



4.1.2



Upgrade Procedures



4.1.2



Upgrade Procedures

Note

Before using this information and the product it supports, read the information in "Notices" on page 93.

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

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About this document

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

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

- Upgrading and configuring IS on either a Combined server system, Dual server system, or Remote Entry System (RES)

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

Every effort has been made to provide you with complete upgrade instructions. If information becomes available after the documentation release from which you accessed this guide, we will provide an upgraded version of the guide on the [IBM Customer Service and Support web site for FileNet customers](http://www.css.filenet.com) (<http://www.css.filenet.com>). As a general rule, you should refer to the web site to obtain the current version of this guide.

Revision log

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

Date	Revision
December 2008	<ul style="list-style-type: none">• Corrected the name of the max-shm-memory kernel parameter for Solaris 10.• Reinstated the section, “Modify the /etc/inittab File” on page 74.• Added the section, “Set shared memory for SQL Server” on page 78.
November 2008	Initial release.

Typographical conventions

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

Convention	Usage
UPPERCASE	Environment variables, status codes, utility names.

Convention	Usage
Bold	Program names and selected terms such as command parameters or environment variables that require emphasis.
Bold Gray	Clickable user-interface elements (such as buttons).
Bold Olive	Paths and file names.
<i>Italic</i>	User-supplied variables and new terms introduced in text, names of additional documents (such as <i>FileNet® P8 Platform Installation and Upgrade Guide</i>).
<italic>	User-supplied variables that replace everything between and including the angle bracket delimiters (< and >).
Monospace	Code samples, examples, display text, and error messages.

Accessing IBM FileNet documentation

To access documentation for IBM FileNet products:

1. Navigate to Product Documentation for FileNet P8 Platform at:
<http://www-1.ibm.com/support/docview.wss?rs=3278&uid=swg27010422>
2. Select the FileNet Image Manager Active Edition link.
3. Select the FileNet Image Services link.

Feedback

Documentation feedback

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

Product consumability feedback

Help us identify product enhancements by taking a [Consumability Survey](#). The results of this comprehensive survey are used by product development teams when planning future releases. Although we are especially interested in survey responses regarding the most recent product releases, we welcome your feedback on any of our products.

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

System-specific Checklists

The following sections provide upgrade instructions for each operating system.

Upgrade Checklist for AIX Servers

Read Release Notes available at the IBM Information Management support page www.ibm.com/software/data/support . To download these guidelines from the IBM support page, see “Accessing IBM FileNet documentation” on page 10 .	
Install platform-specific patches, if needed. Check the IBM Information Management support page for patches that might be required prior to this upgrade.	
Install the Pre-Upgrade fixes that were identified in the Release Notes. The fixes are available at www.ibm.com/software/data/support .	
Back up the entire system. This might include datasets, cache, and the operating system.	
<input type="checkbox"/>	“General Prerequisites for all IS Platforms” on page 22
<input type="checkbox"/>	“Platform-Specific Prerequisites” on page 25
<input type="checkbox"/>	“Copy the MasterSnmpd_start File” on page 33
<input type="checkbox"/>	“Run spacerpt (Oracle only)” on page 33
<input type="checkbox"/>	“Backup the /fnsw/etc/serverConfig File” on page 35
<input type="checkbox"/>	“Disable FileNet-Related Cron Jobs” on page 35
<input type="checkbox"/>	“Shutdown the Software” on page 35
<input type="checkbox"/>	“Verify the System Serial Number” on page 36
<input type="checkbox"/>	“Modify the /etc/inittab File” on page 37
<input type="checkbox"/>	“Check Logical Volume Sizes” on page 37
<input type="checkbox"/>	“Preparing to Upgrade IS on an AIX server” on page 38
<input type="checkbox"/>	“Upgrading the Relational Database Software” on page 52
<input type="checkbox"/>	“Upgrading the Image Services Software” on page 52
<input type="checkbox"/>	“Install the Required Pre-Startup Fixes” on page 61
<input type="checkbox"/>	“Install the User Environment Templates” on page 62
<input type="checkbox"/>	“Set File Ownerships and Permissions” on page 64
<input type="checkbox"/>	“Modify TCP/IP Port Settings (Solaris)” on page 66

<input type="checkbox"/>	"Configure Optical Libraries (optional)" on page 69
<input type="checkbox"/>	"Build the System Configuration Files" on page 70
<input type="checkbox"/>	"Completing the Upgrade on UNIX Servers" on page 71
<input type="checkbox"/>	"Verify the /fnsw/etc/serverConfig file" on page 71
<input type="checkbox"/>	"Verify the MasterSnmpd_start File" on page 71
<input type="checkbox"/>	"Start Image Services" on page 72
<input type="checkbox"/>	"Run spacerpt (Oracle only)" on page 73
<input type="checkbox"/>	"Test the IS and User Applications" on page 74
<input type="checkbox"/>	"Install Fix Packs (optional)" on page 74
<input type="checkbox"/>	"Re-enable Cron Jobs" on page 74
<input type="checkbox"/>	"Install MSAR and SDS systems (optional)" on page 75
<input type="checkbox"/>	"Backup the system" on page 75
<input type="checkbox"/>	"The Image Services upgrade is complete" on page 76

Upgrade Checklist for HP-UX Servers

Read Release Notes available at the IBM Information Management support page www.ibm.com/software/data/support . To download these guidelines from the IBM support page, see “Accessing IBM FileNet documentation” on page 10 .	
Install platform-specific patches, if needed. Check the IBM Information Management support page for patches that might be required prior to this upgrade.	
Install the Pre-Upgrade fixes that were identified in the Release Notes. The fixes are available at www.ibm.com/software/data/support .	
Back up the entire system. This might include datasets, cache, and the operating system.	
<input type="checkbox"/>	“General Prerequisites for all IS Platforms” on page 22
<input type="checkbox"/>	“Platform-Specific Prerequisites” on page 25
<input type="checkbox"/>	“Copy the MasterSnmpd_start File” on page 33
<input type="checkbox"/>	“Run spacerpt (Oracle only)” on page 33
<input type="checkbox"/>	“Backup the /fns/etw/serverConfig File” on page 35
<input type="checkbox"/>	“Disable FileNet-Related Cron Jobs” on page 35
<input type="checkbox"/>	“Shutdown the Software” on page 35
<input type="checkbox"/>	“Verify the System Serial Number” on page 36
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<input type="checkbox"/>	“Upgrading the Image Services Software” on page 52
<input type="checkbox"/>	“Install the Required Pre-Startup Fixes” on page 61
<input type="checkbox"/>	“Install the User Environment Templates” on page 62
<input type="checkbox"/>	“Set File Ownerships and Permissions” on page 64
<input type="checkbox"/>	“Modify TCP/IP Port Settings (HP-UX)” on page 67
<input type="checkbox"/>	“Configure Optical Libraries (optional)” on page 69
<input type="checkbox"/>	“Build the System Configuration Files” on page 70

<input type="checkbox"/>	"Completing the Upgrade on UNIX Servers" on page 71
<input type="checkbox"/>	"Verify the /fnsd/etc/serverConfig file" on page 71
<input type="checkbox"/>	"Verify the MasterSnmpd_start File" on page 71
<input type="checkbox"/>	"Start Image Services" on page 72
<input type="checkbox"/>	"Run spacerpt (Oracle only)" on page 73
<input type="checkbox"/>	"Test the IS and User Applications" on page 74
<input type="checkbox"/>	"Install Fix Packs (optional)" on page 74
<input type="checkbox"/>	"Re-enable Cron Jobs" on page 74
<input type="checkbox"/>	"Configure Font Server for COLD Preview (HP-UX only)" on page 75
<input type="checkbox"/>	"Install MSAR and SDS systems (optional)" on page 75
<input type="checkbox"/>	"Backup the system" on page 75
<input type="checkbox"/>	"The Image Services upgrade is complete" on page 76

Upgrade Checklist for Solaris Servers

Read Release Notes available at the IBM Information Management support page www.ibm.com/software/data/support . To download these guidelines from the IBM support page, see “Accessing IBM FileNet documentation” on page 10.	
Install platform-specific patches, if needed. Check the IBM Information Management support page for patches that might be required prior to this upgrade.	
Install the Pre-Upgrade fixes that were identified in the Release Notes. The fixes are available at www.ibm.com/software/data/support .	
Back up the entire system. This might include datasets, cache, and the operating system.	
<input type="checkbox"/>	“General Prerequisites for all IS Platforms” on page 22
<input type="checkbox"/>	“Platform-Specific Prerequisites” on page 25
<input type="checkbox"/>	“Copy the MasterSnmpd_start File” on page 33
<input type="checkbox"/>	“Run spacerpt (Oracle only)” on page 33
<input type="checkbox"/>	“Backup the /fns/etcd/serverConfig File” on page 35
<input type="checkbox"/>	“Disable FileNet-Related Cron Jobs” on page 35
<input type="checkbox"/>	“Shutdown the Software” on page 35
<input type="checkbox"/>	“Verify the System Serial Number” on page 36
<input type="checkbox"/>	“Modify the /etc/inittab File” on page 37
<input type="checkbox"/>	“Check Logical Volume Sizes” on page 37
<input type="checkbox"/>	“Preparing to Upgrade IS on a Solaris server” on page 44
<input type="checkbox"/>	“Verify Volume Management Software” on page 44
<input type="checkbox"/>	“Verify or Change the Solaris Operating System Kernel Limits” on page 44
<input type="checkbox"/>	“Upgrade the Solaris Operating System (optional)” on page 44
<input type="checkbox"/>	“Upgrading the Relational Database Software” on page 52
<input type="checkbox"/>	“Upgrading the Image Services Software” on page 52
<input type="checkbox"/>	“Install the Required Pre-Startup Fixes” on page 61
<input type="checkbox"/>	“Install the User Environment Templates” on page 62
<input type="checkbox"/>	“Set File Ownerships and Permissions” on page 64
<input type="checkbox"/>	“Modify TCP/IP Port Settings (Solaris)” on page 66

<input type="checkbox"/>	"Configure Optical Libraries (optional)" on page 69
<input type="checkbox"/>	"Build the System Configuration Files" on page 70
<input type="checkbox"/>	"Completing the Upgrade on UNIX Servers" on page 71
<input type="checkbox"/>	"Verify the /fnsw/etc/serverConfig file" on page 71
<input type="checkbox"/>	"Verify the MasterSnmpd_start File" on page 71
<input type="checkbox"/>	"Start Image Services" on page 72
<input type="checkbox"/>	"Run spacerpt (Oracle only)" on page 73
<input type="checkbox"/>	"Test the IS and User Applications" on page 74
<input type="checkbox"/>	"Install Fix Packs (optional)" on page 74
<input type="checkbox"/>	"Re-enable Cron Jobs" on page 74

Upgrade Checklist for Windows Servers

Note You must be running Windows 2003 SP1 or SP2, Windows 2003 R2 SP2, or Windows 2008 to run this release of IS. If you are running an earlier version of Windows, upgrade your operating system BEFORE you upgrade your RDBMS and IS software.

Read Release Notes available at the IBM Information Management support page www.ibm.com/software/data/support . To download these guidelines from the IBM support page, see “Accessing IBM FileNet documentation” on page 10 .	
Install platform-specific patches, if needed. Check the IBM Information Management support page for patches that might be required prior to this upgrade.	
Install the Pre-Upgrade fixes that were identified in the Release Notes. The fixes are available at www.ibm.com/software/data/support .	
Back up the entire system. This might include datasets, cache, and the operating system.	
<input type="checkbox"/>	“General Prerequisites for all IS Platforms” on page 22
<input type="checkbox"/>	“Platform-Specific Prerequisites” on page 25
<input type="checkbox"/>	“Preparing for the Upgrade (Windows Server)” on page 49
<input type="checkbox"/>	“Run spacerpt (Oracle only)” on page 49
<input type="checkbox"/>	“Verify the System Serial Number” on page 49
<input type="checkbox"/>	“Shutdown the Software” on page 50
<input type="checkbox"/>	“Perform a System Backup” on page 51
<input type="checkbox"/>	“Upgrade the Windows Operating System (optional)” on page 51
<input type="checkbox"/>	“Upgrading the Relational Database Software” on page 52
<input type="checkbox"/>	“Upgrading the Image Services Software” on page 52
<input type="checkbox"/>	“Completing the Upgrade on Windows Servers” on page 77
<input type="checkbox"/>	“Verify Performance Tuning Parameters” on page 77
<input type="checkbox"/>	“Upgrade IS Configuration Files” on page 78
<input type="checkbox"/>	“Completion Procedure for Microsoft SQL Server Systems” on page 78
<input type="checkbox"/>	“Completion Procedure for Application Servers without an RDBMS” on page 81
<input type="checkbox"/>	“Start Image Services” on page 81
<input type="checkbox"/>	“Verify the \fnsw\etc\serverConfig File” on page 82
<input type="checkbox"/>	“Turn off User Account Control (Windows 2008 only)” on page 83

<input type="checkbox"/>	"Install Fix Packs (optional)" on page 84
<input type="checkbox"/>	"Install MSAR and SDS systems (optional)" on page 84
<input type="checkbox"/>	"Upgrade Storage Library Servers and Application Servers" on page 84
<input type="checkbox"/>	"Backup the System" on page 84
<input type="checkbox"/>	"The Image Services upgrade is complete" on page 85

Upgrade Planning and Procedures

Required Skills

Upgrade by a FileNet Certified Professional (FCP) is recommended. For more information about the FCP program, go to the IBM web site (<http://www.ibm.com/us>), Products > Software > Information Management > Training and certification > FileNet Certified Professional Program (FCP). You will need an IBM-issued login name and password to access the Web site.

