IBM FileNet P8
Version 4.5.1

Plan and Prepare Your Environment for IBM FileNet P8 for installation on AIX with Oracle, IBM WebSphere Application Server, and Windows Active Directory

GC19-2830-01

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Note
Before using this information and the product it supports, read the information in "Notices" on page 95.

This edition applies to version 4.5.1 of IBM FileNet Content Manager (product number 5724-R81), version 4.5.1 of IBM FileNet Business Process Manager (product number 5724-R76), and to all subsequent releases and modifications until otherwise indicated in new editions.

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Contents

ibm.com and related resources. v
How to send your comments v
Contacting IBM vi

Planning and preparing for IBM FileNet P8 Platform upgrade 1
Planning the upgrade 1
Upgrade overview 1
Standard upgrading from version 3.5, 4.0.1, or 4.5.0 2
Staged upgrading from version 4.0.1 or 4.5.0 only 2
Staged upgrade scenario 1: upgrading Application Engine or Workplace XT first. . 3
Staged upgrade scenario 2: upgrading Content Engine first 12
Staged upgrade scenario 3: upgrading Process Engine first. 21
Automatic or manual upgrading of Content Engine data 28
Choosing the tool to manually upgrade Content Engine data from version 3.5.2 . . . 29
Upgrading a FileNet P8 3.5.2 domain into a nonempty FileNet P8 4.5.1 domain 29
Upgrading planning considerations 30
Upgrade system requirements for FileNet P8 Platform 31
Definition of upgrade roles 32
Using the installation and upgrade worksheet . . 34
Performing the required upgrade preparation tasks 35
IT administrator upgrade tasks 35
Creating Content Engine operating system accounts for upgrade 36
Configuring UNIX 37
Configuring UNIX for IBM FileNet P8 Platform servers (all components) 37
Configuring Content Engine servers (all UNIX) 37
Setting up Java SDK for Content Search Engine 38
Configuring Process Engine servers (all UNIX) 38
Configuring Process Engine servers (AIX) 40
Configuring network 42
Configuring your network 42
Synchronizing time and date 42
Assigning directory permissions for Content Engine upgrade for 4.0 to 4.5 on UNIX 43
Preparing Process Engine for upgrade . . 44
Security administrator upgrade tasks 44
Security upgrade planning considerations . . 45
Specifying IBM FileNet P8 accounts for upgrades 47
Creating Content Engine directory server accounts 47
Database administrator upgrade tasks 51
Database administrator planning considerations 52
General. 52
Oracle 52
Creating Content Engine database accounts for upgrades from version 3.5 53
Creating the Content Engine database for the Global Configuration Data (upgrades from 3.5) 54
Preparing Oracle server 54
Running SQL scripts manually for an upgrade (Oracle). 55
Application Server administrator upgrade tasks 55
Application server planning considerations (upgrades from 3.5). 56
All platforms 56
WebSphere and WebLogic - Content Engine multi-server deployment 57
Application server considerations 57
Creating Content Engine application server accounts for upgrade 57
Configuring the application server for Content Engine (upgrades from 3.5) 61
Configuring WebSphere for Content Engine 61
Configuring the application server for Content Engine (upgrades from 4.0) 64
IBM FileNet P8 administrator upgrade tasks . . 65
Updating Process Engine 3.5 customer applications 65

Appendix A. Preparing non-English environments for installing IBM FileNet P8 Platform. 67
Application Server administrator 67
Configuring character encoding on WebSphere Application Server 67
Security administrator 67
Extended characters and user names 68
Database administrator 68
Installing Oracle server 68
Installing Oracle client. 69
NLS_LANG environment variable - charset 69
UNIX 70
Setting the NLS_LANG environment variables 70
IT administrator 71
Operating system considerations 71
UNIX 71
Configuring support for other languages in X Windows UNIX system 72
Setting the LANG, LC_TIME, and LC_MESSAGES environment variables . . . 72

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IBM FileNet P8 administrator 72
Process Engine services 73
Configuring Process Task Manager for Application Engine and Workplace XT 73
Limitations on installing in a non-English environment 73

Appendix B. IBM FileNet P8 ports . . . 75

Appendix C. New Content Engine classes and properties 81
New in Content Engine 4.0.0 (for upgrades from 3.5 only) 81
New Content Engine classes in 4.0.0 82
New Content Engine properties in 4.0.0 83
New in Content Engine 4.5.0 (for upgrades from 3.5 and from 4.0) 90
New Content Engine classes in 4.5.0 90
New Content Engine properties in 4.5.0 91

Notices 95
Trademarks 97

Index 99

ibm.com and related resources

Product support and documentation are available from ibm.com.

Support and assistance

Product support is available on the Web. Click Support from the product Web site at:

FileNet Content Manager Support
http://www.ibm.com/software/data/content-management/filenet-content-manager/support.html

Information center

You can view the product documentation in an Eclipse-based information center that you can install when you install the product. By default, the information center runs in a Web server mode that other Web browsers can access. You can also run it locally on your workstation. See the information center at http://publib.boulder.ibm.com/infocenter/p8docs/v4r5m1/index.jsp.

PDF publications

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

See the following PDF publications Web sites:

Product	Web site
Product Documentation for FileNet P8 Platform	http://www.ibm.com/support/docview.wss?rs=3278&uid=swg27010422

"How to send your comments"
Your feedback is important in helping to provide the most accurate and highest quality information.

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

How to send your comments

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

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

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Consumability survey

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

Contacting IBM

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

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

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

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

Planning and preparing for IBM FileNet P8 Platform upgrade

To prepare to upgrade your IBM FileNet P8 Platform installation, you must review the upgrade planning information to determine what kind of upgrade you will carry out. You must also complete the prerequisite tasks assigned to the various Roles.

"Planning the upgrade"
Carefully review the information provided to plan your IBM FileNet P8 system upgrade. Review this information thoroughly before you start to upgrade IBM FileNet P8 components or required vendor software.

"Performing the required upgrade preparation tasks" on page 35
To efficiently carry out the required upgrade preparation tasks, you must assign your staff to carry out the tasks that are organized by administrative role.

Planning the upgrade

Carefully review the information provided to plan your IBM FileNet P8 system upgrade. Review this information thoroughly before you start to upgrade IBM FileNet P8 components or required vendor software.

Before you begin to upgrade the IBM FileNet P8 Platform, review the following information.

"Upgrade overview"
Several methods can be used to upgrade components to version 4.5.1 of the IBM FileNet Content Manager and IBM FileNet Business Process Manager products.

"Upgrading planning considerations" on page 30
Review all upgrade planning information related to requirements for upgrading anIBM FileNet P8 Platform system and expansion products, as well as other vendor products associated with the IBM FileNet P8 Platform.

"Definition of upgrade roles" on page 32
Your organization may have different roles, and some of the responsibilities of listed roles will vary from those assigned by default.

"Using the installation and upgrade worksheet" on page 34
The Installation and Upgrade Worksheet is a Microsoft® Excel spreadsheet (`p8_worksheet.xls`). The worksheet describes the properties and parameters required to complete IBM FileNet P8 installation, upgrade, and configuration programs, and provides a way to record the values you assign to these properties and parameters.

Upgrade overview

Several methods can be used to upgrade components to version 4.5.1 of the IBM FileNet Content Manager and IBM FileNet Business Process Manager products.

The 4.5.1 version of Content Manager and FileNet Business Process Manager, which contains the core IBM FileNet P8 Platform components (Content Engine 4.5.1, Content Search Engine 4.5.1, Process Engine 4.5.1, and Application Engine 4.0.2) supports upgrades from versions 3.5.2, 4.0.1, or 4.5.0.

This support also covers the associated expansion components, such as those currently packaged as part of the Content Manager and FileNet Business Process

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Manager products, for example, IBM FileNet Workplace XT, Rendition Engine, IBM FileNet Content Federation Services, IBM FileNet Process Analyzer, and IBM FileNet Process Simulator. Other associated expansion products, such as IBM InfoSphere™ Enterprise Records, also support these dual upgrade starting points. See "Upgrade system requirements for FileNet P8 Platform" on page 31 for a list of product-component versions from which you can start an upgrade.

"Standard upgrading from version 3.5, 4.0.1, or 4.5.0"
A standard upgrade sequence assumes that you will complete the upgrade of all installed components in one session, for example, over the course of a weekend.

"Staged upgrading from version 4.0.1 or 4.5.0 only"
If you want to upgrade your version 4.0.1 or 4.5.0 IBM FileNet P8 environment so that the entire system is offline only for short intervals, you can upgrade in stages. For each stage, you stop the system, upgrade specific components, and then restart the system. You can run your production FileNet environment after each stage.

"Automatic or manual upgrading of Content Engine data" on page 28
After you upgrade the Content Engine software to version 4.5.1, the Content Engine data is upgraded to version 4.5.1. This data includes the Global Configuration Data (GCD), the object stores, and related information. The upgrade is accomplished either automatically or manually, depending on the version of Content Engine software that you are upgrading.

"Choosing the tool to manually upgrade Content Engine data from version 3.5.2" on page 29
Two tools are available for you to manually upgrade Content Engine data from version 3.5.2. The tool that you use depends on the user interface you prefer, the current state of the object stores, and whether you have already used a particular tool to upgrade some object stores.

"Upgrading a FileNet P8 3.5.2 domain into a nonempty FileNet P8 4.5.1 domain" on page 29
It is a best practice to upgrade a version 3.5.2 FileNet P8 domain into a new, empty version 4.5.1 FileNet P8 domain. If this approach is not possible, you must ensure that conflicts in object data are resolved before you upgrade your version 3.5.2 domain.

Standard upgrading from version 3.5, 4.0.1, or 4.5.0

A standard upgrade sequence assumes that you will complete the upgrade of all installed components in one session, for example, over the course of a weekend.

The flow of procedural task topics in the upgrade section of this guide reflects a sequence that supports a standard upgrade from either version 3.5.2, version 4.0.1, or version 4.5.0 .

Staged upgrading from version 4.0.1 or 4.5.0 only

If you want to upgrade your version 4.0.1 or 4.5.0 IBM FileNet P8 environment so that the entire system is offline only for short intervals, you can upgrade in stages. For each stage, you stop the system, upgrade specific components, and then restart the system. You can run your production FileNet environment after each stage.

To upgrade in stages, you must already be running version 4.0 or later of the core IBM FileNet P8 Platform components and the supporting versions of expansion products. This means that you can upgrade one component and still have a working configuration without upgrading all components during the same

upgrade session. Upgrade stages do not necessarily follow a specific sequence. You can upgrade core components in an order that fits your scheduling or resource requirements.

The following tables and flow charts represent three staged upgrade scenarios. They show the relationship of particular components to one another and point out upgrade dependencies. Unless otherwise noted, components specified for upgrade in a particular stage table must be upgraded together. For example, when you upgrade Process Engine, you must also upgrade Process Analyzer and Process Simulator.

Important: Staged upgrades can impact how and when you apply Content Engine, Content Search Engine, and Process Engine Client files to various server and client computers.

"Staged upgrade scenario 1: upgrading Application Engine or Workplace XT first"
One option for an IBM FileNet P8 staged upgrade is to begin by upgrading your IBM FileNet Application Engine or IBM FileNet Workplace XT component. You can then redeploy the Workplace or Workplace XT application without immediately upgrading the other core IBM FileNet P8 components. At your discretion, your users can start working again while you prepare for the next stage of the systemwide upgrade.

"Staged upgrade scenario 2: upgrading Content Engine first" on page 12
One option for an IBM FileNet P8 staged upgrade is to begin by upgrading your IBM FileNet Content Engine component, which includes server and client software. You can then run this upgraded software with other core IBM FileNet P8 components that are not yet upgraded. At your discretion, your users can start working again while you prepare for the next stage of the systemwide upgrade.

"Staged upgrade scenario 3: upgrading Process Engine first" on page 21
One option for an IBM FileNet P8 staged upgrade is to begin by upgrading your IBM FileNet Process Engine component, which includes server and client software. You can then run this upgraded software with other core IBM FileNet P8 components that are not yet upgraded. At your discretion, your users can start working again while you prepare for the next stage of the systemwide upgrade.

Staged upgrade scenario 1: upgrading Application Engine or Workplace XT first:

One option for an IBM FileNet P8 staged upgrade is to begin by upgrading your IBM FileNet Application Engine or IBM FileNet Workplace XT component. You can then redeploy the Workplace or Workplace XT application without immediately upgrading the other core IBM FileNet P8 components. At your discretion, your users can start working again while you prepare for the next stage of the systemwide upgrade.

The following high-level graphic shows how such an upgrade can be completed from this starting point.

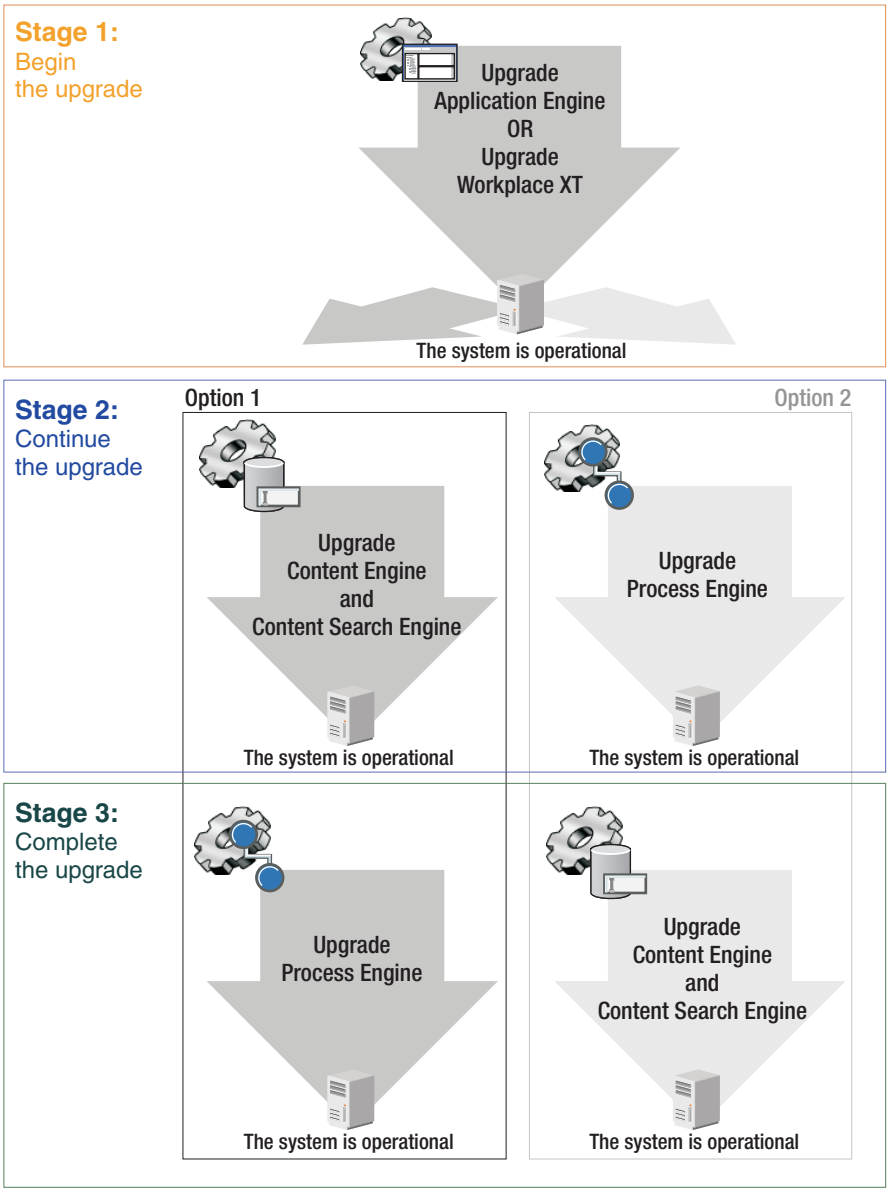

Figure 1. Staged upgrade scenario 1: upgrading Application Engine or Workplace XT first

The following tables describe which components you can upgrade in each stage and in what order if you want to upgrade Application Engine or Workplace XT first. Unless otherwise noted, components that are described in these tables must be upgraded together. For example, when you upgrade IBM FileNet Process Engine, you must also upgrade IBM FileNet Process Analyzer and IBM FileNet Process Simulator.

After you upgrade Application Engine or Workplace XT and related components in stage 1, you must decide whether to upgrade IBM FileNet Content Engine or IBM FileNet Process Engine in the next stage.

Stage 1: upgrading Application Engine or Workplace XT

In stage 1 of this scenario, you upgrade the Application Engine or Workplace XT software.

You can optionally upgrade related components in this stage or wait until later as described in the table.

Table 1. Stage 1: upgrading Application Engine or Workplace XT

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Defer upgrading in this stage.	
IBM FileNet Content Search Engine 4.0.1 or 4.5.0	Defer upgrading in this stage.	
IBM FileNet Content Federation Services 4.0.0 or 4.5.0	Defer upgrading in this stage.	
IBM InfoSphere Enterprise Records 4.0.0 or 4.5.0	FileNet Records Manager 4.5.0	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Application Engine 4.0.2	Deploy Workplace 4.0.2. If you are already running version 4.0.2, no additional upgrade is required.
Workplace XT 1.1.2 or 1.1.3	Workplace XT 1.1.4	Deploy Workplace XT 1.1.4.
IBM FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Defer upgrading in this stage.	
Process Analyzer 4.0.1 or 4.5.0	Defer upgrading in this stage.	
Process Simulator 4.0.0 or 4.5.0	Defer upgrading in this stage.	
Business Activity Monitor 4.0.0 or 4.5.0	Defer upgrading in this stage.	
IBM FileNet Business Process Framework 4.1.0	Defer upgrading in this stage.	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.
IBM FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM Enterprise Content Management Widgets 4.5.1	IBM ECM Widgets 4.5.1	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.

Table 1. Stage 1: upgrading Application Engine or Workplace XT (continued)

Starting version	Upgrade version	Comments
IBM Lotus® Quickr™ 1.0	Lotus Quickr 1.0	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1	Upgrading is optional at this stage.

After you complete this upgrade stage, your system is operational even though the FileNet P8 upgrade is not complete. Now you must decide whether to upgrade Content Engine or Process Engine in stage 2.

Stage 2, option 1: continuing the upgrade by upgrading Content Engine

The following table describes which components you can upgrade with Content Engine in stage 2.

Table 2. Stage 2, option 1: continuing the upgrade by upgrading Content Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Content Engine 4.5.1	Also upgrade Content Engine Client to version 4.5.1 on computers that are running the following components: • Application Engine • Workplace XT • Process Engine • FileNet Records Manager • Business Process Framework • Custom clients
IBM FileNet Content Search Engine 4.0.1 or 4.5.0	Content Search Engine 4.5.1	Also upgrade Content Search Engine Client to version 4.5.1 on Content Engine servers.
Content Federation Services 4.0.0 or 4.5.0	Content Federation Services 4.5.1	
FileNet Records Manager 4.0.0 or 4.5.0	FileNet Records Manager 4.5.0 unless upgraded in stage 1.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Upgraded in stage 1.	
Workplace XT 1.1.2 or 1.1.3	Upgraded in stage 1.	
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2 unless upgraded in stage 1.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Defer upgrading in this stage.	

Table 2. Stage 2, option 1: continuing the upgrade by upgrading Content Engine (continued)

Starting version	Upgrade version	Comments
Process Analyzer 4.0.1 or 4.5.0	Defer upgrading in this stage.	
Process Simulator 4.0.0 or 4.5.0	Defer upgrading in this stage.	
Business Activity Monitor 4.0.0 or 4.5.0	Defer upgrading in this stage.	
Business Process Framework 4.1.0	Defer upgrading in this stage.	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 unless upgraded in stage 1.	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in stage 1.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in stage 1.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5	FileNet P8 Documentation 4.5.1 unless upgraded in stage 1.	Upgrading is optional at this stage.

After you complete this upgrade stage 2 option, your system is operational. Continue with upgrading Process Engine in stage 3.

Stage 2, option 2: continuing the upgrade by upgrading Process Engine

The following table describes which components you can upgrade with Process Engine in stage 2.

Table 3. Stage 2, option 2: continuing the upgrade by upgrading Process Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Defer upgrading in this stage.	
Content Search Engine 4.0.1 or 4.5.0	Defer upgrading in this stage.	
Content Federation Services 4.0.0 or 4.5.0	Defer upgrading in this stage.	

Table 3. Stage 2, option 2: continuing the upgrade by upgrading Process Engine (continued)

Starting version	Upgrade version	Comments
FileNet Records Manager 4.0.0 or 4.5.0	FileNet Records Manager 4.5.0 unless upgraded in a previous stage.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Upgraded in stage 1.	
Workplace XT 1.1.2 or 1.1.3	Upgraded in stage 1.	
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2 unless upgraded in stage 1.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Process Engine 4.5.1	Also upgrade Process Engine Client to version 4.5.1 on computers that are running the following components: • Content Engine • Application Engine • Workplace XT • FileNet Records Manager • Business Process Framework • Custom clients
Process Analyzer 4.0.1 or 4.5.0	Process Analyzer 4.5.1	
Process Simulator 4.0.0 or 4.5.0	Process Simulator 4.5.1	
Business Activity Monitor 4.0.0 or 4.5.0	IBM Cognos Now 4.6	The existing Business Activity Monitor component contains an older version of Cognos Now. When you upgrade to Cognos Now 4.6 and then upgrade to Process Analyzer 4.5.1, your Business Activity Monitor installation is replaced by a new Process Activity Monitor feature.
Business Process Framework 4.1.0	Business Process Framework 4.1.0	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.

