

Course Guide

IBM FileNet Content Manager 5.2.1: Administration

Course code F288 ERC 1.0



November 2016 edition

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Contents

Trademarks	xiii
Course description	xiv
Agenda	xvii

Part 1. Introduction

Unit 1. Introduction to IBM FileNet Content Manager	1-1
Why is this lesson important to you?	1-2
Unit objectives	1-3
What is Enterprise Content Management?	1-4
ECM Core Capabilities	1-5
FileNet P8 Platform product bundles	1-6
Features	1-9
FileNet P8 Platform integration options	1-11
Social capabilities	1-14
IBM FileNet Content Manager solutions/applications	1-15
Examples of business needs addressed withIBM FileNet Content Manager	1-17
Bank: Business need	1-18
Solution	1-19
Benefits	1-20
University: Business need	1-21
Solution	1-22
Benefits	1-23
Government agency: Business need	1-24
Benefits	1-25
Unit summary	1-26
Review questions	1-27
Review questions	1-28
Review answers	1-29
Review answers	1-30
Review answers	1-31

Unit 2. IBM FileNet Content Manager architecture	2-1
Unit objectives	2-2
FileNet P8 Platform Architecture	2-3
Content Platform Engine architecture	2-4
Content Platform Engine resources	2-6
Content Platform Engine resources (2)	2-8
Component relationships	2-9
On your student system	2-10
Unit summary	2-11
Review questions	2-12
Review questions	2-13
Review answers	2-14
Review answers	2-15
Exercise: Find the applications used by IBM FileNet Content Manager	2-16
Exercise introduction	2-17

Unit 3. Administration Console for Content Platform Engine	3-1
Unit objectives	3-2
Administration Console for Content Platform Engine	3-3
Navigating ACCE	3-5
Global Configuration data (GCD)	3-6
Object store folder structure	3-7
Configure ACCE as a desktop feature	3-8
Unit summary	3-10
Exercise: Explore Administration Console for Content Platform Engine	3-11
Exercise introduction	3-12

Part 2. Build a FileNet Content Repository

Unit 4. Build a FileNet Content Repository	4-1
Unit objectives	4-2
What is an Object Store?	4-3
Object store database	4-4
What is a database connection object?	4-6
Object store and database connectivity	4-7
Object Store creation overview	4-8
What is IBM FileNet Configuration Manager?	4-9
Testing JDBC Data Sources	4-10
Sharing Database Connections	4-11
Prepare to Create an Object Store	4-13
Add-ons for an Object Store	4-15
IBM Content Navigator	4-18
Instructor demonstration	4-20
Unit summary	4-21
Exercise: Build a FileNet Content Repository	4-22
Exercise objectives	4-23
Unit 5. Work with storage areas	5-1
Unit objectives	5-2
What is a storage area?	5-3
Storage area options	5-5
Resource statuses of File Storage Area	5-7
Database storage areas	5-9
File Storage Area	5-10
File Storage Area Directory Structure	5-12
File storage area size control options	5-13
File storage area security	5-15
Fixed storage areas	5-17
Advanced storage areas	5-18
Advanced storage area features	5-20
Replicas	5-22
Synchronous and asynchronous replication, common use case	5-24
What is a storage policy?	5-25
Use Storage policies to distribute the content	5-27
Instructor demonstration	5-28
Unit summary	5-29
Review questions	5-30
Review questions	5-31
Review questions	5-32
Review answers	5-33
Review answers	5-34

Review answers	5-35
Exercise: Work with storage areas	5-36
Exercise objectives	5-37

Part 3. Work with Object Metadata

Unit 6. Create document and folder classes	6-1
Unit objectives	6-2
What is a Class?	6-3
What are Document Objects?	6-5
Folders	6-6
Containment Concepts	6-7
Class Inheritance	6-8
What is a Property?	6-10
What is a Property Template?	6-12
What is a Property Definition?	6-14
What are Choice Lists?	6-16
Using Choice Lists	6-18
How are Classes, Properties, and Choice Lists Related?	6-19
Guidelines for Creating or Modifying a Class	6-20
Working with Properties	6-22
Unit summary	6-23
Exercise: Create document and folder classes	6-24
Exercise objectives	6-25
Unit 7. Modify classes and properties	7-1
Unit objectives	7-2
Changing a Display Name for a Metadata Object	7-3
Modifying a Choice List	7-4
Assigning a Different Document Class	7-5
Metadata Dependencies	7-7
Deleting metadata	7-8
Delete a property template	7-9
Remove property definitions from a class	7-10
How do you find metadata dependencies?	7-11
Delete a class	7-12
Unit summary	7-13
Exercise: Modify classes and properties	7-14
Exercise objectives	7-15
Unit 8. Create event subscriptions	8-1
Unit objectives	8-2
About Server Extensions	8-3
Events and Subscriptions	8-5
Define Subscription Filter	8-7
Workflow Subscription	8-8
Launching Workflows: Property Mapping	8-9
Expressions in Event Subscriptions	8-10
Steps to create an Event Action	8-11
Update Event Action with new code module version	8-13
Disabling Subscriptions	8-14
Subscription Run Mode	8-15
Unit summary	8-16
Exercise: Create Event Subscriptions	8-17
Exercise objectives	8-18

Part 4. Security

Unit 9. Resolve logon issues	9-1
Unit objectives	9-2
Security in the IBM FileNet P8 domain	9-3
Authentication	9-4
Authorization	9-6
Security principals	9-8
Users and groups	9-9
Security realms	9-10
IBM Content Navigator Desktop	9-12
Login errors	9-13
Instructor demonstration	9-14
Unit summary	9-15
Exercise: Resolve logon issues	9-16
Exercise introduction	9-17
Unit 10. Modify direct security	10-1
Unit objectives	10-2
Permissions	10-3
Security sources	10-4
Security sources and order of evaluation	10-5
What is direct security?	10-7
Access Control from IBM Content Navigator	10-8
Access Control in Administration Console	10-10
Permission groups	10-11
Ownership	10-12
Instructor demonstration	10-13
Unit summary	10-14
Exercise: Modify direct security	10-15
Exercise introduction	10-16
Unit 11. Configure object store security	11-1
Unit objectives	11-2
Required accounts	11-3
Configure object store administrators and users	11-4
Example security scenario	11-6
Overview of initial security configuration	11-7
Super groups	11-8
Security Script Wizard	11-9
Root folder security	11-11
Instructor demonstration	11-12
Unit summary	11-13
Exercise: Configure object store security	11-14
Exercise introduction	11-15
Unit 12. Configure class and property security.....	12-1
Unit objectives	12-2
Default instance security	12-3
Setting default instance security	12-4
Property modification security	12-5
Configure property modification access	12-6
System property modification	12-7
Instructor demonstration	12-8
Unit summary	12-9

Exercise: Configure class and property security	12-10
Exercise introduction	12-11
Unit 13. Configure security inheritance	13-1
Unit objectives	13-2
Overview of security inheritance	13-3
Definition of terms	13-4
Security inheritance architecture	13-6
Characteristics of inherited permissions	13-7
Inheritable permissions	13-8
Methods for configuring security inheritance	13-9
Use a security folder	13-11
Use an object as a security proxy	13-13
Guidelines	13-15
Instructor demonstration	13-16
Unit summary	13-17
Exercise: Configure security inheritance	13-18
Exercise introduction	13-19

Part 5. Optimize Search Performance

Unit 14. Use searches with bulk actions	14-1
Unit objectives	14-2
Actions on Multiple Objects	14-3
Types of Multiple-object Actions	14-4
Actions and Operations	14-5
Perform Bulk Actions	14-6
Perform Batch Operations (1)	14-7
Perform Batch Operations (2)	14-8
Unit summary	14-9
Exercise: Perform searches and bulk actions	14-10
Exercise introduction	14-11
Unit 15. Configure Content Search Services	15-1
Unit objectives	15-2
What is content-based retrieval (CBR)?	15-3
What is a content index?	15-4
What are IBM Content Search Services?	15-5
Starting and stopping IBM Content Search Services	15-6
What is an index area?	15-7
Use affinity groups to control server assignment	15-8
Enable Content Based Retrieval	15-10
Domain level tasks	15-12
IBM Content Search Server console commands	15-13
Instructor demonstration	15-15
Unit summary	15-16
Exercise: Configure a text search server	15-17
Exercise introduction	15-18
Unit 16. Configure index partitions	16-1
Unit objectives	16-2
What is an index partition?	16-3
Configuring Index partitions	16-4
Settability values	16-5
Selecting a string property for an index partition	16-6

Use a date property for a partition	16-7
Instructor demonstration	16-8
Unit summary	16-9
Exercise: Configure index partitions	16-10
Exercise introduction	16-11
Unit 17. Create content-based indexes	17-1
Unit objectives	17-2
17.1. Create content-based indexes	17-3
Create content-based indexes	17-4
Topics	17-5
Index areas and full-text indexes	17-6
Index area states	17-7
Index area settings	17-8
Full text index settings	17-9
Automatic activation of index areas	17-11
Enable Content Based Retrieval	17-13
Object store level tasks	17-15
Create an index area object	17-16
Index jobs	17-18
How to run a CBR search	17-20
CBR SQL query format	17-21
CBR enabled properties	17-22
Guidelines	17-23
17.2. Optimize CBR queries	17-24
Optimize CBR queries	17-25
Topics	17-26
Combined CBR ad database searches	17-27
How the mixed query works	17-28
CBR Query Optimization	17-29
Configuration	17-30
Handling requests for ranked results	17-31
Configure CBR query optimization options	17-32
Instructor demonstration	17-33
Unit summary	17-35
Exercise: Create content based indexes	17-36
Exercise introduction	17-37

Part 6. Migrate Applications

Unit 18. Application migration overview	18-1
Why is this lesson important to you?	18-2
Unit objectives	18-3
Application lifecycle	18-4
FileNet Content Manager application elements	18-5
FileNet P8 asset types	18-6
Other IBM and external assets	18-7
Migration and deployment process	18-8
Migration and deployment phases	18-9
Migration and deployment tools	18-11
Who is responsible for application migration?	18-12
Coordinating application migration	18-13
Guidelines	18-14
Unit summary	18-16
Review questions	18-17

Review questions	18-18
Review questions	18-19
Review answers	18-20
Review answers	18-21
Review answers	18-22
Review answers	18-23
Unit 19. Plan and prepare for application migration	19-1
Why is this lesson important to you?	19-2
Unit objectives	19-3
Planning for application migration	19-4
Plan the migration and deployment strategy	19-6
Assemble migration/deployment instructions	19-7
Identify application assets	19-9
Source and destination environment compatibility	19-11
Perform one-time configuration setup tasks	19-13
Deployment tree	19-15
Deployment tree structure	19-17
Environment half maps	19-19
Extract a source environment object store half map	19-20
Extract a source environment security principal half map	19-22
Service and Connection Point half maps	19-24
Destination environment half maps	19-26
Instructor demonstration	19-28
Unit summary	19-29
Exercise: Plan and prepare for application migration	19-30
Exercise introduction	19-31
Unit 20. Export the application assets	20-1
Why is this lesson important to you?	20-2
Unit objectives	20-3
Export the application assets	20-4
FileNet Deployment Manager – export tasks	20-5
Export the FileNet P8 assets	20-6
What is an export manifest?	20-8
Add assets to the export manifests	20-9
Edit the export manifest	20-11
Export include options	20-12
Asset Include Option propagation example	20-14
Export include options - guidelines	20-15
Export include options – guidelines (2)	20-17
Export assets to a deploy data set	20-18
Deployment.log	20-20
Create a deploy package	20-21
Export other IBM and external assets	20-23
Assemble the application package	20-24
Instructor demonstration	20-26
Unit summary	20-27
Exercise: Export the application assets	20-28
Exercise introduction	20-29
Unit 21. Convert and analyze the FileNet P8 assets	21-1
Why is this lesson important to you?	21-2
Unit objectives	21-3
Migrating and analyzing phases	21-4
Prepare the FileNet P8 destination environment	21-5

Prepare for asset conversion	21-6
Create a source-destination pair	21-7
How do labels affect data maps?	21-9
Create the source-destination pair data maps	21-11
What options are available for Data Maps?	21-12
View a data map	21-13
Update a data map	21-15
Convert the FileNet P8 application assets	21-16
Run a pre-import analysis	21-17
Change impact analysis report	21-19
Resolving failures	21-20
Instructor demonstration	21-21
Unit summary	21-22
Exercise: Convert and analyze the FileNet P8 assets	21-23
Exercise introduction	21-24
Unit 22. Import the application assets	22-1
Why is this lesson important to you?	22-2
Unit objectives	22-3
Steps to complete the application migration	22-4
Import the assets into the destination environment	22-6
FileNet Deployment Manager – import task	22-7
Import the FileNet P8 application assets	22-8
Import option set file	22-10
Import options - defaults	22-11
Import options - guidelines	22-14
Simulate and audit the import	22-15
Sample audit report	22-17
Import other IBM and external assets	22-18
Complete additional system configuration tasks	22-20
Verifying phase	22-21
Unit summary	22-22
Exercise: Import the application assets into the destination environment.	22-23
Exercise introduction	22-24
Unit 23. Automate FileNet P8 asset migration	23-1
Why is this lesson important to you?	23-2
Unit objectives	23-3
FileNet Deployment Manager command line interface	23-4
Deployment Operation command line syntax	23-5
Deployment operations	23-6
How to create a deployment operation file	23-7
Sample files	23-8
Guidelines	23-9
Unit summary	23-10
Exercise: Automate deployment operations with FileNet Deployment Manager command line.	23-11
Exercise introduction	23-12

Part 7. Manage Sweep Jobs

Unit 24. Configure a sweep job	24-1
Why is this lesson important to you?	24-2
Unit objectives	24-3
Sweep Framework	24-4
Sweep framework services	24-5

What is a ‘Sweep’	24-6
Types of sweeps	24-7
Background search sweeps	24-9
Job Sweeps	24-11
Why use a bulk move content job	24-13
Create a bulk move content job	24-14
Properties of bulk move content jobs	24-15
Filter expression property	24-17
Storage policy property	24-19
Define sweep target options	24-21
Schedule sweep runs	24-22
Sweep job monitoring tools	24-24
Instructor demonstration	24-25
Unit summary	24-26
Exercise: Configure a sweep job	24-27
Exercise introduction	24-28
Unit 25. Work with sweep policies	25-1
Why is this lesson important to you?	25-2
Unit objectives	25-3
Sweep policy	25-4
Policy-controlled sweep	25-6
Disposal policy	25-7
Disposal policy examples	25-9
Content migration policy	25-10
Retention update policy	25-12
Define time slots for sweep policies	25-14
Manage sweep records	25-15
Queue sweeps	25-16
Custom sweeps	25-18
Use content migration policies for HSM	25-20
Storage Plan Implementation	25-21
Storage Plan Implementation(2)	25-22
Storage Plan Implementation(3)	25-23
Storage Plan Implementation(4)	25-24
Unit summary	25-25
Exercise: Work with sweep policies	25-26
Exercise introduction	25-27
<hr/>	
Part 8. Auditing and Logging	
Unit 26. Work with system logs	26-1
Why is this lesson important to you?	26-2
Unit objectives	26-3
Content Platform Engine System Logs	26-4
Location of logs	26-6
Web application server logs	26-7
Trace logs	26-8
Trace subsystem – domain level configuration	26-9
Trace Subsystem – site level configuration	26-11
Guidelines: Monitor log files	26-12
Unit summary	26-13
Exercise: Work with system logs	26-14
Exercise introduction	26-15

Unit 27. Work with audit logs	27-1
Why is this lesson important to you?	27-2
Unit objectives	27-3
What is auditing?	27-4
Why audit?	27-5
Audit Definitions	27-6
Create an audit definition	27-7
Object operations that you can audit	27-9
Audit entries	27-11
View audit entries	27-12
Pruning audit entries	27-13
Create an audit disposition policy	27-15
Audit disposition schedule	27-16
Unit summary	27-17
Exercise: Work with audit logs	27-18
Exercise introduction	27-19

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Course description

IBM FileNet Content Manager 5.2.1: Administration

Duration: 5 days

Purpose

This course is designed to train system administrators the skills to administer an IBM FileNet Content Manager 5.2.1 system. Some of the units in this course are also useful to application builders who build FileNet Content Manager applications.



Important

This course consists of several independent units. The units, including the lab exercises, stand on their own and do not depend on any other content.

Audience

System administrators are responsible for the overall health and performance of the IBM FileNet Content Manager system. Their duties include creating and configuring object stores, security, maintenance of object stores and domains, managing log files, optimizing system performance, and migrating applications between object stores.

Prerequisites

- P8 terminology, including: Content Platform Engine, IBM Content Navigator, object stores, objects, Content Services, Process Services.
- Using IBM Content Navigator to work with content.
- Configuring desktops in IBM Content Navigator.
- Recommended prerequisite courses:
 - F270 - IBM Content Navigator 2.0.3.6: Introduction

Objectives

Upon completion of this course, participants will be able to:

- Introduction
 - Identify components, features, and common use cases for IBM FileNet Component Manager.
 - Find the core web applications that make up IBM FileNet Content Manager.

- Use Administration Console for Content Platform Engine (ACCE) to find properties within the Global Configuration database.
- Use ACCE to find folders, classes, and property templates in an object store.
- Build a FileNet P8 Repository
 - Use System Configuration Tool to create JDBC data sources for an object store.
 - Create an object store.
 - Add the object store as a repository to IBM Content Navigator.
 - Identify types of content storage areas.
 - Create a file storage area.
 - Create a file storage policy.
- Work with object metadata
 - Create a document class.
 - Create a folder class.
 - Create property templates.
 - Create choice lists.
 - Modify classes, properties, choice lists.
 - Create an event subscription with an action.
 - Update an existing event subscription with a new code module.
 - Use a workflow subscription.
- Security
 - Resolve logon failures
 - Verify object store access
 - Change security on a document
 - Change the owner of a document
 - Customize document access
 - Configure object store security
 - Configure class and property security
 - Configure security inheritance
- Optimize search performance
 - Configure a text search server
 - Select a Property for an Index Partition.
 - Configure a String Index Partition.
 - Configure a Date Index Partition.
 - Configure Content Based Retrieval

- Configure an Index Area
- Check Indexing Logs
- Reindex
- Optimize CBR queries
- Perform searches with bulk actions.
- Perform a batch action.
- Migrate applications
 - Describe the process of moving FileNet P8 applications between environments.
 - Plan and prepare for application migration.
 - Export the application assets.
 - Convert the assets for import.
 - Analyze the impact of the import to the destination environment.
 - Import the application assets into the destination environment.
 - Automate FileNet P8 asset migration with the FileNet Deployment Manager command line interface.
- Manage sweep jobs
 - Move documents from one storage area to another with a Bulk Move Content Job.
 - Configure a disposal policy.
 - Configure a content migration policy.
- Auditing and logging
 - Monitor system logs
 - Enable/disable trace logging for troubleshooting
 - Create audit definitions
 - View audit entries
 - Prune audit entries

Curriculum relationship

- CBxx
- NWyy

Agenda



Note

The following unit and exercise durations are estimates, and might not reflect every class experience.

Day 1

- (00:30) Unit 1. Introduction to IBM FileNet Content Manager
- (00:20) Unit2. IBM FileNet Content Manager architecture
- (00:20) Exercise 2. Explore the IBM FileNet Content Manager applications
- (00:20) Unit 3. Administration Console for Content Platform Engine
- (00:30) Exercise 3. Explore Administration Console for Content Platform Engine
- (00:30) Unit 4. Build a FileNet Content Repository
- (00:30) Exercise 4. Build a FileNet Content Repository
- (00:45) Unit 5. Work with storage areas
- (00:40) Exercise 5. Work with storage areas
- (00:30) Unit 6. Create document and folder classes
- (00:30) Exercise 6. Create document and folder classes

Day 2

- (00:30) Unit 7. Modify classes and properties
- (00:30) Exercise 7. Modify classes and properties
- (00:30) Unit 8. Create event subscriptions
- (00:30) Exercise 8. Create event subscriptions
- (00:20) Unit 9. Resolve logon issues
- (00:30) Exercise 9. Resolve access issues
- (00:30) Unit 10. Modify direct security
- (00:30) Exercise 10. Modify direct security
- (00:20) Unit 11. Configure object store security
- (00:40) Exercise 11. Configure object store security

Day 3

- (00:30) Unit 12. Configure class and property security
- (00:30) Exercise 12. Configure class and property security
- (00:20) Unit 13. Configure security inheritance
- (00:40) Exercise 13. Configure security inheritance
- (00:30) Unit 14. Use searches with bulk actions
- (00:30) Exercise 14. Use searches with bulk actions
- (00:30) Unit 15. Configure Content Search Services
- (00:20) Exercise 15. Configure a text search server
- (00:20) Unit 16. Configure index partitions
- (00:20) Exercise 16. Configure index partitions
- (00:50) Unit 17. Create content-based indexes
- (00:40) Exercise 17. Create content-based indexes

Day 4

- (00:35) Unit 18. Application migration overview
- (00:30) Unit 19. Plan and prepare for application migration
- (00:55) Exercise 19. Plan and prepare for application migration
- (00:30) Unit 20. Export the application assets
- (01:05) Exercise 20. Export the application assets
- (00:30) Unit 21. Convert and analyze the FileNet P8 assets
- (00:25) Exercise 21. Convert and analyze the FileNet P8 assets
- (00:30) Unit 22. Import the application assets
- (00:30) Exercise 22. Import the application assets

Day 5

- (00:20) Unit 23. Automate FileNet P8 asset migration
- (00:35) Exercise 23. Automate FileNet P8 asset migration
- (00:35) Unit 24. Configure a sweep job
- (00:30) Exercise 24. Configure a sweep job
- (00:40) Unit 25. Work with sweep policies
- (00:40) Exercise 25. Work with sweep policies
- (00:35) Unit 26. Work with system logs
- (00:30) Exercise 26. Work with system logs
- (00:30) Unit 27. Work with audit logs
- (00:50) Exercise 27. Work with audit logs

Part 1. Introduction

Unit 1. Introduction to IBM FileNet Content Manager

Estimated time

00:30

Overview

In this unit, you are introduced to IBM FileNet Content Manager. The basic architecture and common use cases. You identify components and find the web applications for a basic IBM FileNet Content Manager system.

How you will check your progress

Successfully complete the review questions

References

Knowledge Center

<http://www.ibm.com/support/knowledgecenter/SSNW2F/welcome>

<http://www.ibm.com/support/knowledgecenter/SSEUEX/welcome>

Why is this lesson important to you?

- You are new to IBM FileNet Content Manager. You need to know what IBM FileNet Content Manager is and how it is used.

Introduction to IBM FileNet Content Manager

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Figure 1-1. Why is this lesson important to you?

Unit objectives

- Identify core components of IBM FileNet Content Manager.
- Identify content management capabilities.
- Describe how IBM FileNet Content Manager can be used to address business needs in different industries.

Introduction to IBM FileNet Content Manager

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Figure 1-2. Unit objectives

What is Enterprise Content Management?

- Enterprise Content Management (ECM) is more than storing and managing documents.
- ECM is about:
 - Supporting business applications
 - Providing users with access to the right information in the context of their application.
 - Governing information and ensuring you meet business or industry regulations.
- ECM solutions enable businesses to support a wide-range of document-centric use cases.

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Figure 1-3. What is Enterprise Content Management?

Enterprise Content Management is more than just storing and managing documents. ECM Is about supporting business applications and providing users with access to the right information within their application. It is governing that information to ensure that you meet the regulations required by your business or industry.

ECM solutions enable businesses to support a wide-range of document-centric use cases.

ECM Core Capabilities

User Interface	Records Management
Metadata Management	Logging/Reporting
Security	Event Management
API & Programming Model	Viewing & Publishing
Workflow	Document Transformation
Capture	Administration

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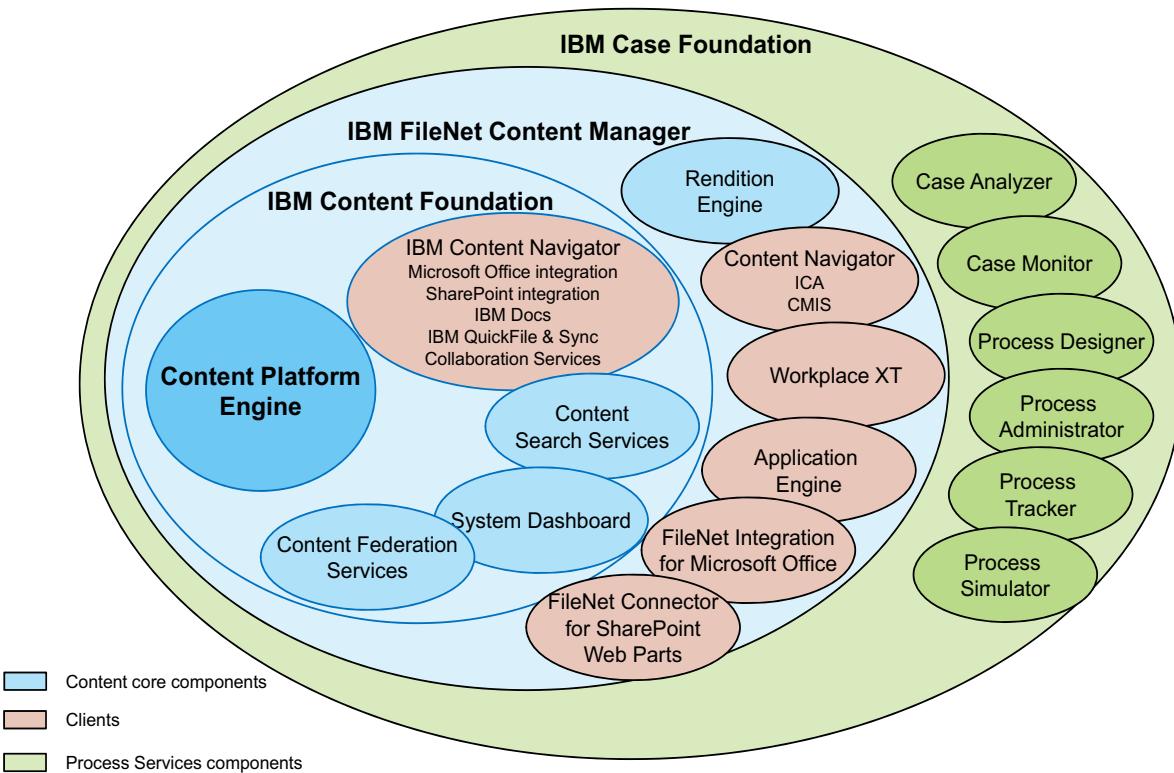
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Figure 1-4. ECM Core Capabilities

Enterprise Content Management software should provide a set of core capabilities.

- User interface to access the content.
- Metadata management to enable searching and categorizing.
- Security to ensure that only people with the correct access can view, edit, or delete a document.
- API & programming model to the development of custom solutions.
- Workflow to automate business processes.
- Records Management to govern information and ensure that you meet business and industry regulations.
- Logging/Reporting to provide required audit trails.
- Event Management to automate actions based on events, such as document or metadata creation or updates.
- Viewing & Publishing
- Document transformation to transform documents into different formats, such as pdf.
- Administration – a tool to allow administration of the ECM environment.

FileNet P8 Platform product bundles



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Figure 1-5. FileNet P8 Platform product bundles

The diagram shows FileNet P8 Platform product bundles and the products included in each.

IBM Content Foundation

IBM Content Foundation is the smallest of the bundles. It provides the basic products needed to the essential features of an enterprise content management system. IBM Content Foundation also includes, integration with collaboration services to provide social features.

- **Content Platform Engine:** The core engine of the FileNet P8 Platform that provides both content and process services.
- **IBM Content Navigator:** The primary web interface for business users to work with content and workflow tasks. Users can browse or search for content in the repositories, access their work items, and set up special team rooms to coordinate and collaborate on content-related activities. IBM Content Navigator is highly customizable. IBM Content Navigator provides more integration features:
 - Microsoft office integration
 - SharePoint integration
 - IBM Docs
 - IBM QuickFile

- Sync
- **Content Search Services:** Component that provides full content indexing and search capability.
- **System Dashboard:**
- **Content Federation Services:** Content can exist in many systems. With Content Federation, it is possible to manage that content from a single location, even while the content itself exists in disparate repositories.

IBM FileNet Content Manager: The IBM FileNet Content Manager bundle includes all the components that IBM Content Foundation includes plus:

- **Rendition Engine:** Creates PDF or HTML versions of content upon demand.
- More IBM Content Navigator Add-ons:
 - IBM Content Analytics with Enterprise Search
 - CMIS
- **Workplace XT:** Legacy web interface for business users to work with content and workflow tasks. IBM Content Navigator is replacing Workplace XT.
- **Application Engine:** Legacy web interface for business users to work with content and workflow tasks. IBM Content Navigator is replacing Workplace XT.
- **FileNet Integration for Microsoft Office (FIMO):** Provides direct integration with Microsoft office from IBM FileNet Content Manager. You can create documents, spreadsheets, and so on, in Microsoft Office tools and add them to a FileNet Content Manager repository.
- **FileNet Connector for SharePoint Web Parts:** Install custom web parts into your SharePoint library.

IBM Case Foundation

IBM FileNet Business Process Manager was renamed IBM Case Foundation to reflect IBM's commitment to providing the foundation for delivering case-style applications. IBM Case Foundation provides workflow tools to design, monitor, track, and administer workflow applications. IBM Case Foundation is core backend component of IBM Case Manager. IBM Case Foundation bundle includes all the components that IBM Content Foundation and IBM FileNet Content Manager include, plus:

- **Case Analyzer:** You use Case Analyzer to analyze case, task, and workflow activity. You can determine cycle times for business processes and find bottlenecks that affect production and service levels. You can review collected data to isolate problems and take control of the data elements reviewed. You can generate chart-based reports on information gathered from the Content Platform Engine event and audit logs.
- **Case Monitor:** IBM FileNet Case Monitor provides a set of projects and objects that you can use in IBM Cognos Real-time Monitoring to monitor the current state of your active cases or running workflows.
- **Process Designer:** A graphical design tool to define complex business processes into workflows. Workflows can be automated to launch when a document is added or changed.

- **Process Administrator:** A tool used to find workflows, work items, and event in a running workflow. Useful for troubleshooting a workflow with an issue or reassign work.
- **Process Tracker:** A graphical tool used to track status of running workflows. You can see which steps are completed, when they completed, and which steps are currently active.

Features

- Content management
- Integration with external repositories
- Workflow management
- Application environment
- Application integration
 - Microsoft Office
 - SAP
 - FileNet Collaboration Services
 - SharePoint
- Records management
- System management

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Figure 1-6. Features

Help path

FileNet P8 Platform 5.2.1>System overview>Features

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.sysoverview.doc/p8sov001.htm

IBM FileNet Content Manager features provide the enterprise-level capabilities that are required for solving critical business requirements.

Content Management

At the core of the platform are repository services for capturing, managing, and storing your business-related digital assets. Multiple repositories, called object stores, can be created and managed within a single system to serve your business requirements.

Integration with external repositories

With IBM FileNet Content Federation Services you can integrate data in an external repository with IBM FileNet Content Manager and access the documents as though they are stored in an object store. An external repository acts like a virtual storage area for the Content Platform Engine system.

Workflow management

With IBM FileNet Content Manager you can create, modify, manage, analyze, and simulate business processes, or workflows, run by applications, enterprise users, and external users such as partners and customers.

Application environment

IBM FileNet Content Manager includes an application environment to provide users with enterprise content management (ECM) functionality. IBM Content Navigator is a web client that provides users with a console for working with content from multiple content servers, including content that is stored on Content Platform Engine object stores

Application integration

FileNet P8 tools help you integrate with various vendor applications. Such as Microsoft Office, SAP, FileNet Collaboration Services, and SharePoint.

Records management

IBM Enterprise Records is a records management solution that can help companies manage risk through effective, enforceable records management policy, for achievable and cost-effective compliance. IBM Enterprise Records is fully integrated with IBM FileNet Content Manager.