If an FCP is used, at least ten days before the installation, the FCP should contact your service representative to schedule the installation and access the team's latest list of current scheduling procedures.

Strategy for Multiserver Upgrades

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

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

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

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

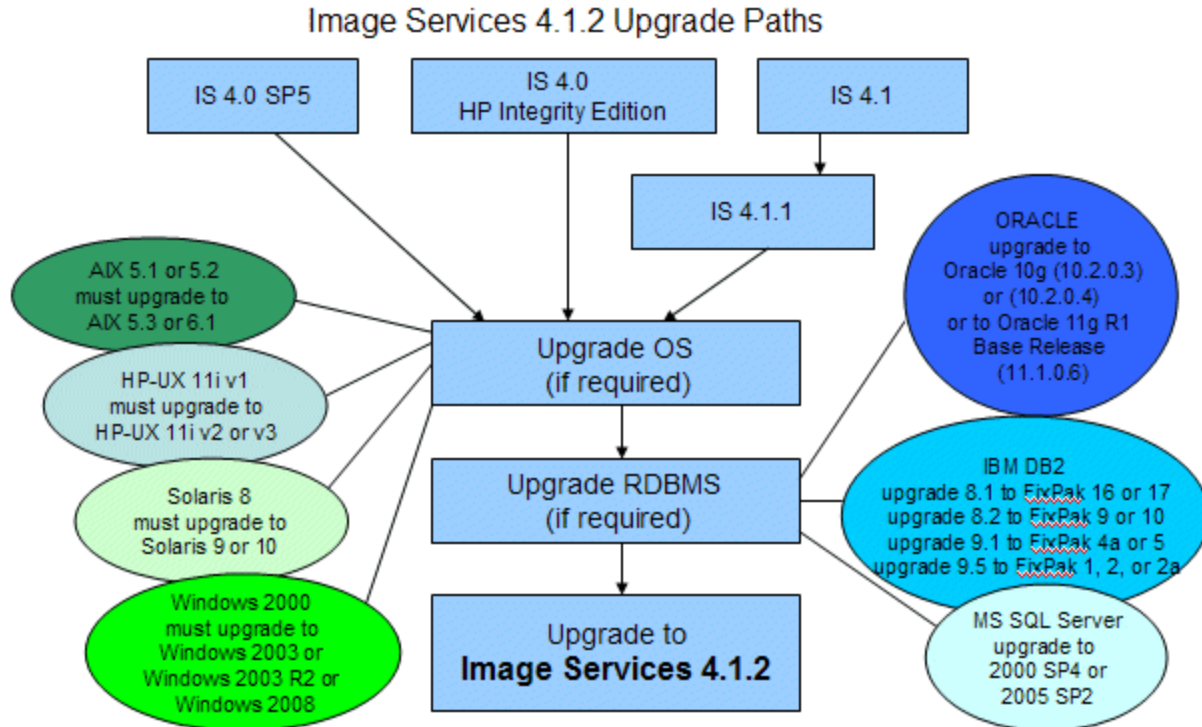
Operating System	Required skills
AIX	<ul style="list-style-type: none"> • UNIX operating System • text editor such as vi • AIX logical volume management • System Management Interface Tool - SMIT • Peripheral device configuration methods (for example, tape drives, printers, and storage libraries) • DB2 or Oracle Server Administration
HP-UX	<ul style="list-style-type: none"> • UNIX operating system • text editor such as vi • HP System Administration Manager tool (SAM) • HP-UX 11i v2 and v3 administrative command for tunable kernel parameters (kctune) • Peripheral device configuration methods (for example, tape drives, printers, and storage libraries) • DB2 or Oracle Database Administration
Solaris	<ul style="list-style-type: none"> • UNIX operating system • A text editor such as vi • The Solaris administration utilities such as the Solaris Management Console (SMC) • Solaris and Veritas volume manager configuration methods, and an understanding of general logical volume management concepts • Peripheral device configuration methods (for example tape drives, printers, and storage libraries) • DB2 or Oracle Database Administration
Windows Server	<ul style="list-style-type: none"> • Knowledge of the Windows operating environment • Knowledge of Windows network models • Experience with Windows Administrative Tools • Peripheral device configuration methods (for example tape drives, printers, and storage libraries) • DB2, Oracle or Microsoft SQL Server Database Administration

Upgrade Paths

Because of the wide variety of possible system configurations, the following upgrade starting points have been tested and approved to simplify the upgrade process.

Software	Starting points	Finishing points
Image Services	IS 4.1.1 IS 4.0 SP5 IS 4.0 HP Integrity Edition	IS 4.1.2
Oracle	Oracle 10g R2 Oracle 9i (9.2.0.4)	Oracle 11g R1\ Oracle 10g R2
IBM DB2	DB2 8.2 Fixpak 5 DB2 8.1 FixPak12	DB2 9.5 FixPak 1 DB2 9.1 FixPak 4a DB2 8.2 FixPak 9 DB2 8.1 FixPak 16
MSSQL	MSSQL 2005 SP2 MSSQL 2000	MSSQL 2005 SP2 MSSQL 2000 SP4

The following diagram shows the upgrade paths for all supported platforms.



Upgrade Planning Considerations

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

General Prerequisites for all IS Platforms

Hardware Requirements

Server Memory

- Root/Index and Application Servers with Oracle:
10g - 1024 MB memory for each processor in the server.
11g - 1024 MB memory for each processor in the server.
- Root/Index and Application Servers with DB2:
512 MB memory for each processor in the server.
- Storage Library and Application Servers without RDBMS:
512 MB memory for each processor in the server.
- To determine the total amount of installed memory, enter on each server:

Operating System	Command to view total amount of installed memory
AIX	<code>lsattr -E -l sys0 -F 'description value' -a 'realmem'</code>
HP-UX (HP 9000)	<code>dmesg grep Physical</code>
HP-UX (HP Integrity)	<code>/usr/contrib/bin/machinfo grep Memory</code>
Solaris	To determine RAM: <code>prtconf grep Memory</code> To determine Free Disk Space in KB: <code>df -k</code>

Paging Space

Oracle recommends that paging space be 2 times the amount of server memory. For example, a server with 512 MB of memory would require 1 GB of paging space.

Note On systems with more than 2 GB of physical RAM memory, the requirements for paging space can be lowered, but it should never be less than the amount of physical RAM memory.

Note For more information on IBM's recommendations on paging space, see IBM's AIX Web site.

Total Swap Space

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

Total Disk Space

Space for RDBMS Software

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

- *Guidelines for Installing and Updating Oracle 9i and 10g Software for UNIX Servers*
- *Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software on Windows Servers*
- *Guidelines for Installing and Configuring DB2 Software*

To download these guidelines from the IBM support page, see [“Accessing IBM FileNet documentation” on page 10](#).

Space for Image Services Software

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

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

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

Note Use the SCouT system configuration and output tool to estimate the actual amount of disk space needed for various datasets on this IS system.

Temporary Space

The IS installer also needs a certain amount of temporary disk space in addition to the downloaded IS software modules. Check the following table for the amount of temporary space

you will need on your servers and for the name of the directory where the installer intends to place the temporary files.

Operating System	Recommended Temporary Space	Directory
AIX	150 MB	/tmp
HP-UX (HP 9000)	250 MB	/var/tmp
HP-UX (HP Integrity)	350 MB	/var/tmp
Solaris	250 MB	/var/tmp
Windows Server	120 MB	temp*

* **Note** On Windows servers, the installer determines the temporary file path in the following order:

- The path specified by the TMP environment variable.
- If TMP is not defined, the path specified by the TEMP environment variable.
- If both TMP and TEMP are not defined, the Windows directory.

However, the installer does not verify that the directory specified by the TMP or TEMP environment variables exists.

On both UNIX® and Windows servers, adding `-is:tempdir <directory>` to the command line overrides the default temporary directory as long as the `<directory>` you specify already exists.

Important This optional temporary directory must be outside the `/fnsw` directory structure on UNIX servers, or the `\fnsw` and `\fnsw_loc` directory structures on Windows servers.

For example, to install the IS 4.1.2 software on an HP-UX server, you would enter:

```
is_4.1.2_hp.bin -is:tempdir /othertmp
```

Where `/othertmp` is the specific temporary directory you want to use.

Common Desktop Environment (UNIX)

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

Note To disable CDE and use X Windows instead, refer to your operating system documentation. If you want to re-enable CDE in the future, you can run the following script as a user with **root** privileges:

```
/fnsw/etc/DTwindows.
```

Non-GUI commands can be performed at either the GUI terminal or the ACSII terminal.

Note If you are using an international keyboard, remember to select the keyboard language when you first logon to CDE. At the logon box, select Options, Language. Then choose the appropriate keyboard language from the pull-down menu.

Platform-Specific Prerequisites

Hardware Requirements

Operating System	OS-specific Prerequisites
AIX	<p>Server Hardware</p> <p>AIX 64-bit processors for all servers with Oracle9i or 10g software including Root/Index servers and Application servers with either WorkFlo Queue Services, SQL Services, or VWServices.</p> <p>Note Oracle 9i software is compatible with both 32-bit and 64-bit AIX servers. Oracle 10g is compatible with only 64-bit servers. DB2 databases must be located on remote AIX or Solaris servers.</p> <p>AIX 32-bit processors for servers without Oracle such as separate Storage Library servers and Application servers with only Batch, Print, and/or Cache Services.</p> <p>Note For Oracle, the kernel can be 32- or 64-bit but the hardware must be 64-bit.</p> <p>Operating System Software</p> <p>The following AIX operating systems are supported with this release of IS:</p> <ul style="list-style-type: none">• AIX 5.3 TL 3,4• AIX 6.1 TL 1 <p>Note Upgrade to one of these versions of AIX BEFORE you upgrade the IS and RDBMS software.</p>

Operating System	OS-specific Prerequisites
HP-UX	<p>Server Architecture</p> <p>HP 9000 (PA-RISC) Servers</p> <p>Servers containing PA-RISC processors that support the HP-UX11i operating system are required.</p> <p>64-bit processors for all servers with Oracle9i software including Root/Index servers and Application servers with either WorkFlo Queue Services (WQS), SQL Services, or VWServices.</p> <p>32-bit or 64-bit processors for servers without Oracle such as separate Storage Library servers and Application servers with only Batch, Print, and/or Cache Services.</p> <p>Note Oracle 10g/11g software is compatible with only 64-bit HP-UX servers.</p> <p>HP Integrity (Itanium® 2) Servers</p> <p>HP Integrity servers containing 64-bit Intel Itanium 2 processors that support the HP-UX11i v2 operating system are required.</p> <p>HP-UX Operating System</p> <p>IS software is compatible with:</p> <ul style="list-style-type: none">• HP-UX 11i v2 (HP 9000 servers and HP Integrity servers)• HP-UX 11i v3 (HP 9000 servers and HP Integrity servers) <p>HP-UX Version</p> <p>To determine the version of operating system software running on the server(s), enter the uname -r (release) command. The result must be:</p> <p style="padding-left: 40px;">B.11.23 (HP-UX 11i v2) - or - B.11.31 (HP-UX 11i v3)</p> <p>If the version of HP-UX software is earlier than version B.11.11, or if no software has been installed on the system, refer to HP documentation.</p>