Table 3. Stage 2, option 2: continuing the upgrade by upgrading Process Engine (continued)

Starting version	Upgrade version	Comments
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 unless upgraded in stage 1.	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in stage 1.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in stage 1.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in stage 1.	Upgrading is optional at this stage.

After you complete this upgrade stage 2 option, your system operational. Continue with upgrading Content Engine in stage 3.

Stage 3, option 1: completing the upgrade by upgrading Process Engine

The following table describes which components you can upgrade with Process Engine in stage 3.

Table 4. Stage 3, option 1: completing the upgrade by upgrading Process Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Upgraded in stage 2.	
Content Search Engine 4.0.1 or 4.5.0	Upgraded in stage 2.	
Content Federation Services 4.0.0 or 4.5.0	Upgraded in stage 2.	
FileNet Records Manager 4.0.0	FileNet Records Manager 4.5.0 unless upgraded in a previous stage.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Upgraded in stage 1.	
Workplace XT 1.1.2 or 1.1.3	Upgraded in stage 1.	
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2 unless upgraded in a previous stage.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.

Table 4. Stage 3, option 1: completing the upgrade by upgrading Process Engine (continued)

Starting version	Upgrade version	Comments
Process Engine 4.0.3 or 4.5.0	Process Engine 4.5.1	Also upgrade Process Engine Client to version 4.5.1 on computers that are running the following components: • Content Engine • Application Engine • Workplace XT • FileNet Records Manager • Business Process Framework • Custom clients
Process Analyzer 4.0.1 or 4.5.0	Process Analyzer 4.5.1	
Process Simulator 4.0.0 or 4.5.0	Process Simulator 4.5.1	
Business Activity Monitor 4.0.0 or 4.5.0	IBM Cognos Now 4.6	The existing Business Activity Monitor component contains an older version of Cognos Now. When you upgrade to Cognos Now 4.6 and then upgrade to Process Analyzer 4.5.1, your Business Activity Monitor installation is replaced by a new Process Activity Monitor feature.
Business Process Framework 4.1.0	Business Process Framework 4.1.0	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 unless upgraded in a previous stage.	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in a previous stage.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in a previous stage.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in a previous stage.	Upgrading is optional at this stage.

After you complete stage 3 option 1, your FileNet P8 upgrade is complete.

Stage 3, option 2: completing the upgrade by upgrading Content Engine

The following table describes which components you can upgrade along with Content Engine in stage 3.

Table 5. Stage 3, option 2: completing the upgrade by upgrading Content Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Content Engine 4.5.1	Also upgrade Content Engine Client to version 4.5.1 on computers that are running the following components: • Application Engine • Workplace XT • Process Engine • FileNet Records Manager • Business Process Framework • Custom clients
Content Search Engine 4.0.1 or 4.5.0	Content Search Engine 4.5.1	Also upgrade Content Search Engine Client to version 4.5.1 on Content Engine servers.
Content Federation Services 4.0.0 or 4.5.0	Content Federation Services 4.5.1	
FileNet Records Manager 4.0.0 or 4.5.0	FileNet Records Manager 4.5.0 unless upgraded in a previous stage.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Upgraded in stage 1.	
Workplace XT 1.1.2 or 1.1.3	Upgraded in stage 1.	
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2 unless upgraded in a previous stage.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Upgraded in stage 2.	
Process Analyzer 4.0.1 or 4.5.0	Upgraded in stage 2.	
Process Simulator 4.0.0 or 4.5.0	Upgraded in stage 2.	
Business Activity Monitor 4.0.0 or 4.5.0	Upgraded in stage 2.	
Business Process Framework 4.1.0	Upgraded in stage 2.	
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 unless upgraded in a previous stage.	Upgrade is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.

Table 5. Stage 3, option 2: completing the upgrade by upgrading Content Engine (continued)

Starting version	Upgrade version	Comments
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in a previous stage.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in a previous stage.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in a previous stage.	Upgrading is optional at this stage.

After you complete stage 3 option 2, your FileNet P8 upgrade is complete.

Staged upgrade scenario 2: upgrading Content Engine first:

One option for an IBM FileNet P8 staged upgrade is to begin by upgrading your IBM FileNet Content Engine component, which includes server and client software. You can then run this upgraded software with other core IBM FileNet P8 components that are not yet upgraded. At your discretion, your users can start working again while you prepare for the next stage of the systemwide upgrade.

The following high-level graphic shows how such an upgrade can be completed from this starting point.

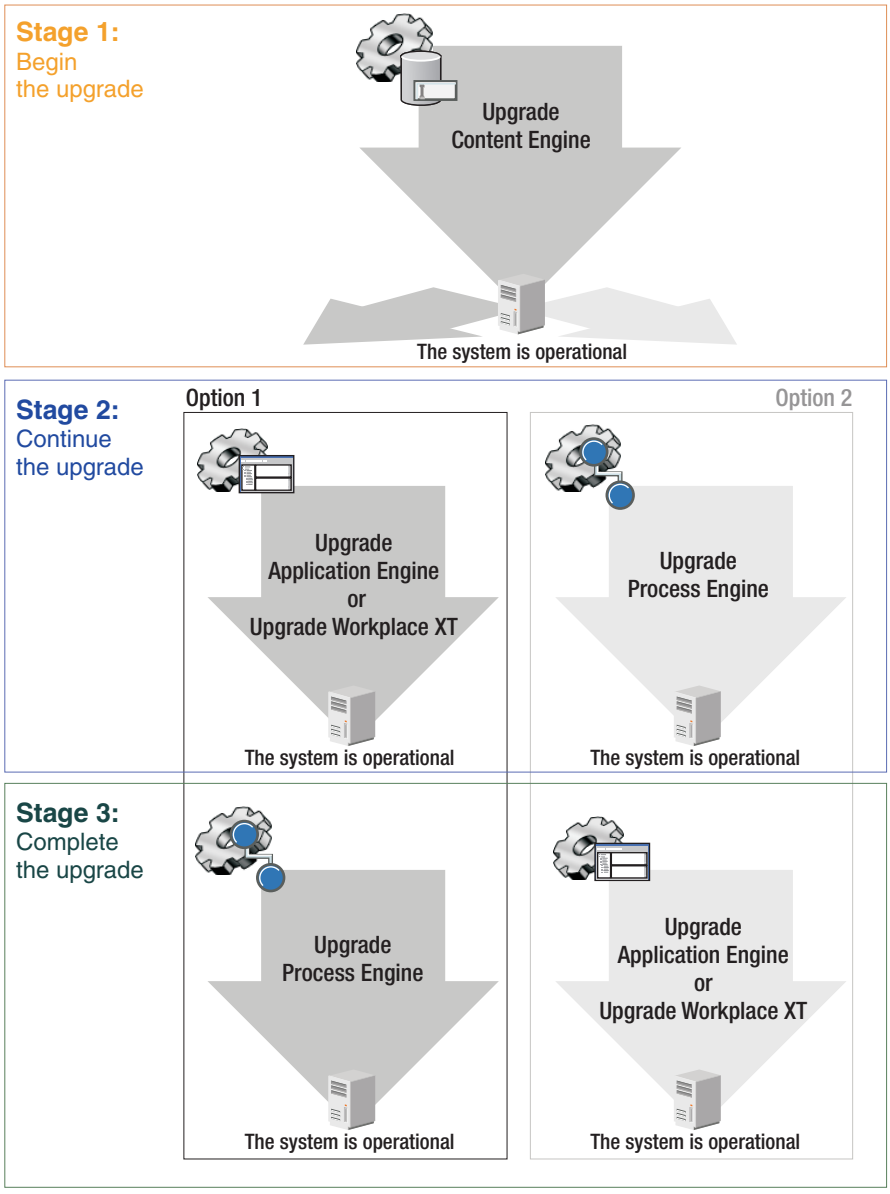

Figure 2. Staged upgrade scenario 2: upgrading Content Engine first

The following tables describe which components you can upgrade in each stage and in what order if you want to upgrade Content Engine first. Unless otherwise noted, components that are described in these tables must be upgraded together. For example, when you upgrade IBM FileNet Process Engine, you must also upgrade IBM FileNet Process Analyzer and IBM FileNet Process Simulator.

After you upgrade Content Engine and related components in stage 1, you must decide whether to upgrade IBM FileNet Application Engine or IBM FileNet Workplace XT (option 1) or whether to upgrade IBM FileNet Process Engine (option 2).

Stage 1: upgrading Content Engine

In stage 1 of this scenario, you upgrade the Content Engine.

You can optionally upgrade related components in this stage or wait until later as described in the table.

Table 6. Stage 2: upgrading Content Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Content Engine 4.5.1	Also upgrade Content Engine Client to version 4.5.1 on computers that are running the following components: • Application Engine • Workplace XT • Process Engine • FileNet Records Manager • Business Process Framework • Custom clients
IBM FileNet Content Search Engine 4.0.1 or 4.5.0	Content Search Engine 4.5.1	Also upgrade Content Search Engine Client to version 4.5.1 on Content Engine servers.
IBM FileNet Content Federation Services 4.0.0 or 4.5.0	Content Federation Services 4.5.1	
IBM InfoSphere Enterprise Records 4.0.0 or 4.5.0	Defer upgrading in this stage.	If you are already running version 4.5.0, no additional upgrade is required.
IBM FileNet Application Engine 4.0.1 or 4.0.2	Defer upgrading in this stage.	
IBM FileNet Workplace XT1.1.2 or 1.1.3	Defer upgrading in this stage.	
IBM FileNet P8 eForms 4.0.1	Defer upgrading in this stage.	
Process Engine 4.0.3 or 4.5.0	Defer upgrading in this stage.	
Process Analyzer 4.0.1 or 4.5.0	Defer upgrading in this stage.	
Process Simulator 4.0.0 or 4.5.0	Defer upgrading in this stage.	
Business Activity Monitor 4.0.0 or 4.5.0	Defer upgrading in this stage.	
IBM FileNet Business Process Framework 4.1.0	Defer upgrading in this stage.	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.
IBM FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 or defer upgrading in this stage.	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.

Table 6. Stage 2: upgrading Content Engine (continued)

Starting version	Upgrade version	Comments
IBM Enterprise Content Management Widgets 4.5.1	IBM ECM Widgets 4.5.1	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
IBM Lotus Quickr 1.0	Lotus Quickr 1.0	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5	FileNet P8 Documentation 4.5.1 or defer upgrading in this stage.	Upgrading is optional at this stage.

After you complete this upgrade stage, you have an operational system even though FileNet P8 is not fully upgraded. Now you must decide whether to upgrade Application Engine or Workplace XT (option 1) or or whether to upgrade Process Engine (option 2).

Stage 2, option 1: continuing the upgrade by upgrading Application Engine or Workplace XT

The following table describes which components you can upgrade with Application Engine or Workplace XT.

Table 7. Stage 1: continuing the upgrade by upgrading Application Engine or Workplace XT

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Upgraded in stage 1.	
Content Search Engine 4.0.1 or 4.5.0	Upgraded in stage 1.	
Content Federation Services 4.0.0 or 4.5.0	Upgraded in stage 1.	
FileNet Records Manager 4.0.0 or 4.5.0	FileNet Records Manager 4.5.0 or defer upgrading in this stage.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Application Engine 4.0.2	Deploy Workplace 4.0.2. If you are already running version 4.0.2, no additional upgrade is required.
Workplace XT 1.1.2 or 1.1.3	Workplace XT 1.1.4	Deploy Workplace XT 1.1.4.
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Defer upgrading in this stage.	
Process Analyzer 4.0.1 or 4.5.0	Defer upgrading in this stage.	

Table 7. Stage 1: continuing the upgrade by upgrading Application Engine or Workplace XT (continued)

Starting version	Upgrade version	Comments
Process Simulator 4.0.0 or 4.5.0	Defer upgrading in this stage.	
Business Activity Monitor 4.0.0 or 4.5.0	Defer upgrading in this stage.	
Business Process Framework 4.1.0	Defer upgrading in this stage.	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in stage 1.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in stage 1.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in stage 1.	Upgrading is optional at this stage.

After you complete this upgrade stage 2 option, your system is operational. Continue with upgrading Process Engine in stage 3.

Stage 2, option 2: continuing the upgrade by upgrading Process Engine

The following table describes which components you can upgrade with Process Engine.

Table 8. Stage 2: continuing the upgrade by upgrading Process Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Upgraded in stage 1.	
Content Search Engine 4.0.1 or 4.5.0	Upgraded in stage 1.	
Content Federation Services 4.0.0 or 4.5.0	Upgraded in stage 1.	
FileNet Records Manager 4.0.0 or 4.5.0	Defer upgrading in this stage.	If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Defer upgrading in this stage.	

Table 8. Stage 2: continuing the upgrade by upgrading Process Engine (continued)

Starting version	Upgrade version	Comments
Workplace XT 1.1.2 or 1.1.3	Defer upgrading in this stage.	
FileNet P8 eForms 4.0.1	Defer upgrading in this stage.	
Process Engine 4.0.3 or 4.5.0	Process Engine 4.5.1	Also upgrade Process Engine Client to version 4.5.1 on computers that are running the following components: • Content Engine • Application Engine • Workplace XT • FileNet Records Manager • Business Process Framework • Custom clients
Process Analyzer 4.0.1 or 4.5.0	Process Analyzer 4.5.1	
Process Simulator 4.0.0 or 4.5.0	Process Simulator 4.5.1	
Business Activity Monitor 4.0.0 or 4.5.0	IBM Cognos Now 4.6	The existing Business Activity Monitor component contains an older version of Cognos Now. When you upgrade to Cognos Now 4.6 and then upgrade to Process Analyzer 4.5.1, your Business Activity Monitor installation is replaced by a new Process Activity Monitor feature.
Business Process Framework 4.1.0	Business Process Framework 4.1.0	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 or defer upgrading in this stage.	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in stage 1.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless upgraded in stage 1.	If you are already running version 1.0, no additional upgrade is required.

Table 8. Stage 2: continuing the upgrade by upgrading Process Engine (continued)

Starting version	Upgrade version	Comments
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in stage 1.	Upgrading is optional at this stage.

After you complete this upgrade stage 2 option, your system is operational. Continue with upgrading Content Engine in stage 3.

Stage 3, option 1: completing the upgrade by upgrading Process Engine

The following table describes which components you can upgrade with Process Engine .

Table 9. Stage 3: completing the upgrade by upgrading Process Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Upgraded in stage 1.	
Content Search Engine 4.0.1 or 4.5.0	Upgraded in stage 1.	
Content Federation Services 4.0.0 or 4.5.0	Upgraded in stage 1.	
FileNet Records Manager 4.0.0	FileNet Records Manager 4.5.0 unless upgraded in stage 2.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Upgraded in stage 2.	
Workplace XT 1.1.2 or 1.1.3	Upgraded in stage 2.	
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2 unless upgraded in stage 2.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Process Engine 4.5.1	Also upgrade Process Engine Client to version 4.5.1 on computers that are running the following components: • Content Engine • Application Engine • Workplace XT • FileNet Records Manager • Business Process Framework • Custom clients
Process Analyzer 4.0.1 or 4.5.0	Process Analyzer 4.5.1	
Process Simulator 4.0.0 or 4.5.0	Process Simulator 4.5.1	

Table 9. Stage 3: completing the upgrade by upgrading Process Engine (continued)

Starting version	Upgrade version	Comments
Business Activity Monitor 4.0.0 or 4.5.0	IBM Cognos Now 4.6	The existing Business Activity Monitor component contains an older version of Cognos Now. When you upgrade to Cognos Now 4.6 and then upgrade to Process Analyzer 4.5.1, your Business Activity Monitor installation is replaced by a new Process Activity Monitor feature.
Business Process Framework 4.1.0	Business Process Framework 4.1.0	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 unless upgraded in a previous stage.	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in a previous stage.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in a previous stage.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in a previous stage.	Upgrading is optional at this stage.

After you complete stage 3 option 1, your FileNet P8 upgrade is complete.

Stage 3, option 2: completing the upgrade by upgrading Application Engine or Workplace XT

The following table describes which components you can upgrade with Application Engine.

Table 10. Stage 3: completing the upgrade by upgrading Application Engine or Workplace XT

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Upgraded in stage 1.	
Content Search Engine 4.0.1 or 4.5.0	Upgraded in stage 1.	
Content Federation Services 4.0.0 or 4.5.0	Upgraded in stage 1.	

Table 10. Stage 3: completing the upgrade by upgrading Application Engine or Workplace XT (continued)

Starting version	Upgrade version	Comments
FileNet Records Manager 4.0.0 or 4.5.0	FileNet Records Manager 4.5.0	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Application Engine 4.0.2	Deploy Workplace 4.0.2. If you are already running version 4.0.2, no additional upgrade is required.
Workplace XT 1.1.2 or 1.1.3	Workplace XT 1.1.4	Workplace XT 1.1.4
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2 unless upgraded in a previous stage.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Upgraded in stage 2.	
Process Analyzer 4.0.1 or 4.5.0	Upgraded in stage 2.	
Process Simulator 4.0.0 or 4.5.0	Upgraded in stage 2.	
Business Activity Monitor 4.0.0 or 4.5.0	Upgraded in stage 2.	
Business Process Framework 4.1.0	Upgraded in stage 2.	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 unless upgraded in a previous stage.	Upgrade is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in a previous stage.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in a previous stage.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in a previous stage.	Upgrading is optional at this stage.

After you complete stage 3 option 2, your FileNet P8 upgrade is complete.

Staged upgrade scenario 3: upgrading Process Engine first:

One option for an IBM FileNet P8 staged upgrade is to begin by upgrading your IBM FileNet Process Engine component, which includes server and client software. You can then run this upgraded software with other core IBM FileNet P8 components that are not yet upgraded. At your discretion, your users can start working again while you prepare for the next stage of the systemwide upgrade.

The following high-level graphic shows how such an upgrade can be completed from this starting point.

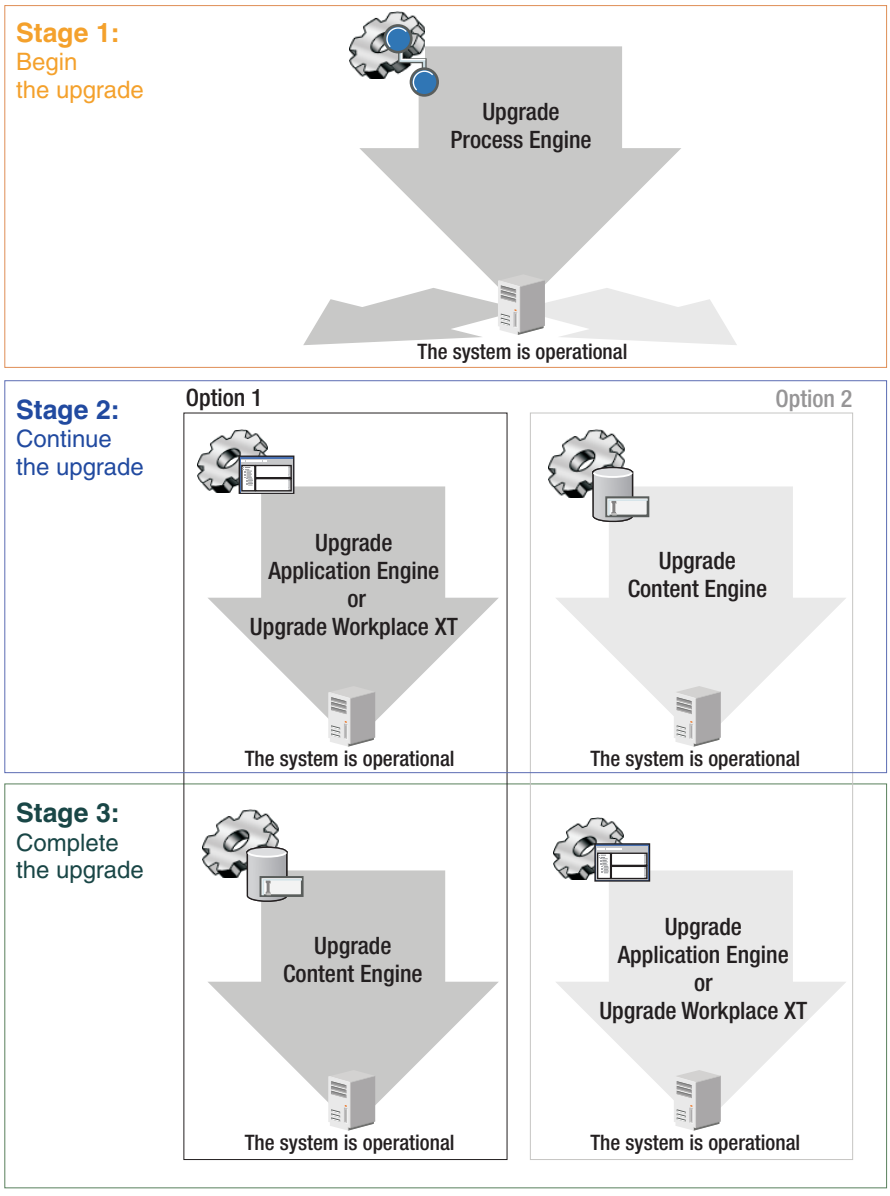

Figure 3. Staged upgrade scenario 3: upgrading Process Engine first

The following tables describe which components you can upgrade in each stage and in what order if you want to upgrade Process Engine first. Unless otherwise noted, components that are described in these tables must be upgraded together. For example, when you upgrade IBM FileNet Process Engine, you must also upgrade IBM FileNet Process Analyzer and IBM FileNet Process Simulator.

After you upgradeProcess Engine and related components in stage 1, you must decide whether to upgrade IBM FileNet Application Engine or IBM FileNet Workplace XT (option 1) or whether to upgrade IBM FileNet Content Engine (option 2) in the next stage.

