges, enter:

   `ps -ef | grep -i ora`

   You will receive output similar to the following 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_SID`
   `echo $ORACLE_HOME`

3. Compare the output of the above command to the setting determined in "Oracle Variables" on page 100. If the ORACLE_SID and the ORACLE_HOME are not set correctly, see the Database Administrator for the system to have the settings changed.

CAUTION In addition, the Database Administrator must create the default table-spaces with the names you entered in the FileNet System Configuration Editor. Refer to the Tablespace table in "Tablespace Names and Sizes" on page 100 for this information. If the Oracle software is not running and if the new tablespaces haven't 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 Image Services server.

a. As the FileNet software user such as fnsw, run the following command on the IS server to create the ora_users.sql file:

```
fn_oracle setquotas
```

b. Copy these scripts from the 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)

Verify DB2 instances (AIX systems)

1. Ask the Database Administrator to start the RDBMS software before initializing the FileNet databases.

2. Connect to the remote DB2 database. As the FileNet software user, such as fnsw, do the following:

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

Enter f_sw password to connect.

Note This section applies only to remote DB2 instances.

Verify that the DB2 Home and Instance environment variables are set appropriately for both root and the FileNet software user, such as fnsw. As each user, enter the following commands:

```
echo $DB2_INST
```

should be set to the name of the DB2 instance owner, such as fnsw.

```
echo $DB2_HOME
```

should be set to the sqllib directory within the DB2 Instance owner's DB2 home directory, such as /home/fnsw/sqllib.

Compare the output of the above commands to the settings determined in the *Guidelines for Installing and Configuring DB2 Software*. To download the guidelines from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

If DB2_HOME and the DB2_INST are not set correctly, return to "Install the User Environment Templates" on page 112 and run the inst_templates command again.

Initialize the FileNet Databases

As the FileNet software user such as fnsw, enter the following command to initialize all FileNet databases configured on this server:

```
fn_util  init
```

The fn_util init will initialize the FileNet databases for this Application server. 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 Image Services datasets, you must re-initialize the RDBMS permissions.

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

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

2. At each prompt, accept the current setting. After you have finished, continue with the next section.

To continue with UNIX Application Server configuration, skip to "Bring Up FileNet Software (UNIX systems)" on page 201.

Configure the Application Server (Windows Server systems)

Perform the steps in this section and its sub-sections on the Application server.

It is now necessary to build the Application server's configuration files and initialize the server. The same version of Image Services software must already be installed on the Root/Index server and the Application server.

Note Verify that the FileNet software is running on the Root server, and not on the Application server.

Build and Initialize the Application Server

1. On the Application server, logon as the FileNet software user, such as fnsw.
2. Open an Command Prompt window, and type in the following command to build the system configuration files:

   ```
   fn_build -a
   ```

   The fn_build program will generate configuration files used by the components of the 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. (In addition, fn_build -a checks the validity of the software license.)

Important This step is extremely important because it generates a special file that fn_util init needs when it's run in the next section.

3. Verify that fn_build ran successfully by checking that no errors have occurred. If you get an error, enter the following commands, then repeat the steps in this sub-section:

```
echo  <domain:Organization>  nch_<domain>
killfnsw -A -D -y
```

4. On all servers with SQL services or Workflo Queue Services, create the relational databases by entering the following command:

```
fn_setup_rdb -f
```

Initialize FileNet Databases

1. As the FileNet software user, such as fnsw, initialize the appropriate databases.
2. To initialize the index database and all the MKF databases (includes permanent, transient, and security databases), enter the following command at the Command Prompt:

```
fn_util init -y
```

   This process may take a while (a minimum of 10 minutes without any feedback to the user); the larger the datasets, the longer the wait.

Note You can monitor the progress of the initialization by viewing the init.log file in a command prompt window. The directory location of this file is, \fnsw_loc\logs\init.log

Verify FileNet Dataset Permissions (Optional)

Use this procedure to verify or set your FileNet dataset permissions.

Note If the FileNet datasets reside on a different disk than the FileNet Image Services software, you must set the permissions.

1. Open Windows Explorer.
2. Select a directory containing a FileNet dataset.
3. Select Security and set the following permissions:

Group	Permissions
Administrators	Full Control
Everyone	Read
fnadmin	Full Control
fnop	Read & Execute and Write

4. Repeat steps 2 and 3 for all datasets affected.

To continue with Windows Server Application Server configuration, skip to "Bring Up FileNet Software (Windows Server systems)" on page 202.

Bring Up FileNet Software (UNIX systems)

Server Types Perform all of the procedures in this section (and associated sub-sections) on the Application server.

1. Logon as the FileNet software user such as fnsw (if you aren't already), and 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 displays.

CAUTION If RDBMS software is installed on this Application server, be sure to start it before attempting to start the FileNet Image Services for the first time. If the RDBMS software is not available when the Image Services software starts, the Image Services software will fail and will display error messages. If you receive Image Services error messages, start the RDBMS software and restart the 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 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 Task Manager window, but do not close the Event Logs window.
7. From the FileNet Task Manager window, select **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)

You must edit again the /etc/inittab file to allow the Image Services software to automatically start during the boot process.

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

1. Change to the /etc directory by entering the following command:

   ```
   cd  /etc
   ```

2. Using a preferred editor (for example, vi), open and edit the inittab file.
3. Locate the following line:

   ```
   # fn:3wait:/bin/sh /etc/rc.initfnsw </dev/console>/dev/console>&1
   ```

4. Remove the # sign from the beginning of the line. Save the change and exit the text editor.

Reboot the Application Server

Important All RDBMS users should be logged off the server and the RDBMS instance should be shutdown before doing the following system 'shutdown' command. Failure to do so could result in a corrupted database.

In this section, you need to reboot your servers.

1. Verify that you are logged on as a user with root privileges.
2. Move to your root directory and reboot the server by entering the following series of commands:

```
cd /
shutdown  -ry  0
```

Bring Up FileNet Software (Windows Server systems)

Server Types Perform all of the procedures in this section (and associated sub-sections) on the Application server.

1. Reboot the Application server.

Note The time needed for the shutdown/reboot process varies for each system.

2. Logon to the Application server as the FileNet software user, such as fnsw, if you aren't already.
3. Locate the FileNet Image Services Server Applications window, and double-click on the Task Manager icon.
4. Once you see the TM_daemon.exe process message appear under the Process column, bring up the FileNet event log window by clicking on the Monitor pull down menu and selecting the Event Logs... option.
5. From the Event Logs window, enable the event window to be refreshed whenever messages are logged by clicking on the Display pull down window and selecting the Dynamic option.
6. To bring up the FileNet software, return to the FileNet Task Manager window and click on **Start**. The system will display messages in the Current Status pop-up window as FileNet software is being started up.
7. When the FileNet software is up and the Close button is highlighted, click on the **Close** button to close the Current Status window.
8. View the Event Log window to verify that there are no error messages.

Make System Backups (all systems)

Server Types Perform the steps in this section on all servers.

Make complete system backups for the Root/Index server and the Application server. To make complete backups of your system configuration, refer to the following documents:

- *Image Services System Administrator's Handbook*
- *Image Services System Administrator's Companion for UNIX*
- *Image Services Enterprise Backup and Restore*

To download these documents from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Begin Production Mode

After you've backed up the system, the Application server is ready for production.

Appendix B – Adding a Storage Library Server

This appendix describes how to configure multiple Storage Library servers on your system, and it is structured for use with some of the procedures already documented in the main body of the installation procedure. Where necessary, this appendix references procedures (by section name and page number) of the procedure you must perform, even though the note at the beginning of the section might not mention the server type you are installing. Some procedures necessary for adding multiple Storage Library servers are not documented elsewhere and have been included (in the appropriate sections) in this appendix.

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, done all of the steps in the “Operating System Requirements” for your operating system for appropriate information, and Transferred the information to the appropriate “Installation Worksheet. Go to one of the sections below to complete these tasks:

- “System Administrator Tasks – AIX” on page 35.
- “System Administrator Tasks – HP-UX” on page 49
- “System Administrator Tasks – Solaris” on page 68
- “System Administrator Tasks – Windows Server” on page 90

An “Installation Worksheet” is available for your use in each one of the above sections. You should 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 Optical Library Server Uses

The portion of the FileNet Image Services software that files and retrieves document images is known as Storage Library Services. This software controls every activity in the Optical Disk 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 multi-server installation. The Storage Library server keeps track of the name and location of every document stored in the Optical Disk 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 setup on a system to enhance capacity and/or performance:

- If you already have as many optical disk 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 allow the system to handle more disks on-line.

- If the CPU, I/O bus, or magnetic disks on a Storage Library server are already pushed to their maximum throughput, adding another Storage Library server will increase system performance. However, if the existing server has not reached its performance limit, adding another optical library server will 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 will always be written to the same Storage Library server. Database Maintenance will not let you select destination Storage Library servers for a transaction log family.

Prepare the Storage Library Servers

Perform the procedures only on the Storage Library servers. Perform the referenced procedures listed below in the order in which they appear.

Prepare HP-UX systems

1. Set up the volume groups by completing either “Extend the Root Volume Group (vg00) (optional)” on page 55, or “Create the IS Volume Group (fnvg) (optional)” on page 55, depending on your preference.
2. Create the Image Services file systems by completing “Create Logical Volumes and File Systems” on page 59.
3. Create the fnadmin and fnop groups by completing “Create fnadmin and fnop Groups” on page 57.
4. Use the procedures in “Create FileNet Users and fnusr Group” on page 58, to create the FileNet software user and the fnusr and dba groups.

Note On the Storage Library server you don’t need to create an RDBMS user or group.

Prepare Sun systems

Server Types Perform the referenced procedures listed below, in the order in which they appear, only on the Storage Library servers (unless instructed otherwise).

Note You do not have to install RDBMS software on Storage Library servers. Some of the referenced procedures contain information related to installing and configuring RDBMS software, ignore all procedures related to RDBMS configuration unless specifically instructed to perform an action.

1. Modify the server resources (if you have not already done so) by completing “Verify/Change the Operating System Kernel Limits” on page 69.
2. Verify that the /etc/host file contains the correct host names for the Root/Index and the Storage Library servers by completing “Update the /etc/hosts File” on page 74.
3. Create the FileNet software user such as fnsw and the fnusr, dba, fnadmin, and fnop groups by completing the relevant portion of “Create IS Users and Groups” on page 75.

4. Set the FileNet software user password by completing the relevant portion of"Set Up Password for the FileNet Software User" on page 78.
5. Install volume management software on the Storage Library servers by completing "Verify Volume Management Software" on page 79.
6. Create the Image Services file systems by completing "Create Logical Volumes for Image Services" on page 79.

Prepare AIX systems

Complete 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 (for example, ODU, HP Autochanger (AC) Model 20C, and so on):

   _____

   Storage Library: RS-232 port number (0 - 9): _____

Note SCSI 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:

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's front panel LCD or 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

Prepare Windows Server systems

To successfully complete the instructions in this document, you must have already performed the following actions for the Storage Library Servers you plan to install:

1. Reviewed all "Installation Planning Considerations" on page 24.
2. Completed all of the steps that are in the subsection "System Configuration Issues" on page 91.
3. Transferred all necessary information to the "Windows Installation Worksheet" on page 95.

Install Image Services Software

1. Install the Image Services 4.1.2 software on the Storage Library servers by completing the section "Mount the Image Services CD-ROM" on page 104 and "Run the Image Services Installer" on page 104.
2. **On UNIX systems**, install show stopper fixes on the Storage Library servers by completing "Install the Required Pre-Startup Fixes" on page 112.
3. **On UNIX systems**, set up the installation environment using inst_templates on the Storage Library servers by completing "Install the User Environment Templates" on page 112 along with its subsections.
4. **On AIX systems**, set up the installation environment as described in "Verify Network Options" on page 43.
5. Reboot the servers. Do this first on the Root server, then do it on the Storage Library servers.
6. Continue with the next section. 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 appendix.)

Configure the Root Server

Server Types Perform the steps in this section and its subsections on the Root server, or on each server with a cache.

Clear the Transient Database

If you are adding a storage library server to an already existing and operational Image Services system, you must commit documents in the transient database to verify that the batches not yet committed are not lost while you configure the Storage Library server.

On UNIX Systems

1. Verify that the FileNet Image Services software is up and running by entering the following command:

   whatsup

You will receive a display similar to the following. (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. To examine the remaining contents of cache, enter:

   CSM_tool

Note 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 at the CSM_tool prompt:

   st

   All caches should show no locked objects. These represent uncommitted batches, unwritten images, and pending print jobs.