Operating System	OS-specific Prerequisites
HP-UX (Cont'd)	<p>Your server must already be running one of the following HP-UX releases:</p> <p>HP_UX 11.23 (64-bit) or higher (HP 9000 and HP Integrity)</p> <p>HP_UX 11.31 (64-bit) or higher (HP 9000 and HP Integrity)</p> <p>Enter the uname -m (platform) command. On an HP Integrity server, the result must be:</p> <p>ia64</p> <p>Verify the character set used by the operating system by entering the locale charmap command.</p> <p>HP-UX Patches</p> <p>Locate the patch recommendations and requirements for your system on the BM Customer Service and Support web site for FileNet customers (http://www.css.filenet.com)</p> <p>If an earlier version of HP-UX is currently installed on the server, the System Administrator must upgrade to HP-UX 11i at the appropriate time.</p>
Solaris®	<p>Server Hardware</p> <p>SUN Microsystems SPARC- or UltraSPARC server (32-bit or 64-bit processors).</p> <p>Note Oracle 9i software is compatible with both 32-bit and 64-bit Sun/Solaris servers. Oracle 10g is compatible with only 64-bit servers. DB2 databases must be located on remote AIX or SUN servers.</p> <p>Operating System Software</p> <p>IS is compatible with:</p> <ul style="list-style-type: none">• Solaris version 9 Operating System (32-bit or 64-bit).• Solaris version 10 Operating System (64-bit only). <p>If an earlier version of Solaris is currently installed on the server, the System Administrator must upgrade to Solaris 9 or 10 at the appropriate time. If the server is a stand-alone system, the server must be configured as a networked, stand-alone system. In addition, you must have at least the Developer System Support packages installed.</p>

Operating System	OS-specific Prerequisites
Windows	<p>Server Hardware</p> <ul style="list-style-type: none">Minimal Processor: 800Mhz Pentium 32-bit processor512 MB or more memory per CPU <p>Tip To check the amount of memory, log on as fns or Administrator. From the Command Prompt window, enter the winmsd command. <i>Total Physical Memory</i> is located under <i>System Summary</i>.</p> <ul style="list-style-type: none">An NTFS file system with the required amount of disk space as described in the Total Disk Space section below. <p>Tip To see how much disk space is available, use the <i>Windows Explorer</i>, and select the drive where you plan to install IS. The available disk (free) space appears in the message area at the bottom of the window. Refer to the <i>FileNet Disk Sizing Spreadsheet</i> for actual dataset sizes.</p> <ul style="list-style-type: none">An HP Optical Disk Library (optional) <p>Note Oracle9i and 10g software is compatible with 32-bit Windows servers.</p> <ul style="list-style-type: none">A DVD drive installed and configured for use on your Windows server. <p>Operating System Software</p> <p>The following Windows operating systems are supported:</p> <ul style="list-style-type: none">Windows 2003 SP2Windows 2003 Release 2 SP2Windows 2008 <p>Note Upgrade to Windows 2003 or 2008 BEFORE you upgrade the IS and RDBMS software.</p>

Software Requirements

Image Services

IS 4.1.2 includes COLD 4.1.2 software and is titled as follows depending on your operating system:

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

RDBMS

Oracle RDBMS Software (FileNet-controlled)

Note The Oracle software is supplied.

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

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

Oracle RDBMS Software (Site-controlled)

Note The Oracle software is not supplied.

Refer to the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers* or *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server* for more information. To download these guidelines from the IBM support page, see [“Accessing IBM FileNet documentation” on page 10](#).

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

MS-SQL RDBMS Software

Note The SQL software is not supplied.

Refer to the *IBM FileNet Image Services Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software for Windows Server* for more information. To download this document from the IBM support page, see [“Accessing IBM FileNet documentation” on page 10](#).

IBM DB2 RDBMS Software

Note The DB2 software media are not supplied.

Refer to the *IBM FileNet Image Services Guidelines for Installing and Configuring IBM DB2 Software* for more information. To download this document from the IBM support page, see [“Accessing IBM FileNet documentation” on page 10](#).

Debugging Software

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

Debugger - AIX

The IBM Debugger for AIX is an interactive source-level debugger. It works on an AIX-based client that is connected locally or remotely through a network connection to a debugger engine running on AIX, or on a Windows-based client that is connected remotely to a debugger engine running on AIX. The IBM Debugger for AIX enables support personnel to troubleshoot both IS and AIX-related problems.

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

Debugger - HP-UX

WDB

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

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

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

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

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

GDB

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

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

Debugger - Solaris

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

```
pkginfo | grep SPROdbgr
```

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

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

Debugger - Windows

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

Installations Running Content Services

If your system is running Content Services and IS software on the same server with Microsoft SQL Server, upgrade the Microsoft SQL and IS software first, in the order indicated in this document.

After updating the Microsoft SQL Server and IS software, should you upgrade the Content Services software.

Related Documentation

To download these documents, see [“Accessing IBM FileNet documentation” on page 10](#).

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

- *IBM FileNet Image Services Integral Single Document Storage Procedures and Guidelines*
- *IBM FileNet Image Services Oracle 10g Installation Procedures (FileNet-controlled)*

Note For information on DB2, Microsoft, or Oracle products, see the documentation that came with your software.

Continue the Upgrade

To continue upgrading your IS system, skip to the appropriate section:

- For AIX, HP-UX, and Solaris systems, go to [“Preparing for the Upgrade \(UNIX\)” on page 33](#).
- For Windows Server systems, go to [“Preparing for the Upgrade \(Windows Server\)” on page 49](#).

Preparing for the Upgrade (UNIX)

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

If an FCP performs the upgrade, at least four weeks before the upgrade, the FileNet Technical Consultant or the ValueNet Partner should do the following:

- Schedule the upgrade and review the current scheduling procedures.
- Copy the latest IS CDB file. Send it to your service representative.

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

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

You can send files or other output using e-mail or you can FTP the files, copy them to physical media, and mail them.

Copy the MasterSnmpd_start File

Make a backup copy the /fnsw/bin/MasterSnmpd_start file. SNMP is the Simple Network Management Protocol. See the *SNMP Reference Manual* for more information. To download this document from the IBM support page, see "[Accessing IBM FileNet documentation](#)" on page 10.

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

For example, as an IS user such as **fnsw**, save the current file:

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

Run spacerpt (Oracle only)

Your service representative can inspect your database configuration to verify that the Oracle RDBMS objects are correct.

You must know the f_maint password to run spacerpt.

On Servers with Local Oracle Databases

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

1. As an IS user such as **fnsw**, verify that Oracle is up:

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

If Oracle is running, you will see at least four Oracle processes. If not, start the Oracle software.

- If Oracle is Site-controlled, ask the DBA to start Oracle.
- If Oracle is FileNet-controlled and there are no Oracle processes running, start Oracle:

```
fn_util starttrdb
```

2. As an IS user such as **fnsw**, enter:

- In the Bourne or Korn shell:

```
spacerpt > <output_file_name>
```

- In the C shell:

```
spacerpt > & <output_file_name>
```

where <output_file_name> can be any name you choose.

Spacerpt verifies that:

- the IS logon and security are intact
- the Advanced internal database structure is intact
- the IS metadata are intact

3. To stop Oracle:

- For Site-controlled Oracle, ask the DBA to stop Oracle.
- For FileNet-controlled Oracle, enter:

```
fn_util stoprdb
```

4. Print a copy of this file and keep it in a safe place. You can compare this copy with the spacerpt run at the end of this upgrade procedure.

On Servers with Remote Oracle Databases

If the Oracle databases are located on a remote Oracle server, you cannot run **spacerpt** directly because Oracle OS authentication prevents it. Instead, modify two script files and login to sqlplus to get space information.

1. Copy the following files from the /fnsw/oracle Image Services server to the /fnsw/oracle directory on the remote Oracle server:

```
/fnsw/oracle/spacerpt_summary.sql
```

```
/fnsw/oracle/spacerpt_extended.sql
```

2. On the remote Oracle server, use your preferred text editor, such as **vi**, to modify these two files. Remove the first line of each file:

```
/ as sysdba
```

3. Exit and save your changes.

The **spacerpt** scripts will now run successfully on the remote Oracle server.

4. Login to sqlplus to run the scripts:

```
sqlplus
```

5. When you are prompted, enter the user name f_maint and f_maint password.

6. To run **spacerpt**, enter the following command at the sqlplus prompt:

```
@/fnsw/oracle/spacerpt_summary.sql
```

7. If you want to get a more detailed report, enter:

```
@/fnsw/oracle/spacerpt_extended.sql
```

8. Print a copy of this file and keep it in a safe place. You can compare this copy with the spacerpt run at the end of this upgrade procedure.

Backup the /fnsw/etc/serverConfig File

1. Logon as an IS user such as **fnsw**.
2. Make a copy of the /fnsw/etc/serverConfig file by entering commands similar to the following:

```
cd /fnsw/etc
```

```
cp serverConfig serverConfig.save
```

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

Disable FileNet-Related Cron Jobs

Disable any FileNet-related cron jobs for the duration of the upgrade. After the upgrade is complete, you can re-enable them.

The crontab files are located in /usr/spool/cron/crontabs.

Shutdown the Software

Notify all users on the system to logout before you continue with the upgrade procedure. Warn them you are about to shutdown the IS software and kill all processes.

Exit IS Toolkit Applications

Exit from any Image Services Toolkit (ISTK) applications currently running on the server. (Later in this procedure you will run the killfnsw command, which clears the IS shared memory.)

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

```
/fnsw/client/bin/wal_purge
```

Stop the Software

Note In a multi-server system, stop the software in the following order:

- 1 - the application server(s)
- 2 - the storage library server(s)
- 3 - the root server

Startup must be in the opposite order with the root server first, followed by the storage library server(s), and finally the application server(s).

1. As an IS user shut down IS:

```
initfnsw -y stop
```

2. Kill all remaining processes displayed:

```
killfnsw -DAY
```

The -D option kills daemons (such as, TM_daemon).

The -A option removes all IPC segments.

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

3. Check that all IS processes have been killed:

```
ps -ef | grep fnsw
```

Note Also use the **grep** command to check for active COR_Listen processes.

4. If any fnsw processes remain active, including TM_daemon, kill each one explicitly:

```
kill <process_id>
```

5. As a user with **root** privileges, remove any element owned by **fnsw**:

```
ipcs | grep fnsw
```

```
<ipcskill>
```

Shut down MasterSnmpd processes (HP-UX and Solaris only)

Verify that no MasterSnmpd processes are running. On HP-UX and Solaris servers, enter:

```
ps -elf | grep MasterSnmpdKill any remaining MasterSnmpd processes:
```

```
kill -9 <ProcessID>
```

If the Image Services Toolkit is also installed on this UNIX server, shutdown all IS Toolkit applications, then enter:

```
wal_purge
```

Verify the System Serial Number

Use the **ssn** command to display the system serial number. As a user with **root** privileges, enter:

```
ssn
```

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

Modify the /etc/inittab File

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

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

1. As a user with **root** privileges, change to the /etc directory:

```
cd /etc
```

2. Use a text editor (for example, **vi**), to edit the inittab file.
3. Locate a line similar to the following HP-UX example. If the relational database software is site-controlled, this line might not exist.

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

If you find a line similar to the example, comment it out by adding the appropriate comment character (# or : depending on your operating system) at the beginning of the line.

4. Exit the file and save your changes.

Check Logical Volume Sizes

Server Types Perform the steps in this section on **all servers**. Verify that the fnsw, local, and oracle file systems are not being accessed by anyone. Otherwise, the following steps will fail.

The steps in this section ensure that the **fnsw** and **local** logical volumes have enough disk space.

1. As a user with **root** privileges, start the volume management software.
2. Select the volume group where IS is installed.
3. Compare the logical volume sizes displayed with sizes shown in the following table. Your logical volume sizes must be equal to or greater than the sizes in the table. (If any logical volumes are larger than the sizes shown, do not decrease them.)

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

If you want to increase the size of any of these logical volumes to match the sizes shown in the table, you'll have that opportunity when you upgrade IS later in this procedure.

Continue with the Upgrade

To continue upgrading an AIX system, see [“Preparing to Upgrade IS on an AIX server” on page 38](#).

To continue upgrading an HP-UX system, see [“Preparing to Upgrade IS on an HP-UX server” on page 39](#).

To continue upgrading a Solaris Platform, see [“Preparing to Upgrade IS on a Solaris server” on page 44](#).

Preparing to Upgrade IS on an AIX server

Upgrade the AIX Operating System (Optional)

If necessary, the System Administrator must upgrade the server to one of the following AIX versions before installing IS. DO NOT install IS until the operating system has been successfully upgraded.

- AIX 5.3 TL 7, 8, or above
- AIX 6.1 or above

Important Check the IBM Information Management support page www.ibm.com/software/data/support for any operating system patches that are required for compatible operation with IS.

Debugging Software (Optional)

Debugging software is recommended for IS and, if present, must be installed on each server.

The IBM Debugger for AIX is an interactive source-level debugger. It works on an AIX-based client that is connected locally or remotely through a network connection to a debugger engine running on AIX, or on a Windows-based client that is connected remotely to a debugger engine running on AIX. The IBM Debugger for AIX enables support personnel to troubleshoot both IS and AIX-related problems.

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

Continue with the AIX Upgrade

To continue with the upgrade, go to [“Upgrading the Relational Database Software” on page 52](#).