Stage 1: upgrading Process Engine

In stage 1, you upgrade the Process Engine.

Table 11. Stage 2: upgrading Process Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Defer upgrading in this stage.	
IBM FileNet Content Search Engine 4.0.1 or 4.5.0	Defer upgrading in this stage.	
IBM FileNet Content Federation Services 4.0.0 or 4.5.0	Defer upgrading in this stage.	
IBM InfoSphere Enterprise Records 4.0.0 or 4.5.0	Defer upgrading in this stage.	If you are already running version 4.5.0, no additional upgrade is required.
IBM FileNet Application Engine 4.0.1 or 4.0.2	Defer upgrading in this stage.	
IBM FileNet Workplace XT1.1.2 or 1.1.3	Defer upgrading in this stage.	
IBM FileNet P8 eForms 4.0.1	Defer upgrading in this stage.	
Process Engine 4.0.3 or 4.5.0	Process Engine 4.5.1	Also upgrade Process Engine Client to version 4.5.1 on computers that are running the following components: • Content Engine • Application Engine • Workplace XT • FileNet Records Manager • Business Process Framework • Custom clients
Process Analyzer 4.0.1 or 4.5.0	Process Analyzer 4.5.1	
Process Simulator 4.0.0 or 4.5.0	Process Simulator 4.5.1	
Business Activity Monitor 4.0.0 or 4.5.0	IBM Cognos Now 4.6	The existing Business Activity Monitor component contains an older version of Cognos Now. When you upgrade to Cognos Now 4.6 and then upgrade to Process Analyzer 4.5.1, your Business Activity Monitor installation is replaced by a new Process Activity Monitor feature.

Table 11. Stage 2: upgrading Process Engine (continued)

Starting version	Upgrade version	Comments
IBM FileNet Business Process Framework 4.1.0	Business Process Framework 4.1.0	Business Process Framework 4.1.0 runs on Process Engine 4.5, but this configuration is supported only as an upgrade. Before you upgrade to Process Engine 4.5.1, ensure that the supporting fix pack for Business Process Framework 4.1.0 is available.
IBM FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 or defer upgrading in this stage.	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM Enterprise Content Management Widgets 4.5.1	IBM ECM Widgets 4.5.1	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
IBM Lotus Quickr 1.0	Lotus Quickr 1.0	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5	FileNet P8 Documentation 4.5.1 or defer upgrading in this stage.	Upgrading is optional at this stage.

After you complete this upgrade stage, your system is operational even though the FileNet P8 upgrade is not complete. In stage 2, you must decide whether to upgrade Application Engine or Workplace XT (option 1) or whether to upgrade Content Engine (option 2).

Stage 2, option 1: continuing the upgrade by upgrading Application Engine or Workplace XT

The following table describes which components you can upgrade along with Application Engine or Workplace XT in stage 2.

Table 12. Stage 1: continuing the upgrade by upgrading Application Engine or Workplace XT

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Defer upgrading in this stage.	
Content Search Engine 4.0.1 or 4.5.0	Defer upgrading in this stage.	
Content Federation Services 4.0.0 or 4.5.0	Defer upgrading in this stage.	
FileNet Records Manager 4.0.0 or 4.5.0	FileNet Records Manager 4.5.0 or defer upgrading in this stage.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.

Table 12. Stage 1: continuing the upgrade by upgrading Application Engine or Workplace XT (continued)

Starting version	Upgrade version	Comments
Application Engine 4.0.1 or 4.0.2	Application Engine 4.0.2	Deploy Workplace 4.0.2. If you are already running version 4.0.2, no additional upgrade is required.
Workplace XT 1.1.2 or 1.1.3	Workplace XT 1.1.4	Deploy Workplace XT 1.1.4.
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Done in stage 1.	
Process Analyzer 4.0.1 or 4.5.0	Upgraded in stage 1.	
Process Simulator 4.0.0 or 4.5.0	Upgraded in stage 1.	
Business Activity Monitor 4.0.0 or 4.5.0	Upgraded in stage 1.	
Business Process Framework 4.1.0	Upgraded in stage 1.	
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in stage 1.	No upgrade exists between version 4.5.0 and 4.5.1. You must treat version 4.5.1 as a new installation.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in stage 1.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in stage 1.	Upgrading is optional at this stage.

After you complete this upgrade stage 2 option, your system is operational. Continue with upgrading Content Engine.

Stage 2, option 2: continuing the upgrade by upgrading Content Engine

The following table describes which components you can upgrade with Process Engine.

Table 13. Stage 2: continuing the upgrade by upgrading Content Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Content Engine 4.5.1	Also upgrade Content Engine Client to version 4.5.1 on computers that are running the following components: • Application Engine • Workplace XT • Process Engine • FileNet Records Manager • Business Process Framework • Custom clients
Content Search Engine 4.0.1 or 4.5.0	Content Search Engine 4.5.1	Also upgrade Content Search Engine Client to version 4.5.1 on Content Engine servers.
Content Federation Services 4.0.0 or 4.5.0	Content Federation Services 4.5.1	
FileNet Records Manager 4.0.0 or 4.5.0	Defer upgrading in this stage.	If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Defer upgrading in this stage.	
Workplace XT 1.1.2 or 1.1.3	Defer upgrading in this stage.	
FileNet P8 eForms 4.0.1	Defer upgrading in this stage.	
Process Engine 4.0.3 or 4.5.0	Upgraded in stage 1.	
Process Analyzer 4.0.1 or 4.5.0	Upgraded in stage 1.	
Process Simulator 4.0.0 or 4.5.0	Upgraded in stage 1.	
Business Activity Monitor 4.0.0 or 4.5.0	Upgraded in stage 1.	
Business Process Framework 4.1.0	Upgraded in stage 1.	
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 or defer upgrading in this stage.	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in a previous stage.	No upgrade exists between version 4.5.0 and 4.5.1. You must treat version 4.5.1 as a new installation.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in a previous stage.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in a previous stage.	Upgrading is optional at this stage.

After you complete this upgrade stage 2 option, you again have an operational system. Now continue with upgrading Application Engine or Workplace XT in stage 3.

Stage 3, option 1: completing the upgrade by upgrading Content Engine

The following table describes which components you can upgrade with Content Engine in stage 3.

Table 14. Stage 3: completing the upgrade by upgrading Content Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Content Engine 4.5.1	Also upgrade Content Engine Client to version 4.5.1 on computers that are running the following components: • Application Engine • Workplace XT • Process Engine • FileNet Records Manager • Business Process Framework • Custom clients
Content Search Engine 4.0.1 or 4.5.0	Content Search Engine 4.5.1	Also upgrade Content Search Engine Client to version 4.5.1 on Content Engine servers.
Content Federation Services 4.0.0 or 4.5.0	Content Federation Services 4.5.1	
FileNet Records Manager 4.0.0	FileNet Records Manager 4.5.0 unless upgraded in stage 2.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Upgraded in stage 2.	
Workplace XT 1.1.2 or 1.1.3	Upgraded in stage 2.	
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2 unless upgraded in stage 2.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Upgraded in stage 1.	
Process Analyzer 4.0.1 or 4.5.0	Upgraded in stage 1.	
Process Simulator 4.0.0 or 4.5.0	Upgraded in stage 1.	
Business Activity Monitor 4.0.0 or 4.5.0	Upgraded in stage 1.	
Business Process Framework 4.1.0	Upgraded in stage 1.	

Table 14. Stage 3: completing the upgrade by upgrading Content Engine (continued)

Starting version	Upgrade version	Comments
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 unless upgraded in a previous stage.	Upgrading is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in a previous stage.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in a previous stage.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in a previous stage.	Upgrading is optional at this stage.

After you complete stage 3 option 1, your FileNet P8 upgrade is complete.

Stage 3, option 2: completing the upgrade by upgrading Application Engine or Workplace XT

The following table describes which components you can upgrade with Application Engine or Workplace XT in stage 3.

Table 15. Stage 3: completing the upgrade by upgrading Application Engine

Starting version	Upgrade version	Comments
Content Engine 4.0.1 or 4.5.0	Upgraded in stage 2.	
Content Search Engine 4.0.1 or 4.5.0	Upgraded in stage 2.	
Content Federation Services 4.0.0 or 4.5.0	Upgraded in stage 2.	
FileNet Records Manager 4.0.0 or 4.5.0	FileNet Records Manager 4.5.0	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT. If you are already running version 4.5.0, no additional upgrade is required.
Application Engine 4.0.1 or 4.0.2	Application Engine 4.0.2	Deploy Workplace 4.0.2. If you are already running version 4.0.2, no additional upgrade is required.
Workplace XT 1.1.2 or 1.1.3	Workplace XT 1.1.4	Workplace XT 1.1.4
FileNet P8 eForms 4.0.1	FileNet P8 eForms 4.0.2 unless upgraded in a previous stage.	Upgrading is optional at this stage. Upgrade any time after you upgrade Application Engine or Workplace XT.
Process Engine 4.0.3 or 4.5.0	Upgraded in stage 1.	

Table 15. Stage 3: completing the upgrade by upgrading Application Engine (continued)

Starting version	Upgrade version	Comments
Process Analyzer 4.0.1 or 4.5.0	Upgraded in stage 1.	
Process Simulator 4.0.0 or 4.5.0	Upgraded in stage 1.	
Business Activity Monitor 4.0.0 or 4.5.0	Upgraded in stage 1.	
Business Process Framework 4.1.0	Upgraded in stage 1.	
FileNet Connector for Microsoft SharePoint 2.1.0, 2.2.0, or 2.2.1	FileNet Connector for Microsoft SharePoint 2.2.1 unless upgraded in a previous stage.	Upgrade is optional at this stage. If you are already running version 2.2.1, no additional upgrade is required.
IBM ECM Widgets 4.5.1	IBM ECM Widgets 4.5.1 unless upgraded in a previous stage.	No upgrade exists between version 4.5.0 and 4.5.1. You must install version 4.5.1 as a new installation, not an upgrade.
Lotus Quickr 1.0	Lotus Quickr 1.0 unless installed in a previous stage.	If you are already running version 1.0, no additional upgrade is required.
FileNet P8 Documentation 4.0.3 or 4.5.0	FileNet P8 Documentation 4.5.1 unless upgraded in a previous stage.	Upgrading is optional at this stage.

After you complete stage 3 option 2, your FileNet P8 upgrade is complete.

Automatic or manual upgrading of Content Engine data

After you upgrade the Content Engine software to version 4.5.1, the Content Engine data is upgraded to version 4.5.1. This data includes the Global Configuration Data (GCD), the object stores, and related information. The upgrade is accomplished either automatically or manually, depending on the version of Content Engine software that you are upgrading.

Use the following table to help you decide whether you must do a manual upgrade or whether the Content Engine data is upgraded automatically.

Version of Content Engine before the upgrade	Manual or automatic upgrade?	Description
3.5.2	Manual	You upgrade Content Engine data manually after deploying version 4.5.1.
4.0.1 or 4.5.0	Automatic	The upgrade of Content Engine data starts automatically after you deploy version 4.5.1.

Tip: Ensure that you back up the version 3.5.2 GCD database and the object store databases before you upgrade the Content Engine software.

Choosing the tool to manually upgrade Content Engine data from version 3.5.2

Two tools are available for you to manually upgrade Content Engine data from version 3.5.2. The tool that you use depends on the user interface you prefer, the current state of the object stores, and whether you have already used a particular tool to upgrade some object stores.

Versions 4.0.1, 4.5.0, and 4.5.1 of Content Engine include the IBM FileNet Content Engine Upgrader tool for upgrading your Content Engine data from version 3.5.2. This tool offers both a graphical user interface (GUI) and command-line interface (CLI).

As of version 4.5.1 FP2, the Content Engine software retains this tool and also includes IBM FileNet Content Engine Upgrader Web Tool for upgrading Content Engine data from version 3.5.2. This tool offers only a graphical user interface.

Choose a tool for upgrading Content Engine data based upon the criteria in the following table:

Interface to be used	Current state of the object stores	Upgrade tool to use
GUI	All object stores are at version 3.5.2.	Content Engine Web Upgrade Tool or Content Engine Upgrader tool
GUI	Some object stores at version 4.5.1 were upgraded using Content Engine Upgrader tool; other object stores in the same domain are still at version 3.5.2.	Content Engine Upgrader tool
GUI	Some object stores at version 4.5.1 were upgraded using Content Engine Web Upgrade Tool; other object stores in the same domain are still at version 3.5.2	Content Engine Web Upgrade Tool
CLI	Not applicable	Content Engine Upgrader tool

Upgrading a FileNet P8 3.5.2 domain into a nonempty FileNet P8 4.5.1 domain

It is a best practice to upgrade a version 3.5.2 FileNet P8 domain into a new, empty version 4.5.1 FileNet P8 domain. If this approach is not possible, you must ensure that conflicts in object data are resolved before you upgrade your version 3.5.2 domain.

If your upgrade scenario involves upgrading one version 3.5.2 FileNet P8 domain into a second, nonempty, version 4.5.1 FileNet P8 domain, you need to be aware of potential conflicts between the data in the two domains, no matter which upgrade tool you choose: Content Engine Upgrader tool or Content Engine Web Upgrade Tool. In some situations, such an upgrade is not possible. The following sections describe the issues that you must consider in this upgrade scenario.

Domain-level permissions

During an upgrade from version 3.5.2, the upgrade tool adds the Access Control List (ACL) values on the version 3.5.2 FileNet P8 domain to the ACL on the version 4.5.1 FileNet P8 domain. In most cases, merging ACL values does not result in a conflict with any permissions that are already on the version 4.5.1 domain.

There is one exceptional case that you must consider. An ACL entry, also known as an Access Control Entries (ACE) either grants or denies a certain type of permission to a user or group. Merging ACEs that grant permissions does not cause problems. However, if there are ACEs on either the version 3.5.2 domain or the version 4.5.1 domain that deny permission, problems may result. In which case, you need to do further analysis to determine if an upgrade is feasible.

Note that the administrator account that the upgrade tool uses to login to the FileNet P8 domain must have the following permissions:

- Full control on the version 4.5.1 domain; otherwise the tool cannot update it.
- Full control on each version 3.5.2 object store to be upgraded. The upgrade tool carries this permission forward into the version 4.5.1 domain. The permissions on the 3.5.2 object store are carried forward into the 4.5.1 domain. Full control is required for the upgrade tool needs to make updates to upgraded object stores.

Fixed content devices

During an upgrade from version 3.5.2, the upgrade tool creates fixed content device (FCD) entries in the version 4.5.1 FileNet P8 domain that correspond to FCDs that exist in the 3.5.2 FileNet P8 domain. If both domains contain FCD entries with the same symbolic name, or with the same ID, then the upgrade will fail. If both domains contain entries that reference the same physical FCD, but use different names and IDs, then the upgrade will probably succeed, but system reliability might be unpredictable.

Marking sets

During the upgrade from version 3.5.2, the upgrade tool creates marking set entries in the version 4.5.1 FileNet P8 domain, corresponding to any marking set entries that existed in the version 3.5.2 domain. If both the version 3.5.2 and 4.5.1 domains contain entries for the same marking set, then the upgrade will fail.

For example, version 3.5.2 of FileNet Records Manager uses marking sets. If both the version 3.5.2 and 4.5.1 domains have FileNet Records Manager installed, then an upgrade will not be possible. Upgrades may fail also for other applications that use marking sets.

Upgrading planning considerations

Review all upgrade planning information related to requirements for upgrading anIBM FileNet P8 Platform system and expansion products, as well as other vendor products associated with the IBM FileNet P8 Platform.

Review this section thoroughly before you start to upgrade FileNet P8 Platform components or required vendor software.

"Upgrade system requirements for FileNet P8 Platform" on page 31
It is best practice to plan and test the upgrade on a designated test system first. Verify the upgrade is successful by running functionality and stress tests.

Upgrade system requirements for FileNet P8 Platform

It is best practice to plan and test the upgrade on a designated test system first. Verify the upgrade is successful by running functionality and stress tests.

- Apply the required minimum level IBM FileNet P8 Platform software updates for the release you are currently running before you upgrade. Before you begin your upgrade to FileNet P8 Platform 4.5.1, use the information in the following table to verify that each component is using the minimum fix pack level or higher. This information applies to standard upgrades from version 3.5,4.0, or 4.5. For information related to staged upgrades, review the *IBM FileNet P8 Compatibility Matrix* at http://www.ibm.com/software/data/support/.

Component	3.5 Fix Pack	3.5 Software Build	4.0 Fix Pack	4.0 Software Build	4.5 Release	4.5 Software Build
Content Engine	CE-3.5.2-002	kl195.025	CE 4.0.1-002	dap435.032	CE 4.5	dap440
Process Engine	PE 3.5.3-002	pe197.011 and pui197.005	PE 4.0.3	pe430.060a and pui430.052	PE 4.5	pe450 pui450
Application Engine	AE-3.5.1-003	per185.027.a01	AE-4.0.12	per410.041d	AE 4.0.2	per450
IBM FileNet P8 eForms	P8eF-3.5.1	raptor220.004	eForms 4.0.1	raptor305A.006	eForms 4.0.2	raptor330
IBM InfoSphere Enterprise Records	3.7.0	rec190.007	4.0.0	rec200.056	RM 4.5	rec210
IBM FileNet Workplace XT	1.1.2	orion210	1.1.2	orion210	Workplace XT 1.1.3	orion300
IBM FileNet Content Federation Services	No direct upgrade from 3.5 to CFS 4.5	hel195	4.0.0-001	hel435.010	CFS 4.5	hel440.237a
IBM FileNet Process Analyzer	PA-3.5.2	pa190.015b	PA-4.0.1.001	pa435.014	PA 4.5	pa450
IBM FileNet Process Simulator	PS-3.5.2-005	ps185.023	PS-4.0.0.006	ps420.027c	PS 4.5	ps450
IBM FileNet Business Activity Monitor	BAM-3.6-001.001	bam195.002	BAM-3.6-001.001	bam195.002	BAM 4.5	bam450
IBM FileNet Rendition Engine	RE-3.5.1	re400	RE-4.0.1	re400	RE 4.5	re440.007
Content Search Engine			CSE 4.0.1	cse435	CSE 4.5	cse440

Component	3.5 Fix Pack	3.5 Software Build	4.0 Fix Pack	4.0 Software Build	4.5 Release	4.5 Software Build
IBM FileNet Business Process Framework	BPF 3.6	bpf100.058	BPF 4.1	bpf410.064	BPF4.1.0-003	bpf415.218

If you have IBM FileNet Business Process Framework installed in your current IBM FileNet P8 environment, do not upgrade Content Engine or Process Engine components to version 4.5.1 until you also want to upgrade Business Process Framework to BPF4.1.0-003.

Application Engine 4.0.1 is the minimum unless you are running Business Process Framework 4.1 where the minimum is Application Engine 4.0.1-000.001 interim fix, or you are running SharePoint 2.2, where the minimum is the Application Engine 4.0.1-003 fix pack.

Run the version tool, as documented in the *IBM FileNet P8 Version Tools Technical Notice* to determine the software build. Use the table above to map the software build number to the minimum software update.

As an alternative, you can also use the FileNet Engine Web page at `http://server:port/FileNet/Engine` to determine the version and build of the Content Engine 4.0.1, 4.5.0, or 4.5.1 software you are running, where:

server is the host name of the machine where Content Engine is deployed.

port is the HTTP port used by the application server where Content Engine is deployed.

If any FileNet P8 Platform component is below the minimum software level documented here, update that component accordingly.

Applying a fix pack for one component might require fix packs for other components. Prior to applying any fix pack, review the *IBM FileNet P8 Compatibility Matrix* on the http://www.ibm.com/software/data/support/ to assure compatibility between all installed components.

BAM 450 is the terminal release of this product. IBM FileNet P8 version 4.5.1 supports direct CognosNow! integration through the FileNet Process Monitor Feature.

Definition of upgrade roles

Your organization may have different roles, and some of the responsibilities of listed roles will vary from those assigned by default.

The tasks in this guide as well as the rows in the Installation and Upgrade Worksheet are organized by administrative roles, listed below.

Installation administrator

- Runs the IBM FileNet P8 Platform component installers during initial setup.
- Runs the FileNet Configuration Manager tool during initial setup, followed by launching Enterprise Manager.

- Runs the IBM FileNet P8 Platform component upgrade programs during upgrades.
- Abbreviated as IA. Responsible for coordinating the information described in this worksheet. The information itself will require the input from the other roles.

The role of IA is usually filled by an IBM FileNet P8 Certified Professional (FCP).

Information technology administrator

- Responsible for the networking and operating systems settings required by the IBM FileNet P8 Platform components.
- Responsible for performing certain security configurations.
- Abbreviated as ITA. Responsible for providing the information in the rows in the *Installation and Upgrade Worksheet* with a value of ITA in the **Role** column.

For tasks assigned to the ITA, see "IT administrator upgrade tasks" on page 35.

Security administrator

- Responsible for configuring the directory servers required by IBM FileNet P8 Platform components, including Content Engine and Application Engine.
- Creates and maintains directory server user and group accounts.
- Abbreviated as SA. Responsible for providing the information in the rows in the *Installation and Upgrade Worksheet* with a value of SA in the **Role** column.

For tasks assigned to the SA, see "Security administrator upgrade tasks" on page 44.

Database administrator

- Creates, configures, maintains database installations and databases or table spaces.
- Responsible for creating database accounts needed by FileNet P8 Platform components.
- For purposes of this documentation, the database administrator is expected to have responsibilities regarding the Java™ Database Connectivity (JDBC) data sources.
- Abbreviated as DBA. Responsible for providing the information in the rows in the *Installation and Upgrade Worksheet* with a value of DBA in the **Role** column.

