IBM FileNet Image Services
Version 4.2

Installation and Configuration Procedures for Windows Server

GC19-3309-00

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Note
Before using this information and the product it supports, read the information in "Notices" on page 103.

This edition applies to version 4.2 of IBM FileNet Image Services (product number 5724-R95) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

ibm.com and related resources

Product support and documentation are available from ibm.com.

Support and assistance

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

FileNet Image Services Support
http://www.ibm.com/software/data/content-management/filenet-image-services/

PDF publications

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

See the following PDF publications website:

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

How to send your comments

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

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

Consumability survey

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

Contacting IBM

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

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

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

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

Chapter 1. Getting started

Hardware requirements

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

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

Total paging space

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

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

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

Table 1. Required Total Paging Space for Oracle

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

Total disk space

The amount of disk space required for RDBMS software depends on whether Server or Client software is installed and the products selected.

For more information, see the following guidelines:

- *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*
- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server*

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

Temporary space

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

- 500 MB total space in temp

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

File system space for FileNet Image Services

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

FileNet Image Services requires the following minimum amount of free disk space:

- 1000 MB (1 GB) total space in `\fnsw`
- 500 MB total space in `\fnsw_loc`

In addition, the installation program needs the following amount of temporary space for extracting files:

- 500 MB total space in `\temp`

Additional requirements for Windows

Determine the hardware requirements for the Windows Server systems.

Server hardware

Verify processor speed and memory on your Windows server.

Tip: To check the amount of memory:

- Log on as **fnsw** or **Administrator**.
- From the Command Prompt window, enter the `winmsd` command.
- Locate the **Total Physical Memory** under **System Summary**.
- An NTFS file system with the required amount of disk space as described in "Total disk space" on page 1.

Tip: To see how much disk space is available, use **Windows Explorer**, and select the drive where you plan to install IBM FileNet Image Services. 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.

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

Windows operating system software

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

Restriction: Upgrade the Windows operating system BEFORE you upgrade the IBM FileNet Image Services and RDBMS software.

Software requirements

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

Server naming conventions

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

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

```
object:domain:organization
```

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

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

Object name

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

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

Domain name

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

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

Organization name

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

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

FileNet Image Services software image

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

FileNet Image Services & COLD™ 4.2 for Windows Server

Relational database management software

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

DB2 RDBMS software (client)

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

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

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

Oracle RDBMS software

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

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

See the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers* or 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 these documents, see "ibm.com and related resources" on page v

MS-SQL RDBMS software

There is a separate guidelines document to see when installing MS-SQL in a site-controlled environment.

Attention: The SQL software is not supplied.

See 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, see "ibm.com and related resources" on page v.

Microsoft Visual C++ 2005 Redistributable Package

The IBM FileNet Image Services 4.2 binaries for Windows are compiled with the Microsoft Visual C++ 2005 Redistributable Package (x86) English version.

The FileNet Image Services installation program automatically installs this package. If during the course of using FileNet Image Services the Microsoft Visual C++ 2005 Redistributable Package is uninstalled, the FileNet Image Services administrator is required to manually download and install the package from the Microsoft website.

Important: Do not use the Service Pack version of the Microsoft Visual C++ 2005 Redistributable Package. Any mismatch in the versions could result in undesirable behaviors in the FileNet Image Services applications.

Debugging software

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

Use the debugging software that was packaged with the Windows operating system.

Multicultural support

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

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

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

- Folders are created and named using Desktop client software. Because the folders are stored in the index database, their names must also use the Windows code page character set that is the equivalent of the character set used by the RDBMS and the FileNet Image Services software on the FileNet Image Services server.
- For FileNet Image Services systems configured with Western European character sets, valid alphanumeric characters must be in the 7-bit ASCII range. For FileNet Image Services systems configured with non-Western European character sets, any valid 8-bit alphanumeric character is acceptable.
- Both Western and non-Western 8-bit character sets (character values range from 0 to 255) have valid alphanumeric characters above the ASCII range. ASCII characters occupy the first half of all 8-bit character sets and range in value from 0 to 127. Non-ASCII characters have values ranging from 128 to 255.

See Appendix D, “Installing FileNet Image Services in non-English Environments,” on page 85 for more information.

Heterogeneous support

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

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

- A FileNet Image Services Root/Index server and Storage Library server must use the same operating system platform.
- An Application server that uses the Windows operating system can be configured with any UNIX or Windows FileNet Image Services system.
- A remote relational database server can use an operating system that is different from the FileNet Image Services Root/Index server and Storage Library server.
  - MS SQL relational databases can be installed only on local or remote Windows servers.
  - Oracle relational databases can be installed on either local or remote UNIX or Windows servers.
  - Oracle relational databases can also be installed on remote Linux servers.

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

Related documentation

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

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

- *IBM FileNet Image Services System Administrator's Handbook*
- *IBM FileNet Image Services System Administrator's Companion for Windows Server*
- *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 and MS SQL Software for Windows Server*
- *IBM FileNet Image Services MSAR Procedures and Guidelines*
- *IBM FileNet Image Services Integral Single Document Storage and Retrieval Procedures and Guidelines*

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

Chapter 2. System Administrator Tasks

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

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

Operating system requirements

Operating system requirements for the Windows server.

Verify Windows debugger

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

Use the debugging software that was packaged with the Windows operating system.

Download Help Viewer

Download the Help Viewer for Windows 2008 only.

About this task

When you install IBM FileNet Image Services 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.

Procedure

To download WinHlp32.exe, visit the following Microsoft website: http://support.microsoft.com/kb/917607.

Check or configure paging file size

Use the Windows control panel to modify the paging file size.

Procedure

To check or 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 **Change**. The Virtual Memory window opens.
4. In the Virtual Memory window, 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 Image Services datasets. In addition, you can allocate virtual memory on more than one drive.
5. Ensure that the initial paging file size for FileNet Image Services 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 window.
      - Click **Cancel** in the Performance Options window.
      - Click **OK** in the System Properties window.
      - Close the Control Panel, and skip to ,"Configure TCP/IP and Simple Network Management Protocol (SNMP) protocol" on page 10.
   b. If you DO need to increase the paging file size, enter the initial size and maximum size (in MB) in the Virtual Memory window.

      Tip: If your system requires more virtual memory than specified here, the error message: `System running low on virtual memory. 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, and prompts you to restart your computer now. Click **No**. (Do not restart the server at this time.)

Determine if your storage management system supports synchronous writes

If your system uses a storage management system such as Network Attached Storage (NAS) 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 can be lost. It is also a specific requirement of database vendors for storing database files.

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

Attention: 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 *IBM FileNet Image Services System Tools Reference Manual*.

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

System configuration issues

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

Update the \etc\hosts file

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

About this task

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
```

Important: Your hosts file might contain a combination of the familiar IPv4 network addresses and the more recent IPv6 network addresses. The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, 2001:DB8:FE80::2C0:FE35:9FFF:D28).

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

Procedure

Root/Index server IP address: 192.0.2.14

Example

For the following entries:

```
Root/Index server IP address: 192.0.2.2
IS Root/Index server name:  titian
IS Domain name: Titian:ExampleCo
```

The hosts file entry looks like this:

```
192.0.2.2        titian           titian-exampleco-nch-server
```

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

```
192.0.2.2                          titian          titian-exampleco-nch-server
192.0.2.5                          bassanio        bassanio-exampleco-nch-server
192.0.2.6                          atelier         atelier-exampleco-nch- server
2001:DB8:FE80::2C0:FE35:9FFF:D28   atelier         atelier-exampleco-nch-server
192.0.2.7                          sienna          sienna-exampleco-nch-server
192.0.2.8                          vermeer         vermeer-exampleco-nch- server
2001:DB8:927:2638::927::2638       vermeer         vermeer-exampleco-nch-server
2001:DB8:fe80::fefe::0927:2638     vermeer         vermeer- exampleco-nch-server
```

Create Image Services users and the fnusr group

Create Image Services users and the fnusr group

About this task

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

Procedure

To create IBM FileNet Image Services users and the fnusr group

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

Table 2. Group information

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.

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

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

Table 3. Database administration group

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 Simple Network Management Protocol (SNMP) protocol

Configure TCP/IP and SNMP protocols, which are required for all systems.

To ensure complete functionality, IBM FileNet Image Services requires that TCP/IP protocol is installed on your server.

To install TCP/IP, if it is not currently installed on your server, open the Network and Dial-up Connections window:

1. Click **Start** > **Settings** and double-click the **Network and Dial-up Connections** icon.

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

Verify NetBIOS setting on Windows 2003 servers

Verify NetBIOS setting on Windows 2003 servers

About this task

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

Procedure

To verify NetBIOS settings on Windows 2003 servers:

1. Click **Start** > **Control Panel** > **Network Connections** , then right-click the Ethernet Adapter that you want to configure, and choose **Properties**.

   The Ethernet Adapter window opens.
2. On the General tab, select **Internet Protocol (TCP/IP)** and click **Properties**.

   The Internet Protocol (TCP/IP) Properties window appears.
3. Click **Advanced** to open the Advanced TCP/IP Settings window, 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 the server optimizer level

Use the Windows Network and Dial-up connections control panel to maximize data throughput for network applications.

Procedure

To set the server optimizer level:

1. From the Taskbar, click **Start** > **Control Panel**.
2. Open the **Network Connections** control panel.
3. Right-click on your local area connection and select **Properties**.
4. In the Local Area Connection Properties dialog box, select **File and Printer Sharing for Microsoft Networks** and click **Properties**.
5. Select the **Maximize data throughput for network applications** radio button, and click **OK**.
6. 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.

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

Print these pages and use them for recording the specified required information, so you can reference them 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

Record your system information.

Procedure

1. Obtain the following user name information:

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

Table 4. Windows system information

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. Enter the 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, **192.0.2.14**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:DB8:252:0:1::2008:6**).

Installation Information	System Information
Server Static IP Address	
Network Address (cluster servers only)	

Installation Information	System Information
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 IBM FileNet Image Services system. If you have more than one IBM FileNet Image Services system (domain), each **must** use its own unique SSN to prevent potential problems if media are ever transferred from one IBM FileNet Image Services system to another. The valid range of SSNs is 1000 through 2147483646.

Compatible system information

Record information about compatible (peer) servers and systems

Procedure

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, **192.0.2.3**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:DB8:252:0:1::2008:6**).
Make sure the name of the server, 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.

Table 5. Compatible system information

NCH Domain Name	Static IP Address	SSN

Important: When adding addresses for peer systems in `fn_edit`, use the IPv4 format instead of the IPv6 format.

Storage library information

Record the Storage library information for each Storage library device.

Record the appropriate Storage library device information for each Storage library device on your system in this table:

Table 6. Storage library information

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:

_____

Printer server information

Record the Printer server information for each printer.

Record the information for each printer on your system in the table. The standard IPv4 addresses contain four decimal numbers separated by periods (for example, **192.0.2.6**). The IPv6 addresses contain up to eight groups of hexadecimal numbers separated by colons (for example, **2001:DB2:252:0:1::2008:6**).

Table 7. Printer server information

NCH Name	Printer Type	Printer Server Static IP Address

Optical drive information

Record the optical drive information for each optical drive.

Record the appropriate optical drive information for each optical drive on your system in the following table.

Table 8. Optical drive information

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

Table 8. Optical drive information (continued)

Optical Drive Information	Drive 1	Drive 2	Drive 3	Drive 4
SCSI ID Number (0-6)				
Logical Unit Number (0-3)				

Record the path for the optical drive driver here:

_____

File system and dataset information

Record the file system and data set information.

You must determine the expected size of the data sets (in MB), and on which NTFS file system to install each data set. See your *IBM Capacity Planning Tool* and complete the following table appropriately for your system.

Table 9. File system and data set information

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	

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

System cache information

Record the system cache information.

You must determine the minimum and maximum cache sizes (in%) for the following caches. See your *IBM Capacity Planning Tool* and record the cache information for your system in this table:

Table 10. System cache information

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

Chapter 3. Installing the relational database software

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

Perform the steps in this section on these servers:

- Root/Index server during a Dual server installation.
- Root/Index/Storage Library server during a Combined server or Entry server installation.
- Application server with WorkFlo Queue services or SQL services.

IBM FileNet Image Services on Windows server supports the following three Relational Database Management Systems. Skip to the section for the one that is going to be installed on this FileNet Image Services system:

- "Installing IBM DB2" on page 18
- "Oracle 10g and Oracle 11g"
- "MS SQL Server" on page 19

For more information, see the appropriate document:

- *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*
- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server*

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

Oracle 10g and Oracle 11g

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

Oracle variables

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