Preparing to Upgrade IS on an HP-UX server

Upgrade HP-UX Operating System (Optional)

If necessary, the System Administrator must upgrade the server to HP-UX 11i v2 or HP-UX 11i v3 before installing IS. DO NOT install IS until the operating system has been successfully upgraded.

Important Check the IBM Information Management support page www.ibm.com/software/data/support for any operating system patches that are required for compatible operation with IS.

Upgrading to HP-UX v2 or v3 after Upgrading IS

If you upgrade the HP-UX operating system from a version of B.11.22 or lower **after** IS has already been installed or upgraded, you must follow these steps:

1. After upgrading the HP-UX operating system software to HP-UX 11i v2 (B.11.23) or higher, remove the following files:

`/fnsw/local/sd/cfg_verify/cfg_requirements`

`/fnsw/local/sd/cfg_verify/.cfg_req_stamp`

2. Restart the IS software.

During the restart process, the `cfg_gen` script runs the `"uname -r"` command and uses the resulting version information to update the `/fnsw/lib/cfg_verify/cfg_requirements` file. Then `cfg_verify` automatically copies the `cfg_requirements` file to `/fnsw/local/sd/cfg_verify/cfg_requirements`. The `/fnsw/local/sd/cfg_verify/.cfg_req_stamp` file is also updated automatically.

Debugging Software (Optional)

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

WDB

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

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

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

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

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

GDB

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

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

Verify/Change the Operating System Kernel Limits

Both IS and the RDBMS system software are very resource intensive. To satisfy the resource needs of the software, you might need to modify some default operating system parameters.

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

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

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

- a. As **root** user, enter:

```
sam &
```

- b. Select the Kernel Configuration option.
- c. Then select the Configurable Parameters option, and check the **Pending Value** for the kernel parameters in the following order:

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

Kernel Parameters	HP 9000 Recommended Minimum Settings	HP Integrity Recommended Minimum Settings
maxdsiz	117440512 (112 MB) 0x7000000 hex	268435456 (256 MB) 0x10000000 hex
maxfiles	256	1024
nproc	1005	1005
maxuprc	400	400

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

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

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

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

On servers with DB2 software installed, verify these settings:

Kernel Parameters	Recommended Minimum Settings
msgmnb	65535
msgmax	65535

Also verify the timezone setting for your location:

Kernel Parameters	Default Setting
timezone	420*

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

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

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

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

2. If you do not need to change any kernel parameters, skip to [Step 5](#) now. If you do need to make changes, continue with the next step.
3. Change the kernel parameter values by following these sub-steps:
 - a. Select (highlight) the parameter you wish to change (for example, **maxfiles**).
 - b. From the Actions menu, select the Modify Configurable Parameter option and press **Return**.
 - c. In the popup window that displays, the Specify New Formula/Value option will already be selected.
 - d. In the Formula/Value field, type the new value.
 - e. Click **OK** and press **Return**. When the popup window disappears, you will see the new value in the Pending Value column.
 - f. Repeat sub-steps a through f for each parameter you change.
4. If you changed any of the kernel parameters in the previous step, you might need to rebuild the kernel by completing the following sub-steps:
 - a. From the Action menu, click the Process New Kernel option.
 - b. Click **Yes** when asked if you want to process your kernel modification now.
 - c. On the next screen, verify that the Move Kernel into Place and Shutdown/Reboot the System Now option is selected.

The Overwrite /stand/system option must also be selected, unless the System Administrator has a reason not to overwrite this file.

Refer to HP's on-line Help for complete information.
 - d. Click **OK** to reboot the server and put the new changes into effect.

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

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

```
/sbin/set_parms  timezone
```

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

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

Continue with the HP-UX Upgrade

To continue, proceed to [“Upgrading the Relational Database Software” on page 52](#).

Preparing to Upgrade IS on a Solaris server

Verify Volume Management Software

Before you can modify or create file systems and volumes for IS, the **System Administrator** must verify the presence of volume management software on each server:

- VERITAS Volume Manager
- Solaris Volume manager.

The system must meet the requirements specified in the volume manager documentation.

Upgrade the Solaris Operating System (optional)

If necessary, the System Administrator must upgrade the server to Solaris 9 or 10 before installing IS. DO NOT install IS until the Solaris Operating System has been successfully upgraded.

Verify or Change the Solaris Operating System Kernel Limits

Both the IS and the RDBMS system software are very resource intensive. To satisfy the resource needs of the software, you might need to modify some default operating system parameters.

Complete the following steps for both Solaris 9 and Solaris 10:

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

```
vi /etc/logindevperm
```

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

```
/dev/console 0666 /dev/console
```

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

3. Exit the file and save your changes.

- If you are using Solaris 9, continue with the next sub-section.
- If you are using Solaris 10, skip to [“Checking Solaris 10 Kernel Limits” on page 45](#).

Checking Solaris 9 Kernel Limits

1. Make a copy of the `/etc/system` file (with a new name) before performing the procedure contained in this section. To copy the `/etc/system` file, enter a command similar to the following:

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

2. As a user with **root** privileges, edit the `/etc/system` file, using your preferred editor (for example, `vi`), by entering a command similar to the following:

```
vi /etc/system
```

3. Verify that the settings match the values shown. (If your values are higher, enter the higher values appropriate for your system. Do not enter values lower than those shown below.) If no changes are needed, exit the file and skip to the next section.

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

Solaris 9 Kernel parameters in `/etc/system`:

```
set semsys:seminfo_semmap=50
set semsys:seminfo_semmni=2000
set semsys:seminfo_semmns=2000
set semsys:seminfo_semmnu=500
set semsys:seminfo_semmns1=512
set semsys:seminfo_semopm=256
set semsys:seminfo_semume=500
set semsys:seminfo_sevmx=32767
set semsys:seminfo_semaem=16384
set shmsys:shminfo_shmmax=4294967295
set shmsys:shminfo_shmmni=2000
set msgsys:msginfo_msgmni=2048
set msgsys:msginfo_msgtql=65536
set max_nprocs=400
set fnsod:sod_Debug=0
set rlim_fd_max=1024
set rlim_fd_cur=256
set noexec_user_stack=1
```

DB2 also requires these settings:

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

4. Save your changes and exit the file. Your changes will go into effect the next time you restart the operating system.
5. Skip to the section, [“Continue with the Solaris Upgrade” on page 48](#).

Checking Solaris 10 Kernel Limits

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

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

Note When using Solaris 10 software, a Solaris 10 project can be defined and resources can be attached to the project. For more information, see the Solaris documentation.

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

```
prctl $$
```

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

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

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

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

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

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

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

For the FileNet software user, enter:

```
su - fns  
projects -l
```

For Oracle user, enter:

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

Return to root user.

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

```
projadd -U fns w -K "project.max-shm-memory=(priv,4GB,deny)" user.fns w
```

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

```
projmod -sK "project.max-shm-memory=(priv,4GB,deny)" user.fns w
```

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

```
projmod -sK "project.max-shm-ids=(priv,2048,deny)" user.fns w  
projmod -sK "project.max-msg-ids=(priv,2048,deny)" user.fns w  
projmod -sK "project.max-sem-ids=(priv,2048,deny)" user.fns w  
projmod -sK "process.max-msg-messages=(priv,65536,deny)" user.fns w
```

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

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

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

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

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

```
vi /etc/system
```

Add the following value to the file:

```
set noexec_user_stack=1
```

10. Exit the file and save your changes.
11. Verify that the new active kernel values for both FileNet and Oracle users match the projects -l output you saw in [Step 4 on page 46](#).

For the FileNet software user, enter:

```
su - fns w  
prctl $$
```

For Oracle user, enter:

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

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

```
more /etc/system
```

Debugging Software (Optional)

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

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

```
pkginfo | grep SPROdbgr
```

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

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

Continue with the Solaris Upgrade

To continue, go to [“Upgrading the Relational Database Software” on page 52.](#)

Preparing for the Upgrade (Windows Server)

Windows Operating System

You must be running Windows 2003 SP1 and SP2 or Windows 2003 R2 SP2 to run this release of IS. If you are running Windows 2000, upgrade your operating system BEFORE you upgrade your RDBMS and IS software

Run spacerpt (Oracle only)

Your service representative can inspect your database configuration to verify that the Oracle RDBMS objects are correct.

You must know the f_maint password to run spacerpt.

1. As an IS user such as **fns**, use the Windows Task Manager to verify that Oracle is running.

To start the Windows Task Manager, right-click on the Task Bar and select Task Manager from the menu. When the Task Manager window opens, select the Processes tab:

If Oracle is running, you will see at least four Oracle processes. If not, start the Oracle software.

- If Oracle is Site-controlled, ask the DBA to start Oracle.
- If Oracle is FileNet-controlled and there are no Oracle processes running, start Oracle by entering:

```
fn_util startfdb
```

2. As an IS user such as **fns**, run spacerpt and send the output to an output file by entering:

```
spacerpt > <output_file_name>
```

where <output_file_name> can be any name you choose.

3. To stop Oracle:

- For Site-controlled Oracle, ask the DBA to stop Oracle.
- For FileNet-controlled Oracle, enter:

```
fn_util stopfdb
```

4. Print a copy of this file and keep it in a safe place. You can compare this copy with the spacerpt run at the end of this upgrade procedure.

Verify the System Serial Number

Use the **ssn** command to display the system serial number. As a user with **Administrative** privileges, enter:

```
ssn
```

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

Shutdown the Software

Notify all users on the system to logout before you continue with the upgrade procedure. Warn them you are about to shutdown the IS software and kill all processes.

Exit IS Toolkit Applications

Exit from any Image Services Toolkit (ISTK) applications currently running on the server. (Later in this procedure you will run the killfnsw command, which clears the IS shared memory.)

Stop the Software

Note In a multi-server system, stop the software in the following order:

- 1 - the application server(s)
- 2 - the storage library server(s)
- 3 - the root server

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

1. As an IS user shut down IS:

```
initfnsw -y stop
```

2. Kill all remaining processes displayed:

```
killfnsw -D -y
```

The -D option kills daemons (such as, TM_daemon).

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

The killfnsw command also stops the IS ControlService.

3. Stop the SNMP process by entering:

```
net stop "SNMP"
```

4. On systems with DR550 single document storage devices, stop the agent for IBM Tivoli Monitoring (ITM) by entering:

```
tacmd StopAgent -t NT -f
```

(The tacmd command should be in the user's path; if not, the path is C:\IBM\ITM\bin\tacmd.)

5. Use the Windows Task Manager to verify that all the IS processes have been killed.

If any fnsw processes remain active, including TM_daemon and COR_Listen, select each one and click **End Process**.

Perform a System Backup

If you do not have a recent full backup of the IS system, especially the \fnsw and \fnsw_loc file systems, backup the system datasets onto cartridge tapes. Refer to your *Systems Administrator's Companion for Windows Server*, for complete information on performing a system backup. To download this document from the IBM support page, see "[Accessing IBM FileNet documentation](#)" on page 10.

Upgrade the Windows Operating System (optional)

Only the Windows 2003 SP1 or SP2, Windows 2003 R2 SP2 or Windows 2008 operating systems are supported in this release of IS. If you are not running Windows 2003 or 2008, upgrade your operating system before you install the Relational Database software and IS.

Refer to the Microsoft documentation and installation procedures to upgrade your operating system and install the required service pack.

Tip You can download the service pack from: <http://www.microsoft.com/downloads/search.asp?>

Download the Help Viewer (Windows 2008 only)

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

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

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

Continue with the Windows Platform Upgrade

To continue, proceed to "[Upgrading the Relational Database Software](#)" on page 52.

Upgrading the Relational Database Software

Verify that the Database has been upgraded. Obtain the necessary parameters from the Database Administrator. See the following documents for more information:

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

To download these documents, see [“Accessing IBM FileNet documentation” on page 10](#).

Upgrading the Image Services Software

This chapter contains procedures to upgrade IS on your system. It assumes that compatible versions of the platform software and the relational database software have already been installed.

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

Note If you want to log in as a specific user to run the IS tools and software, add this user to the fnadmin and fnop groups, if necessary.

Before You Start the Installer

Complete the tasks in this section before you run the installer.

Note if you are planning to upgrade the IS software on Windows using the Microsoft Systems Management Server (SMS) to install the IS software from a central site server, skip to [“Appendix C – Microsoft Systems Management Server \(SMS\) Procedures \(Windows only\)” on page 89](#).