For tasks assigned to the DBA, see "Database administrator upgrade tasks" on page 51.

Application server administrator

- Responsible for providing the application servers required by FileNet P8 Platform components.
- Responsible for application server administrative accounts.
- Abbreviated as ASA. Responsible for providing the information in the rows in the *Installation and Upgrade Worksheet* with a value of ASA in the **Role** column.

For tasks assigned to the ASA, see "Application Server administrator upgrade tasks" on page 55.

IBM FileNet P8 administrator

- This role designation actually refers to the administrator or administrators who perform regular maintenance of Content Engine, Process Engine, Application Engine (Workplace) or Workplace XT.
- The administrator who logs on to Enterprise Manager using the *gcd_admin* account or an *object_store_admin* account is considered an IBM FileNet P8 administrator.
- Abbreviated as P8A. Responsible for providing the information in the rows of the *Installation and Upgrade Worksheet* with a value of P8A in the **Role** column.

For tasks assigned to the P8A, see "IBM FileNet P8 administrator upgrade tasks" on page 65.

E-mail administrator

- Creates an e-mail account that will be used to configure the Notification Tab of the Process Task Manager so that Process Engine can send e-mail notifications to end users. (Required only if you use this feature.)
- Abbreviated as EA.

Tip: The E-mail Administrator role is not used in an upgrade, but is included in this topic for completeness.

Using the installation and upgrade worksheet

The Installation and Upgrade Worksheet is a Microsoft Excel spreadsheet (`p8_worksheet.xls`). The worksheet describes the properties and parameters required to complete IBM FileNet P8 installation, upgrade, and configuration programs, and provides a way to record the values you assign to these properties and parameters.

Administrators who are preparing the environment for installation or upgrade of IBM FileNet P8 components must use the worksheet during their preparation tasks to record the appropriate values and provide them to the Installation Administrator who runs the installation or upgrade programs.

Some of the features of the Installation and Upgrade Worksheet are:

- **Instructions**: describes the worksheet and includes a button that runs the Customize Worksheet macro.
- The two highlighted columns, **Property or Parameter** and **ENTER YOUR VALUE HERE**, provide the simplest view of the requirement. The others add identifying information and help you sort and filter the rows usefully.
- The **Role** column assigns each row to an administrator and uses the following acronyms:
  - ITA: Information Technology Administrator
  - ASA: Application Server Administrator
  - DBA: Database Administrator
  - SA: Security Administrator
  - P8A: IBM FileNet P8 Administrator
- Property definitions are contained in the column titled **Description**.
- Some rows, though not all, contain a hyperlink in the **IC help link** column. Click this hyperlink to run a query against the IBM Information Center, which opens with the Search Results pane showing the topics that contain the words in

the query phrase. Browse the search results until you have enough information to be able to enter a value in the Worksheet row.

Performing the required upgrade preparation tasks

To efficiently carry out the required upgrade preparation tasks, you must assign your staff to carry out the tasks that are organized by administrative role.

For information about assigning and defining these roles, see "Definition of upgrade roles" on page 32.

Some tasks require input that results from other preparation tasks performed by other administrator roles.

While performing the tasks, record the results in the Installation and Upgrade Worksheet.

Some of the upgrade procedures in the following subsections apply only if you are upgrading from IBM FileNet P8 Platform version 3.5; others apply only if you are upgrading from version 4.0 or later. If not otherwise indicated, complete each procedure irrespective of the current version.

To prepare the IBM FileNet P8 environment, complete the tasks assigned to each role.

"IT administrator upgrade tasks"
The Information Technology administrator must prepare the network and operating systems, and carry out certain security configurations to prepare your environment for IBM FileNet P8 Platform upgrade.

"Security administrator upgrade tasks" on page 44
The Security administrator must prepare the security environment for IBM FileNet P8 Platform upgrade, including planning the security environment, and creating accounts.

"Database administrator upgrade tasks" on page 51
The Database administrator must prepare the databases required for IBM FileNet P8 upgrade, including installing patches, creating databases and database accounts, and installing client software.

"Application Server administrator upgrade tasks" on page 55
The Application Server Administrator must prepare the application servers for IBM FileNet P8 Platform upgrade, including planning deployment, creating administrative accounts, and configuring JDBC drivers for both Content Engine and Application Engine.

"IBM FileNet P8 administrator upgrade tasks" on page 65
The FileNet P8 Administrator must carry out several tasks to prepare your environment for your IBM FileNet P8 Platform upgrade.

IT administrator upgrade tasks

The Information Technology administrator must prepare the network and operating systems, and carry out certain security configurations to prepare your environment for IBM FileNet P8 Platform upgrade.

- Review all rows assigned to the IT Administrator for Upgrade in the Installation and Upgrade Worksheet. Provide values for any rows appropriate to your installation that you have not yet completed.

Tip: With the **Data** → **Filter** → **AutoFilter** command enabled, as it is by default in the shipping worksheet file (`p8_worksheet.xls`), perform the following actions to quickly see only the properties assigned to a particular role:

– Click the **AutoFilter** drop-down arrow in the **Role** column header and select **ITA**.

– Further filter the result set by clicking the **AutoFilter** drop-down arrow in any of the other columns and selecting a value or clear a filter by selecting **All**.

- Configure the operating systems to prepare for component upgrade.

  "Creating Content Engine operating system accounts for upgrade"
  Create new or designate existing installation accounts for Content Engine, as shown in the following table.

  "Configuring UNIX" on page 37
  Prepare your UNIX-based server for the IBM FileNet P8 Platform upgrade.

  "Configuring network" on page 42
  Configure the network to prepare for your IBM FileNet P8 Platform upgrade.

Creating Content Engine operating system accounts for upgrade

Create new or designate existing installation accounts for Content Engine, as shown in the following table.

User or Group unique_name	Description
Configuration Manager user: (IBM WebSphere® Application Server, Oracle WebLogic Server, JBoss Application Server): *config_mgr_user*	The operating system account you will use to run the Configuration Manager. After Content Engine is installed you must grant additional permissions to *config_mgr_user*: • Grant it permission to run the Configuration Manager executable file: `configmgr.bat` (Windows®) or `configmgr.sh` (UNIX®). • Grant it permission to write to the directory where Configuration Manager will create the configuration XML files. This location is one of the following directories: – the directory you specify using the optional **-path** parameter when you run the tool – the default directory, *CE_install_path*`/tools/configurationmanager/tasks`, if you do not specify a path parameter • Grant it permission to read and write the contents of the directory specified by **-path** parameter, or the default directory. You will be instructed to grant additional permissions to *config_mgr_user* at several times in the Planning and Preparation Guide: • "Setting permissions for the Configuration Manager user" on page 64 (WebSphere Application Server)

Configuring UNIX

Prepare your UNIX-based server for the IBM FileNet P8 Platform upgrade.

"Configuring UNIX for IBM FileNet P8 Platform servers (all components)"
To ensure hosts file contents, the `/etc/hosts` file must have the Internet Protocol (IP) address of the servers to be used.

"Configuring Content Engine servers (all UNIX)"
You must specify the default file-creation permissions for the user who will install Content Engine.

"Setting up Java SDK for Content Search Engine" on page 38
Content Search Engine requires Java SDK on UNIX machines where you intend to install additional locales (other than English).

"Configuring Process Engine servers (all UNIX)" on page 38
Complete each of the following tasks to prepare the Process Engine server for upgrade.

"Configuring Process Engine servers (AIX)" on page 40
The following operating system prerequisites apply to AIX-based Process Engine servers.

Configuring UNIX for IBM FileNet P8 Platform servers (all components):

To ensure hosts file contents, the `/etc/hosts` file must have the Internet Protocol (IP) address of the servers to be used.

1. Ensure hosts file contents. On each UNIX-based IBM FileNet P8 Platform server that does not use DNS (Domain Name Service) or NIS (Network Information Service), the `/etc/hosts` file must contain the name and IP address of all servers it will communicate with, including the remote database server, if applicable. Process Engine has additional requirements for hosts file entries.
2. Consult with the application server, database, and FileNet P8 administrators to determine port requirements for all the servers in your environment. For details, see Appendix B, "IBM FileNet P8 ports," on page 75.

Configuring Content Engine servers (all UNIX):

You must specify the default file-creation permissions for the user who will install Content Engine.

Content Engine running on a UNIX-based application server

Use the UNIX utility program `umask` to set the default file-creation permissions mask for the Java Virtual Machine (JVM) instance that will host Content Engine so that the owner (the user running JVM) and the members of the owner's group have read/write/execute access permissions, and all others have no access:

```
umask u=rwx,g=rwx,o=
```

This mask setting ensures that the access permissions on files and directories created by Content Engine are identical to those you must specify when creating file storage areas on UNIX file servers.

Tip: This umask setting is required for the user who runs the Content Engine installer program, but does not need to be in the `.profile` file of the user.

If you intend to move to UNIX for Content Engine when you upgrade from version 3.5 to 4.5 or later, consider the following.

If you are upgrading from version 4.0 and want to move from Windows to UNIX, you must contact your IBM FileNet P8 representative and arrange a Professional Services engagement.

- You must install Content Engine version 4.5 on UNIX as an initial step in the upgrade process. To migrate after you have completed the upgrade and begun using your system, you will have to contact your IBM FileNet P8 representative and arrange a Professional Services engagement.
- You must temporarily leave your existing version 3.5.2 file stores (and associated index stores) on Windows to upgrade them using the IBM FileNet P8 Upgrader tool. This means that if you install Content Engine server on UNIX, you must have an NFS gateway in place (for example, Windows R2 Gateway or Samba) to enable communication between the new UNIX Content Engine server and Windows file storage areas and index areas.

  After they are upgraded, you can physically move the shared directories for the file storage areas and index areas to UNIX, but you must be sure to establish comparable security settings. For details on these settings, see the IBM FileNet P8 help topic **System Administration → Enterprise-wide Administration → FileNet P8 Security → Authorization → Storage Area Security**.

Setting up Java SDK for Content Search Engine:

Content Search Engine requires Java SDK on UNIX machines where you intend to install additional locales (other than English).

To set up Java SDK:

On each UNIX machine where you intend to install an additional locale (other than English), complete the following substeps:

1. Install the Java 1.4 SDK.
2. Set the PATH environment variable to *install_path*/Java14/bin, where *install_path* is the path to where you installed Java 1.4 SDK.

Configuring Process Engine servers (all UNIX):

Complete each of the following tasks to prepare the Process Engine server for upgrade.

"Configuring UNIX servers for Process Engine"
Verify that require configuration changes have been made on all UNIX-based Process Engine servers before upgrading.

"Configuring the /etc/hosts file" on page 39
Information related to Process Engine IP address and server name must be entered into either the server's DNS table or the hosts file.

Configuring UNIX servers for Process Engine:

Verify that require configuration changes have been made on all UNIX-based Process Engine servers before upgrading.

To configure UNIX servers for Process Engine, perform the following prerequisite tasks in any order:

1. Ensure the minimum `/tmp` directory size. The `/tmp` directory must have 510 MB free.
2. Save the following files for the root user:
   - `.cshrc`
   - `.Xdefaults`
   - `.Xresources`
   - `.dbxinit`
   - `.dtprofile`
   - `.env`
   - `.login`
   - `.mwmrc`
   - `.xinitrc`
   - `.profile`
3. Process Engine requires the presence of several partitions. Before you install Process Engine, verify that your operating system is set up with a correctly configured volume manager. You can use the volume manager provided with the operating systems or an equivalent Veritas volume manager.

Volume Name	Mount Point	Minimum Size	User	Group	Mode
fnsw	`/fnsw` file system	2 GB	fnsw	fnusr	775
local	`/fnsw/local` file system	10 GB	fnsw	fnusr	775

Important:

- (AIX® 6.1 only) Permissions must be set correctly on both the `/fnsw` and `/fnsw/local` mount points and the file systems before mounting the file systems.
- Allocate a minimum of 500 MB of additional disk space to the `/fnsw` disk volume. This space is required for upgrades and is in addition to the minimum space requirements called for in the *IBM FileNet P8 Hardware and Software Requirements*.

Configuring the `/etc/hosts` file:

Information related to Process Engine IP address and server name must be entered into either the server's DNS table or the hosts file.

For non-farmed configurations, the information can be in either the DNS table or the hosts file on the server. For farmed configurations, the information must be entered into the host file. In a farmed environment, entries must exist for every Process Engine server in the farm.

Entries must use the following format for each Process Engine server. The load balancer name must also be associated with the appropriate server in a farmed configuration.

```
IP_addr hostname load_balancer_name
```

IP_addr
The IP address of the Process Engine server.

hostname
The corresponding host name, also referred to as the network name. This name must be < 32 characters and cannot contain any dots. Record this value in the Installation and Upgrade Worksheet as the network name and provide it to the Process Engine installation program.

load_balancer_name
The name of the load balancer in a farmed configuration.

Following is an example of what entries in the hosts file might look like. In this example, both IPv4 and IPv6 addresses are included and `cmepwin11` is the hostname (network name). The NCH name should be in the file for existing Process Engine servers being upgraded. Do not remove it.

```
127.0.0.1       localhost
::1             localhost
2007:0:0:0:9:181:124:192  cmepwin11 cmepwin11-filenet-nch-server
#fe80::fda2:48f4:7106:2f19%10 cmepwin11 cmepwin11-filenet-nch-server
123.45.6.78  cmepwin11 cmepwin11-filenet-nch-server
```

Configuring Process Engine servers (AIX):

The following operating system prerequisites apply to AIX-based Process Engine servers.

"Configuring AIX servers for Process Engine"
You must change the time zone parameters to an option associated with your site.

"Modifying `/etc/rc.dt` for AIX 5.3 and 6.1" on page 41
Configure network ports by modifying `/etc/rc.dt`.

Configuring AIX servers for Process Engine:

You must change the time zone parameters to an option associated with your site.

Complete the following prerequisite tasks in any order:

- The Kernel must be set to 64-bit mode.
- The swap space must be set to 1.5 - 2 times RAM.
- The Maximum Number of Processes allowed per user must be set to at least 400.
- The Maximum Kbytes of real memory allowed for MBUFS must be set to 0. Setting the MBUFS parameter to 0 causes the system to use the default amount of available memory. This default amount is approximately 1/8 to 1/4 the amount of real memory.
- The Maximum Number of FIXED licenses (Num) must be set to a minimum of 16.
- The following filesets must be installed and committed:
  - `bos.adt.libm`
  - `bos.adt.lib`
  - `bos.adt.base`
  - `bos.perf.perfstat`
  - `bos.perf.libperfstat`
  - `bos.adt.debug`

To configure AIX servers for Process Engine:

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

Modifying `/etc/rc.dt` for AIX 5.3 and 6.1:

Configure network ports by modifying `/etc/rc.dt`.

To modify the network ports:

1. As the root user, run the following commands:

   ```
   /usr/sbin/no -p -o tcp_sendspace=16384
   /usr/sbin/no -p -o tcp_recvspace=16384
   /usr/sbin/no -p -o tcp_keepidle=80
   /usr/sbin/no -p -o tcp_keepintvl=20
   /usr/sbin/no -p -o tcp_ephemeral_high=65535
   /usr/sbin/no -p -o tcp_ephemeral_low=42767
   /usr/sbin/no -p -o udp_ephemeral_high=65535
   /usr/sbin/no -p -o udp_ephemeral_low=42767
   ```

   This should result in these entries in the `/etc/tunables/nextboot` file:

   ```
   no:
     tcp_ephemeral_high = "65535"
     tcp_ephemeral_low = "42767"
     tcp_keepidle = "80"
     tcp_keepintvl = "20"
     tcp_recvspace = "16384"
     tcp_sendspace = "16384"
     udp_ephemeral_high = "65535"
     udp_ephemeral_low = "42767"
   ```

2. If the CDE bundle is installed, the `dtlogin` daemon may bind to a required port before the kernel parameters listed above take effect. In order to avoid this problem, add the following statements at the beginning of the `/etc/rc.dt` file:

   ```
   /usr/sbin/no -o tcp_sendspace=16384
   /usr/sbin/no -o tcp_recvspace=16384
   /usr/sbin/no -o tcp_keepidle=80
   /usr/sbin/no -o tcp_keepintvl=20
   /usr/sbin/no -o tcp_ephemeral_high=65535
   /usr/sbin/no -o tcp_ephemeral_low=42767
   /usr/sbin/no -o udp_ephemeral_high=65535
   /usr/sbin/no -o udp_ephemeral_low=42767
   ```

   In some circumstances you may need to create an `/etc/rc.dt` file containing the commands above even if the CDE bundle is not installed. This is indicated by an error message when trying to start Process Engine similar to the following, where *myserver* is the name of the machine running Process Engine:

   ```
   Retrying to connect to host 'myserver'...
   initfnsw: connect() failed with error 'connection refused'!
   Is TM_daemon running?
   ```

3. Restart the server (`shutdown -Fr`) for these settings to take effect. Executing the commands at the command line is not sufficient. The parameters must be in effect at boot time to avoid bind failures.
4. Check the values by executing the following commands:

```
no -a | grep ephemeral
no -a | grep tcp
```

5. Check that the ports required by the Process Engine software have not been bound. The following command, entered as a single command line, should not produce any output:

```
for port in 32768 32769 32770 32771 32772 32773 32774
do
   netstat -an | grep $port
done
```

Configuring network

Configure the network to prepare for your IBM FileNet P8 Platform upgrade.

"Configuring your network"
Ensure that your TCP/IP settings are configured so that your servers and clients can communicate with one another.

"Synchronizing time and date"
System users will experience a variety of problems if one or more servers do not have time and date settings synchronized with the rest of the system.

"Assigning directory permissions for Content Engine upgrade for 4.0 to 4.5 on UNIX" on page 43
For upgrades from Content Engine version 4.0 to 4.5 on UNIX, you change the installation user.

"Preparing Process Engine for upgrade" on page 44
Repair any inconsistencies between Process Engine queues and rosters in the Process Engine database, reconcile user security information and prepare Process Analyzer data for upgrade.

Configuring your network:

Ensure that your TCP/IP settings are configured so that your servers and clients can communicate with one another.

Complete the following prerequisite tasks in any order:

- Assign all IBM FileNet P8 Platform servers a static IP address.
- Ensure TCP/IP settings. Verify TCP/IP configuration settings on all UNIX and Windows servers and Enterprise Manager clients intended for IBM FileNet P8 Platform so that they can all communicate with one another.
- Ensure NetBIOS over TCP/IP is enabled on Windows.
- Ensure availability of required port numbers. Several port numbers are required by the various IBM FileNet P8 Platform components. Appendix B, "IBM FileNet P8 ports," on page 75
- For information about proxy firewall configuration requirements, see the *IBM FileNet P8 Hardware and Software Requirements* for support information related to IBM FileNet P8 Platform components and database engines.

Synchronizing time and date:

System users will experience a variety of problems if one or more servers do not have time and date settings synchronized with the rest of the system.

The Process Engine database server (the machine that hosts the database used by Process Engine) is considered the master time keeper; the UTC time of that machine is considered the correct time. The server hosting the Process Engine API

and the server hosting Content Engine must have the UTC time set to match the UTC time on the Process Engine database server, plus or minus 15 minutes.

- To change the time on the machine hosting Process Engine, you must stop the server. In a farmed Process Engine system, if you want to change the time of one of the servers in the farm, stop only that server.
- To change the time in the machine hosting the Process Engine API, be sure it is not connected to any Process Engine system. If the API is connected to a Process Engine server, and you change the time, you will experience authentication errors, and you might have to log on again.
- If your Content Engine server is being used with a Process Engine server, and you change the time on the Content Engine server, you will experience authentication errors in Process Engine and you might have to log on again.

Assigning directory permissions for Content Engine upgrade for 4.0 to 4.5 on UNIX:

For upgrades from Content Engine version 4.0 to 4.5 on UNIX, you change the installation user.

To assign directory permissions to the user (*ce_upgrade_user*) who will upgrade Content Engine:

1. Determine which user installed the current version of Content Engine. If you do not know who installed the current version, log on to the application server as any user and inspect the properties of the Content Engine installation directory (the default installation directory is `Content Engine`).

   Restriction: (AIX only) Only the root user is able to install the current (4.0) version of Content Engine. This restriction is not in effect for the 4.5 or 4.5.1 version.
2. Designate the user, referred to as *ce_upgrade_user*, who will install the new version of Content Engine. The additional preparation, if any, that you must perform depends on these factors:
   - Whether the user who installed the current version of Content Engine is identical to the user who will install the new version.
   - The type of operating system on the machine that hosts the application server where Content Engine is deployed.
3. Continue on if either of the following conditions are true:
   - The two users are not identical, and Content Engine is deployed on UNIX.
   - The user who will install Content Engine is non-root, and Content Engine is deployed on AIX.

   If neither of the above conditions holds, skip the remainder of this procedure.
4. Log on to the application server as the user who installed the current version of Content Engine.
5. Navigate to the `Content Engine` directory and recursively give ownership of this directory and all its files and subdirectories to the user who will install the new version of Content Engine. For example, if Content Engine is installed at `/opt/FileNet/ContentEngine` , then to give ownership to *ce_upgrade_user*, the user who will install the new version, run the following command:

   ```
   chown -R ce_install_user /opt/FileNet/ContentEngine
   ```
6. Delete all files and directories in the `/tmp` directory owned by the previous *ce_install_user*.