System management

IBM FileNet Content Manager provides a complete set of system administration tools that allow for monitoring, validation, and configuration changes from a central location with a dispersed deployment.

FileNet P8 Platform integration options

- IBM Datacap
- IBM Enterprise Records
- IBM Case Manager
- IBM Content Collector
- IBM Content Collector for SAP
- IBM Content Federation Services
 - For Content Manager OnDemand
 - For Image Services
 - For Content Integrator
- Integration options available through IBM Content Navigator
 - IBM FileNet Collaboration Services
 - IBM Connections
 - IBM CMIS for Enterprise Content Management
 - Microsoft Office integration
 - SharePoint integration
 - IBM Docs
 - IBM QuickFile
 - Sync services

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Figure 1-7. FileNet P8 Platform integration options

Help path

FileNet P8 Platform 5.2.1>System overview>FileNet P8 architecture>FileNet P8 integration options

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.sysoverview.doc/p8sov138.htm

Content Navigator 2.0.3>Planning, installing, and configuring IBM Content Navigator>IBM Content Navigator overview

https://www.ibm.com/support/knowledgecenter/SSEUEX_2.0.3/com.ibm.installingeuc.doc/eucao008.htm

Datacap

A data capture product that scans, classifies, recognizes, validates, verifies, and exports data and document images quickly, accurately and cost effectively. Datacap can be used to automate the capture of data into the FileNet Content Manager object stores.

IBM Enterprise Records

IBM Enterprise Records is a records management solution that provides content, process, federation, and connectivity to automate and simplify all records-based activities by supporting records in both electronic and physical form from their creation to their disposition.

IBM Case Manager

IBM Case Manager simplifies the job of designing and building a case management system and provides a graphical user interface for caseworker to easily manage cases.

IBM Content Collector

IBM Content Collector archives email and other digital content in a central repository.

IBM Content Collector for SAP

IBM Content Collector for SAP provides advanced archiving capabilities that help SAP users run their businesses more efficiently. It provides access to business information of all types, supports the transfer of older information to lower-cost disks and tapes, and improves system performance.

IBM Content Federation Services (CFS)

With IBM FileNet Content Federation Services you can integrate data in an external repository with the Content Platform Engine and access the documents as though they are stored in an object store.

CFS for Image Services

IBM FileNet Content Federation Services for Image Services integrates and federates content from IBM FileNet Image Services repositories and enables Content Platform Engine to use the repository as another content storage device. Users of FileNet P8 applications have full access to content that is stored in existing repositories.

CFS for Content Manager OnDemand

Content Federation Services for Content Manager OnDemand federates content from IBM Content Manager OnDemand. Content Federation Services for Content Manager OnDemand exposes content that is stored in a Content Manager OnDemand repository to a broad range of FileNet® P8 applications, including enterprise records management and workflow systems.

CFS for Content Integrator

IBM FileNet CFS for Content Integrator federates documents from multiple types of repositories, including IBM Content Manager, IBM FileNet Content Services, Documentum Content Server, and Open Text Livelink Enterprise Server.

Integration options available through IBM Content Navigator

FileNet Collaboration Services

IBM FileNet Collaboration Services connects a content repository to IBM Connections and enhances capabilities for collaboration and document management throughout an organization or among teams.

IBM CMIS for Enterprise Content Management

IBM Content Management Interoperability Services (CMIS) for Enterprise Content Management allows FileNet Content Manager to integrate with repositories that conform to the OASIS Content Management Interoperability Services specification standard.

Microsoft Office integration

FileNet P8 integrates with Microsoft Office applications so that users can manage documents, email, and attachments that are within a FileNet P8 object store directly from the associated office application.

SharePoint integration

FileNet P8 and SharePoint technologies are complimentary solutions that, when used together, provide an environment where business users can easily collaborate on work-in-process documents and tasks, yet comply with content and compliance initiatives across the enterprise. SharePoint users can continue to use the SharePoint easy-to-use and familiar interfaces while IBM FileNet Content Manager provides a robust content, process, and compliance infrastructure that is transparent to users. With this approach, business users can use SharePoint Services sites and SharePoint Portal for most daily content, process, and compliance activities without having to learn new applications or perform additional content or compliance management tasks.

IBM Docs

The IBM Docs integration enables users to open documents that are stored in a FileNet Content Manager repository in IBM Docs for collaborative editing.

IBM QuickFile

IBM QuickFile provides business users with a security-rich, highly reliable way to exchange files inside and outside their organizations.

Sync services

Sync services provide an efficient way for users to work with files, avoiding the need to check out, check in, and download items that they work with regularly.

Social capabilities

- IBM Content Navigator > IBM FileNet Collaboration Services.
- Connects a content repository to IBM Connections
 - Social collaboration
 - User comments on managed objects
 - Social tagging of managed objects
 - Tracking document downloads
 - Document recommendations
 - Document thumbnails
 - Document recovery bin
 - Searching
 - Document management capabilities for IBM Connections communities

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Figure 1-8. Social capabilities

Help path

Content Navigator 2.0.3>Planning, installing, and configuring IBM Content Navigator>IBM Content Navigator overview>IBM Collaboration Services overview>Features of IBM FileNet Collaboration Services

http://www.ibm.com/support/knowledgecenter/SSEUEX_2.0.3/com.ibm.installingeuc.doc/eucao027.htm

IBM FileNet Collaboration Services is integrated with IBM Content Navigator. It enables social collaboration, searching, and document management capabilities for IBM Connections communities who share information on a FileNet Content Manager repository.

IBM FileNet Collaboration Services connects a content repository to IBM Connections and enhances capabilities for collaboration and document management throughout an organization or among teams.

Enterprises integrate IBM Connections and IBM FileNet Collaboration Services to deploy a social content management solution, most commonly on an intranet. With IBM Connections communities, users can organize and customize libraries and documents on an enterprise-scale content repository with minimal support from information technology (IT) employees.

IBM FileNet Content Manager solutions/applications

- What is an IBM FileNet Content Manager solution?
 - A solution that addresses a business need.
 - Involves managing content, processes, and applications.
 - Improves efficiency and compliance.
- IBM FileNet Content Manager provides the tools to build an Enterprise Content Management solution.
 - Metadata: Classes, properties
 - Content storage
 - Efficient searches
 - Security
 - User interface options
 - Automation
 - Integration

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Figure 1-9. IBM FileNet Content Manager solutions/applications

IBM FileNet Content Manager provides tools for building a solution or application that addresses a business need or challenge. Each solution is unique to the business that creates it. An organization is often faced with business challenges that might be addressed or improved by developing an automated process to handle it. The business analyst and solution builder must analyze the business needs and then develop the IBM FileNet Content Manager solution to meet those needs.

Usually, a solution includes the following elements that must be carefully considered and planned before you build the solution:

- **Metadata:** Metadata is information about objects, whether they are documents or other kinds of business objects. Metadata defines the classes and properties of the data in your system that you need in order for users to find the data.
- **Content storage:** where is the content stored?
- **Searches:** Searches can have a considerable effect on system performance. When designing a solution, a solution builder needs to predict the kinds of searches that are going to be used and create searches to efficiently use the system resources.
- **Security:** Who is going to have access to the content and processes?
- **User interface options:** How do you want users to access content? How can you make the interface easy for them to use?

- **Automation:** What parts of the business process can be automated with lifecycle actions, events, and workflows?
- **Integration:** Will users access the objects with IBM Content Navigator, or are they going to use other clients, such as IBM Connections, Lotus Quickr? Does the content exist in another repository that users need to access?

Examples of business needs addressed with IBM FileNet Content Manager

Banking



Universities



Government agencies



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Figure 1-10. Examples of business needs addressed with IBM FileNet Content Manager

The next slides cover actual real-world use cases, for IBM FileNet Content Manager, in three different industries:

- Banking
- Universities
- Government Agencies

You see the business need, the solution that addressed the business need, and the benefits realized by the solution.

Bank: Business need

- The Asset and Wealth Management division of a bank:
 - Over 150 content repositories and related systems across the globe
 - Each repository has its own taxonomy
 - Over 15 technologies used
 - Costs a substantial amount to operate annually
- The Sales and Marketing teams struggle to:
 - Find the correct version of a document.
 - Multiple versions are filed in multiple locations.
 - Prove which version of a document is provided to a client.
 - Prove that proper compliance was approved, relevant, or suitable.

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Figure 1-11. Bank: Business need

The Asset and Wealth Management division of the bank is responsible for the creation, marketing, and selling of relevant products and solutions to clients (both individual and institutional). In a regulated industry, it is important for the bank to demonstrate that the products and solutions are appropriate for the clients and that the collateral provided to clients is suitable, relevant, and accurate.

The bank has over 150 content repositories and related systems that are implemented locally across the globe. Each repository has a different taxonomy, uses more than 15 different technologies, and costs the bank a substantial amount of money to operate on an annual basis.

The Sales and Marketing teams struggle to find the correct version of a document, multiple versions are filed in multiple locations. It is not always possible to prove which version of a document is provided to a client, or whether it is properly compliance approved, relevant, and suitable.

Solution

- Deploy IBM FileNet Content Manager to provide:
 - Scalable, secure, auditable repository
 - Used to upload compliance approved documentation
- Document upload performed by authorized users through IBM Content Navigator that uses:
 - External Data Services to dynamically create lists to choose from to populate document properties.
 - The lists are created from an external database, populated with accurate data.
 - Creates a common taxonomy
- Sales and Marketing use an IBM Content Navigator iPad app to search the repository for documentation.
- IBM Content Collector is used to integrate with an existing bank repository.
 - When a document is published in the existing repository, that document is ingested into the FileNet Content Manager repository.
 - Providing a gradual migration of the existing repository to the new centralized repository.

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Figure 1-12. Solution

The solution was to deploy IBM FileNet Content Manager to provide a scalable, secure, auditable, repository that might be used to upload compliance approved documentation. Authorized users upload the documents with the IBM Content Navigator application, which makes extensive use of the Extended External Data Services (EEDS). EEDS is used to present a list of product names from which the users can choose. When a product name is selected, EEDS connects to an Oracle database to retrieve a set of product-related data to automatically populate the document properties. The Sales and Marketing teams use the Content Navigator web client and a custom developer iPad application to search the repository for documentation that can be shared with prospective clients.

IBM Content Collector (ICC) is used to provide integration with one of the major existing repositories in the bank. Every time a document is published in the third-party repository, the document is pushed across to ICC and ingested into the FileNet repository. The solution provides a gradual migration path from the third-party system over a time.

Benefits

- One place to look for product and solutions documentation.
- Guarantee that the content is compliance approved before making it available to users.
- Traceability of the use of the content.
- Reduced operational costs through consolidation of platforms.
- Automated management of the expiry of documents and reminders to upload new versions.
- Configurable security to prevent access when products are withdrawn.

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Figure 1-13. Benefits

The solution provides the following benefits to the client:

- One place to look for product and solutions documentation
- Guarantee that the content is compliance approved before it is available to the users
- Traceability of the use of content through audit event recording
- Reduced operational costs through consolidation of many platforms
- Platform to enable other transformational activities based on globally accessible digital content
- Automated management of the expiry of documentation and reminders to upload new versions of documents
- Users are able to access documentation while on the move through the mobile application that runs on iPads
- Security that can be configured to prevent access to some documents should there be a need to withdraw products/solutions.

University: Business need

- An accurate and efficient method to ingest various documents types from multiple departments into a centralized location.
- During ingestion, documents need to be indexed with appropriate metadata and stored with appropriate content.
- Security must be automatically assigned based on the document type.
- After ingestion, the documents need to be accessible and searchable by multiple departments.

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Figure 1-14. University: Business need

A university needs an accurate and efficient method to ingest various document types from multiple departments, into a centralized location.

The documents need to be indexed with appropriate metadata during ingestion and stored with appropriate content.

Security should be assigned based on the document type. After ingestion, the documents need to be accessible and searchable by multiple departments.

Solution

- Use IBM Datacap to ingest the documents into an IBM FileNet Content Manager repository.
 - Datacap:
 - Automatically captures the metadata from the documents and stores it into the repository with the document's content.
 - A custom workflow does a periodic check for documents that require indexing.
 - Verifies that the metadata is present and valid.
 - Indexes the documents and assigns them to document classes, based on predefined business rules.
 - Moves the documents to a queue for user input.
 - If any metadata is missing or invalid, the work items are routed for manual user indexing.
 - Search templates created to facilitate searching/retrieval of documents.

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Figure 1-15. Solution

The solution was to use IBM Datacap to ingest the documents into an IBM FileNet Content Manager repository.

IBM Datacap automatically captures the metadata from the documents, following rules defined. The documents and their content are saved into the repository.

A custom workflow was built to periodically check for documents that need indexing. The workflow verifies that metadata is present and valid. It then indexes the documents and assigns them to appropriate document classes, based on predefined business rules. If any metadata is missing or invalid, the documents are routed to a queue for manual user indexing.

Search templates were created to facilitate searching and retrieving the documents by the different departments.

Benefits

- Provides a consistent method to ingest and index documents to a centralized document management system.
- Improves accuracy and efficiency of the ingesting process.
- Supports moving away from paper filing practices.
- Ensures ability to locate and retrieve documents.
- Provides document retention mechanism.

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Figure 1-16. Benefits

As a result of the solution, the university:

- Has a consistent method of ingesting and indexing documents and storing them in a centralized document management system.
- Improved the efficiency and accuracy of the ingesting process.
- Is moving away from paper filing practices.
- Can locate and retrieve the documents they need.

An added benefit was the addition of a document retention mechanism.

Government agency: Business need

- Replace existing outdated solution with new solution that provides:
 - Centralized architecture capable of supporting all supporting government agencies, managed by a single service center.
 - The functional needs of:
 - Accounts Payable
 - Credit Card Services
 - Purchasing change requests
 - Scalable Document capture solution that supports OCR.
 - Efficient Document capture
 - Support multiple input sources:
 - Paper scanning
 - Email
 - Folders/network file shares
 - Meet government agency standards in the client application.

Solution:

- Government agency implemented a custom solution built on IBM FileNet Content Manager.

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Figure 1-17. Government agency: Business need

A government agency needs to replace their existing outdated solution with a new solution that provides:

- Centralized architecture that can support all supporting government agencies that can be managed from a single service center.
- The solution needs to address the functional needs of:
 - Accounts Payable
 - Credit Card Services
 - Purchasing change requests.
- The solution needs to be a scalable Document capture solution that supports OCR and supports multiple input sources, such as, email, paper scanning, and folders and network file shares.
- The client application needs to meet government agency standards.

A custom solution was implemented on IBM FileNet Content Manager.

Benefits

- Automated Credit Card requests for new card holders, changes, and renewals.
- Automation of requests for Purchase Order change notices.
- Adds interface between Accounts Payable and Purchase Orders.
- Increases capacity and throughput to support all agencies.
- Visibility to monitor the status of transactions.
- Provides platform for a record retention repository.
- Increases Accounts Payable scanning and indexing capacity by 100%.
- Consolidates all documents into one place for increased efficiency.

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Figure 1-18. Benefits

The solution enabled the government agency to:

- Automate Credit Card request for new card holders.
- Support changes and renewals for Credit Card requests.
- Automate requests for Purchase Order change notices.
- Add an interface between Accounts Payable and Purchase Orders.
- Increase the capacity and throughput to support all the government agencies.
- Monitor the status of transactions.
- Increase Accounts Payable scanning and indexing capacity by 100%.
- Consolidate all their documents into one centralized location, providing increased efficiency.

Unit summary

- Identify core components of IBM FileNet Content Manager.
- Identify content management capabilities.
- Describe how IBM FileNet Content Manager can be used to address business needs in different industries.

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Figure 1-19. Unit summary

Review questions

1. True or False: Enterprise Content Management is storing and managing documents.
2. Which of the following features is not an IBM FileNet Content Management feature?
 - A. Records management
 - B. Application integration
 - C. Workflow management
 - D. Sync and Share
3. Which of the following integration options is provided by IBM Content Navigator?
 - A. IBM Connections
 - B. IBM Content Collector
 - C. IBM Enterprise Records
 - D. IBM Case Manager



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Figure 1-20. Review questions

Write your answers here:

- 1.
- 2.
- 3.

Review questions

4. IBM FileNet Content Manager is commonly used by which industry?
 - A. Banking
 - B. Academia
 - C. Government agencies
 - D. All of the above

5. How would you define an IBM FileNet Content Manager solution?
 - A. An object store that contains folders and files.
 - B. A set of workflows.
 - C. A solution that addresses a business need.
 - D. A set of stored searches.



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Figure 1-21. Review questions

Write your answers here:

- 4.
- 5.

Review answers

1. True or False: Enterprise Content Management is storing and managing documents.
The answer is False.

2. Which of the following features is not an IBM FileNet Content Management feature?
 - A. Records management
 - B. Application integration
 - C. Workflow management
 - D. Sync and Share
The answer is D.



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Figure 1-22. Review answers

Review answers

3. Which of the following integration options is provided by IBM Content Navigator?
 - A. [IBM Connections](#)
 - B. IBM Content Collector
 - C. IBM Enterprise Records
 - D. IBM Case Manager

The answer is: [A.](#)

4. IBM FileNet Content Manager is commonly used by which industry?
 - A. Banking
 - B. Academia
 - C. Government agencies
 - D. [All of the above](#)

The answer is: [D.](#)



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Figure 1-23. Review answers

Review answers

5. How would you define an IBM FileNet Content Manager solution?
 - A. An object store that contains folders and files.
 - B. A set of workflows.
 - C. A solution that addresses a business need.
 - D. A set of stored searches.

The answer is: C.



Unit 2. IBM FileNet Content Manager architecture

Estimated time

00:20

Overview

In this unit, you learn about the baseline architecture for a FileNet P8 Platform and the Content Platform Engine.

How you will check your progress

Successfully complete the review questions and lesson exercises.

References

Knowledge Center

<http://www.ibm.com/support/knowledgecenter/SSNW2F/welcome>

Unit objectives

- Identify the components of an IBM FileNet Content Manager system.
- Identify the dependencies between the core components.

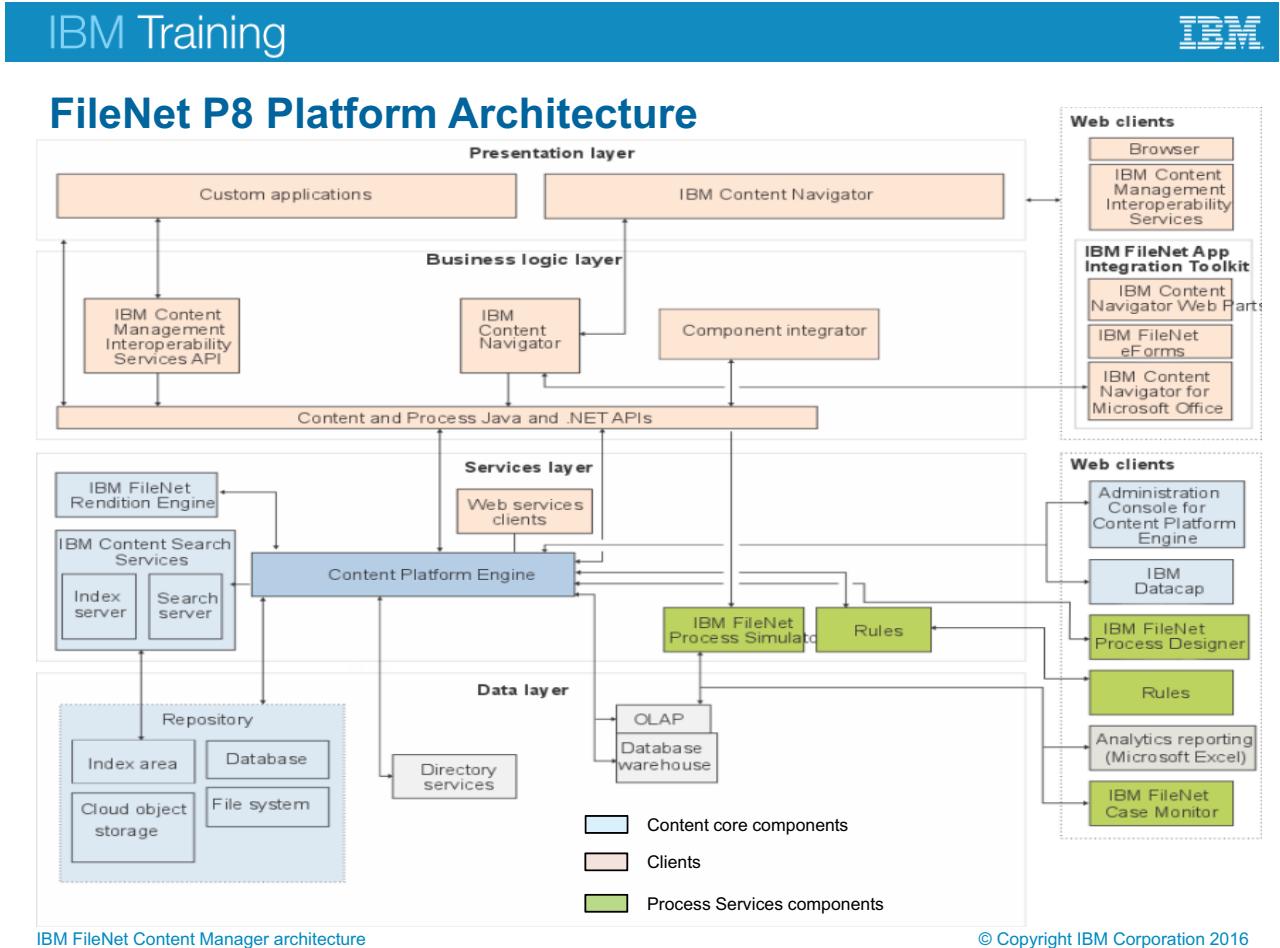


Figure 2-2. FileNet P8 Platform Architecture

Help path

FileNet P8 Platform 5.2.1>System overview>FileNet P8 architecture>FileNet P8 baseline architecture

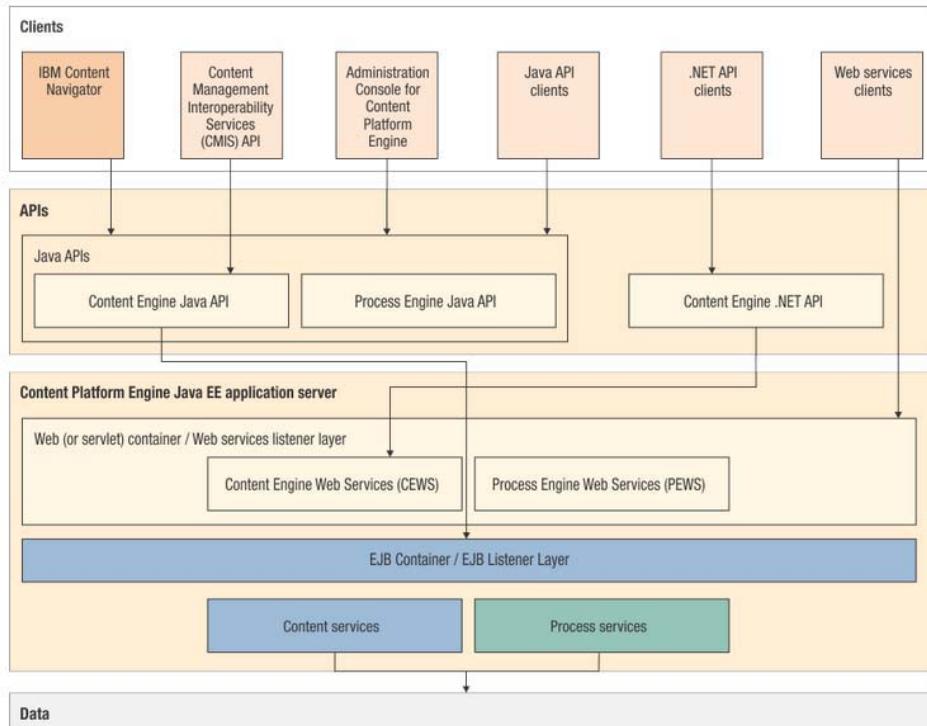
http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.sysoverview.doc/p8sov154.htm

The FileNet P8 Platform includes back-end services, development tools, and applications that address enterprise content and process management requirements.

The diagram shows a high-level architecture diagram of the FileNet P8 Platform. It includes the main components and how they communicate.

The presentation layer and business logic layer, on the top, focus on the clients that connect to Content Platform Engine. IBM Content Navigator is the primary web client. The services layer in the middle includes the core components that make up FileNet Content Manager. The Content Platform Engine is the core engine and is shown in a darker shade of blue. The boxes in green, are the process services components that are included with IBM Case Foundation. The rectangles in gray are extra products that IBM FileNet Content Manager can integrate with, for example IBM Datacap.

Content Platform Engine architecture



IBM FileNet Content Manager architecture

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Figure 2-3. Content Platform Engine architecture

Help path

FileNet P8 Platform 5.2.1>System overview>FileNet P8 architecture>Content Platform Engine

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.sysoverview.doc/p8sov108.htm

Content Platform Engine is a FileNet P8 Platform component that is designed to handle the heavy demands of a large enterprise. It can manage enterprise-wide workflow objects, custom objects, and documents by offering powerful and easy-to-use administration tools. Using these tools, an administrator can create and manage the classes, properties, storage, and metadata that form the foundation of an enterprise content management (ECM) system.

The following diagram provides an overview of the Content Platform Engine architecture. Key architectural aspects include:

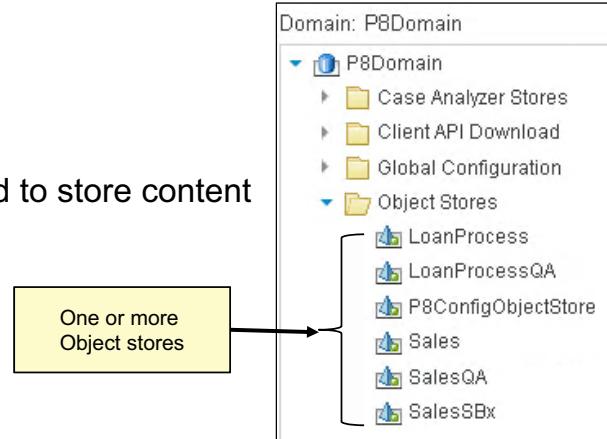
- Application programming interfaces (APIs)
 - Provide an extensible platform for development and cross-object store queries, and lets administrators configure systems programmatically. A Java based API provides a rich set of Java™ classes that map to object store objects, such as Document, Folder, or Property Description; a Web Service API allows customers to author applications in a platform and language independent manner that expose the object model in a few generic methods

suitable for deployment in a web environment; a Microsoft .NET framework-based API, functionally equivalent to the Java based API, provides for development of applications that use the .NET framework.

- Java EE-compliant application server
 - Java Platform, Enterprise Edition (Java EE) offers reliability, scalability, and high availability features, and support for a wide range of operating system platforms, application servers, and database technologies.
- Scalable
 - Can be deployed to suit the demands of the enterprise. As the enterprise's needs change, you can reconfigure the system by replacing, adding, or removing servers or applications without bringing the system down. You can add members to web server clusters and Content Platform Engine server clusters at any time.
- Content services
 - Responsible for adding and deleting content and retrieving objects and content from an object store. In addition to servicing requests from enterprise content management (ECM) applications, the content services host various background tasks that maintain all the resources that are associated with each object store.
- Process services
 - Provide software services for managing all aspects of business processes (also called workflows), such as workflow execution, workflow routing, rules management, process simulation and modeling, and workflow analysis.

Content Platform Engine resources

- FileNet P8 Domain
 - Global Configuration Data
 - One or more Object stores
- Object store components
 - An object store is a repository used to store content and objects.
 - Each object store contains:
 - Metadata.
 - One or more storage areas
 - One workflow system - optional.
- Configuration tools
 - Administrative Console for the Content Platform Engine
 - FileNet Configuration Manager
 - Deployment Manager



IBM FileNet Content Manager architecture

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Figure 2-4. Content Platform Engine resources

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the FileNet P8 infrastructure>FileNet P8 domains

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/about/dom_concepts.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the FileNet P8 infrastructure>FileNet P8 domains>FileNet P8 domain structure

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/about/aem_domain_structure.htm

The FileNet P8 domain contains the entities that represent the Content Platform Engine physical resources (such as object stores) and the Content Platform Engine servers that provide access to those resources.

The FileNet P8 domain represents a logical grouping of physical resources and the Content Platform Engine servers that provide access to those resources. Each resource and server belong to only one domain. A server can access any resource in the domain, but cannot access any resource that lies outside of the domain.

Each FileNet P8 Domain contains:

- Global Configuration data (GCD) that contains domain level configuration and properties.
- One or more object stores.

The screen capture on the right, shows the view of a FileNet P8 domain as seen in Administration Console for Content Platform Engine (ACCE). The Object Stores folder is expanded and shows six object stores.

An object store is a repository for storing objects (such as documents, folders, and business objects) and the metadata that defines the classes and properties of objects. Each object store contains:

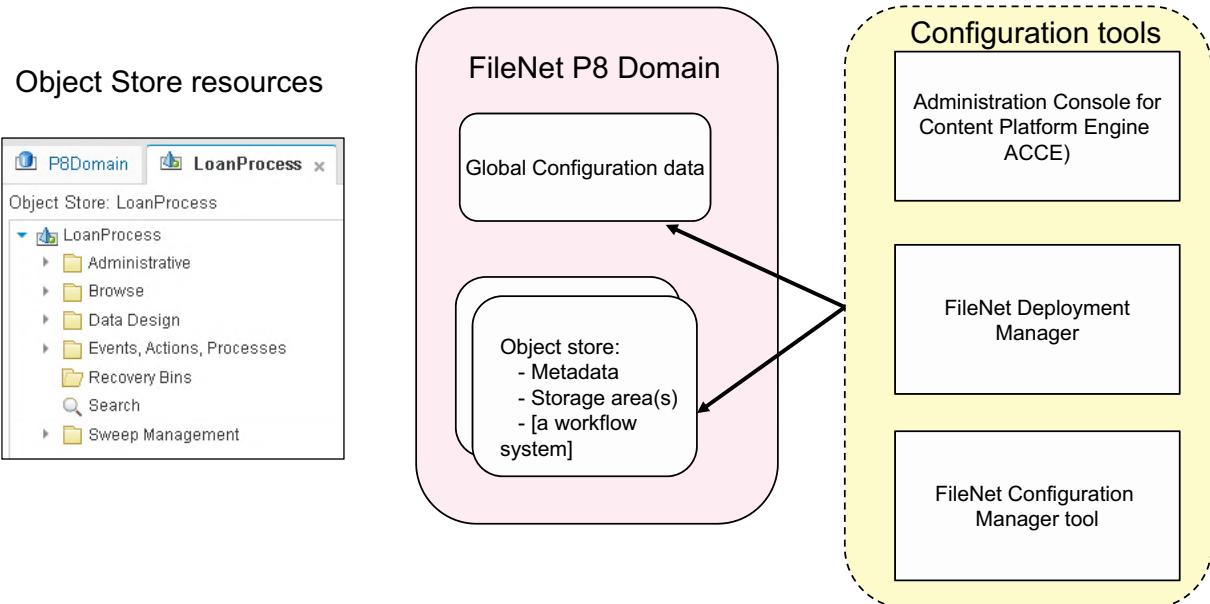
- Metadata
- One or more storage areas. The following storage area types are supported:
 - Database – Content Platform Engine stores both the objects and the content for those objects in the same database.
 - File - Area that contains document content in a directory tree on a local or shared network drive. The disk drive can be a Windows NTFS volume, a UNIX file system, or an IBM General Parallel File System (GPFS)
 - Fixed - an external (non FileNet P8) fixed content system that provides storage and data retention.
 - Advanced - provides high availability content storage and disaster recovery through use of replication and replica repair.
- Optional workflow system - A workflow system is a collection of isolated regions. An isolated region contains the queues, rosters, and event logs that are necessary to create and process workflows.

The Content Platform Engine provides tools to help with administration and maintenance.