```
$ORACLE_HOME: _____

$ORACLE_SID:  _____

Oracle user name:_____

DBA group name: _____

f_sw password: _____

f_sql password: _____

f_maint password: _____

f_open password: _____
```

Table space names and sizes

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

Table 11. Table space name and size information

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

After you have this information, you are ready to install the IBM FileNet Image Services software, continue with Chapter 4, "Installing FileNet Image Services software," on page 21.

Installing IBM DB2

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

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

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

Gathering DB2 database information

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

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

Table 12. User information

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

Table 13. Tablespace information

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

f_sw password: _____

f_sqi password: _____

f_maint password: _____

f_open password: _____

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

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

After you have this information, you are ready to install the IBM FileNet Image Services software, continue with Chapter 4, "Installing FileNet Image Services software," on page 21.

MS SQL Server

Locate and install the Microsft SQL Server software on your Windows Server system when setting up your IBM FileNet Image Services system.

See 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 "ibm.com and related resources" on page v. After MS SQL Server has been successfully installed, the Database Administrator must provide the following information:

Table 14. MS SQL Server-related passwords

Users	Passwords
f_sw password	
f_sqi password	
f_maint password	
f_open password	

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

After you have this information, you are ready to install the FileNet Image Services software. Continue with Chapter 4, "Installing FileNet Image Services software," on page 21.

Chapter 4. Installing FileNet Image Services software

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

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

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

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

Checking the connection to a remote Oracle database

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

About this task

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

Procedure

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

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

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

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

   Tip: To double-check, enter:

   ```
   tnsping Michigan_IDB.world
   ```

Checking the connection to the remote DB2 database

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

About this task

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

Procedure

To check the link to the DB2 database:

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

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

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

Checking the connection to a remote Microsoft SQL Server database

If the Microsoft SQL Server database is located on a remote server, check the connection between the FileNet Image Services server and the remote Microsoft SQL Server database.

About this task

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

Procedure

To verify that the remote Microsoft SQL Server is a trusted SQL

Enter

```
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. With this step, you are using Windows authentication to connect from an IBM FileNet Image Services server to the remote Microsoft SQL Server.

Finding the FileNet Image Services installation log files

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

The log files are located in the `\fnsw_loc\logs\install\4.2.0` directory.

- **IS_4.2.0.log**: Contains the progress, results, and completion status for the installation. See this file to get further information about any errors or warnings that you received during the installation.
- **FileNet_Image_Services_InstallLog.log**: This secondary installation log file contains more detailed information about the installation status for each file and installation step. See this file for more information if the `IS_4.2.0.log` file reports an Installation Status of FATAL_ERROR or NONFATAL_ERROR.

Starting the FileNet Image Services installation program

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

Procedure

To start the FileNet Image Services installation program:

1. Log on as a user with administrator privileges.
2. For silent installation only: Locate the appropriate `options.txt` file in the downloaded software image or on the software CD, and copy the file to a local directory on your server. (You can rename it to something shorter, like `opt.txt`) The `options.txt` file contains standard responses to the installation prompts. Edit this file to make any appropriate changes and save the file. The options and their default values are fully described in the file. Review the silent installation log file to determine the progress and results of the installation.
3. If you plan to run the installation program in silent mode, and you determined earlier that the `\tmp` directory does not have enough free space, specify an alternate directory. The alternate temporary directory must be outside the `\fnsw` directory structure. For example, you might enter:
4. As a user with root privileges, change to the directory where the FileNet Image Services installation program is located and start the installation program.
   - Graphical mode

     `is_4.2.0_win.exe`
   - Silent mode:

     `is_4.2.0_win.exe -i silent -f c:\tmp\opt.txt`

   Important: `c:\tmp\opt.txt` is the location of the text file you modified earlier. Specify its full path on the command line. For example, `... -i silent -f c:\fnsw_loc\tmp\opt.txt`

   If you run the system checks in silent mode, check the log file in `\fnsw_loc\logs\install\4.2.0` to determine the results. The name of the log file is `IS_4.2.0.log` .
5. During the system check, the installation program verifies the status of server characteristics in these categories:
   - FileNet Image Services users and groups
   - Operating system checks
   - Hardware checks

   The same checks are performed for both the **System Checks only** and the **System Checks and Install Image Services** options. The labels in the status column are also color-coded:
   - **Pass** (green) indicates that the check has passed.
   - **Optional** (yellow) indicates that the check encountered a value that might affect the performance of the FileNet Image Services system, if it is not corrected. However, the installation program can continue.
   - **Fail** (red) indicates that a check has failed and the installation program cannot continue.

Some system checks produce only warnings, while others prevent the installation of the FileNet Image Services software:

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

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

Hardware checks

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

Procedure

To run the hardware checks after correcting a configuration item:

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

Operating system checks

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

Check the following values for your system:

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

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

FileNet Image Services user and groups check

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

The FileNet User and Groups Check window displays the following information:

- FileNet Image Services groups
- FileNet Image Services users
- Database user and group (Oracle only)

The **Status** column indicates whether the group in the **Name** column exists and contains the appropriate users listed in the **Required Members** column.

- Green plus sign (+) indicates that the group and member users are present.
- Red minus sign (-) indicates that the group or member users are missing.

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

Finishing the system checks

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

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

- If the System Checks failed with errors, you must fix all the error conditions reported. You can then run the System Checks again.
- If the System Checks passed all the tests, but generated warnings for the swap space, debugger, or kernel parameter tests the final screen will indicate this. Check the log file for additional items you might want to correct.
- If the System Checks completed successfully and you selected the option to install IBM FileNet Image Services software, the installation program continues with the section, “Install FileNet Image Services software” on page 58.

Chapter 5. Configure the FileNet Image Services software

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

Grant Logon as Service right to the fnsw user

Issue the Logon as Service right to the FileNet Image Services software user by setting the password for IS ControlService.

About this task

The Logon as Service right is automatically granted when the user manually re-enters the password in the Service properties panel for the IS ControlService. A 1069 logon failure error occurs 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 prevent this error, the System Administrator, must reset the password for the user with fnsw privileges in the **Service Control Panel** for the FileNet Image Services service (IS ControlService).

Procedure

To grant the Logon as Service right:

1. As the FileNet Image Services software user, open the **Control Panel**.
2. 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 steps:
   a. Select the **Logon** tab.
   b. Enter and confirm the password.

Verify TCP/IP parameter settings (optional)

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.

About this task

These modifications are not required, but they have been found to be favorable for optimal FileNet Image Services 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 is possible to run out of temporary ports unless you increase the MaxUserPort setting.
- The **TcpMaxConnectRetransmissions** parameter determines how many times TCP retransmits an unanswered request for a new connection. TCP retransmits new connection requests until they are answered or until this value expires.

- The **TcpTimedWaitDelay** parameter determines the length of time the server waits before reusing a closed socket ID.

Procedure

1. From a Command Prompt window, enter the following command to open the Registry editor:

   ```
   REGEDT32
   ```

   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 4.
   - If this parameter is less than 65534 (decimal) or FFFE (hex), you need to increase it.
     - Double-click on the entry to open the DWORD Editor dialog box.
     - In the DWORD Editor dialog box, set the Radix to decimal or hex, and change the value to `65534` (decimal) or `FFFE` (hex).
     - Click **OK**, and skip to 4.
   - If this parameter does not exist, you need to define it.
     - From the Registry Editor **Edit** menu, select **Add Value**.
     - Enter `MaxUserPort` in the **Value Name** box, and select **REG_DWORD** from the **Data Type** box drop-down list; then click **OK**.
     - Set the Radix to decimal or hex, enter **65534** (decimal) or **FFFE** (hex) in the Data box, and click **OK**, and skip to 4
4. Locate the **TcpMaxConnectRetransmissions** Parameter.
   - If this parameter is already set to 5 (decimal) skip to 5.
   - If this parameter does not exist, you need to define it.
     - From the Registry Editor **Edit** menu, select **Add Value**.
     - Enter `TcpMaxConnectRetransmissions` in the **Value Name** box, and select **REG_DWORD** from the **Data Type** box drop-down list; then click **OK**.
     - Set the Radix to decimal and enter **5** (decimal) in the Data box, and click **OK**, and skip to 5.
5. 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.
     - Double-click on the entry to open the DWORD Editor dialog box.
     - In the DWORD Editor dialog box, set the Radix to decimal or hex, and change the value to **30** (decimal) or 1E (hex).
     - Click **OK** and go to the next section.
   - If this parameter does not exist, you need to define it.
     - From the Registry Editor **Edit** menu, select **Add Value**.
     - Enter `TcpTimedWaitDelay` in the **Value Name** field, and select **REG_DWORD** from the **Data Type** drop-down list; then click **OK**.
     - 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.

What to do next

If a connection error is displayed such as the following:

```
15,16,17 WSAECONNREFUSED 10061
```

The connect error indicates that the NLS_Archiver is unable to connect to the IS COR_Listen process because there is no COR queue space. The FN_COR_QLEN environment variable must be explicitly set in Windows as the default value of 5 is insufficient. Go to **My Computer** > ⌂**Advance** > ⌂**Environment Variables** to add a value of 20-25 for the variable FN_COR_QLEN. These values are the default used on UNIX systems. This should resolve the 15,16,17 errors.

Configure Windows firewall with Advanced Security (Windows 2008 only)

Configure the inbound rules for the Windows Firewall with Advanced Security.

About this task

After installing FileNet Image Services on a Windows 2008 server, you need to confirm that the inbound rules are configured correctly.

Procedure

To configure advanced security:

1. As Administrator, start the Server Manager, and under Configuration > "Windows Firewall with Advanced Security" , click **Inbound Rules**.
2. Click **New Rule** in the **Actions** column on the right side, then select the **Port** option on the Rule Type window and click **Next**:
3. On the Protocol and Ports window, select **TCP** for the port type, and enter `32768,32769` in the **Specific local ports** field and click **Next**.
4. On the Action window, select **Allow the connection** and click **Next**.
5. On the Profile window, verify that all of the boxes are checked and click **Next**.
6. On the Name window, 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

The User Account Control (UAC) feature of Windows 2008 must be turned off for FileNet Image Services.

Procedure

To turn off UAC, follow these steps:

1. Start 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 restart the server.

Shared memory

IBM FileNet Image Services software makes extensive use of shared memory. This is memory that is accessible to all FileNet Image Services processes. Shared memory is used to share data among FileNet Image Services processes, one process writes data to shared memory and another process reads the data. The ipc_tool utility is used to monitor FileNet Image Services shared memory.

Shared memory segments

Shared memory is allocated in units called segments. The total shared memory used for IBM FileNet Image Services is determined by two factors: the number and size of the segments. Both of these can be configured. Shared memory segments are attached to processes, so that the data saved in these segments can be shared across multiple processes.

FileNet Image Services shared memory segment types

FileNet Image Services uses shared memory for the following segments:

- Process log segment, which contains information on FileNet Image Services operation
- Circular buffer debug log segment, an optional segment used only when certain kinds of debugging are enabled. This segment is not created by default.
- Address manager segment, which contains a list of addresses used by the shared memory data segments
- Shared memory data segment , which contains Image Services working data

Process log segment, Circular Buffer Debug log segment, and Address Manager Segment each use a single small segment and do not require special attention.

The remainder of this document deals with the Shared Memory Data Segment. FileNet Image Services allocates at least one data segment on the system. The FileNet Image Services subsystems (such as MKF, DOC, CSM, and so on) store their working data in data segments.

To display information on shared memory segment usage run

```
ipc_tool –A
```

The following is an example. The output can vary depending upon the hardware platform and release

```
drive:\fnsw_loc\logs\elogs> ipc_tool –A

  ipc_tool VERSION 4.2.0.9      2011/01/20 16:31:00

  Shared memory information for Image Services:

  Shared memory data segment size: 67108864 bytes (64 MB)

  Software shared memory limit:  10 data segments (640 MB)
  Tested shared memory maximum:   9 data segments (576 MB)

  The "Software shared memory limit" is the theoretical maximum
  amount of shared memory that could be allocated given the current
```

```
  Image Services configuration and system imposed limits.

  The "Tested shared memory maximum" is the actual maximum amount of
  shared memory that was allocated by a test during Image Services startup.
  This is the practical upper limit on shared memory for this system
  using the current shared memory configuration.  The memory allocated
  for this test was released after the test.  The actual shared memory
  currently in use is displayed below.

Address Manager segment: (segment size = 200 bytes)

       Address     Shm id     Creator
  0 0xc0000000  101711876  Shared addrmgr

Shared memory data segments:

    Address     Shm id    Creator             Used Bytes       Free Bytes
  1 0xb0000000  30408717  FileNet server    67061940  99%           0   0%
  2 0xa0000000  40894476  FileNet server           0   0%    67108816 100%
  3 0x90000000 587202570  FileNet server    53138548  79%    13959732  20%

Total Image Services allocated shared memory data segments: 3

  Note: Used + Free is less than the segment size because some
  "overhead" bytes are used for shared memory maintenance and
  these are not recorded as Used or Free.  The percentages may
  not add up to 100 due to rounding.

Image Services shared memory usage (totals):

                  Bytes    MB
  Allocated:  201326592   192
  Used:       120200488   114  59.7%
  Free:        81068548    77  40.2%
  Overhead:       57556     0   0.0%

The following table lists the addresses used for the shared memory segments.

System's fixed shared memory address table (derived):

  0: 0xc0000000  Allocated
  1: 0xb0000000  Allocated
  2: 0xa0000000  Allocated
  3: 0x90000000  Allocated
  4: 0x80000000  Not used
  5: 0x70000000  Not used
  6: 0x60000000  Not used
  7: 0x50000000  Not used
  8: 0x40000000  Not used

The size of a data segment, the number of allocated segments, and the amount of free memory in
the segments is shown.
```

To summarize SHM usage by Image Services subsystem run:

```
ipc_tool –t

Abstract Total Avg Block Total Bytes
-------- ----- --------- -----------
ARM     3   5270.67  15812
ASH     1   56.00   56
BES     3   881.33  2644
BESl     1   132.00  132
. . .
WQS     1   36.00   36
WQSl      2   524.00  1048
WRT     1   20.00   20
```

The output determines which subsystems are using the most shared memory.