7. Log on to the server as the user who initially installed the application server and created the application server instance (profile for WebSphere Application Server, domain for WebLogic Server, server for JBoss Application Server).
8. Navigate to the application server instance directory, and give group rights to the *ce_appserver_install_group* (whose members are the *ce_install_user* and *ce_appserver_install_user*). For example:

   ```
   chgrp -R ce_appserver_install_group /opt/IBM/Websphere/Appserver
   /profiles/Appsvr01
   ```

9. Give *ce_appserver_install_group* read/write permissions. For example:

   ```
   chmod -R 775//opt/IBM/Websphere/Appserver/profiles/Appsvr01
   ```

10. Log off the application server and log back on as the user who will install the new version of Content Engine.
11. Grant read, write, and execute permissions on the Content Engine directories to the user who will install the new version of Content Engine, as follows:

    ```
    chmod -R +rwx /opt/FileNet/ContentEngine
    ```

12. Copy the `Install Shield` directory from the `$HOME` directory of the user who installed the current version of Content Engine to the `$HOME` of the user who will install the new version and grant read, write, and execute permissions to the user who will install the new version.

Preparing Process Engine for upgrade:

Repair any inconsistencies between Process Engine queues and rosters in the Process Engine database, reconcile user security information and prepare Process Analyzer data for upgrade.

- Use the vwverify program to repair any inconsistencies between Process Engine queues and rosters in the Process Engine database. See the IBM FileNet P8 help topic **System Administration → Process Engine Administration → Administrative tools → vwverify** for information on the program.
- (3.5 to 4.5) Use vwtool to reconcile the Process Engine user security information.

  The Process Engine duplicates certain parts of the user security information in its own database. Over time, the information in the directory service might be changed or updated. When this happens, the information in the environment records for Process Engine, whether cached or permanent, can end up containing old, invalid information about the Process Engine users and groups.

  During the Process Engine upgrade it is critical that this user information is correct and up to date. Before upgrading you must reconcile the cached and permanent user data environment records on the Process Engine with the possibly more-up-to-date data in an LDAP-based directory service. For more information, see the IBM FileNet P8 help topic **System Administration → Process Engine Administration → Administrative tools → vwtool → Commands → environment**.
- (3.5 to 4.5) If you are using the IBM FileNet Process Analyzer expansion product, several steps must be taken on the Process Analyzer, on the Process Engine database, and on Process Engine, before upgrading Process Engine.

Security administrator upgrade tasks

The Security administrator must prepare the security environment for IBM FileNet P8 Platform upgrade, including planning the security environment, and creating accounts.

- Review all rows assigned to the Security Administrator (SA) for upgrades in the Installation and Upgrade Worksheet. Provide values for any rows appropriate to your installation that you have not yet completed.

  Tip: With the **Data** → **Filter** → **AutoFilter** command enabled, as it is by default in the shipping worksheet file (`p8_worksheet.xls`), perform the following actions to quickly see only the properties assigned to a particular role:

  – Click the **AutoFilter** drop-down arrow in the **Role** column header and select **SA**.

  – Further filter the result set by clicking the **AutoFilter** drop-down arrow in any of the other columns and selecting a value or clear a filter by selecting **All**.

  "Security upgrade planning considerations"
  Review the security requirements for systems being upgraded. There are numerous changes and requirements for new users and groups as well as changes related to directory services.

  "Specifying IBM FileNet P8 accounts for upgrades" on page 47
  You can create or designate the accounts needed to upgrade and configure IBM FileNet P8 by a display name, by a variable designator, by a name that looks like a variable but is not formatted in italics.

Security upgrade planning considerations

Review the security requirements for systems being upgraded. There are numerous changes and requirements for new users and groups as well as changes related to directory services.

- (upgrades from 3.5 only) Complete any migration to a different directory service prior to the 4.5 upgrade.

  See the *IBM FileNet P8 Platform 3.5 Directory Service Migration Guide* for complete information. Migrating to a different directory service is not supported if you begin your upgrade from the 4.0 release or after you are running the 4.5 release. Contact your IBM FileNet representative if you intend to switch to IBM Tivoli® Directory Server, which is supported for IBM FileNet P8 4.5, but not for 3.5.

- Review updated user and group account requirements for release 4.5. The 4.5 release requires you to designate or create several new accounts (for example, the Configuration Manager user). For details, see "Specifying IBM FileNet P8 accounts for upgrades" on page 47.

- (upgrades from 3.5 only) Determine whether you intend to use Secure Socket Layers (SSL). It is a best practice to use SSL to strengthen security. Configuring SSL for 4.5 is noticeably different than for 3.5. For example, Content Engine 4.5 now relies on its own application server to direct calls to your chosen authentication provider.

- (upgrades from 3.5 only) Gather 3.5 authentication information and plan 4.5 authentication.

  In the 3.5 release, Content Engine authentication and authorization information are both specified by configuring one or more authentication providers, using Active Directory, Novell eDirectory, or Sun Java System Directory Server.

  – For Novell and Sun authentication providers, the root of the configured 3.5 Directory Service contains one or many children, or naming contexts, each of which are used automatically by 3.5 Content Engine as IBM FileNet P8 authentication realms.

  – For Windows Active Directory, the 3.5 Content Engine uses the Windows domain (also known as deployment domain) it resides in and automatically

gets all trusted domains, siblings, parents, children within the domain's forest. By default, the deployment domain is the default realm.

3.5 authentication realms are viewable (but not editable) in Enterprise Manager's **root domain property sheet → Authentication Provider → DefaultRealm** property. The names of all realms for the current IBM FileNet P8 domain appear as values in the drop-down list for this property.

Important: If you are using the 3.5 Content Engine attributes DefaultRealm and RestrictToDefaultRealm to modify 3.5 authentication behavior, then you must carefully map out which 3.5 authentication realms are active and essential to your upgraded 4.5 Content Engine authentication scheme. The DefaultRealm and RestrictToDefaultRealm attributes are not supported by Content Engine 4.5, because of the introduction of the application server, which uses Java Authentication and Authorization Service (JAAS) for authentication.
By contrast, in Content Engine 4.5, configuring authentication and authorization are two separate steps, both of which must be completed on the Content Engine 4.5 server environment before upgrading object stores from 3.5. Authentication is configured through the application server's administration console. Authorization is configured by creating one or more Directory Configuration objects in Content Engine 4.5 for the IBM FileNet P8 domain. (The 3.5 authentication information is not carried forward by the Content Engine 3.5.2 to 4.5 Upgrader tool.) Therefore, the following are prerequisites to upgrading a 3.5 domain:

- Install and configure one of the supported J2EE application servers, using the application server's install tools.
- Install a Content Engine 4.5 server as an application into the application server, using the Content Engine installation program.
- Configure the authentication environment through Configuration Manager.
- Create a Content Engine 4.5 domain, using the Enterprise Manager's Add Domain Configuration wizard.
- Create one or more Directory Configurations, using the Enterprise Manager's Create a Directory Configuration wizard. One Directory Configuration is required for each distinct 3.5 authentication realm.

There are several cases that might exist for this last bullet. In all cases, Directory Configurations must be created that preserve access to all users who have used the object stores being upgraded. Access to all users' SIDs and group information is necessary for authorization to occur.

- In the typical case, you will create one 4.5 Directory Configuration object for each realm used in 3.5, specifying the same directory server (LDAP) host and port information that was used in Content Engine 3.5.
- In some cases customers might choose to do the following configurations:
  - Configure the Content Engine 4.5 server to obtain directory configuration information from a different directory server than was used in Content Engine 3.5 (for instance by using a replica of the 3.5 directory service which contains the same user or group information).

    OR
  - Expand the users of the Content Engine 4.5 domain being upgraded by adding additional realms. If this is the case, then the set of Directory Configurations that must be created for the new 4.5 domain could differ from the set of realms that were configured in 3.5. Just make sure that the 4.5 Directory Configurations contain the same user and group principals, with the exact same SIDs, as those used in Content Engine 3.5.

Remember that users in the newly added realms will have no authorization to access any Content Engine 4.5 objects until they are explicitly granted authorization to do so, typically by using Enterprise Manager in ways described in the Help for Content Engine Administration.

Specifying IBM FileNet P8 accounts for upgrades

You can create or designate the accounts needed to upgrade and configure IBM FileNet P8 by a display name, by a variable designator, by a name that looks like a variable but is not formatted in italics.

For a complete list of the user and group roles, accounts, and responsibilities required to install, configure, and maintain an IBM FileNet P8 system, see the IBM FileNet P8 help topic **System Administration → Enterprise-wide Administration → FileNet P8 Security → Users and groups**.

Accounts are referred to in documentation in the following ways:

- By a display name; for example, Database User Name. An account's display name is how the IBM FileNet P8 user interface, such as a setup program or dialog box, refers to the account. Many accounts have both a display name and a variable.
- By a variable designator; for example *ce_db_user*, using lower-cased italics and underscores. The variable is intended to show that you must designate your own account to act in the role described by the variable. Accounts that do not appear in an interface or configuration file will have only a variable designator. An example of this is *ce_install_user* , the account you log in as to run the Content Engine setup program.
- By a name that looks like a variable but is not formatted in italics. Examples are the f_maint and f_sw required accounts for the Process Engine, which, because they are not italicized, are not to be replaced by accounts of your choosing.

If you see a reference to an account that you do not understand, search the *Plan and Prepare Your Environment for IBM FileNet P8* guide for that reference and find the account table that defines it.

"Creating Content Engine directory server accounts"
Create new or designate existing directory server installation accounts for Content Engine, as shown in the following table.

Creating Content Engine directory server accounts:

Create new or designate existing directory server installation accounts for Content Engine, as shown in the following table.

User or group name	Description
Bootstrap user name: *ce_bootstrap_admin*	An directory service and application server account that is stored in the `CEMPBoot.properties` file that is archived in the Content Engine EAR file. Also known as Content Engine System User. Content Engine uses *ce_bootstrap_admin* to establish a connection with the application server, access the application server's JNDI tree, and look up the data sources for accessing the GCD. If you are deploying Content Engine on an application server (IBM WebSphere Application Server 6.1.x or higher, Oracle WebLogic Server, or JBoss Application Server) with federated user repositories and with multiple realms in yourIBM FileNet P8 domain, be sure that no two realms contain the same short name for this user; otherwise, this user will not be able to create the GCD. See the IBM FileNet P8 help topic **System Administration → Enterprise-wide Administration → FileNet P8 Security → Users and groups** for information on how *ce_bootstrap_admin* is the creator of the new IBM FileNet P8 domain. This user must also have read/write access to the root directories for the IBM FileNet P8 3.5 file stores. If version 3.5 file stores are on a SnapLock fixed content device, then this user must also have read/write access to the device.

User or group name	Description
Content Engine Setup (UNIX): *ce_install_user*	For upgrading from version 3.5, you can use the existing Content Engine install user, or designate a new user. An operating system account you will use to log on to a machine to launch Content Engine installer. Use your UNIX administrative tools to grant this account at least the following permissions: • Read, write, and execute permissions to the device or location where: – Content Engine is to be installed. – The application server instance/domain/profile has been installed. • Write permission to the directories where you will create file storage areas, index areas, and content caches. • Write permission on the `/tmp` directory. • Membership in the *ce_appserver_install_group*. *ce_install_user* can be the same user as the *ce_appserver_admin*.

User or group name	Description
GCD Administrator: *gcd_admin*	A directory service account that has Full Control access to the domain object forContent Engine. The initial *gcd_admin* is created by Configuration Manager using the account entered into its Create Bootstrap Properties panel for the Bootstrap user (*ce_bootstrap_admin*). Logon as *gcd_admin* in order to: • Create the GCD by launching the Configure New Domain Permissions wizard the first time you start Enterprise Manager to establish the IBM FileNet P8 domain. • Carry out administrative tasks for the IBM FileNet P8 domain. To perform upgrades, at least one IBM FileNet P8 4.5 GCD administrator must: • Also be an object store administrator (*object_store_admin*) for all object stores to be upgraded. Use IBM FileNet P8 3.5 IBM FileNet Enterprise Manager to ensure that the *gcd_admin* also has Full Control to each IBM FileNet P8 3.5.2 object store. • Have Full Control for the IBM FileNet P8 3.5 and IBM FileNet P8 4.5 domains. For more information, see the IBM FileNet P8 help topic **System Administration → Enterprise-wide Administration → FileNet P8 Security → Users and groups**.
Object Store Administrator: *object_store_admin*, *object_store_admin_group*	It is not necessary to create new object store administrators for an upgrade. However, you can create new object store administrators as needed after completing the upgrade. The *object_store_admin* is a directory service account that can administer an object store by having Full Control access to it. You can also grant Full Control to an object store to group accounts, thereby making all members of the group object store administrators.

User or group name	Description
Directory service user: Active Directory (Referred to as "Directory service bind user name" in Configuration Manager.) *ce_service_user*	An Active Directory user account that Content Engine uses to connect to Active Directory. *ce_service_user* performs the following roles: • Acts as the bind user specified by the application server to search through realms to authenticate a user when the user logs in to a Content Engine client such as Workplace. • Acts as the user specified in the GCD that searches users and groups to authorize access to a specific IBM FileNet P8 object after a user has been authenticated. Using Active Directory tools, grant *ce_service_user* at least the following permissions: • Read access rights (specifically the Read All Properties permission) to the forest-wide configuration directory partition and the domain directory partition in each desired domain in the Active Directory forest. Because Authenticated Users by default is a member of the Pre-Windows 2000 Compatible Access group which has these permissions, you will need to assign the permissions to *ce_service_user* only if the default is modified or Authenticated Users access rights are restricted. Provide the fully qualified distinguished name of *ce_service_user* as the Directory service bind user name while running the Configuration Manager tool and also when you run Enterprise Manager's Directory Configuration Wizard.

Database administrator upgrade tasks

The Database administrator must prepare the databases required for IBM FileNet P8 upgrade, including installing patches, creating databases and database accounts, and installing client software.

- Review all rows assigned to the Database Server Administrator in the Installation and Upgrade Worksheet. While you complete the following preparation tasks, provide values for the rows that are appropriate to your installation.

  Tip: With the **Data** → **Filter** → **AutoFilter** command enabled, as it is by default in the shipping worksheet file (`p8_worksheet.xls`), perform the following actions to quickly see only the properties assigned to a particular role:

  – Click the **AutoFilter** drop-down arrow in the **Role** column header and select **DBA**.

– Further filter the result set by clicking the **AutoFilter** drop-down arrow in any of the other columns and selecting a value or clear a filter by selecting **All**.

"Database administrator planning considerations"
You must review database patch requirements and carry out other planning tasks as part preparing for an upgrade.

"Creating Content Engine database accounts for upgrades from version 3.5" on page 53
Use your database tools to create new or designate existing database accounts for Content Engine, as shown in the following table.

"Creating the Content Engine database for the Global Configuration Data (upgrades from 3.5)" on page 54
You must create a database for the Content Engine for the Global Configuration Data (GCD) when you upgrade from version 3.5.

"Running SQL scripts manually for an upgrade (Oracle)" on page 55
To run scripts for an upgrade, copy the scripts to the database server, start SQL Plus, and enter `@pe_upgrade_scripts.sql` *`run_time_user maintenance_user`*.

Database administrator planning considerations

You must review database patch requirements and carry out other planning tasks as part preparing for an upgrade.

"General"
Update to the appropriate database patches before you upgrade IBM FileNet P8 components.

"Oracle"
Review Oracle requirements before upgrading.

General:

Update to the appropriate database patches before you upgrade IBM FileNet P8 components.

- For minimum patch requirements, see *IBM FileNet P8 Hardware and Software Requirements*.
- (3.5 to 4.5 upgrades only): Plan for upgrade implications regarding Content Engine databases. If you are upgrading to version 4.5, you will continue to use existing object store databases. However, if you are upgrading from version 3.5, you must create a new database for the 4.5 global configuration data (GCD), which the Content Engine Upgrader Tool migrates from its 3.5 file-based format (`sysinit.dat`).
- (3.5 to 4.5 upgrades only) Consider the following for Business Process Manager components (PE, PA, PS):
  - The Process Engine database upgrade automatically renames the existing VWLog *xxx_yyy* tables to VWLog *xxx_yyy*. Archive and creates the new VWLog *xxx_yyy* table.
  - The Process Engine Log SeqNumber starts from 21000.
  - Process Analyzer gets its data from the Process Engine database. The 3.5 and 4.0 database schemas changed both on Process Engine and Process Analyzer. The 3.5 data from Process Engine must be transmitted to Process Analyzer 3.5 before you upgrade either of these components to 4.5.0. For details, see the Process Engine pre-upgrade topic in the *IBM FileNet P8 Platform Installation and Upgrade Guide*

Oracle:

Review Oracle requirements before upgrading.

- Ensure you have applied appropriate Oracle patches to Oracle clients as well as servers. Be sure that clients remote from Oracle database servers have patches that are comparable to the database server. Oracle clients include any machines remote from the Oracle database server where Process Engine software is installed. You can download all the required Oracle database server patches from the Oracle Web site and install them.
- (3.5 to 4.5 upgrades, Process Engine only): Verify that there is enough space in the Oracle UNDO tablespace to handle normal workload plus space for 2-times the largest vw log table and index.
- Consider increasing the number of Oracle sessions and lowering the session timeout settings. Upgrading a Content Engine object store can use a large number of database sessions. The number of sessions required depends on the number of custom class definitions in the object store being upgraded. If the maximum number of sessions is exceeded during an object store upgrade, the upgrade will fail. To recover from such an upgrade failure, you will have to increase the number of sessions, decrease the session timeout settings, and then perform the following steps:
  - In the Content Engine Upgrader Tool, note the steps that completed successfully during the object store upgrade, that is, those items that have green check marks next to them.
  - Shut down the Content Engine Upgrader Tool.
  - Shut down and then restart Oracle to release all database sessions and processes.
  - Restart the Content Engine Upgrader Tool.
  - Resume the object store upgrade and make sure to reset only the failed upgrade steps.

  To avoid a potential corruption of the object store, ensure that you have not chosen to rerun any upgrade steps that were already completed in the initial run of the Upgrader Tool.
- Determine when to run SQL scripts for Process Engine. An upgrade SQL script must be run. This script can be run manually, before starting Process Engine Setup, or from Process Engine Setup.
- Be aware that Oracle security defaults have changed between releases. For example, in the Oracle llg release the default password expiration period is 180 days. Verify the policies are correct for your environment.

Creating Content Engine database accounts for upgrades from version 3.5

Use your database tools to create new or designate existing database accounts for Content Engine, as shown in the following table.

User or Group	Description
Database user name: Oracle *ce_db_user*	The tablespace owner accounts that Content Engine uses to access Oracle. Create a new account for the GCD tablespace. Your existing object store user accounts do not require changes for the upgrade. Grant each *ce_db_user* at least the following permissions: • CREATE SESSION • CREATE TABLE • SELECT on pending_trans$ • SELECT on dba_2pc_pending • SELECT on dba_pending_transactions • SELECT on DUAL • SELECT on ALL_TAB_COLS (GCD creation only) • CREATE SEQUENCE (Object Store creation only) • SELECT on product_component_version (Object Store creation only) • SELECT on USER_INDEXES (Upgrade only) In addition to the above: • On Oracle 10.2.0.4, Oracle 11.1.0.6.0 or later (where both the JDBC client and the database server are at those levels) grant EXECUTE on dbms_xa • On Oracle releases earlier than 10.2.0.4, see Oracle Metalink document ID 436362.1 for required patches, or grant EXECUTE on dbms_system Several of these permissions are required by Content Engine JDBC XA transactions.

Creating the Content Engine database for the Global Configuration Data (upgrades from 3.5)

You must create a database for the Content Engine for the Global Configuration Data (GCD) when you upgrade from version 3.5.

"Preparing Oracle server"
You must create an Oracle tablespace for theContent Engine Global Configuration Data (GCD).

Preparing Oracle server:

You must create an Oracle tablespace for theContent Engine Global Configuration Data (GCD).

When you create the GCD table space, keep the following restrictions and recommendations in mind:

- Tablespace names must contain only alphanumeric and underscore characters. Names must start with an alphabetic character and must be at most 18 characters long.

- For performance reasons, IBM recommends that you specify locally managed, instead of dictionary managed, table spaces. The table spaces that you create via Oracle Enterprise Manager are locally managed by default.
- The following table shows the recommended minimum sizes of the permanent and temporary table spaces for each object store that Content Engine will access. (The tablespace names shown in the table are arbitrary.)

Tablespace Name	Tablespace Type	Minimum Size	Description
gcd	Permanent	100 MB	Permanent tablespace for the GCD
tempgcd	Temporary	2 GB	Temporary tablespace for the GCD

Running SQL scripts manually for an upgrade (Oracle)

To run scripts for an upgrade, copy the scripts to the database server, start SQL Plus, and enter `@pe_upgrade_scripts.sql` *`run_time_user maintenance_user`*.

1. From the Process Engine software package, copy the scripts to the database server.
2. Start SQL Plus. For example, type the following command: `sqlplus "sys/`*`password`*` as sysdba"`
3. At the SQL prompt, enter: `@pe_upgrade_scripts.sql` *`run_time_user maintenance_user`* For example:`@pe_upgrade_scripts.sql f_sw f_maint`.

   Requirement: These scripts that are run via `pe_upgrade_scripts.sql` must be run for all upgrades.

Application Server administrator upgrade tasks

The Application Server Administrator must prepare the application servers for IBM FileNet P8 Platform upgrade, including planning deployment, creating administrative accounts, and configuring JDBC drivers for both Content Engine and Application Engine.

- Review all rows assigned to the Application Server Administrator (ASA) in the Installation and Upgrade Worksheet. While you complete the preparation tasks, provide values for the rows that are appropriate to your installation.

  Tip: With the **Data** → **Filter** → **AutoFilter** command enabled, as it is by default in the shipping worksheet file (`p8_worksheet.xls`), perform the following actions to quickly see only the properties assigned to a particular role:

  – Click the **AutoFilter** drop-down arrow in the **Role** column header and select **ASA**.