- Administration Console for Content Platform Engine is a web tool used to administer and configure a FileNet P8 Domain.
- FileNet Configuration Manager is a graphical user interface to configure and deploy Content Platform Engine instances on an application server. It is generally used during initial installation and configuration or upgrades.
- FileNet Deployment Manager (FDM) is a tool used to move data from one object store to another. FDM is generally used to move FileNet Content Manager applications from one environment to another. For example, from development to Quality Assurance, and then to Production.



Content Platform Engine resources (2)



IBM FileNet Content Manager architecture

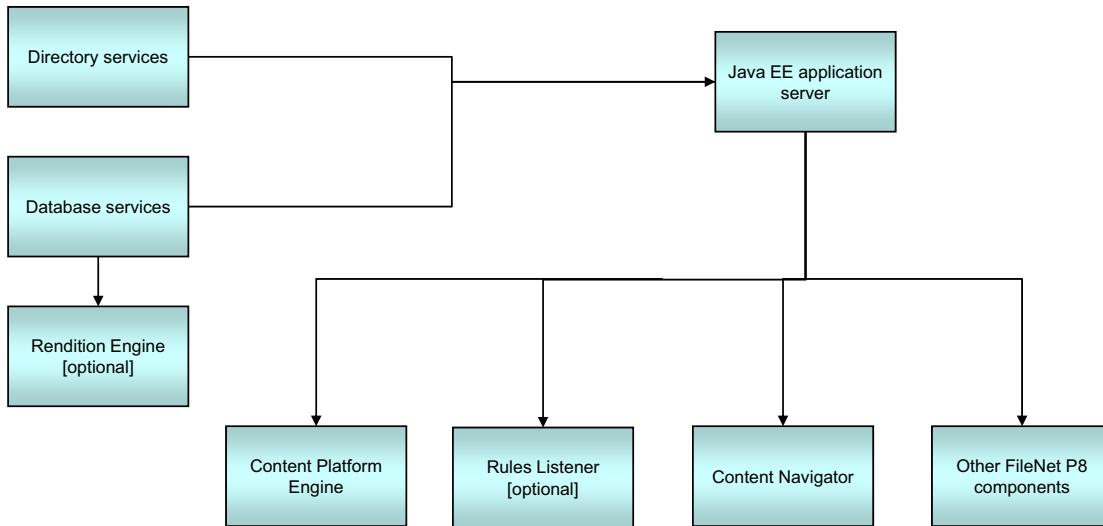
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Figure 2-5. Content Platform Engine resources (2)

The screen capture on the left, shows the high-level folder structure of an object store, as seen from ACCE.

The diagram in the middle, is a high-level representation of a FileNet P8 domain. The diagram on the right, shows the three configuration tools that are included with IBM FileNet Content Manager. Each of the configuration tools access the Global Configuration data and the object stores' objects and metadata.

Component relationships



IBM FileNet Content Manager architecture

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Figure 2-6. Component relationships

Help path

FileNet P8 Platform 5.2.1>Administering>Starting and stopping FileNet P8 components>Getting started>Component relationships

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.admin.doc/startup_shutdown/component_relationships.htm

The IBM FileNet Content Manager components are interdependent. Although most components do not require other components be running to start successfully, the absence of other components can affect processing.

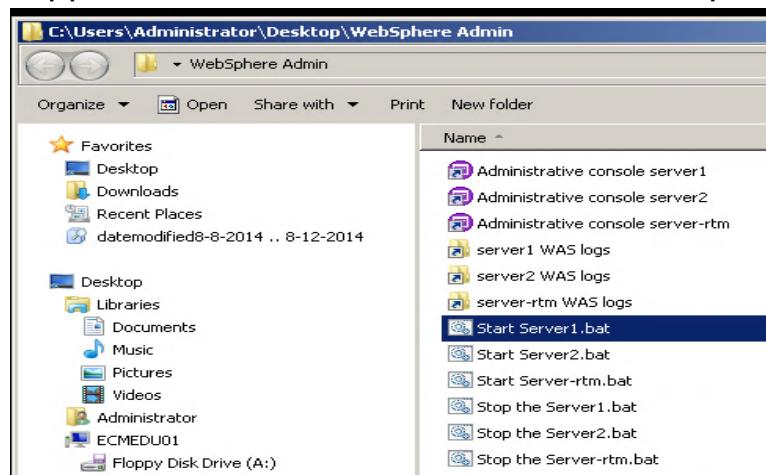
Generally, start the components and related servers in the order outlined in the diagram. Reverse the order to shut down.

The Content Platform Engine servers run as applications within a Java EE application server, so the Java EE application server must be started first. However, it is common to configure the Content Platform Engine applications to automatically start when the application server starts.



On your student system

- Windows Services
 - Directory Services
 - Database services
- FileNet Content Manager components start automatically when WebSphere Application Server starts.
- WebSphere Application Server starts from a batch script.



IBM FileNet Content Manager architecture

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Figure 2-7. On your student system

On your student system, the Directory Services and the database services startup as windows services when the operating system starts up.

The FileNet Content Manager components are configured to start automatically when WebSphere Application Server starts.

A batch script starts WebSphere Application Server.

Unit summary

- Identify the components of an IBM FileNet Content Manager system.
- Identify the dependencies between the core components.

Review questions

1. What is the core engine of the FileNet P8 Platform?
 - A. Content Platform Engine
 - B. FileNet Content Foundation
 - C. Rendition Engine
 - D. IBM FileNet Content Manager

2. Which component provides the default client interface for the FileNet P8 Platform?
 - A. IBM Content Navigator
 - B. Component integrator
 - C. Content Platform Engine
 - D. IBM Datacap



IBM FileNet Content Manager architecture

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Figure 2-9. Review questions

Write your answers here:

- 1.
- 2.

Review questions

3. Which service in the Content Platform Engine is responsible for adding and deleting content?
 - A. Process services
 - B. Content Federation services
 - C. Content Management interoperability services
 - D. Content services

4. Each FileNet P8 domain contains one or more object stores and what else?
 - A. Content Platform Engine
 - B. Administration Console for Content Platform Engine
 - C. Global Configuration data
 - D. Repositories



IBM FileNet Content Manager architecture

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Figure 2-10. Review questions

Write your answers here:

- 3.
- 4.

Review answers

1. What is the core engine of the FileNet P8 Platform?
 - A. [Content Platform Engine](#)
 - B. FileNet Content Foundation
 - C. Rendition Engine
 - D. IBM FileNet Content Manager

The answer is [A](#).

2. Which component provides the default client interface for the FileNet P8 Platform?
 - A. [IBM Content Navigator](#)
 - B. Component integrator
 - C. Content Platform Engine
 - D. IBM Datacap

The answer is [A](#).



Review answers

- 
3. Which service in the Content Platform Engine is responsible for adding and deleting content?
 - A. Process services
 - B. Content Federation services
 - C. Content Management interoperability services
 - D. Content services

The answer is D.

 4. Each FileNet P8 domain contains one or more object stores and what else?
 - A. Content Platform Engine
 - B. Administration Console for Content Platform Engine
 - C. Global Configuration data
 - D. Repositories

The answer is: C.

Exercise: Find the applications used by IBM FileNet Content Manager

IBM FileNet Content Manager architecture

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Figure 2-13. Exercise: Find the applications used by IBM FileNet Content Manager

Exercise introduction

- Explore the core IBM FileNet Content Manager applications in WebSphere Application Server.



Unit 3. Administration Console for Content Platform Engine

Estimated time

00:20

Overview

In this unit, you use the Administration Console for Content Platform Engine (ACCE) to locate P8 domain objects. Such as object stores, folders, classes, property templates, and global configuration properties.

How you will check your progress

- Successfully complete the lesson exercises.

References

Knowledge Center

<http://www.ibm.com/support/knowledgecenter/SSNW2F/welcome>

<http://www.ibm.com/support/knowledgecenter/SSEUEX/welcome>

Unit objectives

- Use Administration Console for Content Platform Engine to locate FileNet P8 domain objects.

Administration Console for Content Platform Engine

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Figure 3-1. Unit objectives



Administration Console for Content Platform Engine

- Web application used to administer FileNet P8 domains.
 - Global Configuration data (GCD)
 - Object stores
 - Other objects

The screenshot shows two windows. On the left is the login screen of the ACCE application. It has a header bar with 'File Edit View History Bookmarks Tools Help' and a title 'IBM Administrative Console fo...'. Below that is a browser-like interface with a URL bar showing 'ecmedu01:9080/acce/' and a 'Most Visited' section. The main content area displays a welcome message: 'Welcome to IBM Administrative Console for Content Platform Engine' with fields for 'User name:' (p8admin) and 'Password:' (redacted), and a 'Log In' button. On the right is a separate window titled 'IBM Administrative Console for Content Platform Engine' showing the 'P8Domain' navigation tree. The tree structure is as follows:

```

P8Domain
  - Case Analyzer Stores
  - Client API Download
  - Global Configuration
  - Object Stores
    - LoanProcess
    - LoanProcessQA
    - P8ConfigObjectStore
    - Sales
    - SalesQA
    - SalesSBx
  
```

Administration Console for Content Platform Engine

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Figure 3-2. Administration Console for Content Platform Engine

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Getting started
http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/aboutacce/acce_intro.htm

The Administration Console for Content Platform Engine, often referred to as ACCE (pronounced ace), is a web-based application used to administer FileNet P8 domains and their resources.

- Global Configuration data (GCD)
- Object stores
- Other objects

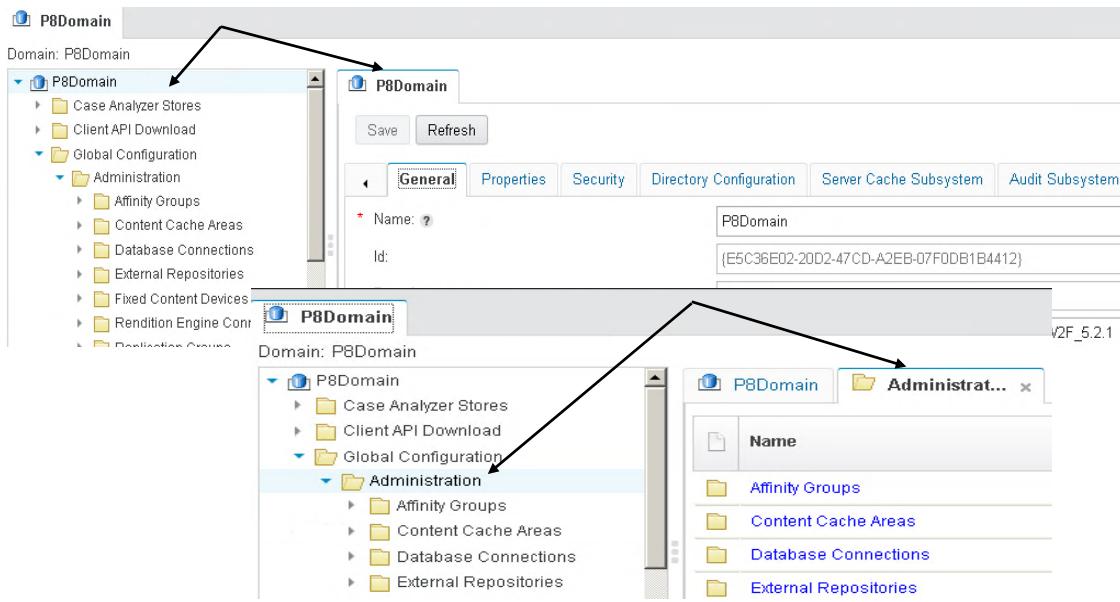
ACCE is an application that runs on a Java EE application server. To start ACCE, you use a web browser to go to the URL shown on the screen capture in the blue callout. The Welcome screen displays, as shown in the screen capture on the left. You log in with an account with read access to the FileNet P8 domain. The FileNet P8 Domain navigation is displayed, on the right. The screen capture shows six object stores under the object stores node.

ACCE was introduced in IBM FileNet Content Manager 5.2. Previous releases used FileNet Enterprise Manager (FEM) to do the administration. FileNet Enterprise Manager was removed

starting with IBM FileNet Content Manager 5.2.1. If an older release of IBM FileNet Content Manager is upgraded, FEM is still there. New installations do not include FEM.

Navigating ACCE

- Click a node in the left navigation
- A tab opens on the right



Administration Console for Content Platform Engine

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Figure 3-3. Navigating ACCE

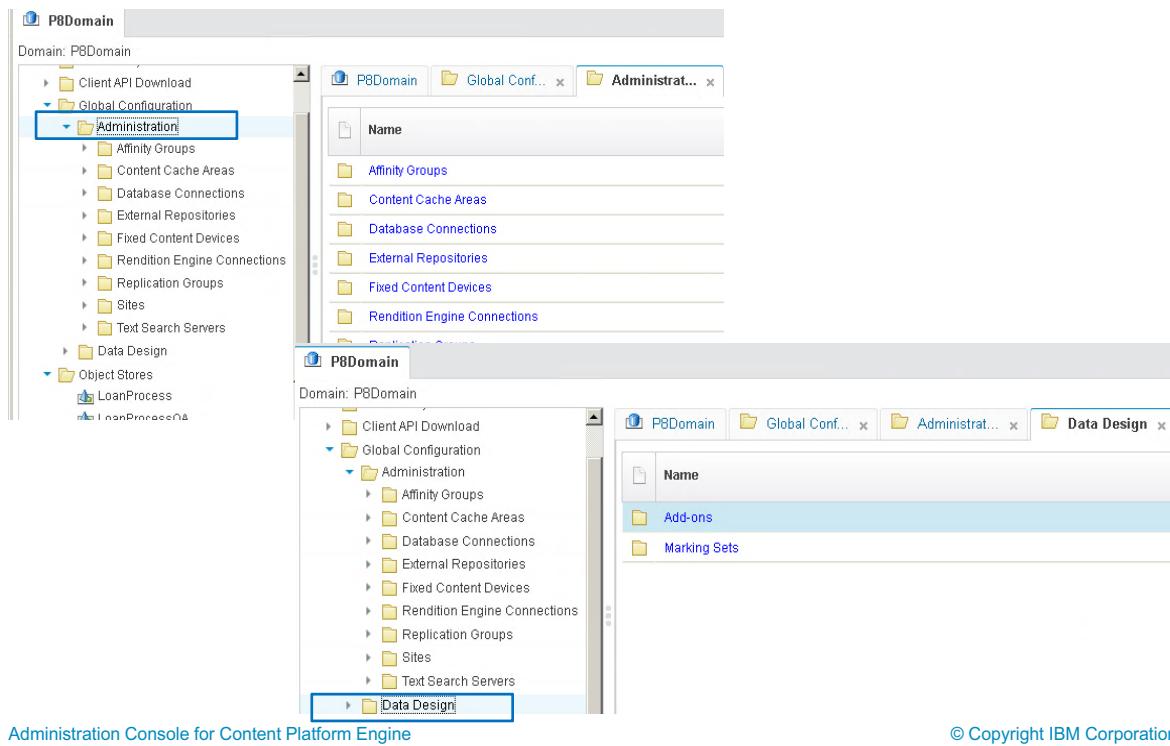
To navigate the Administration Console for Content Platform Engine, you click a node on the left, which opens a tab on the right. The top screen capture shows the node, P8Domain selected on the left and the P8Domain tab on the right. The bottom screen capture, shows the Global Configuration node that is expanded and the Administration node selected on the left, which opens the Administration tab on the right.

Depending on the type of node you select, you see a list of objects that you can select on the right, or a set of properties that you can set or modify.



Global Configuration data (GCD)

- Objects and attributes that apply to the entire FileNet P8 Domain.



Administration Console for Content Platform Engine

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Figure 3-4. Global Configuration data (GCD)

The Global Configuration node contains objects, attributes, and properties that apply to the entire FileNet P8 Domain.

The types of data are grouped into two categories: Administration and Data Design.

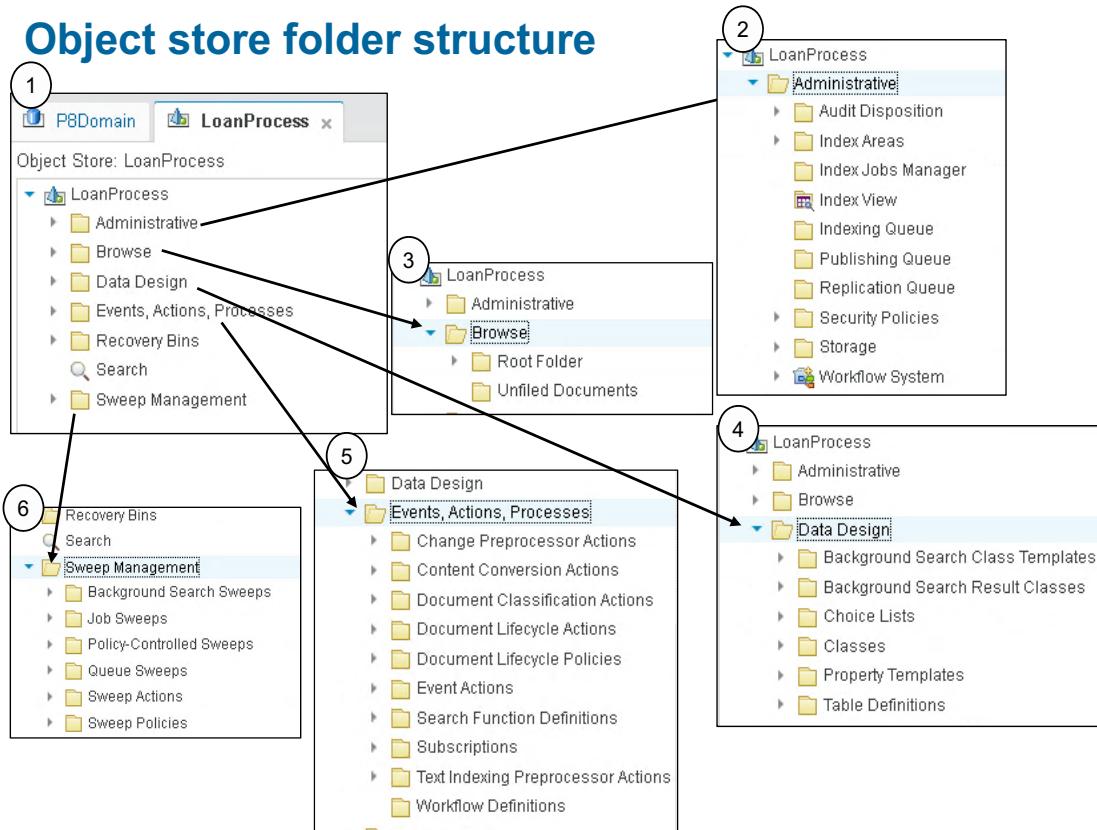
The screen caption on the upper left, shows the Administration node selected. On the right, you see the types of items that are administered. For example:

- Affinity Groups
- Content Cache Areas
- Database Connections
- External Repositories
- Fixed Content Devices

The screen capture on the lower right, shows the Data Design node selected. On the right, you see Add-ons and Marking Sets.



Object store folder structure



Administration Console for Content Platform Engine

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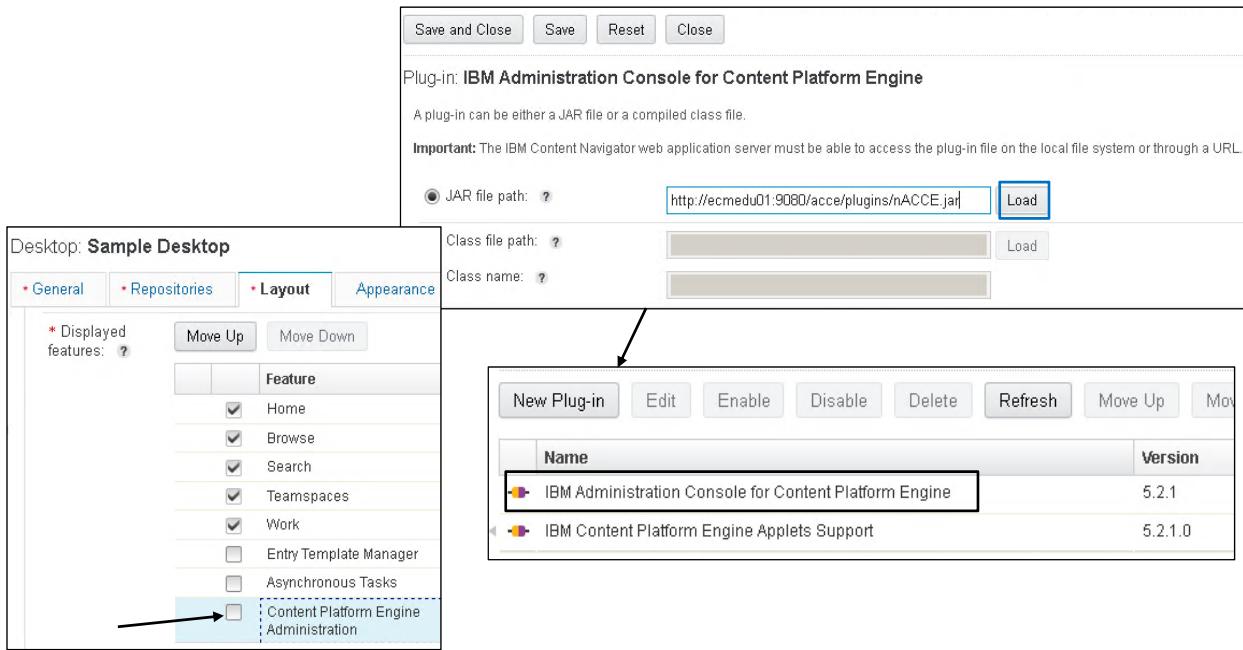
Figure 3-5. Object store folder structure

When you select an object store, from the object stores node, a tab with the object store name opens next to the tab, P8Domain. The folder structure that you see is shown in screen capture #1, upper left. The nodes are grouped into the following categories:

- Administrative – properties and objects associated with administering an object store (screen capture #2).
- Browse –folders and content that is stored in the folders, and content that is not filed in any folders (screen capture #3).
- Data Design – Classes, choice lists, property templates (screen capture #4).
- Events, Actions, Processes – Anything having to do with events, actions, lifecycle policies, subscriptions (screen capture #5).
- Recovery Bins – Where you configure and administer recovery bins.
- Search – Where you define Search templates, and assign who can run and define searches.
- Sweep Management – Background search sweeps, job sweeps, sweep actions (screen capture #6).

Configure ACCE as a desktop feature

- Create a single administration desktop to administer multiple applications.



Administration Console for Content Platform Engine

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Figure 3-6. Configure ACCE as a desktop feature

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Getting started>Configuring the administration console as an IBM Content Navigator desktop feature

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc241.htm

You can configure the Administration Console for Content Platform Engine (ACCE) as an IBM Content Navigator desktop feature. Configuring the ACCE feature is useful if you are responsible for administering various applications, such as IBM Content Navigator, Datacap, and IBM FileNet Content Manager. You can define a desktop that contains all the features to administer the various applications from one single console. You can still use the web-based tool, ACCE, as well.

To configure the feature you:

- Register the IBM Administration Console for Content Platform Engine plug-in.
 - Open the IBM Content Navigator Administration tool.
 - Open the Plug-ins node.
 - Select New Plug-in.

- In the Plug-in screen, upper left, enter the URL shown on the screen capture. You use the Content Platform Engine server and http port number.
 - When the Plug-in is successfully registered, it is listed in the list of Plug-ins (screen capture in the middle).
2. Select the feature in the layout tab of the desktop (screen capture on the lower left).
- Open the desktops node.
 - Edit the desktop that you want to add the ACCE feature to.
 - Select the Layout tab.
 - Select the check box for Content Platform Administration.
 - Save the desktop.

Unit summary

- Use Administration Console for Content Platform Engine to locate FileNet P8 Domain objects.

Administration Console for Content Platform Engine

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Figure 3-7. Unit summary

Exercise: Explore Administration Console for Content Platform Engine

Administration Console for Content Platform Engine

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Figure 3-8. Exercise: Explore Administration Console for Content Platform Engine

Exercise introduction

- Locate global configuration properties.
- Locate object store folders, classes, and property templates.



Administration Console for Content Platform Engine

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Figure 3-9. Exercise introduction

Part 2. Build a FileNet Content Repository

Unit 4. Build a FileNet Content Repository

Estimated time

00:30

Overview

In this unit, you create the JDBC data sources for a new object store. You then create an object store. Finally, you add the object store to an IBM Content Navigator desktop.

How you will check your progress

- Complete the lesson exercises.

References

Knowledge Center URL:

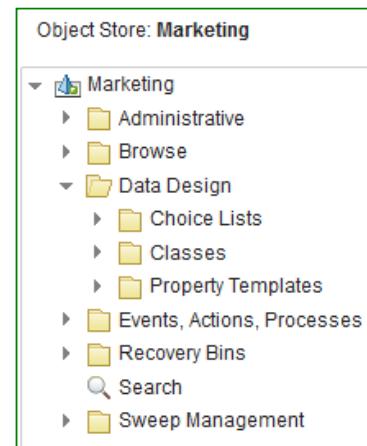
<http://www.ibm.com/support/knowledgecenter>

Unit objectives

- Create JDBC data sources
- Create an object store
- Add an object store as a repository to an IBM Content Navigator desktop

What is an Object Store?

- A repository for storing objects
 - Object metadata is in a database.
 - Content can be stored in the database or it can be stored in storage areas:
 - File storage area
 - Fixed storage area
 - Advanced storage area
 - Content cache area
- Sample tasks that are done in an object store:
 - Configure security and storage policies.
 - Create objects to store data.
 - Configure events and processes.
 - Browse to the objects.
 - Search for documents and folders.
 - Manage Sweeps.
 - Configure Index.



[Build a FileNet Content Repository](#)

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Figure 4-2. What is an Object Store?

The screen capture shows the object store and its sub nodes in the Administration Console for Content Platform Engine.

An object store can have one database store, and zero or storage areas.

Object store database

- Object stores can share a database, but they must use separate schemas.
- If you require a separate database, a database administrator can create one that meets the documented requirements.
 - Example: DB2 for Linux, UNIX, and Windows server
 - Use SERVER authentication.
 - Set the DB2 code set to UTF-8.
 - Set the page size to 32 KB.
- See IBM Knowledge Center for database requirements:
 - Microsoft SQL
 - Oracle
 - DB2 for z/OS
 - DB2 for Linux, UNIX, and Windows server
- GCD database
 - Contains domain configuration properties
 - Not usually shared with object stores

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Figure 4-3. Object store database

Help paths

FileNet P8 Platform 5.2.1>Planning and preparing>Planning and preparing for FileNet P8 installation>Performing the required installation preparation tasks>Database administrator installation tasks>Preparing Microsoft SQL Server>Verifying that Microsoft SQL Server is ready for FileNet P8>Creating a Microsoft SQL Server database for an object store

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.planprepare.doc/p8_ppi023.htm

FileNet P8 Platform 5.2.1>Planning and preparing>Planning and preparing for FileNet P8 installation>Performing the required installation preparation tasks>Database administrator installation tasks>Preparing Oracle server>Verifying that Oracle server is installed for FileNet P8>Creating Oracle table spaces for a Content Platform Engine object store

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.planprepare.doc/p8_ppi120.htm

FileNet P8 Platform 5.2.1>Planning and preparing>Planning and preparing for FileNet P8 installation>Performing the required installation preparation tasks>Database administrator installation tasks>Preparing the DB2 for Linux, UNIX and Windows server>DB2 for Linux, UNIX and Windows database planning

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.planprepare.doc/p8ppi259.htm

FileNet P8 Platform 5.2.1>Planning and preparing>Planning and preparing for FileNet P8 installation>Performing the required installation preparation tasks>Database administrator installation tasks>Preparing DB2 for z/OS servers

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.planprepare.doc/p8ppi092.htm

In a shared configuration, multiple FileNet P8 components can store their data in a single database. They must use separate schemas. Most components allow for data to be collocated. However, it is often useful to keep some components in dedicated table spaces:

- The global configuration database: it is best practice to not share this table space.
- Object stores and their workflow system data, although part of a single application, family can be collocated. If you configure object stores in separate databases, you have more flexibility and control with security access, backup scheduling and execution, updates, and scheduled outages.
- Rendition Engine data
- IBM Content Navigator configuration data: Using the same table space for the IBM Content Navigator configuration data and the global configuration database (GCD) is not supported.

The Global Configuration Database (GCD) contains definitions of the common set of attributes that control functional characteristics of the collection of resources and services for the FileNet P8 domain it represents. It provides general, hierarchical object storage and contains bootstrapping data and global configuration information for the FileNet P8 domain. The GCD defines domain resources, such as sites (and their related virtual servers and server instances), object store databases, full-text index areas, fixed content storage areas, content cache areas, AddOns, marking sets, and other data.

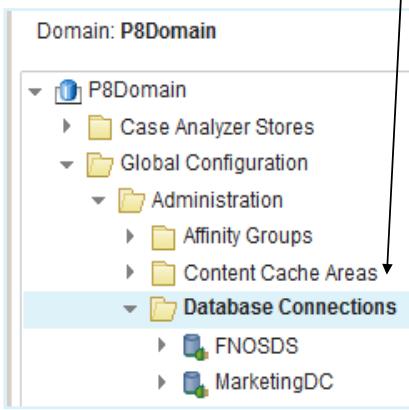
On DB2 and SQL Server, it is not recommended to share the GCD database.



What is a database connection object?

A database connection identifies the data source pair that provides the Java Database Connectivity to the database.

Create a database connection in Administration Console for Content Platform Engine.



Database Connection: FNOSDS

General		Properties	Object Stores	Legacy Isolated
A database connection identifies the XA and non-XA data source pair that provides the Java Database Connectivity (JDBC) connection to the database. Learn more...				
*	Display name:	FNOSDS		
*	JNDI data source:	FNOSDS		
*	JNDI XA data source:	FNOSDSXA		
Site:		Initial Site		

It is specific to a site.

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Figure 4-4. What is a database connection object?

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Sharing data sources>Database connections

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcb029.htm

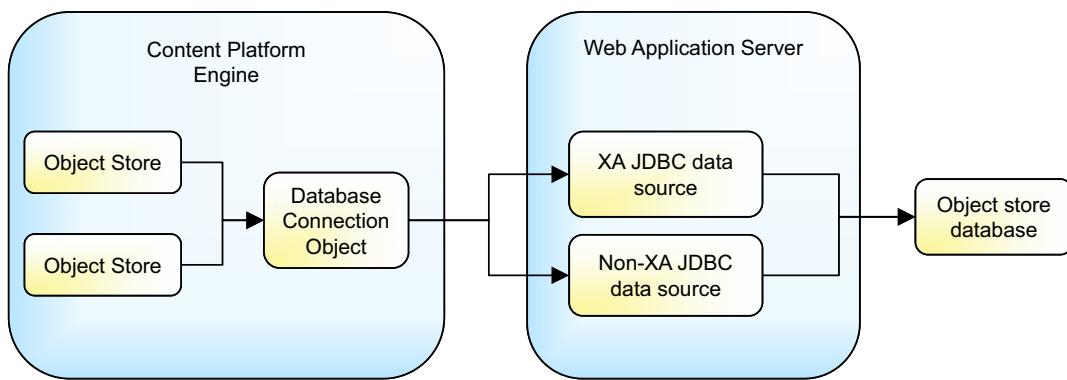
The screen captures show the database connection details in the Administration Console for Content Platform Engine.

A database connection identifies the XA and non-XA data source pair that provides the Java™ Database Connectivity (JDBC) connection to the database. Object stores and isolated regions can share a database by using a single database connection.

A database connection is specific to a site. When you create an object store or an isolated region for the site, you associate it with a database connection. To share a database, you assign the same database connection to one or more object stores or isolated regions.

Object store and database connectivity

- The JDBC data source information is used by Content Platform Engine to connect to global configuration database (GCD) and object store databases.
- You must configure two JDBC data sources for each database connection object.
 - XA
 - Non-XA



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Figure 4-5. Object store and database connectivity

The content of an object in the object store can be stored in the database or in a storage area. However, the metadata for the object is stored in the database. An object store must have a database connection to function.