Note If you have any FAX servers, there will be two locked objects per FAX server in print_cache.

6. Type the following to quit the CSM_tool:

   q

On Windows Server systems

1. Open the FileNet Task Manager and verify that the FileNet Image Services software is up and running.
2. Print or delete all outstanding print requests.
3. Commit all uncommitted documents or batches.
4. Open the FileNet Application Executive and then the Cache Export/Import application.
5. Examine the remaining contents of cache.

   Examine the statistics on bes_cache, page_cache, and print_cache.

   All caches should show no locked objects. These represent uncommitted batches, unwritten images, and pending print jobs.

Note If you have any FAX servers, there will be two locked objects per FAX server in print_cache.

6. Close the Cache Export/Import application, and the FileNet Application Executive.

Add Storage Library servers

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 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**.

Note 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. Refer to the “Installation Worksheet” for your operating system for appropriate information (for example, “AIX Installation Worksheet” on page 44). Click **Next**.
7. Enter the path for the cache partition (default: /fnsw/dev/1/cache0).
8. Enter the cache dataset size.
9. Enter the path for the transient database (default: /fnsw/dev/1/transient_db0).
10. Enter the dataset size for the transient database.
11. Enter the path for the transient database redo log (default: /fnsw/dev/1/transient_rl0).

12. Enter the dataset size for the transient database redo log.
13. 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.)

Note 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 “Accessing IBM FileNet documentation” on page 16.

14. Choose the number of BES commitment processes (1-4).
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 on the Network Tab to verify that the Storage Library server is listed.
    - Click on the Server Application Services Tab to verify that the Storage Library server is listed.
    - Click on the Dataset 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 (AIX only)(optional)

If you are setting up your system on more than one network, refer to “Appendix F – Setting Up Multiple Networks (AIX only)” on page 250.

To configure network parameters for TCP/IP refer to “Configure Network Parameters (Optional)” on page 218.

Connect Storage Library Devices (Windows Server only)

Use this procedure to connect your storage library devices.

Note Before performing this procedure, verify that the SCSI card is not configured as a bootable device.

1. Logoff the Storage Library Server, and turn the server off.
2. Connect the storage library device, and power the device on.
3. Turn-on power to the Storage Library Server.
4. After the Storage Library Server boots-up, logon as the FileNet software user, such as fnsw.

5. Open a Command Prompt window, and enter the following command:

   fnddcfg

   Once the command is finished, you will receive a message instructing you to reboot the server to make the changes effective.

6. Reboot the server, and logon as the FileNet software user, such as fnsw again.

7. Open a Command Prompt window, and enter the following command:

   fndev

   The physical addresses of all attached storage library device will display on the screen. You should see an output similar to the following::

```
Arm3030 1 3 0 3 0
Sod3040 1 3 0 4 0
```

Note The example above shows the output for one storage library and one drive.

8. From the Taskbar, click the **Start** button, point to Programs, and click on the **FileNet Image Services Configuration** icon.

9. From the FileNet Image Services Configuration window, locate and click on the **Configuration Editor** icon.

10. Verify that the two-part domain information is correct, and click **OK**.

    The FileNet Image Services System Configuration Editor window opens with the Procedures tab displayed.

11. From the Procedures tab, select Automatically Configure a Storage Library from the list of available procedures.

12. Click **Run**.

Note If you are configuring an RES template, a dialog box prompting you for the domain name of the peer system will display. Respond to these prompts as appropriate. When adding addresses for peer systems in fn_edit, use the IPv4 format rather than the IPv6 format.

13. After you have completed configuring the storage library, exit the FileNet Image Services System Configuration Editor and save your changes.

14. Start the FileNet software on all servers: Root/Index server first, then Storage Library servers.

Rebuild the Root Server Configuration Files

Server Types Perform the steps in this section on the Root server only.

1. On the Root server, logon as the FileNet software user such as fnsw.

2. Verify the FileNet software is not running. If the software is running, enter the following command:

   initfnsw -y stop

3. Update the entire configuration for the server by entering the following command at the shell prompt:

   ```
   fn_build  -a
   ```

   This will generate configuration files used by the components of the 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 successfully by checking that no errors have occurred. (Any error that occur must be corrected before running the command again.)

5. Start the Image Services software by entering:

   ```
   initfnsw  start
   ```

Configure Third-Party Access to Optical Libraries (AIX only)(optional)

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 third-party products.

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

If this server is going to be used for both Image Services and third-party software, continue with the following steps.

Note Stop Image Services before starting this procedure.

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 third-party 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 root user, install the /etc/config copy of FNPoll that AIX uses when it boots by entering:

   ```
   fnsod.install
   ```

5. Then 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 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 will cause problems with auto-configuration routines.

Configure the Storage Library Server

Server Types Perform this section and its subsections on each Storage Library server being added to the system. FileNet Image Services software must be running on the Root server.

The procedures in this section assume that the same version of Image Services software is installed on both the Root server and the Storage Library server.

Note Verify that Image Services is running on the Root server, and not running on the Storage Library server. (You can run whatsup on the Root server.)

If the Image Services software is running on the Storage Library server, enter the following commands:

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

Set File Ownerships and Permissions

The fn_setup tool is used to set the Storage Library server's file ownerships and permissions. You will be asked for system-specific information. Refer to the "Installation Worksheet" for your operating system for the correct information (for example, "AIX Installation Worksheet" on page 44).

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 Image Services system. If you have more than one Image Services system (domain), each must use its own unique SSN to prevent potential problems if media are ever transferred from one IS system to another. The valid range of SSNs is 1000 through 2147483646.

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

At an X-station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator, login to your server as a user with root privileges (a member of the fnadmin group) (the first time).

Create Logical Volumes on the Storage Library Server (HP-UX)

You are now going to manually add the logical volumes for all of the FileNet datasets used by the Storage Library server.

1. As a user with root privileges, enter:

   sam

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

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

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

5. Select the appropriate volume group for logical volume and Tab to **OK**. Press **Return** at the Add new Logical Volumes field. Refer to the “Installation Worksheet” for your operating system to see the listing of the volume groups (for example, “AIX Installation Worksheet” on page 44).

6. Fill in the LV Name field with the Logical Volume Names (for example, type in fn_perm_db0 for the first Logical Volume entry listed in the table below). Add logical volume names for all of the applicable logical volumes listed in the table.

Logical Volume Name	Minimum Size of Logical Volumes (in MB)	Increment (in MB)
fn_cache0	100	100
fn_perm_db0	100	100
fn_perm_rl0	64	64
fn_trans_db0	320m	320
fn_trans_rl0	256m	256
NOTE: If you are going to increase the size of any of the logical volumes, you must increase the size by a multiple of the number shown in the "Increment" column.		

7. See the "Minimum Size (in MB)..." column of the table above for the suggested logical volume sizes. Also refer to the "Installation Worksheet" for your operating system to see your customer-specific sizing requirements (for example, "AIX Installation Worksheet" on page 44). Refer to the "Size (MB)" column for your selected logical volume and then type the <Size in MB> for the logical volume you are adding in the LV Size (Mbytes) field.
8. Next, in the Usage field, press **Return** to display the options (File System, Swap, or None), Arrow down to None, and press **Return**. Then tab to add, press **Return**.
9. Repeat Steps 6-8 for all of the logical volumes you need to create.
10. When you are finished adding all of the logical volumes, tab to **OK** and press **Return** again. Finally, at the Create New Logical Volume screen tab to OK and press **Return** to create the logical volumes.
11. Return to the System Administration Manager menu of SAM and exit SAM.

Create Logical Volumes on the Storage Library Server (HP-UX)

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

You can use VERITAS Volume Manager or Solaris Volume Manager to create the new volume group.

Create the following file systems and volumes using either the virtual administrator or the storage administrator. The sizes shown in the table below are minimum sizes.

Note For Sites with Disk Arrays ONLY: Disk arrays managed by the Veritas volume management software, do not always "grow" to an even MB boundary. You must verify the new size, after "growing" a volume, by displaying the volume information. The new volume size will display in Kilobytes if it did not "grow" to an even Megabyte boundary. Previous installations with a disk array (configured for RAID-5) have determined that the correct procedure for accurately "growing" a

volume to an even Megabyte boundary is to make the new volume size evenly divisible by seven. It is uncertain if the suggestion is applicable for all disk arrays. (Check the most current version of the Release Notes for more information.)

Logical Volume Name	Minimum Size of Logical Volumes (in MB)	Increment (in MB)
fn_cache0	100	100
fn_permanent_db0	100	100
fn_permanent_rl0	64	64
fn_transient_db0	320m	320
fn_transient_rl0	256m	256

Create Symbolic Links for Each Dataset HP-UX and Sun only)

1. As a user with root privileges, enter the following commands to create the /fnsw/dev/1 directory and change to that directory:

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

Note The /dev and/or /1 directories may already exist. If you get a message similar to the following: mkdir: cannot create dev: File exists. You can ignore the message.

2. Create and edit a file called filenet.links using your preferred editor (for example, 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:

   - Sun systems

     On the Sun system, depending on the volume management software you are using:

     VERITAS Volume Manager

     ln -s /dev/vx/<disktype>/<diskgroup>/<logical volume> dbname (with path, /fnsw/dev/1)

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

     ```
     ln  -s  /dev/vx/rdsk/fndg/fn_cache0   /fnsw/dev/1/cache0
     ```

     Solaris Volume Manager

     ln -s /dev/md/rdisk/d##/ dbname (with path, /fnsw/dev/1)

     where md stands for meta device, d## is the disk location of the partition and dbname is the database name. For example:

     ```
     ln  -s  /dev/md/rdisk/d1  /fnsw/dev/1/cache0
     ```

     Solaris ZFS

ln -s /dev/zvol/<disktype>/<zpool>/<zone_name>/ dbname (with path, /fnsw/dev/1)

where zvol is the ZFS volume, zone_name is part of the folder name and is optional, and dbname is the database name. For example:

```
ln -s /dev/zvol/rdisk/fnzfs/zone1/fn_cache0 /fnsw/dev/1/cache0
```

- HP-UX systems

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

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

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

Note 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, depending on your operating system:

Sun systems - VERITAS Volume Manager

```
ln -s /dev/vx/rdsk/fndg/fn_cache0 /fnsw/dev/1/cache0
ln -s /dev/vx/rdsk/fndg/fn_permanent_db0 /fnsw/dev/1/permanent_db0
ln -s /dev/vx/rdsk/fndg/fn_permanent_rl0 /fnsw/dev/1/permanent_rl0
ln -s /dev/vx/rdsk/fndg/fn_transient_db0 /fnsw/dev/1/transient_db0
ln -s /dev/vx/rdsk/fndg/fn_transient_rl0 /fnsw/dev/1/transient_rl0
```

Sun systems - Solaris Volume Manager

```
ln -s /dev/md/rdisk/d1 /fnsw/dev/1/cache0
ln -s /dev/md/rdisk/d1  /fnsw/dev/1/permanent_db0
ln -s /dev/md/rdisk/d1 /fnsw/dev/1/permanent_rl0
ln -s /dev/md/rdisk/d1 /fnsw/dev/1/transient_db0
ln -s /dev/md/rdisk/d1 /fnsw/dev/1/ transient_rl0
```

Sun systems - ZFS

```
ln -s /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_cache0 /fnsw/dev/1/cache0
ln -s /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_permanent_db0 /fnsw/dev/1/permanent_db0
ln -s /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_permanent_rl0 /fnsw/dev/1/permanent_rl0
ln -s /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_transient_db0 /fnsw/dev/1/transient_db0
ln -s /dev/zvol/rdsk/<fnzfs>/<zone1>/fn_transient_rl0 /fnsw/dev/1/ transient_rl0
```

HP-UX and AIX systems

```
ln -s /dev/md/rdisk/d1 /fnsw/dev/1/cache0
ln -s /dev/md/rdisk/d1  /fnsw/dev/1/permanent_db0
ln -s /dev/md/rdisk/d1 /fnsw/dev/1/permanent_rl0
ln -s /dev/md/rdisk/d1 /fnsw/dev/1/transient_db0
ln -s /dev/md/rdisk/d1 /fnsw/dev/1/ 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. Execute 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.

Note 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 execute the file again.

Initialize Storage Library Server Datasets

Server types Perform the procedure in this section on the Storage Library server.

As the FileNet software user, such as fnsw, enter the following command to initialize all FileNet databases configured on this server:

```
fn_util  init  -y
```

The fn_util init script 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 displays as the new database partitions are initialized and zeroed out.

Configure Network Parameters (Optional)

This section assumes that you have already installed and configured the appropriate network protocol on the Root/Index server.

Before beginning the steps included in this section, you must know the following information: the Internal Network Number for your system, the File server name, and the MAC address. Refer to the “Installation Worksheet” for your operating system for the correct information (for example, “AIX Installation Worksheet” on page 44).

Note 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.

To configure the network parameters, complete the following steps:

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 servers as the FileNet software user, such as fnsw..

2. Open a new window and launch the Configuration Editor:

   ```
   fn_edit  &
   ```

3. Verify the two-part domain information is correct. (The two-part domain name is set up as follows: <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:

   10.2.53.33

   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

1. On the new Storage Library servers, log on as the FileNet 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.)

Note 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, you need to run the following commands to start the permanent database and update the scalar numbers table:

fn_util startdb
SNT_update

Document Services will not function until this problem is resolved.

3. After SNT_update is finished, run fn_util init again.
4. Start the FileNet application software by entering:

   ```
   Xtaskman  &
   ```

The FileNet Task Manager interface displays.

5. From the FileNet Task 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 software user, such as fnsw, enter the following command on every Storage Library server:

   ```
   fn_util  startdb
   ```

   Running fn_util startdb shuts down the FileNet Image Services software and starts up all FileNet databases present on the Storage Library server.

Adding a New Storage Library Server

After you have executed 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.

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 updates the family and surface locator tables on the Document Locator server and the family disk table on each new 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.
2. With Windows running, verify you are logged on as the FileNet software user such as fnsw.
3. Type Xtaskman at the system prompt. Click Backup. This starts COR.listen.
4. Obtain the server id assigned to each new Storage Library server using one of the following methods:

   - The server ID is assigned and viewed using the fn_edit utility. Run fn_edit. Click on the Server Application Services tab, then the Scheduling sub-tab. Scroll to the right to see the Storage Library ID for each server.
   - Access the /fnsw/local/sd/nch_dbinit file on the Root server. Storage library servers are numbered OsarServer1, OsarServer2, and so on. The server ID is the second number following OsarDesc. In the following example for OsarServer2 the Storage Library server ID number is 4.:

```
creatobj OsarServer2
additem OsarServer2 OsarService “OSAR Service”
additem OsarServer2 addressList [0.080034001086.5]
[136.0.0.131]
additem OsarServer2 OsarDesc 0 4 DocServer page_cache4
```

   - Run nch_tool.

     ```
     nch_tool
     ```

- List the properties to view the Storage Library server id in the NCH database. For the above example, the nch_tool command would be:

  listprop OsarServerx
  (Where *x* is the new Osar server number.

```
nch_tool>listprop OsarServer1

Properties for OsarServer1:<domain>:FileNet
(addressList, [172.25.50.24,32769])
(osarService, “Library Service”)
(osarDesc,0 2 DocServer:<domain>:FileNet page_cache1:Persistent:FileNet

nch_tool>listprop OsarServer2
Properties for OsarServer2:<domain>:FileNet
(addressList, [172.25.50.127,32769])
(osarService, “Library Service”)
(osarDesc,0 3 DocServer:<domain>:FileNet page_cache2:<domain>:FileNet)
```

Note In the example above, OsarServer2 would be the new osar server. On the line beginning with: “osarDesc, 0 3 ...” 3 is the number used for the add_osvr command.

5. To run add_osvr, enter the following 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 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.

   Note After running the add_osvr command, there will be a message in the elog which reads, “Run Database maintenance to re-save all media families.” On a new installation of root or Storage Library servers there are no media families, so this message can be ignored.

   Entering add_osvr with no parameters displays a description of the program and a usage statement. After the add_osvr utility has completed successfully, you will see the following message:

   ```
   program terminated successfully
   ```

Note If the system crashes or is rebooted 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 successfully. If the process cannot be completed, restore your system from the backup tape.

Verify Optical Device Files on the Storage Library Server (HP-UX only)

Note If you're configuring a cache-only server (no optical devices are attached to the server), skip to section, "Reboot the Server" on page 225.

Otherwise, verify that the optical devices are powered on and active (you can use ioscan to check this). If the optical device is not powered on, the optical device will not be found.

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

1. Verify that the storage library devices are powered on and are active.
2. At your Storage Library server's terminal, and as a user with root privileges, use ioscan to determine the addresses of the HP optical drives and storage libraries.

   ```
   ioscan  -fn  |  less
   ```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

_____

_____

_____

Verify the /fnsw/local/sd/sod.conf File

Server Types Perform the steps in this subsection on all HP-UX servers.

1. Change to the appropriate directory and display the contents of the file:

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

(If the sod.conf file does not exist, use vi or your preferred text editor to create it.)

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

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

where:

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

The <driver> is sctl.

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

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

If lines similar to this already appear and are correct, the file has been updated successfully.

- If you are not able to locate these lines or if they're inaccurate, you need to add or change them manually. Use your preferred text editor, such as vi, to edit the file.

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

Important Verify that the SCSI adapter card is configured for a maximum of 80 MB/second data transfer for best optical library performance. Refer to "Appendix I – Setting the Maximum Data Transfer Rate for SCSI Host Bus Adapters (HP-UX ONLY)" on page 260.

Create Optical Device Files (HP-UX only)

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

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

As the FileNet software user such as fnsw, enter the following command at the system prompt:

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

The FNPoll display is similar to this:

```
Found HPUX Version 11.23

Removing old device nodes and files used by FNPoll.

Determining model, series and device driver information.

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

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

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

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

If FNPoll is successful, you will also see:

```
Searching for FileNet Devices:

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

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

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

After FNPoll has completed successfully, you can continue with the section “Reboot the Server” on page 225.

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

```
Searching for FileNet Devices:

ERROR: /fnsw/local/sd/sod.conf must be created with the configuration
       information for your system.

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

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

ERROR: No devices created.
```

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

Reboot the Server

CAUTION All DB2 or Oracle users should be logged off the server and the RDBMS instance be shutdown before doing the following system 'shutdown' command. Failure to do so could result in a corrupted database!

As a user with root privileges, move to the root directory and reboot the server by entering:

```
cd  /
shutdown  -ry  0
```

Logon to Configure Database

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.
2. With Windows running, verify you're logged on as the FileNet software user such as fnsw.
3. Open a new window, and enter the following command:

   ```
   fn_edit  &
   ```

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

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

Configure Storage Library Devices

If there are no storage libraries on the server, skip to the next section,"Start the FileNet Software" on page 228.

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

1. If you want to view the information concerning the optical library devices configured on your server, select the Storage Libraries Tab from System Configuration Editor window.

   Refer to the "Installation Worksheet" for your operating system for information concerning your optical library devices (for example, "AIX Installation Worksheet" on page 44).

2. If you need to configure a storage library you have two choices:

Automatically Configure Storage Library

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

To configure a storage library automatically, follow these steps:

a. Click on the Procedures Tab.

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

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

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.

3. Exit the Configuration Editor and save your changes.

Set File Ownerships and Permissions (if necessary)

Server Types Perform the steps in this section on the Storage Library servers only if you configured optical devices.

After configuring optical devices, you need to re-set the file permissions. You will be asked for system-specific information. Refer to the "Installation Worksheet" for your operating system for correct information (for example, "AIX Installation Worksheet" on page 44).

1. Logon as the FileNet software user such as fnsw.
2. Run the fn_setup utility 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. 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.

Important The SSN is written onto all storage media and must be unique for each Image Services system. If you have more than one Image Services system (domain), each must use its own unique SSN to prevent potential problems if media are ever transferred from one IS system to another. The valid range of SSNs is 1000 through 2147483646.

6. Enter the RDBMS software configured on the server: 0 = None,

   1 = Oracle, 2 = DB2. Enter 0 for None, unless the Storage Library server has WorkFlo Queue Services (WQS) or SQL services.

   You receive a series of messages displaying the information you entered. An example of the output is displayed below:

```
This is the setup configuration:
NCH server name: hpvenice:YourCorp
SSN: 1234567890
Relational database type: None
Do you want to continue (y/n) [y]:
```

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.

Start the FileNet Software

Server Types Perform the steps in this section on all servers: Root server first, then the Storage Library servers.

1. From the command line prompt, logon as the FileNet software user such as fnsw and enter the following command to bring up the FileNet software on all servers; Root server first, then the Storage Library server.:

   ```
   initfnsw  restart
   ```

2. Launch 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.

Configure Optical Peripherals (AIX only)

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

1. The IS installer cannot install a new fnsod (FileNet SCSI Optical Device) driver automatically, so you must install it manually. As a user with **root** privileges, enter:

   ```
   fnsod.install /fnsw/bin/fnsod
   ```

   The new driver will go into affect when you reboot the server in the next step.

2. Shutdown your system:

   ```
   shutdown -Fr
   ```

   Power off the server.

3. Connect the optical peripherals to the system and power them on. (If necessary, wait for the optical devices to enter the ready state before continuing with the next step.)

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

Note Do not run /fnsw/bin/FNPoll manually, as that can cause SCSI errors and/or corruption of magnetic disks.

5. Logon as fnsw user.

6. To configure the storage library, type the following:

   ```
   fn_edit &
   ```

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

8. Choose **File**, then **Close**. A pop-up window asks if you want to save changes. Click **Yes**. Choose **File**, then **Exit**.

9. Rebuild the system configuration:

   ```
   fn_build -a
   ```

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

11. When the system is up and running again, log on as fnsw user and launch Xapex. Use Database Maintenance (on any server) to re-save all media families, and resolve any warning or error messages that appear.

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 an OSAR Robotic Arm (AIX only)

Note If the Storage Library devices in this system do not include a FileNet OSAR library, or use a SCSI connection, skip this section. Perform the steps in this section only if the OSAR library uses a serial (RS232) connection to the server.

Use SMIT to set up a tty port for the OSAR's robotic arm.

FileNet OSAR libraries have two types of 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 laptop computer directly to the OSAR library to run diagnostics. This port is configured differently than the Host Control Port. For details, refer to the Maintenance Manual for your OSAR Storage Library.

Make sure the OSAR library is connected to the server using one of the Host Control Ports.

Host Control Port (AIX only)

To set up a TTY port for the Storage Library arm connected to one of the two Host Control ports, follow these steps:

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 the RS232 cable is attached to; for example, sa1 Available 00-00-S2 Standard I/O Serial Port 2.

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

SMIT Entry	Value
enable LOGIN	disable
BAUD rate	9600
PARITY	odd
BITS per character	7

SMIT Entry	Value
Number of START BITS	1
Number of STOP BITS	1
FLOW CONTROL	some

3. This creates the device for the Storage Library arm. Click **Enter**.
4. After completing all the required configuration steps, exit SMIT.

Connect Storage Library Devices (Sun only)

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

1. Stop the FileNet software by entering the following command:

   ```
   initfnsw  -y  stop
   ```

2. Logoff the system, and power off your server.
3. Connect the optical storage device to the appropriate SCSI port on your server.
4. Power on the optical storage device. (If necessary, wait for the optical device to enter the ready state before continuing with the next step.)
5. Power on your server. After the server finishes booting, logon as a user with root privileges.

CAUTION If you have an HP 600FX (configured in multi-LUN mode) connected to your server, do not use **probe-scsi-all** to interrogate the SCSI bus device status. The command will cause errors, and will not detect devices properly.

6. The IS installer cannot install a new fnsod (FileNet SCSI Optical Device) driver automatically, so you must install it manually. As a user with **root** privileges, enter:

   ```
   fnsod.install /fnsw/bin/fnsod
   ```

   The new driver will go into affect when you reboot the server in the next step.

7. At the system prompt, enter the following command:

   ```
   reboot -- -r
   ```

   All currently connected optical devices must be configured automatically after the system restarts.

8. After the server finishes booting, logon as a user with root privileges.
9. Verify that all devices are configured properly. List the currently installed optical device drivers by entering the following commands:

   ```
   ls  /dev/fnsod*
   ```

You must receive output similar to the following:

```
/dev/fnsod.0,2,5,0
/dev/fnsod.0,2,6,0
```

Configure the Storage Library Devices (Sun only)

Server Types Perform all of the steps in this section on all Storage Library servers to which you added optical peripherals.

Perform the procedure in this section on all Storage Library servers to which you added optical peripherals.

1. Logon as the FileNet software user such as fnsw, and start X Windows (if you have not already done so).
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 structured as follows:<Domain>:<Organization>.)
4. From the FileNet Image Services System Configuration Editor window, select the Procedures tab.
5. Locate and select the Automatically Configure A Storage Library procedure from the list of available procedures.
6. Select **Run**.
7. Check the Storage Libraries tab to verify that the correct Storage Library devices were configured. Save the changes to the configuration database, and exit the Configuration Editor.
8. Build the system configuration files by entering:

   ```
   fn_build  -a
   ```

9. Using Xtaskman, restart the FileNet Image Services software on all servers; Root server first, then the Storage Library server.
10. When the system is up and running again, log on as the FileNet software user such as fnsw and launch Xapex. Use Database Maintenance (on any server) to re-save all media families, and resolve any warning or error messages that appear.
11. Use the vl command to check the event log. If any documents were committed before the media families were re-saved, you may see a warning message. If so, add or change the preferred library information to match the current storage library configuration.

Modify the /etc/inittab File (Sun only)

Server Types Perform all of the steps in this section on all Storage Library servers to which you added optical peripherals.

1. Change to the /etc directory by entering the following command:

   ```
   cd  /etc
   ```

2. Using a preferred editor (for example, vi), open and edit the inittab file.
3. Locate the following line:

   # fn:3wait:/bin/sh /etc/rc.initfnsw </dev/console>/dev/console>&1

4. Remove the # sign from the beginning of the line. Save the change and exit the text editor.

Storage Library Server Utilities (Optional)

This section briefly describes the function and uses of the following Storage Library server utilities:

- move_disk, which allows you to move optical disks from one optical disk library to another.
- del_osvr, which allows you to remove a Storage Library server from your system.

The utilities described in this section should not be used on any Storage Library server unless a specific need exists. For more information about Storage Library server utilities, refer to the *System Tools Reference Manual*. To download the document from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

CAUTION Whenever any change in Storage Library configuration occurs–especially when a Storage Library is deleted–it's extremely important to re-save all the media families manually and resolve any errors. See the Database Maintenance chapter of the *System Administrator's Handbook* for information about saving media families. To download the document from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

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.

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.

To run move_disk, follow these steps:

1. Eject all disks to be moved from the Optical Disk Library as described in the “Storage Library Control” chapter of the *Image Services System Administrator’s Handbook*. To download the document from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.
2. Run the move_disk utility from the source Storage Library server attached to the Optical Disk Library where the disks currently reside. Type:

   ```
   move_disk <surfid 1> ... <surfidn> <dest_server_name>
   ```

   where <surfid 1> ... <surfidn> 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 *Image Services System Administrator’s Handbook*. To download the document from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.

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.

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. Refer to the *Image Services System Tools Reference Manual* for information about WRT_clean. To download the document from the IBM support page, see “Accessing IBM FileNet documentation” on page 16.
- 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.

To use del_osvr, perform the following steps:

1. Backup the system to tape.

Note 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. Bring down the FileNet 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 typing the following:

   ```
   fn_util  startdb
   ```

6. On each server, enter a command similar to the following:

   ```
   del_osvr  <svrid1>  <svrid2> ... <svridn>  <dest_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.

Note If the Storage Library server on which optical disks are referenced is not correct, or the Storage Library server's families referenced are not the desired ones after you run the del_osvr utility, you can run the move_disk utility to move optical disks, and you can also run database maintenance to change families.

7. After del_osvr is completed, run fn_edit on the Root server to delete the Storage Library server. Be sure to delete the logical cache allocation before removing the station.
8. In Xapex, use Database Maintenance to re-save all media families, and resolve any warning or error messages that appear by adding or changing the preferred library information to match the current storage library configuration.

Make System Configuration Backups

Note Perform the steps in this appendix on both the Root server and the Storage Library servers.

Regular backups of the system configuration and data are essential.

1. At an X-station, a workstation that supports X Windows or Common Desktop Environment (CDE), or a PC with an X Windows emulator, login to your server as a user with root privileges.
2. Make a copy of the inittab file, and stop the FileNet software by entering the following series of commands:

```
cd  /
cp  /etc/inittab  /fnsw/etc/inittab.backup
initfnsw  stop
```

Note If you have a Dual server, shutdown the FileNet software on the Storage Library servers before the Root/Index server.

3. Create a backup of your LVM configuration to protect the system from potential disk crashes. Refer to the man page for more information regarding the vgcfgbackup command. Complete the following bullets:
   - If you have only the root volume group (rootvg) on your system, enter the following command:

     ```
     vgcfgbackup  /dev/vg00
     ```

   - If you have the FileNet volume group (fnvg) (or some other <volume group>) on your system, also enter the following command:

     ```
     vgcfgbackup  /dev/fnvg
     ```

   - This step will make restores easier if the system ever crashes. These LVM configuration backups are stored in an area that is automatically accessed during a restore.

Note In the event of a disk crash, it will be beneficial to have copies of the following files or command output listings (hard copies at least) to help in the recovery:

system
fstab
vgdisplay -v vg00 (command output)
vgdisplay -v fnvg (if applicable) (command output)
ioscan -fn (command output)

4. Next, make a system backup tape using the Backup and Recovery option in SAM. This backup will take about 45 minutes. Refer to the HP-UX System Administration Tasks for information about system backups and restores.
5. From the command line prompt, enter the following command to bring up the FileNet software:

```
initfnsw  restart
```

Begin Production Mode

The Storage Library server is now ready for production.

Appendix C – Installing Image Services in non-English Environments

Getting Started

The guidelines in this appendix provide supplemental information to help system administrators install and configure their IBM FileNet Image Services systems in non-English environments.

Language support for Image Services is as follows:

Table 1: Image Services Language Support

Activity	Supported Languages
Installation	English
Configuration	English, French, German
Error Messages	English, French, German
Indexing	Multiple languages as described in "Character set support" on page 240.

Operating Systems

Servers that you purchase are preinstalled with the language that you specified at the time of order. In certain cases, it is possible to install a different language over the preinstalled version. For example, if you have a server that uses the Windows operating system installed in English, you can install support for both the Chinese and Greek character sets.

Important All Image Services and Image Services Toolkit (ISTK) servers and clients must be configured to use compatible character sets at the operating system level and the relational database level.

The Image Services software is available in English, French and German.

- For Windows, you can use a number of languages for the translated operating systems. Refer to the Microsoft Windows documentation for more information.
- For UNIX, use the values in the following table to display the appropriate interface.

Table 2: Multicultural variables for French and German

Language	AIX	HP-UX	Solaris
French	fr_FR	fr_FR.iso88591	fr
German	de_DE	de_DE.iso88591	de

Setting the Language variable

The LANG variable specifies the language, or locale, that the software uses to display messages and instructions, collating sequences, date formats, and so on.

Note The Image Services software always defaults to English if the LANG environment variable is not set to any of the supported languages: English, French, or German.

Different operating systems use different locale names to specify the same language. Skip to the section for your server:

- "Setting the LANG variable on AIX" on page 237
- "Setting the LANG variable on HP-UX" on page 238
- "Setting the LANG variable on Solaris" on page 239
- "Setting the LANG variable on Windows Server" on page 239

See the documentation for your operating system for additional information on managing the LANG environment variable.

Setting the LANG variable on AIX

Set up the LANG variable in your shell environment files using your preferred text editor (such as vi). From your HOME directory, edit the necessary files by completing the following steps, depending upon the shell you are using:

Important Verify that the language you select here matches the language that was selected when the relational database software was installed.

- For **sh** and **ksh**, add the following lines to your .profile file:

  ```
  LANG=<language>
  export  LANG
  ```

  where <language> is the native language (locale) in which you want your server to operate. For example:

  French is **fr_FR**

  German is **de_DE**

  For French, you would add these lines:

  ```
  LANG=fr_FR
  export  LANG
  ```

  Or for German you would add these lines:

  ```
  LANG=de_DE
  export  LANG
  ```

- For **csh**, add the following line to your .login file:

  ```
  setenv  LANG  <language>
  ```

  where <language> is the native language (locale) in which you want your server to operate.

For French, you would add this line:

```
setenv  LANG  fr_FR
```

Or for German you would add this line:

```
setenv  LANG  de_DE
```

Note When you install or upgrade 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 IS installation is finished, you can reset the LANG variable to its original locale, such as ja_JP.

Setting the LANG variable on HP-UX

Set up the LANG variable in your shell environment files using your preferred editor (such as vi). From your HOME directory, edit the necessary files by completing the following steps, depending upon the shell you are using:

Important Verify that the language you select here matches the language that was selected when the relational database software was installed.

- For **sh** and **ksh**, add the following lines to both your **.profile** and **.vueprofile** files:

  ```
  LANG=<locale>.iso88591
  export  LANG=C
  ```

  where <locale> is the abbreviated language name your Xstation is dedicated to. For example:

  French is **fr_FR.iso88591**
  German is **de_DE.iso88591**

  For example for French you would add these lines:

  ```
  export LC_ALL=fr_FR.iso88591
  export LANG=C
  ```

  For German, you would add these lines:

  ```
  export LC_ALL=de_DE.iso88591
  export LANG=C
  ```

- For **csh**, add the following line to both your **.login** and **.vueprofile** files:

  ```
  setenv  LANG  <language>.iso88591
  ```

  where **<language>** is the language your Xstation is dedicated to.

  For example, for French you would add this line:

  ```
  setenv  LANG  fr_FR.iso88591
  ```

  Or for German you would add this line:

  ```
  setenv  LANG  de_DE.iso88591
  ```

Setting the LANG variable on Solaris

Set up the LANG variable in your shell environment files using your preferred editor (such as **vi**). From your HOME directory, edit the necessary files by completing the following steps, depending upon the shell you are using:

Important Verify that the language you select here matches the language that was selected when the relational database software was installed.

- For **sh** and **ksh**, add the following lines to your .profile file:

  ```
  LANG=<language>
  export LANG
  ```

  where language is the native language (locale) in which you want your server to operate. For example:

  French is **Fr**
  German is **DE**

- For **csh**, add the following line to your .login file:

  ```
  setenv LANG <language>
  ```

  where <language> is the native language (locale) in which you want your server to operate.

Language support

To use 8-bit characters, you must change the locale of the Solaris operating system for the desired language. However, European locales require installation of translated feature packages.

If these feature packages are not available to you, use the following work-around:

- For **sh** and **ksh**, enter:

  ```
  LC_CTYPE=iso_8559_1
  export LC_CTYPE
  ```

- In **csh** shell, enter:

  ```
  setenv LC_CTYPE iso_8859_1
  ```

Note The ISO_8859_1 is not a valid setting for the OpenWindows locale X resources. The ISO_8859_1 setting is not a full locale setting but a setting for the LC_CTYPE category only. **DO NOT set the LANG environment variable to ISO_8859_1.**

Setting the LANG variable on Windows Server

On Windows Server systems, the Image Services applications determines the desired language based on the following settings:

- The LANG environment variable
- The default OS locale (See your OS documentation for details.)

The LANG variable is an optional setting, but if you set it, it will always override the default OS locale. You can set it using the System Properties dialog, or at a command prompt in a CMD window.

For example, launch a CMD window and enter:

setenv LANG <language>

where <language> is the native language (locale) in which you want your server to operate. For example:

French is **fra**

German is **deu**

Important Verify that the language you select here matches the language that was selected when the relational database software was installed.

Relational databases

When the relational database management system (RDBMS) is installed, the character set for the database defaults to the character set you selected for the operating system.

CAUTION To change the character set after the RDBMS is installed refer to the appropriate RDBMS documentation.

Note also that the NLS_LANG environment variable determines if the database will perform any character translations before storing characters in the database or after retrieving characters from the database. For optimum database performance, NLS_LANG is set to the same characters as the “Database Character Set.”

Image Services configuration

In the IS System Configuration Editor (fn_edit), select the System Attributes tab and set the appropriate default character set and former character set. If Image Services needs to be configured to process Japanese characters, select either Shift_Japanese or Japanese EUC for both the default and former character sets, depending on your usage. The IS configuration editor provides both single-byte and double-byte (or multi-byte) character set support. The character set must be selected before initializing the IS databases.

Character set support

IS supports single-byte character sets (SBCS) and multi-byte character sets (MBCS). However, some limitations exist for both homogeneous and heterogeneous configurations.

The default IS character set is configured through fn_edit by specifying an International Organization for Standardization (ISO) character encoding. Regardless of whether the IS system is UNIX-based or Windows-based, the default character set is always defined as an ISO character encoding. Therefore, IS assumes that all data sent to it by clients is in ISO format, rather than in a Windows code page (CP) format.