To display detailed SHM subsystem usage run:

```
ipc_tool –a
```

Shared memory usage is broken down into the individual chunks used by the various subsystems.

Setting shared memory for Microsoft SQL Server

There is a potential memory conflict between FileNet Image Services and Microsoft SQL Server. This release of FileNet Image Services now supports using an address list for setting and managing shared memory automatically and only requires a reboot to remove the conflicting address.

Important: The addr_list feature was introduced in releases 4.1.1 FP 11 and 4.1.2 FP 8.

The allocation of shared memory on Windows systems is more complicated than on UNIX, and requires additional configuration. FileNet Image Services was designed to store virtual memory addresses within shared memory data. For example, this allows placing linked lists in shared memory. However, storing addresses in shared memory forces a restriction – that all processes must map (attach) a particular shared memory data segment at the same virtual memory address. For example, if shared memory segment #1 is mapped to virtual address 0x45000000 in one process, then it must be mapped at this same address in all other FileNet Image Services processes. This creates a problem because an address that is available for shared memory in one process may not be available in another process – it might be used (occupied) by a vendor software DLL, or for a thread stack, and so on.

The addresses that are available for FileNet Image Services shared memory vary between processes and systems, and can change over time. For example, installing a new Windows update may include a new DLL file whose base address conflicts with one or more addresses previously used for shared memory. This requires changing the FileNet Image Services memory layout to avoid the conflict. Shared memory allocation is very dynamic, and the mechanism to handle the addresses must be flexible.

- If your system uses Oracle or DB2 relational databases, skip to “Restart the server” on page 34.
- If Microsoft SQL Server is accessed remotely and not installed on the same system as FileNet Image Services, this procedure is not necessary. Before following this procedure check with your FileNet Image Services technical support representative.
- The following event log error is created when a shared memory conflict occurs:

```
2010/04/09 13:20:51.063 202,0,24 <fnsw> vwtool (4596.7584.0 0x11f4.1da0) ...
[CRITICAL]
fnc_shmat failed for key=0x464a0000 from_catch_segv=0 err=487

2010/04/09 13:20:51.281 202,0,2005 <fnsw> vwtool (4596.7584.0 0x11f4.1da0) ...
[CRITICAL]
SysV: Error 487 mapping file view. Process Aborting...
This is most likely due to a shared memory conflict.
```

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 Services to determine the cause.

FileNet Image Services shared memory addresses on Windows

FileNet Image Services checks each of its processes to build a list of virtual addresses that can be used for shared memory.

This list is stored in a file:`\fnsw_loc\sd\1\addr_list`

The addresses are saved as ASCII text, so the file can be examined. The file is automatically created and updated by FileNet Image Services.

The addr_list file is initially created by the first FileNet Image Services process that starts up after a new install. That process scans its virtual memory map for free areas large enough to contain a shared memory segment. The addresses for these areas are saved for use by other FileNet Image Services processes. All FileNet Image Services processes periodically check the list against their own memory usage to determine if each address is free in that process. If an address is not free, then it is removed from the list. The new, revised address list is saved in the addr_list file during a recycle (the previous version of the file is renamed so it is not lost).

This method has the advantage of creating an address list that is uniquely tailored to each individual system and continually updated when necessary. However, when the addr_list file is first created the list may not yet be stable because it has not yet been modified by all FileNet Image Services processes to remove the in-use addresses.

Important: The system should be recycled multiple times after a new FileNet Image Services installation or update. This will help stabilize the list of addresses used for shared memory.

Minimizing shared memory conflicts on Windows

The allocation and use of memory on Windows systems is very dynamic and changes over time. It is possible that a new shared memory conflict will occur and this will cause FileNet Image Services to fail.

When FileNet Image Services processes start up, they attach to all existing shared memory segments as part of the process initialization before they begin doing any real work. Once the segments are all attached, the addresses used for the attaches are no longer free – these addresses are now “locked in” and no conflict can occur with them. It is thus advantageous to perform all shared memory mapping as soon as possible at process startup.

However, addresses that are not “locked in” may still get used for something else, such as loading a DLL or allocating a new thread stack, and so on. If a new shared memory data segment is created dynamically because of an increased need for shared memory, then the address used to map the segment may not be available in all processes and a conflict will occur. This conflict is more serious, because it can happen in a process that is already doing work and cause the process to abort.

The chance for this kind of conflict can be reduced by configuring shared memory to have enough free space to handle an increase in performance without needing to dynamically allocate a new segment. Shared memory usage should be periodically monitored and adjusted to provide this ability to expand.

Restart the server

Restart the server so that newly installed device drivers can take effect. The time that is needed for the shutdown and restart process varies for each system. After the server restarts, logon as the FileNet Image Services software user, such as fnsw. When the FileNet Image Services software is first installed, the fnsw password is set to fnsw.

Install the required pre-startup fixes

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

You can retrieve these fixes from the IBM Information Management support page “ibm.com and related resources” on page v.

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

Continue with server configuration

Continue the installation for a combined, dual application or storage server.

About this task

For a Combined server or Dual server system, continue with the section, “Logon to the configuration database” on page 77.

If you are adding an Application server, skip to the section, “Configuring the Root server” on page 58.

If you are adding a Storage Library server, skip to the section, “Configure the Root server” on page 70.

Logon to the configuration database

This section describes how to construct an FileNet Image Services system configuration database that is customized to your installation.

About this task

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.

Important: To configure FileNet Image Services with SQL Server 2005, you must install FileNet Image Services 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.

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.

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.

Procedure

To create a customized configuration:

1. If you have not already done so, logon as the FileNet Image Services software user.
2. Start the Configuration Editor.

   Click **Start** > **Programs** > **FileNet Image Services** > **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.

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

   If you are installing FileNet Image Services software on the system for the first time, the Configuration Editor program will detect that no databases exist and will open a New Configuration Database automatically. Otherwise, Configuration Editor will determine your database name and use it, along with your Domain Name.
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, see your "Windows installation worksheet" on page 12 for dataset sizes.

   Tip: Use the online help for more instruction on answering the prompts for each template type. Select the Help menu option in the Configuration Editor.

When you are 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 will 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.

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.

   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 window has a help button that is designed to provide information you might need to complete the 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)

Define the table space names for DB2 or Oracle databases.

Important: This procedure assumes that the table spaces and databases that you specify in the System Configuration Editor either already exist or that you will create them before you initialize the FileNet Image Services databases. For **Oracle**, see the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server*. For **DB2**, see the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*. To download the guidelines from the IBM support page, see "ibm.com and related resources" on page v.

The Database Administrator might have supplied this information in the section, Chapter 3, "Installing the relational database software," on page 17.

Continue with the appropriate sub-section:

- "Oracle"
- "DB2 V9.1/V9.5/V9.7" on page 37
- "MS SQL server software" on page 38

Oracle

Define the table space names for an Oracle database.

Procedure

To define the table space names:

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

   The FileNet Image Services software uses the table space names entered in the **RDB Objects** subtab. The table space names specified in the RDB Objects list must exist before you initialize the FileNet Image Services databases.
3. On the **Oracle** subtab, verify that the Version matches one of the compatible versions shown in the *Hardware and Software Requirements for FileNet Image Services* document.
4. Skip to the section, "Verify the FileNet Image Services character set" on page 38.

DB2 V9.1/V9.5/V9.7

Verify the database and user tablespace names.

Procedure

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 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.

     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.

     Tip: 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.

Procedure

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 FileNet Image Services character set

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

Procedure

To verify the FileNet Image Services character set

1. On the **System Attributes** tab, scroll to the right and check the settings for **Default Character Set** and **Former Character Set**. On a new server, both are initially set to ISO 8859-1.
2. Change the **Default Character Set** to match the current operating system character set and the RDBMS character set; for example, ISO 8859-2.

   If the FileNet Image Services system has been converted from an older character set, such as FileNet Image Services International, set the **Former Character Set** appropriately. If the system has never been converted, set the **Former Character Set** to match the **Default Character Set**. Refer to the *IBM FileNet Image Services System Administrator's Handbook* for setting the supported language preference for the operating system, databases, and the FileNet Image Services software.

Modify data set file sizes

All of the data set sizes are set by default by the system. To change any of them, change them in their respective **File Size (MB)** spreadsheet cells.

Click on the **Datasets** tab from the main edit menu to view a list of the data sets added by default.

See the "File system and dataset information" on page 15 that were determined by the *IBM Capacity Planning Tool*. Your data set sizes must match the sizes recorded in that table.

When creating larger data sets, note the following:

- The sizes of all of the data sets can be changed in this **Datasets** tab in the **Dataset Size** column.
- Maximum and minimum sizes in number of megabytes is checked by the Editor program.
- Minimum size for security data sets 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. Supporting 255 cache dataset volumes, each 16 GB in size, allows for terabyte caches. The maximum cache size is 4080 GB, or 4 terabytes.

Configure logical cache (optional)

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

Procedure

To configure the logical cache:

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

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

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

Configure system Document Services parameters (optional)

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

Procedure

To configure the Document Services parameters:

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

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

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

Configure MKF database parameters

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

Procedure

To configure the MKF database parameters:

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.

   The default MKF database block size in FileNet Image Services 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

Optional Storage Library procedures for configuring a combined server (Root/Index/Storage Library).

- "Verify and configure storage library device settings (optional)"
- "Connect and configure storage library devices (optional)" on page 41
- "Configure independent vendor access to optical libraries (optional)" on page 41

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 42.

Note: Procedures for configuring a Dual server (separate Root/Index and Storage Library servers) are found in "Setup storage library server (optional)" on page 46. To configure an MSAR System, see the *IBM FileNet Image Services MSAR Procedures and Guidelines*. To download this document from the IBM support page, see "ibm.com and related resources" on page v.

Verify and configure storage library device settings (optional)

View the information concerning the storage libraries configured on your server.

To view the information concerning the storage libraries configured on your server, select the Storage Libraries tab from FileNet Image Services 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.

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#
```

See "Windows installation worksheet" on page 12 for information concerning your storage library devices.

Connect and 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.

Procedure

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 Image Services software user.
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 restart the server to make the changes effective.
5. Restart the server, and logon as the FileNet Image Services software user.
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.Click **Start** > **Programs** > **FileNet Image Services 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** and respond to each of the dialog box prompts that display.

Configure independent vendor access to optical libraries (optional)

FileNet Image Services normally reserves all the optical drives and library arms on the SCSI bus for its own use. However, if other independent vendor software products that access these devices 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 independent vendor products.

About this task

If this server is dedicated to running FileNet Image Services only, skip this section and continue to “Exit the system configuration editor” on page 42.

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

FileNet Image Services must not be running during this procedure.

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

   `OSD.bct`

   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 content 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.1040`

   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.

   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

Save your settings and exit the configuration editor.

Procedure

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

Initialize the relational database software

About this task

Use the procedures below to initialize the FileNet Image Services databases.

Procedure

To initialize the databases:

As the FileNet Image Services software user, initialize the index database and all the MKF databases (the permanent, transient, and security databases) by entering the following commands on the FileNet Image Services server:

```
fn_setup_rdb -f
fn_util init -y > \fnsw_loc\logs\init.log
```

This process might take a while (sometimes up to 30 minutes without any feedback to the user); the larger the data sets, the longer the wait. After the initialization process finishes, the prompt returns.

Tip: 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 on a local installation. Verify that you perform the correct procedures for your system.

About this task

Important: You must start the database before initializing the FileNet Image Services databases. If you do not start the database, the initialization process will fail.

Initialization procedures for local installations

About this task

The initialization procedure in this section is required for local installations of a FileNet Image Services connected to a remote AIX DB2 database server.

Procedure

1. If you are not already, logon as the FileNet Image Services software user.
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
   ```

   Remember: 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)

   Remember: 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\loMcodepgs\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 Image Services dataset permissions

If the FileNet Image Services datasets reside on a different disk than the FileNet Image Services software, you must set the user and group permissions.