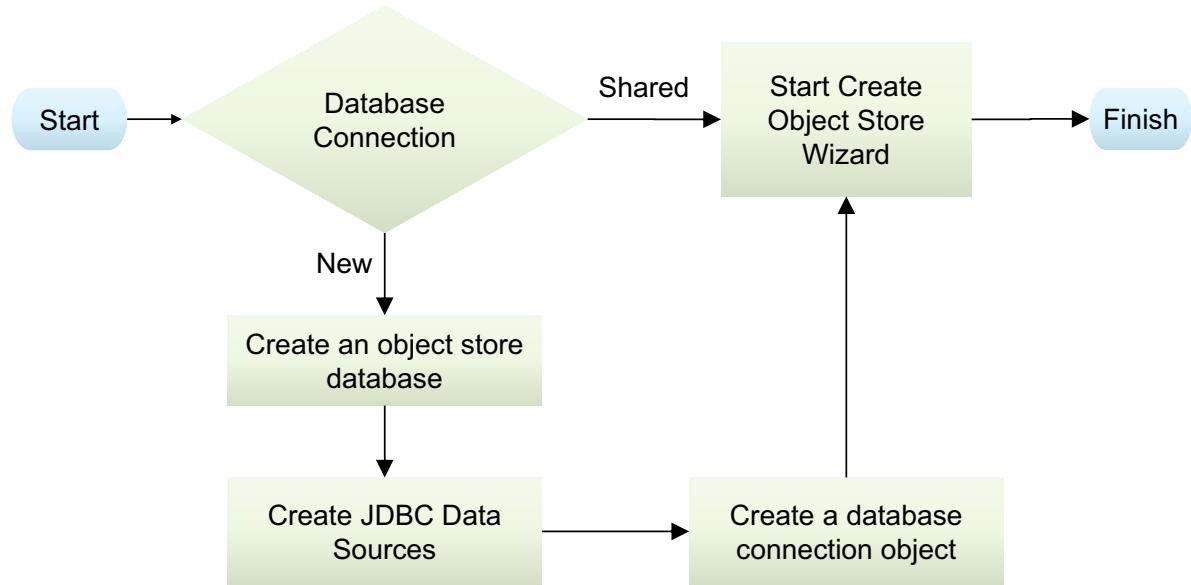
The connection to the database is made by a Database Connection Object, which you configure by using the Administration Console for Content Platform Engine.

The Database Connection Object uses the XA and non-XA data source connections to connect to the object store database.

- XA is an industry-wide standard for transactions that involve multiple resources. For example, transactions that use multiple databases or JMS queues. Operations can affect multiple resources, and when a change is committed, the results are committed across all of the resources. The Content Platform Engine uses the XA data sources for all create, update, and delete operations because of their rollback and timeout features.
- Non-XA transactions have no transaction coordinator, so they are used with a single resource, for example, a single database. The Content Platform Engine uses non-XA data sources for search and retrieve operations because these operations do not modify data, so rollback features are not needed.

An object store requires a connection object that has both XA and non-XA data sources defined.

Object Store creation overview



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Figure 4-6. Object Store creation overview

The diagram shows the general process for creating an object store. If a database connection exists, and it can be shared with the new database, then you can create the object store immediately. Otherwise, you must first create the data sources and the database connection object.

What is IBM FileNet Configuration Manager?

- IBM FileNet Configuration Manager is a tool that automates FileNet Content Manager configuration tasks.
- Used for configuring FileNet P8 settings:
 - Data sources that are required for object stores.
 - JDBC connections
 - LDAP connections
 - Bootstrap properties
- You can use Configuration Manager to generate one or more unique Content Platform Engine configuration profiles.
 - A profile is a collection of information that is required to configure and deploy new or upgraded Content Platform Engine instances.
 - Example: **CEConfig.cfgp**
 - You can use profiles as templates for configuration.

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Figure 4-7. What is IBM FileNet Configuration Manager?

Help path

FileNet P8 Platform 5.2.1>Installing or upgrading>Configuration Manager reference>Overview of Configuration Manager

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.install.doc/p8pia002.htm

Although you can use Configuration Manager to create the JDBC data sources, an application server administrator can create the data sources by using server administration tools.

The information for a profile is collected in XML files in the form of properties and values that describe the associated configuration and deployment tasks. You must provide values for the profile properties that are specific to each configuration at your site, such as the application server name.

The XML files are stored in a directory that is unique to a profile. Because the profile name is used for both the directory name and the configuration file name, you must provide a profile name that is a valid directory name for your operating system. By default, the profiles are stored in the `ce_install_path/tools/configure/profiles` directory, where `ce_install_path` is the location where Content Platform Engine is installed.



Testing JDBC Data Sources

- Use the WebSphere Application Server administrative console
<http://<ServerName>:9043/ibm/console/logon.jsp>
 - Resources > JDBC > Data sources

Select	Name	JNDI name	Scope	Provider	Description
<input checked="" type="checkbox"/>	FNOSDS	FNOSDS	Cell=P8Node01Cell	JDBC provider for DB2	CEMP DataSource
<input type="checkbox"/>	FNOSDSXA	FNOSDSXA	Cell=P8Node01Cell	JDBC provider for DB2 (XA)	CEMP DataSource (XA)

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Figure 4-8. Testing JDBC Data Sources

The screen capture shows the WebSphere JDBC data resources page.

As a precaution, test the JDBC data sources after you create them. In this course, you use the IBM WebSphere Application Server Administrative Console to test JDBC data sources.



Sharing Database Connections

Multiple object stores or isolated regions in a single database can share a database connection.

- Benefits

- Reduces the application server administrative load.
- Reduces the database administrator load.
- Requires fewer data sources and database connections.
- Provides a way to create new object stores without the intervention of the Database Administrator and the Application Server Administrator.

Database Connection: FNOSDS

	Name	Database Schema Name
	LoanProcess	LoanProcess
	LoanProcessQA	LoanProcessQA
	P8ConfigObjectStore	OSDBUSER
	Sales	Sales
	SalesQA	SalesQA
	SalesSBx	SalesSBx

Each object store uses a unique schema name.

Figure 4-9. Sharing Database Connections

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Sharing data sources>Guidelines for sharing database connections

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcb030.htm

The screen capture shows a database connection that shared by many object stores in the Administration Console for Content Platform Engine.

When creating an object store, you either reuse an existing database connection or follow the same procedures required for creating the initial object store. If you are reusing an existing database connection, you can run the New Object Store wizard without any further preparations.

Benefits to sharing data sources

Object stores and isolated regions that share a database require fewer data sources and database connections. Sharing one database across the object stores greatly reduces the administrative costs of the system. Another advantage is that you can create new object stores without needing a database administrator to assist. Object store data is kept separated by having different schema names.

Sharing data sources

To configure objects to use the same data sources, you specify the same database connection for each object store or isolated region.

The ability to share a database is achieved by the use of unique schema names. When you create the object store, you specify a schema name and all the tables and indexes are created within that schema.

Restrictions

Object stores or isolated regions that must be backed up independently must be stored in separate databases.

Object stores and isolated regions that are used for IBM Case Manager must be stored in the same database and cannot be backed up independently.

Prepare to Create an Object Store

- Plan the number of object stores that are needed for the following tasks:
 - Supports enterprise IT organizational structure
 - Simplifies security for many document types and deep folder structures
 - Improve search performance
- Determine one or more file storage areas
 - Improves retrieval performance for large documents.
- Consider which database type you use.
 - All the object stores that you create must be based on the same database type.
- Determine database connections.
- Decide which users and groups work with the object store and their rights.
 - Adding users and groups after you create an object store is time-consuming.

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Figure 4-10. Prepare to Create an Object Store

In some cases, you might use multiple object stores to better manage the system. The usefulness of multiple object stores depends on the complexity of the enterprise and the capabilities of the system administrator.

Multiple object stores can support enterprise organizational structure. For example, the management might assign one administrator to Human Resources and another to Finance. If each department has its own object store, assigned responsibility is clear.

Multiple object stores simplify security for widely varied document types or deep folder structures.

When an object store contains many tens of thousands of objects, or when folder structure approaches 20 sublevels, administration of security for the objects becomes complex. This complexity is an indication to consider multiple object stores.

Multiple object stores helps improve Search performance.

Database use

All the object stores that you create must be based on the same database type. For example, you cannot create an object store that is based on IBM DB2 for Linux, UNIX, or Windows and another object store that is based on Microsoft SQL Server.

Users and Groups

Plan for which users and groups work with the object store, and what access rights the users and groups need.

Object stores do not all need to have the same initial set of users and groups. You can grant users access to an object store when you create the object store. However, adding users and groups after you create an object store is time-consuming. To add a user or group to an existing object store, you must manually add the user or group to all objects in the object store and assign security settings as needed.

Before creating an object store, create one or more generic access users with the correct permissions. When you run the Create Object Store wizard, add the generic user to the object store.

If you specify an empty list for basic access, the wizard automatically adds #AUTHENTICATED-USER, which gives all network users in the authentication realm access to the object store.

Additional considerations:

- Plan a content cache area – It Improves system performance by using content caches.
- Whether to automatically import objects or run user scripts during object store creation. If you exported objects from another object store, you can configure Content Platform Engine to import the objects when you create an object store.

Add-ons for an Object Store

- You can configure a number of AddOns.
 - Select only needed Add-ons during Object Store creation.
- Default Add-on
 - Base Content Engine Extensions Add-ons are selected by default.
- Custom Add-ons
 - You can create custom Add-ons and install it on the Content Platform Engine.
- Workplace Base Extensions and Workplace XT Extensions are required for IBM Content Navigator.

- 5.2.1 Base Application Extensions
- 5.2.1 Base Content Engine Extensions
- 5.2.1 Process Engine Extensions
- 5.2.1 Stored Search Extensions
- 5.2.1 Thumbnail Extensions
- 5.2.1 Workplace Base Extensions
- 5.2.1 Workplace Templates Extensions
- 5.2.1 Workplace XT Extensions

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Figure 4-11. Add-ons for an Object Store

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the FileNet P8 infrastructure>Add-on features

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/featureaddons/_start_here_fa.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the FileNet P8 infrastructure>Add-on features>Add-on extensions>Workplace Base Extensions

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/featureaddons/wpcomaddon/_start_here_wpcom.htm?lang=en

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the FileNet P8 infrastructure>Add-on features>Add-on extensions>Workplace XT Extensions

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/featureaddons/xtaddon/_start_here_xt.htm

The screen capture shows selected Add-ons for an object store in the Administration Console for Content Platform Engine.

During Object Store creation, you can configure a number of Add-ons to support various Add-on features of the product. For example, support for DITA includes many Add-ons. If you do not need a feature, you can save space by not including those Add-ons.

Select only needed Add-ons during Object Store creation.

- More add-ons can be installed after the object store is created.
- Add-ons properties are implemented as database table columns.
- Benefit: saves row space in object store data tables.

Add-on features are modules that contain custom metadata and data to support extensions to core Content Platform Engine features, and applications that integrate with Content Platform Engine.

An add-on feature can be a product that is compatible with the FileNet P8 Platform, or an add-on feature included with the Content Platform Engine software.

The add-on feature name indicates the functions of the add-on, for example, 5.2 Publishing Extensions add-on provides the base functions necessary for IBM FileNet P8 publishing applications. In addition, the description for each add-on describes the add-on's functions in more detail. If you create custom add-on features, you can enter a description of your choice to help consumers of your add-on decide whether to install them.

Before you can install an add-on to an object store, you must first create it. After an add-on is created, you can install it to a new or existing object store.

Base Content Engine Extensions Add-ons

The Base Content Engine Extensions add a mechanism for generating a map (array) of lookup strings, which can be implemented to locate custom or application-specific properties, and to create labels for generic properties. This add-on feature also specifies a title for all documents that are stored in a FileNet P8 Content Platform Engine object store, which becomes the Name property for all FileNet P8 applications. It also provides a way for you to determine whether the GUI elements that represent a folder in FileNet P8 should be made visible to the user.

It is required for other extensions.

The Base Content Engine Extensions provide property templates and implement custom classes, objects, and properties in the following areas:

- Property templates
- Properties of Document Class and Subclasses
- Subclasses of Custom Object
- Properties of Folder Class and Subclasses
- Custom Objects
- Folders

5.2.1 Workplace Base Extensions

Workplace Base Extensions add property templates and custom subclasses and properties:

- Property templates
- Properties of Document Class and Subclasses

- Subclasses of Document Class
- Properties of Custom Object Class and Subclasses
- Properties of Folder Class and Subclasses
- Subclasses of Folder Class
- Subclasses of Link Class

5.2.1 Workplace XT Extensions

The Workplace XT Extensions add-on contains a class to support folder preferences. This class does not contain any new properties.

IBM Content Navigator

- IBM Content Navigator is a client for FileNet P8 Platform.
 - Provides a console for users to work with content.
 - Replaces IBM FileNet Workplace XT (IBM FileNet P8 5.2.1 and later).
- Connects to several types of repositories:
 - IBM Content Manager Enterprise Edition repositories
 - IBM Content Manager OnDemand repositories
 - IBM FileNet P8 repositories
 - OASIS Content Management Interoperability Services (CMIS) repositories
- For users to access the object store in IBM Content Navigator, you must configure the object store as a repository.
 - Connect IBM Content Navigator to the repository.
 - Associate the repository with an IBM Content Navigator desktop.
 - The object store must include 5.2.1 Workplace and Workplace XT extensions

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Figure 4-12. IBM Content Navigator

Content Navigator 2.0.3>Planning, installing, and configuring IBM Content Navigator>IBM Content Navigator overview>IBM Content Navigator overview

http://www.ibm.com/support/knowledgecenter/SSEUEX_2.0.3/com.ibm.installingeuc.doc/eucao001.htm

Content Navigator 2.0.3>Planning, installing, and configuring IBM Content Navigator>Administering IBM Content Navigator components>Configuring the IBM Content Navigator web client>Configuring connections to repositories for IBM Content Navigator>Connecting and configuring IBM FileNet Content Manager repositories

http://www.ibm.com/support/knowledgecenter/SSEUEX_2.0.3/com.ibm.installingeuc.doc/eucco015.htm

For the following add-on features, you must install the add-on features to an object store before you configure the repository.

- You must install the WorkPlace Template Extensions add-on and the Workplace XT add-on.
- If you want to use cross-repository searches and save searches, you must first install the stored search add-on to the object store.

- If you want to use social collaboration features, you must install the social collaboration base extension add-on to the object store. You can install this add-on before or after you configure the repository.

Instructor demonstration

- Create a data source for an object store.



Figure 4-13. Instructor demonstration

Unit summary

- Create JDBC data sources
- Create an object store
- Add an object store as a repository to an IBM Content Navigator desktop

Figure 4-14. Unit summary

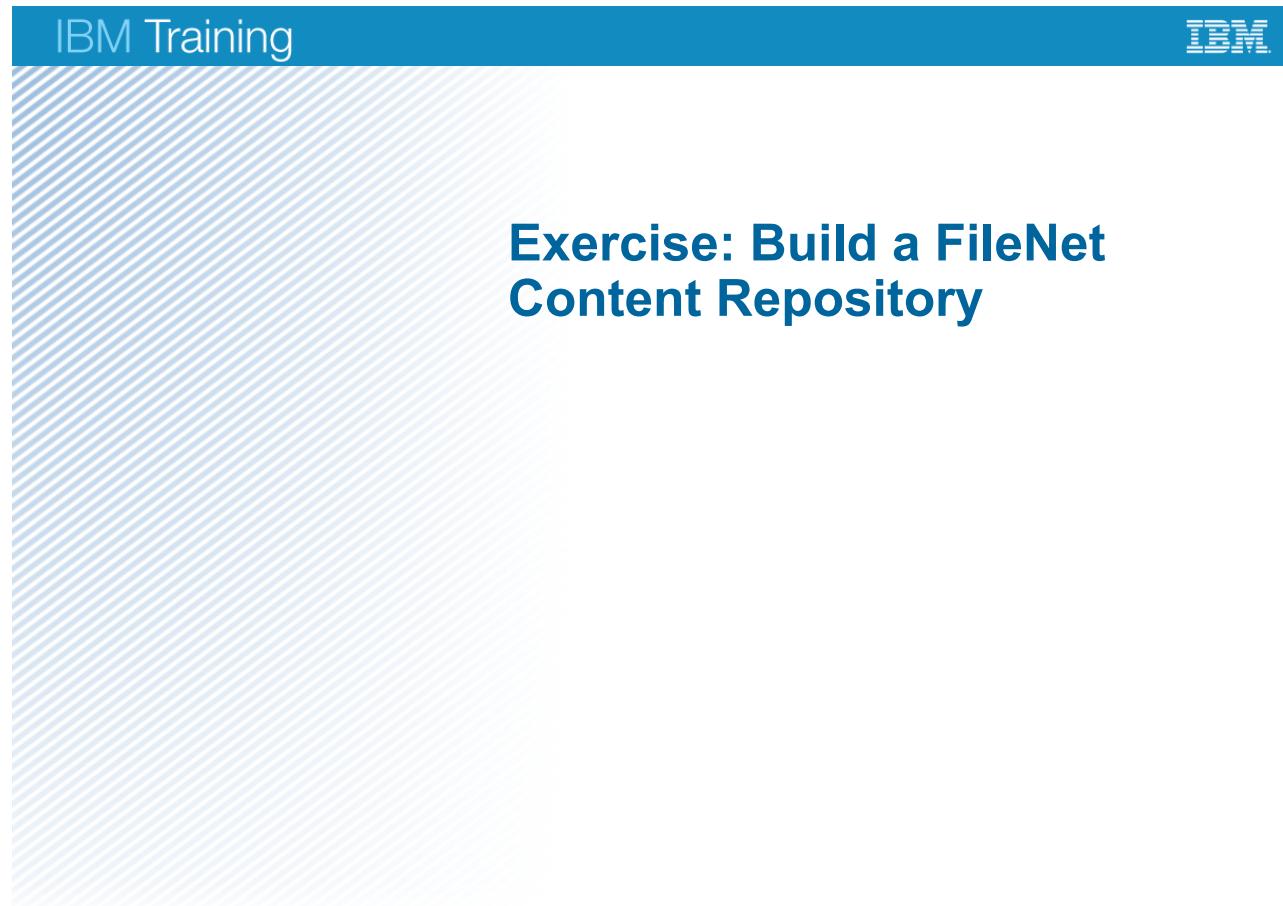


Figure 4-15. Exercise: Build a FileNet Content Repository

Exercise objectives

- Create JDBC data sources for an object store.
- Create an object store.
- Add an object store as a repository to an IBM Content Navigator desktop.



Figure 4-16. Exercise objectives

Unit 5. Work with storage areas

Estimated time

00:45

Overview

In this unit, you learn about content storage area types, file storage options, and architecture.

How you will check your progress

- Successfully complete the lesson exercises.

References

IBM Knowledge Center

<http://www.ibm.com/support/knowledgecenter>

Unit objectives

- List the types of storage areas.
- Describe storage options and architectures.
- Describe storage policies

What is a storage area?

- A storage area is a place where Content Platform Engine stores content.
- Storage area types
 - Database storage areas
 - File storage areas
 - Fixed storage areas
 - Advanced storage areas
- These storage options can be used individually or together.

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Figure 5-2. What is a storage area?

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcb026.htm

Storage area types

Database

A database storage area is the database used for the object store. Content Platform Engine stores both the objects and the content for those objects in the same database. Database storage areas are used for small content elements. For larger content elements, other storage options are preferred.

File

A file storage area is a hierarchy of folders on a shared network drive accessible by the Content Platform Engine server.

Fixed

A fixed storage area is a file storage area with an associated external (non-FileNet P8) fixed content system that provides more storage capacity and data retention. You can index a storage area of any type for content-based retrieval.

Advanced

An advanced storage area supports heterogeneous storage devices. OpenStack cloud storage and file system storage can be used in an advanced storage area.

Storage area options

- Encryption
 - Protects the content against access from outside of FileNet P8.
 - Incurs a performance cost for uploading and retrieval.
 - Renders content useless if the object store encryption data is lost.
- Duplication suppression
 - Reduces storage space required for content storage.
 - Checks incoming content to determine if it is a duplicate.
 - Incurs a performance cost for uploading content.
 - Does not apply to fixed content storage areas.
- Compression
 - Reduces storage space required for content storage.
 - Controlled by the content compression threshold.
 - Content is compressed if the content can be compressed below the compression threshold.
 - Can affect overall performance.
- Content Caching options
 - Not allowed
 - Cross-site only
 - Allowed

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Figure 5-3. Storage area options

Help Paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Controlling how content is stored>Content encryption

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/contentstores/cs_content_encryption.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Controlling how content is stored>Content duplication suppression

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/contentstores/cs_content_duplication_suppression.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Controlling how content is stored>Content compression

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc125.htm

FileNet P8 Platform 5.0.0>Administering IBM FileNet P8>Administering Content Engine>Content storage>Storage areas>How to...>View and modify properties>Configuration tab

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.0.0/com.ibm.p8.ce.admin.doc/contentstores/cs_file_store_properties_configuration_tab.htm

Encryption

Content Platform Engine encrypts and decrypts content by using AES in Counter mode, a Federal Information Processing Standard (FIPS) 140-compliant algorithm, with a 128-bit key or a 256-bit key.

You incur two performance penalties with content encryption. The first penalty occurs when you upload content to a storage area because more processing time is required to encrypt the content. The second penalty occurs when you retrieve content because more processing time is required to decrypt content.

Important: The retrieval of encrypted content relies upon information that is stored in the object store database. If that information is lost, the content is effectively lost also. To avoid such problems, regularly back up the object store database.

Duplication suppression

The suppression of duplicate content potentially reduces the storage space that is required to store content. Content Platform Engine suppresses duplicate content by checking the existing content before adding new content to the storage area. If identical content exists, the new content is not stored separately from the existing content. If no identical content exists, the new content is added in the normal manner.

Compression

Content that is uploaded to a storage area is compressed if content compression is enabled and if the content can be compressed below the content compression threshold.

Content compression uses blocked-compression technology that separates uploaded content into identical, size-controlled blocks. Compression takes place on an efficient block-by-block basis, in contrast to the uncompressed block size that is variable and based on the chunk size at upload.

Some content does not compress well, and the inefficiencies that are incurred by the compression process are not worth the marginal space savings. To avoid inefficiencies during both upload and download, you can specify a content compression threshold that applies to the storage area. Content is compressed only if the percentage of compression meets the threshold.

Content Caching options

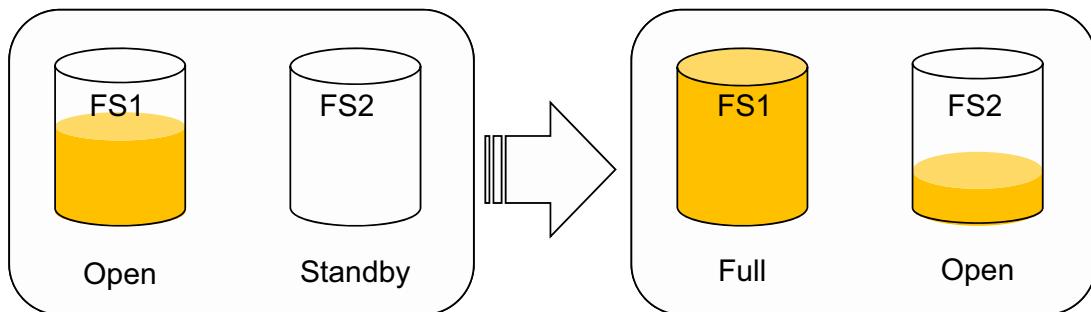
Content caching provides faster access to content across sites by temporarily storing remote content locally. To reduce network traffic, content can be cached on the file system that is local to the Content Platform Engine server. A content cache area is an area that contains frequently accessed document content that is duplicated from the original content in storage areas.

Content caching options are available from the Configuration tab of the storage area.

- **Not Allowed:** Storage area content caching is disabled.
- **Cross-site Only:** Caching of storage area content is available only when the storage area does not belong to the same site as the server that accesses the content.
- **Allowed:** Storage area content can be cached to any cache area.

Resource statuses of File Storage Area

Status	Create	Append	Delete	Retrieve
Open	X	X	X	X
Closed			X	X
Standby		X	X	X
Full			X	X



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Figure 5-4. Resource statuses of File Storage Area

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Changing the storage area resource status>Resource statuses

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/contentstores/cs_resource_statuses.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Changing the storage area resource status>Automatic resource status changes

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/contentstores/cs_auto_resource_status.htm

Customizing the permissible operations for a resource status.

You can configure a storage area to disable some content operations that are otherwise enabled by a resource status. You can disable the following operations:

- Create content and Append content
- Delete content

Resource status changes occur in the following ways.

- **Automatically:** Content Platform Engine sets the resource status to Open for newly created storage areas, and also for storage areas with a status of Standby (in some circumstances). Also, Content Platform Engine changes the resource status from Open to some other status when detecting a particular storage area condition. For example, if FS1 reaches the maximum size and FS2 is on Standby, then FS1 switches from Open to Full, while FS2 switches from Standby to Open.
- **Indirectly:** You indirectly change the resource status when you set a storage area to be online or offline. Specifically, enabling the storage area to be online causes the resource status to be Open, and disabling the storage area to be offline causes the resource status to be Closed.
- **Directly:** You can directly change the resource status for a storage area.

Database storage areas

- Content is stored in the object store database.
- Content is converted into Binary Large Objects (BLOBs).
- A database storage area (contained by a table named "Content") is automatically created when you create an object store and specify the default storage area for document content is a database.
- Advantages
 - Easy to create
 - Fast for small files
- Limitations
 - Large files can cause errors with some database systems.

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Figure 5-5. Database storage areas

Help path

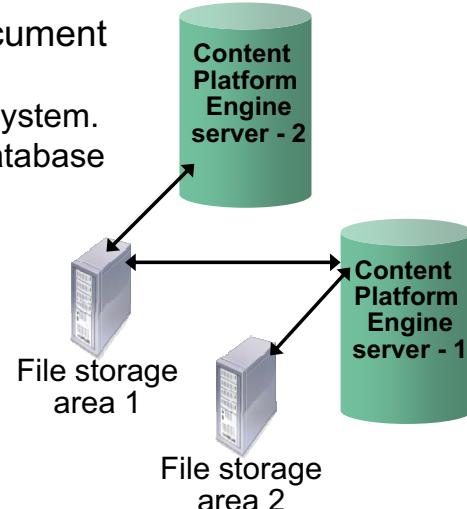
FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Database and file storage areas>Database storage areas

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/contentstores/cs_about_database_stores.htm

Controlled tests with limited concurrency exhibited errors when run with files that were 300 MB or larger. Factors affecting this file-size limitation include driver and application server memory demands, other activity such as concurrent retrieval or indexing of large content, and JVM memory allocations.

File Storage Area

- An area in the file system to store document content
 - In a folder on a local or distributed file system.
 - Associated metadata is stored in the database store.
- File systems that can be used:
 - UNIX file system
 - IBM General Parallel File System (GPFS)
 - Windows NTFS volume



- A many-to-many relationship exists between Content Platform Engine servers and file storage areas.
 - Many servers can manage one file storage area
 - A single server can manage multiple file storage areas.

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Figure 5-6. File Storage Area

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Database and file storage areas>File storage areas

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/contentstores/cs_about_file_stores.htm

The diagram shows the many-to-many relationship between Content Platform Engine servers and file storage areas.

Note: You can create a file storage area only on a non-encrypted NTFS volume.

Content element model

- A document can have zero or more content elements.
- An element is either a content reference element or a content transfer element.

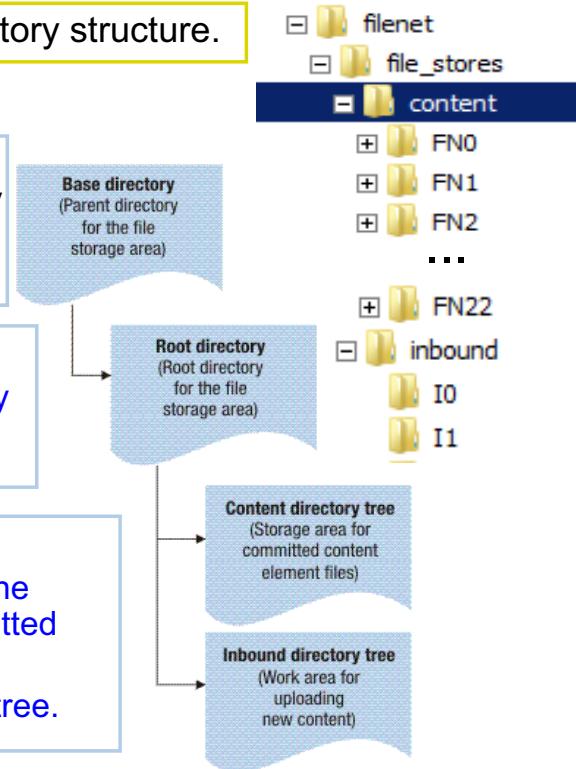
A content transfer element has an associated content file in the file storage area. The system uses combination of the document object identifier (GUID) and an integer sequence number to identify the document. Within the context of a document, the sequence number identifies the individual content element.

When you check in a document, the document content set becomes immutable. Although no content element for a checked-in document can be added or deleted, the entire document can still be deleted. When you delete a document, the content element files for the document are deleted.

File Storage Area Directory Structure

Example of a file storage area directory structure.

- Base directory
 - It is the **user-named** parent directory for one or more file storage areas.
 - Contains a stakefile.
- Root directory
 - It is the **user-named** top-level directory for a specific file storage area.
- Content directory tree
 - The directories at the lowest level of the content directory tree store the committed content element files.
 - The Storage Area wizard creates the tree.



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Figure 5-7. File Storage Area Directory Structure

The diagram shows the directory structure of a file storage area and the relationship between multiple file storage areas. It also shows an example of a file storage area directory structure.

The stakefile file is a system file that is created in the root directory of a file store directory structure and contains information about that structure. The following directories use this type of directory structure:

- A file storage area
- The staging directory of a fixed storage area
- The file system device of an advanced storage area
- Other fixed content devices such as Hitachi Content Platform.

If the stakefile file cannot be loaded, Content Platform Engine server cannot access the root directory.

You cannot create a file storage area in a directory that already contains a stakefile.

File storage area size control options

- Directory structure size
 - Small (23 x 23)
 - Large (23 x 23 x 23)
- Maximum number of elements
 - Sets the maximum number of total content elements that can be stored.
- Maximum size
 - Sets the maximum disk space that can be used.
- Deletion method
 - Clear – Lowest security, highest performance
 - Destroy – Medium security
 - Purge – Highest security
- Standby activation priority

Figure 5-8. File storage area size control options

Directory structure size

Anticipated growth and the need for physically grouping the documents for storage management, backup, or disaster recovery purposes determine the choice of directory structure. A large file storage area is more suited for storing many small content elements that contain single-page scanned documents or small emails. A small file storage area is better suited for fewer content elements with a larger average size, such as content element files with embedded images, spreadsheets, and graphics.

Maximum number of elements

Documents are stored among the directories at the leaf level by using a hashing algorithm. To augment performance, limit the number of content element files in a leaf directory to fewer than 5,000. For a small directory structure, the upper limit is around 2,500,000 content element files. For a large directory structure, the limit is about 60,000,000 content element files.

Maximum size

You can specify the maximum amount of disk space to which the storage area can grow. When this limit is reached, the file storage area is full.

Deletion method

Deletion method affects security and performance. The different methods for deletion run different operations on the magnetic content of the disk drive. The more secure the deletion method, the more costly it is in terms of performance.

Standby activation priority

As soon as an open storage area reaches Full status, one of the storage areas in Standby state is activated and assigned an Open state. Storage areas are selected for activation based on the standby activation priority that is defined when the storage area is created.