1. If you are a UNIX user and are working from a remote terminal, export the display.

Operating System	Pre-Installer Tasks - Working from a Remote Terminal
AIX, HP-UX, Solaris	<p>Working from a Remote Terminal</p> <p>If you are running this program in graphical mode from a remote terminal, export the display from the server to your current terminal.</p> <ul style="list-style-type: none"> • In the Bourne or Korn shell, enter: export DISPLAY=<host_identifier>:0 • In the C shell, enter: setenv DISPLAY <host_identifier>:0 <p>where <host_identifier> is the server identifier, either a name or IP address.</p> <p>If you are running the Installer in graphical mode from a remote terminal, allow access to the host display by entering this command at the remote terminal:</p> <p>xhost +</p> <p>If the server has an Xconsole, rather than an ASCII terminal, enter the xhost + command there, too.</p> <p>Note If you used the su command to switch from any user to root user, enter the xhost + command at the original CDE login window.</p> <p>Tip To test your DISPLAY setting enter: xclock & If the clock appears on your remote terminal screen, the DISPLAY variable was exported correctly. If you don't see the clock, try the export or setenv command again using the IP address rather than the server name.</p>

2. Load IS for your operating system:

Platform	Pre-Installer Tasks - Load IS
AIX	Load the Image Service Software
HP-UX	Load the Image Service Software
Solaris	Load the Image Service Software
Windows	Load the Image Service Software

Start the Installer

The IS Upgrade Installer performs the following two tasks.

- Runs a System Check to verify configuration prerequisites.
- Installs the IS software.

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

Note IS can run when performing the System Check. It cannot run if performing both the System Check and the Upgrade Installer.

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

- Pop-up windows on your screen.
- Report and log files in the <drive>:\fns_w_loc\logs\install\4.1.2\ (Windows) or the /fnsw/local/logs/install/4.1.2/ (UNIX) directory.

The IS Installer can run in graphical, console, or silent mode.

- Graphical mode is the default graphical interface and is described later in this section.
 - Console mode offers a plain text interface for workstations that do not support graphical mode.
 - Silent mode does not display on the screen while the installer is running. Review the install log file for access to the progress and results of the installation.
1. On UNIX, log on as a user with **root** privileges. On Windows, log on as a user with Administrative privileges.
 2. **For Silent Installation only**, locate the appropriate options.txt file on the CD-ROM. The option file contains standard responses to the installer's prompts. Copy the file to a local directory on your server. (You can rename it to something shorter, like **opt.txt**.) The options and their default

values are fully described in the file. Use your preferred text editor to make changes and save the file.

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

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

- Graphical mode

Operating System	Command to start the installer in graphical mode
AIX	<code>./is_4.1.2_aix.bin &</code>
HP-UX (HP 9000)	<code>./is_4.1.2_hp.bin &</code>
HP-UX (HP Integrity)	<code>./is_4.1.2_hpintegrity.bin &</code>
Solaris	<code>./is_4.1.2_sun.bin &</code>
Windows Server	<code>is_4.1.2_win.exe</code>

Note The trailing ampersand “&” (AIX, HP-UX, and Solaris) causes the installer to open in a new console window. Use the console window to correct any configuration errors reported by the installer.

- Console mode – plain text interface:

Operating System	Command to start the installer in console mode
AIX	<code>./is_4.1.2_aix.bin -console</code>
HP-UX (HP 9000)	<code>./is_4.1.2_hp.bin -console</code>
HP-UX (HP Integrity)	<code>./is_4.1.2_hpintegrity.bin -console</code>
Solaris	<code>./is_4.1.2_sun.bin -console</code>
Windows Server	Windows does not have a console mode.

- Silent mode – no screen display:

Operating System	Command to start the installer in silent mode
AIX	<code>./is_4.1.2_aix.bin -silent -options /tmp/opt.txt</code>
HP-UX (HP 9000)	<code>./is_4.1.2_hp.bin -silent -options /tmp/opt.txt</code>
HP-UX (HP Integrity)	<code>./is_4.1.2_hpintegrity.bin -silent -options /tmp/opt.txt</code>
Solaris	<code>./is_4.1.2_sun.bin -silent -options /tmp/opt.txt</code>
Windows Server	<code>is_4.1.2_win.exe -silent -options <drive>:\tmp\opt.txt.</code>

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

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

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

Operating System	Command to Specify an Alternative Directory
AIX	<code>./is_4.1.2_aix.bin -is:tempdir /othertmp</code>
HP-UX (HP 9000)	<code>./is_4.1.2_hp.bin -is:tempdir /othertmp</code>
HP-UX (HP Integrity)	<code>./is_4.1.2_hpintegrity.bin -is:tempdir /othertmp</code>
Solaris	<code>./is_4.1.2_sun.bin -is:tempdir /othertmp</code>
Windows Server	<code>is_4.1.2_win.exe -is:tempdir <drive>:\othertmp</code>

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

4. In graphical mode, you will see a series of screens. It might take a few minutes to display.
5. When prompted by the Installer, select the Upgrade option.

6. Run either the **System Check only** or the **System Check and Install IS**.

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

- Hardware checks
- Operating System checks
- Users and groups

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

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

Some Installer System Checks produce only warnings while others prevent the installation of IS:

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

Hardware Checks

The first System Check screen displays:

- Free disk space
- Memory
- Swap Space

The Installer lists the resource, how much you need, how much you have, and either Pass or Fail.

If a configuration item, such as “insufficient file system space” or “kernel parameter out of range” does not pass the System Check, perform the following:

- In a separate window, make the necessary change.

- b. Click the **Back** button on the Installer display to return to the previous screen, and **Next** again to rerun the check.

Operating System Checks

The Operating System Checks screen displays:

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

As you scroll down the display you see the minimum and current kernel parameter settings.

If any kernel parameters fail the System Check, perform the following:

- a. In a separate window, make the necessary change.
- b. Click the **Back** button on the Installer display to return to the previous screen, and **Next** again to rerun the check.

Finish the System Check

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

- If the Installer System Check completed successfully and you selected the option to install IS, continue with the section, [“Upgrade IS” on page 59](#).
- If the System Check failed with errors, fix all the error conditions reported. You can then run the System Check again.
- If the System Check passed all its tests, but generated warnings for the swap space, debugger, or kernel parameter tests, check the log file for additional items you need to correct.

Rerun the IS Installer

If the Installer System Check does not pass, review the log file in the `/fns_w_loc/logs/install/4.1.2/` (UNIX) or `<drive>:\fns_w_loc\logs\install\4.1.2\` (Windows) directory. The most recent information is appended to the end of the file.

After you have made the changes required by the Installer System Check, return to [“Start the Installer” on page 54](#) and run the System Check again.

Upgrade IS

As the IS installer continues, verify that the information displayed is correct for your system.

Depending on your server's processor speed, expect the upgrade to take approximately **20 minutes**. (If you are upgrading IS on several servers simultaneously from the same location, it could take longer.)

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

Important If you might find that the SysV file or the fn_snmp file is backed up, but the new version is not installed. For example, on a Windows server the installer records the following message in the log:

```
C:\FNSW\lib\shobj\sysv.dll was backed up to C:\FNSW\sp\backup\FNSW\lib\shobj\sysv.dll
C:\FNSW\lib\shobj\fn_snmp.dll was backed up to
C:\FNSW\sp\backup\FNSW\lib\shobj\fn_snmp.dll
```

On careful examination of the log file, there should be a successful update message like this:

```
C:\FNSW\lib\shobj\sysv.dll was successfully updated
C:\FNSW\lib\shobj\fn_snmp.dll was successfully updated
```

But instead, there's no successful update message for SysV, and this file is not copied onto the server. The summary line indicates that one files were not copied:

```
1053 files of 1054 have been copied to the target
```

To resolve this issue, locate the current SysV file and fn_snmp file, and rename them to something like sysv.old and gn_snmp.old. The name of the files are slightly different on each platform:

AIX	SysV	fn_snmp
HP-UX	libSysV.sl	fn_snmp.sl
Solaris	libSysV.so	fn_snmp.so
Windows	sysv.dll	fn_snmp.dll

After you rename the SysV file and fn_snmp file, rerun the Image Services installation. The installer will correctly update the files, and the summary line in the log file will indicate that all files have been copied successfully. For example:

```
1054 files of 1054 have been copied to the target
```

(The actual number of files copied varies from one operating system to another.)

Tip If you have several IS servers to upgrade in a multiserver environment, you can begin installing the IS software on the next server while you continue to configure the IS software on the current server. Upgrade the IS servers in this order: Root/Index > Storage Library > Application.

Continue the Upgrade

To continue upgrading your IS system, skip to the appropriate section:

- For AIX, HP-UX, and Solaris systems, go to [“Configuring the IS Software \(UNIX\)” on page 61](#).
- For Windows Server systems, go to [“Completing the Upgrade on Windows Servers” on page 77](#).

Configuring the IS Software (UNIX)

Install the Required Pre-Startup Fixes

Note Perform this task only if you upgraded the RDBMS. If you did not upgrade your RDBMS software, you can skip to the section, [“Modify TCP/IP Port Settings \(Solaris\)” on page 66](#) or [“Modify TCP/IP Port Settings \(HP-UX\)” on page 67](#).

At this time, install only the fixes that directly relate to IS upgrade issues. Search through the Release Notes file for the key words **PRE-STARTUP** and **REQUIRED**. The Release Notes and fixes are available at www.ibm.com/software/data/support.

Note These are only the fixes required to start IS successfully. Wait to install any other fixes until after the upgrade has been successfully completed.

Install a new fnsod driver (AIX and SUN only)

This section applies ONLY to AIX and SUN servers with optical storage libraries attached. It does not apply to Root/Index servers in a Dual server configuration, Application servers, or servers using cache-only, MSAR, or other storage options such as Centera, DR550, Snaplock, and so on.

The IS installer cannot install a new **fnsod** (FileNet SCSI Optical Device) driver automatically, so you must install it manually.

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

```
fnsod.install /fnsw/bin/fnsod
```

The new driver will go into effect the next time you reboot the server.

Verify fnsod device addresses (AIX only)

The form of fnsod (FileNet SCSI optical device) entries on AIX systems has changed slightly in the IS 4.1.2 release. Leading zeroes were removed from sod device names. AIX users might need to change their optical library device addresses in fn_edit.

Use fn_edit to verify and change the fnsod devices addresses on your AIX system, Making this change will prevent 133,0,2 errors in the view log.

1. Logon as the IS user, such as **fnsw**.
2. Start fn_edit by entering:

```
fn_edit &
```

Verify that the database and domain names are correct, and click OK.

3. Select the Storage Libraries tab.

4. Remove any leading zeros from sod addresses. For example:

sod07,**08**,6,0 Available 07-08-00-6,0 FileNet Optical Disk Library

becomes:

sod07,**8**,6,0 Available 07-08-00-6,0 FileNet Optical Disk Library

Notice that the leading zero in front of the "8" has been removed.

5. Save your changes and exit from `fn_edit`.
6. Rebuild the system configuration files by entering:

```
fn_build -a
```

Your changes will take effect the next time you start IS.

Install the User Environment Templates

Note Perform this task only if you upgraded the RDBMS. If you did not upgrade your RDBMS software, you can skip to the section, [“Modify TCP/IP Port Settings \(HP-UX\)” on page 67](#) or [“Modify TCP/IP Port Settings \(Solaris\)” on page 66](#).

The `inst_templates` tool sets up profile and environment files that are customized for IS. (In the following subsection, you will run `inst_templates` as the IS user (**fns**), a user with **root** privileges, and the RDBMS user (**oracle**), if applicable.

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

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

Note If you already have customized the environment files in a particular user's directory, answer **n** (No) to each of the prompts. After you have finished running `inst_templates`, merge the settings in the templates with your customized environment files. The templates can be found in `/fns/etc/*.template`.

If you run `inst_templates` more than once, existing `.old` files are not overwritten. The new `.old` files are given `.old.0` extensions, and each time you run `inst_templates` after that, the last digit of the file name increases.

For example, if you have run `inst_templates` several times, you might see `.login`, `.login.old`, `.login.old.0`, `.login.old.1`, and `.login.old.2` files in the user's home directory. The `.login` file is the current file, while the `.login.old.2` is the most recent `.old` file.

Set Up the Software User Environment

1. Logon as the IS user, such as **fns**w. (DO NOT **su** to **fns**w.)

Note After you logon as an IS user, verify that the home directory for this user exists. If the directory does not exist, create the directory manually before performing the steps in this section.

2. Enter the following command:

```
/fns/etC/inst_templates
```

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

Set Up the “root” User Environment

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

```
env | grep ORACLE
```

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

3. Enter the following command:

```
/fns/etC/inst_templates
```

4. Enter **y** (Yes) to confirm all prompts that display.

Set Up the RDBMS (oracle) User Environment (if applicable)

If the Oracle RDBMS is FileNet-controlled, or if the Database Administrator wants the RDBMS user to use IS environment variable settings, complete the steps in this section. For example:

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

```
/fns/etC/inst_templates
```

3. Enter **y** (Yes) to confirm all prompts that display.

Reset the Environment Variables

If you initially logged in to CDE as a user with **root** privileges, **fns**w, or **oracle**, log completely out of CDE and log back in again to reset the environment variables. Otherwise, close all the current windows for these users and open new Windows to apply the new environment variable settings.