Procedure

To set the user and group permissions:

1. As the FileNet Image Services software user, open Windows Explorer and select the directory containing the FileNet Image Services datasets. For example, fnsw\dev\1.
2. Right-click on the folder containing the FileNet Image Services 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:

Table 15.

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.

Chapter 6. Complete the installation on Windows systems

This section contains the final procedures necessary to complete the installation of your system.

Configuring FIPS mode - optional

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

About this task

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

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

Configuring FIPS mode on your FileNet Image Services system is optional. You can configure FIPS mode on your FileNet Image Services system now or at any time in the future. You can also turn off FIPS mode at any time. If you do not want to configure FIPS mode now, skip to the next section, "Install fix packs (optional)" on page 52.

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

Procedure

To configure FIPS mode on your server:

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

   ```
   initfnsw –y stop
   ```

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

   ```
   killfnsw  –D -y
   ```

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

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

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

3. Enter the following command at the system prompt:

   ```
   convert2fips xxxx_xxxx
   ```

   Where xxxx_xxxx is one of the following FIPS modes:

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

   FIPS_PREFERRED – use FIPS encryption unless the server is communicating with a server that does not have either FIPS_PREFERRED or FIPS_ONLY

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

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

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

4. Click **OK** to exit.
5. Use the Task Manager to restart FileNet Image Services.
6. Verify the current FIPS mode by entering:

   ```
   convert2fips
   ```

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

Setup storage library server (optional)

Complete the procedures in this section only on the storage library server of a dual server configuration.

About this task

If you do not have a separate storage library server skip to the section, "Configure BES, cross-committal, or multi-committal systems (optional)" on page 51.

If your system is not configured for Dual server operation, skip this section, and go to the section, "Start FileNet Image Services" on page 52.

Install FileNet Image Services software on the storage library server

Install FileNet Image Services software on the storage library server and verify that the software is running on the root/index server before proceeding.

About this task

See the section,Chapter 4, "Installing FileNet Image Services software," on page 21 to install FileNet Image Services software on the storage library server.

The FileNet Image Services software that you install on the storage library server must be the same version as the software installed on the root/index server.

After the FileNet Image Services software is installed on the storage library server, verify that the FileNet Image Services software is running on the root/index server before proceeding with the next section.

Install FileNet Image Services software on storage library server

Procedure to install the software on the storage library server.

Procedure

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 Image Services software user.
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 restart the server to make the changes effective.
5. Restart the server, and logon as the FileNet Image Services software user.
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 **Start** > **Programs** > **FileNet Image Services** > **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**.

    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 **Yes** to save the configuration and exit the System Configuration Editor.

Configure independent vendor access to optical libraries (optional)

FileNet Image Services normally reserves all the optical drives and library arms on the SCSI bus for its own use. However, if other independent vendor software products that access these devices 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 independent vendor products.

About this task

If this server is dedicated to running FileNet Image Services only, skip this section and continue to “Exit the system configuration editor” on page 42.

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

FileNet Image Services must not be running during this procedure.

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

   `OSD.bct`

   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 content 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.1040`

   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.

   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.

Build configuration files on the storage library server

Build the configuration files on the Storage Library server for the Storage Library device drivers and databases.

About this task

This section assumes that the FileNet Image Services software has already been installed and configured on the Storage Library server. The FileNet Image Services version on the Storage Library server must match the version installed on the Root/Index server.

Important: You must start the FileNet Image Services software on the Root/Index server before starting the FileNet Image Services software on the Storage Library server.

Procedure

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 Image Services software user.
3. If necessary, shutdown the FileNet Image Services 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. 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

   Important: If the datasets do not exist in the \fnsw\dev\1 directory, you must run the FileNet Image Services 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 Image Services software user, enter the following command:

   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.)

   Tip: 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.

Important: 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 the following command again:

```
fn_util init -y
```

Configure storage devices on a storage library server

Use the System Configuration editor to configure and verify the storage devices and databases on the Storage Library server.

Procedure

1. On the Storage Library server, logon as the FileNet Image Services software user.
2. Open the Configuration Editor.

   From the **Taskbar**, click **Start** > **Programs** > **FileNet Image Services** > **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, as the FileNet Image Services software user, 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_loc\sd\1` directory.
8. Start the FileNet Image Services software on all servers: Root/Index server first, then Storage Library server. (See“Start FileNet Image Services” on page 52 for instructions on starting the FileNet Image Services software.)

Configure BES, cross-committal, or multi-committal systems (optional)

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

This section is optional. If you do not have a BES, Cross-Committal, or Multi-Committal System, continue to the section "Verify the system serial number."

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

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

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

- A Cross-Committal System is composed of a source FileNet Image Services system and a target FileNet Image Services system. The source system commits images to the target system, but does not retain the images locally.
- A 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 Image Services system that contains a Storage Library server and commits images both to its own Storage Library and to the Storage Library of another independent FileNet Image Services system. Multi-Committal Systems may or may not be compatible systems with non-overlapping document IDs. If they are not compatible, new doc IDs are assigned on the target system, a minor performance consideration.

Verify the system serial number

The system serial number (SSN) is written on all storage media and must be unique for each FileNet Image Services system.

Procedure

Use the ssn command to display the system serial number. At a Command Prompt, enter the following command:

```
ssn
```

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

Start FileNet Image Services

Use these procedures to start the IS ControlService and the FileNet Image Services software. If you configured your system as a Dual server system, 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

Verify that the IS ControlService is Started and that the Startup type is set to Automatic.

Procedure

To start the IS ControlService:

1. As the FileNet Image Services software user, such as fnsw, open the **Administrative Tools** folder, and double-click the **Services** icon.
2. In the Services window, 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 5.
3. If the properties are not correct, right-click **IS ControlService**.
4. In the IS ControlService Properties window, complete the following steps:
   a. Set the Startup type to **Automatic**.
   b. Click **Start** to start the IS ControlService.
   c. Click **OK** to exit the IS ControlService Properties window.
5. Close the Services window.

Start FileNet Image Services software

Use the FileNet Image Services Task Manager to start FileNet Image Services.

Procedure

1. Open the FileNet Image Services Task Manager.

   From the **Taskbar**, click **Programs** > **FileNet Image Services** > **Server Applications**, and click the **Task Manager** icon.

   Because the IS ControlService is running, the TM_daemon.exe process is listed in the Process column.
2. Click the **Monitor** menu and select **Event Logs**.
3. In the Event Logs window, click the **Display** menu and select the **Dynamic** option. This causes the event window to be refreshed whenever messages are logged. Leave the Event Logs window open.
4. At the FileNet Image Services Task Manager window, click **Start** to bring up the FileNet Image Services software. Messages will display in the Current Status window as FileNet Image Services software is being started.
5. After the FileNet Image Services software has been started, click **Close** 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 fix packs (optional)

You can now install any fix packs that apply to this FileNet Image Services release.

About this task

Read the accompanying Readme file, which contains the instructions for installing the software.

Fix packs are available on the IBM Downloads website.

If you have not already set up an account on the IBM Downloads website, you will be asked to create an account before downloading any of the fix packs that have been posted. Follow the prompts on the website to create a new 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.

Procedure

1. Logon as the FileNet Image Services software user.
2. Shutdown the FileNet Image Services 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 Image Services system (for example, drive C and D.) This can be done by clicking on the 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.

   The location of the backup log file and record the location for future reference.
10. Click **OK** 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 **OK**.
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 FileNet Image Services processes to start automatically (optional)

You can configure your system to automatically start the IBM FileNet Image Services processes immediately after the IS ControlService has started. This preference eliminates the manual process of starting the FileNet Image Services from the FileNet Image Services Task Manager every time you restart your computer.

Procedure

To configure FileNet Image Services processes to start automatically:

1. Click**Start** > **Programs** > **FileNet Image Services** > **System Configuration** > **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 **Edit Parameters**.
4. At the Edit Installation parameters window, select the **AUTOSTART FileNet Image Services PROCESSES** option, and click **OK**.
5. At the CONFIRM SAVE window, click **Yes** to save the installation parameters.
6. Exit the FileNet Image Services Installation Maintenance window.
7. Click **Yes** 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 this document from the IBM support page, see “ibm.com and related resources” on page v

Single document storage systems Tivoli 5.5

On FileNet Image Services systems that use IBM DR550 storage libraries, you must install the Tivoli Storage Manager 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 about installing and configuring Single Document Storage devices, see the *IBM FileNet Image Services Single Document Storage and Retrieval Guidelines (Near Line Storage)*.

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

Start the application executive

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

About this task

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

Procedure

To start the Xapex program:

1. Click **Start** > **Programs** > **FileNet Image Services Server Applications** .
2. Click **Application Executive**.
3. Log on as SysAdmin. (The default password is SysAdmin.)

Begin production mode

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

Appendix A. Adding an application server

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

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

- Add services to an existing server (for example, adding Batch Entry Services to an existing Application server). See the section, "Add server services" on page 60.
- Reconfigure an existing server because the functions it currently performs are no longer required. (Reconfiguring an existing server must be handled the same as installing and configuring a new Application server.)

Installation Prerequisites

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

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

Verify that the server is ready for the software installation by completing the procedures on the System Administrator Tasks checklist fin the section, Chapter 2, "System Administrator Tasks," on page 7

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

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

- If you are configuring an Application server with only Batch, Print, and/or Cache Services, which do not require RDBMS software, skip to "Install FileNet Image Services software" on page 58.
- If the DB2 or Oracle relational database software is already installed, you can also skip to "Install FileNet Image Services software" on page 58.
- If you are configuring an Application server with either WorkFlo Queue Services, SQL Services, or VWServices, continue with the next section to install the relational database software.

Install relational database software (if applicable)

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

IBM DB2

Install the IBM DB2 software.

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

Oracle 10g and Oracle 11g

Install the Oracle software on the Application server.

For guidelines on installing Oracle software on the Application server, see:

- *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server*

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

MS SQL

See the documentation for installing MS SQL software.

For guidelines on installing MS SQL software on the Application server, see 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 "ibm.com and related resources" on page v.

Install FileNet Image Services software

Install IBM FileNet Image Services on the Application server.

Procedure

Install the FileNet Image Services 4.2 software on the Application server by completing the procedures in the section, Chapter 4, "Installing FileNet Image Services software," on page 21.

Configuring the Root server

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

Procedure

To configure the Root server:

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

Select and configure the relational database instance (if applicable)

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

Before you begin

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

- For **DB2**, see the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software*.
- For **Oracle**, see the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server*

To download the guidelines from the IBM support page, see "ibm.com and related resources" on page v. The Database Administrator might have supplied this information in the section, Chapter 3, "Installing the relational database software," on page 17.

About this task

Continue with the appropriate sub-section:

- "Select and configure DB2"
- "Oracle10g release 2 and 11g release 1" on page 60

Select and configure DB2

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

Procedure

To select and configure DB2:

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

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

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

4. Skip to the section, Add Server Services.

What to do next

Add Server Services.

Oracle10g release 2 and 11g release 1

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

Procedure

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

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

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

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

Add server services

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

Procedure

To add services to an Application server:

1. Configure all Application server services on the Root server.
   - Batch Entry Services
   - Print Services
   - Cache Services
   - Structured Query Language (SQL) Services
   - WorkFlo Queue Services (WQS)
   - VWServices

2. If you plan to add VWServices to this Application server, use the procedures in the appendix to install and configure the FileNet Image Services and RDBMS software, and configure a SQL Service on this Application server. After you complete those procedures, see the installation handbook for your IBM FileNet Process Engine for instructions on adding VWServices to the server.

Add batch entry services

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

Procedure

To add batch entry services:

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

   For example: `D:\FNSW\dev\1\cache_0`

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

   If fast batch committal is configured, you cannot use cluster indexes. See the *IBM FileNet Image Services System Administrator's Handbook* for more details on fast batch committal and clustering. The maximum document size for remote committals using fast batch is 2.1 GB. See the *IBM FileNet Image Services Multi-Committal and Cross-Committal Configuration Handbook* for more information on remote committal. To download these handbooks, see "ibm.com and related resources" on page v.
9. Enter the number of BES commitment processes. Choose 2 (the default) or 4.
10. To add more services, continue to the next appropriate procedure below. If this is the last service you are adding to the Application server, skip to the section, "Exit the configuration editor" on page 64.