File storage area security

- Content Platform Engine must have full access to the folder.
 - Before creating a Storage Area, you must create the base and root directories under which file storage areas are created.
 - Set the security privileges on the directories.
 - Use the Content Platform Engine operating system user account.
- Windows based file storage areas
 - The operating system login accounts must exist in the same Windows domain or in trusted Windows domains.
- AIX, HPUX, HPUXi, Linux, or Solaris-based file storage areas
 - Security is configured with NFS.

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Figure 5-9. File storage area security

Help path

FileNet P8 Platform 5.2.1>Security>Authorization>Storage area security

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa026.htm

FileNet P8 objects are stored in the object store database. The files that the content element property of a document object refer to are stored in the content storage areas.

- Network security controls physical access to the folder and its contents.
- FileNet P8 object security permissions control access by FileNet P8 users and applications.
- Encryption can further protect the files against unauthorized access.

File storage area security

The Content Platform Engine operating system user (`cpe_os_user`) who logs on to the Content Platform Engine server and starts the local application server process is the account that must be used to secure the folders and files in a file storage area. The account that is used to install the application server should be the same account that is used to start the application server process. As an administrator, you log on using the same operating system account to secure

the folders and files in the file system that Content Platform Engine will use for a file storage area.

For Windows-based Content Platform Engine and file storage areas, these operating system login accounts must reside in the same Windows domain or in trusted Windows domains.

For Content Platform Engine and file storage areas based in AIX, HPUX, HPUXi, Linux, Linux on System z, or Solaris, security is configured using NFS, the protocol suite developed by Sun Microsystems that allows different makes of computers running different operating systems to share files and disk storage.

For a mixed environment of non-Windows and Windows, you will need an NFS Gateway product in order to provide interoperability between Windows-based and non-Windows-based clients.

Fixed storage areas

- A fixed storage area uses an external content storage device.
 - Content in fixed storage cannot be edited.
- Fixed content devices
 - Use independent API
 - Provide large storage capacity
 - Provide enforced content retention
- Compatible fixed content devices:
 - Hitachi Content Platform
 - IBM Tivoli Storage Manager
 - NetApp Snaplock fixed content device
 - Centera fixed content device
 - Atmos fixed content device
 - Isilon SmartLock fixed content device
 - Image Services fixed content device

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Figure 5-10. Fixed storage areas

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Fixed storage areas

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc090.htm

Initially Content Platform Engine writes the object content to the staging area. While in the staging area, the object content element list can be freely modified. The object content is later moved from the staging area to the fixed device. Annotation content is never moved to the content device.

When you check in an object content device, the object content for the specific version of the object becomes immutable.

Advanced storage areas

- Advanced storage areas provide high-availability content storage by using replication and replica repair.
 - Use Content Platform Engine Sweep and server communication services for replication, deletion, and abandoned content backout.
- Advanced storage areas support heterogeneous storage devices
 - OpenStack
 - File system
- Advanced file storage areas differ from file storage areas in the following ways:
 - Direct upload eliminates the content queue operations.
 - Supports a set of content integrity options.
 - Supports multiple replicas
- You must create an advanced storage device before you can use it in an advanced storage area.

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Figure 5-11. Advanced storage areas

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Advanced storage areas

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc220.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Advanced storage devices

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc232.htm

Content Platform Engine uses the following queue sweeps for advanced storage areas:

- Abandoned content deletion: The sweep deletes the abandoned content from all storage devices, also referred to as replicas.
- Content deletion: Requests to delete content are placed in a queue. The sweep deletes the specified content from all replicas.

- Content replication sweep: Content that is not synchronously uploaded to a replica is asynchronously uploaded. Upload requests are placed in the replication queue, and the sweep initiates uploads to replicas.

Advanced storage area features

- Content integrity options
 - Specify when and how content is validated on the system.
 - Uses Content Consistency Checker.
 - Examples:
 - Validate on retrieval
 - Auto repair on validation
- Content streaming
 - Content is not stored in a temporary cache and then written to the repository.
 - Content is not broken into blocks.
 - Content is streamed directly to the advanced storage device.
- Replication
 - Content is replicated across multiple storage devices (called replicas).
 - Synchronous and asynchronous
 - Replicas required and desired
 - Replicas cannot be added to an existing storage area.

Figure 5-12. Advanced storage area features

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Advanced storage areas>Content integrity options

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc276.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Advanced storage areas>Content integrity options

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc276.htm

Content integrity options

Content integrity options use the Content Consistency Checker to verify content within the Advanced Storage Area at times that are specified by integrity options.

- **Validate on creation:** Validates the existence and size of the content after content upload.
- **Verify signature:** Verifies the content signature after content upload.

- **Validate on retrieval:** Validates the existence and size of the content at the beginning of content retrieval before returning content to the user.
- **Verify signature on retrieval:** Verifies the content signature before sending content to the user.
- **Auto repair on retrieval:** Initiates auto repair of the content if the content is declared invalid on a replica that is used for the retrieval operation.
- **Verify signature on validate content:** Verifies the content signature, if it is available.
- **Auto repair on validation content:** Initiates repair if content validation fails.
- **Compute content signature:** Calculates the content signature during content upload.

Content Streaming

Advanced storage uploads content directly to the final location. The upload completes before the Document or Annotation object is committed to the system. Content Queue processing is not used by Advanced Storage (except for creating a new Storage Device). A new piped streaming mechanism is used to make the content appear as a single stream of data to the content system (instead of multiple chunks of content).



Note

Direct content upload (required by Advanced Storage) requires server affinity. Server affinity requires all content upload chunks to be sent to the same Content Platform Engine server.

Replicas

- When a user adds content to an advanced storage area, the content can be written synchronously to a number of replicas.
 - Replicas are storage area devices with identical content.
 - Multiple replicas are useful for highly available systems.
- Required synchronous devices
 - Minimum number of replicas for successful document add or update.
 - Number must be greater than zero.
- Maximum synchronous devices
 - Desired number of replicas.
 - Document add or update succeeds even if this number is not met.
 - Number must be greater than the number of required replicas.

* Maximum synchronous devices: ?

* Required synchronous devices: ?

Figure 5-13. Replicas

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Storage area types>Replication

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc223.htm

Replication

When you create the advanced storage area, you can select the advanced storage devices to act as replicas. You specify the number of required and desired replicas. These replicas become duplicates. The replicas are set as either synchronous, or asynchronous.

- **Synchronous replication** refers to writing content to a replica before the related Document or Annotation object being saved to the database.
- **Asynchronous replication** refers to writing content to a replica in the background (by the Replication Queue Sweep) after the related Document or Annotation object is saved to the database.

When content is added to the object store, it is copied to a number of the advanced storage devices. The number of replicas that it is copied to depends on the number of required and desired replicas.

An Advanced Storage Area contains two properties on the Devices tab that control how many replicas are written synchronously during content upload:

- **Replicas Required:** Refers to the minimum number of replicas that are required for a content upload to be successful. The related content object or annotation is not added (or updated) if the number of required replicas is not successfully written during the upload. The Advanced Storage Area must have 1 or more required replicas. The number cannot exceed the number of advanced storage devices.
- **Replicas Desired:** Refers to the number of extra replicas beyond what is required that you want written. The Desired number must be equal to or greater than the Required number. If the number of desired replicas is greater than the number of required replicas, the system attempts to write the desired number. The upload is still considered successful if the desired number of replicas cannot be written, if the number of required replicas is reached.

You specify the number of synchronous replicas that are required and the number desired.

Important: replicas cannot be added to an existing advanced storage area.

Priority

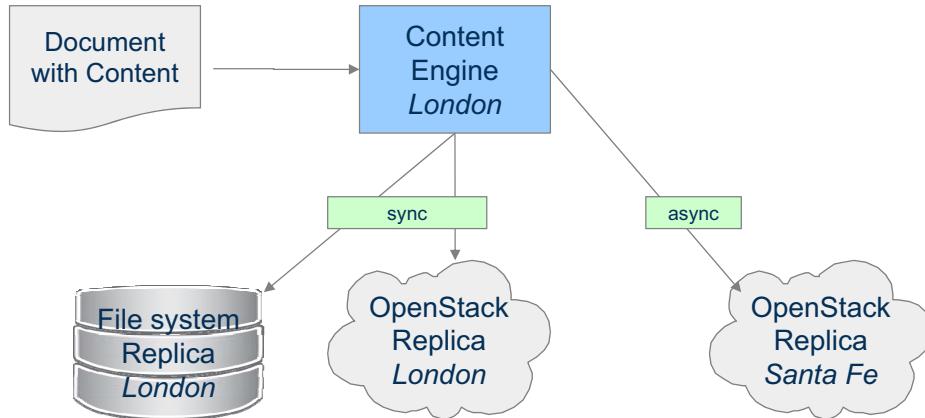
If the Content Engine and the replica are in the same site, then the replica is *local*.

If the Content Engine and the replica are in different sites, then the replica is *remote*.

Local replicas are usually preferred over remote replicas when determining which replicas should be used for upload or retrieval.

The screen capture shows the required and desired replicas as required synchronous devices and maximum synchronous devices in Administration Console.

Synchronous and asynchronous replication, common use case



In this example, the Content Platform Engine in London writes content synchronously to a file system replica and an OpenStack replica in London during upload and writes the content asynchronously to the OpenStack replica in Santa Fe.

Figure 5-14. Synchronous and asynchronous replication, common use case

The content that is stored in each replica of an Advanced Storage Area is (eventually) identical. For example, if content encryption is enabled for an Advanced Storage Area, the content is encrypted in all replicas associated with the area.

A replica is defined as primary, secondary, or asynchronous by the storage device connection object, which ties the advanced storage area to the storage device (CmStorageDeviceConnection object, ReplicaSynchronizationType property).

Both primary and secondary replicas are candidates for synchronous content upload.

Asynchronous replicas are not candidates for synchronous content upload. They are written asynchronously

In general, primary replicas are higher priority than secondary replicas – but the site of the replica is also used when prioritizing replicas for upload or retrieval.

The higher the number of required replicas, the more robust the system is. However, replicas can also lead to problems with uploads. If the system cannot write the required number of replicas, then the upload fails. If you include a higher number of desired replicas, then the upload succeeds if the required number of replicas are written. If the upload is successful, but any of the desired replicas fails, those replicas are later written by using the Replication queue sweep.

What is a storage policy?

- Storage policy
 - Determines where document content is stored.
 - Maps to one or more storage areas.
 - Can be assigned to classes or documents.
 - Can be modified or deleted as needed.
 - Is used for storage area farming.
- Storage area farm is a group of storage areas.
 - Acts as a single logical target for content storage.

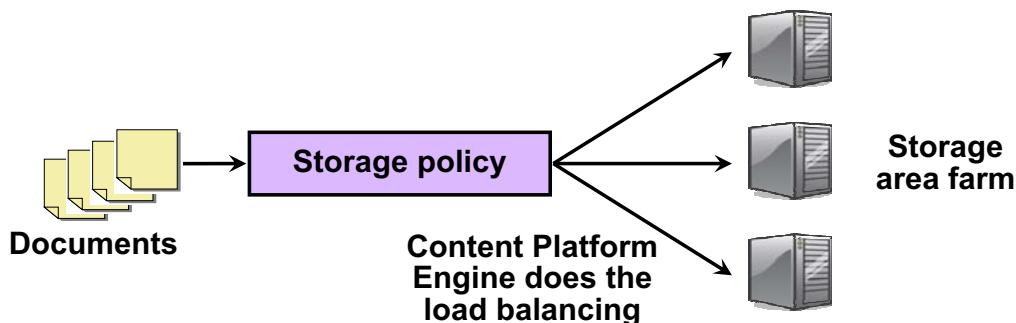


Figure 5-15. What is a storage policy?

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Assigning document content to a storage area>Storage policies

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/contentstores/cs_stp_about_storage_policies.htm

The diagram shows the relationship between a storage policy and storage area farms.

Storage policies

A storage policy provides mapping to specific physical storage areas and is used to specify where content is stored for a class or object with content (for example, a document). Content Platform Engine supports the mapping of storage policies to one or more storage objects. Each storage policy can have one or multiple storage areas as its assigned content storage target.

Farming

A storage area farm is a group of storage areas (a subset of the available storage areas) acting as a single logical target for content storage. With farming, Content Platform Engine provides

load-balancing capabilities for content storage by transparently spreading the content elements across multiple storage areas.

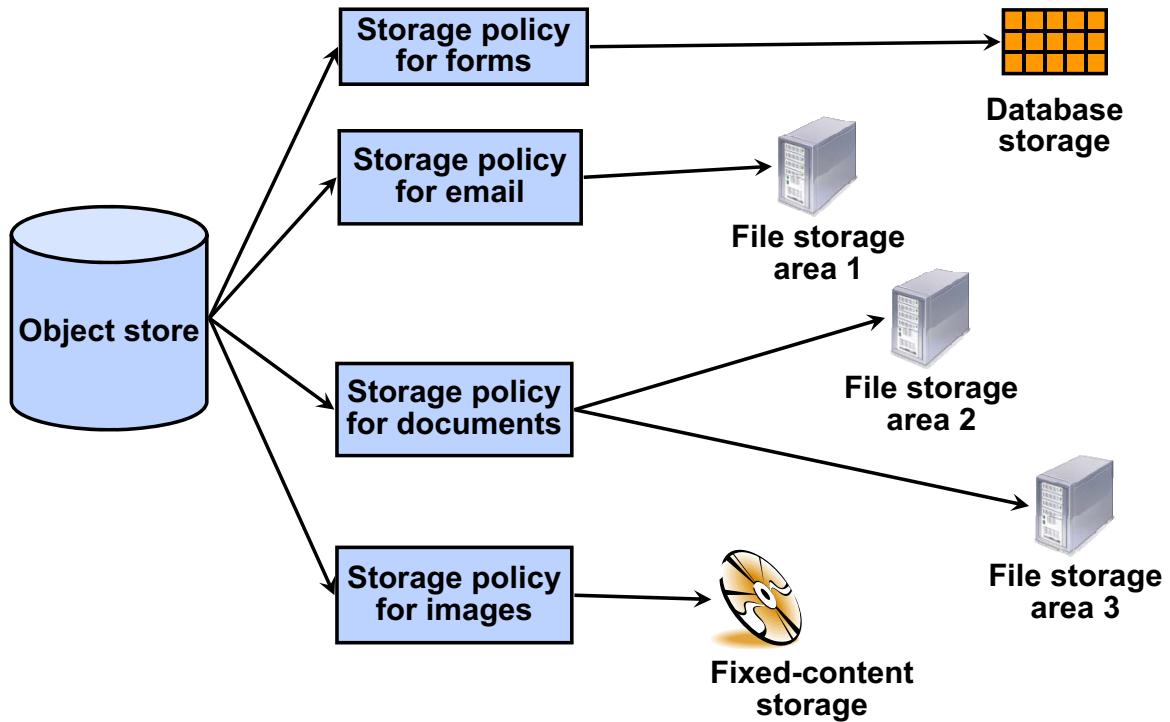
The storage policy functions as both the mechanism for defining the membership of a storage area farm, and also the means for assigning documents to that farm.

You can specify a single default content storage location for a document class. If you want to use storage farm capabilities, you need to use storage policies to manage the content delivery to the different storage areas.

A custom application can be designed to allow users to select the storage policy when they add documents.



Use Storage policies to distribute the content



Work with storage areas

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Figure 5-16. Use Storage policies to distribute the content

The diagram shows how you can use storage policies to distribute the content that belongs to a single object store.

Storage policies are used to specify storage areas for content. They can be used to farm content to multiple storage locations. The user does not know which server the content is stored on.

- A policy can specify that documents from one document class (for example, forms) are stored in the Content Platform Engine database.
- Another storage policy, which is used for documents, stores content on any of three different file storage areas.
- The third storage policy is for static images that are stored on optical media. These images are stored in a fixed storage area.

If a parent class and a subclass have different storage policies, the storage policy of the subclass is used. Because the storage policy is a property of the class, each class definition can have only one policy. You can set the property value on the parent class and have the value cascade to its children, but if you then change the value of a child class, that value becomes the value for that child class.

Instructor demonstration

- Create a file storage area
- Create a storage policy



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Figure 5-17. Instructor demonstration

Unit summary

- List the types of storage areas.
- Describe storage options and architectures.
- Describe storage policies

Figure 5-18. Unit summary

Review questions

1. List the storage area types.
2. True or False: A large storage area farm is useful for high-availability.



Review questions

3. Which type of storage area uses BLOBs?
 - A. File storage area
 - B. Database storage area
 - C. Fixed storage area
 - D. Advanced storage area

4. You have 2 available advanced storage devices. Which of the following settings are possible?
 - A. Required = 0, Desired = 2
 - B. Required = 2, Desired = 1
 - C. Required = 1, Desired = 1
 - D. Required = 1, Desired = 3



Figure 5-20. Review questions

Review questions

5. What is the advantage of a file storage area over an advanced file storage area?
 - A. Content Streaming
 - B. Content integrity checking
 - C. High scalability
 - D. None



Figure 5-21. Review questions

Review answers

1. List the storage area types.

Database storage

File storage

Fixed storage

Advanced storage



2. True or False: A large storage area farm is useful for high-availability.

False. Large storage farms are useful for scalability, but do not provide added availability.

Review answers



3. Which type of storage area uses BLOBs?

- A. File storage area
- B. Database storage area
- C. Fixed storage area
- D. Advanced storage area

The answer is B.

3. You have 2 available advanced storage devices. Which of the following settings are possible?

- A. Required = 0, Desired = 2
- B. Required = 2, Desired = 1
- C. Required = 1, Desired = 1
- D. Required = 1, Desired = 3

The answer is C. Required replicas must be greater than zero. The Desired replicas must be equal to or greater than the Required. The number of replicas cannot exceed the number of devices.

Review answers

5. What is the advantage of a file storage area over an advanced file storage area?
- A. Content Streaming
 - B. Content integrity checking
 - C. High scalability
 - D. None

The answer is D. Advanced file storage systems do everything that standard file storage systems do, and have extra capabilities. The only caveat is related to server affinity.



Figure 5-24. Review answers

Exercise: Work with storage areas

Work with storage areas

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Figure 5-25. Exercise: Work with storage areas

Exercise objectives

- Create a file storage area.
- Create a file storage policy.
- Create an advanced file storage area.



Figure 5-26. Exercise objectives

Part 3. Work with Object Metadata

Unit 6. Create document and folder classes

Estimated time

00:30

Overview

This unit describes how to create custom document and folder subclasses and their properties. You also learn about property inheritance and using choice lists to make data entry easier.

How you will check your progress

- Successfully complete the exercises.

References

IBM Knowledge Connection URL:

<http://www.ibm.com/support/knowledgecenter/SSNW2F/welcome>

Unit objectives

- Create a document class.
- Create a folder class.
- Create a property template with a choice list.

Create document and folder classes

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Figure 6-1. Unit objectives

What is a Class?

- A class is a model or template that is used to create objects.
 - The objects have common definition and common properties.
 - All objects belong to a class.
 - Each object of a class is identical in behavior but contains different property values.
 - The Class Description property identifies the class of an object.
- When an object store is created, it is pre-populated with a set of system-created classes.
 - You can extend the system classes by defining subclasses.
 - The most commonly extended system class is the document class.
 - You create application-specific documents by defining Document subclasses.

[Create document and folder classes](#)

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Figure 6-2. What is a Class?

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Adding documents and objects>Classifying documents>Content Platform Engine classes>Class overview

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/classes/cl_concepts_classes.htm

Examples of system default classes:

They serve different functions.

The **annotation class** allows the user to link additional information to documents and other containable objects such as snapshots, folders, and custom objects. Examples of annotations are text, audio, video, image, highlight, and sticky notes.

The **custom object class** has no built-in behavior but has properties that pertain to a business subject. Define business object classes when you do not need to save content or use lifecycles or versions.

The **document class** defines the properties of a document and is created to organize documents by type. The Document class is the most commonly used class and is the default.

The **folder class** holds a collection of objects that are related to each other by common properties.

The **referential containment relationship class** is used when storing documents in folders. An instance of this class connects exactly one document to exactly one folder.

The **subscription class** defines properties that specify the class, instance, or workflow that an event affects and the action to take in response to the event.

What are Document Objects?

- A Document object is an instance of the Document class or a subclass
- A Document object can have the following elements:
 - Content elements
 - Associated annotations
 - Custom metadata or properties that are used for identification
- Document content elements are stored
 - Locally, inside an object store
 - In an external repository and referenced from the object store
- A Document object can be updated.
 - Each version of the Document is assigned a version number
- A Document object can be searched

Folders

- A Folder represents a container that holds *containable* objects:
 - Child folders or subfolders
 - Documents, and their subclasses
 - Workflow definitions, Publish templates, others
- A Folder
 - Has a parent folder.
 - Has zero or more annotations that are associated with it.
 - Is independently securable.
 - Can be searched.

[Create document and folder classes](#)

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Figure 6-4. Folders

Help path

FileNet P8 Platform 5.2.1>Developing FileNet P8 applications>Content Engine Development>Content Engine Java and .NET Developer's Guide>Containment

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.ce.doc/containment_concepts.htm%23fldr_folders

Each object store has an automatically created root folder that represents the default root container associated with the object store. You cannot create or delete a root folder, but you can access it.

Folders that are directly contained under the root folder are referred to as top folders. These folders typically represent the starting points for folder navigation, because, for many applications, you might not want to display or allow users to add objects to the root folder.

Containment Concepts

- Folders are directly contained.
 - They exist inside a folder.
 - They are deleted from the object store when they are removed from a folder.
- Document and other objects are referentially contained in folders.
 - You can add a document to any number of folders.
 - Adding a document to many folders does not duplicate the document.
 - Removing a document from a folder does not delete the document from the object store.

Class Inheritance

- Class inheritance is a relationship between classes.
 - One class inherits the structure and behavior that is defined in one or more other classes.
 - A subclass always inherits all of the properties of its superclass.
- Create a custom class.
 - Create a subclass of an original class definition that is provided in the system.
 - Add custom properties to the subclass that reflect your business needs.
- The Document class is the superclass of other document classes that you create.
 - Defines the behavior of a document.
 - Contains important system properties.
 - Example: Content Element and Version.

[Create document and folder classes](#)

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Figure 6-6. Class Inheritance

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Adding documents and objects>Classifying documents>Content Platform Engine classes>Class overview>Inheritance between classes

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/classes/cl_inheritance.htm

When you create an object store, the system automatically creates class definitions for all of the system-provided classes. To create custom classes, you create subclasses of these original class definitions. You can also add custom properties to these classes that reflect your business needs.

Custom properties of superclass and subclass

You can add custom properties to the default superclass, such as document class, but you cannot remove a property from a subclass that was inherited from its superclass. These inheritance rules can be important when you design your object stores and determine your superclass and subclass hierarchy. For example, at an insurance company, you might create a class named Policyholders. Subclasses of Policyholders might include a class named Claims. Additionally, changes to the superclass are inherited by its subclasses and are applied to any new versions of documents based on those subclasses.

You can add custom properties to a limited set of system classes (for example, the Document class, the Folder class, the Custom Object class).



What is a Property?

- A property is a characteristic of a class.
 - It helps identify the object that the class includes.
 - Properties hold individual values that describe an object.
 - Properties of a class can be of different types.
 - Subclasses inherit properties that are defined on a class.
- Definition of a property includes the following items:
 - Data type: Scalar or object-valued
 - Cardinality: Single or multivalue
 - Settability: Read-only, read/write
 - “Name” property indicator
 - ChoiceList assignment indicator.
 - Required or optional value indicator.

Data Type
String
Binary
Boolean
Date Time
Float
ID
Integer
Object
String

Create document and folder classes

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Figure 6-7. What is a Property?

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Adding documents and objects>Classifying documents>Creating properties>Properties overview

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/properties/pr_concepts_properties.htm

FileNet P8 Platform 5.2.1>Developing FileNet P8 applications>Content Engine Development>Content Engine Java and .NET Developer's Guide>Properties

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.ce.doc/property_concepts.htm

The screen capture shows the data types for a property.

The system classes have a set of basic properties that define the class. For example, a class has a property that indicates the creation date. When an object is created, the creation date property is populated with the current date. Creation date is an example of a system property. System properties have values that are supplied by the FileNet Content Manager system.

You can edit some system properties; other properties are read-only. In addition to the system properties, you can assign custom properties to each class that reflect the content organization

needs for your business. For instance, a subclass of document class that is named Contracts can have custom properties for all parties involved in a contract.

Scalar data types:

- Binary, Boolean, Date Time, Float, ID, Integer, String

A single object-valued type is used to represent an object. For example, the annotations that are associated with a document can be represented as object type properties for the document.



What is a Property Template?

- Property template is a collection of metadata properties that globally define a property.
 - It has no function in the object store until it is assigned to a class as a custom property.
 - You can assign it to any number of classes in an object store.
 - Its symbolic name must be unique within a class family.

- Examples of metadata properties:

- Data type
- Cardinality (single or multi-values).

Property Template: contact_methods

General	Properties	Audit History	Security
* Display name: ?	contact_methods		
* Symbolic name: ?	contact_methods		
Description: ?	contact_methods		
Data type: ?	String		
Single or multi-value:	Multi		

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Figure 6-8. What is a Property Template?

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Adding documents and objects>Classifying documents>Creating properties>Creating a property template

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/properties/pr_create_property_template.htm

The screen capture shows the metadata for a property template.

A property template has no function or meaning in the object store until it is assigned to a class as a custom property. During property template creation, you assign values to metadata properties such as data type and cardinality (determines whether a property holds a single value or multiple values).

When you create a property template, do not assign it the same display name as an existing property in the same class family. Although you can create such a property template without causing an apparent error, you cannot later assign it to a class as a custom property.

The symbolic name of a property template is its programmatic identifier and is required to be unique within a class family only. A class family is defined by a root class (for example, Document, Folder, and CustomObject) and all of its subclasses.

Data types

String data types can hold numbers, but they are treated as characters rather than as numbers. For example, you might use a String data type for a numerical ID field because you can perform searches on the ID field and the results are ordered alphanumerically.

However, integer and Float data types are numbers that are used in calculations. Either data type can be used to calculate values such as *age greater than 55*. The Float data type is used for numbers that include decimal places.

The ID data type is used only for a globally unique identifier, or Microsoft GUID.

Example of a multi-value property: a phone number field with three entries (Work, Cell, Home)

If properties are defined with multiple values, these values can be defined as nonunique and ordered (such as an address) or as unique and ordered (such as a phone number).

Multi-value options: select *Non-unique, ordered values* or select *Unique and ordered values* to specify the type of multi-value property.

Users have a different interface when they add values to a property that accepts multiple values. You can experiment with properties to observe the differences if you have time, to become familiar with these differences.

What is a Property Definition?

- Use a property template to create a property definition.
 - Multiple classes can use a property template.
 - Each resulting property definition is specific to the class.

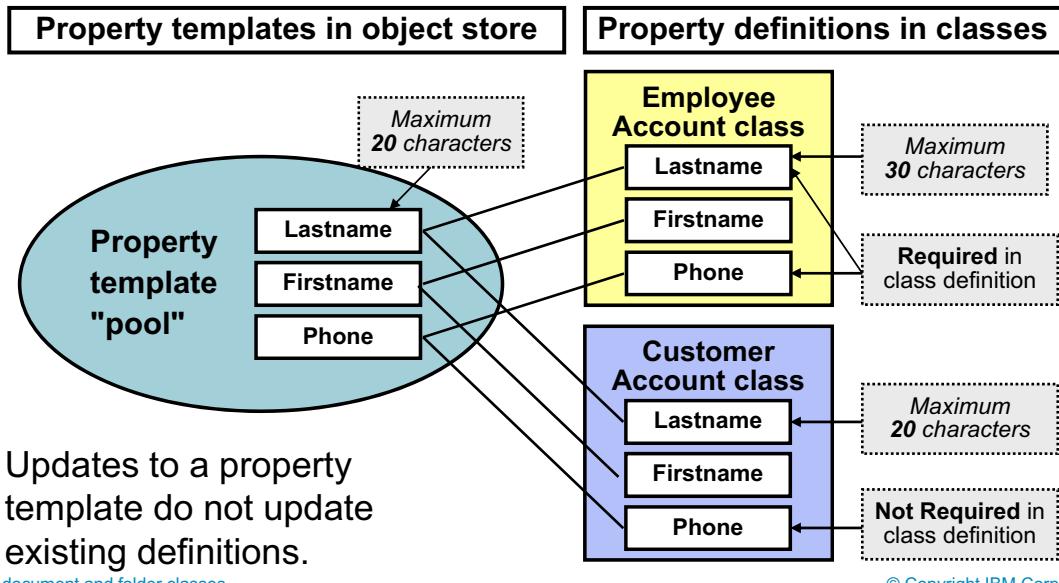


Figure 6-9. What is a Property Definition?

This diagram shows the available pool of property templates and their possible relationships to the property definitions in classes. The property templates in an object store can be used to define classes in that object store. One property template can be used within multiple class definitions. When you create a class, you can select property templates from the set of existing property templates in the object store.

Property definitions are based on property templates. When you are creating a class, you assign property templates to the class, which creates property definitions for that class. You can modify the attributes of the property definitions to support the class requirements.

The distinction between property templates and definitions is subtle but important. If you change a property template, the change does not automatically cascade to property definitions. As a result, class definitions retain the original property definitions until you remove the original property definition and associate the revised property template with the class. This revised association creates a revised property definition for the class.

If you change a property template, only classes that are created after the change use the revised template. Classes that were assigned that property template before the revision continue to use the template as it was defined before the revision.

If you change a property definition of a class, then only that class is updated. When you create classes, you select the property template from the object store pool where the property template remains in its original state.

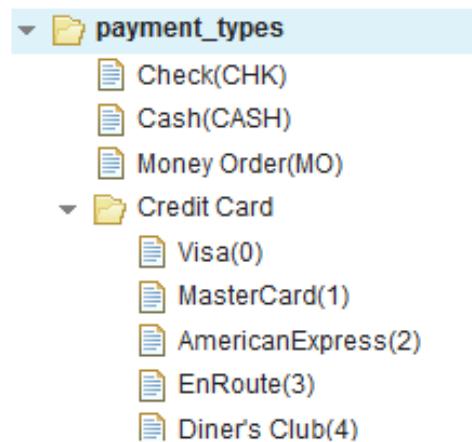


What are Choice Lists?

- A choice list is a preset list of property values (choice items).
 - The user selects a value instead of typing an entry.
- Choice lists are used to do the following tasks:
 - Ensure valid entries.
 - Simplify and speed data entry.
 - Present elements in logical groups.

• Choice list features

- Choice lists can be hierarchical.
- Choice lists can have groups to organize the items.
- Choice lists can be associated with multiple properties.



Create document and folder classes

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Figure 6-10. What are Choice Lists?

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Adding documents and objects>Classifying documents>Choice lists

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/choicelists/chl_concepts_choice_lists.htm

The screen capture shows an example of a nested choice list.

A choice list is a collection of predefined property values that can be used to present users with a list of values from which to choose.

Groups

When a choice list contains many values, you can group associated values (create categories) to help users find and choose the needed value.

Groups are not actual choice list items because they are not assigned a value. You add choice items to the group.

In a hierarchical choice list, users select a category of choices and then select the choice within that category or group.

Example of a choice list

Colors have a Blue group and a Green group. The Blue group consists of Royal Blue and Navy Blue elements. The Green group consists of Pine Green and Emerald Green elements. Consider using choice lists when you are designing a custom class. Is a limited number of choices available for the property values? If so, then use choice lists. Choice lists make data entry faster for users and also ensure that the data entered is limited to the valid choice options.

Using Choice Lists

- Choice list requirements.
 - Assign a choice list to a property template.
 - Use either a string or an integer data type for a choice list.
 - Match the choice list data type to that of its associated property template.
- Choice list restrictions
 - A choice list cannot be used within another choice list.
- Usage options
 - You can assign one choice list to multiple property templates.
- Guidelines for Creating Choice Lists
 - Group choice list elements logically.
 - Limit the number of elements in each group.
 - Make sure that the values for the choice items are unique.
 - Plan the choice items before creating a choice list.