Set File Ownerships and Permissions

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

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

Tip The **fn_setup** program attempts to set the permissions for all files under the /fnsw and /fnsw/local directories using a permission_table that is upgraded with each new IS release. If non-IS files are placed in the /fnsw directory structure, a local_permission_table needs to specify the appropriate permissions for these files. See Chapter 3, “Directories and Files,” of the *System Administrator’s Companion for UNIX* for details. To download these guidelines from the IBM support page, see [“Accessing IBM FileNet documentation” on page 10](#).

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

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

```
fn_setup
```

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

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

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

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

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

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

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

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

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

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

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

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


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

Enter the RDBMS user ID [oracle]:

Enter the RDBMS group ID [dba]:

3. Confirm your entries and continue.

This is the setup configuration:

```
NCH server name:  sunrise:YourCorp
SSN:  11008016xx
Relational database type:  oracle
Relational database home:  /usr/ora/11g
Relational database user ID:  oracle
Relational database group ID:  dba
```

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

4. After **fn_setup** completes, review the log file.

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

- If **fn_setup** logged no errors, it finished successfully. Skip to [“Modify TCP/IP Port Settings \(Solaris\)” on page 66](#) or to [“Modify TCP/IP Port Settings \(HP-UX\)” on page 67](#).
- If **fn_setup** returns any errors that do not pertain to optical libraries, correct the error and run **fn_setup** again.
- If **fn_setup** returned errors pertaining **only** to the optical libraries, as shown in this example, remove the old device links.

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

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

Remove optical device links (if necessary)

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

- a. Change to the **/dev** directory and list the **fnsod** entries.

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

- b. Review the dates of each of the entries. As a user with **root** privileges, remove all the old **fnsod** device links. For example,

```
rm fnsod.0,1,2,0
```

Later in this procedure, you will reconfigure the storage libraries to use the new device links. For now, continue with one of the following sections:

- [“Modify TCP/IP Port Settings \(AIX\)” on page 66](#)
- [“Modify TCP/IP Port Settings \(Solaris\)” on page 66](#)
- [“Modify TCP/IP Port Settings \(HP-UX\)” on page 67](#)

Modify TCP/IP Port Settings (AIX)

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

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

Run the following commands to maximize the range of ephemeral ports in the `/etc/tunables/nextboot` file:

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

These changes will go into effect when the server is rebooted in the section, [“Reboot the Server” on page 68](#).

Modify TCP/IP Port Settings (Solaris)

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

In this section you will make your IS system run more efficiently by making changes to the `/etc/rc2.d/S69inet` file. This modification expands the number of available ephemeral ports and reduce the time-out delay. These modifications are not required, but have been found to be optimal when running IS software. Unless you have set these options for other system reasons, we recommend that you make these changes.

Note Sun suggests that Solaris 10 users use SMF (Service Management Facility) manifest files. You can download and enable the sample manifest files (`network-anon.xml`) from <http://opensolaris.org/os/community/smf/manifests/>. If you have questions, please contact Sun technical support.

- Ephemeral ports are temporary ports assigned by a server's IP stack, and are assigned from a designated range of ports for this purpose. When network traffic is extremely heavy, it is possible to run out of ephemeral ports unless you specify a wider range of port numbers in `/etc/rc2.d/S69inet`.

- The **tcp_close_wait_interval** parameter determines the length of time the server waits before reusing a closed ID socket. Although the default value is typically around 240000 milliseconds (four minutes), you can safely reduce this parameter to as little as 30000 milliseconds (30 seconds) on high-speed networks.

1. Back up the **/etc/rc2.d/S69inet** file before you modify it.
2. As a user with **root** privileges, verify that you have write permission on this file:

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

3. Use your preferred text editor (such as **vi**) to modify the **/etc/rc2.d/S69inet** file.
4. Add the following lines to the end of the file:

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

5. Save your changes and exit. These changes will go into effect when the server is rebooted in the section, [“Reboot the Server” on page 68](#).

Modify TCP/IP Port Settings (HP-UX)

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

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

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

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

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

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

```
# Set up network options HPUX (parameters in half-seconds)
```

4. Add the following line somewhere after that statement:

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

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

Reboot the Server

As a user with **root** privileges, reboot the root server:

Operating System	Command to restart the server
AIX	shutdown -Fr
HP-UX	shutdown -ry 0
Solaris	/etc/shutdown -i6 -g0 -y

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

Additional Relational Database Tasks

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

Root/Index server during a Dual server upgrade.

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

Application server with WorkFlo Queue services, SQL services, or VWServices.

Important If you are upgrading a FileNet-controlled Oracle installation, skip to the appropriate document to upgrade your Oracle software:

- *Oracle 10g Installation and Upgrade Procedures for IS 4.1.2 (FileNet-controlled)*
- *Oracle 11g Installation and Upgrade Procedures for IS 4.1.2 (FileNet-controlled)*

To download these documents, see [“Accessing IBM FileNet documentation” on page 10](#).

When you have finished the required steps in that document, you will be prompted to return here.

For All IS Systems

Note If the IS system is configured with a site-controlled relational database (on a local or on a remote database server), verify that the relational database is up before running the `fn_setup_rdb` command.

As an IS user such as **fns**, enter the following command to upgrade the IS configuration files and RDBMS related files:

```
fn_setup_rdb -u
```

You will be prompted to enter the passwords for the four IS database users, **fn_sw**, **f_sqi**, **f_open**, and **f_maint**.

Verify the setup_config File

As a user with **root** privileges, use your preferred text editor (such as **vi**) to view the setup_config file. Enter:

```
cd /fnsw/local
vi setup_config
```

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

Exit from the file and save changes, if necessary.

Configure Optical Libraries (optional)

If you encountered **fn_setup** errors pertaining to the optical libraries earlier in this procedure, you can now reconfigure them automatically or manually. If **fn_setup** ran successfully, go to [“Completing the Upgrade on UNIX Servers” on page 71](#).

Start the Configuration Editor

As an IS user such as **fnsw**, start the Configuration Editor by entering:

```
fn_edit &
```

Automatically Configure a Storage Library or ODU

Storage libraries can be configured automatically if they are powered on and physically connected to the server where you are running **fn_edit**.

To configure a storage library automatically, follow these steps:

- a. On the Procedures tab, scroll through the list of available procedures and select **Automatically Configure a Storage Library**.
fn_edit gets all the information it needs directly from the storage library or ODU, and does not display any messages unless it encounters an error.
- b. After the storage library has been configured, skip to the section, [“Verify Storage Library Information” on page 70](#).

Manually Configure a Storage Library or ODU

As an alternative, configure the storage library or ODU manually with these steps:

- a. On the Procedures tab, scroll through the list of available procedures and select **Manually Configure a Storage Library**.
- b. Respond to the prompts with the appropriate information, and supply the following details:

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

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

Verify Storage Library Information

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

Increase the Size of Shared Memory (AIX only)

On the Performance tuning tab, verify that Max Shared Memory is set to 640 (MB).

Exit the Configuration Editor

Now exit **fn_edit** by selecting Exit from the File pulldown menu. If you haven't made any changes, it's not necessary to save the file.

Build the System Configuration Files

1. Still as **fnsu** user, rebuild the system configuration files by entering:

```
fn_build -a
```

2. Verify that this command runs successfully by checking that no errors have occurred.

CAUTION If errors were reported, identify and correct the cause of the errors before continuing with the next section.

Continue the Upgrade

To continue upgrading your AIX, HP-UX, or Solaris system, continue with the section, [“Completing the Upgrade on UNIX Servers” on page 71](#).

Completing the Upgrade on UNIX Servers

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

- Verify the Configuration Database and Other Files
- Perform Various System Tests
- Re-enable cron jobs

Verify the /fnsw/etc/serverConfig file

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

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

At the beginning of this upgrade procedure, you made a backup copy the /fnsw/etc/serverConfig file.

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

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

- If the file serverConfig.save contains parameters that are different from the new serverConfig. Use your preferred text editor, such as **vi**, to edit the serverConfig.save file.

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

Rename the resulting file **serverConfig.custom**.

Verify the MasterSnmpd_start File

At the beginning of this upgrade procedure, you made a backup copy the /fnsw/bin/MasterSnmpd_start file.

View the file that you saved (/tmp/MasterSnmpd_save, for example) and check the destination (IP address or server name) of the System Administrator's SNMP Management station.

In the newly installed MasterSnmpd_start file, the destination address is set to "local" by default, so you might need to edit this file to insert the correct destination. For example, you would change:

```
trap_host="local"
```

to either:

```
trap_host="135.10.0.44"   -or-
trap_host="hpvenice"
```

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

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

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

SNMP Improvement for Solaris 10 Users

If you are using SNMP and have upgraded to Solaris 10, remove any modifications you made to the `init.snmpdx` and `MasterSnmp_start` files because of Solaris 9. Solaris 10 has different functionality in regards to `init.snmpdx`. As a result, modification to the `init.snmpdx` and `MasterSnmp_start` files is no longer necessary.

See the section, “Solaris Host with `snmpdx` (Solaris 9 Only),” in the *Image Services SNMP Reference Manual* for more information. To download this manual from the IBM support Web site, see, [“Accessing IBM FileNet documentation” on page 10](#).

Start Image Services

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

1. Logon as the IS user, such as **fns**, and stop all processes:

```
killfns -DAY
```

2. Start the task manager:

```
Xtaskman &
```

The Task Manager interface displays.

3. After the `TM_daemon.exe` message displays in the Process table, select the Monitor menu.
4. From the Monitor menu, select the Event Logs option.
5. From the Event Logs window, select the DISPLAY menu. Select Dynamic. (The Dynamic option enables screen refreshes each time the messages are logged.) Switch to the Task Manager window.
6. From the Task Manager window, select START.
You will receive system messages in the Current Status window as IS starts. Once the software startup process finishes, the CLOSE button is highlighted.
7. Select CLOSE.
8. Review the contents of the Event Log window to verify that there are no error messages from the software startup.

Run spacerpt (Oracle only)

On Servers with Local Oracle Databases

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

1. Test the f_maint password by running **spacerpt**. As an IS user such as **fnsww**, enter:

- In the Bourne or Korn shell:

```
spacerpt > <output_file_name>
```

- In the C shell:

```
spacerpt > & <output_file_name>
```

where <output_file_name> can be any name you choose.

Spacerpt verifies that:

- the IS logon and security are intact
- the Advanced internal database structure is intact
- the IS metadata are intact

2. If **spacerpt** does not run, verify that the f_maint password has been set and exported correctly. See [“Run spacerpt \(Oracle only\)” on page 33](#).
3. Compare the **spacerpt** output to the **spacerpt** output you ran before the IS Upgrade.

On Servers with Remote Oracle Databases

If the Oracle databases are located on a remote Oracle server, you cannot run **spacerpt** directly because Oracle OS authentication prevents it. Instead, modify two script files and login to sqlplus to get space information.

1. Use your preferred text editor, such as **vi**, to modify these two files:

```
/fnsww/oracle/spacerpt_summary.sql
```

```
/fnsww/oracle/spacerpt_extended.sql
```

The first line of each of these two files is:

```
/ as sysdba
```

2. Exit and save your changes.

Run the **spacerpt** scripts successfully on the IS system with remote Oracle databases.

3. Login to sqlplus to run the scripts:

```
sqlplus
```

4. When you're prompted, enter the user name f_maint and f_maint password. See [“Run spacerpt \(Oracle only\)” on page 33](#).

5. To run **spacerpt**, enter the following command at the sqlplus prompt:

```
@/fnsr/oracle/spacerpt_summary.sql
```

6. If you want to get a more detailed report, enter:

```
@/fnsr/oracle/spacerpt_extended.sql
```

7. Compare the **spacerpt** output to the **spacerpt** output you ran prior to running the Installer Upgrade.

Test the IS and User Applications

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

1. Native mode is preferred in this case for two reasons:
 - Only IS errors will be displayed. API-oriented errors can be tested after IS processes have been tested.
 - IS errors will display during their specific stage of document entry or retrieval. This reduces your troubleshooting time.
2. If COLD is installed, run COLD preview to test it.
3. Test user applications on the server to verify that they run successfully.

Install Fix Packs (optional)

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

Install any Fix Packs that apply to this release of IS. Read the accompanying README file, which contains the instructions for installing the software. Retrieve the latest fixes from the IBM Information Management support page at www.ibm.com/software/data/support.