  – Further filter the result set by clicking the **AutoFilter** drop-down arrow in any of the other columns and selecting a value or clear a filter by selecting **All**.

  "Application server planning considerations (upgrades from 3.5)" on page 56
  Determine the type of application server environment that will be needed for Content Engine.

  "Creating Content Engine application server accounts for upgrade" on page 57
  Create new or designate existing application server accounts for Content Engine, as shown in the following table.

  "Configuring the application server for Content Engine (upgrades from 3.5)" on page 61
  Set up the application server for Content Engine.

"Configuring the application server for Content Engine (upgrades from 4.0)" on page 64
You can deploy Content Engine only on certain versions of application servers. Therefore, you must determine if and when to upgrade the application server where version 4.0.1 of Content Engine is deployed before upgrading to version 4.5.1.

Application server planning considerations (upgrades from 3.5)

Determine the type of application server environment that will be needed for Content Engine.

"All platforms"
Content Engine and Application Engine are J2EE application server-based applications. (Process Engine is not.)

"WebSphere and WebLogic - Content Engine multi-server deployment" on page 57
In an environment of load-balanced or highly-available farmed (or clustered) application servers, you will initially install Content Engine on the Deployment Manager node (IBM WebSphere Application Server) or the Administrator node (Oracle WebLogic Server).

"Application server considerations" on page 57
The choice of JVM (32-bit or 64-bit) depends on the number of object stores are to be upgraded.

All platforms:

Content Engine and Application Engine are J2EE application server-based applications. (Process Engine is not.)

You must install Content Engine and Application Engine in a homogeneous J2EE environment in which all of your application servers (IBM WebSphere Application Server, Oracle WebLogic Server, or JBoss Application Server) and their version numbers are identical for both components. Also, the applications must use Enterprise Java Bean (EJB) transport.

The Java Virtual Machine determines the maximum number of object stores. If the application server where Content Engine will be deployed is running on a 32-bit JVM, it is a best practice to create no more than 75 Content Engine object stores. On a 64-bit JVM, it is a best practice to create no more than 150 Content Engine object stores.

Content Engine is a resource-intensive enterprise application. Running Content Engine and other J2EE applications on the same machine is possible but not a best practice. Other J2EE applications will compete with Content Engine for the same CPU, memory, and disk I/O resources, and increase the complexity of the installation and the risk of the deployment, because configurations will not match what has been qualified by IBM FileNet Engineering.

Although you can host Content Engine and other applications on the same machine, it is preferable to host Content Engine on its own machine or logical partition. If an architecture requires Content Engine and a non-P8 J2EE application to be on the same machine, be sure to thoroughly test the configuration in your integration environment before deployment into production.

If you intend to deploy Content Engine to multiple server nodes in your production environment, the type of environment will determine how you install Content Engine.

WebSphere and WebLogic - Content Engine multi-server deployment:

In an environment of load-balanced or highly-available farmed (or clustered) application servers, you will initially install Content Engine on the Deployment Manager node (IBM WebSphere Application Server) or the Administrator node (Oracle WebLogic Server).

To install Content Engine in such an environment, see the *IBM FileNet P8 Platform High Availability Technical Notice*.

In an environment in which multiple Content Engine instances may be geographically dispersed, and where each instance may have its own local Application Engine or Workplace XT server, you will initially install Content Engine on the Deployment Manager node (WebSphere Application Server) or the Administrator node (WebLogic Server). You will then perform post-deployment steps using Configuration Manager to deploy it to other servers.

Application server considerations:

The choice of JVM (32-bit or 64-bit) depends on the number of object stores are to be upgraded.

(3.5 to 4.5 upgrades only): Determine whether the number of object stores to be upgraded will require you to run a 64-bit Java Virtual Machine (JVM) on your Content Engine application servers. If the 3.5 FileNet P8 domain you are upgrading contains more than 50 object stores, it is a best practice to install Content Engine on application servers running a 64-bit, rather than 32-bit, JVM. Otherwise, you might experience significant Content Engine performance issues.

Creating Content Engine application server accounts for upgrade

Create new or designate existing application server accounts for Content Engine, as shown in the following table.

User or Group	Description
Application server administrator user name: *ce_appserver_admin* Administrative Console User: *ce_appserver_console_admin*	An application server administrative account or accounts that can log on to the application server administration console. **IBM WebSphere Application Server** *ce_appserver_admin* must have Administrator permissions throughout the upgrade process. After the upgrade is complete, you can reduce the account permissions to a lesser role, such as Configurator. If your site uses a FederatedLDAP registry, *ce_appserver_console_admin* must be a unique user across all federated realms. Otherwise, *ce_appserver_admin* and *ce_appserver_console_admin* can be the same account. Log in to the application server as *ce_appserver_admin* to perform application configuration such as the following tasks: • Create directory service providers within the application server. • Create JDBC providers and/or data sources for db connectivity. • Deploy the Content Engine application. • Stop and restart servers and cluster members (WebSphere Application Server).

User or Group	Description
Application Server Installation Administrator: (WebSphere Application Server, WebLogic Server, JBoss Application Server): *ce_appserver_installer*	An operating system user account you used to install your application server. Use your local machine's administrative tools to grant *ce_appserver_installer* at least the following permissions: • For UNIX, *ce_appserver_installer* must have read, write, and execute permissions to the Content Engine installation directory. During the installation process, the *ce_appserver_installer* performs the following tasks: • Create and configure the application server/domain/profile for Content Engine. • Start or stop the application server when needed. • Modify the application server files or directories as needed for deploying the Content Engine application using the Configuration Manager tool. • Provide create, read and write permissions for directories on devices or drives that are used for external Content Engine file storage. For an upgrade from Content Engine 3.5.2 that includes migrating to Content Engine 4.5 on UNIX, this includes applying permissions to UNIX mounts that you create to external NFS devices such as: – SnapLock shares – Autonomy K2 collection shares for Content Search Engine – NFS-to-NTFS mounts to access NTFS shares *ce_appserver_installer* must be a member of the ce_appserver_install_group.

User or Group	Description
Application Server Installation Group: *ce_appserver_install_group*	Create an operating system group account and add to it the following accounts: **ce_appserver_admin** An application server administrative account or accounts that can log on to the application server administration console. WebSphere Application Server: *ce_appserver_admin* must have Administrator permissions throughout the installation process. After installation is complete, you can reduce the account's permissions to a lesser role, such as Configurator. **ce_install_user (Windows)** An operating system account you will use to log on to a machine to install Content Engine . *ce_install_user* can be the same user as the *ce_appserver_admin*. Use Windows administrative tools to add *ce_install_user* to the Local Administrators group and to the *ce_appserver_install_group*. **ce_install_user (UNIX)** An operating system account you will use to log on to a machine to install Content Engine . Use your UNIX administrative tools to grant this account at least the following permissions: • Read, write, and execute permissions to the device or location where: – Content Engine is to be installed. – The application server `instance/domain/profile` has been installed. • Write permission to the directories where you will create file storage areas, index areas, and content caches. • Write permission on the */tmp* directory. • Membership in the *ce_appserver_install_group*.

User or Group	Description
Application Server Installation Group: *ce_appserver_install_group* (continued)	Use the user accounts in *ce_appserver_install_group* to complete the following tasks: • Give operating system privileges to the directories used for the Content Engine Installation and for the application server's instance/domain/profile. • Configure and deploy the Content Engine EAR files which require access to the application server's instance/domain/ profile directories. • Have permissions on devices/drives to read and write that are designated for external Content Engine file storage.

Configuring the application server for Content Engine (upgrades from 3.5)

Set up the application server for Content Engine.

"Configuring WebSphere for Content Engine"
You must prepareIBM WebSphere Application Server before you install Content Engine. You must create a WebSphere profile for the Content Engine application and set the environment variables for the database connection.

Configuring WebSphere for Content Engine:

You must prepareIBM WebSphere Application Server before you install Content Engine. You must create a WebSphere profile for the Content Engine application and set the environment variables for the database connection.

"Creating the WebSphere profile for Content Engine"
You must create an IBM WebSphere Application Server profile for Content Engine if you do not already have a profile.

"Specifying the WebSphere environment variables" on page 62
You must specify the IBM WebSphere Application Server environment variables so that Content Engine can access its databases.

"Setting the primary administrative user name" on page 63
If you are using IBM WebSphere Application Server federated repositories for LDAP authentication, you must ensure that the name you entered for the WebSphere Application Server primary administrative user name is unique across all realms.

"Setting host aliases for deployment on multiple servers" on page 64
If you are deploying Content Engine to multipleIBM WebSphere Application Server servers on the same WebSphere node, you must define the host alias and port numbers.

"Setting permissions for the Configuration Manager user" on page 64
You must create an application server account with certain directory permissions that you will use later on to start the Configuration Manager tool.

Creating the WebSphere profile for Content Engine:

You must create an IBM WebSphere Application Server profile for Content Engine if you do not already have a profile.

To create the WebSphere profile for Content Engine:

1. Run the command script at one of the following (default) locations to create a new profile.

Option	Description
AIX	`/usr/IBM/WebSphere/AppServer/manageprofiles.sh`

2. Record the path to your new profile in the **Application server installation directory** property in your installation worksheet, as you must specify the path later when you configure Content Engine.
3. Grant write permission to the group *ce_appserver_install_group* (the user who runs Configuration Manager belongs to this group) on the following files in the `logs` directory of the WebSphere profile for Content Engine:
   - `wsadmin.traceout`
   - `wsadmin.valout`

   You can find these files in one of the following locations:

Option	Description
AIX	`/usr/IBM/WebSphere/AppServer/profiles/`*`profile_name`*`/logs`

   where *profile_name* is the name of the WebSphere profile (for example, AppServer01).

Specifying the WebSphere environment variables:

You must specify the IBM WebSphere Application Server environment variables so that Content Engine can access its databases.

Refer to the *IBM FileNet P8 Hardware and Software Requirements* for information on the JDBC driver file for the database type that you need for the Global Configuration Data (GCD) or for an object store you will be creating later.

To specify the WebSphere environment variables:

1. Install JDBC drivers on the server where WebSphere Application Server is installed.
   a. Obtain the JDBC drivers for your database type.

      Oracle Access the http://www.oracle.com/technology/software/tech/java/sqlj_jdbc/index.html Web site and find the JDBC driver file that matches the version of the JDK that is installed on the on the server where WebSphere Application Server is installed.

   b. Copy the JDBC driver file to the following suggested location:

      UNIX `/opt/jars`

      Do not copy the file to `...WebSphere/AppServer/lib/ext`.
2. Start the WebSphere Application Server administrative console and log on to your Content Engine profile as *ce_appserver_console_admin*, the Administrator Console User.
3. Navigate to **Environment** → **WebSphere Variables** and specify the JDBC driver path:
   a. Select **Cell scope** from the **All scopes** list.

b. Click **New** to create a WebSphere Application Server variable whose name is one of the JDBC environment variables shown in the Database environment variables table below.

c. Set the value of the variable to the JDBC driver path that you specified when you installed the JDBC drivers on the IBM WebSphere Application Server machine.

d. Save your change to the master configuration.

e. Select **Node scope** from the **All scopes** list.

f. In the table of substitution variables, click the ***item name*** in the **Name** column that corresponds to the JDBC environment variable for your database type in the Database environment variables table below.

Table 16. Database environment variables

Database	JDBC Environment Variable
Oracle	`ORACLE_JDBC _DRIVER_PATH`

g. Set the value of the ***name*_JDBC_DRIVER_PATH** item to the JDBC driver path you specified (`/opt/jars` or `C:\jars`).

h. Save your changes to the master configuration.

4. Navigate to **Servers** → **Application servers** → ***server1*** → **Java and Process Management** → **Process Definition** → **Java Virtual Machine**, and set the initial and maximum heap sizes, where *server1* is the name of the server where you will deploy Content Engine.

   a. Set the values for the initial and maximum heap sizes:

Parameter	Value (in MB)
Initial Heap Size	At least 512
Maximum Heap Size	1024 or a size consistent with available RAM on the machine where WebSphere Application Server is installed

   b. Save your changes to the master configuration.

5. Optional: Increase the maximum transaction timeout to prevent administrative processes from failing:

   a. Navigate to the screen containing the **Maximum transaction timeout** parameter:

      - (WebSphere 6.1) Click **Servers** → **Application servers** → **server1** → **[Container Settings] Container Services** → **Transaction Service**.
      - (WebSphere 7.0) Click **Servers** → **Server Types** → **WebSphere application servers** → **server1** → **[Container Settings] Container Services** → **Transaction Service**.

   b. Click the **Configuration** tab, and set the **Maximum transaction timeout** parameter value to at least 600 (seconds).

      Important: If the timeout value is not large enough, some administrative processes (such as adding an expansion product) might fail.

   c. Click **Apply** and then click **Save**.

6. Repeat this procedure as needed for any object store that uses a different database type.

Setting the primary administrative user name:

If you are using IBM WebSphere Application Server federated repositories for LDAP authentication, you must ensure that the name you entered for the WebSphere Application Server primary administrative user name is unique across all realms.

Setting host aliases for deployment on multiple servers:

If you are deploying Content Engine to multipleIBM WebSphere Application Server servers on the same WebSphere node, you must define the host alias and port numbers.

To set the host alias:

1. Log in to the WebSphere administrative console.
2. Navigate to **Environment → Virtual Hosts → default host → Host Aliases**.
3. If you are using SSL, add an alias for the SSL port number, such as port 9081.
4. Add an alias for the non-SSL port number, such as port 9444.
5. Click **Apply**.

Setting permissions for the Configuration Manager user:

You must create an application server account with certain directory permissions that you will use later on to start the Configuration Manager tool.

To set permissions for the Configuration Manager user:

Set permissions for the Configuration Manager user (*config_mgr_user*) on the WebSphere Application Server profile directory and all its subdirectories where Content Engine will be deployed:

Option	Description
UNIX	Read, write, and execute permissions

Configuring the application server for Content Engine (upgrades from 4.0)

You can deploy Content Engine only on certain versions of application servers. Therefore, you must determine if and when to upgrade the application server where version 4.0.1 of Content Engine is deployed before upgrading to version 4.5.1.

To determine the order of upgrading Content Engine and the application server on which it is deployed:

1. 1. Consult the *Hardware and Software Requirements* documentation and determine what versions of your application server support both Content Engine 4.0.1 and Content Engine 4.5.1.
2. You will upgrade your application server and Content Engine according to the criteria in the following table:

Option	Description
If you deployed Content Engine 4.0.1 on an application server version that supports Content Engine 4.5.1 (for example, WebSphere 6.1, WebLogic 9.2, or JBoss 4.0.5)	1. Upgrade to version 4.5.1 of Content Engine. It is not necessary to upgrade your application server. 2. (optional) Upgrade the application server to a newer version that supports version 4.5.1 of Content Engine
If you deployed Content Engine 4.0.1 on an application server version that does not support Content Engine 4.5.1 (for example, WebSphere 5.1 or WebLogic Server 8.1)	1. Upgrade to an application server version that Content Engine 4.0.1 and 4.5.1 both support. 2. Upgrade Content Engine from version 4.0.1 to version 4.5.1. 3. (optional) Upgrade the application server to a newer version (for example, WebSphere 7 or JBoss Application Server 4.2.3) that supports Content Engine 4.5.1.

IBM FileNet P8 administrator upgrade tasks

The FileNet P8 Administrator must carry out several tasks to prepare your environment for your IBM FileNet P8 Platform upgrade.

- Review all rows assigned to the FileNet P8 Administrator (P8A) in the Installation and Upgrade Worksheet. While you complete the following preparation tasks, provide values for the rows that are appropriate to your installation.

  Tip: With the **Data** → **Filter** → **AutoFilter** command enabled, as it is by default in the shipping worksheet file (`p8_worksheet.xls`), perform the following actions to quickly see only the properties assigned to a particular role:

  – Click the **AutoFilter** drop-down arrow in the **Role** column header and select **P8A**.

  – Further filter the result set by clicking the **AutoFilter** drop-down arrow in any of the other columns and selecting a value or clear a filter by selecting **All**.

- Review all entries in the Appendix C, "New Content Engine classes and properties," on page 81. This appendix lists the new classes and properties that have been added to Content Engine in the 4.0 and 4.5 release. If you have defined any classes or properties in a 3.5 or 4.0 object store with names that are the same as any of the class or property names listed in the appendix, you must change that object store name before upgrading the object store to 4.5.1. The upgrade tool will check for naming conflicts and require you to change the names before proceeding.

  "Updating Process Engine 3.5 customer applications"
  Verify that no customer application is using the Process Engine F_AEXmitStat system field.

Updating Process Engine 3.5 customer applications

Verify that no customer application is using the Process Engine F_AEXmitStat system field.

The F_AEXmitStat field is dropped from the Process Engine database during the upgrade to version 4.5.1. Before upgrading, verify that no customer index has been defined to use this field. Drop or modify any indexes using this field and update any customer applications according.

To update Process Engine 3.5 customer applications:

1. Check the customer-defined indexes on the system to determine if the F_AEXmitStat field has been used in any index. See the following help topics for more information:
   - **User help → Integrating Workflow → Workflow Applications → Process Configuration Console → Getting Started → Manage properties of queues, rosters, and event logs → Manage index properties**
   - **User help → Integrating Workflow → Workflow Applications → Process Configuration Console → Getting Started → Manage properties of queues, rosters, and event logs → Manage index**
2. If any index uses this field, drop the index, as in the case of a simple index, or remove the field, such as in the case of composite indexes.
3. Modify any customer applications that use the affected indexes accordingly.

Appendix A. Preparing non-English environments for installing IBM FileNet P8 Platform

To run IBM FileNet P8 components in a non-English environment, certain conditions must be met. Review the following considerations and tasks, organized by administrator role, if you plan to run IBM FileNet P8 in a non-English environment.

"Application Server administrator"
To support Unicode UTF-8 characters, all FileNet P8 domain application servers must be properly configured and must have all fix packs installed.

"Security administrator"
The IBM FileNet P8 security administrator installation role includes configuring and maintaining directory servers.

"Database administrator" on page 68
The IBM FileNet P8 database administrator installation role includes configuring database installations and tablespaces, and creating database accounts.

"IT administrator" on page 71
Depending on the operating system, the IT administrator installs either a localized version of the operating system, or the operating system language pack.

"IBM FileNet P8 administrator" on page 72
The FileNet P8 administrator starts Process Engine services and configures Process Task Manager for Application Engine and Workplace XT.

"Limitations on installing in a non-English environment" on page 73
There are certain limitations on installing IBM FileNet P8 in non-English environments.

Application Server administrator

To support Unicode UTF-8 characters, all FileNet P8 domain application servers must be properly configured and must have all fix packs installed.

"Configuring character encoding on WebSphere Application Server"
IBM FileNet P8 requires the following character encoding settings.

Configuring character encoding on WebSphere Application Server

IBM FileNet P8 requires the following character encoding settings.

1. Set the com.ibm.CORBA.ORBCharEncoding property to 0x05010001.
2. Set the com.ibm.websphere.security.BasicAuthEncoding property to UTF-8.

Security administrator

The IBM FileNet P8 security administrator installation role includes configuring and maintaining directory servers.

"Extended characters and user names" on page 68
Note the following considerations for localized IBM FileNet P8 accounts.

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Extended characters and user names

Note the following considerations for localized IBM FileNet P8 accounts.

- With Microsoft Active Directory, Process Engine supports:
  - Extended characters in user names and passwords for all Latin1, Latin2, and Arabic languages
  - Extended characters in passwords for double-byte languages (Users names are not supported due to Microsoft limitations.)
- Process Engine does not support extended characters in LDAP attributes for authentication purposes. These attributes include, but are not limited to, such items as cn (common name), ou (organizational unit), or dc (domain component). ASCII characters are required for these attributes.
- Process Engine does not support non-ASCII user names. Therefore, do not use non-ASCII user names when starting the Process Task Manager.
- WebDAV and the SSO environment also do not support Non-ASCII user names.
- The Content Engine locale must match directory server locale to manage non-ASCII user names correctly.
- UNIX systems can support Latin1, Latin2, Arabic, and double-byte user names simultaneously.

Database administrator

The IBM FileNet P8 database administrator installation role includes configuring database installations and tablespaces, and creating database accounts.

"Installing Oracle server"
Before installing Oracle, verify that the operating system locale is set appropriately.

Installing Oracle server

Before installing Oracle, verify that the operating system locale is set appropriately.

Process Engine

A single instance of Process Engine on an Oracle server in a UNIX UTF-8 locale environment can support multiple languages by selecting the Unicode AL32UTF8 database character set when configuring the Oracle database. If support for more than one language is not required, select the appropriate language database character set instead.

Some examples of Process Engine supported database character sets are:

AL32UTF8
Supports all languages that Process Engine currently supports.

JA16SJIS
Supports only Japanese and English.

WE8ISO8859P15
Supports West European with Euro currency support, but not Japanese.

Restriction: Process Engine does not support the National Character Set AL32UTF16 (NCHAR, NVARCHAR2, and NCLOB columns).

"Installing Oracle client" on page 69
Consider the following language information when installing Oracle Client software.

"UNIX" on page 70
For all Process Engine deployments using a remote Oracle database, confirm the following two environment variables in the fnsw user profile are set to the proper locale for Process Engine.

Installing Oracle client

Consider the following language information when installing Oracle Client software.

"NLS_LANG environment variable - charset"
When data is exported from an Oracle database, it is converted from the database character set to the character set specified in the NLS_LANG environment variable on the Oracle client.

NLS_LANG environment variable - charset:

When data is exported from an Oracle database, it is converted from the database character set to the character set specified in the NLS_LANG environment variable on the Oracle client.