Single-byte character sets

SBCSs are based on 8-bits and can represent up to 256 characters. These characters are often referred to as a code page on Windows servers. For example, the default code page on Windows servers with IS is CP1252 (also called the ANSI code page). The equivalent ISO character encoding on UNIX servers is ISO 8859-1.

The following table lists all the supported SBCS Windows Code Pages and their equivalent ISO encoding on Unix operating systems.

Table 3: Single-Byte Character Sets

Windows Code Page	fn_edit Name	Language Group	NLT Map Provided
1252	ISO 8859-1	Latin 1 (Western Europe)	Yes
1250	ISO 8859-2	Latin 2 (Central Europe)	Yes
1257	ISO 8859-4	Scandinavia and Baltic Rim	Yes
1251	Cyrillic (ISO 8859-5)	Cyrillic (Slavic)	Yes
1256	Arabic (ISO 8859-6)	Arabic	Yes
1253	Greek (ISO 8859-7)	Greek	Yes
1255	Hebrew (ISO 8859-8)	Hebrew	Yes
1254	Turkish (ISO 8859-9)	Turkish	Yes
874	Thai TIS 620-2533	Thai	No

Note The IS National Language Translation (NLT) subsystem automatically translates between single-byte Windows and UNIX code pages when Windows IS clients communicate across the network. The Thai character set is not fully supported in heterogeneous environments because a translation map is not available.

Double-byte and multi-byte character sets

In addition to single-byte character sets, IS supports several double-byte character sets (DBCS) and multi-byte character sets (MBCS). The terms DBCS and MBCS are often used interchangeably, but MBCS is a more generalized form of DBCS. In a multi-byte character set, the number of bytes per character can vary from 1 to 3. In both types of character set, each character can be represented by either one or two bytes. MS932 is an example of a DBCS, while eucJP is an example of a MBCS.

Important The IS and RDBMS software has specific maximum length requirements for many of its parameters and database fields. When the IS system is configured with a DBCS or MBCS, the maximum number of characters is correspondingly fewer.

For example, if a database field has a maximum length of 24 (single-byte) characters, the field can hold only 12 double-byte characters, and only 8 three-byte characters.

IS does not natively support any Wide Character Sets (WCS), which use a fixed number of bytes for each character in the set. For example, two, three, or four bytes per character. If a custom application manipulates strings internally using Unicode, the application is responsible for translating those strings to either a single-byte or double-byte character set before passing them to an IS application.

You can specify the following DBCS and MBCS through fn_edit:

Table 4: Double-Byte and Multi-Byte Character Sets

Windows Code Page	fn_edit Name	Language Group	NLT Map Provided
932	Shift Japanese Industrial Standard	Japanese	No
932	Chinese Simplified EUC (China)	Chinese	No
949	Korean 5601	Korean	No
950	Chinese Traditional EUC (Taiwan)	Chinese	No
	Japanese Extended UNIX Code	Japanese	No

Note When the IS default character set is a DBCS or MBCS, the NLT subsystem does not perform any character translation across the network between IS clients and servers.

Heterogeneous Environments

For homogeneous IS environments, such as Windows to Windows or UNIX to UNIX, there are no known issues with supporting DBCS or MBCS character sets because no character translation occurs between clients and servers.

For heterogeneous IS environments, translation between equivalent character sets is limited to those defined in Table 3: “Single-Byte Character Sets” on page 241, and for which an NLT map is available.

Known Issues and Limitations

Image Services does not support GB 18030 (Chinese Standard) characters that are four bytes long.

In heterogeneous environments, such as systems that include both Windows and UNIX servers, correct translation is not guaranteed. For example, in the case of a Japanese Windows system, the 932 character set is based on Shift_JIS. Solaris supports EUC for Japanese, so character translation between a Japanese Windows server and a Japanese Solaris server might not be accurate.

However, the AIX operating system supports the Shift_JIS standard and is therefore more likely to provide correct translation with a Windows operating system, which also supports Shift_JIS.

To minimize compatibility issues in heterogeneous environments, all IS and ISTK clients must be configured to use compatible character sets at the operating system and database levels.

Appendix D – Uninstalling Image Services

If it becomes necessary to remove the Image Services software from your server, follow these steps:

1. Verify that you're logged on with root privileges.
2. Stop the Image Services software.
3. Back up any log files or other data in the /fnsw and /fnsw/local directories that you want to save.
4. Change to the root directory and run the uninstaller by entering:

   ```
   cd  /
   ```

   - Graphical mode – standard, graphical interface:

     ```
     /fnsw/etc/uninstaller/uninstall_is  &
     ```

   - Console mode – plain text interface:

     ```
     /fnsw/etc/uninstaller/uninstall_is  -console
     ```

   - Silent mode – no screen display whatsoever:

     ```
     /fnsw/etc/uninstaller/uninstall_is  -silent
     ```

Important It's essential that you use the uninstall_is command if you decide to uninstall the Image Services software. You cannot use the Operating System tools to remove Image Services.

5. The uninstaller will lead you through the necessary steps and prompt you when finished.

Note The uninstaller leaves certain critical directories intact to protect existing data.

6. After the uninstaller has finished, go to the /fnsw directory and examine the remaining contents. Manually remove any unwanted files and directories.

Appendix E – Remote Access Procedures (Windows Server ONLY)

Getting Started

Remote access is limited to a tty or telnet session. So, when your service representative dials into a site, that session is built on what appears to the remote server as only a terminal. Because Remote Access Services (RAS), provides the potential for an interconnection between your network and any network that the RAS client is on, security or configuration concerns must be addressed. RAS can either be configured so that the dial-up clients have access to only the Windows Server, or to the entire network.

TCP/IP protocol must be installed and running for Image Services remote support. The pcAnywhere telnet service which is used to access the character based tools runs over IP like any other telnet implementation. It is strongly recommended that RAS setup be done after the Image Services installation has been completed and tested. RAS installation will vary slightly depending on the network protocols you have installed. The following sections also assume that the Windows Server has already been setup as a participant in the local Microsoft Network domain or work group, if that is appropriate to the site.

This appendix contains the following sections:

- Adding Remote Access Software
- Granting Remote Access Rights to the FNADMIN User
- pcAnywhere TCP Remote Control Services
- Granting Users Permission to Logon

Adding Remote Access Software

Remote Access Setup configures RAS, creates a Remote Access Service program group, then confirms that installation was successful.

1. Log into the system as the FileNet software user, such as fnsw or Windows Administrator.
2. In Control Panel, choose the **Network** option.
3. In the Network Settings dialog box, choose the **Add Software** button.
4. From the Network Software list, select Remote Access Service and then choose the **Continue** button.
5. When prompted for the path to the distribution files, provide the path and choose the **OK** button.

   The RAS files will be copied to your computer. After the files are copied, you will see a Remote Access Setup dialog box similar to the following:

6. Select the **Add...** button. In the Add Port dialog box, you will see a list of all ports available to Windows Server for RAS. If you have successfully installed an ISDN card, X.25 card, or other device, you should see it in this list.
7. Select the port you will use for remote access and choose the **OK** button
8. Remote Access Setup will offer to automatically detect the modem connected to the selected port.

   a. To manually select a modem, choose **Cancel**.

   b. To automatically detect the modem, choose **OK**. When a dialog box appears announcing the modem detected, click **OK**.

   The Configure Port screen displays.

Note Occasionally, when attempting to detect a modem, Remote Access Setup displays a dialog box requiring you to select your modem from a short list of possible modems. This occurs only when Remote Access Setup cannot distinguish between two or more modems.

9. In the Configure Port dialog box, the modem detected will be highlighted.

   a. If RAS did not detect your modem, or if you chose to manually select the modem, select the device attached to the port from the list.

Note Only supported modems are listed.

   b. If you are adding a port after initial RAS installation, you can use the Detect button to automatically detect the modem connected to the new port.

10. In the Port Usage box, choose how the port is to be used. To enable remote support for Image Services, select Dial Out and Receive Calls or Receive Calls Only.

    - Dial Out Only - means the computer will be a RAS client only. This choice is NOT currently supported, but FRC is exploring a setup which will allow client only configuration.
    - Receive Calls Only - means the computer will be a RAS server only.
    - Dial Out And Receive Calls - means the computer can be a client or server, however, the computer cannot do both at the same time. This choice offers the greatest flexibility.

11. To configure information specific to the type of device attached to the port, select the device and choose the **Settings** button. The default settings are usually ideal.
12. Choose the **OK** button. The Remote Access Setup dialog box re-appears.
13. In the Remote Access Setup dialog box, configure or reconfigure the ports by highlighting a port and using the buttons along the bottom of the dialog box.

    Consult the online Help for a description of each button's use. Default settings are usually ideal.

Note The example in the dialog box above is meant for illustrative purposes only. The ports and devices on your system will likely be different

14. Choose the Network button to configure the network settings for the port and modem that is highlighted.

    You should see a dialog box similar to the following.

15. In the Server Settings: section, Verify that TCP/IP is checked, then press the **Configure** button next to it.

    The following dialog box appears.

16. In the Allow remote TCP/IP clients to access: section of the dialog box, choose either: Entire Network or This computer only.

    - Entire Network - allows routing between your entire network and the RAS device
    - This computer only - allows routing only between the RAS device and this Windows server

    The default selection is Entire Network. If this is not correct for your system, click the **This computer only** radio button.

17. In the next section of this dialog, choose either:

    - Use DHCP to assign remote TCP/IP client addresses, or
    - Use static address pool

Note DHCP is Microsoft's scheme for assigning IP addresses to clients on the LAN or connected through RAS. Consult with the local administrators to determine if DHCP is implemented at a given site. DHCP offers significant benefits if implemented correctly.

18. Skip this step if you have not selected Use static address pool.

    Enter a range of at least two IP addresses into the static address pool.

    It is recommended that the IP address range start right after the last IP address assigned to the Windows Server itself.

    For example, if you have a Windows Server with two network interfaces in it, assign the first card 135.0.73.98, the second card 135.0.73.99, and the RAS static pool from 135.0.73.100 to 135.0.73.101.

Note The IP addresses of the network cards should have already been installed and configured. In addition, the pool of addresses must not conflict with any other devices which might be configured for your network.

    Below is an example of a static address pool configuration.

19. When you are finished choosing RAS Server TCP/IP Configuration Settings, click the **OK** button.

Note More RAS Server Configuration dialog boxes may appear for other non TCP/IP protocols installed on your computer. If this happens, see RAS online Help for information about configuring these other LAN protocols for RAS use.

20. When you are finished setting up the port and network configurations, click the **Continue** button on the Remote Access Setup dialog box.

21. The RAS service will then copy any more needed files from your distribution and pop up a dialog for granting permissions to remote users. Click the **OK** button in the Confirmation dialog box.

22. Click the **OK** button in the Network Settings dialog box. The protocols will be bound to the RAS Service. If your site requires further information to complete the binding, choose the defaults that the system offers during the analysis.

23. Restart your computer for the Remote Access installation to take effect. A new program called Remote Access Service will be created.

    For more information on configuring RAS, see RAS online Help.

Granting Remote Access Rights to the FNADMIN User

After installing Remote Access software, you must grant Remote Access rights to certain users before they try to connect through Remote Access client software. Without permission users cannot successfully connect to the Remote Access computer, even if the Remote Access client software has been installed on their computers.

1. If you aren't already, log into the system as the FileNet software user, such as fnsw or Windows Administrator.
2. From the Taskbar, click the **Start** button, and point to Programs, Administrative Tools (common), and click the Remote Access Admin icon. The Remote Access Permissions dialog box opens.
3. From the Users menu, choose **Permissions**. The Remote Access Permissions dialog box displays.
4. Verify that when the name fnadmin is highlighted, the Grant dialin permission to user box is checked. You might also want to ensure that the Administrator also has dialin permission. When finished, press **OK**.

   For further instructions, choose the Help button in the dialog box.

Note Consider carefully whether to grant guest accounts dial-in permission. If you do, be sure to assign a password to the guest account.

pcAnywhere TCP Remote Control Service

Before completing the steps in this section, TCP/IP support must be setup on all Image Services servers where remote accessibility is required.

Complete the steps in this section to install pcAnywhere TCP remote control services.

Note To use pcAnywhere, you must obtain a license from Symantec Corporation.

Why Use pcAnywhere?

A reliable and robust tool enables your service representative to remotely manage products that are installed on servers running a Windows Server operating system. The speeds afforded by current dial-up connections are simply too slow to allow for efficient response.

Although several remote control packages are available on the market, pcAnywhere provides timely support and problem resolution.