Add print services and printers

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

Procedure

To add print services and printers:

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

2. From the list of available servers, choose your Application server.
3. From the list of available services, choose **Print Services**.
4. Click **Yes** to add Print Services. (When you select Yes, default settings are automatically entered into the system. You can change the settings later, if necessary.)
5. On the **Procedures** tab, select the **Add a printer** procedure, and click **Run**. A dialog box prompts you to select your printer from a list of supported printers.
6. Click **Yes** if this printer is your default printer.
7. Enter a printer name. Click **OK**. (The printer name can be user-defined.)
8. Enter the Network Clearing House (NCH) Printer name (for example, LJ5SiMX).
9. Enter the network address for the printer (for example, 192.0.2.6).
10. Select the printer paper size.
11. Select the printer Eject Tray (default: Default)
12. Add other printers as necessary by repeating steps 5 through 12.
13. To add more services, continue to the next appropriate procedure. If this service is the last one you are adding to the Application server, skip to the section, "Exit the configuration editor" on page 64.

Add cache services

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

Before you begin

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

Procedure

To add cache services:

1. On the **Procedures** tab, select the **Add a Service to a Server** procedure, and click **Run**.
2. From the list of available servers, choose your Application server.
3. From the list of available services, choose **Cache Services**.
4. Answer the remaining prompts appropriately.
5. Click **OK**.
6. To add more services, continue to the next appropriate procedure below. If this is the last service you are adding to the Application server, skip to the section, "Exit the configuration editor" on page 64.

Add Structured Query Language (SQL) services

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

Before you begin

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

Procedure

To add SQL services:

1. On the **Procedures** tab, select the **Add a Service to a Server** procedure, and click **Run**.
2. From the list of available servers, choose your Application server.
3. From the list of available services, choose **SQL Services**.

   Tip: If RDBMS passwords have already been set using the **Add WorkFlo Queue Service** procedure, prompts for Step 4 and Step 5 will not be appear. In this case, skip to Step 6.
4. For Oracle or Microsoft SQL Server, go to the **RDB Object** tab and verify that the correct table space name associated with the Application server appear.
5. For DB2 servers, answer the following prompts:
   - f_sw password
   - f_maint password
   - f_sqi password
   - DB2 Database Alias Name
   - User Tablespace Location
6. To add more services, continue to the next appropriate procedure below. If this service is the last one you are adding to the Application server, skip to the section, "Exit the configuration editor" on page 64.

Add Workflo Queue Services (WQS)

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

Before you begin

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

Procedure

To add WQS services:

1. On the **Procedures** tab, select the **Add a Service to a Server** procedure, and click **Run**.
2. From the list of available servers, choose your Application server.
3. From the list of available services, choose **Add WorkFlo Queue Service**. If RDBMS passwords have already been set using the "Add Structured Query Language (SQL) services" on page 62 procedure, prompts for Step 4 and Step 5 will not be appear. In this case, skip to Step 6.
4. For Oracle or Microsoft SQL Server, go to the **RDB Object** tab and verify that the correct table space name associated with the Application server appear.
5. For DB2 servers, complete the following when prompted:
   - f_sw password
   - f_maint password
   - f_sqi password
   - DB2 Database Alias Name
   - User Tablespace Location

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

Add Visual WorkFlo (VWServices)

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

Add a tape drive (optional)

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

Procedure

To add a tape drive:

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

Exit the configuration editor

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

Procedure

To exit the configuration editor:

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

Restarting the Root server

For the configuration changes you made in the preceding sections to take effect, restart the IBM FileNet Image Services software on the Root server.

Before you begin

Perform the steps in this section on the Root server only.

Procedure

To restart the Root server:

1. Restart the server.
2. After the server restarts, log on as the FileNet Image Services software user.

What to do next

To configure a Windows Server Application server, skip to "Configuring the application server" on page 65.

Configuring the application server

It is now necessary to build the Application server's configuration files and initialize the server. The same version of IBM FileNet Image Services software must already be installed on the Root/Index server and the Application server.

About this task

Follow the steps in this section and its sub-sections on the Application server.

Procedure

To configure the Application server:

Verify that the FileNet Image Services software is running on the Root server, but not on the Application server.

Build and initialize the application server

Build the Application server configuration files.

Procedure

To build and initialize the application server:

1. On the application server, logon as the FileNet software user, such as fnsw.
2. Open a Command Prompt window, and enter in the following command to build the system configuration files:

   ```
   fn_build -a
   ```

   The fn_build program generates the configuration files that are 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.

   Important: This step is extremely important because it generates a special file that the fn_util init command needs when it is 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 subsection:

   ```
   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 the FileNet Image Services databases

Use the fn_util init command to initialize the index database and the MKF databases.

About this task

As the IBM FileNet Image Services software user, initialize the appropriate databases.

Procedure

To initialize the index database and all the MKF databases (permanent, transient, and security databases):

Enter the following command at a Command Prompt:

```
fn_util init -y
```

This process might take a while (a minimum of 10 minutes without any feedback on the screen); the larger the databases, the longer the wait.

Tip: 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 Image Services dataset permissions (optional)

Use this procedure to verify or set your FileNet Image Services dataset permissions.

Before you begin

If the FileNet Image Services datasets reside on a different disk than the FileNet Image Services software, you must set the permissions.

Procedure

To verify the dataset permissions:

1. Open Windows Explorer.
2. Select a directory containing a FileNet Image Services dataset.
3. Select Security and set the following permissions:

Table 16. Group permission settings

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.

What to do next

To continue with Windows Server Application Server configuration, skip to "Start the FileNet Image Services software".

Start the FileNet Image Services software

Perform the procedures in this section (and associated subsections) on the Application server to start the FileNet Image Services software.

Procedure

To start the FileNet Image Services software:

1. Restart the Application server.

   Tip: The time needed for the shutdown and restart process varies for each system.
2. Logon to the Application server as the FileNet software user, if you are not already.
3. Locate the FileNet Image Services Server Applications window, and double-click the **Task Manager** icon.
4. When you see the TM_daemon.exe process message appear under the Process column, bring up the FileNet Event Log window by clicking the Monitor menu and selecting the Event Logs option.
5. From the Event Log window, enable the event window to be refreshed whenever messages are logged by clicking the Display window and selecting the Dynamic option.
6. To start the FileNet Image Services software, return to the FileNetTask Manager window and click **Start**. The system displays messages in the Current Status window as theFileNet Image Services software is being started up.
7. When the FileNet Image Services software is up and the **Close** button is highlighted, click **Close** to close the Current Status window.
8. View the FileNet Event Log window to verify that there are no error messages from the software startup.

Begin production mode for the application server

The Application server is now ready for production.

Appendix B. Adding a storage library server

To configure multiple storage library servers on your IBM FileNet Image Services system, gather the information requested in the "Installation Worksheet."

Before you begin

To successfully complete the instructions in this appendix, you must have already gathered the information requested in the Installation Worksheet for your operating system for appropriate information, performed all of the steps in the Operating System Requirements, and transferred the information to the Installation Worksheet.

If you still have to complete the Installation Worksheet, go to Chapter 2, “System Administrator Tasks,” on page 7.

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

If you have not completed these tasks for the Storage Library server, do them now before continuing with the rest of this appendix.

Multiple storage library server uses

Multiple storage library servers enhance system capacity and performance.

The portion of the IBM FileNet Image Services software that stores and retrieves document images is known as Storage Library Services. This software controls every activity in the storage library to verify that all documents are stored and retrieved from the optical disks in an orderly manner. Storage library services can be added to any system on a combined server, dual server, or multiserver installation. The storage library server maintains the name and location of every document stored in the storage library. In addition, the server contains one or more magnetic disk drives to store images temporarily before they are written to optical disk permanently.

Multiple storage library servers are set up on a system to enhance capacity and performance:

- If you already have as many storage libraries on a server as possible, or if you cannot physically fit another optical disk library in close enough proximity to the existing server, you need another server to add an optical disk library to the system and to enable the system to handle more disks online.
- If the processor, I/O bus, or magnetic disks on a storage library server are already pushed to their maximum throughput, adding another storage library server can increase system performance. However, if the existing server has not reached its performance limit, adding another storage library server can decrease system performance slightly because of the overhead of controlling the additional server.

Multiple storage library servers are not a solution for a disaster recovery plan because you cannot write the primary copy of one document to one storage library

server and the transaction log copy to another storage library server. Both copies are always written to the same storage library server. Database Maintenance does not let you select destination storage library servers for a transaction log family.

Prepare the storage library servers for optical devices

Perform the procedures only on the storage library servers. Perform the referenced procedures listed below in the order in which they appear.

Prepare Windows server systems

Complete the preliminary steps for installing a storage library server.

To complete the instructions in this procedure verify that you have reviewed the following sections:

- Reviewed all "Hardware requirements" on page 1.
- Reviewed all "Software requirements" on page 2.
- Completed all of the steps that are in the subsection "System configuration issues" on page 9.
- Transferred all necessary information to the "Windows installation worksheet" on page 12.

Installing IBM FileNet Image Services software

Follow these instructions to install the FileNet Image Services software on a Storage Library server.

Procedure

To install the FileNet Image Services software:

1. Install the FileNet Image Services software on the Storage Library servers by completing the section Chapter 4, "Installing FileNet Image Services software," on page 21.
2. Restart the servers. First restart the Root server, then restart the Storage Library servers.

What to do next

Continue with "Configure the Root server." Perform the procedures only on the server indicated at the beginning of each section. (You might not need to perform some of the procedures included in this section.)

Configure the Root server

Perform the steps in this section and its subsections on the Root server, or on each server with a cache.

Clear the transient database

If you are adding a storage library server to an already existing and operational FileNet 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.

Procedure

To clear the transient database:

1. Open the IBM FileNet Image Services Task Manager and verify that the FileNet Image Services software is running.
2. Print or delete all outstanding print requests.
3. Commit all uncommitted documents or batches.
4. Start the FileNet Application Executive and then start 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. The locked objects represent uncommitted batches, unwritten images, and pending print jobs.

   Tip: If you have any FAX servers, the print_cache will contain two locked objects per FAX server.
6. Close the Cache Export/Import application, and the FileNet Application Executive.

Connect storage library devices

Perform all of the procedures in this section on all of the storage library servers on the system.

Before you begin

Before performing this procedure, verify that the SCSI card is not configured as a bootable device.

Procedure

To connect the storage library devices:

1. Logoff the storage library server, and turn the server off.
2. Connect the storage library device, and turn on the device.
3. Turn on the storage library server.
4. After the storage library server boots up, logon as the FileNet Image Services user.
5. Open a command prompt window and enter the following command:

   ```
   fnddcfg
   ```

   When the command is finished, you will receive a message instructing you to restart the server to make the changes effective.
6. Restart the server, and again logon as the FileNet software user.
7. Open a Command Prompt window, and enter the following command:

   ```
   fndev
   ```

   The physical addresses of all attached storage library device display on the screen. You should see an output similar to the following example:

   ```
   Arm3030 1 3 0 3 0
   Sod3040 1 3 0 4 0
   ```

   This example shows the output for one storage library and one drive.
8. From the **Taskbar**, click **Start** > **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 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**.

    Attention: If you are configuring an RES template, a window prompting you for the domain name of the peer system displays. Respond to the 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 Configuration Editor and save your changes.
14. Start the FileNet Image Services software on all servers: Root/Index server first, then storage library servers.

Rebuilding the configuration files on the root server

Stop the IBM FileNet Image Services software and rebuild the configuration files on the root server. Perform the steps in this section on the root server only.

Procedure

To rebuild the configuration files on the root server:

1. On the root server, logon as the FileNet Image Services software user.
2. Verify the FileNet Image Services software is not running. If the software is running, enter the following command:

   ```
   initfnsw  -y  stop
   ```
3. Update the configuration files for the server by entering the following command:

   ```
   fn_build -a
   ```

   This command generates the configuration files used by the components of the FileNet Image Services software. Each file is produced in two steps. First a temporary file is produced with a .new extension. Then, if there is a difference between the .new version and the existing version, the .new version of the file is copied over the existing version of the file.
4. Verify that the command runs to completion by checking that no errors have occurred. Correct any error that occurs before you run the command again.
5. Start the FileNet Image Services software by entering:

   ```
   initfnsw start
   ```

Configure the storage library server

Perform this section and its subsections on each Storage Library server being added to the system. IBM FileNet Image Services software must be running on the Root server.

Before you begin

The procedures in this section assume that the same version of FileNet Image Services software is installed on both the Root server and the Storage Library server.

Important: Verify that FileNet Image Services is running on the Root server, and not running on the Storage Library server. (You can run whatsup on the Root server.)

Procedure

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

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

Set file ownerships and permissions

Use the fn_setup tool to set the Storage Library server file ownerships and permissions. You will need information from the Installation Worksheet to complete this procedure.

Procedure

To run fn_setup:

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

   ```
   \fnsw\bin\fn_setup
   ```

   Several prompts display. Answer the prompts with information related to your system.
3. Determine whether or not this is the NCH server, `1 = yes, 2 = no` (default: no). Reply `No` for the Storage Library server.
4. Enter the NCH server name (for example, root/index_domain:YourCorp). Enter the domain and organization of the Root server.
5. Enter the `system serial number (SSN)`. Enter the SSN of the Root server (for example, 1234567890).

   Important: The SSN is written onto all storage media and must be unique for each FileNet Image Services system. If you have more than one FileNet Image Services system (domain), each must use its own unique SSN to prevent potential problems if media are ever transferred from one FileNet Image Services system to another. The valid range of SSNs is 1000 through 2147483646.
6. Enter the RDBMS software configured on the server: `0 = None,1 = Oracle, 2 = DB2`. (For a Storage Library server, select `0 = None`.)

   Relational databases are only configured on servers with Index services, WorkFlo Queue Services (WQS), SQL services, or VWServices.
7. Determine whether or not you want to continue: `y/n` (default: yes).

   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.

Initialize MKF data sets on the storage library server

Perform the steps in this section on the storage library server.

Procedure

As the IBM FileNet Image Services software user, enter the following command to initialize all FileNet Image Services databases configured on this server:

```
fn_util  init  -y
```

The fn_util init command initializes the transient and permanent databases on the storage library servers. After the databases are initialized, the scripts check for the presence of permanent.ddl and transient.ddl files in the `\fnsw_loc\sd\1` directory. A message identifies the new database partitions as they are initialized and zeroed.

Configure network parameters (optional)

This section assumes that you have already installed and configured the appropriate network protocol on the Root/Index server.

Before you begin

Before beginning the steps in this section, you must know the following information: the Internal Network Number for your system, the File server name, and the Media Access Controller (MAC) address. See the "Installation Worksheet" for the correct information.

Important: If you are configuring Dual Homing support, you must have two network adapter cards installed on your system: one for Ethernet, one for Token Ring.) Configure the appropriate protocol for each network adapter card on your system.

Procedure

To configure the network parameters:

1. As the FileNet Image Services software user, such as fnsw, open the System Configuration Editor. From the Taskbar, click Start, point to Programs, and click the FileNet Image Services Configuration icon. From the FileNet Image Services Configuration window, locate and click on the Configuration Editor icon.
2. Verify that the two-part domain information is correct. (The syntax of the two-part domain name is: *Domain*:*Organization*.)
3. Select the **System Attributes** Tab and select **Network Protocols** from the **Options** list.
4. From the **Protocol Preference** option choose the **TCP** option for TCP/IP protocol.
5. From the **Protocol Preferences** option field, select the system appropriate preference from the pull down options list.
6. From the **System Configuration Editor** window, select the **Network Addresses** Tab.
7. Enter the network address (if one is not already present).

   You can enter up to eight network addresses for each network card in the server. The format for a TCP/IP address is shown in the following example:

   ```
   192.0.2.5
   ```

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

Starting databases and network software

Initialize the transient and permanent databases on your storage library server and then start the IBM FileNet Image Services software.

Procedure

To initialize the MKF databases and start the FileNet Image Services software:

1. On the new storage library servers, log on as the FileNet Image Services software user such as fnsw.
2. Initialize the permanent and transient databases by entering the following commands:

   ```
   fn_util  inittrans
   fn_util  initperm
   ```

   The `fn_util inittrans` and `fn_util initperm` scripts initialize the transient and permanent databases on the Storage Library server. (After the databases are initialized, the scripts check for the presence of permanent.ddl and transient.ddl files in the `\fnsw_loc\sd\1` directory.)

   If you are attaching an existing storage library server to a new system, you may receive the following message:

   ```
   63,0,10  <fnsw >   ds_init (14983) ... CRITICAL
   The Scalar Numbers Table is behind the snt.chkpt file.
   ```

   This message indicates the scalar numbers table and the checkpoint file are out of synchronization. Continuing in this condition may cause multiple documents to be committed with the same document ID. To solve this problem, run the following commands to start the permanent database and update the scalar numbers table:

   ```
   fn_util  startdb
   SNT_update
   ```

   Document Services cannot function until this problem is resolved.
3. After SNT_update is finished, run fn_util init again.
4. Start the FileNet Image Services application software. From the **Taskbar**, click **Start** > **Programs** > **FileNet Image Services Server Applications**, and click the **Task Manager** icon.
5. From the FileNetTask Manager window, select **RESTART**.
6. Run a start database command on every storage library server to start up the MKF databases and the Network Clearinghouse background processes that are needed during the installation process.

   As the FileNet Image Services software user, enter the following command on every storage library server:

   ```
   fn_util startdb
   ```

   Running the fn_util startdb command shuts down the FileNet Image Services software and starts up all FileNet Image Services databases present on the storage library server.

Adding a new storage library server

After you have run the fn_util startdb script on every storage library server, you are ready to run the add_osvr utility, which adds a new storage library server to the system configuration files.

About this task

In addition to adding a new storage library server, the add_osvr utility updates the permanent and transient databases on each storage library server to reflect the new servers. The add_osvr utility also updates the family and surface locator tables on the Document Locator server and the family disk table on each new storage library server.

Procedure

To add the storage library server:

1. Verify that you are logged on as the FileNet Image Services software user.
2. Open the FileNet Task Manager. From the Taskbar, point to Programs, FileNet Image Services, Server Applications, and click the Task Manager icon. Click **Backup**. This command also starts COR.listen.
3. Obtain the server ID assigned to each new Storage Library server by using one of the following methods:
   - The server ID is assigned and viewed by using the fn_edit utility. Run fn_edit. Click the Server Application Services tab, then the Scheduling subtab. Scroll to the right to see the **Storage Library ID** for each server.
   - Start nch_tool.

     ```
     nch_tool
     ```
   - List the properties to view the storage library server ID in the NCH database.

     In the following example, OsarServer2 is the new OSAR server. On the line beginning: `osarDesc, 0 3 ... 3` is the number used for the add_osvr command. The nch_tool command would be:

     ```
     nch_tool>listprop OsarServer1

     Properties for OsarServer1:<domain>:FileNet
     (addressList, [192.0.2.1,32769])
     (osarService, "Library Service")
     (osarDesc,0 2 DocServer:<domain>:FileNet page_cache1:Persistent:FileNet

     nch_tool>listprop OsarServer2
     Properties for OsarServer2:<domain>:FileNet
     (addressList, [192.0.2.2,32769])
     (osarService, "Library Service")
     (osarDesc,0 3 DocServer:<domain>:FileNet page_cache2:<domain>:FileNet)
     ```
4. To run add_osvr, enter the following command from any station with Storage Library Services:

   `add_osvr` *`server id 1 server id 2 ... server id n`*

   where *server id 1 server id 2 ... server id n* are the storage library server identification numbers of the servers you are adding. (These numbers are not the station numbers.) Enter a space between each server ID.

   The add_osvr command creates the family_locator table on the Combined server and updates the family_disk table on the new storage library server.

   After running the add_osvr command, a message in the event log instructs you, "Run Database maintenance to resave all media families." On a new installation of root or Storage Library servers there are no media families, so you can ignore this message.

   Entering add_osvr with no parameters displays a description of the program and a usage statement. After the add_osvr utility has completed, you will see the following message:`program terminated successfully`

If the system crashes or is restarted while add_osvr is running, you can rerun the program. If add_osvr fails for any reason, correct the problem and rerun the program. DO NOT run any other programs until add_osvr completes. If the process cannot be completed, restore your system from a backup.

Logon to the configuration database

Start the IBM FileNet Image Services System Configuration Editor

Procedure

To start the FileNet Image Services System Configuration Editor:

1. As the FileNet Image Services software user, such as fnsw, open the System Configuration Editor. From the Taskbar, click Start, point to Programs, and click the FileNet Image Services Configuration icon. From the FileNet Image Services Configuration window, locate and click on the Configuration Editor icon.
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.

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

Configure storage library devices

You can configure storage library devices on the storage library server automatically or manually.

Before you begin

If there are no storage libraries on the server, skip to the next section, "Start the FileNet Image Services software" on page 79.

About this task

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

Procedure

To configure a storage library:

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

   See the "Installation Worksheet" for information concerning your optical library devices.
2. Click the Procedures tab. To configure a storage library, you have two choices:
3. **Automatically Configure a Storage Library**

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

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

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

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

c. Exit the Configuration Editor and save your changes.

d. Skip to the next section.

4. **Manually Configure a Storage Library**

   To configure a storage library manually:

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

   b. Respond to the prompts with the appropriate information from the Worksheet. You are prompted to supply the following details:

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

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

        ```
        4 0 1 0
        ```

        where:

        – the first number is the SCSI adapter ID (the number you copied from the I (Instance) column of the ioscan display)

        – the second number is the bus ID (the first of the three numbers from the H/W Path column)

        – the third number is the target device ID (the second of the three numbers from the H/W Path column)

        – the fourth number is the Logical Unit Number (LUN) (the third number from the H/W Path column)

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

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

   d. Exit the Configuration Editor and save your changes.

Set file ownerships and permissions (if necessary)

After configuring optical devices, you must reset the file permissions. Use the fn_setup tool to set the file ownerships and permissions on the Storage Library server.

Before you begin

Perform the steps in this section on the Storage Library servers only if you configured optical devices.

About this task

See the "Installation Worksheet" for correct information.

Procedure

To set the file ownerships and permissions:

1. Logon as the FileNet software user.
2. Run the fn_perm utility by entering the following command:

   ```
   fn_perm <drive letter of \fnsw or \fnsw_loc location>
   ```

   If the fnsw and fnsw_loc folders are located on different drives, then the fn_perm utility must be run twice, each time with a different drive letter. The fn_perm utility does not generate any output on the screen or in a log file.

Start the FileNet Image Services software

Start the IBM FileNet Image Services software on each server in your FileNet Image Services system.

About this task

Perform the steps in this section on all servers: Root server first, then the Storage Library servers.

Procedure

To start the software:

1. From the command line prompt, logon as the FileNet Image Services software user such as fnsw and enter the following command to start the FileNet Image Services software on all servers; Root server first, then the Storage Library server:

   ```
   initfnsw  restart
   ```

2. Start Xapex, and use Database Maintenance (on any server) to re-save all media families, and resolve any warning or error messages that appear.
3. Use the vl command to check the event log. If any documents were committed before the media families were re-saved, you might see a warning message. If so, add or change the preferred library information to match the current storage library configuration.

Storage library server utilities (optional)

You can use the move_disk and del_osvr utilities to address optical disk and library issues concerning your storage library server.

This section briefly describes the function and uses of the following storage library server utilities: move_disk and del_osvr.

- move_disk - move optical disks from one optical disk library to another.
- del_osvr - remove a storage library server from your system.

Do not use the utilities described in this section on any storage library server unless a specific need exists. For more information about storage library server utilities, see the *IBM FileNet Image Services System Tools Reference Manual*. To download the document from the IBM support page, see "ibm.com and related resources" on page v.

Important: Whenever any change in storage library configuration occurs, especially when a storage library is deleted, it is important to resave all the media families manually and resolve any errors. See the Database Maintenance chapter of the *IBM FileNet Image Services System Administrator's Handbook* for information about saving media families. To download the document from the IBM support page, see "ibm.com and related resources" on page v.

Moving disks between storage library servers

Run the move_disk utility if you want to move optical disks from an Optical Disk Library attached to your old Storage Library server to an Optical Disk Library attached to your new Storage Library server in order to balance disks equally between each server.

About this task

The move_disk utility does the following:

- Reads optical disk information from the Storage Library server database where it currently resides.
- Inserts the optical disk information into the destination Storage Library server database.
- Updates the surface locator table to point to the new location of the optical disk.
- Deletes the optical disk information from the source Storage Library server database where the disk previously resided.

Procedure

To run the move_disk utility:

1. Eject all disks to be moved from the Optical Disk Library as described in the "Storage Library Control" chapter of the *IBM FileNet Image Services System Administrator's Handbook*. To download the document from the IBM support page, see "ibm.com and related resources" on page v.
2. Run the move_disk utility from the source Storage Library server attached to the Optical Disk Library where the disks currently reside. Enter:

   `move_disk surfid 1 ... surfid n dest_server_name`