Re-enable Cron Jobs

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

Modify the /etc/inittab File

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

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

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

```
cd /etc
```

2. Using your preferred editor (such as **vi**), open and edit the inittab file.

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

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

4. Exit the file and save your changes.

Configure Font Server for COLD Preview (HP-UX only)

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

Storage Library - (Multi-server upgrade)

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

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

To configure the server where you plan to run COLD, go to [“Appendix B – Configuring a Font Server for COLD Preview \(HP-UX only\)” on page 87](#).

Install MSAR and SDS systems (optional)

For information on installing and configuring a Magnetic Storage and Retrieval (MSAR) System, see the *MSAR Procedures and Guidelines* for Image Services.

For information on installing a Single Document Storage system, see the *Integral Single Document Storage and Retrieval Guidelines* for Image Services.

To download these documents from the IBM support page, see [“Accessing IBM FileNet documentation” on page 10](#).

Upgrade Storage Library Servers and Application Servers

If you have not already begun to upgrade any additional storage library servers or application servers, return to [“Preparing for the Upgrade \(UNIX\)” on page 33](#) and repeat these procedures for each server that needs to be upgraded.

When you have upgraded all the servers in your IS system, continue with the next section.

Backup the system

After you have upgraded the root/index server and any other application or storage library servers, you should make a full system backup. For complete information on making system backups refer to:

- *Image Services System Administrator’s Companion for UNIX*
- *Image Services Enterprise Backup and Restore User’s Guide*

- *Image Services Third-Party Backup and Restore Guidelines*

To download these documents from the IBM support page, see [“Accessing IBM FileNet documentation” on page 10](#).

The Image Services upgrade is complete

You have completed the IS Upgrade procedure. You can now start IS and return to production mode. After you have verified that IS and the RDBMS run successfully, you can remove the old versions of the software as long as no other applications are using them.

Completing the Upgrade on Windows Servers

If you are upgrading Oracle, see *Guidelines for Installing and Updating Site-Controlled Oracle and MS SQL Software on Windows Servers*. To download these guidelines from the IBM support page, see [“Accessing IBM FileNet documentation” on page 10](#).

If you are upgrading from Microsoft SQL Server 7.0, continue with [“Completion Procedure for Microsoft SQL Server Systems” on page 78](#).

If you are running Microsoft SQLServer 2000, continue with [“Completion Procedure for Microsoft SQL Server Systems” on page 78](#).

If you are upgrading an Application Server that does **not** have a relational database, such as a batch entry server, continue with [“Completion Procedure for Application Servers without an RDBMS” on page 81](#).

Verify Performance Tuning Parameters

Follow the steps in this section to verify the performance tuning values.

1. If you have not already done so, logon as the IS software user, such as **fns**w.
2. Open the Configuration Editor.
`fn_edit &`
3. From the Taskbar, click the Start button > Programs > FileNet Image Services > System Configuration > Configuration Editor.
4. Verify the domain name in the initial dialog box and click OK.
5. When the main System Configuration Editor window displays, click the Performance Tuning tab.
6. Select the Server Memory subtab and verify that the values match or exceed these recommended values:

Server Memory Fields	Minimum Value
Document Buffer Count	64
Document Buffer Size (KB)	256
Directory Buffer Count	16
Directory Buffer Size (KB)	64
Oracle Cache Size (MB)	100
Oracle Log Buffer Size (bytes)	163840
Permanent Pool Buffer Size (KB)	5000
Transient Pool Buffer Size (KB)	100000
Security Pool Buffer Size (KB)	4000
Max Shared Memory (MB)	2048

Upgrade IS Configuration Files

Note If the IS system is configured with a site-controlled relational database (on a local or on a remote database server), verify that the relational database is started before running `fn_setup_rdb`.

As IS software user such as **fns**, enter the following command to upgrade the IS configuration files and RDBMS related files:

```
fn_setup_rdb -u
```

Completion Procedure for Microsoft SQL Server Systems

Perform the following procedures on systems with MS SQL relational databases. If your system uses Oracle or DB2 relational databases, skip to [“Start Image Services” on page 81](#).

Start the SQL Server Service

1. From Administrative Tools, locate and double-click the *Services* icon.
2. Locate and double-click MSSQLServer service.
3. Change the Startup type to Automatic, if necessary.
4. Click the **Start** button to start the MSSQLServer service, and click **OK**.

Set shared memory for SQL Server

If your system uses Oracle or DB2 relational databases, skip to [“Start the IBM Tivoli Monitoring Agent” on page 81](#).

If SQL Server is accessed remotely and not installed on the same system as Image Services, this procedure is not necessary. Before following this procedure please check with your Image Services technical support representative.

There is a potential memory conflict between Image Services and Microsoft SQL Server. A Windows library occupies a space in memory close to the starting address for SysV shared memory. As SysV shared memory grows due to system use, SysV eventually attempts to allocate memory already used by the Windows library. This conflict causes the process to abort. Systems that only use a small amount of SysV shared memory may not encounter this memory conflict right away, but may encounter this conflict in the future.

The following event log error is created when a shared memory conflict occurs:

```
SysV: Error 487 mapping file view. Process Aborting...
```

This is most likely due to a shared memory conflict.

Note Due to the complex nature of shared memory conflict issues, the types of error messages generated in the event log can vary, and thus the above error may not actually appear. The event log should be analyzed by IBM support to determine the cause.

This release of Image Services includes a feature for changing the memory address where SysV allocates shared memory. The start address can be moved to take advantage of the largest available area of free memory. This address will vary from system to system based on configuration and other installed software. Therefore, the best address must be determined individually for each system.

Determine starting address

The following procedure will determine the best starting address on your Image Services system and set the SysV shared memory to start at this address.

1. After installing SQL Server, Image Services 4.1.2, and starting the IS software, it is possible that the shared memory conflict will occur during the startup. If Image Services fails to start successfully, skip to Step 3; otherwise, continue with the next step.
2. A new SysV feature allows for the examination of process memory to determine the best location for the start of SysV shared memory. Create a trigger file containing the name of the process to examine. Use process `gdbcheckdb` (this links to SQL Server and is thus useful for examining how SQL libraries occupy memory). At a DOS command prompt, run the following commands:

```
cd \fnsw_loc\sd\1
echo gdbcheckdb > dump_vmap.txt
gdbcheckdb 1
```

Note You can also enter any other IS process name in the trigger file to get its memory map. The `gdbcheckdb` process is used in this example because it links with the SQL library that conflicts with SysV shared memory.

The trigger file causes SysV to examine memory allocation for `gdbcheckdb` and create files that you will use to avoid the memory conflict. It creates an entry in the `elog`. Your entry might look similar to the following:

```
The Windows Registry may be updated to change the starting
SysV shared memory address to the largest free area in memory
(at address 0x11000000).
```

A new registry edit script was created with the name:

```
e:\fnsw\etc\shm_s_3172-1320.reg.txt
```

```
To change the SysV shared memory address execute this script
after completely shutting down the IS software and running 'killfnsw -Dy'
To execute the script first remove the '.txt' extension then
double-click the script from Windows explorer.
```

3. Use `vl` to examine the event log and locate the following message with a recent time-stamp:

```
fn_NT_VMMMap: saving virtual memory map in ims_logs directory
```

If this message does not appear, the virtual memory map code was not executed. Contact IBM support.

4. SysV automatically generates the following files to fix the problem:

- A virtual memory map of the process that failed
- A registry edit file to change the SysV shared memory starting address with new settings in the Windows Registry

The virtual memory map file gives a detailed listing of every section of memory used by the process. This file is primarily of interest to support personnel when they require a detailed understanding of memory allocation. The map file is created in the \fnsw_loc\logs\ims_logs directory and is named according to the process name and ID that generated the file. For example, if the process was Xslc.exe with a process ID of 1234 and a thread ID of 5678, the file is named sl_Xslc.exe_1234_5678.txt.

SysV automatically examines the virtual memory map data to determine the address of the largest available area of free memory. It then creates a registry edit file that sets the best starting address of SysV shared memory. The registry edit file is created in the \fnsw\etc directory and is named according to the process that encountered the problem. (This allows multiple processes to create separate edit files). For example, if the process ID is 1234 and the thread ID is 5678, the file is named shm_s_1234-5678.reg.txt.

Note The ".txt" extension prevents you from running the file accidentally.

You can either rename this file and run it to automatically add a new key to the Windows Registry or you can view the contents of this file with Notepad and manually update the Windows Registry. The registry path and key for setting SysV shared memory are given in the file. Note: the registry key "StartShmAddress" by default does not exist in the Windows registry. This key is only created on systems that need to modify their start SysV shared memory address to be different from the default value that is embedded inside the code. This default value is 0x45000000 - this is the address where SysV starts its shared memory unless directed otherwise by the "StartShmAddress" registry key.

Automatically update the Windows Registry

To run the registry edit file and change the start address of SysV shared memory, complete the following steps:

1. Make a copy of the file without the ".txt" extension (for example, the file name becomes: shm_s_1234-5678.reg).
2. If IS is running, shutdown the software:

`initfnsw -y stop`
3. Cleanup all IS processes and resources:

`killfnsw -Dy`
4. Backup the Windows Registry before running the registry edit script.
5. Run the registry edit script by double-clicking its icon in Windows Explorer.
6. Restart IS. The software should now come up without any problems.
7. Skip to Verify new shared memory start address.

Manually update the Windows Registry

To manually update the Windows Registry and change the start address of SysV shared memory, complete the following steps:

1. Use Notepad to view the contents of the registry edit file. Your file might look similar to the following:

```
REGEDIT4
[HKEY_LOCAL_MACHINE\SOFTWARE\FileNet\WAL\CurrentVersion]
"StartShmAddress"=dword:13000000
```

2. Use the regedt command on your server to add or update the StartShmAddress key using the path and value in the file.

Verify new shared memory start address

Verify the new start address by running the following command:

```
ipc_tool -A
```

The new start address will appear as in the "Address" column for segment #0 under the title "Shared Memory Address Manager Information."

Completion Procedure for Application Servers without an RDBMS

Perform the following procedure **only** on an Application server that does not have a relational database.

1. Log on as the IS software user such as **fns**.
2. In a Command Prompt window, type:

```
fn_build -a
```

Start the IBM Tivoli Monitoring Agent

On systems with DR550 single document storage devices, start the agent for IBM Tivoli Monitoring (ITM) by entering:

```
tacmd StartAgent -t NT -f
```

(The tacmd command should be in the user's path; if not, it is in the C:\IBM\ITM\bin\ folder.)

Start Image Services

1. Open Administrative Tools and double click the *Services* icon.
2. Double-click the IS ControlService.
3. In the IS ControlService Properties window, set the startup type to Automatic and close.

4. From the Taskbar, open the IS Task Manager window.
5. Once you see the TM_daemon.exe process message appear in the *Process* column, open the IS event log window.
 - Click the *Monitor* pull down menu and select *Event Logs...*
6. From the Event Logs window, select the option to automatically refresh the window when messages are logged.
 - Click the *Display* pull down menu and select *Dynamic*.
7. To start IS, return to the IS Task Manager window and click *Start*.
8. When IS is started, close the Current Status window.
9. View the Event Log window to verify that there are no error messages.

Verify the \fns\etc\serverConfig File

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

When the Installer upgrades the serverConfig file, it copies the existing serverConfig file to a temporary serverConfig.bak file and installs the new serverConfig file in its place.

- If the contents of the two files are **different** (except for the file stamps), the Installer renames the temporary file to serverConfig.custom.
- If the contents of the two files are **identical** (except for the file stamps), the Installer removes the temporary serverConfig file, and the newly installed serverConfig file becomes the default.

To compare the serverConfig and serverConfig.custom files, open each file in a separate WordPad window.