Installing pcAnywhere will allow your service representative to dial into your system, manipulate the controls, and view the display as if they were seated at the computer.

Note In some cases, the Image Services server may not be the most appropriate server to run Remote Access Services. Your particular system requirements may require that the RAS be installed on different server.

Installing pcAnywhere

The pcAnywhere software (Host Version) is contained on the Tech Info media.

1. Refer to the Norton pcAnywhere User's Guide (Chapter 2), and install pcAnywhere on the Windows servers that will require remote control capabilities.
2. Accept the installation program defaults for the modem and direct cable connections.

Note Although the installation program defaults may not be used directly on the server you are configuring, accept them anyway. Accepting these defaults should not affect the outcome of the configuration.

3. When the installation is complete, start the pcAnywhere application.

   The pcAnywhere window opens.

4. At the top of the pcAnywhere window, click the **Be A Host PC** button.

Note Since this server will be controlled by a remote PC, it is considered a host.

5. In the pcAnywhere window, right click the NETWORK icon.
6. A popup window appears. Click the Properties option in this window.

   The Properties dialog box appears with the Connection Info tab opened by default.

7. From the Device list on the Connection Info tab, select TCP/IP.
8. Click the Settings tab in the Properties dialog box. The Settings tab appears as shown below.
9. If you want to have the pcAnywhere host start when Windows starts up, check the Launch host at startup check box.
10. Click **Apply** to have your changes accepted, and then the click the **OK** button.
11. Reboot the server so the changes you made can take effect.

Note By default, the pcAnywhere service is set to startup Manual in Administrative Tools/Services after you install it. If you change this setting to startup Automatic, it may increase the time required to shutdown the Windows operating system by approximately 2 minutes.

Granting Users Permission to Logon

You now need to give proper permissions to those users you want to be able to perform remote logons.

1. If you aren't already, log into the system as the FileNet software user, such as fnsw or Windows Administrator.
2. Run the User Manager for Domains program located in the Administrative Tools program group.
3. If you want to allow users to logon remotely to the system on which you are running Advanced Server, verify that the tile bar on the User Manager for Domains window reads "User Manager - _Your_Domain_name". If it does not, select the domain name of your system's Domain Controller by selecting the Select Domain item in the User menu.
4. Select the User Rights item in the Policies menu.
5. Click the **Show Advanced User Rights** check box, and then scroll the Right: pull down list until you get to the Log on as a service item.
6. Add the users and/or groups that you want to have remote logon capability.
7. User rights are assigned on a per system basis. On every system you want to allow remote logons, you must edit the user rights for that system. Editing the user rights for the domain affects only the user rights on the domain controllers for that domain. If the server that you have set up to install Image Services is not a domain controller, reference the pcAnywhere documentation for clarification, or contact your service representative for specific instructions.

Appendix F – Setting Up Multiple Networks (AIX only)

This appendix describes how to set up your system on more than one network. The sections include:

- Removing Current Network Interfaces
- Modifying Network Adapter Characteristics
- Adding Network Interfaces
- Rebooting the Servers

Note You can configure 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.

Complete all steps in this appendix before completing the modification steps in fn_edit to configure your system onto more than one network for the FileNet software. The procedure in this appendix only reflects changes to the operating system as it relates to configuring your system on more than one network.

Remove Current Network Interfaces

First, remove the current Ethernet and Token Ring network interfaces.

1. As a user with root privileges, shut down all FileNet software to stop all remote network activities. To do this, enter:

   ```
   Xtaskman
   ```

   Click **Stop**.

2. Determine the server's current XNS address. The XNS address is a twelve (12) digit number (for example, 02608c2f1205). Enter the following command and use the Hardware Address as the XNS address for this server.

   ```
   lscfg -v -l ent0
   ```

   _____

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

   ```
   smitty inet
   ```

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

5. From the Available Network Interfaces pop-up 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.

en0

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 Change/Show Characteristics of a Network Interface option and click **Enter**.
9. From the Available Network Interfaces pop-up menu, select the tr0 Token Ring Network Interface option and click **Enter**.
10. From the Change/Show a Standard Ethernet Interface menu, write down the current entries in the INTERNET ADDRESS, Network MASK, and BROADCAST ADDRESS field, if applicable.

    INTERNET ADDRESS_____

    Network MASK_____

    BROADCAST ADDRESS_____
11. Press **F3** to return to the Network Interface Selection menu.
12. From the Network Interface Selection menu, select the Remove a Network Interface option using the Arrow Keys and click **Enter**.
13. From the Available Network Interfaces pop-up menu, select the en0 Standard Ethernet Network Interface option and click **Enter**. This will remove the Standard Ethernet Network Interface. When you receive a message that the network interface has been removed, press **F3** to return to the Network Interface Selection menu.
14. From the Network Interface Selection menu, select the Remove a Network Interface option and click **Enter**.
15. From the Available Network Interfaces pop-up menu, select the tr0 Token Ring Network Interface option and click **Enter**. This will remove the Token Ring Network Interface. When you receive a message that the network interface has been removed, press **F10** to exit SMIT.

Modify Network Adapter Characteristics

This section details how to modify the network adapter characteristics for both Ethernet and Token Ring.

1. To get to the Communication menu in SMIT, enter the following SMIT fastpath 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:
      - Replace the first two digits of the address you wrote down with 42 (for example, change 02608c2f1205 to 42608c2f1205).
      - Type this new number after the 0x already in the field (for example, the number in the field would be 0x42608c2f1205).
   b. Once 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. From the Communication menu, select the Token Ring Adapter option and click **Enter**. Select the Adapter option and click **Enter**.
9. Select the Change/Show Characteristics of a Token Ring Adapter option and click **Enter**.
10. At the Token Ring Adapter pop-up menu, click Enter to select tok0 Available 00-06 Token-Ring High-Performance Adapter.
11. At the Change/Show Characteristics of an Token Ring Adapter menu, navigate to the Enable ALTERNATE TOKEN RING address field and use the Tab key to toggle the field to yes.
    a. Locate the ALTERNATE TOKEN RING address field and enter the address you wrote down in Step 2 of the previous section with the following exceptions:
       - Replace the first two digits of the address you wrote down with 42 (for example, change 02608c2f1205 to 42608c2f1205).
       - Type this new number after the 0x already in the field (for example, the number in the field would be 0x42608c2f1205).
    b. After you finish typing the number into the ALTERNATE TOKEN RING address field, press **Enter** to save the change.
12. Exit SMIT.

Add Network Interfaces

This section details how to add the network interfaces for both Ethernet and Token Ring.

1. Invoke the Add a Network Interface menu in SMIT with the following SMIT fastpath command:

   ```
   smitty  mkinet
   ```

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

3. From the Available Network Interfaces pop-up menu, select the en0 Standard Ethernet Network Interface option and **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” 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. From the Add a Network Interface menu, select the Add a Token-Ring Network Interface option and **Enter**.
7. From the Available Network Interfaces pop-up menu, select the tr0 Token Ring Network Interface option and click **Enter**.
8. At the Add a Token Ring Network Interface menu, type in all the numbers you wrote down in Step 10 of the “Removing Current Network Interfaces” section in the appropriate fields. Also, verify the ACTIVATE the Interface after Creating it? field is set to yes. Then click **Enter**.
9. Exit SMIT.

Reboot the Server

Reboot the server for the network changes to take affect:

```
shutdown  -Fr
```

Logon as fnsw user and invoke the fn_edit program. Then go to “Configure Network Parameters” on page 122.

Appendix G – Installing the HP AD278A PCI MUX 8-port Adapter Card (HP-UX ONLY)

Getting Started

This appendix provides instructions for installing and configuring the HP AD278A Peripheral Component Interconnect (PCI) Multiplexer (MUX) adapter.

The AD278A PCI MUX adapter is a high-speed serial communication multiple port product. It combines various signals for transmission over a single channel and provides intelligent communication functions to off-load CPU serial communication processing tasks.

The AD278A PCI MUX 8-port adapter is supported with the following versions of the HP-UX operating system:

- HP-UX 11i v2 (B.11.23
- HP-UX 11i v3 (B.11.31)

Installation Steps

1. Shutdown Image Services, and turn power off to the IS storage library server.
2. Follow the manufactures's instructions to install the AD278A adapter into the storage library server.
3. Connect the serial OSAR library to the MUX cable using one of the following cables:
   - 3100611-025 (25 feet long)
   - 3100611-050 (50 feet long)
4. Apply power on to the storage library server and restart HP-UX.
5. For HP-UX 11i v2, follow the instructions to download the device driver software from the HP Web site.

   For HP-UX 11i v3, locate the driver on the HP-UX 11i v3 media.
6. Install the driver software.
7. After you install the driver, the server automatically restarts.
8. List the MUX ports by entering the following command:

   ```
   ioscan  -knfC  tty
   ```

   Verify that the newly configured adapter appears in the list.
9. Determine the MUX port number the OSAR library is connected to. Using that port number, find the device name. For example, the port 1 (P1) Connector has a device name like:

   ```
   /dev/tty2a1
   ```

10. Change the owner to fnsw.

```
chown  fnsw  /dev/tty2a1
```

11. And change the permissions.

```
chmod  660  /dev/tty2a1
```

12. Launch the IS System Configuration Editor:

```
fn_edit  &
```

13. Select the Storage Libraries tab, and enter that name (/dev/tty2a1, for example) into the device address for the serial FileNet OSAR library. Exit and save your changes.

14. Rebuild the system configuration files by entering:

```
fn_build  -a
```

15. Start Image Services.

Appendix H – HP Multicultural Support (HP-UX only)

This appendix contains steps to setup an HP 700/RX Xstation with an AT/2 keyboard so you can enter the characters for any of the supported languages. The following prerequisites must be met in order to complete the Multicultural Environment setup:

- You must have one of the HP 700/RX Xstations with an AT/2 keyboard.
- You must be running the HP VUE application on your Xstation.

Note The steps in this appendix can be performed on any of the HP 700/RX Xstations, but the only keyboard supported for the imaging software is the AT/2 keyboard.

Configuring the HP Server

The HP Server that the Xstation boots from must contain certain items to be configured correctly for a Multicultural environment.

1. You must verify that the server contains the Multicultural ISO 8859-1 character set for the language you want the Xstation to be dedicated to. To check this:

   a. Logon to the HP Integrity server as a user with root privileges.

   b. Check for the /usr/lib/nls/config file by listing it with the ls command. If it does not exist, you need to have your HP System Administrator install the Multicultural product on your HP Integrity server. This product is an optional product, but more than likely is installed on your server when the operating system is installed.

      You cannot continue with the next step until the Multicultural product has been installed on your server.

2. Verify that the following line exists in the /usr/lib/nls/config file:

   <locale>.iso88591

   where <locale> is the abbreviated national language name your Xstation is dedicated to. For example:

   French is fr_FR.iso88591
   German is de_DE.iso88591

   If the line does not exist in the config file, refer to your HP documentation or have your HP System Administrator set it up.

3. Verify that the /usr/lib/nls/<language>/iso88591 directory exists. If the directory does not exist, refer to your HP documentation or have your HP System Administrator set it up.

4. Verify that the locale.inf file exists in the /usr/lib/nls/<language>/iso88591 directory.

   Regardless of which version of HP-UX you are running, if the files do not exist, refer to your HP documentation or have your HP System Administrator set them up.

Setting Up the Xstation

1. Turn on the Xstation (if it isn't already). If you are in a current session, exit completely by selecting the **exit** button in the bottom right corner of the screen.
2. At the login screen, click the **Options** box, press and hold down the **F12** function key while selecting the **Restart Server** option until the Configuration menu displays.
3. Click the **Terminal** button at the top left of the Configuration menu.
4. In the Terminal menu, click the box to the right of the AT/2 keyboard field.
5. From the AT/2 keyboard language menu, select the language you want the Xstation to be dedicated to and click **OK** to return to the Configuration menu.
6. Click the **Server** button at the top left of the Configuration menu.
7. At the bottom of the Server menu, verify that the Font Path field includes the following lines:

   /usr/lib/X11/700X/fonts/iso_8859.1/100dpi/
   /usr/lib/X11/700X/fonts/iso_8859.1/75dpi/

   If these font paths are not specified in this menu and you want to add them, try clicking on the Reset Font Path button and these paths should be added to your font menu setting by default. If the paths are not added automatically, add them manually at the bottom of the font menu.
8. Save and exit out of the Configuration menu by clicking on the **OK** button. Wait about two seconds and then power cycle the Xstation to force the Xstation to boot and download the files form your HP Integrity server. The Xstation should take a few minutes to finish booting.