Create document and folder classes

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Figure 6-11. Using Choice Lists

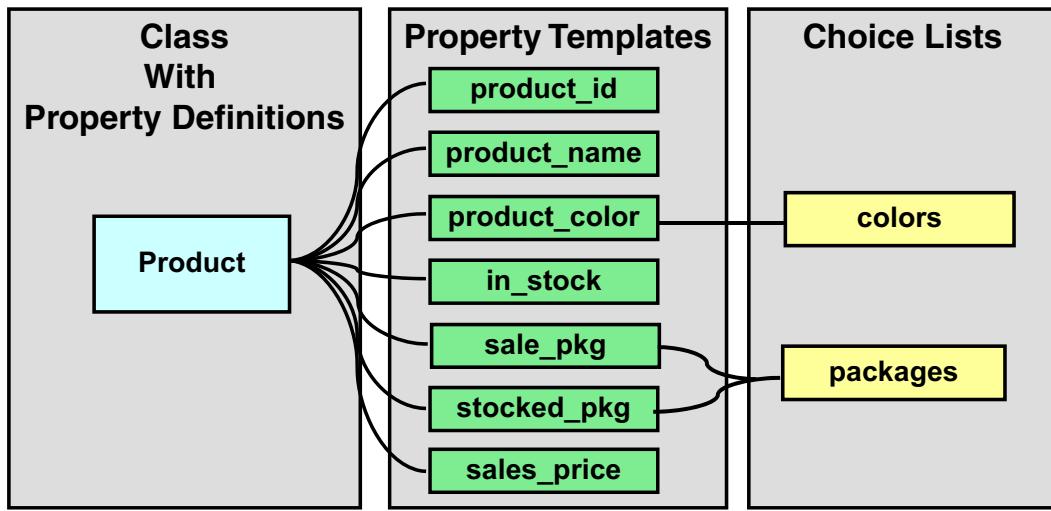
Uniqueness of names

The Administration Console for Content Platform Engine tool enforces uniqueness of group names within a single choice list, and also uniqueness of display names within a single group. However, it does not enforce the uniqueness of item values. Sometimes, uniqueness is not wanted.

Refer to the documentation for an example of a use case where uniqueness is not desirable and also for the implications of changing existing choice list items.

How are Classes, Properties, and Choice Lists Related?

- Each class consists of its root class properties and more properties.
- Each property has a name and data type.
 - Each property can also have a choice list, a set of predefined values.



Create document and folder classes

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Figure 6-12. How are Classes, Properties, and Choice Lists Related?

This diagram shows the relationships between classes, properties, and choice lists.

- Each class has multiple properties.
- Each property can have an associated choice list.
- It is optional for a property to have a choice list.
- Multiple properties can use the same choice list. For example, many properties can use a single choice list with Yes and No choice items.

You use Administration Console for Content Platform Engine to create and administer classes, properties, and choice lists.

Guidelines for Creating or Modifying a Class

- Add a property only to a user-defined custom class:
 - Adding a property to a system-created class applies to all subclasses.
- Create separate classes to match your business strategy.
- Minimize database row sizes.
 - Some databases have a maximum byte limit for the row length.
 - Each property that you create becomes a table column.
 - You can exceed the row size limitation and receive an error when adding more property definitions to a class.
- The number of levels of subclasses in a class is unlimited.
 - However, consider fewer levels to avoid complex content management design.

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Figure 6-13. Guidelines for Creating or Modifying a Class

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Adding documents and objects>Classifying documents>Content Platform Engine classes>Class overview

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/classes/cl_concepts_classes.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Defining object stores

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/objectstores/os_creating_object_stores.htm

Database row size

Some databases have a maximum byte limit for the row length. Because each property that you create becomes a table column, you can exceed the row size limitation and receive an error when you add more property definitions to a class. Each column data type takes some bytes from the row length.

Example: DocVersion Table. When you add a custom property to the Document class, it adds a column to this table.

Table overflow support

Table overflow support applies to DB2 only. If table overflow support is enabled, Content Platform Engine creates an overflow table if the row-size limit of a base DB2 table is exceeded. The default value is false. Enabling table overflow support can slightly degrade database performance. When you plan your system, consider metadata design options before enabling this support.

Working with Properties

- Root classes
 - Do not add properties to the root classes
 - Do not change properties in the root classes in any way.
- Property templates
 - Name property templates carefully, after analysis and design.
 - Reuse property templates whenever possible.
 - Minimize the number of property templates that you use.
 - Use the same prefix in the names of property templates that are used together.
 - List the property templates that use a choice list in the description of the choice list.
 - Identify the property templates dependent on the choice list.
 - You can set default values for property definitions on the More tab.

Create document and folder classes

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Figure 6-14. Working with Properties

Metadata Object Names

- Names must be unique for the object type within the object store.
- Names must have 1 - 64 characters.
- Do not use spaces or numbers at the beginning of Content Platform Engine object names. Spaces and Leading numbers are removed in the symbolic name.

Unit summary

- Create a document class.
- Create a folder class.
- Create a property template with a choice list.

Create document and folder classes

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Figure 6-15. Unit summary

Exercise: Create document and folder classes

Create document and folder classes

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Figure 6-16. Exercise: Create document and folder classes

Exercise objectives

- Create a document class.
- Create a folder class.
- Create a property template with a choice list.



Create document and folder classes

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Figure 6-17. Exercise objectives

Unit 7. Modify classes and properties

Estimated time

00:30

Overview

This unit describes the relationships between classes, properties, choice lists, and objects. You learn about their dependencies, as well as how to update metadata within your application.

How you will check your progress

- Successfully complete the exercises.

References

IBM Knowledge Connection URL:

<http://www.ibm.com/support/knowledgecenter/SSNW2F/welcome>

Unit objectives

- Change property templates, choice lists, and classes.
- Work with metadata dependencies

Modify classes and properties

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Figure 7-1. Unit objectives

Changing a Display Name for a Metadata Object

- Display name or symbolic name?
 - If a name change for a metadata object is needed, avoid changing the symbolic name.
 - The display name for each object is visible in Administration Console and Content Navigator.
 - The symbolic name does not change when you change the display name.
 - Because APIs use the symbolic name, they continue to function after the display name is changed.
- What objects can be renamed?
 - You can modify the Display Name of the following objects:
 - Class definitions
 - Property templates
 - Choice lists

[Modify classes and properties](#)

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Figure 7-2. Changing a Display Name for a Metadata Object

Example Scenario for changing a display name for a metadata object

You originally create a property template with a display name: product_type_178

The Graphical User Interface (GUI) team suggests that you change the display name to a more user-friendly name. The display name is shown in the user client.

You must change the name from product_type_178 to Product Type.

Property template modifications

- You can rename property templates and property definitions.
- A change to the property template name propagates to the property definitions based on the property template. Other changes are not propagated.
- You can change the description.
- You cannot change the data type or cardinality.

Modifying a Choice List

- You can modify a choice list in the following ways:
 - Change the choice list display name or description.
 - Add new choice items and groups.
 - Edit choice items and groups.
- You cannot delete the choice list object when it is associated with a property template.
- Choice list item changes
 - Changing the value of an existing choice list item of a choice list affects only the objects that are created after the change.
 - The objects that are created before the change retain the old value of the choice item.

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Figure 7-3. Modifying a Choice List

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Adding documents and objects>Classifying documents>Choice lists

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/choicelists/chl_concepts_choice_lists.htm

Refer to the documentation for the implications of changing existing choice list items.

Example Scenario for adding a choice to group to an existing choice list

Your company deals with hardware-related products. You created a choice list that is called Product Type that contains different hardware items such as servers, laptops, and desktops. Your company decided to add software products to its portfolio. You must add a choice group for software items to the existing choice list (Product Type).

Assigning a Different Document Class

- You can change the class of an existing object.
 - Security permissions remain the same as the original class.
 - The content stays in the original storage and is not moved.
 - Properties that are not in the new class are removed from the object, along with their values.
- Preserve object instances with important data
 1. Identify a similar class with properties for the data that must be saved.
 2. If important properties are missing, add them to this class.
 3. Change the important instances to the similar class.
 4. Delete the original class definition of the objects.
- Examine the existing document versions for the history of the class assignments to the document.

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Figure 7-4. Assigning a Different Document Class

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Adding documents and objects>Working with documents>Working with document metadata>Assigning a different document class

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/docsandfolders/df_about_changing_doc_class.htm

Example Scenario for changing the Document class

You add a document and assign it a document class of Manuals because you plan to use it as a chapter in an installation manual.

You decide to use the same document in your training materials and change the document class to Courseware.

When you want to include this document as Technical Notice, you change it to a Tech Notes document class.

Preserving the data

When you change the class of an existing object, sometimes you want to delete object instances with their data. In other times, you want to keep data that is deleted when the instances are deleted.

Assigning a different class does not change the following items:

- Security permissions that the original document class directly applied to that document object.
You can change the security by editing the security lists of the document object.
- The default storage of the content of existing document objects. The default storage area and storage policy of the new document class apply only to new instances of the class.
- Saved searches. If your saved searches use the former document class as a search parameter, you might no longer find the document.

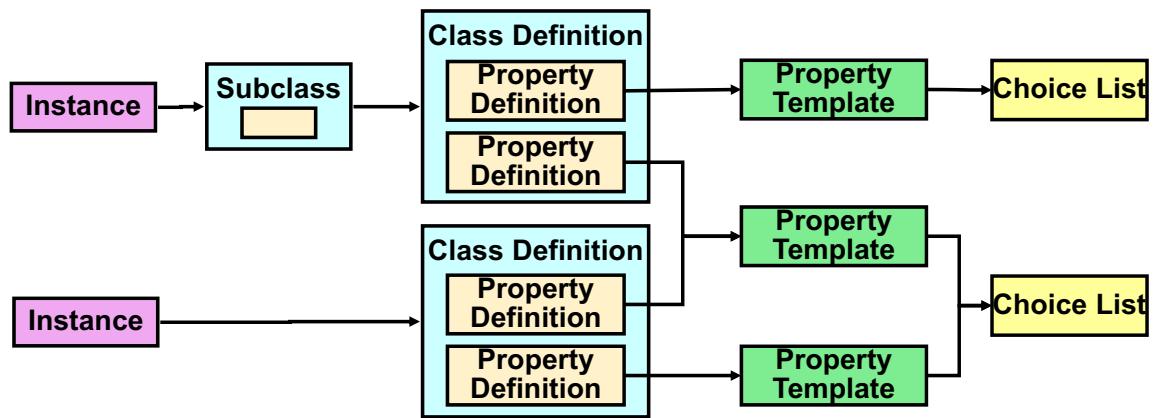
Deleting a Document class

The FileNet P8 system prevents an administrator from removing any class that has objects that are instantiated on it.

Make sure to move instantiated objects to a class that supports the metadata with custom properties of same name and data type.

Metadata Dependencies

- An object instance depends on its subclass or class definition.
- A subclass definition depends on its class definition.
- A class definition depends on its property definitions.
- A property definition depends on its property template.
- A property template depends on its choice list.



Modify classes and properties

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Figure 7-5. Metadata Dependencies

The diagram on this page provides a model of how class metadata is interrelated. Sometimes the dependencies are complex because the metadata objects are reusable. The dependencies result in the following constraints:

- If the class has subclasses or instances, you cannot delete it.
- If the property template has dependent property definitions, you cannot delete it.
- If a choice list is used by property templates, you cannot delete it.

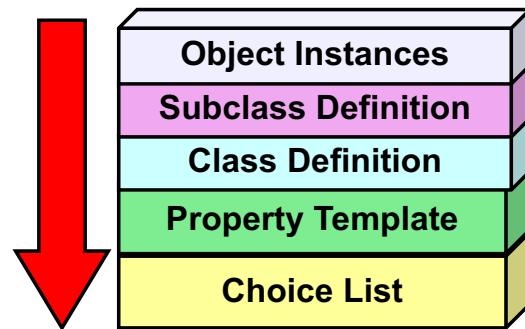
To remove a dependency, you can either delete the object or edit the object to remove the dependency. If alternatives exist, avoid deleting an object to avoid data loss.

This diagram does not show the dependencies between the choice lists and property definitions. For example, if you remove the choice list from the property template without also removing the property definition from the class definition, you cannot delete the choice list.

Always use a test object store before you make metadata changes to a production system to identify and create solutions for any issues that might occur.

Deleting metadata

- Object dependencies
 - When one object references another object, the first object has a dependency on the second object.
 - You cannot delete an object when other objects refer to it.
 - Delete the referenced object or remove the reference to remove a dependency.
- Remove dependencies in the following sequence:
 1. Object instance
 2. Subclass definition
 3. Class definition
 4. Property template
 5. Choice list



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Figure 7-6. Deleting metadata

This diagram shows dependencies of various objects in an object store.

You must consider object dependencies before deleting metadata. This page introduces dependencies and a basic guideline for handling dependencies: delete the referenced object or remove the reference in the dependent object so that you can remove a dependency. The most direct sequence to remove dependencies is shown in the diagram and is specified in the sequence for removing dependencies.

Do not delete metadata that is referenced by custom code. Keep the metadata referenced by custom code to prevent breaking references in custom code.

Delete a property template

- To delete the property template (blue), what is removed first?
 - The associated property definition (orange) must be removed first.
 - This property definition is based on the blue property template.
 - Note:** All instantiated objects with that property lose that property and its values.
 - It is not necessary to delete the whole class.

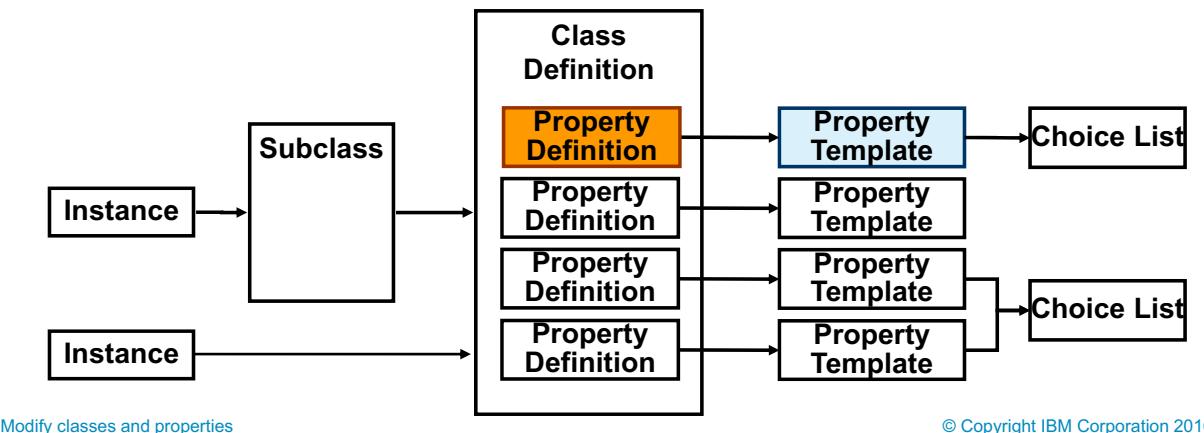


Figure 7-7. Delete a property template

This diagram shows two instances of a class. One instance belongs to a subclass of the class and the other instance belongs to the class. The class is shown with four property definitions, each based on a different property template. The first property template uses a choice list. The second property template does not use a choice list. The third and fourth property templates use the same choice list.

You can remove a property from a class. When you remove the property, all instantiated objects with that property lose it and its property values. You must carefully evaluate the potential data loss from metadata changes. When you remove the property definition from the class, you delete all the instantiated property values for that class.

Remove property definitions from a class

- You can remove custom properties from a class definition.
 - Use the Property Definitions tab of the Class page.
 - IBM Content Navigator does not immediately reflect the removal of a property from a class.
 - Refresh metadata cache to verify the removal.
- You cannot remove system properties or inherited properties.
 - You can hide these properties.
- Superclass property removal
 - If you remove a custom property from a superclass, you can choose to retain the property on child classes as a custom property.

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Figure 7-8. Remove property definitions from a class

If you remove a property from a superclass, you cannot add the property back to the superclass until the property is deleted from all the subclasses.

The addition of a property to a class or removal of a property from a class are not immediately reflected in IBM Content Navigator. The metadata information must be refreshed in the web application server.



Note

During the lesson activities, you are going to refresh the metadata by restarting the Content Navigator in the WebSphere Application Server.

In production environment, this procedure causes the system to be unavailable for a few minutes, so it is generally avoided.

How do you find metadata dependencies?

- When you try to delete a property template that is referenced by other objects, you get an error message.

Error

- The object cannot be deleted because it is referenced by other objects. The property template has property definition instances.

- To identify the objects that refer to the property template:
 - Open the Properties page for the property template.
 - The Used in Classes field lists the objects.

Property Template: **prospect_category**

Choice List	Prospect Type
Used in Classes	Used in Classes ProspectsFolder Prospect
Property Display Category	

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Figure 7-9. How do you find metadata dependencies?

The screen capture shows an error message. When you delete a property template that is referenced by other objects, you get an error message that states that the property template is referenced by other objects. The error message does not identify the objects that reference the property.

The second screen capture shows a list of objects that refer to the property template.

Delete a class

- To delete a class with dependencies, do the following steps:
 1. Remove its dependent subclasses and their instances.
 2. Remove its dependent instances.
 3. Delete the class.
- When you remove the dependent instances of a class, you have the following choices:
 - Preserve the instances by changing their class to a similar class.
 - Or, delete the object instances.

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Figure 7-10. Delete a class

Unit summary

- Change property templates, choice lists, and classes.
- Work with metadata dependencies

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Figure 7-11. Unit summary

Exercise: Modify classes and properties

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Figure 7-12. Exercise: Modify classes and properties

Exercise objectives

- Change a property template name.
- Modify a choice list.
- Change the class of an object.
- Remove a choice list from a class.



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Figure 7-13. Exercise objectives

Unit 8. Create event subscriptions

Estimated time

00:30

Overview

This unit describes how you can use events (things that happen to objects) to automatically run actions, such as Java scripts or workflows.

How you will check your progress

- Successfully complete the exercises.

References

IBM Knowledge Connection URL:

<http://www.ibm.com/support/knowledgecenter/SSNW2F/welcome>

Unit objectives

- Create event subscriptions

Create event subscriptions

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Figure 8-1. Unit objectives

About Server Extensions

- You can extend Content Platform Engine functions in the following ways with your own server-based action handlers.
 - Events and Subscriptions
 - Change Preprocessors
 - Document Lifecycle Policies
 - Automatic Document Classification
- Java interfaces are provided with the product.
 - You create your action handlers by implementing them.
- The solution developer for your company provides the Java code for the action handlers.
 - As the solution builder, you create required Content Platform Engine objects that use the code to do the required actions.

[Create event subscriptions](#)

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Figure 8-2. About Server Extensions

Help path

FileNet P8 Platform 5.2.1>Developing FileNet P8 applications>Content Engine Development>Content Engine Java and .NET Developer's Guide>Server Extensions

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.ce.doc/server_extensions.htm

This lesson describes the Events and Subscriptions topic.

Document Lifecycle Policies

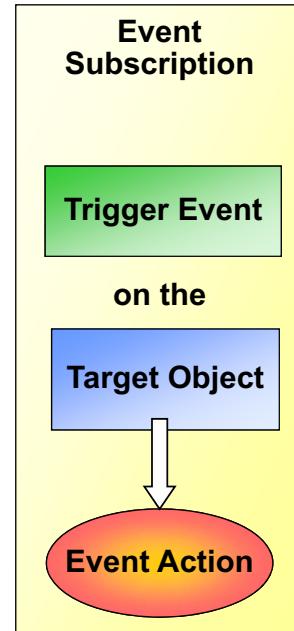
A document lifecycle policy is an object that defines the "life" of a document in terms of phases or states through which the document cycles. The states are user-defined, and, when one state changes to another, a lifecycle-related system event fires. A lifecycle action handles the event. A lifecycle action is a user-implemented, server-side component. For example, you have a lifecycle policy that defines five states for loan application documents: Application, Approval, Funding, Servicing, and Closed. The policy also defines a lifecycle action. Each time a user changes the state of a loan application, the lifecycle action is started and do something based on the application's new state.

Automatic Document Classification

Documents that are added to an object store require a class. A document can be classified by a user, or it can be classified automatically when the document is checked in. The Content Platform Engine provides an extensible framework that enables an incoming document of a specified MIME type to be automatically assigned to a target document class. This framework also sets selected properties based on values found in the incoming document. A classification component, or classifier, does the work of assigning a document class. One such classifier that is packaged with the Content Platform Engine is XML Classifier.

Events and Subscriptions

- A subscription has the following elements:
 - One or more Trigger Events
 - A specified action on an object in an object store
 - Examples: Add Document, check-out, or delete
 - Subscription Target Object
 - A Content Platform Engine object upon which the events can be triggered.
 - Can include subclasses.
 - Examples: Document, Folder
 - Event Action (or workflow or both)
 - Identifies an event action handler (a Java class) that runs when an event is triggered on a target object.



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Figure 8-3. Events and Subscriptions

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Subscribing to events

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc038.htm

FileNet P8 Platform 5.2.1>System overview>Features>Content management>Events and subscriptions

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.sysoverview.doc/p8sov006.htm

The diagram shows that an event subscription with a trigger event on a target class that results in an event action.

The trigger event can be a Content Platform Engine event or a user-defined custom event.

Types of subscriptions

- Event Subscription: runs user-defined code.
- Workflow Subscription: launches an IBM FileNet workflow.

The following actions on a Document object are some actions that can be used as an event trigger: create, check in, classify complete, update, check out, delete, promote version, demote version.

The following event actions are examples: launch a workflow, send an email message, file an object in a folder, create or associate related objects, query or update external databases.

1+1=2

Example

When an event is triggered on the target object, the event action is run. For example, you can have a subscription that notifies you by email (event action) when documents of the "Code Module" class (target object) are created (triggered event).



Define Subscription Filter

- Create a filter to restrict the application scope of a subscription.
 - Example: Filter out Creation events that Check-out triggers.

**(MajorVersionNumber=1 and MinorVersionNumber=0) OR
(MajorVersionNumber=0 and MinorVersionNumber=1)**

Specify Additional Options

Configure options for the event action and the associated event action handler.

Initial state: Enable this subscription

Subclass option: Include subclasses

Subscription run mode: Run synchronously

Filter expression: [?](#)

(MajorVersionNumber=1 and MinorVersionNumber=0) OR (MajorVersionNu

Filter property name: [?](#)

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Figure 8-4. Define Subscription Filter

The screen capture shows the Create a Subscription page with a filter expression.

Creation event occurs when a user adds a document or checks out a document.

If you want to do something only when adding a document, you must filter out the Creation events that are caused by a check-out.

Checked out event

The document check-out operation triggers the Creation event (a new reservation object is created) in addition to the expected Check-out event. Therefore, if you are subscribing to the Creation event, you might need to create a filter in the subscription so that your event handler doesn't run when a check-out occurs.

The filter in the preceding example applies to the new document object (the source object) that is passed into the event handler. As a new document, it has a version number of 1.0 or 0.1.

Subscription scope

To restrict the application scope of a subscription, create a filter.

For example, restrict the scope to documents in class Memorandum with the security level setting: SecurityLevel = 'Confidential'

Workflow Subscription

- Workflow subscription
 - Starts the Workflow event action, which starts a workflow.
 - Specifies a workflow in addition to specifying the trigger event, target object, and event action.
 - The workflow definition must exist in the object store.
 - The workflow definition must be transferred.
- Example
 1. Trigger event: A document is added.
 2. Event subscription: Triggers an event action.
 3. Event action: Run by the Content Platform Engine.
 4. Specified workflow: Started by Content Platform Engine.

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Figure 8-5. Workflow Subscription

Before you create a subscription, the following objects must already be created:

- An Object or class of objects that the subscription applies
- A workflow – It must be transferred.

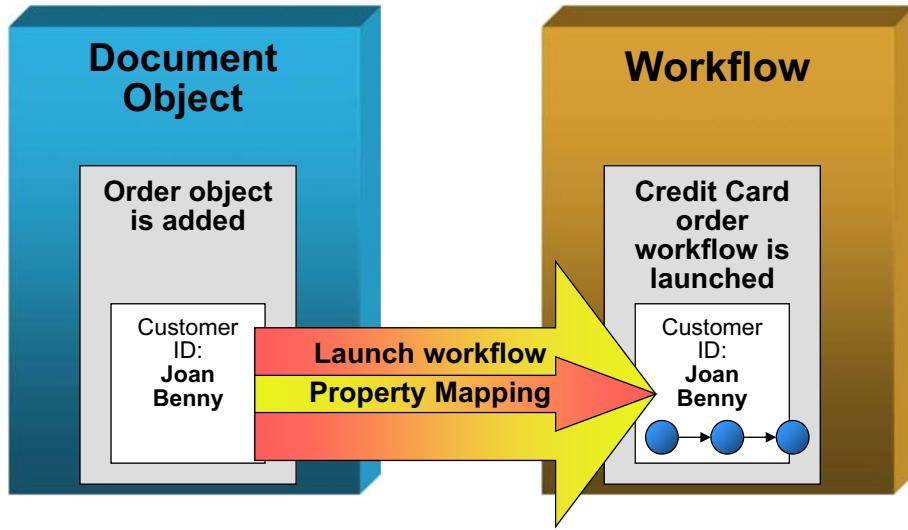


Important

A workflow subscription applies to a specific version of a workflow definition. If the workflow definition is updated, then the workflow subscription must be updated as well.

Launching Workflows: Property Mapping

- Event Subscription
 - When an event subscription starts a workflow, property mapping provides the workflow with information.
 - The object properties are mapped to workflow properties.



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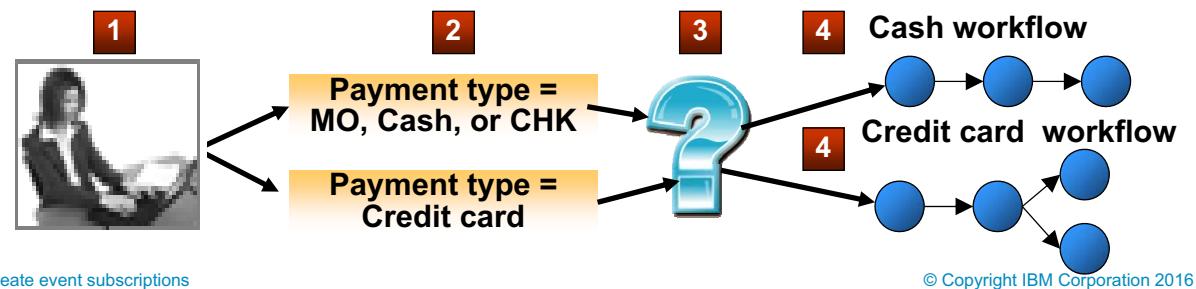
Figure 8-6. Launching Workflows: Property Mapping

The diagram shows a Content Platform Engine event subscription launching a workflow.

The document property name does not have to match the property of the workflow but their data types must match.

Expressions in Event Subscriptions

- Filter Expression
 - Determines whether the subscription runs.
 - If the expressions are complementary, one workflow is started and the other workflow is not started.
- Order example:
 - Step 1: A customer orders product with credit card, payment type 1.
 - Step 2: Two event subscriptions exist for Order object creation.
 - Step 3: Match payment type to expression conditions.
 - Step 4: Expression condition starts the correct workflow.



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Figure 8-7. Expressions in Event Subscriptions

Help path

FileNet P8 Platform 5.2.1>Working with documents and other content>Working with documents with FileNet Workplace XT>Tools>Workflow subscriptions>Workflow Subscription wizard>Set expression

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.xt.user.doc/ae_help_subscription/wp_subscription_expression.htm

Filter expressions determine whether the subscription needs to run. This determination is more generic than launching workflow. For example, you can have an event action that updates an external database. In the subscription for the Loan document class, you can create a filter condition `LoanAmount > 100000`, which means that when a user submits a loan that is less than 100000, the action to update the database is not started.

The diagram is explained in the Order example text. The Order object example uses the following expressions:

If `Payment type = MO, Cash, or CHK`, then launch the cash workflow. (`MO` is money order. `CHK` is check.)

If `Payment type = Credit card type`, then launch the credit card workflow. (You can provide a number that can be used as a code for the type of credit card.)

Steps to create an Event Action

1. Create an event handler Java class.
 - a. Compile the Java code to get the class file.
 - b. Optionally, create the JAR file.
 - c. You can also write the code in JavaScript.
2. Create an Event Action Object.
 - a. Specify the Event Handler Java class name.
 - b. Load Java class files or JAR files as code module content elements.
3. Assign the event action to a subscription.

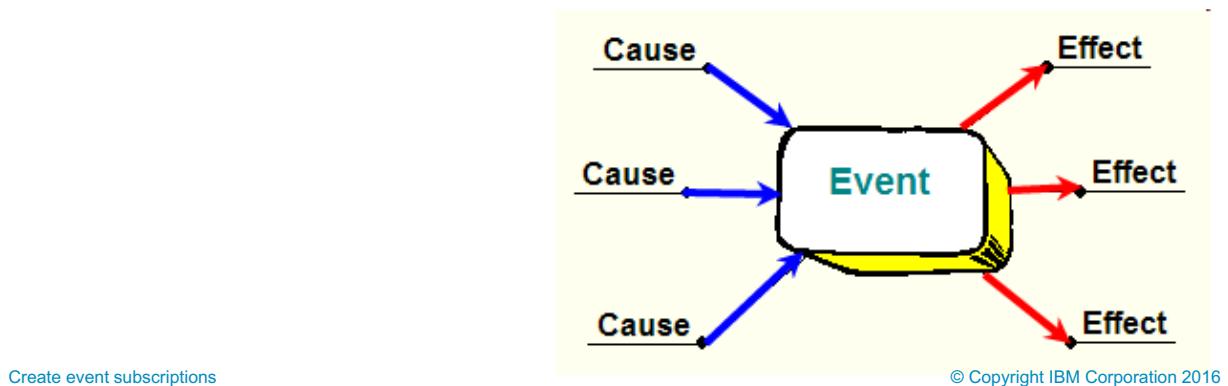


Figure 8-8. Steps to create an Event Action

After you create an event action that uses a Java class, you must subscribe to an event on an object (such as a document class). You can then test the code by triggering the actions on the object.

Code module

The code module represents a user-implemented Java event handler that is run when an action-based object event is raised. To represent a Java event handler as a code module, the Java class or JAR file must be on the Content Platform Engine.

To locate the event handler implementation, you have two options:

You can set the location in the class path of the application server on which the Content Platform Engine runs.

You can check it in to an object store as a `CodeModule` object.

Code modules are automatically available when the Content Platform Engine is deployed to multiple application server instances, or when you move your content metadata from one system to another. If you reference event handlers in the class path of an application server, you must manually distribute them to new systems.

Adding External JAR files to the Content Platform Engine

Some event actions might require external JAR files.

Add the JAR files as content elements of the code module.

These JAR files are imported with the Content Platform Engine objects.

Copy to the application server or set in the class path.

The JAR files are globally available for the other event actions.

Update Event Action with new code module version

- If you modify the code for a Java event action handler that is contained within a code module:
 - You must update any event action that references the code module.
- Steps to update:
 1. Check out the code module.
 2. Modify the Java event action handler source and compile.
 3. Check in the code module with the new version of the Java class.
 4. Copy the object reference for the code module.
 5. Update the Code Module property of the event action by pasting the object reference.

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Figure 8-9. Update Event Action with new code module version

An event action identifies an event action handler, a Java class that runs when an event is triggered on a target object. For example, if a message is sent to an administrator when a document is deleted, sending the message is the event action. An event action, trigger event, and target object are defined in a subscription assigned to an object or a class.

Disabling Subscriptions

- You can disable a subscription without deleting it.
 - Use disable for testing.
 - Disable the event subscription while you fix the problem.
 - After you change the event action, re-enable the subscription.
 - Deleting is permanent, but disabling is temporary.
- Disabled subscriptions
 - Enabled column displays the value *False*.



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Figure 8-10. Disabling Subscriptions

Subscription Run Mode

- Event subscriptions can be run synchronously or asynchronously.
- Synchronous Subscription
 - The operations of the object and the event actions are completed as a single transaction.
 - Failure in either results in rollback of both operations.
- Asynchronous Subscription
 - The operations of the object and the event actions are completed as separate transactions.
 - Object operation can succeed independently of the event action operation.