When data is imported to an Oracle database, it is assumed imported data is already in the character set specified in the NLS_LANG environment variable.

If the database character set matches the operating system locale, you do not need to set the NLS_LANG environment variable. However, if the database character set does not match the operating system locale and the NLS_LANG environment variable is not set, data could become garbled because the database will incorrectly map the import/export data between the database and operating system.

Requirement: The NLS_LANG environment variable setting must match the UNIX locale or the Windows code page of the Process Engine server if the Oracle database is remote.

The format of the NLS_LANG environment variable is:

```
NLS_LANG = language_territory.charset
```

The following table provides a brief explanation about the environment variable arguments. For more information, see the Oracle documentation.

Arguments	Description
Language	Specifies the language used for Oracle messages, day names, and month names. Each supported language has a unique name, for example, American, French, or Japanese. The language argument has default values for the territory and character set arguments, so either (or both) of the territory or the character set arguments can be omitted. If a language is not specified, the value defaults to American.
Territory	Specifies the default date format and decimal character used for numbers. Each supported territory has a unique name, for example, America, France and Japan. Because each language provides a default territory, a value is not required.

Arguments	Description
Charset	Specifies the character set used by the client application (normally that of the user's terminal). Each supported character set has a unique acronym, for example, US7ASCII, WE8ISO8859P1, or JA16EUC. Because each language provides a default character set, a value is not required.

UNIX

For all Process Engine deployments using a remote Oracle database, confirm the following two environment variables in the fnsw user profile are set to the proper locale for Process Engine.

The LANG environment variable specifies internationalization information that allows users to work with different national conventions in UNIX. For more information, see the UNIX documentation.

"Setting the NLS_LANG environment variables"
The task of setting the NLS_LANG environment variables consists of configuring the language, territory and character set that correspond to the locale of your Process Engine server.

Setting the NLS_LANG environment variables:

The task of setting the NLS_LANG environment variables consists of configuring the language, territory and character set that correspond to the locale of your Process Engine server.

Modify the fnsw `user.profile` file in `/home/fnsw`:

```
export NLS_LANG=language_territory.charset
```

where: `language_territory.charset` is the language, territory, and charset that best match your Process Engine server locale.

Example of Process Engine LANG, Oracle character sets, and NLS_LANG configurations:

The following table includes some sample NLS_LANG settings for different Process Engine configurations. Most important is to match your NLS_LANG to a Process Engine locale, not the Oracle database character set. For multilingual Process Engine configurations, the database character set must be AL32UTF8, and the server must use an UTF-8 locale. For example, LANG=JA_JP.UTF-8, or NLS_LANG=Japanese_Japan.UTF8 or NLS_LANG=French_France.UTF8@euro.

OS	Locale/Windows Code Page	Remote Oracle Character Set	NLS_LANG for PE Server fnsw User	Comments
AIX	LANG= JA_JP.UTF-8	AL32UTF8	NLS_LANG= Japanese_Japan. UTF8	Because the AIX locale is Unicode, use the UTF-8 character set.

IT administrator

Depending on the operating system, the IT administrator installs either a localized version of the operating system, or the operating system language pack.

"Operating system considerations"
In addition to any operating system platforms, the IT administrator must consider the FileNet P8 Platform components that will be installed in a non-English environment.

"UNIX"
Install the operating system language packs. For more information, see the operating system installation documentation.

Operating system considerations

In addition to any operating system platforms, the IT administrator must consider the FileNet P8 Platform components that will be installed in a non-English environment.

Application Engine or Workplace XT

Application Engine and Workplace XT can be installed:

- In any locale on any of the supported UNIX platforms
- On any localized version of Windows or in any region on the English version of Windows

Remember: The Application Engine and Workplace XT setting must match the Process Engine setting when the Process Task Manager is started. Otherwise, workflows can experience unexpected problems such as errors related to the way characters display.

Content Engine

Content Engine can be installed:

- In any locale on any of the supported UNIX platforms
- On any localized version of Windows or in any region on the English version of Windows

Process Engine

Process Engine must be installed on:

- A UTF-8 locale and a UTF-8 database character set when used with Oracle or DB2
- On any localized version of Windows for the supported language or in any region on the English version of Windows
- In UNIX environments, Process Engine language support is determined by a combination of the operating system locale and the database character set.
- The Java Runtime Environment version must be 1.5.0 or higher for the language capability to function correctly.

UNIX

Install the operating system language packs. For more information, see the operating system installation documentation.

"Configuring support for other languages in X Windows UNIX system"
Add language fonts for your UNIX operating system if necessary to display an X-Windows desktop in a specific-language user interface. Follow your UNIX operating system administration guide to install other language fonts.

"Setting the LANG, LC_TIME, and LC_MESSAGES environment variables"
When the IT administrator sets the LANG, LC_TIME, and LC_MESSAGES environment variables, the locale must be the same as the UNIX locale and the Process Engine locale.

Configuring support for other languages in X Windows UNIX system

Add language fonts for your UNIX operating system if necessary to display an X-Windows desktop in a specific-language user interface. Follow your UNIX operating system administration guide to install other language fonts.

Configure your X-session manager application to use UNIX operating system fonts. Refer to your X-session manager application administration guide for details on adding fonts or accessing them on the UNIX server.

Setting the LANG, LC_TIME, and LC_MESSAGES environment variables

When the IT administrator sets the LANG, LC_TIME, and LC_MESSAGES environment variables, the locale must be the same as the UNIX locale and the Process Engine locale.

Set the LANG, LC_TIME, and LC_MESSAGES environment variables:

For example:

```
LANG=locale
export LANG
```

Where *locale* is the same as the UNIX locale and the Process Engine locale.

- Use UTF-8 if Process Engine needs to support multiple languages that are not in the same language code page.
- Use the UNIX "locale -a" command to determine the available locales.
- Setting the LANG variable might reset the LC_TIME and LC_MESSAGES variables to the locale set in LANG. If this happens, you must change the settings of LC_TIME and LC_MESSAGES back to "C" or equivalent ISO-8859 locales.

  For example:

  ```
  export LC_TIME="C"
  export LC_MESSAGES="C"
  ```

IBM FileNet P8 administrator

The FileNet P8 administrator starts Process Engine services and configures Process Task Manager for Application Engine and Workplace XT.

"Process Engine services" on page 73
All Process Engine services must start in a Unicode locale to support multiple languages on a UNIX platform. Regions initialized in a specific locale must restart in the same locale.

"Configuring Process Task Manager for Application Engine and Workplace XT" In UNIX environments, verify the operating system locale is same as the Process Engine locale, and verify the LC_TIME and LC_MESSAGES are set to "C" or an equivalent ISO-8859 locale before running Process Task Manager in Application Engine or Workplace XT. Failing to do so can result in character corruption and application failure.

Process Engine services

All Process Engine services must start in a Unicode locale to support multiple languages on a UNIX platform. Regions initialized in a specific locale must restart in the same locale.

Attention: Starting Process Engine services in a different locale can corrupt transferred workflow and region queue names in the isolated region. If an isolated region's non-English queue names are corrupted due to starting Process Engine services in the wrong locale, the only recovery option available is to re-initialize the region to clean up the Process Engine database. Transferred workflows and region queues will be lost.

Configuring Process Task Manager for Application Engine and Workplace XT

In UNIX environments, verify the operating system locale is same as the Process Engine locale, and verify the LC_TIME and LC_MESSAGES are set to "C" or an equivalent ISO-8859 locale before running Process Task Manager in Application Engine or Workplace XT. Failing to do so can result in character corruption and application failure.

Restriction: Application Engine or Workplace XT locales must match the Process Engine UNIX locale when starting Process Task Manager.

Limitations on installing in a non-English environment

There are certain limitations on installing IBM FileNet P8 in non-English environments.

Application Engine, Workplace XT, or Process Engine Task Manager for UNIX

If Application Engine, Workplace XT, or Process Engine is installed on a UNIX platform, Process Task Manager (vwtaskman), takes too long to launch when run under a UTF-8 locale using remote CDE shells such as xWindows (exceed, xManager, etc). Verify that the xWindows application can handle Unicode fonts to fix this problem. The command-line interface functionality is not affected.

Publishing

When the watermark is checked in the Publishing Style Template Manager on the Content Engine server, double-byte documents cannot be published. This is a known independent software vendor issue.

Process Engine Modeler

To import a user defined XSD file containing non-English characters in Process Designer, run the following command to convert characters to the Unicode encoding format to match a UNIX Process Engine in a UTF-8 locale, then import the XSD file into Process Designer.

```
Java -cp pe.jar filenet.vw.toolkit.utils.FileConverter /in filename /out outfilename
```

Appendix B. IBM FileNet P8 ports

The tables below list the port numbers used by IBM FileNet P8 components.

Content Engine ports

Port name	Default number	Notes
LDAP	389	This port is on the directory server, specified on the Content Engine server for authentication.
SSL	636	This port is on the directory server, specified on the Content Engine for authentication through SSL.
LDAP Global Catalog	3268	
WebSphere EJB	2809	This port is on the WebSphere Application Server for Content Engine, for communication with Content Engine by clients through EJB.
WebSphere WSI	9080	This port is on the WebSphere Application Server for Content Engine, for communication with Content Engine by clients through WSI.
Oracle	1521	This port is on the Oracle database server, for communication with the database by Content Engine.

Process Engine ports

Port name	Default number	Notes
SMTP (E-mail Notification)	25	This port is on the SMTP server.
Oracle	1521	This port is on the database server, for connection between Process Engine and Oracle.
TMS	32768 (TCP)	Task Manager service. TM_daemon listens for requests from initfnsw running on the same or a different system analogous to COR_Listen listening for RPCs.

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Port name	Default number	Notes
COR	32769 (TCP)	Courier service. COR_Listen listens on this port for incoming RPC requests.
NCH	32770 (UDP)	nch is the NCH deamon. NCH_daemon listens on this port. Pre-4.1.2 listened for broadcasts, etc. Post 4.1.2, only listens for old print servers to verify NCH is up.
fn_snmpd	161 (UDP)	IBM FileNet Image Services Simple Network Management Protocol Daemon. It listens for SNMP requests from the native OS snmp daemon. The native snmp daemon listens on this port and communicates with fn_snmpd through other local port. fn_snmpd does not listen on this port.
fn_trapd	35225 (UDP)	fn_trapd is the IBM FileNet Image Services trap daemon, which listens for notifications of the end of Image Services background processes running on the server and sys_logs information.
SNMPD SMUX (AIX only)	199 (TCP)	This port is on the Process Engine server.
Rules Listener	32774 (TCP/IP)	This port is on the Process Engine server.
Process Engine Communication Port (IOR port)	32776	This port is on the Process Engine server.
BPM Web Services Reliable messaging client port	32767 (TCP) 32767 (UDP)	This port is on the Process Engine server.
Registry Port	32771	This port is on the Process Engine server and is used by the Component Manager.
Event Port	32773	This port is on the Process Engine server.
Process Engine Broker Port	32777	This port is on the Process Engine server, and is for the vworbbroker process handling RPCs from the PE API clients.

Application Engine ports

Port name	Default number	Notes
WebSphere	9080	This port is on the WebSphere Application Server for clients to connect to Application Engine.
WebSphere SSL	443	This port is on the WebSphere Application Server for clients to connect to Application Engine through SSL.
Process Engine (RMI)	32771	This port is on the Windows Process Engine server for Process Task Manager to communicate with the Windows Process Engine Services Manager. This port is on the Application Engine server for Process Task Manager to communicate with the Component Managers and the Windows Process Application Engine (or Workplace XT) Services Manager.
Component Manager (Event Port)	32773	This port is on the Application Engine server, and is used when the Component Manager (running on the Application Engine Server) is configured to be triggered by events, instead of polling.
Web Services Reliable Messaging Client Port	xxxx - assigned by the client on the Application Engine Server, for a particular Component Manager instance.	This port (or a number of ports, one per Component Manager instance) is on the Application Engine server to respond to the WS-Reliable Messaging requests.

Autonomy K2 search engine ports

Port name	Default number	Notes
K2 Master Administration Server	9950 (default)	This port is located on the machine that hosts the K2 Master Administration Server machine. It is the software port for K2 Master Administration Server.

Port name	Default number	Notes
K2 Dashboard	9990 (default)	This port is located on the machine that hosts the K2 Master Administration Server. It is used specifically for the URL access for the K2 Dashboard.
K2 Index Server	9960 - 9979 (recommended range)	This port is located on the machine where you created the K2 Index Server service. It is for communication between the K2 Index Server and P8 Content Engine.
K2 Broker Server	9900 - 9909 (recommended range)	This port is located on the machine where you created the K2 Broker Server service. It is for communication between the K2 Broker Server and P8 Content Engine.
K2 Server (Search Server)	9920 - 9949 (recommended range)	This port is located on the machine where you created the K2 Server (Search Server) service. It is for communication between the K2 Server (Search Server) and Content Engine.
K2 Ticket Server	9910 - 9919 (recommended range)	This port is located on the machine where you created the K2 Ticker Server service. It is for communication between the K2 Ticket Server and Content Engine.

Rendition Engine and Content Engine ports for Liquent

Port name	Default number	Notes
Liquent input port	2867 (COM Repository only)	This port allows for distributed processing of jobs on the Rendition Engine servers when there are more than one Rendition Engine server. A Rendition Engine server or Rendition Engine client (Content Engine Publishing server) on which a job is submitted makes the load balancing decision on where to run the job. If the job is sent to another Rendition Engine server for execution then it uses the other Rendition Engine server's input port to do so.

Port name	Default number	Notes
Liquent notify port	2868	This port is also related to the distributed processing of jobs on the Rendition Engine servers. When a job is sent to another Rendition Engine server then the originating Rendition Engine server or Rendition Engine client (Content Engine Publishing server) is notified on this port by the other Rendition Engine Rendition Engine server when the other Rendition Engine Rendition Engine server has finished processing the job. One case of this is when the Rendition Engine Rendition Engine server is notifying the Rendition Engine client (Content Engine Publishing server) that a conversion job has completed.
Liquent event port	2869	This port is used by each Rendition Engine server to send or receive events. These events are used by the Rendition Engine servers to keep each other informed of current activities. The Rendition Engine or Liquent Domain Manager uses these events for the job status display.
Liquent admin port	2870	This port is used by each Rendition Engine server for internal administrative functions. It's primary use is for each Rendition Engineserver to publish its current activity statistics (for example, how busy the business services are) for use by other Rendition Engine servers to make load balancing decisions.
Liquent file transfer port	2871	This port is used for transferring source, temporary, and result files between Rendition Engine servers as well as between Rendition Engine servers and Rendition Engine clients (Content Engine Publishing servers).

Port name	Default number	Notes
Liquent job queue port	2872	This port is for job queuing by the render business service on all Rendition Engine servers.
Oracle	1521	When the selected Rendition Engine database is Oracle, then this port is used by the Rendition Engine servers and the Rendition Engine clients (Content Engine Publishing server) to access the Rendition Engine database.

Tip: If the Liquent port number assigned to the Rendition Engine/Liquent software conflicts with the port number required by another application or service that runs on the Rendition Engine server or the Content Engine Publishing server, then the default values can be changed in the Rendition Engine/Liquent Domain Manager. The above port numbers are the default values set by the Rendition Engine installer for the COM Repository in the Rendition Engine/Liquent domain, which represents the Rendition Engine server itself. When a Content Engine Publishing server is configured to point to the Rendition Engine server, one must create a "Java Repository" in the Rendition Engine/Liquent domain that represents the Content Engine Publishing server as a Java client to the Rendition Engine server, and this repository will also have the same default port number values.

The database port number is not specified directly by the Rendition Engine server's Liquent software, but it is specified in the Rendition Engine client/Content Engine Publishing server's Rendition Engine Connection (for the JDBC connection from the Content Engine Publishing code to the Rendition Engine database server).

Appendix C. New Content Engine classes and properties

Content Engine classes and properties have been added to Content Engine in the 4.0 and 4.5 release. The classes and properties that have been added to the 4.5.1 release have been prefixed with the reserved value `Cm` to prevent conflict with user-defined classes and properties.

Upgrading from version 3.5 to 4.5.1

If you have previously defined any classes or properties in a version 3.5 object store with symbolic names that are the same as any of the class or property symbolic names listed here, the upgrade tool will detect the naming conflicts and require you to change your class or property names before it will upgrade the object store to version 4.5.1. Therefore, you must resolve conflicts between your version 3.5 symbolic names and the version 4.0 and 4.5 symbolic names.

Upgrading from version 4.0 to 4.5.1

Upgrades from version 4.0 use the automatic upgrade facility, which automatically renames any conflicting class or property symbolic name that it detects during the upgrade. The upgrade facility writes warning messages for each renamed class or property symbolic name to a log file `p8_server_error.log` on the application server where Content Engine is deployed. It also writes these messages to the automatic upgrade status web page. If you know of naming conflicts with 4.5 classes or properties, it is a best practice to resolve these conflicts before you upgrade to version 4.5.1 of Content Engine.

Upgrading from version 4.5 to 4.5.1

Upgrades from 4.5 use the automatic upgrade facility, which will not encounter any conflicting class or property symbolic names.

"New in Content Engine 4.0.0 (for upgrades from 3.5 only)"
When you upgrade to Content Engine 4.0 from Content Engine 3.5, you need to consider new classes and properties.

"New in Content Engine 4.5.0 (for upgrades from 3.5 and from 4.0)" on page 90
When you upgrade to Content Engine 4.5 from Content Engine version 3.5 or version 4.0, you need to consider new classes and properties.

New in Content Engine 4.0.0 (for upgrades from 3.5 only)

When you upgrade to Content Engine 4.0 from Content Engine 3.5, you need to consider new classes and properties.

"New Content Engine classes in 4.0.0" on page 82
The following table displays the new class names in Content Engine 4.0.0. To ensure successful upgrade, resolve any conflicts between your 3.x object store class names and the new names.

"New Content Engine properties in 4.0.0" on page 83
The following table displays the new property names in Content Engine 4.0.0. To ensure successful upgrade, resolve any conflicts between your 3.x object store property names and the new names.

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New Content Engine classes in 4.0.0

The following table displays the new class names in Content Engine 4.0.0. To ensure successful upgrade, resolve any conflicts between your 3.x object store class names and the new names.

Class Symbolic Name	Class Display Name
AddOnInstallationRecord	Add On Installation Record
AsyncProcessingConfiguration	Async Processing Configuration
CenteraSiteSettings	Centera Site Settings
CodeModule	Code Module
ComponentRelationship	Component Relationship
ContentCacheArea	Content Cache Area
ContentCacheConfiguration	Content Cache Configuration
ContentConfiguration	Content Configuration
DatabaseStorageArea	Database Storage Area
DirectoryConfiguration	Directory Configuration
DirectoryConfigurationAD	Directory Configuration AD
DirectoryConfigurationADAM	Directory Configuration ADAM
DirectoryConfigurationIBM	Directory Configuration IBM
DirectoryConfigurationNovell	Directory Configuration Novell
DirectoryConfigurationSunOne	Directory Configuration SunOne
Domain	Domain
EntireNetwork	EntireNetwork
FileStorageArea	File Storage Area
FixedStorageArea	Fixed Storage Area
Group	Group
ImageServicesClassDescription	FileNet Image Services Class Description
ImageServicesImportAgentConfiguration	FileNet Image Services Import Agent Configuration
ImageServicesPropertyDescription	FileNet Image Services Property Description
ImageServicesSiteSettings	FileNet Image Services Site Settings
IndexArea	Index Area
IndexJob	Index Job
IndexJobClassItem	Index Job Class Item
IndexJobCollectionItem	Index Job Collection Item
IndexJobItem	Index Job Item
IndexJobSingleItem	Index Job Single Item
IsolatedRegion	Isolated Region
PEConnectionPoint	PE Connection Point
PublishCompleteEvent	Publish Complete Event
PublishRequest	Publish Request
PublishRequestEvent	Publish Request Event
PublishingConfiguration	Publishing Configuration

Class Symbolic Name	Class Display Name
Realm	Realm
RenditionEngineConnection	Rendition Engine Connection
SecurityPrincipal	Security Principal
ServerCacheConfiguration	Server Cache Configuration
ServerInstance	Server Instance
Site	Site
SiteSettings	Site Settings
StorageArea	Storage Area
StoragePolicy	Storage Policy
SubsystemConfiguration	Subsystem Configuration
TakeFederatedOwnershipEvent	Take Federated Ownership Event
TraceLoggingConfiguration	Trace Logging Configuration
UpgradeAddOn	Upgrade Add On
User	User
VerityCollection	Verity Collection
VerityDomainConfiguration	Verity Domain Configuration
VerityIndexArea	Verity Index Area
VerityServerConfiguration	Verity Server Configuration
VirtualServer	Virtual Server

New Content Engine properties in 4.0.0

The following table displays the new property names in Content Engine 4.0.0. To ensure successful upgrade, resolve any conflicts between your 3.x object store property names and the new names.