   If you receive error messages concerning the iso_8859 fonts, you need to contact your HP System Administrator to load the necessary fonts.

Note Complete the following Steps 9 through 16 for every user.

9. At the login screen, click the **Options** box and select the HP VUE Session option.

   Then, log in with your User Name and Password.
10. From the HP VUE User Interface screen, select a window and export the DISPLAY environment variable by completing one of the following bulleted steps, depending upon the shell you are using:

    - For Bourne and Korn shell users, enter:

      ```
      export  DISPLAY=<Xstation-name>:0
      ```

      where <Xstation-name> is the name given to your Xstation when it is setup on your HP Integrity server.

    - For C shell users, enter:

      ```
      setenv  DISPLAY  <Xstation-name>:0
      ```

      where <Xstation-name> is the name given to your Xstation when it is setup on your HP Integrity server.

11. Using your preferred editor (vi, for example), edit the /fnsw/etc/Xresources.template file. First, in this file look for a line similar to the following line:

    vuesession*sessionLanguage: en_US.iso88591

    Replace the word en_US with the language you want. Then save the change to this file.

12. Enter the following command to merge the Xresources.template file content to your current HP VUE session resources file:

    ```
    xrdb -merge /fnsw/etc/Xresources.template
    ```

    This command updates your VUE session with the information in the given resources file.

13. If you want to permanently save the changes made to the Xresources.template file in your home resources file, complete the following bullets. Otherwise, skip this step completely and go to Step 14 on page 258.

    - Activate the Style Manager icon from the VUE front panel and click on the **Startup** icon.
    - Click on the **Set Home Session** button and select **OK** to update your home session with the current session, which you have just modified with the xrdb command in Step 13.
    - When this is completed, exit out of the Style Manager window completely.

14. Set up the LANG variable in your shell environment files using your preferred editor (vi, for example). From your HOME directory, edit the necessary files by completing one of the following bulleted steps, depending upon the shell you are using:

    - For sh and ksh, add the following lines to both your .profile and .vueprofile files:

      LANG=<locale>.iso88591
      export LANG=C

      where <locale> is the abbreviated national language name your Xstation is dedicated to. For example:

      French is fr_FR.iso88591
      German is de_DE.iso88591

      For example, for French you would add these lines:

      export LC_ALL=fr_FR.iso88591
      export LANG=C

      For German, you would add these lines:

      export LC_ALL=de_DE.iso88591
      export LANG=C

    - For csh, add the following line to both your .login and .vueprofile files:

      setenv LANG <language>.iso88591

      where <language> is the language your Xstation is dedicated to.

      For example, for French you would add this line:

      setenv LANG fr_FR.iso88591

Or for German you would add this line:

```
setenv  LANG  de_DE.iso88591
```

15. Continue to edit the .vueprofile by adding the following lines at the end of the file:

```
xmodmap  -e  “keysym  Print  =  F13”
xmodmap  -e  “keysym  Scroll_Lock  =  F14”
xmodmap  -e  “keysym  Pause  =  F15”
xmodmap  -e  “keysym  Insert  =  F16”
xmodmap  -e  “keysym  Home  =  F17”
xmodmap  -e  “keysym  Delete  =  F18”
xmodmap  -e  “keysym  End  =  F19”
```

    Verify that there are no typos, otherwise the function keys won’t be mapped properly. These key mappings allow APEX to map its function keys to the AT/2 keyboard.

16. Reboot the Xstation by selecting the **exit** button in the bottom right corner of the screen to exit from HP VUE, and then log back in.

Return to Production Mode

This concludes the procedure to configure National Language Support on FileNet Image Services for HP-UX. The server is now ready to put into production.

Appendix I – Setting the Maximum Data Transfer Rate for SCSI Host Bus Adapters (HP-UX ONLY)

Getting Started

This appendix provides instructions for setting the maximum data transfer rate for a SCSI host bus adapter (HBA) installed in your HP Itanium-based server.

For best performance, the speed of the SCSI adapter channel that an optical library is connected to might need to be adjusted. The A7173A SCSI adapter runs at 320 MB/second.

UDO libraries can operate at these maximum SCSI adapter rates. But for use with all other storage library types, the SCSI adapter channel needs to be set to 80 MB/second.

The following sections describe how to use the HP Lights-Out Configuration Utility and the Extended Firmware Interface flash utility to verify and set the data transfer rate for your SCSI host bus adapters.

Using the HP Lights-Out Configuration Utility

The HP Lights-Out Configuration Utility is a Windows®-based utility that connects to iLO (integrated Lights-Out) using a secure connection over the network. This utility requires a valid user ID and password with the appropriate privileges.

1. Using your preferred Internet browser, enter the TCP/IP address of the HP Integrity server console on the address line and press **Enter** to display the iLO login window.
2. When the Lights-Out window displays, select the Remote Console tab, and click the **View Console** button.
3. In the console window, logon to the HP Integrity server as a user with root privileges and reboot the server by entering:

   ```
   shutdown  -r  -y  0
   ```

4. Wait until a menu appears with several options including go to an EFI shell.

Important Immediately scroll down with the arrow key to the EFI shell option and press **Enter**. You have only a few seconds before this menu disappears. You now have access to enter EFI commands.

Entering EFI Commands

The Extended Firmware Interface (EFI) flash utility allows you to set the maximum data transfer rate for a SCSI host bus adapter. Follow these steps.

1. At the EFI shell prompt, enter:

   ```
   drivers
   ```

The command display is shown in the following example.

```
Shell> drivers
                T   D       _____ Number of Connections
D               Y C I      |
R               P F A      |
V  VERSION      E G G #D #C DRIVER NAME                          IMAGE NAME
== ========     = = = == == ================================== ==================
11 00000010     B - -  6 13 PCI Bus Driver                      PciBus
1B 01030000     D X X  1  - LSI Logic Ultra320 SCSI Driver      PciROM:20:01:01:000
1C 01030000     B X X  1  2 LSI Logic Ultra320 SCSI Driver      PciROM:20:01:00:000
1D 00002160     B - -  1  1 Intel(R) PRO/1000 v2.16 EFI-64      PciROM:20:02:01:000
1E 00002160     B - -  1  1 Intel(R) PRO/1000 v2.16 EFI-64      PciROM:20:02:00:000
23 01030000     B X X  1  3 LSI Logic Ultra320 SCSI Driver      PciROM:80:01:01:000
24 01030000     D X X  1  - LSI Logic Ultra320 SCSI Driver      PciROM:80:01:00:000
27 0000002A     D - -  2  - Usb Ohci Driver                     UsbOhci
28 00000010     B - -  2  4 USB Bus Driver                      UsbBus
29 00001010     D X -  1  - Usb Keyboard Driver                 UsbKb
2A 00000011     ? - -  -  - Usb Mouse Driver                    UsbMouse
2B 00000010     ? - -  -  - Usb Bot Mass Storage Driver         UsbBot
2C 00000010     ? - -  -  - Usb Cbi0 Mass Storage Driver        UsbCbi0
2D 00000010     ? - -  -  - <UNKNOWN>                           UsbCbi1
2E 00000011     ? - -  -  - Generic USB Mass Storage Driver     UsbMass Storage
2F 00000010     ? - -  -  - UGA Console Driver                  GraphicConsole
```

2. First you need to find the driver handle designation (<drvr_handle>) in the DRV column for your optical library on this display.

   To do this, you need to know which driver is associated with your SCSI device. For example, for an A7173A host bus adapter that uses the LSI Logic Ultra320 SCSI Driver, look in the DRIVER NAME column.

   There are four occurrences of this driver listed in the sample display, so look for the one that has the appropriate number of connections in the #C (number of connections) column.

   If your storage library has three connections (for two optical drives and a robotic arm), locate the LSI Logic Ultra320 SCSI Driver line that has 3 in the #C column.

   Now you can find the driver handle designation (<drvr_handle>) in the DRV column, which is 23 in the sample display.

3. Next you need to find the controller handle designation, <cntrl_handle>.

   At the EFI shell prompt, enter:

   drvcfg

   The command display is shown in the following example.

```
Shell> drvcfg
Configurable Components
  Drv[1B]  Ctrl[20]  Lang [eng]
  Drv[1C]  Ctrl[1F]  Lang [eng]
  Drv[23]  Ctrl[26]  Lang [eng]
  Drv[24]  Ctrl[25]  Lang [eng]
  Drv[29]  Ctrl[40]  Lang [eng]
  Drv[49]  Ctrl[19]  Lang [eng]
```

From the output of the drvcfg command, look for the lines where the NN in Drv[NN] is same as the <drvr_handle> for the drivers you determined in the previous step. For example, locate Drv[23].

The second column, Ctrl [NN], contains the corresponding <cntrl_handle>, where NN is the controller handle. In the example, the controller handle that corresponds to driver handle 23 is Ctrl [26].

4. Now that you have identified both the driver handle and the controller handle, you can display the SCSI parameters and set them for any driver and corresponding host bus adapter on the SCSI bus.

   At the EFI shell prompt, enter:

   drvcfg -s <drvr_handle> <cntrl_handle>

   The Global Properties screen displays containing information about the host bus adapter to which the controller handle corresponds, as in this example:

```
Shell> drvcfg -s 23 26
LSI Logic Host Bus Adapters
Adapter  PCI  PCI  PCI    RAID   FW Revision  Pro-  LSI      RAID    IRQ
         Bus  Dev  Fnc    Alert               duct  Control  Status
<53C1030  80   01   01>   -----   1.03.35.65  IT    Enabled  -------  0
```

   Press **Enter** to display the Adapter Properties screen containing the host bus adapter settings.

   On the Adapter Properties screen, use the arrow keys to highlight the Device Properties option, and press **Enter**.

   The Device Properties screen displays, as shown in this example:

```
Device Properties
SCSI  Device Identifier            MB/Sec   MT/Sec   Data   Scan   Scan
 ID                                                   Width  ID     LUNs > 0
  0    HP     C1118M          5.14   80      [40]    [16]   [Yes]  [Yes]
  1    HP     C1113M          1.18   80      [40]    [16]   [Yes]  [Yes]
  2    -                             80      [40]    [16]   [Yes]  [Yes]
  3    -                             80      [40]    [16]   [Yes]  [Yes]
  4    -                             80      [40]    [16]   [Yes]  [Yes]
  5    HP     C1113M          1.18   80      [40]    [16]   [Yes]  [Yes]
  6    -                             80      [40]    [16]   [Yes]  [Yes]
  7    53C1030                       80      [40]    [16]   [Yes]  [Yes]
  8    -                             80      [40]    [16]   [Yes]  [Yes]
  9    -                             80      [40]    [16]   [Yes]  [Yes]
 10    -                             80      [40]    [16]   [Yes]  [Yes]
...
```

   The default speed is the maximum for the SCSI adapter:

   - 320 MB/second for A7173A adapters

   UDO libraries can operate at these maximum SCSI adapter rates. But for use with all other storage library types, the SCSI adapter channel needs to be set to 80 MB/second.

Tip Assign the data transfer rate to the SCSI host bus adapter (in this example, 53C1030, SCSI ID 7), so the same maximum data transfer rate is set to all the devices attached to the adapter.

To change the maximum data transfer rate, use the arrow keys to highlight the corresponding option under the MT/Sec column, and then use the plus (+) or minus (-) keys to change the values.

Important For example, to change the transfer rate to 80 MB/Sec, you must change the MT/Sec transfer rate to 40.

5. After making the necessary changes, press **Esc** to exit the Device Properties screen. This takes you back to the Adapter Properties screen.
6. Press **Esc** again to exit the Adapter Properties screen.

   If you did not modify any of the SCSI parameters, then the Global Properties screen displays.

   However, if you modified any of the SCSI parameters, then the following screen displays:

```
Adapter and/or device property changes have been made.
 <Cancel Exit>
 <Save changes then exit this menu>
 <Discard changes then exit this menu>
 Exit the Configuration Utility
```

   Use the arrow keys to highlight your selection from the listed choices, and then press **Enter** to return to the Global Properties screen.

7. Press **Esc**. The following screen displays:

```
Are you sure you want to exit?
 <Cancel Exit>
 Save changes then exit this menu
 Discard changes then exit this menu
 <Exit the Configuration Utility>
```

   Use the arrow keys to highlight your selection from the listed choices, and then press **Enter** to return to the EFI shell prompt.

8. At the EFI shell prompt, enter the following command to reboot the system:

   reset

Note The system reboot is required for the new setting to take effect.