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Figure 8-11. Subscription Run Mode

Help path

FileNet P8 Platform 5.2.1>System overview>Features>Content management>Events and subscriptions

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.sysoverview.doc/p8sov006.htm

When an asynchronous event is queued in an object store, any server within the same site as that object store can process that queued event, not just the server that generated the event.

Use case for Synchronous event:

A synchronous event might be applied to a Claim folder class that returns an error if a document that does not belong to the Claim Document class is filed in the folder.

Triggering event: Filing a Claims document in the Claims folder

Target class: Claims Folder class

Event Action: Send an email to the Claims Department for further processing.

When a wrong document is filed in the folder, it returns an error and subscription process does not complete the action of sending an email.



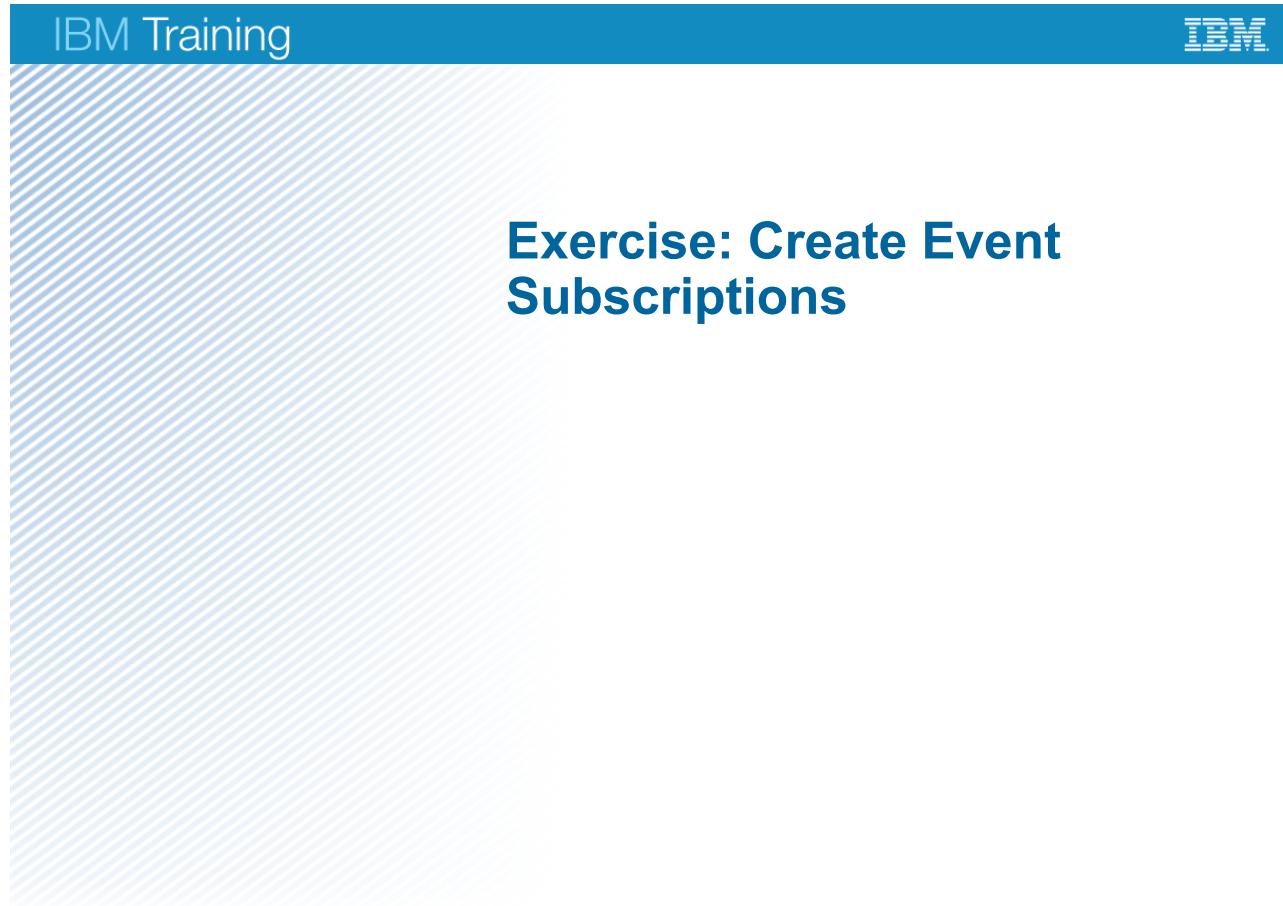
Unit summary

- Create event subscriptions

Create event subscriptions

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Figure 8-12. Unit summary



Create event subscriptions

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Figure 8-13. Exercise: Create Event Subscriptions

Exercise objectives

- Create a subscription with an event action.
- Update an event action with a new code module.
- Examine a workflow subscription.



Create event subscriptions

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Figure 8-14. Exercise objectives

Part 4. Security

Unit 9. Resolve logon issues

Estimated time

00:20

Overview

This unit describes basic security concepts and includes instruction on how to resolve basic logon and access failures.

How you will check your progress

- Machine exercises

References

IBM Knowledge Center. P8 Platform:

<http://www.ibm.com/support/knowledgecenter/SSNW2F>

IBM Knowledge Center, Content Navigator:

<http://www.ibm.com/support/knowledgecenter/SSEUEX>

Unit objectives

- Resolve logon failure.
- Verify object store access.

Resolve logon issues

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Figure 9-1. Unit objectives

Security in the IBM FileNet P8 domain

- Goals of security
 - Control access to information assets in the system.
 - Provide a framework for managing control of the assets.
- IBM FileNet P8 security model
 - Wide range of options for flexible security solutions
- Domain architecture defines a security context
 - Limits access to domain resources.
 - Grants access only to users with sufficient permissions.
 - Specifies permissible actions on objects.

Resolve logon issues

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Figure 9-2. Security in the IBM FileNet P8 domain

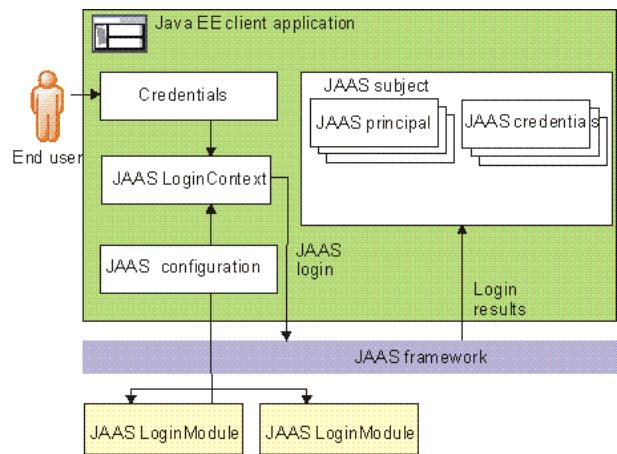
Help paths

- IBM FileNet P8 Version 5.2.1 Information Center > Security > FileNet P8 security > Security overview
 - http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8ps000.htm
- IBM FileNet P8 Version 5.2.1 Information Center > Security > FileNet P8 security > Security tools and procedures
 - http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8pst017.htm

Because of the wide range of security configuration options available in an IBM FileNet P8 system, effective security design requires an understanding of these options and how they can be used.

Authentication

- Authentication
 - Who you are.
 - Identifies the user who is trying to log on.
 - Requires credentials (a user name and password).
 - Uses an authentication provider
 - LDAP directory service
 - Creates a security token (a data structure that typically persists until the user logs out).
 - Uses JAAS and WS-Security standards.
- FileNet P8 domain
 - Provides the security context for authenticating applications.
 - Is created during IBM FileNet P8 Platform installation.



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Figure 9-3. Authentication

Help paths

FileNet P8 Platform 5.2.1>Security>Authentication>Authentication overview>Supported authentication standards

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psn037.htm

FileNet P8 Platform 5.2.1>Security>Directory service providers

http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psd000.htm

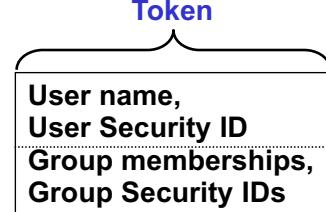
Authentication - Authentication is the act of verifying a user identity based on credentials that the user presents. Authentication of individuals, or ideally of the roles that an individual has, through the external authentication mechanism, is key to the security features in IBM FileNet Content Manager. The two standards at the core of the authentication process in FileNet Content Manager are the Java Authentication and Authorization Service (JAAS) standard and the Web Services Security standard. The JAAS standard forms the framework for security interoperability in the Java EE world. The Web Services Security standard forms the framework for security interoperability in the heterogeneous world of clients and servers that communicate through web services interfaces.

Authentication provider - An authentication provider is a supported LDAP-compliant directory service that provides authentication for the FileNet P8 domain. The authentication provider is identified during FileNet P8 installation through the JAAS configuration.

Supported directory service providers include IBM Tivoli Directory Server, CA Directory, Novell eDirectory, Sun Java Directory Server, Oracle Directory Server, and Microsoft Active Directory.

Authorization

- Authorization
 - What you can do.
 - Determines what the user can do (examples: view, delete, modify).
 - Requires prior authentication.
 - Uses Security token that is generated during authentication.
 - Is object-based.
- Examples
 - A user attempts to browse to an object store called Finance. The object store does not appear in the browse selection list.
 - A user attempts to view a document. IBM Content Navigator displays an error message that says that the user does not have permission to view the document.



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Figure 9-4. Authorization

Help path

FileNet P8 Platform 5.2.1>Security>Authorization

http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa033.htm

When an authenticated security principal attempts to access FileNet P8 objects, Content Platform Engine attempts to retrieve that principal's user and group memberships from the directory service provider. If successful, the user is authorized to complete actions on the object.

User roles

Different user roles are responsible for securing different types of objects. For example, administrators, solution builders, authors, and users might have different access rights to the same objects.

Even administrators with access to Administration Console for Content Platform Engine can have different levels of access to objects. For example, one administrator might have permission to modify document classes, properties and templates that another administrator has no access to.

Independent and dependent security

Most objects have Access control Lists (ACLs) that can be independently set. These objects are called independently securable.

Dependently securable objects depend on their parent object for their access rights. They are secured through the parent object.

Examples of dependently securable objects follow:

- Content elements, which have the same security as the associated document object.
- A property that is assigned to a securable object, which has the same security as that object.
- The individual choices in a choice list, which have the same security as the object that the choice list is assigned to
- A lifecycle state in a lifecycle policy.

Security is more than securing documents and folders. The security of the system design determines which objects are securable by which users. For example, administrators might be responsible for securing the domain root and the object stores. Application builders might be responsible for securing classes, instances like stored searches and entry templates, and property templates. Authors might be responsible for securing folders and documents.

Security principals

- Generic name for users and groups
- Are identified by a security identifier (SID)
 - Stored internally in the Content Platform Engine.
 - SID does not change after assignment.
- Are special logical security principals that are maintained by the Content Platform Engine.
 - #AUTENTICATED-USERS (all domain users)
 - #CREATOR-OWNER
- Use naming conventions.

Name types	Example
Short name	JDoe
Distinguished name	cn=JDoe, cn=users, dc=IBM, dc=com
Principal name	JDoe@IBM.com

Figure 9-5. Security principals

Help path

FileNet P8 Platform 5.2.1>Security>Authorization>About access rights>What are access rights?

http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa051.htm

The different naming conventions play an important role when you are viewing and configuring security in different contexts. In most of the interfaces that are used for this unit, you see only a short name or a principal name. Security settings that are related to system configuration often use the distinguished name because it is important that the security principal be uniquely identifiable in the security context within which the system is designed to operate.

#AUTENTICATED-USERS is a group that consists of all domain users.

#CREATOR-OWNER is a role that is assigned to anyone who creates an object. Normally, the #CREATOR-OWNER has ownership of the object by default, but this behavior can be changed for security reasons.

Security principals are also called grantees.

Users and groups

- The directory service defines the security principals.
- Users are assigned to groups.
- Use groups as primary security principals whenever possible.
- Example for a Finance department

Group name	Users who are members
Finance Admins	Adam, Allison, Steve
Finance Managers	May, mark
Finance Clerks	Carol, Charles
Finance Reviewers	Richard, Roberta

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Figure 9-6. Users and groups

Personnel changes occur often. When these changes occur, it is much more efficient to change group membership than to reconfigure security.

The directory service is responsible for linking the user to the group so that the solution builder can assign security exclusively to groups.

Security realms

- Realm
 - A collection of all user accounts and group memberships available to the FileNet P8 domain
 - Created, maintained, and authenticated by the authentication provider
 - Read and used by the FileNet P8 domain
- Multiple realms
 - The IBM FileNet P8 Platform supports multiple realms.

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Figure 9-7. Security realms

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the FileNet P8 infrastructure>FileNet P8 domains

http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/aboutem/dom_concepts.htm

FileNet P8 Platform 5.2.1>Security>How to>Configure multiple realms

http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psh011.htm

Multiple realms

You can create multiple authentication realms on your application server. For each authentication realm that you create, you must also create a corresponding directory configuration in Content Platform Engine so that the users and groups in the authentication realm can be authorized. Content Platform Engine requires that all directory services be accessible at run time. If one becomes inaccessible, Content Platform Engine cannot run, even though other directory services are still running. Configure LDAP failover for each directory service to avoid this problem.

Logons from unconfigured LDAP realms

IBM FileNet Content Manager can be configured to allow or disallow log on by users who belong to groups that exist in unconfigured LDAP realms. However, the user must belong to a configured realm.

Hidden group logons

FileNet Content Manager can authenticate users who are members of hidden security groups in the LDAP directory.



IBM Content Navigator Desktop

- A desktop is configured to authenticate users against a specific repository in your environment.
- Users who want to access this desktop must be defined in the repository.
- Also, you can limit access to the desktop to a specific set of users and groups in your repository.

Desktop: Sample Desktop

* General	* Repositories	* Layout	Appearance	* Menus	Workflows
* Name: ?	Sample Desktop				
* ID: ?	SampleDesktop				
Description:					
▼ Authentication					
* Repository: Sales <div style="border: 1px solid red; padding: 5px; margin-left: 10px;"> The Sample desktop is configured to use the Sales object store for authentication. </div>					
Limit access to specific users and groups <input type="radio"/> Enable <input checked="" type="radio"/> Disable					

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Figure 9-8. IBM Content Navigator Desktop

Help path

Content Navigator>Content Navigator 2.0.3>Planning, installing, and configuring IBM Content Navigator>Administering IBM Content Navigator components>Configuring the IBM Content Navigator web client>Defining desktops

http://www.ibm.com/support/knowledgecenter/SSEUEX_2.0.3/com.ibm.installingeuc.doc/eucco006.htm

To log in to an IBM Content Navigator Desktop, a user must have access to the object store that is defined for authentication on that desktop. This extra layer of security is beyond what is required by the object store. A user can log in to Administration Console for Content Platform Engine but be unable to log in to the IBM Content Navigator Desktop if that user is not authorized on that object store.



Note

Although a user might be able to log on to Administration Console, that user must also have authorization to change anything.

Login errors

- A user tries to log on to IBM Content Navigator and receives a login error.
- Error
 - *Message: SymptomUser ID or Password not valid for this server.*
- Causes
 - User is not a member of the LDAP directory.
 - LDAP directory service is not reachable.
- Solution
 - Ensure that LDAP is running and reachable by the Content Platform Engine.
 - Check LDAP directory to verify that the user is authorized to log in.
- Error
 - *Message: You do not have the appropriate permissions to access the following repository: <repository name>*
- Cause
 - User is not authorized to view the object store that is defined for Authentication on the IBM Content Navigator desktop.
- Solution
 - Ensure that the user is authorized to access the object store.

Instructor demonstration

- Change object ownership
 - Change the ownership of a document.



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Figure 9-10. Instructor demonstration

Add a document as a user, such as Carol.

Log into ACCE as p8admin.

Use ACCE to change the owner of the document to a different user, such as Charles.

Unit summary

- Resolve logon failure.
- Verify object store access.

Resolve logon issues

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Figure 9-11. Unit summary

Exercise: Resolve logon issues

Use your student system and the Course Exercises guide to complete the exercise.

Resolve logon issues

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Figure 9-12. Exercise: Resolve logon issues

Exercise introduction

- Resolve logon failure.
 - A user is unable to log on to the IBM Content Navigator desktop. Find and fix the problem.
- Verify object store access.
 - Explore how different users have different access rights to the object stores.



Resolve logon issues

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Figure 9-13. Exercise introduction

Unit 10. Modify direct security

Estimated time

00:30

Overview

This unit describes how to modify direct security on objects.

How you will check your progress

- Checkpoint
- Machine exercises

References

IBM Knowledge Center:

<http://www.ibm.com/support/knowledgecenter/SSNW2F>

Unit objectives

- Change direct security on a document.
- Change the owner of a document.
- Customize document access.

Modify direct security

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Figure 10-1. Unit objectives

Permissions

- Objects are secured by a set of permissions that control all operations on that type of object.
- Permission
 - The right to perform a specific operation on a securable object.
 - For example, the right to delete an object.
 - Also called an **access right**.
- Permission group
 - A predefined set of access rights.
 - For example, Full Control.
 - Also called an **access level**.
- Access control entry (ACE)
 - A set of access rights for an object that is associated with a single security principal (grantee)
- Access control list (ACL)
 - The set of ACEs associated with an independently securable object

[Modify direct security](#)

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Figure 10-2. Permissions

Help path

FileNet P8 Platform 5.2.1>Security>Authorization>About access rights

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa050.htm

The examples that follow are securable object store objects:

- Object stores
- Folders
- Documents
- Document classes
- Property templates
- Event actions and subscriptions

Security sources

- Permissions for an object can come from various sources.
 - Sources can be used in combination.
 - Precedence is determined by order of evaluation.
 - Security is determined dynamically when the object is accessed.
 - This fact is significant for inherited security.

Security source	How source is applied to objects
Default	Permissions are initially copied from the Default Instance Security ACL of its class to an object ACL.
Direct	Permissions are applied directly on individual objects. If a Default ACE is edited, its source becomes Direct.
Template	Permissions are applied by a security policy, and are not directly editable.
Inherited	Permissions are applied by a security parent, such as a folder or another object, and are not directly editable.
Security markings	Restrictions are applied by marking sets.

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Figure 10-3. Security sources

Help paths

FileNet P8 Platform 5.2.1>Security>Authorization>About access rights>ACE source: Default, Direct, Inherited, Template

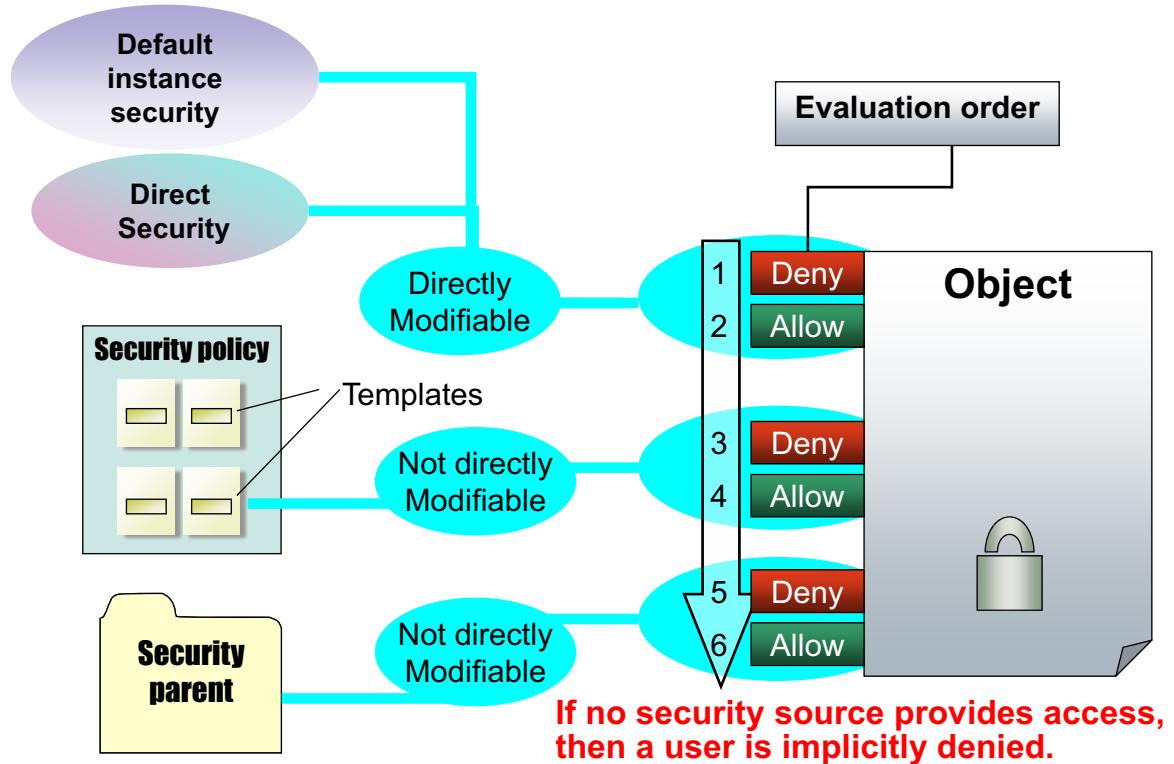
http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa053.htm

Security can be configured in various ways, and you have many complex choices to make as you design a security model.

Security markings are commonly used with records management applications and are beyond the scope of this course.



Security sources and order of evaluation



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Figure 10-4. Security sources and order of evaluation

Help path

FileNet P8 Platform 5.2.1>Security>Authorization>About access rights>Allow or Deny and order of evaluation

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa055.htm

Each security permission can be set to Allow or Deny. If a principal has nothing that is allowed, access is denied. When nothing is allowed, it is implicitly denied. Most security scenarios can function perfectly with Allows only. In a system that uses Allows only, security from multiple sources are summed. The order of evaluation is not important. Example, if Fred is Allowed view properties from Direct security, and he also has Major Versioning from a template, then he has both capabilities.

The order of evaluation is important to understand only if you use Denial. This order determines how security issues are resolved. If someone is allowed access by one security source and denied by another security source, the security is determined by which source comes first in the order of evaluation. For example, if a security policy template allows access and folder inheritance denies access, the user is allowed to view the object because the template security is evaluated before inherited security.

Security policies can be configured not to preserve direct security. Therefore, if a policy is configured to ignore direct security, a user can be granted access to an object even if that user is otherwise denied access by direct security.

If a user is allowed access to a document as an individual user but belongs to a group that is denied access, then that user does **not** have access to the object.

- When objects are added, the default instance security on the class becomes Direct security on the new object.
- Both Direct and Default security can be modified on the object. After either type of security is modified, the source is listed as Direct.

Security markings provide an extra, optional layer of security that is primarily designed for the records management marketplace, but the feature can also be used by non-records management applications.

Implicit denial

On systems that use Allows only, access is granted and where not granted is implicitly denied.

Using Allows exclusively simplifies the security system. Unless explicit denials are required for some reason, it is best to avoid them.

Graphic

The graphic shows the source and priority of security sources:

Default instance security becomes direct security when the object is created, and direct security is directly modifiable on an object.

Security policies and security parents can provide security to an object, which is not directly modifiable on the object that uses them.

The evaluation order is presented:

- Default instance and direct security are evaluated first.
- Security policies that provide security are evaluated next.
- Security parents that provide security are evaluated last.

In each case, a Deny access setting takes precedence over an Allow access setting.

If no security source provides access, then a user is implicitly denied access to the object.

What is direct security?

- Default security is set by the class definition.
 - Default instance security settings are applied to new instances of the class.
- When an object is created, Default becomes Direct security.
- Direct security can be modified:
 - For exceptional cases
 - For objects that do not follow predictable rules
 - By users with sufficient access
- Typically, security is automatically assigned to an object from other sources.
 - Design security solutions to minimize the need to modify direct security.

Modify direct security

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Figure 10-5. What is direct security?

Both Default and Direct security can be modified on an object. After either type of security is modified, the source is listed as Direct.

To modify the security on an object, a user must have the Modify Permissions access right.

IBM Training



Access Control from IBM Content Navigator



Modify direct security

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Figure 10-6. Access Control from IBM Content Navigator

Help path

Content Navigator>Content Navigator 2.0.3>Getting started with IBM Content Navigator>Content security

http://www.ibm.com/support/knowledgecenter/SSEUEX_2.0.3/com.ibm.usingeuc.doc/euche014.htm

The graphic shows a typical document ACL in IBM Content Navigator. The expansion on the right shows the permissions for a particular ACE.

You access the ACL in IBM Content Navigator by going to the object's Properties, then opening the Security tab.

The permission level that you specify determines the tasks that the user can perform as follows. You can further limit access to the document by using the advanced options to remove specific tasks from a permission set of the user.

In IBM Content Navigator, access control is displayed by roles.

Owner

A user with owner permissions can do almost anything:

Manage the document security

- Delete the document
- Promote the document to a major version
- Edit the document
- Edit the document properties
- View the document
- View the document properties

Author

A user with author permissions has slightly fewer permissions:

- Promote the document to a major version
- Edit the document
- Edit the document properties
- View the document
- View the document properties

Reader

A user with reader permissions has limited access:

- View the document
- View the document properties

No access

A user with no access is prevented from accessing the document.

Custom

You can customize the permissions for a user with Advanced security in IBM Content Navigator. Principals with custom permissions show a diamond icon to indicate that custom permissions are applied.



Access Control in Administration Console

Access Control List (ACL) for an object

	Name	Source	Permission Type	Permission Group	Apply To
<input type="checkbox"/>	Admins	Direct	Allow	Full Control	This object only
<input type="checkbox"/>	carol	Direct	Allow	Major versioning	This object only
<input type="checkbox"/>	Finance Clerks	Direct	Allow	Modify properties	This object only
<input type="checkbox"/>	Finance Managers	Direct	Allow	Allow	This object only
<input type="checkbox"/>	P8Admin	Direct	Allow		
<input type="checkbox"/>	PEadmins	Direct	Allow		

Access Control Entry (ACE) (highlighted in yellow) contains the **Source** (highlighted in blue) and **Permission Type** (highlighted in blue).

Permission group (highlighted in yellow) is associated with the ACE.

Permissions (highlighted in yellow) are listed under the Permission Type column for the selected ACE.

The Permissions list includes:

- View all properties
- Reserved12 (Deploy is deprecated)
- View content
- Publish
- Change state
- Major versioning
- Read permissions
- Modify owner
- Create subfolder (Inherit Only)
- Modify all properties
- Reserved13 (Archive is deprecated)
- Link a document / Annotation
- Create instance
- Minor versioning
- Delete
- Modify permissions
- Unlink document

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Figure 10-7. Access Control in Administration Console

The graphic shows a typical document ACL in Administration Console for Content Platform Engine. The insert shows the individual permissions for one ACE.

In Administration Console for Content Platform Engine, the administrator can specify a permission group, such as Full Control or Major Versioning to select commonly used groups of permissions. You can customize the permissions of the ACE by selecting or clearing individual permissions. The resulting ACE is shown as having Custom permissions.

You can access the ACL for an object on the security tab for that object.



Note

In the diagram, the security source is explicitly labeled in the Source column.



Permission groups

			ACCE Permission groups								
ICN permission groups			ICN permissions	ACCE permissions	Publish	View Props	View content	Modify Props	Major Version	Minor Version	Full control
Owner	Author	Reader		Publish							
				Change state							
				Modify Owner							
				Link document							
				Unlink document							
				Read permissions							
				Create instance							
				Manage permissions	Modify permissions						
				Delete document	Delete						
				Edit major versions	Major versioning						
				Edit minor versions	Minor versioning						
				Edit properties	Modify all properties						
				View content	View content						
				View properties	View all properties						

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Figure 10-8. Permission groups

The graphic shows a graph of permissions for different permission groups and compares the editable permissions in IBM Content Navigator (ICN) and Administration Console for Content Platform Engine.

Setting permissions on a document in IBM Content Navigator (ICN) and in Administration Console (ACCE) provide different experiences and different levels of granularity. Permissions that are granted in the Administration Console include all of the permissions that can be granted in Content Navigator, plus a few more permissions. Highlighted permissions have different names in each interface, but are functionally equivalent.

IBM Content Navigator provides a simple interface to quickly edit the most commonly used permissions. Use Administration Console for Content Platform Engine if you need to edit other permissions, such as the right to publish or change the state of a document.

Ownership

- All objects have an owner property.
 - The Owner of an object has special permissions.
 - The Owner can change the permissions on the object.
- #CREATOR-OWNER
 - A placeholder in Default Instance security that is replaced by the object creator when the object is created.
 - The special account that is granted to the user who creates an object.
- You can change ownership of an object.
 - Change the Owner property to a different security principal.
 - Requires the Modify Owner permission.
- Null owner
 - You can remove special permissions that are implicitly granted to the Owner.
- Owner permission level
 - In IBM Content Navigator, Owner is a permission level.
 - Do not confuse this level with the Owner property value.

[Modify direct security](#)

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Figure 10-9. Ownership

Help path

FileNet P8 Platform 5.2.1>Security>Authorization>Object ownership

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa071.htm

By default, #CREATOR-OWNER appears on the Security and Default Instance Security tabs of all instantiable classes, and is granted Full Control, with an inheritable depth of This object only. This account functions just like a normal user account, and its default permissions can be edited according to normal rules (that is, by users with appropriate permission).

When the ACE is inherited, the permissions that are granted to the #CREATOR-OWNER become the permissions that are granted to the object's current owner. For example, when a user creates a document based on a document class, that user takes on the #CREATOR-OWNER's permissions.

Instructor demonstration

- Change object ownership.
 - Demonstrate how to change the value of the ownership property on a document.



Modify direct security

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Figure 10-10. Instructor demonstration

Unit summary

- Change direct security on a document.
- Change the owner of a document.
- Customize document access.

Modify direct security

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Figure 10-11. Unit summary

Exercise: Modify direct security

Use your student system and the Course Exercises guide to complete the exercise.

Modify direct security

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Figure 10-12. Exercise: Modify direct security

Exercise introduction



- Change direct security on a document.
 - Add a folder and document
 - Verify access
 - Remove group access to a document
 - Verify that access is removed
 - Change permissions
 - Remove ownership
 - Change ownership
 - Verify the change in ownership
- Customize access.
 - Add typical document permissions
 - Edit security settings

Modify direct security

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Figure 10-13. Exercise introduction

Unit 11. Configure object store security

Estimated time

00:20

Overview

This unit describes how to configure security on a new object store.

How you will check your progress

- Machine exercises

References

IBM Knowledge Center:

<http://www.ibm.com/support/knowledgecenter/SSNW2F>

Unit objectives

- Configure security on a new object store.
- Modify root folder security.
- Add an object store to an IBM Content Navigator desktop.
- Use supergroups to manage object store access.
- Use the Security Script wizard to update security on an object store.

Configure object store security

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Figure 11-1. Unit objectives

Required accounts

- An IBM FileNet P8 system requires some users and groups to install, configure, and administer it.
- These accounts are created during installation.
- FileNet P8 documentation has a complete list.
- Account examples follow:
 - Content Platform Engine operating system user account
 - The account that you use to create and configure the shared root directory of a file storage area or content cache area.
 - Content Platform Engine DB2 for Linux, UNIX, and Windows account
 - An operating system account on the database server that Content Platform Engine uses to access DB2 for Linux, UNIX, and Windows databases that contain the GCD and object stores.

[Configure object store security](#)

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Figure 11-2. Required accounts

Help path

FileNet P8 Platform 5.2.1>Security>Users and groups required by FileNet P8

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psu00.htm

You must be a FileNet P8 domain administrator (the Global Configuration database, or GCD administrator) to create a new object store.

A GCD administrator has full control over the entire FileNet P8 domain object. The GCD administrator is automatically added as an object store administrator.

Object store administrators have full control over the object stores that they are responsible for. Each object store can have its own, unique administrator.