Configure Windows Firewall with Advanced Security (Windows 2008 only)

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

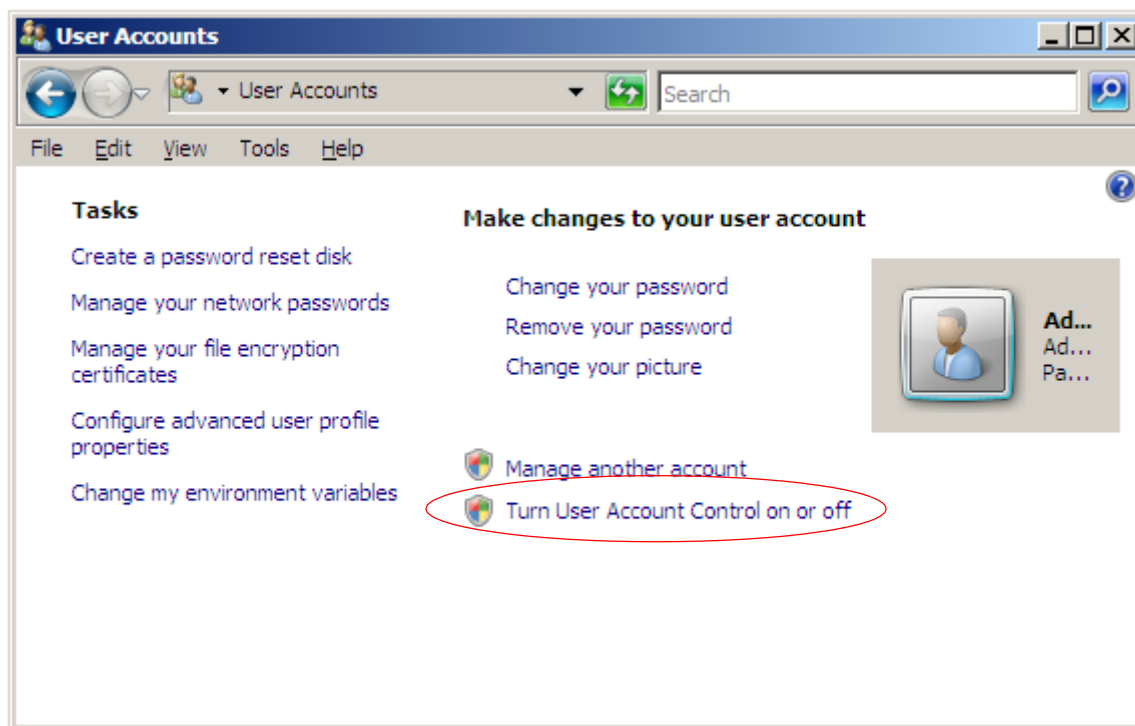
1. As Administrator, start the Server Manager, select Configuration > "Windows Firewall with Advanced Security" and click Inbound Rules.
2. Click New Rule in the Actions column on the right side, then select the Port option on the Rule Type screen and click Next:
3. On the Protocol and Ports screen,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

6. On the Name screen, enter a Name for this rule (such as FN_COR_TMS), an optional description, and click Finish.
7. Repeat Steps 2 through 6 to create a new rule. This time select UDP instead of TCP and enter **32770** in the "Specific local ports" field in Step 3. Also give the rule a new name (such as FN_NCH) in Step 6.
8. When you are done, double-click each rule to confirm it has the correct settings for your system.

Turn off User Account Control (Windows 2008 only)

The User Account Control (UAC) feature of Windows 2008 must be turned off for Image Services. To turn off UAC, follow these steps:

1. Open the Control Panel.
2. Double-click the User Accounts icon.
3. Click **Turn User Account Control on or off**.



4. Clear the check box. The new setting will take effect after you reboot the server.

Test the IS and User Applications

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

1. Native mode is preferred in this case for two reasons:
 - Only IS errors will be displayed. API-oriented errors can be tested after IS processes have been tested.
 - IS errors will display during their specific stage of document entry or retrieval. This reduces your troubleshooting time.
2. If COLD is installed, run COLD preview to test it.
3. Test user applications on the server to verify that they run successfully.

Install Fix Packs (optional)

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

Install any Fix Packs that apply to this release of IS. Read the accompanying README file, which contains the instructions for installing the software. Retrieve the latest fixes from the IBM Information Management support page at www.ibm.com/software/data/support.

Install MSAR and SDS systems (optional)

For information on installing and configuring a Magnetic Storage and Retrieval (MSAR) System, see the *MSAR Procedures and Guidelines* for Image Services.

For information on installing a Single Document Storage system, see the *Integral Single Document Storage and Retrieval Guidelines* for Image Services.

To download these documents from the IBM support page, see “[Accessing IBM FileNet documentation](#)” on page 10.

Upgrade Storage Library Servers and Application Servers

If you have not already begun to upgrade any additional storage library servers or application servers, return go to “[Preparing for the Upgrade \(Windows Server\)](#)” on page 49 and repeat these procedures for each server that needs to be upgraded.

When you have upgraded all the servers in your IS system, continue with the next section.

Backup the System

After you have upgraded the root/index server and any other storage library or application servers, you should make a full system backup. Refer to the *System Administrator's Companion for Windows Server* for information on performing a full system backup. To download this document from the IBM support page, see “[Accessing IBM FileNet documentation](#)” on page 10.

The Image Services upgrade is complete

You have completed the IS Upgrade procedure. You can now start IS and return to production mode. After you have verified that IS and the RDBMS run successfully, you can remove the old versions of the software as long as no other applications are using them.

Appendix A – Removing Image Services

To remove the Image Services software from your server:

1. Log on as a user with **root** privileges.
2. Stop the Image Services software.
3. Back up any log files or other data in the /fns and /fns/local directories that you want to save.
4. Run the uninstall program:
 - Graphical mode – standard, graphical interface:

Operating System	Command to start the uninstaller in graphical mode
UNIX	/fns/etc/uninstaller/uninstall_is.bin &
Windows	\fns\etc\uninstaller\uninstall_is.exe

- Console mode – plain text interface::

Operating System	Command to start the uninstaller in console mode
UNIX	/fns/etc/uninstaller/uninstall_is.bin -console
Windows	\fns\etc\uninstaller\uninstall_is.exe -console

- Silent mode – no screen display:

Operating System	Command to start the uninstaller in silent mode
UNIX	/fns/etc/uninstaller/uninstall_is.bin -silent
Windows	\fns\etc\uninstaller\uninstall_is.exe -silent

```
/fns/etc/uninstaller/uninstall_is.bin -silent
```

CAUTION You must use the uninstall_is command if you decide to uninstall the IS software. Do not use the operating system tools to remove Image Services.

Note The uninstaller leaves certain critical directories intact to protect existing data. After the uninstaller has finished, examine the /fns directory. Manually remove any unwanted files and directories.

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

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

Configure the Font Server

The Common Desktop Environment (CDE) includes a small set of fonts and font aliases that are not part of the standard distribution of X Windows. For CDE to function correctly, add the CDE fonts to the font server catalogue:

1. As a user with **root** privileges, use your preferred text editor to edit the `/etc/X11/fs/config` file.
2. Locate the “catalogue = ...” line.
3. Verify that the first item in the catalogue list is:

```
/usr/lib/X11/fonts/type1.st
```

4. At the end of the catalogue line append the following phrase:

```
, /usr/dt/config/xfonts/C
```

5. Save your changes and exit.
6. Edit the `/etc/rc.config.d/xfns` file:

Add or modify the line for the following variable:

```
RUN_X_FONT_SERVER=1
```

7. Verify that the font server is not running. Start the Font Server

```
/sbin/init.d/xfns start
```

8. Copy `/etc/dt/config/Xsetup` from the `/usr/config` directory.

```
cp /usr/config/Xsetup /etc/dt/config/Xsetup
```

9. Edit the `/etc/dt/config/Xsetup` file you just copied. Append this line to the end of the file:

```
$XDIR/xset fp+ tcp/<server_id>:7000 1>/dev/null
```

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

```
nslookup 'hostname'
```

Reboot the Server

Reboot the server:

```
shutdown -ry 0
```


Appendix C – Microsoft Systems Management Server (SMS) Procedures (Windows only)

This appendix contains information for using the Microsoft Systems Management Server (SMS) Version 2.0 product for updating FileNet Image Services Software on your FileNet Image Services server(s). SMS Version 1.2 is not supported in this Image Services release.

Note Only a brief description of SMS is provided in this appendix. For detailed information or instructions, see the Microsoft SMS documentation and the Readme file that is contained on the FileNet Image Services 4.1.2 for Windows Server eSD image or software CD.

If you are updating the FileNet Image Services software on a Dual server system, update the Root/Index server first and then update the Storage Library server.

What is Microsoft Systems Management Server (SMS)?

Microsoft Systems Management (SMS) is a Windows product that is designed to make it easier for you to centrally manage, support, and maintain a distributed network of computers. SMS is an integrated system that is part of the Microsoft BackOffice™ family of business products.

This appendix will only use the Software Distribution portion of the SMS product to update FileNet Image Services software. With SMS, you will be able to update software from a single, central location. The basic structure of SMS uses a site server, which controls and distributes software to client servers that are part of the SMS system.

The software contained on the FileNet Image Services release media is loaded onto the SMS site server and distributed to client servers from there.

Overview

To use SMS to distribute and update software, you must perform a few basic steps.

Note For detailed information, refer to the Microsoft SMS documentation and the Readme file that is contained on the FileNet Image Services 4.1.2 for Windows Server eSD image or software CD.

- Microsoft SMS software must be installed and setup on a server you designate as the SMS Site Server. This process enables you to create workstation packages which are necessary to distribute the software to individual Image Services (client) servers. Refer to your SMS documentation for information on setting up your SMS site server.
- FileNet Image Services provides a template Package Definition File (or PDF file) called IS.pdf. This file, which is located in the root directory of the eSD image or software CD, must also be installed on the SMS site server. Workstation packages for software distribution are created using the IS.pdf file.
- On the SMS site server, an advertisement must be created for each Image Services (client) server. Advertisements can be created for new installations, upgrades, or to uninstall software.

Setting up the SMS Site Server Package

This section contains procedures to setup packages on your SMS Site Server. It is from the SMS Site Server that you will execute jobs to upgrade the software on your client servers.

Copy the IS software to Your SMS Site Server

1. Log on to your SMS Site Server as Windows **Administrator**.
2. Create a directory folder on the Site Server drive where you want IS to reside.

REVIEWERS: What will the procedure be to download the eSD image????

3. If you are installing the IS software from CD-ROM media, load the **IS for Windows Server** image CD into the drive.
4. Copy the Image Services software from the CD to the directory location that you created.

Modify the Usetup.iss File

1. Open the directory where you copied the IS software and locate the Usetup.iss file.
2. Open the Usetup.iss file in Wordpad or Notepad.
3. Locate the IPath= and IPathLocal= entries and change the drive letter (**c:**) to the drive letter on your Client Server where you want to install the IS software.
4. Rename the Usetup.iss file to setup.iss and save it.

Create a Package

This procedure will create a new package to upgrade your software.

1. On the SMS Site Server, click *Start, Programs, Systems Management Server*, and click *SMS Administrator Console*.
2. Double-click on Site Database.
3. Select Packages and click *Action*.
4. Click *New* and select *Package From Definition*.
5. In the next window, click on the *Publisher* drop-down list and select the *SMS.PDF*.
6. Click *Browse* and navigate to the location where you copied the IS software to your local hard drive.
7. Select *IMS.PDF* and click *Open*.
8. In the Source Files window, choose the *Always obtain files from a source directory* radio button.
9. In the Source Directory window, select the appropriate Source directory location radio button and enter the Source directory where the IS media was copied.
10. Complete the Wizard.

Configure the Distribution Points for Your Site

1. In the *Systems Management Server\Site Database* window, select *Packages\FileNet Image Services\Distribution Points*, and then click the *Action* button.
2. Select *New* from the drop-down list.
3. Select *Distribution Points* to start the New Distribution Points Wizard.
4. Check the box next to the name of the Distribution points, and click *Finish*.
5. In the *Systems Management Server\Site Database* window, open the Programs for the Image Services package.
6. Right-click on *Upgrade Installation* and click *All Tasks*.
7. In the Package window, choose the *Distribute an existing package* radio button, select the package that you want to distribute.
8. In the Distribution Points window, confirm the name of the distribution points you selected.
9. In the Advertise a Program window, select the *Yes* radio button to advertise a program to a collection and select *Upgrade Installation in - - -*.
10. In the Advertisement Target window, select *Advertise the program - - -* or *Create a new collection - - -* as appropriate for your site.
11. In the Advertisement Name window, use the default name or enter an advertisement name and comment.
12. In the Advertise to Subcollections window, select the appropriate radio button for your site.
13. In the Advertisement Schedule window, enter the schedule information as needed for your site.
14. In the Assign Program window, enter the information appropriate for your site.
15. Complete the Wizard and close all windows.

Update IS Software

When the New Advertised Manager alerts you that a new Advertisement has arrived, follow this procedure to update the IS software.

1. At the client server, log on as an IS user such as **fnsw**.
2. Stop the Performance Monitor tool if it is currently running.
3. Open the Control Panel and double-click the Advertised Programs to start the Advertised Programs Wizard.
4. Check the box next to the advertised program that you want to run.
5. In the next window, enter the appropriate schedule information for when you want to run the program.
6. Complete the Wizard.

CAUTION The Advertisement Wizard icon will appear at the far right side of the Task bar while the Advertisement Wizard is running. Do Not reboot your computer until this icon disappears. This could take approximately 15 minutes.

Restart the Server

1. After you finish updating IS, restart the server so the newly installed device drivers can take effect.
2. When the system restarts, logon as IS software user, such as **fns**.
3. After logging on to the server, return to [“Completing the Upgrade on Windows Servers” on page 77](#) to continue.

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