   where *surfid 1 ... surfid n* represents the surface ids and *dest_server_name* represents the server id of the Storage Library server attached to the Optical Disk Library to which you want to move the disks.
3. Insert the disks into the Optical Disk Library attached to the destination Storage Library server using Storage Library Control (SLC). This is described in the "Storage Library Control" chapter of the *IBM FileNet Image Services System Administrator's Handbook*. To download the document from the IBM support page, see "ibm.com and related resources" on page v.

Deleting a storage library server

You can delete a Storage Library server using the del_osvr utility. This utility removes a Storage Library server from a system and moves references to the optical disks from the deleted Storage Library server to a remaining Storage Library server.

About this task

The del_osvr utility does the following:

- Checks the Storage Library servers for documents not written yet. If it finds any unwritten documents, it notes the problem and terminates. You must then either start the Storage Library server and let it finish the outstanding write_requests, or run WRT_clean to remove them. See the *IBM FileNet Image Services System Tools Reference Manual* for information about WRT_clean. To download the document from the IBM support page, see "ibm.com and related resources" on page v.
- Copies all optical disk database information from each Storage Library server to be deleted to the destination Storage Library server. It then deletes this information from the Storage Library server being deleted.
- Updates the family disk information on each deleted Storage Library server to remove all current, future, and previous write surfaces. It adds this information to the destination Storage Library server so that partially full disks will continue to be written. If a partially full disk cannot be added to the destination family's current surfaces because the current surface array is full, a message is logged to the system error log.
- Updates the surface locator and family locator tables. If only one Storage Library server remains, the entries in the surface and family locator tables are deleted. If multiple Storage Library servers remain, the pointer in the surface locator table is changed to point to the destination Storage Library server, and the pointer to the deleted Storage Library server in the family locator table is removed. Optical disks assigned to deleted Storage Library servers will be assigned to the destination Storage Library server. However, families referencing a deleted Storage Library server will have that reference removed, but will not have a reference to the destination Storage Library server explicitly added. Also, if all the servers referenced by a family are deleted, that family will be changed to reference all remaining Storage Library servers.

Run the del_osvr utility from the source Storage Library server (the server that you are deleting) to update the permanent and transient MKF databases on each Storage Library server with the necessary changes.

Procedure

To use thedel_osvr utility:

1. Backup the system to tape.

   Important: If you get partially through deleting a Storage Library server and have a problem, restoring the backups is the only way to return to the original state. There is no other program that can undo an uncompleted attempt to delete a Storage Library server.
2. Verify that there are no pending write requests for the Storage Library servers to be deleted. If there are, delete them.
3. Eject all disks to be moved from the Optical Disk Libraries of the Storage Library server to be deleted.

4. Stop the IBM FileNet Image Services software on all Storage Library servers by entering:

   ```
   initfnsw  stop
   ```

5. Run the fn_util startdb tool on every Storage Library server to start up the permanent and transient databases by entering the following command:

   ```
   fn_util  startdb
   ```

6. On each server, enter a command similar to the following:

   ```
   del_osvr  svrid1 svrid2 ... svridndest_server_num
   ```

   svrid1 svrid2 ... svridn are the server ids of the Storage Library servers to be deleted, and <dest_server_num> is the destination Storage Library server to move information to from the Storage Library servers being deleted.

   Tip: If the Storage Library server on which optical disks are referenced is not correct, or the Storage Library server's families referenced are not the desired ones after you run the del_osvr utility, you can run the move_disk utility to move optical disks, and you can also run database maintenance to change families.

7. After del_osvr is completed, run fn_edit on the Root server to delete the Storage Library server. Be sure to delete the logical cache allocation before removing the station.
8. In Xapex, use Database Maintenance to re-save all media families, and resolve any warning or error messages that appear by adding or changing the preferred library information to match the current storage library configuration.

Begin production mode for the storage library server

The Storage Library server is now ready for production.

Appendix C. Troubleshooting the installation program

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

Problem

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

Solution

Verify that all FileNet Image Services-related programs are shut down.

Then run the installation again.

Problem

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

Solution

The installation program uses the directory specified by the TEMP environment variable for extracting files. The program looks for free disk space that is three times the size of the installation package on the volume that the TEMP variable indicates. If enough free space is not available, the installation program prompts you for an alternate location.

For example, if the installation is 10 MB, and the TEMP variable is set to `C:\Temp`, the installation program looks for 30 MB of free space on the C: drive. If there is not 30 MB of free space, the installer prompts you for another location.

After the installation is finished or canceled, the temp space is cleaned and only a single directory holding a single file about 35 KB in size (`remove.exe`) remains.

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

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

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

Appendix E. Uninstalling FileNet Image Services

Procedure

To uninstall the FileNet Image Services software:

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

   Tip: Unless you specify otherwise, the uninstallation program uses the same mode that you used during the installation. For example, if you installed FileNet Image Services using Silent mode, the uninstallation program automatically defaults to Silent mode, too, even if you do not specify the **silent** option.
4. Click **Start** > **Control Panel** > **Add or Remove Programs** > **IBM FileNet Image Services 4.2.0**.

   As an alternative, you can also uninstall FileNet Image Services at a command prompt. The uninstallation program defaults to the same mode that you used for installation, unless you choose a different mode.

   - Graphical mode

     drive:*IS_HOME_LOCATION*\IS_uninstaller\uninstall_is.exe
   - Silent mode

     drive:*IS_HOME_LOCATION*\IS_uninstaller\uninstall_is.exe -i silent

   Where *drive* is the letter designation of the disk drive and *IS_HOME_LOCATION* is the name of the directory in which the FileNet Image Services software is installed.
5. The uninstallation program leads you through the necessary steps and prompts you when it is finished.

   Tip: The uninstallation program leaves certain critical directories intact to protect existing data.
6. After the uninstallation program has finished, go to the *drive*:*IS_HOME_LOCATION*\fnsw folder and examine the remaining contents. Manually remove any unwanted files (such as the uninstall-output.txt file) and folders.

   Important: Microsoft Visual C++ 2005 and Federal Information Processing Standards (FIPS) are not uninstalled when you uninstall the FileNet Image Services software.

What to do next

The Tivoli GSKit cryptographic libraries that are used for FIPS compliance are in the *drive*:\Program Files (x86)\IBM\gsk8 folder. If no other applications, such as FileNet Image Services Toolkit, use the GSKit modules, you can remove the GSKit by using the **Windows Add/Remove Programs** control panel. Select **GSKIT 8 Crypt 32**.

Appendix F. Remote access procedures

Remote access is limited to a tty or telnet session. When your service representative dials into a site, that session is built on what appears to the remote server as only a terminal. Since 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.

The TCP/IP protocol must be installed and running for IBM FileNet Image Services 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. Set up the RAS after the FileNet 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 topic 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 service

Use the Network Settings control panel to add the Remote Access Service (RAS). The Remote Access Setup program configures RAS, creates a Remote Access Service program group, then confirms that the installation was successful.

Procedure

To add the remote access software:

1. Log in to 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, click **Add Software**.
4. From the **Network Software** list, select **Remote Access Service** and then click **Continue**.
5. When prompted for the path to the distribution files, provide the path and click **OK**.

   The RAS files are copied to your computer. After the files are copied, you see a **Remote Access Setup** dialog box.
6. Click **Add**. In the **Add Port** dialog box, you see a list of all ports that are available to Windows Server for RAS. If you have successfully installed an ISDN card, X.25 card, or other device, the device appears in this list.
7. Select the port to use for remote access and click **OK**.

8. Remote Access Setup offers 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 announces that the modem is detected, click **OK**.

   The **Configure Port** screen will be displayed.

   When attempting to detect a modem, Remote Access Setup might prompt you to select your modem from a short list of available modems. This prompt occurs only when Remote Access Setup cannot distinguish between two or more modems.
9. In the **Configure Port** dialog box, the modem detected is 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.

      Only supported modems are listed.
   b. If you are adding a port after initial RAS installation, you can click **Detect** 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 that the computer can be a RAS client only. This choice is NOT currently supported, but FRC is exploring a setup of a client only configuration.
    - **Receive Calls Only** - means that the computer can be a RAS server only.
    - **Dial Out And Receive Calls** - means that 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**. The default settings are preferred.
12. Click the **OK**. The **Remote Access Setup** dialog box reappears.
13. In the **Remote Access Setup** dialog box, configure or reconfigure the ports. Highlight a port and click the appropriate buttons along the bottom of the dialog box.

    Consult the online Help for information about how to use each button. The default settings are preferred.
14. Click **Network** to configure the network settings for the port and modem that is highlighted.
15. In the Server Settings: section, verify that TCP/IP is checked, then click **Configure**.
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** - allow routing between your entire network and the RAS device
    - **This computer only** - allow routing only between the RAS device and this Windows server

    The default selection is **Entire Network**. If this selection 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**

Important: DHCP is the Microsoft 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. If it is implemented correctly, DHCP offers significant benefits.

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.

    Start the IP address range right after the last IP address assigned to the Windows Server itself.

    For example, if you have a Windows Server with two network interfaces, assign the first card 192.0.2.0, the second card 192.0.2.1, and the RAS static pool from 192.0.2.10 to 192.0.2.15.

    Important: The IP addresses of the network cards must 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.

    The following example shows a static address pool configuration.

19. When you are finished choosing RAS Server TCP/IP Configuration Settings, click **OK**.

    Important: More RAS Server Configuration dialog boxes might display for other non-TCP/IP protocols that are installed on your computer. If other dialog boxes display, see the 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 **Continue** on the Remote Access Setup dialog box. The RAS service then copies any more needed files from your distribution and prompts you to grant permissions to remote users.
21. Click **OK** in the Confirmation dialog box.
22. Click **OK** in the Network Settings dialog box. The protocols are 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 is created.

    For more information about configuring RAS, see the RAS online Help.

Granting remote access rights

After you install 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 computer.

Procedure

To grant remote access rights to the FNADMIN user:

1. Log into the system as the IBM FileNet Image Services 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** to display the Remote Access Permissions dialog box.
4. Verify that when the name fnadmin is highlighted, the **Grant dial-in permission to user** box is selected. Also ensure that the Administrator has dial-in permission. When you are finished, click **OK**.

   For further instructions, choose the Help button in the dialog box.

   Tip: Consider carefully whether to grant dial-in permission to guest accounts. If you do, you should consider assigning a password to the guest account.

pcAnywhere TCP Remote Control Service

PcAnywhere enables your service representative to remotely manage products that are installed on servers running a Windows Server operating system.

Before you begin

Before completing the steps in this section, TCP/IP support must be setup on all Image Services servers where remote accessibility is required.

Important: To use pcAnywhere, you must obtain a license from Symantec Corporation.

About this task

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.

The pcAnywhere software (Host Version) is contained on the Tech Info media.

Procedure

To install pcAnywhere:

1. See 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.