Appendix J – Configuring a Font Server for COLD Preview (HP-UX only)

This appendix contains instructions for setting up and testing a Font Server on an existing HP Integrity Storage Library server that will be running FileNet COLD Preview software.

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

Configure the Font Server

The Common Desktop Environment (CDE) includes a small set of fonts and font aliases that are not part of the standard distribution of X Windows. For CDE to function correctly, these fonts need to be available to the X-servers (X-terminals) displaying CDE.

The Font Server needs to include the CDE fonts in its catalog. You can do this by editing the following files:

Edit the /etc/X11/fs/config File

As a user with root privileges, use your favorite text editor, such as vi, to edit the /etc/X11/fs/config file.

1. Locate the “catalogue = ...” line.
2. Verify that the first item in the catalogue list is:

   ```
   /usr/lib/X11/fonts/type1.st
   ```

3. At the end of the catalogue line append the following phrase:

   ```
   ,/usr/dt/config/xfonts/C
   ```

4. Save your changes and exit the file.

Edit the /etc/rc.config.d/xfs File

As a user with root privileges, you also need to edit the /etc/rc.config.d/xfs file.

Add or modify the line for the following variable:

```
RUN_X_FONT_SERVER=1
```

Start the Font Server

As a user with root privileges, start the Font Server by entering:

```
/sbin/init.d/xfs  start
```

If the Font Server is already running, kill it and repeat the xfs start command.

Edit the /etc/dt/config/Xsetup File

Before you edit this file, you need to copy it from the /usr/config directory.

1. As a user with root privileges, enter:

   ```
   cp  /usr/config/Xsetup  /etc/dt/config/Xsetup
   ```

2. Edit the /etc/dt/config/Xsetup file you just copied. Add this line at the end of the file:

   $XDIR/xset fp+ tcp/<server_id>:7000 1>/dev/null

   where <server_id> is either the server name as found in the /etc/hosts file, or the TCP/IP address of the server. If you need to find out the TCP/IP address, enter:

   ```
   nslookup  'hostname'
   ```

Install HP-UX Patches, if necessary

Depending on the version of HP-UX operating system installed on your server, you might need to install patches from Hewlett-Packard.

Go to the IBM Information Management support page and find the *IBM FileNet Image Services, Image Services Resource Adapter, and Print Hardware and Software Requirements*. To download this document from the IBM support page, see "Accessing IBM FileNet documentation" on page 16.

Select your version of the HP-UX operating system from the list, and scroll down to review the patch recommendations and requirements.

Reboot the Server

Reboot the server by entering:

```
shutdown  -ry  0
```

Verify the Font Server

After the server reboots, log in as a user with root privileges and verify that the Font Server is working properly.

1. Verify that the Font Server has started by entering:

   ```
   ps  -ef  |  grep  xfs
   ```

   If the Font Server has started successfully, the process status information displays.

2. Verify that the Font Server is at the head of the Xserver's font path by entering:

   ```
   xset  -q
   ```

   You should see a section that says, "Font Path:", then an entry similar to this:

   ```
   tcp/:7000
   ```

   This entry should appear before you see any specific font directory path names.

3. Verify that your Xserver can find scalable fonts by entering:

```
xlsfonts  -fn  "*-0-0-0-0-*"
```

You should see a list of fonts. The first fonts on the list should be from Adobe®.

Verify the Xstation

Note Perform the steps in this section on the Xstation you will be using to run the COLD Preview application. If you are not already running COLD software on the server, you might have to postpone this test until after you have completed the rest of the Image Services update procedure.

To verify that the Xstation is selecting the correct font, run the Xstation's Configuration Diagnostics (for example, hold down the F12 key and select the Diagnostics icon. You should see a button to display font logging.)

Then run COLD Preview. The font logging will show whether font selections are coming from the Font Server or the Xserver, and it will also show you which specific font is being selected.

Return to the Main Procedure

After you have finished configuring and verifying the Font Server, you can return to "TCP/IP Address" on page 27.

Appendix K – Support for PCI-X Dual Channel Ultra320 SCSI (LVD/SE) Adapter (Sun only)

Some HP optical libraries have been found to have specific issues when configured on Solaris 10 using the PCI-X Dual channel Ultra320 SCSI (LVD/SE) Adapter. This configuration works correctly on Solaris 9 and diagnostic information has been submitted to Sun service. A patch was not yet available at the time of this release, but there is a work around for each of the following two issues:

Creation of Invalid Device Links

Each time Solaris 10 is rebooted with the reconfigure flag (boot -r) or the /reconfigure file exists on reboot, Solaris 10 will recreated all the device links. This is typically only used when new hardware is added or changed. Solaris 10 has been shown to consistently create invalid device links on reconfigure reboot with attached HP optical libraries.

These invalid device links are associated with device LUNs that do not exist.

Problem

The following is a sample list of the /dev directory for optical device fnsod which has an invalid device entry.

```
ls -al /dev/fnsod*
lrwxrwxrwx 1 root sys 49 May 18 09:46 /dev/fnsod.8,11,3,0
-> ../devices/pci@8,600000/scsi@1,1/SOD@3,0:8,11,3,0
lrwxrwxrwx 1 root sys 49 May 18 09:46 /dev/fnsod.8,11,4,0
-> ../devices/pci@8,600000/scsi@1,1/SOD@4,0:8,11,4,0
lrwxrwxrwx 1 root root 49 May 22 11:28 /dev/fnsod.8,11,4,1
-> ../devices/pci@8,600000/scsi@1,1/SOD@4,1:8,11,4,1
```

In this case, the device fnsod.8,11,4,1 is an invalid device. You would know this by understanding what devices actually exist on a given system. You can find this information from the control panel on the optical library. In this sample case the device arm is device id 3 Lun 0, and the disk drive is id 4 Lun 0, and id 4 Lun 1 is not a valid device.

Solution

The solution to this problem is to remove and recreate the device links by hand. This is done by logging on as a user with root privileges and issuing the following commands.

```
# rem_drv fnsod
# rm /dev/rnsod*
# rm /dev/SOD*
# /fnsw/bin/fnsod.install
```

You should see the following output which shows only the correct devices were created.

```
Beginning fnsod.install script
No match
Driver (fnsod) not installed.
No match
-rw-r--r-- 1 root sys 2584 May 22 15:01 /kernel/drv/fnsod.conf
-rwxr-xr-x 1 root sys 132727 May 22 15:01 /kernel/drv/sparcv9/fnsod
Driver (fnsod) installed. Devices:
/dev/fnsod.8,11,3,0 /dev/fnsod.8,11,4,0
```

Error Following Fix of Invalid Device Links

The second problem has been seen on IS startup once the invalid device links are fixed. The IS software will receive an error in the log when attempting to open the library.

Problem

This is a sample error.

```
FCL: unexpected errno 3 performing open_device operation on file: /fnsw/
dev/1/oddb1
```

Solution

The work around for this is to create /kernel/drv/mpt.conf file which specifically configures the Ultra320 driver to force a bus width of 8 bits. This will not be a problem because these optical libraries can only work in 8 bits and an attempt to negotiate 16 bits is causing the problems.

This is a sample mpt.conf file.

```
name="mpt" parent="/pci@8,600000"
unit-address="4"
target1-scsi-options=0x58
scsi-options=0x178 scsi-initiator-id=7;
```

You must change the parent="/pci@8,600000" to match your specific device. To find this device name, simply issue the command:

```
ls -al /dev/SOD*
```

This is the output which matches the above mpt.conf file.

```
lrwxrwxrwx 1 root sys 45 May 22 15:02 /dev/SOD.0 -> ../
devices/pci@8,600000/scsi@1,1/SOD@3,0:osar
lrwxrwxrwx 1 root sys 44 May 22 15:02 /dev/SOD.1 -> ../
devices/pci@8,600000/scsi@1,1/SOD@4,0:odd
```

The mpt.conf file will also need to be owned by a user with root privileges. You can use the following commands to change ownership of the mpt.conf file.

```
chown root /kernel/drv/mpt.conf
chgrp root /kernel/drv/mpt.conf
```

Appendix L – Sun Multicultural Keyboard Support (Sun only)

This appendix contains steps for setting up a Sun SPARC- or UltraSPARCstation with a Type 5 keyboard so that you may enter characters for any of the supported languages.

The following prerequisites must be met to complete the multicultural environment setup:

- You must have a Sun SPARC- or UltraSPARCstation with a Type 5 keyboard.
- You must be running the OpenWindows 3.3 (or higher) application on the station.
- You must have installed the Feature Package (for the locale in which you intend to run) on your SPARC- or UltraSPARCstation.

Refer to your Solaris documentation for in-depth instructions for setting up the server for National Language Support.

Note Typically, the Sun SPARC- or UltraSPARCstation is configured with a Type 4 keyboard. You must order the Type 5 keyboard separately. You may perform the steps in this appendix on any SPARC- or UltraSPARCstation; however, only the Type 5 keyboard supports imaging software.

Configuring the Sun Server

Configure your Sun SPARC- or UltraSPARCstation for either a non-English environment.

Language support

1. The default locale installed (as part of the operating system installation) is English (locale "C"). Select the Alternate Language option from the Custom Install Configuration menu during the installation of the operating system to specify which of the available system-wide translations will be installed in addition to the default locale.

Note Refer to the section discussing Locale in the System Configuration and Installation Guide (depending on the version of Solaris installed) for instructions on how to install alternate languages.

2. Verify that the Feature Package, for the locale in which you plan to run, is installed. For example: the Japanese Feature Package (JFP) for Japan, the Korean Feature Package for Korea, and so on. These packages consist of extensions for Solaris and incorporate numerous facilities for handling local linguistic and cultural conventions.

   Verify that the following directory exists:

   `/usr/openwin/lib/locale/<locale>`

   where <locale> is the language in which you want to run. For example: de (German), fr (French), and so on.

   If this directory does not exist, refer to the OpenWindows translated feature packages for the specific language, or have your Sun system administrator install the package.

3. Verify that the following lines appear in the ~/.Xdefaults and ~/.OWdefaults files:

```
OpenWindows.Basic Locale
OpenWindows.DisplayLang
OpenWindows.InputLang
OpenWindows.NumericFont
OpenWIndows.TimeFormat
```

   If the entries do not exist, refer to the section discussing Locale in your Solaris documentation for instructions.

4. If you need a particular font for a particular locale, you can make the font available by adding locale-specific font resources to the ~/.Xdefaults file, as follows:

```
OpenWindows.RegularFont.<locale> <fontID>
OpenWindows.BoldFont.<locale> <fontID>
OpenWindows.MonospaceFont.<locale> <fontID>
```

   where <locale> is the basic local setting and <fontID> is the font or font set.

5. You must set up the LANG variable in your shell environment files using your preferred editor. From your .HOME directory, edit the necessary files by completing one of the following:

Important Verify that the language you select here matches the language that was selected when the relational database software was installed.

- For sh and ksh, add the following lines to your .profile file:

```
LANG=language
export LANG
```

  where language is the native language (locale) in which you want your server to operate.

- For csh, add the following line to your .login file:

```
setenv LANG <language>
```

  where <language> is the native language (locale) in which you want your server to operate.

6. To use 8-bit characters, you must change the locale of the Solaris operating system for the desired language. However, European locales require installation of translated feature packages.

   a. If these feature packages are not available to you, use the following work-around:

   - In csh shell, enter:

```
setenv LC_CTYPE iso-8859_1
```

   - In sh shell, enter:

```
LC_CTYPE=iso_8559_1
export LC_CTYPE
```

   Note The ISO_8859_1 is not a valid setting for the OpenWindows locale X resources. The ISO_8859_1 setting is not a full locale setting but a setting for the LC_CTYPE category only. DO NOT set the LANG environment variable to ISO_8859_1.

b. Set the terminal port to allow 8-bit processing for applications (like Command Tool or Shell Tool) by typing:

```
/usr/bin/stty cs8
/usr/bin/stty -istrip
```

You can insert the above settings in your .login (for csh) or .profile (for sh) file.

c. If they exist, remove the following resources from the ~/.Xdefaults or ~/.OWdefaults file:

```
OpenWindows<Basic Locale>
OpenWindows<DisplayLang>
OpenWindows<InputLang>
OpenWindows<NumericFont>
OpenWindows<TimeFormat>
```

Configuring the Type 5 Keyboard

The Type 5 keyboard can be configured (through DIP switch settings) for various European and Asian support. (It can also be configured to function as a Type 4 keyboard.) Refer to your Solaris documentation for detailed instructions for setting up the keyboard, or have your Sun system administrator set it up.

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