Property Symbolic Name	Property Display Name
AbandonedContentCleanupInterval	Abandoned Content Cleanup Interval
AbandonedDBContentCleanupInterval	Abandoned Database Content Cleanup Interval
ActiveDirectorySiteDNS	Active Directory Site DNS
AddOn	Add On
AddOnInstallationRecords	Add On Installation Records
AddOns	Add Ons
AddOnName	Add On Name
AllRealms	All Realms
AllowFederatedDeletes	Allow Federated Deletes
AllowsContentToBeCached	Allows Content To Be Cached
AllowsDelete	Allows Delete
APITraceFlags	API Trace Flags
AppenderNames	Appender Names
ApplyDefinition	Apply Definition
AsynchronousProcessingTraceFlags	Asynchronous Processing Trace Flags

Property Symbolic Name	Property Display Name
AuditedDeletePrefix	Audited Delete Prefix
BaseClassIDs	Base Class IDs
BatchDelay	Batch Delay
BlobReadAheadSize	Blob Read Ahead Size
BlobWriteCollisionsAvoidanceFlag	Blob Write Collisions Avoidance Flag
BrokerPort	Broker Port
FPPoolBufferSize	Buffer Size
CacheStatus	Cache Status
CanAcceptForwardedRequests	Can Accept Forwarded Requests
CanForwardRequests	Can Forward Requests
CBRLocale	CBR Locale
CBRTraceFlags	CBR Trace Flags
CFSDaemonTraceFlags	CFS Daemon Trace Flags
ChildComponent	Child Component
ChildDocuments	Child Documents
ChildRelationships	Child Relationships
ChildVersionSeries	Child Version Series
ClassDefinition	Class Definition
ClosureDate	Closure Date
FPPoolClusterNonAvailTime	Cluster Nonavailable Time
CodeModule	Code Module
CodeModuleCacheEntryTTL	Code Module Cache Entry TTL
CodeModuleCacheMaxFileSpace	Code Module Cache Maximum File Space
CodeModuleCacheMaxMemory	Code Module Cache Maximum Memory
CodeModuleTraceFlags	Code Module Trace Flags
CollectionName	CollectionName
ComponentCascadeDelete	Component Cascade Delete
ComponentPreventDelete	Component Prevent Delete
ComponentRelationshipType	Component Relationship Type
ComponentSortOrder	Component Sort Order
CompoundDocumentState	Compound Document State
ConcurrentReaders	Concurrent Readers
ConnectionState	Connection State
ConnectionTimeout	Connection Timeout
ContentCacheArea	Content Cache Area
ContentCacheAreas	Content Cache Areas
ContentCacheTraceFlags	Content Cache Trace Flags
ContentElementCount	Content Element Count
ContentElementKBytes	Content Element Kbytes
ContentElementsCreated	Content Elements Created
ContentElementsDeleted	Content Elements Deleted

Property Symbolic Name	Property Display Name
ContentQueueMaxWorkerThreads	Content Queue Max Worker Threads
ContentStorageTraceFlags	Content Storage Trace Flags
ContentTempDirectoryRoot	Content Temp Directory Root
CSMCache	CSM Cache
CurrentUser	Current User
DatabaseContentUploadBufferSize	Database Content Upload Buffer Size
DatabaseServerPort	Database Server Port
DatabaseTraceFlags	Database Trace Flags
DatabaseType	Database Type
FPPoolDefaultCollisionAvoidance	Default Collision Avoidance
DefaultISDocumentClass	Default IS Document Class
DefaultRetentionDays	Default Retention Days
DefaultRetentionPassThrough	Default Retention Pass Through
DefaultSite	Default Site
DeleteMethod	Delete Method
DeviceAddress	Device Address
DeviceRootDirectory	Device Root Directory
DirectoryConfigurations	Directory Configurations
DirectoryServerHost	Directory Server Host
DirectoryServerPassword	Directory Server Password
DirectoryServerPort	Directory Server Port
DirectoryServerProviderClass	Directory Server Provider Class
DirectoryServerType	Directory Server Type
DirectoryServerUserName	Directory Server User Name
DirectoryStructure	Directory Structure
DispatcherEnabled	Dispatcher Enabled
DispatcherWaitInterval	Dispatcher Wait Interval
DistinguishedName	Distinguished Name
DNSName	DNS Name
DocumentsPerBatch	Documents Per Batch
Domain	Domain
DomainID	Domain ID
EJBForwardingEndpoint	EJB Forwarding Endpoint
EJBTraceFlags	EJB Trace Flags
Email	Email Address
EmbeddedDataThreshold	Embedded Data Threshold
FPPoolEnableMulticlusterFailover	Enable Multicluster Failover
EncryptionAlgorithm	Encryption Algorithm
EngineTraceFlags	Engine Trace Flags
ErrorCode	Error Code
ErrorDescription	Error Description

Property Symbolic Name	Property Display Name
EventsTraceFlags	Events Trace Flags
ExpiredBatchSelectionSize	Expired Batch Selection Size
FixedContentDevice	Fixed Content Device
FixedContentDevices	Fixed Content Devices
FixedContentProviderTraceFlags	Fixed Content Provider Trace Flags
FolderCacheMaxAgeDelta	Folder Cache Maximum Age Delta
FolderCacheMaxEntries	Folder Cache Maximum Entries
FolderCacheReapFrequency	Folder Cache Reap Frequency
FromVersions	From Versions
FullTextRowDefault	Full Text Row Default
FullTextRowMax	Full Text Row Max
GCDCacheTTL	GCD Cache TTL
GCDTraceFlags	GCD Trace Flags
GroupBaseDN	Group Base DN
GroupDisplayNameAttribute	Group Display Name Attribute
GroupMembershipSearchFilter	Group Membership Search Filter
GroupNameAttribute	Group Name Attribute
GroupSearchFilter	Group Search Filter
Groups	Groups
ImageServicesClassDescriptions	FileNet Image Services Class Descriptions
ImageServicesClassName	FileNet Image Services Class Name
ImageServicesDataType	FileNet Image Services Data Type
ImageServicesPropertyDescriptions	FileNet Image Services Property Descriptions
ImageServicesPropertyName	FileNet Image Services Property Name
ImplementationClass	Implementation Class
ImportAgentRetryCount	Import Agent Retry Count
InboundFileNameCacheMaxEntries	Inbound File Name Cache Maximum Entries
IndexArea	Index Area
IndexAreas	Index Areas
IndexItems	Index Items
IndexationID	Indexation ID
InitiatingUser	Initiating User
InlineContentRetrievalLimit	Inline Content Retrieval Limit
InputDocument	Input Document
InstallationDate	Installation Date
InstallationReport	Installation Report
Installer	Installer
IsCBREnabled	Is CBR Enabled
ISDomainName	IS Domain Name
IsFederatedOnly	Is Federated Only
ISOrganization	IS Organization

Property Symbolic Name	Property Display Name
ISPassword	IS Password
IsSSLEnabled	Is SSL Enabled
ISTempDir	IS Temporary Directory
ISUserName	IS User Name
IsolatedRegion	Isolated Region
IsolatedRegions	Isolated Regions
JNDIDataSource	JNDI DataSource
JNDIXADataSource	JNDI XA DataSource
JobAbortRequested	Job AbortRequested
JobStatus	Job Status
LabelBindValue	Label Bind Value
LeaseDuration	Lease Duration
LocalDomain	Local Domain
MarkingSetCacheEntryTTL	Marking Set Cache Entry TTL
MarkingSetCacheMaxEntries	Marking Set Cache Maximum Entries
MarkingSets	Marking Sets
MarkingUseGranted	Marking Use Granted
MaxBatchSize	Max Batch Size
MaxCollections	Max Collections
MaxInMemoryElementState	Max In Memory Element State
MaxInMemoryQueueItems	Max In Memory Queue Items
MaxObjectsPerCollection	Max Objects Per Collection
MaxReaderSemaphoreWaitTime	Max Reader Semaphore Wait Time
FPPoolMaxConnections	Maximum Connections
MaximumContentElements	Maximum Content Elements
MaxResolutionBatchSize	Maximum Resolution Batch Size
MaximumRetentionDays	Maximum Retention Days
MaximumSizeKBytes	Maximum Size Kbytes
MaximumTimeToLive	Maximum Time To Live
MemberOfGroups	Member Of Groups
MetadataTraceFlags	Metadata Trace Flags
MinimumRetentionDays	Minimum Retention Days
FPPoolMulticlusterDeleteStrategy	Multicluster Delete Strategy
FPPoolMulticlusterExistsStrategy	Multicluster Exists Strategy
FPPoolMulticlusterQueryStrategy	Multicluster Query Strategy
FPPoolMulticlusterReadStrategy	Multicluster Read Strategy
FPPoolMulticlusterWriteStrategy	Multicluster Write Strategy
MyRealm	My Realm
NeverDeleteClipsOrContent	Never Delete Clips Or Content
NoWorkDelay	No Work Delay
NumImportAgents	Num Import Agents

Property Symbolic Name	Property Display Name
ObjectSecurityCacheEntryTTL	Object Security Cache Entry TTL
ObjectSecurityCacheMaxEntries	Object Security Cache Maximum Entries
ObjectStores	Object Stores
FPOpenStrategy	Open Strategy
OptimizationInterval	Optimization Interval
OriginalObject	Original Object
OriginalOrdinal	Original Ordinal
OutputFolder	Output Folder
OutputLocation	Output Location
ParentComponent	Parent Component
ParentDocuments	Parent Documents
ParentRelationships	Parent Relationships
PartialResolutionChunkSize	PartialResolutionChunkSize
PEConnectionPoints	PE Connection Points
PersistenceType	Persistence Type
PoolAddress	Pool Address
FPPoolPrefetchSize	Prefetch Size
PreloadOnCreate	Preload On Create
Prerequisites	Prerequisites
PrivilegedSettability	Privileged Settability
PruneAmount	Prune Amount
PruneThresholdContentElements	Prune Threshold Content Elements
PruneThresholdSizeKBytes	Prune Threshold Size KBytes
PublicKey	Public Key
PublicationDocument	Publication Document
PublishRequestType	Publish Request Type
PublishStyleTemplate	Publish Style Template
PublishTemplate	Publish Template
PublishTraceFlags	Publish Trace Flags
PublishingStatus	Publishing Status
QueueItemDatabaseTimeout	Queue Item Database Timeout
QueueItemMaxDispatchers	Queue Item Max Dispatchers
QueueItemRetryCount	Queue Item Retry Count
ReferencingActions	Referencing Actions
RegionPassword	Region Password
RenameFileRetryAttempts	Rename File Retry Attempts
RenditionEngineConnection	Rendition Engine Connection
RenditionEngineConnections	Rendition Engine Connections
RenditionEnginePassword	Rendition Engine Password
ResourceStatus	Resource Status
ResourceString	Resource String

Property Symbolic Name	Property Display Name
RetentionPeriod	Retention Period
RetrievalRetryAttempts	Retrieval Retry Attempts
FPPoolRetryCount	Retry Count
FPPoolRetrySleep	Retry Sleep
ReturnNameAsDN	Return Name As DN
RollFwdBatchRetryAttempts	Roll Forward Batch Retry Attempts
RootDirectoryPath	Root Directory Path
SearchCrossForestGroupMembership	Search Cross Forest Group Membership
SearchServersToAttach	Search Servers To Attach
SearchTraceFlags	Search Trace Flags
SecurityDescCacheMaxEntries	Security Descriptor Cache Maximum Entries
SecurityTraceFlags	Security Trace Flags
ServerInstances	Server Instances
ShortName	Short Name
SingleItem	Single Item
Site	Site
SiteSettings	Site Settings
Sites	Sites
SnapLockPassword	SnapLock Password
SnapLockUserName	SnapLock User Name
SSITraceFlags	SSI Trace Flags
StagingAreaPath	Staging Area Path
Status	Status
StatusDescription	Status Description
StorageArea	Storage Area
StorageAreas	Storage Areas
SubjectCacheEntryTTL	Subject Cache Entry TTL
SubjectCacheMaxEntries	Subject Cache Maximum Entries
SubmittedCount	Submitted Count
SubsystemConfigurations	Subsystem Configurations
TemplateType	Template Type
TempDBContentLifetime	Temporary Database Content Lifetime
TempDirectoryPath	Temp Directory Path
TempFileLifetime	Temporary File Lifetime
ThreadCount	Thread Count
TimeAllSubmitted	Time All Submitted
TimeLastProcessed	Time Last Processed
FPPoolTimeout	Timeout
TimeOutSeconds	Timeout Seconds
ToVersions	To Versions
TraceLoggingEnabled	Trace Logging Enabled

Property Symbolic Name	Property Display Name
URIValue	URI Value
UserBaseDN	User Base DN
UserDisplayNameAttribute	User Display Name Attribute
UserDomain	User Domain
UserGroup	User Group
UserName	User Name
UserNameAttribute	User Name Attribute
UserPassword	User Password
UserSearchFilter	User Search Filter
UserTokenCacheEntryTTL	User Token Cache Entry TTL
UserTokenCacheMaxEntries	User Token Cache Maximum Entries
Users	Users
VerityAdminServerHostname	Verity Admin Server Hostname
VerityAdminServerPort	Verity Admin Server Port
VerityBrokerName	Verity Broker Name
VerityBrokers	Verity Brokers
VerityCollections	Verity Collections
VerityDomainConfiguration	Verity Domain Configuration
VerityIndexServers	Verity Index Servers
VerityMasterAdminServerHostname	Verity Master Admin Server Hostname
VerityMasterAdminServerPort	Verity Master Admin Server Port
VeritySearchServers	Verity Search Servers
VersionBindType	Version Bind Type
VirtualServer	Virtual Server
VirtualServers	Virtual Servers
WSITraceFlags	WSI Trace Flags

New in Content Engine 4.5.0 (for upgrades from 3.5 and from 4.0)

When you upgrade to Content Engine 4.5 from Content Engine version 3.5 or version 4.0, you need to consider new classes and properties.

"New Content Engine classes in 4.5.0"
The following table displays the new class names in Content Engine 4.5.0. To ensure successful upgrade, resolve any conflicts between your 3.5 or 4.0 object store class names and the new names.

"New Content Engine properties in 4.5.0" on page 91
The following table displays the new property names in Content Engine 4.5. To ensure successful upgrade, resolve any conflicts between your 3.5 or 4.0 object store property names and the new names.

New Content Engine classes in 4.5.0

The following table displays the new class names in Content Engine 4.5.0. To ensure successful upgrade, resolve any conflicts between your 3.5 or 4.0 object store class names and the new names.

Class Symbolic Name	Class Display Name
ReplicationGroup	Replication Group
CMODApplicationGroup	CMOD Application Group
CMODFixedContentDevice	CMOD Fixed Content Device
CMODRepository	CMOD Repository
ContentFederatingRepository	Content Federating Repository
DirectoryConfigurationCA	Directory Configuration CA
DITARenditionEngineConnection	DITA Rendition Engine Connection
ExternalAlias	External Alias
ExternalClassAlias	External Class Alias
ExternalClassDescription	External Class Description
ExternalIdentity	External Identity
ExternalParticipant	External Participant
ExternalPropertyAlias	External Property Alias
ExternalPropertyDescription	External Property Description
ExternalRepository	External Repository
ImageServicesRepository	FileNet Image Services Repository
ObjectStoreParticipant	Object Store Participant
Replicable	Replicable
ReplicableClassDefinition	Replicable Class Definition
ReplicationConfiguration	Replication Configuration
ReplicationJournalEntry	Replication Journal Entry
ReplicationParticipant	Replication Participant
Repository	Repository

New Content Engine properties in 4.5.0

The following table displays the new property names in Content Engine 4.5. To ensure successful upgrade, resolve any conflicts between your 3.5 or 4.0 object store property names and the new names.

Property Symbolic Name	Property Display Name
AliasDirection	Alias Direction
ApplicationGroupNumber	Application Group Number
ClassFamily	Class Family
ClassIdentity	Class Identity
CMODApplicationGroups	CMOD Application Groups
CMODLanguage	CMOD Language
CMODPassword	CMOD Password
CMODPort	CMOD Port
CMODServerName	CMOD Server Name
CMODTraceLevel	CMOD Trace Level
CMODUserName	CMOD User Name

Property Symbolic Name	Property Display Name
DatabaseIndexStorageLocation	Database Index Storage Location
DatabaseLOBStorageLocation	Database LOB Storage Location
DatabaseTableStorageLocation	Database Table Storage Location
DateCheckedIn	Date Checked In
DestinationRepository	Destination Repository
DITADatabaseTimeout	DITA Database Timeout
DITAHome	DITA Home
DITAJVMArguments	DITA JVM Arguments
DITARenditionEngineConnection	DITA Rendition Engine Connection
DITARenditionEngineConnections	DITA Rendition Engine Connections
DITAWorkingDirectory	DITA Working Directory
DuplicateSuppressionEnabled	Duplicate Suppression Enabled
DynamicGroupMemberAttribute	Dynamic Group Member Attribute
DynamicGroupObjectClass	Dynamic Group Object Class
DynamicGroupQueryAttribute	Dynamic Group Query Attribute
ExternalAliases	External Aliases
ExternalClassDescriptions	External Class Descriptions
ExternalObjectIdentity	External Object Identity
ExternalPropertyDescriptions	External Property Descriptions
ExternalReplicaIdentities	External Replica Identities
ExternalRepositories	External Repositories
ExternalRepository	External Repository
FcpPoolIdleTimeoutSeconds	FCP Pool Idle Timout Seconds
FcpPoolMaxInUse	FCP Pool Max In Use
FcpPoolMaxWaitSeconds	FCP Pool Max Wait Seconds
FcpPoolPreferredSize	FCP Pool Preferred Size
FederateInboundContent	Federate Inbound Content
GroupUniqueIDAttribute	Group Unique ID Attribute
GroupUniqueIDAttributeIsBinary	Group Unique ID Attribute Is Binary
HeldUntilDate	Held Until Date
IICEConfigurationServerURL	Content Integrator URL
InboundBatchSize	Inbound Batch Size
InboundBusyWaitInterval	Inbound Busy Wait tInterval
InboundDispatcherEnabled	Inbound Dispatcher Enabled
InboundIdleWaitInterval	Inbound Idle Wait tInterval
LastFailureReason	Last Failure Reason
MappableDirection	Mappable Direction
MaxInboundWorkers	Max Inbound Workers
MaxOutboundWorkers	Max Outbound Workers
ObjectStateRecordingLevel	Object State Recording Level
ObjectStoreSchemaDB2	Object Store Schema DB2

Property Symbolic Name	Property Display Name
ObjectStoreSchemaMSSQL	Object Store Schema MSSQL
ObjectStoreSchemaOracle	Object Store Schema Oracle
OutboundBatchSize	Outbound Batch Size
OutboundBusyWaitInterval	Outbound Busy Wait tInterval
OutboundDispatcherEnabled	Outbound Dispatcher Enabled
OutboundIdleWaitInterval	Outbound Idle Wait tInterval
PartnerObjectStore	Partner Object Store
PropertyIdentity	Property Identity
RegionKey	Region Key
ReplicableDirection	Replicable Direction
ReplicationData	Replication Data
ReplicationGroup	Replication Group
ReplicationGroups	Replication Groups
ReplicationMode	Replication Mode
ReplicationOperation	Replication Operation
ReplicationParticipants	Replication Participants
ReplicationStatus	Replication Status
ReplicationTraceFlags	Replication Trace Flags
RestrictMembershipToConfiguredRealms	Restrict Membership To Configured Realms
SearchDynamicGroup	Search Dynamic Group
SuperclassIdentity	Superclass Identity
SupersededAddOnIds	Superseded AddOn Ids
TargetObjectStore	Target Object Store
UserUniqueIDAttribute	User Unique ID Attribute
UserUniqueIDAttributeIsBinary	User Unique ID Attribute Is Binary

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Index

A

accounts 54
  Content Engine upgrade 48
  specify upgrade accounts 47
ASA
  upgrade tasks 55

C

Configuration Manager
  setting permissions for user 64
Content Engine
  classes and properties 81
  configure WebSphere 61
  configuring UNIX 37
  deployment on multiple servers 64
  primary administrative user name 64
  WebSphere 61
  WebSphere environment variables 62
Content Engine Upgrader tool 29
Content Engine Web Upgrade Tool 29

D

database
  GCD (Oracle) 54
DBA
  upgrade tasks 51

E

extensible authentication ports 75

F

Fix Packs and Test Fixes
  minimum level required 31

G

GCD
  creating for upgrades from 3.5 54

H

host file 39
hostname 39

I

installation
  planning 1
installation and upgrade worksheet 34
ITA
  upgrade tasks 35

J

JDBC drivers 62

L

load balancer 39

N

network
  configuring for FileNet P8 components 42
network name 39

O

Oracle
  preparing for FileNet P8 component upgrades 53

P

P8A
  upgrade tasks 65
ports 75
Process Engine
  configuring UNIX 38
  preparing for upgrades 44
Process Engine (AIX)
  configuring 40
  kernel limits 41
profile 61

R

realm
  Content Engine AllRealms property 83
  Content Engine MyRealm property 83
  Content Engine Realm class 82
roles
  definition of upgrade 32

S

SA
  upgrade tasks 45
security
  install considerations 45
SQL scripts (Oracle)
  running manually 55
synchronizing time and date 42

U

UNIX
  configuring for FileNet P8 components 37
update PE 3.5 applications 66
upgrade
  ASA tasks 55
  DBA tasks 51
  from 3.5 or 4 2
  ITA tasks 35
  overview 1
  planning and preparing 1
  planning considerations 30
  SA tasks 45
  staged from 4.0 2
Upgrade
  Content Engine
    resolve classes and properties 81
upgrade application server
  all platforms 56
  Content Engine multi-server on WebSphere and WebLogic 57
  from 3.5 56
  from 3.5 for Content Engine 61
  JVM considerations 57
upgrade scenario
  upgrading Application Engine first 3
  upgrading Content Engine first 12
  upgrading Process Engine first 21
  upgrading Workplace XT first 3
upgrade tasks
  P8A 65
upgrading
  automatic Content Engine upgrade 28
Upgrading a FileNet P8 domain`upgrading into a nonempty domain` 29
Upgrading Content Engine data
  choosing an upgrade tool 29

W

WebSphere
  configure for Content Engine 61
  primary administrative user name 64
WebSphere profile for Content Engine 61
worksheet
  using the installation and upgrade worksheet 34

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