   Tip: Although the installation program defaults might 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.

Tip: 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. 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. Restart the server so the changes you made can take effect. 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 log on

You now need to give proper permissions to those users you want to be able to perform remote logons.

Procedure

To grant logon permission:

1. Log into the system as the IBM FileNet Image Services software user, such as fnsw or Windows Administrator.
2. Run the User Manager for Domains program located in the Administrative Tools program group.
3. 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 groups that need 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 G. Configuring SCSI Adapters

Previously, default adapter settings enabled IBM FileNet Image Services to control the optical disk drive SCSI peripherals. However, changes to the adapters and additional BIOS default settings allowed the Windows operating system, rather than FileNet Image Services, to take control of the drives.

If FileNet Image Services cannot control the optical drives, you must change the default adapter settings. Adapter settings are provided which present the optical drives to Windows in a way that allows FileNet Image Services to control the drives.

Two symptoms show that the Windows operating system has taken control of the SCSI peripherals:

- You are unable to configure or access the optical drives from FileNet Image Services.
- Windows Explorer shows a lettered drive assigned to each optical drive.

To have the Windows operating system in control of the optical drives is not just a temporary inconvenience but also a threat to data integrity. The operating system can read and write to the optical media, potentially invalidating the FileNet Image Services data format or causing other integrity issues.

Windows 2008 users with Adaptec Ultra320 SCSI cards (29320ALP-R, 29320LPE, 39320A-R, and IBM 39R8743) should not use the Windows-supplied drivers (adpu320.sys) with these cards.

The version numbers of the Windows-supplied drivers are either v.3.0.0 or v.7.2.0.0. FileNet Image Services creates lettered drive and creates SCSI optical device errors when using the Windows-supplied drivers. Download the latest non-RAID driver from the Adaptec website.

The version of the latest non-RAID driver should be v7.00.00.08 or newer.

Removing control of the optical drives from Windows

When a FileNet Image Services server runs on either Windows 2003 or Windows 2008 and also uses an Adaptec or IBM SCSI adapter card, the Windows operating system mistakenly represents an optical drive as a lettered drive when an optical drive is connected.

Rebooting the server twice typically removes the lettered drive and end the errors. However, if the problem persists after rebooting the server twice, try disabling the drive by completing the following procedure:

1. Select **Start** > **Programs** > **Administrative Tools** > **Computer Management** > **Disk Management** > **Properties**.
2. For Windows 2003 operating system, click the **General** tab, and select **"Do not use this device (disable)"** from the **Device Usage** menu.
3. For Windows 2008 operating system, click the **Driver** tab, and then click **Disable**.

After completing one of these actions, the drive that was created for the optical drive disappears from Disk Management and the lettered optical drive disappears from Windows Explorer.

Configuring Adaptec SCSI adapters

To reassign control of the SCSI adapters from Windows to FileNet Image Services, use the adapter's built-in setup utility **SCSISelect** to specify the correct parameters for the adapter settings.

Refer to the following tables and descriptions for the settings you need to use:

1. To enter the BIOS phase, if Windows is running, restart the system. If the system is off, turn it on.
2. When the Control-A message appears, press **Control-A** to enter the SCSISelect utility.
3. For each option and description of the SCSI adapter you are using, make sure that the values match those in the following table. You should need to change only a few values.

   Attention: For the SCSI Device Configuration Options, you must enter the same values for SCSI device IDs 0 through 15.

Table 17. Values for the Adaptec 29160 SCSI Adapter

Screen Name	Value Description	Value
SCSI Bus Interface Definitions	Controller SCSI ID	7
SCSI Bus Interface Definitions	SCSI Controller Parity	Enabled
SCSI Bus Interface Definitions	Host Adapter SCSI Termination/ LVD/SE Connectors	Automatic, Disabled if HA
SCSI Bus Interface Definitions	Host Adapter SCSI Termination/ SE Connectors	Automatic
SCSI Bus Interface Definitions – Additional Options	Advanced Configuration	See Advanced Configuration below
Boot Device Configuration	Select Master SCSI Controller	Select the 29160
Advanced Configuration	Reset SCSI Bus at IC Initialization	Enabled
Advanced Configuration	Display <Ctrl><A>Messages during BIOS Initialization	Enabled
Advanced Configuration V2.57.2 and earlier	Extended BIOS Translation for DOS Drives > 1 GByte	Disabled
Advanced Configuration V3.10.0 and later	Extended Int 13 Translation for DOS Drives > 1 GByte	Disabled
Advanced Configuration V2.57.2 and earlier	Verbose/Silent Mode	Verbose
Advanced Configuration V3.10.0 Fand later	POST Display Mode	Verbose
Advanced Configuration V2.57.2 and earlier	Host Adapter BIOS (Configuration Utility Reserves BIOS Space)	Disabled – Scan Bus

Table 17. Values for the Adaptec 29160 SCSI Adapter (continued)

Screen Name	Value Description	Value
Advanced Configuration V3.10.0 and later	SCSI Controller Int 13 Support	Disabled – Scan Bus
Advanced Configuration	Domain Validation	Disabled
Advanced Configuration	Support Removable Disks Under BIOS as Fixed Disks	Disabled
Advanced Configuration	BIOS Support for Bootable CD-ROM	Disabled
Advanced Configuration	BIOS Support for Int 13 Extensions	Disabled

Set these values for the SCSI Device IDs 0 to 15.

Table 18. SCSI Device Settings

Screen Name	Value Description	Value
SCSI Device Configuration Options	Sync Transfer Rate (MB/sec)	80 MB/sec.
SCSI Device Configuration Options	Initiate Wide Negotiation	Yes
SCSI Device Configuration Options	Enable Disconnection	Yes
SCSI Device Configuration Options	Send Start Unit Command	No
SCSI Device Configuration Options	Enable Write Back Cache	N/C
SCSI Device Configuration Options	BIOS Multiple LUN Support	No
SCSI Device Configuration Options	Include in BIOS Scan	No

Table 19. Values for the Adaptec 39160 SCSI Adapter

Screen Name	Value Description	Value
SCSI Bus Interface Definitions	Host Adapter SCSI ID	7
SCSI Bus Interface Definitions	SCSI Parity Checking	Enabled
SCSI Bus Interface Definitions	SCSI Controller Termination / Ch A	Automatic or Low On/High On if HA
SCSI Bus Interface Definitions	SCSI Controller Termination / Ch B	Automatic, Disabled if HA
Boot Device Options	Boot Channel	First
Boot Device Options	Boot SCSI ID	0
Boot Device Options	Boot LUN Number	0
Advanced Configuration Options	Reset SCSI Bus at IC Initialization	Enabled
Advanced Configuration Options	Display <Ctrl><A> Messages during BIOS Initialization	Enabled

Table 19. Values for the Adaptec 39160 SCSI Adapter (continued)

Screen Name	Value Description	Value
Advanced Configuration V2.57.2 and earlier	Extended BIOS Translation for DOS Drives > 1 GByte	Disabled
Advanced Configuration V3.10.0 and later	Extended Int 13 Translation for DOS Drives > 1 GByte	Disabled
Advanced Configuration V2.57.2 and earlier	Verbose/Silent Mode	Verbose
Advanced Configuration V3.10.0 and later	POST Display Mode	Verbose
Advanced Configuration V2.57.2 and earlier	Host Adapter BIOS (Configuration Utility Reserves BIOS Space)	Disabled Ð Scan Bus
Advanced Configuration V3.10.0 and later	SCSI Controller Int 13 Support	Disabled - Scan Bus-
Advanced Configuration Options	Verbose/Silent Mode	Verbose
Advanced Configuration Options	Post Display Mode	Verbose
Advanced Configuration Options	Host Adapter BIOS (Configuration Utility Reserves BIOS Space)	Disabled; Scan Bus-
Advanced Configuration Options	Domain Validation	Disabled
Advanced Configuration Options	Support Removable Disks Under BIOS as Fixed Disks	Disabled
Advanced Configuration Options	BIOS Support for Bootable CD-ROM	Disabled
Advanced Configuration Options	BIOS Support for Int 13 Extensions	Disabled

Set these values for the SCSI Device IDs 0 to 15.

Table 20. SCSI Device Settings

Screen Name	Value Description	Value
SCSI Device Configuration Options	Sync Transfer Rate (MB/sec)	80 MB/sec.
SCSI Device Configuration Options	Initiate Wide Negotiation	Yes
SCSI Device Configuration Options	Enable Disconnection	Yes
SCSI Device Configuration Options	Send Start Unit Command	No
SCSI Device Configuration Options	Enable Write Back Cache	N/C
SCSI Device Configuration Options	BIOS Multiple LUN Support	No
SCSI Device Configuration Options	Include in BIOS Scan	No

Table 21. Values for the Adaptec 29320ALP-R, Adaptec 39320A-R, Adaptec 29320LPE, and IBM 39R8743 SCSI Adapters

Screen Name	Value Description	Value
SCSI Bus Interface Options	SCSI Controller ID	7
SCSI Bus Interface Options	SCSI Controller Parity	Enabled
SCSI Bus Interface Options	SCSI Controller Termination	Automatic (unless this is a HA environment. If HA then Disable.)
SCSI Device Configuration Options Đ BBS Systems Only	Select Master SCSI Controller	Disabled
SCSI Device Configuration Options - BBS Systems Only	Boot SCSI Controller	Disabled
SCSI Device Configuration Options Đ Non-BBS Systems Only	Select Master SCSI Controller	First
SCSI Device Configuration Options - Non-BBS Systems Only	Boot SCSI Controller	Disabled
SCSI Device Configuration Options - Non-BBS Systems Only	Boot SCSI ID	0
SCSI Device Configuration Options - Non-BBS Systems Only	Boot LUN Number	0
Advanced Configuration Options	Reset SCSI Bus at IC Initialization	Enabled
Advanced Configuration Options	Display <Ctrl><A> Messages during BIOS Initialization	Enabled
Advanced Configuration Options	Extended INT 13 Translation for DOS Drives > 1 Gbyte	Disabled
Advanced Configuration Options	Post Display Mode	Verbose
Advanced Configuration Options	SCSI Controller INT 13 Support	Disabled; Scan Bus
Advanced Configuration Options	Domain Validation	Disabled
Advanced Configuration Options	Support Removable Disks Under INT 13 as Fixed Disks	Disabled
Advanced Configuration Options	BIOS Support for Bootable CD_ROM	Disabled
HostRAID Options(Adaptec 39320A-R only)	HostRAID	Disabled

Set these values for the SCSI Device IDs 0 to 15.

Table 22. SCSI Device Settings

Screen Name	Value Description	Value
SCSI Device Configuration Options	Sync Transfer Rate (MB/sec)	80 MB/sec.

Table 22. SCSI Device Settings (continued)

Screen Name	Value Description	Value
SCSI Device Configuration Options	Packetized	No
SCSI Device Configuration Options	QAS	No
SCSI Device Configuration Options	Initiate Wide Negotiation	Yes
SCSI Device Configuration Options	Enable Disconnection	Yes
SCSI Device Configuration Options	Send Start Unit Command	No
SCSI Device Configuration Options	BIOS Multiple LUN Support	No
SCSI Device Configuration Options	Include in BIOS Scan	No

4. After changing the values to match the table, exit the SCSISelect utility by pressing the ESC key until you are prompted to save your changes.
5. Select the second port on this dual port adapter and repeat the procedure for that port.
6. Repeat the procedure for each SCSI adapter port and for each additional controller card connected to Optical Drives/Libraries. Refer to related release notes for other Adaptec SCSI adapters.
7. Reboot the server to make your changes take effect.

Verification

Open the Windows Device Manager. Each optical drive should now display as an Optical Memory device, preceded by a yellow exclamation point. You will also see `"Note 31 - No driver exists for this device."`, which is normal and expected. If the optical drives do not display as expected, use the Windows Device Manager to rescan for new hardware, which forces Windows to recognize the hardware changes.

As an additional verification, check that the optical drives no longer display as lettered drives in Windows Explorer.

Configuration

When your optical devices are recognized correctly, configure them using the following standard procedures:

1. Run fnddcfg –u
2. Run fnddcfg
3. Reboot
4. Run fndev to verify device creation
5. Run fn_edit to configure optical devices
6. Run fn_build –a

LUN Device Notes

If multiple LUN devices are attached to the adapter, only the first LUN device (LUN=0) will show up during the BIOS Scan of devices. Not all the devices will be seen at BIOS Boot time. However, FileNet Image Services will find the other LUN devices when it builds the device entries.

If hardware verification of the attached devices is needed, then the item **BIOS Multiple LUN Support** could be momentarily set on and a restart sequence would show and verify the existence of each LUN device.

Using optical libraries in LUN mode is not supported on Adaptec Ultra320 SCSI cards: 29320ALP-R, 29320LPE, 39320A-R, and IBM 39R8743.

Configuring ATTO SCSI adapters

The ATTO UL5D SCSI adapter and the UL5D LowProfile adapter are dual port PCI Express LVD/SE Ultra320 SCSI adapters that are installed in Windows 2003 servers.

Minimum levels supported are:

- BIOS: 2.25
- Firmware: 2/18/2008
- Driver: 3.10

These versions and updated versions can be downloaded from the ATTO website. However, only driver version 3.10 is supported. If the version 3.10 driver is not available from the ATTO support website, call ATTO for assistance.

The ATTO UL5D SCSI and the UL5D LowProfile adapters support optical devices operating in target or LUN mode. In the case of a hardware error, the ATTO SCSI adapters returns only 20 bytes of Request Sense data.

Values for the ATTO SCSI adapters in the ATTO ExpressPCI setup utility (available during boot phase) are under **Adapter Menu** > **Configure Adapter Channel**. Values must be set for each channel used.

Table 23. Values for the ATTO UL5D SCSI and ATTO UL5D LowProfile Adapters

Screen Name	Value Description	Value
Host Adapter Settings	Boot Driver	Disabled
Host Adapter Settings	SCSI Bus Termination	Auto (unless this is an HA environment. If HA then Disable.)
Host Adapter Settings	Initiator ID	7
Host Adapter Settings	SCSI Bus Reset Delay	3 sec.
Host Adapter Settings	Selection Timeout	250 ms
Host Adapter Settings	Quick Arbitrate & Select	No
Host Adapter Settings	Max Single-Ended Sync Rate	20/40

Set these values for the SCSI Device IDs 0 to 15.

Table 24. SCSI Device Settings

Group Name	Value Description	Value
SCSI Device Settings	Disc	Yes

Table 24. SCSI Device Settings (continued)

Group Name	Value Description	Value
SCSI Device Settings	Tagged	No
SCSI Device Settings	Sync	SyncDT-IU
SCSI Device Settings	Wide	Wide
SCSI Device Settings	Sync Offset	127
SCSI Device Settings	Sync Rate	320 DT
SCSI Device Settings	Enable LUNs	0-7

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