Configure object store administrators and users

- Object store administrators
 - By default have Full Control over all objects on the object store.
 - Can retrieve all objects in the object store, even if explicitly denied access.
 - Examples of initial object store administrator groups follow:
 - FileNet P8 domain administrators
 - Object store administrators
- Object store users
 - #AUTHENTICATED-USERS (all domain users)
 - If you do not specify initial users, #AUTHENTICATED-USERS group is added automatically.
 - Configure initial user groups to prevent an object store from being used by all domain users.

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Figure 11-3. Configure object store administrators and users

Help path

FileNet P8 Platform 5.2.1>Security>Authorization>Default security

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa056.htm

Object store administrators - When you create an object store, you can select groups to become the administrators of that specific object store. Object store administrators have Full Control over all objects on the object store by default. Object store administrators can retrieve all objects (but not necessarily view the content), even if they are removed from the ACL or explicitly denied access. When granted Full Control access level on an object store, these users are given WRITE_OWNER access, an API-level right that allows retrieving all objects.

Object store users - When you create an object store, you select one or more groups to have basic, nonadministrative access rights. If you do not specify any groups at the time of object store creation, the default value, #AUTHENTICATED-USERS, is automatically added. This default access right allows all domain users to have basic access to the object store (as long as they can access the IBM Content Navigator Authentication object store). If you specify a group without including #AUTHENTICATED-USERS, then only that group has basic access. Other domain users are not allowed to use the object store.

If a security principal is removed from an object store ACL, that person or group is denied access to the entire object store.

Example security scenario

- GCD administrator
 - Creates object store, setting initial security groups.
 - Creates file storage areas if needed.
- Object store administrator
 - Creates classes and other supporting entities as needed.
 - Defines default instance security for the classes.
 - Configures permissions for Root Folder.
 - Creates root-level subfolders to be used by department managers.
- Business users
 - Managers create subfolder structures.
 - Clerks add documents.
 - Reviewers view documents.

Configure object store security

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Figure 11-4. Example security scenario

Overview of initial security configuration

- Plan security before you create a new object store.
 - Object store security changes are complex and costly.
 - Proper planning and application can save these costs, even if you must add users and groups later.
- Configure these groups during object store creation:
 - Object store administrators
 - Object store users
- Configure these settings before the object store goes into production:
 - Root folder security
 - Default instance security
 - Property modification access
 - Who has ownership of new objects

Configure object store security

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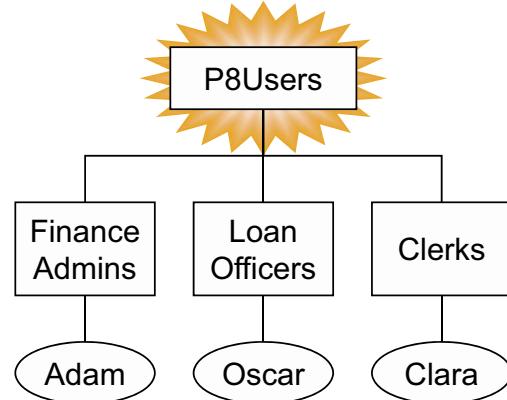
Figure 11-5. Overview of initial security configuration

Property modification access determines who is allowed to change individual property values for an object class.

Ownership is given by default to the creator of an object and confers special authorization to that object.

Super groups

- A super group is an LDAP group to which you grant default object store access.
- Create a super group for IBM FileNet P8 domain access.
- For example, P8Users group
 - All FileNet P8 groups are members of the P8Users group.
- When you create an object store, add the super group with default access rights.
 - Do not add #Authenticated Users
- When new users must be added to an object store, add them to the super group.
 - Users then automatically have default access to all existing objects on the object store.



Users belong to groups.
Each group is a member of the P8Users Super group.

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Figure 11-6. Super groups

The advantage of using a super group when you create the object store is that it is easy to give new users access to the object store later. An alternative approach, by using the Security Script Wizard, has some drawbacks.

If you use the same super group on multiple object stores, you can grant immediate access to all object stores by adding a user or group to the super group. Otherwise, you can create a separate group for each object store to provide more specific access.



Note

If you use separate groups for each object store, remember to create separate IBM Content Navigator desktops as well. Each desktop might then use a separate object store for authentication.

In some cases, you might need to add a business unit to an object store. If the LDAP directory allows nested groups, you can add the new group to the super group to provide access to the object store.

Security Script Wizard

- If you add new users to an object store that is already in production, the users have insufficient permissions to properly use the object store.
- If you do not have a super group to add the users to, you might need to update the object store to add the new user to all of the affected objects.
- IBM provides a script with which to do this task, but the script must update many objects on the object store.
- Security Script Wizard
 - Runs from Administration Console for Content Platform Engine.
 - Provides new users default access to the object store.
 - Provides default access to objects.
- Two sample files, UpdateOSSecurity.json and SecurityScript.js, are provided for use with the Security Script wizard.
 - You can customize these files.
- Be cautious with the security update script.
 - After running it, you must remake your Default Instance Permissions changes and possibly redo the security for your folders.

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Figure 11-7. Security Script Wizard

Help References

FileNet P8 Platform 5.2.1>Security>How to>Update object store with new users and groups

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psrh025.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Managing security>The Security Script wizard

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/securityeditor/emsec_ssw_about.htm

The Security Script Wizard assigns security roles to user and group accounts to create security principals for the objects in an object store. When you run the Security Script wizard, you select an object store, select a security role, and then add users and groups to that role through a query to your directory service. The Security Script wizard then converts this data to JSON data, appends this data to the JSON role definition file, and merges the combined JSON data structure with the JavaScript security script. The wizard then submits the populated security script to create the security principals for the object store and the objects.



Important

Be cautious about running the security script. The script updates the set of administrator groups and regular users on the object store. It makes wholesale changes to the Default Instance Permissions settings of many class definitions and also changes the security permissions of all folders. After you run it, you must remake your Default Instance Permissions changes and possibly redo the security for your folders.

Root folder security

- The security on the Root Folder of an object store determines who can add folders to the top level.
 - Access to the Root Folder is typically restricted.
- By default, Root Folder security is accessible from Administration Console for Content Platform Engine.
 - You must restrict Root folder security if you want to maintain control over the top-level directory structure.

Configure object store security

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Figure 11-8. Root folder security

Help path

FileNet P8 Platform 5.2.1>Security>How to>Restrict access to the root folder

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psht21.htm

Instructor demonstration

- Add a repository to a Content Navigator desktop.



Configure object store security

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Figure 11-9. Instructor demonstration

Unit summary

- Configure security on a new object store.
- Modify root folder security.
- Add an object store to an IBM Content Navigator desktop.
- Use supergroups to manage object store access.
- Use the Security Script wizard to update security on an object store.

Configure object store security

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Figure 11-10. Unit summary

Exercise: Configure object store security

Use your student system and the Course Exercises guide to complete the exercise.

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Figure 11-11. Exercise: Configure object store security

Exercise introduction

- Configure Initial Object Store Security.
- Modify root folder security.
- Add groups to an object store by using a supergroup.
- Use the Security Script wizard.
- End of exercise.



Configure object store security

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Figure 11-12. Exercise introduction

Unit 12. Configure class and property security

Estimated time

00:30

Overview

This unit describes how to configure security on classes and properties for certain business use-cases.

How you will check your progress

- Machine exercises

References

IBM Knowledge Center:

<http://www.ibm.com/support/knowledgecenter/SSNW2F>

Unit objectives

- Configure default instance security.
- Configure property modification access.

Configure class and property security

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Figure 12-1. Unit objectives

Default instance security

- Default instance security is an access control list (ACL) that is configurable at the class level.
 - Used as the source for default security when objects are instantiated.
- Why use default instance security?
 - Determines the initial proposed security of an object.
 - Works automatically.
 - Used to enforce consistency in assigning initial security.
- Changes to default instance security **do not** affect existing objects.
 - Default instance security is applied **only one time**: during the creation of the object.
 - You can use Bulk Operations for updating security on existing objects.
- Direct object security can be modified during or after instantiation.
- By default, the creator of an object has Owner access.
 - Remove #CREATOR-OWNER from the default instance security to override this behavior.

Figure 12-2. Default instance security

When you create a document, that document automatically gets a set of permissions.

These permissions are preconfigured on the document class. This default set of permissions is called Default instance security.

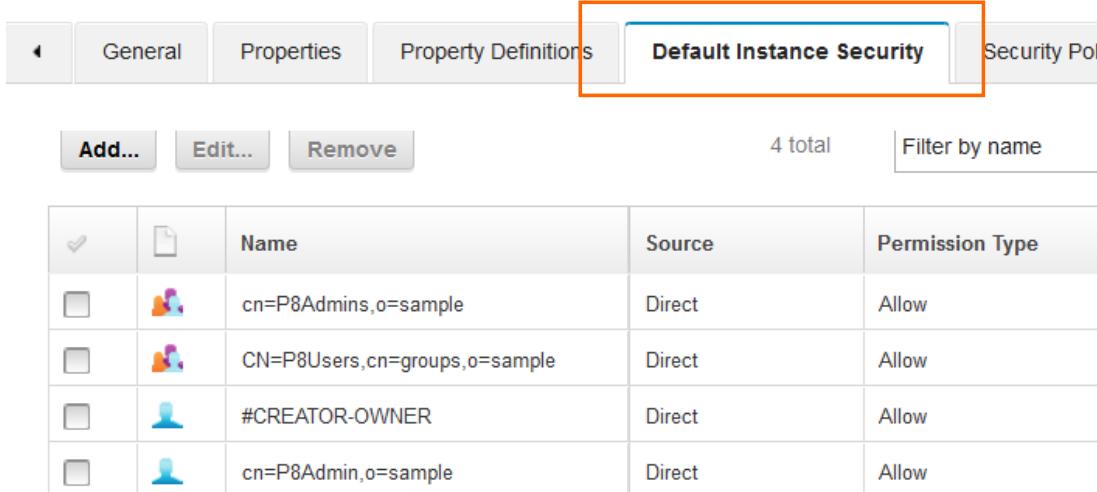
Default instance security is set on the class definition Properties page. When you change default instance security, you can choose to propagate the change to child classes or not.

Do not confuse the default instance security with the security for the class definition itself.

IBM Training 

Setting default instance security

- In Administration Console for Content Platform Engine
- [Object store] > Data Design > [object class definition] > Default instance Security tab.



		Name	Source	Permission Type
<input type="checkbox"/>		cn=P8Admins,o=sample	Direct	Allow
<input type="checkbox"/>		CN=P8Users,cn=groups,o=sample	Direct	Allow
<input type="checkbox"/>		#CREATOR-OWNER	Direct	Allow
<input type="checkbox"/>		cn=P8Admin,o=sample	Direct	Allow

Configure class and property security

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Figure 12-3. Setting default instance security

Help path

FileNet P8 Platform 5.2.1>Security>How to>Add users and groups to a class

https://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8ph003.htm

Property modification security

- Custom properties can be independently secured.
 - Used for IBM Enterprise Records.
 - Can be used whenever you need extra security on a property.
- Properties can be set to have Modification Access Required (MAR).
 - For example, if you select Delete for the MAR property, only users who can delete the object can modify that property value.
- You can configure property modification security in two places:
 - Property template (affects all classes that use it).
 - Class property definition (affects all instances of that class).
- An example follows:
 - Clerks must be able to add reports, but are not allowed to edit or update the report due-date property.
 - By setting the modification access on this property to the Delete level, clerks can read but not update this property value.

Configure class and property security

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Figure 12-4. Property modification security

Help path

FileNet P8 Platform 5.2.1>Security>Authorization>Property modification access

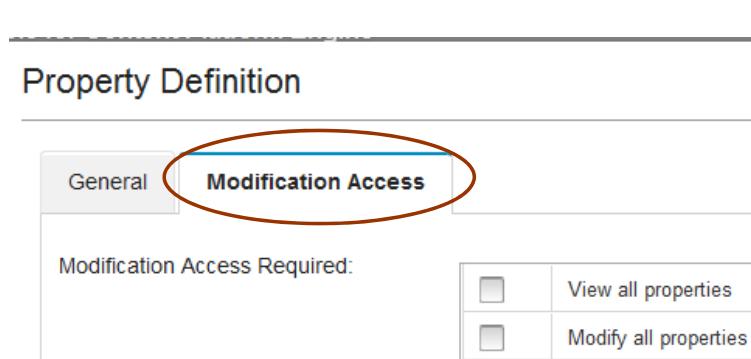
https://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa070.htm

Property modification access is primarily intended for IBM Enterprise Records. It is available for use by non-records management applications that need granular control over user ability to modify properties.

If a property is defined to use this additional security layer, users who add documents are still able to set the values during the addition of the document. However, after the document is added, the property is read-only for them. To ensure that properties are not settable when the document is initially added, use an entry template.

Configure property modification access

1. Edit the property definition (or template) that you want to restrict.
2. Open the Modification Access tab.
3. Select the permissions a user must possess to modify the property value.
4. Save the class definition (or template).



[Configure class and property security](#)

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Figure 12-5. Configure property modification access

To be able to edit a property, a user generally needs Write access to the property.

The property sheets of all property templates have a Modification Access page that contains a list of access rights. By default, these access rights for all property templates are cleared. If left cleared, then the property template has no modification access behavior and "normal" property security applies. However, if you select one or more access rights, properties based on the property template will have different security than normal.

For example, if you select Delete for the Modification Access Required property, only users who can delete the object can modify that property value.



Important

Changes to a property template affect only classes to which you add the template after the change. If you want to change the property modification access on an existing class, you must change the property definition on that class.



System property modification

- Even administrators cannot normally modify certain system properties.
 - For example, Creator, DateCreated, LastModifier, DateLastModified
- To modify these properties, the administrator needs the *Modify certain system properties* permission on the object store.
 - Object store > Security tab.

Allow	▼
This object only	▼
Custom	▼
<input checked="" type="checkbox"/> Connect to store <input checked="" type="checkbox"/> Create new objects <input checked="" type="checkbox"/> Modify existing objects <input checked="" type="checkbox"/> Delete objects <input checked="" type="checkbox"/> Set Owner of any object <input checked="" type="checkbox"/> Read permissions <input checked="" type="checkbox"/> Modify permissions <input checked="" type="checkbox"/> Modify certain system properties <input checked="" type="checkbox"/> Modify retention <input type="checkbox"/> View recoverable objects	

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Figure 12-6. System property modification

Help path

FileNet P8 Platform 5.2.1>Security>Authorization>Object access rights and security>Object store access rights

https://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa011.htm

The *Modify certain system properties* permission is typically needed only in specific scenarios: Setting up a change preprocessor, Importing data by using FileNet Deployment Manager, for example.

Instructor demonstration

- Configure property modification access.



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Figure 12-7. Instructor demonstration

Unit summary

- Configure default instance security.
- Configure property modification access.

Configure class and property security

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Figure 12-8. Unit summary

Exercise: Configure class and property security

Use your student system and the Course Exercises guide to complete the exercise.

Configure class and property security

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Figure 12-9. Exercise: Configure class and property security

Exercise introduction

- Configure default instance security
 - Set default instance security on a new document class.
 - Verify default instance security.
- Configure property modification access.
 - Set property modification access.
 - Verify property modification restriction.



Configure class and property security

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Figure 12-10. Exercise introduction

Unit 13. Configure security inheritance

Estimated time

00:20

Overview

This unit describes how to configure security inheritance by using folders and object-valued properties.

How you will check your progress

- Checkpoint
- Machine exercises

References

IBM Knowledge Center:

<http://www.ibm.com/support/knowledgecenter/SSNW2F>

Unit objectives

- Configure folder inheritance.
- Configure a security parent using a custom OVP.

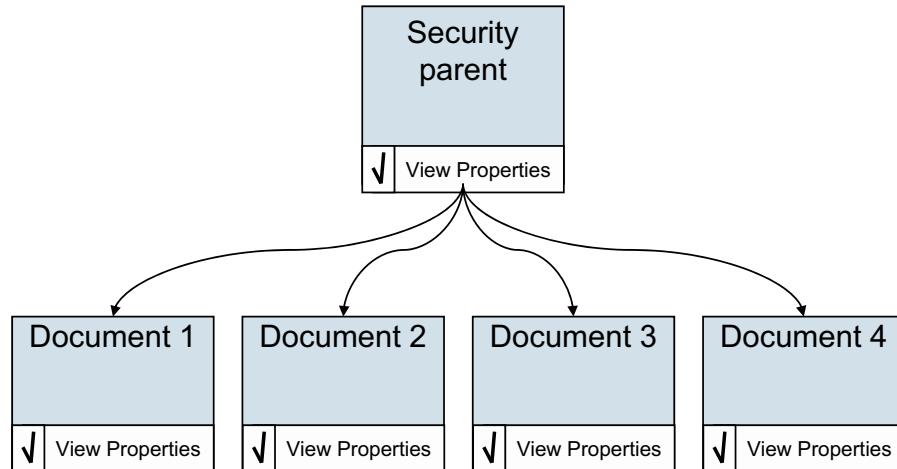
Configure security inheritance

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Figure 13-1. Unit objectives

Overview of security inheritance

- You can configure security to be inherited from other objects.
- Inherited security is a convenient way to control security on multiple objects from a single point.



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Figure 13-2. Overview of security inheritance

If you specify a security parent for a large group of documents, then you can change permissions on all of these documents by updating the security parent.

In an example scenario, your company has thousands of Invoice documents. A corporate decision mandates that Invoice documents can be viewable by all Finance Clerks. You add Finance Clerks to the security parent for the entire Invoice document class. The new permission is inherited by all Invoice documents. With one change, you gave Finance Clerks access to all Invoice documents.

Definition of terms

- Security inheritance
 - The ability to pass permissions from a source object to a child object
- Inheritable depth
 - A property that determines whether permissions are not to be inherited, inherited only by objects that are immediate children, or by all children.
- Security parent
 - Any object from which another object inherits security.
- Security Folder
 - A folder that is used to provide the security for child documents to inherit.
- Security proxy
 - An object that is used to provide the security for other objects to inherit.

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Figure 13-3. Definition of terms

Help path

FileNet P8 Platform 5.2.1>Security>Authorization>Understanding security inheritance

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psa074.htm

Inherited security can be passed on to a child and then on to that child's children, and so on.

Inheritable depth

This property is set for each ACE and can be set to one of the following values:

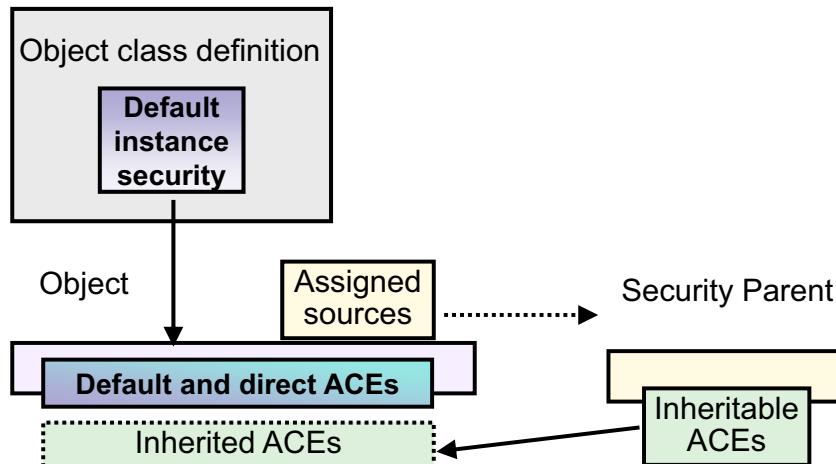
- **This object only**
 - This value is not inherited even if the object is designated as a security parent. This value is the default setting.
- **This object and immediate children**
 - This value is inherited by the child of the parent object, but not by the children of the child object. After inheritance takes place, the child ACE has an inheritable depth of *This object only*.
- **This object and all children**

- This value is inherited by every generation of the child objects of the parent object. After inheritance takes place, the child object ACE has an inheritable depth of *This object and all children*.
- **All children, but not this object**
 - This value is the same as *This object and all children* except the security setting does not apply to the parent object itself
- **Immediate children, but not this object**
 - This value is the same as *This object and immediate children* except the security setting does not apply to the parent object itself.

The previous two settings do not apply to the object itself (for example, a folder), but do apply to objects that inherit the rights (for example, the documents in the folder).

Security inheritance architecture

- Security parents can be assigned to an object.
 - Inheritable ACEs are applied to the child object.
- Inherited security is computed only when needed for access.
 - ACLs for child objects do not change until the object is accessed.



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Figure 13-4. Security inheritance architecture

This diagram illustrates how inherited ACEs are applied to an object.

The object class definition has default instance security. When an object of that class is created, the default instance security of the class applies.

In addition to direct ACEs, the object can inherit permissions from a parent object. Inherited permissions are added to existing permissions. If you use Denials, direct permissions are evaluated first, then inherited permissions.

When is inherited security computed?

When security changes on a security parent, the objects that use that object as a security source are not immediately affected (that is, their ACLs do not change) for performance reasons. Inherited security is computed when the object is accessed, and only if Allow or Deny access is not applied directly. Waiting to check the inherited security until the last step in the process is much more efficient than updating all of the security children each time a security parent is updated.



Characteristics of inherited permissions

- Changing inheritable permissions on a security parent changes permissions on all versions of a security child.
- Inherited permissions are not directly modifiable.
 - You must modify the permissions on the security source object.
 - Inherited permissions are displayed as disabled in security interfaces.
- Deleting security parents
 - If you delete a security parent, the inherited permissions are removed from the child objects.

The screenshot shows the 'Security' tab of a document's properties. Under 'Owner:', there are three entries: 'Finance Admins' (with a red arrow pointing to it), 'Finance Managers', and 'P8Admins'. A yellow callout box with a red border contains the text: 'Inherited permissions are indicated by an arrow in IBM Content Navigator.' The 'Finance Admins' entry has a small red square with a white arrow icon next to its name.

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Figure 13-5. Characteristics of inherited permissions

By design, inherited security cannot be modified on the child object. It can be modified only on the security source object. Even the owner of a particular object is not able to change the inherited security for that object. You must have permission to change the security of the source to affect the inherited security.

The graphic shows the ACL for a document that includes inherited permissions. The inherited permission is indicated by an arrow. The inherited permission does not include an X because it cannot be deleted. The permission cannot be edited, either.

The reason that you cannot edit or delete inherited permissions on an object is that the inherited permission is not contained on the object. The inherited permission is a pointer to a permission on the parent object.

Inheritable permissions

- Changing inheritable permissions
 - Changes to the inheritable permissions on a security source apply to all versions of a document that inherits those permissions.
 - This behavior can be modified in custom applications by using the API.
- Inherit Only permissions
 - Some permissions are listed as Inherit Only in Administration Console.
 - These permissions do not control access to the parent object, but are passed on to the children.
 - For example, you can set the Major versioning permission on a folder so that it can be inherited by documents.



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Figure 13-6. Inheritable permissions

If you are using Administration Console for Content Platform Engine to configure inherited security, use the same type of object for the child and parent security objects. The *Inherit Only* label is not applied in this interface. To ensure that you are configuring permissions that are applicable to the child object class, use the same object class for the parent. For example, use a document as a security parent for other documents.

Methods for configuring security inheritance

- Two methods are available for setting up security inheritance in an object store:
 - The Security Folder method uses folders to set security on objects.
 - Inheriting objects have exactly one folder as the security parent.
 - Set the Security Folder property on the inheriting object.
 - The Security proxy method can use any class of object as a security parent.
 - Inheriting objects can have multiple security sources of this type.
 - Set the Security Proxy Type property on the inheriting object.
- An inheriting object can inherit whatever its security source inherited.

[Configure security inheritance](#)

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Figure 13-7. Methods for configuring security inheritance

Help path

FileNet P8 Platform 5.2.1>Security>How to>Configure security inheritance

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psht05.htm

Two methods to set up security inheritance exist. The first method uses a folder as the security source.

- **Security Folder method**

- A Security Folder is a folder from which an object inherits security, but no requirement to file its security children in the folder exists. A folder inherits the security of its parent folder by default. Therefore, any security permissions that a folder inherits from its parent folder can be passed down to objects that have the child folder as their security parent. The behavior of how the security is inherited can be controlled by using the *Inheritable depth* property on the ACEs for the Security Folder.

The second method uses a custom object-valued property as the security source.

- **Security Proxy Type method**

- This method is a little more complex than the previous method. However, it allows for a more flexible security model to be used. Any class of object in an object store can be specified as the security parent, and an object can have more than one security parent if needed. This method can be combined with the previous method. This method of setting security parents can also be applied by a class definition. You can use this technique to automate the process of establishing security inheritance. The reference to the security parent object can be changed or deleted later if necessary.

Use a security folder

- Two methods for specifying a security folder exist:
 - Designate the folder as security parent by using **Inherit security from folder**.
 - Requires that the object is filed in the folder.
 - Designate a folder as security parent by using **Security Folder**.
 - Requires you to copy and paste object reference of parent object.
- Objects can have only one Security Folder at a time.
- The permissions on the folder must be configured as inheritable.
 - Inheritable depth for the ACEs must be set to include immediate children or all children.
- Security source assignment is done on each inheriting object.
- Deleting the folder removes the Security Folder relationship from the object.
- Moving the child object has no effect on the Security Folder relationship.

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Figure 13-8. Use a security folder

Help path

FileNet P8 Platform 5.2.1>Security>How to>Configure security inheritance>Designating a folder as a security parent by using Inherit security from folder

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psh006.htm

FileNet P8 Platform 5.2.1>Security>How to>Configure security inheritance>Designating a folder as a security parent by using Security Folder

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psh007.htm

The two methods for setting the security folder property have equal outcomes, but have slightly different methods. The Inherit Security from Folder method does not require that you copy the object reference, but does require that the object is filed in that folder. You can select the folder from a menu. The second method (the Security Folder property method) does not require that the object is filed anywhere, but does require you to copy and paste an object reference.

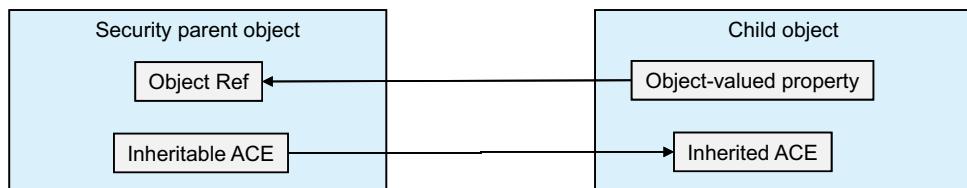
Folder security inheritance can be automated by using a custom application. The Security Folder property value can be assigned to documents automatically.

Consequences of deleting folders or moving child objects

- If a Security Folder is deleted, those documents that had that folder as their security parent and that still exist in the object store no longer have a setting for Security Folder. They can be reassigned to another Security Folder.
- If an object that has a Security Parent is moved out of that folder, the Security Parent relationship is maintained.

Use an object as a security proxy

- Create a security parent object with inheritable permissions.
- Create a custom object-valued property (OVP)
 - Single-valued
 - Security Proxy Type is Inherited
- Add a custom property to the child class.
 - For Required class, select the exact class of the parent object.
- Assign the security parent in one of these ways:
 - Specify value of the OVP on the child object.
 - Specify default value of the OVP on the child object class.
- When the security parent object is deleted, the inherited security is removed from the object.



Configure security inheritance

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Figure 13-9. Use an object as a security proxy

Help path

FileNet P8 Platform 5.2.1>Security>How to>Configure security inheritance>Configuring security inheritance by using a custom object-valued property

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.security.doc/p8psh008.htm

This method is more complex than using the Security Folder method, but it provides more flexibility. You can specify as many security parents as you need, and the security sources are not limited to being folders. For some business applications, the freedom to use other objects besides folders might allow for a more natural and simpler solution. This method can also be combined with the Security Folder method so that the final security on an object includes the inherited security from all sources.

An example scenario

A legal requirement exists for contracts that are used in the Finance department. From time to time, contracts must be viewable by auditors, who do not usually have access to the contracts. You want to be able to change the security on all of the contracts to allow auditors to access them, and then to remove that access when the audit ends.

Many folders act as security sources for the contracts that are filed within them, and other document types are also filed in these same folders and inherit security from them . You do not want to manually change the security on all of the folders, and you do not want the auditors to have access to the other documents that are filed in those folders. Therefore, you cannot change the security on the folders when the auditors need access to the contracts.

You can set up a custom property on a document class so that all contracts have a property that specifies the security proxy from which to inherit security. In this way, you can allow the documents to use their folder as a security parent, and provide an extra level of access that can be disabled or modified when needed.

Guidelines

- When you use a security proxy, specify inheritable permissions to apply to children, but not this object.
 - For example, you might allow users to delete child objects, but not to delete the security proxy.
- Centrally manage security parents.
 - Keep security proxies in a secured folder where they are easy to find.
 - Clearly label and describe the objects to which the security proxy applies.
- Automate security parent assignments if possible.
 - Assign default value for OVP.
 - Use scripts to automate parent folder value.

[Configure security inheritance](#)

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Figure 13-10. Guidelines

Instructor demonstration

- Configure security inheritance.
 - Configure a document to inherit security from a parent folder.
- Configure a security parent by using a custom OVP.
 - Configure a document to inherit security from another parent object by using a custom object-valued property.



Configure security inheritance

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Figure 13-11. Instructor demonstration

Unit summary

- Configure folder inheritance.
- Configure a security parent using a custom OVP.

[Configure security inheritance](#)

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Figure 13-12. Unit summary

Exercise: Configure security inheritance

Use your student system and the Course Exercises guide to complete the exercise.

Configure security inheritance

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Figure 13-13. Exercise: Configure security inheritance

Exercise introduction



- Configure folder inheritance
 - Preparation: Create a document class
 - Create a parent folder
 - Create a receipt
 - Configure the document to inherit security
 - Verify security change
- Configure a security parent using a custom OVP
 - Create a security parent folder
 - Create a security parent
 - Edit security of the security parent
 - Create a custom object valued property template
 - Create a document class
 - Change default instance security
 - Add the custom OVP to the document class
 - Configure the default value for the custom OVP
 - Create test document
 - (Optional) Observe inherited security changes

Configure security inheritance

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Figure 13-14. Exercise introduction

Part 5. Optimize Search Performance

Unit 14. Use searches with bulk actions

Estimated time

00:30

Overview

Occasionally, you must administer many documents at one time. You can find the documents by using a search, and then update them by using a bulk action or a batch operation.

How you will check your progress

- Complete lesson exercises.

References

IBM Knowledge Center: P8 Platform

<http://www.ibm.com/support/knowledgecenter/SSNW2F>

Unit objectives

- Use bulk actions to modify multiple documents.

Use searches with bulk actions

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Figure 14-1. Unit objectives

Actions on Multiple Objects

- Administrators sometimes must change multiple objects.
 - Possibly thousands of objects are affected.
 - It is inefficient to change objects individually.
- You can change multiple objects by using bulk actions and batch operations

Use searches with bulk actions

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Figure 14-2. Actions on Multiple Objects

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with queries

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc193.htm

Types of Multiple-object Actions

- Bulk actions
 - Performed on objects during a search.
 - Affect all objects that the search returns.
 - Can be combined to perform several actions at the same time.
 - Must be enabled before search.
- Batch operations
 - Accessed from searches and other containers.
 - Affect only selected objects.
 - Can perform only one action at a time.

Use searches with bulk actions

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Figure 14-3. Types of Multiple-object Actions

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with queries>Applying bulk actions to selected search results

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/searchandbulkops/sb_start_bulk_operations.htm

Actions and Operations

- Actions
 - Delete
 - Index for content search
 - Move to recovery bin
- Versioning
 - Cancel checkout
- Lifecycle
 - Set or clear exception mode
 - Promote or demote
 - Reset
- Referential containment
 - File or unfile
- Replication
 - Add or remove group association
- Script
 - Run a script
- Security
 - Add or remove users or groups
 - Set permissions

Use searches with bulk actions

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Figure 14-4. Actions and Operations

Bulk actions and batch operations can be used to do the same tasks. For batch operations, the script and security tasks are on their own tabs.

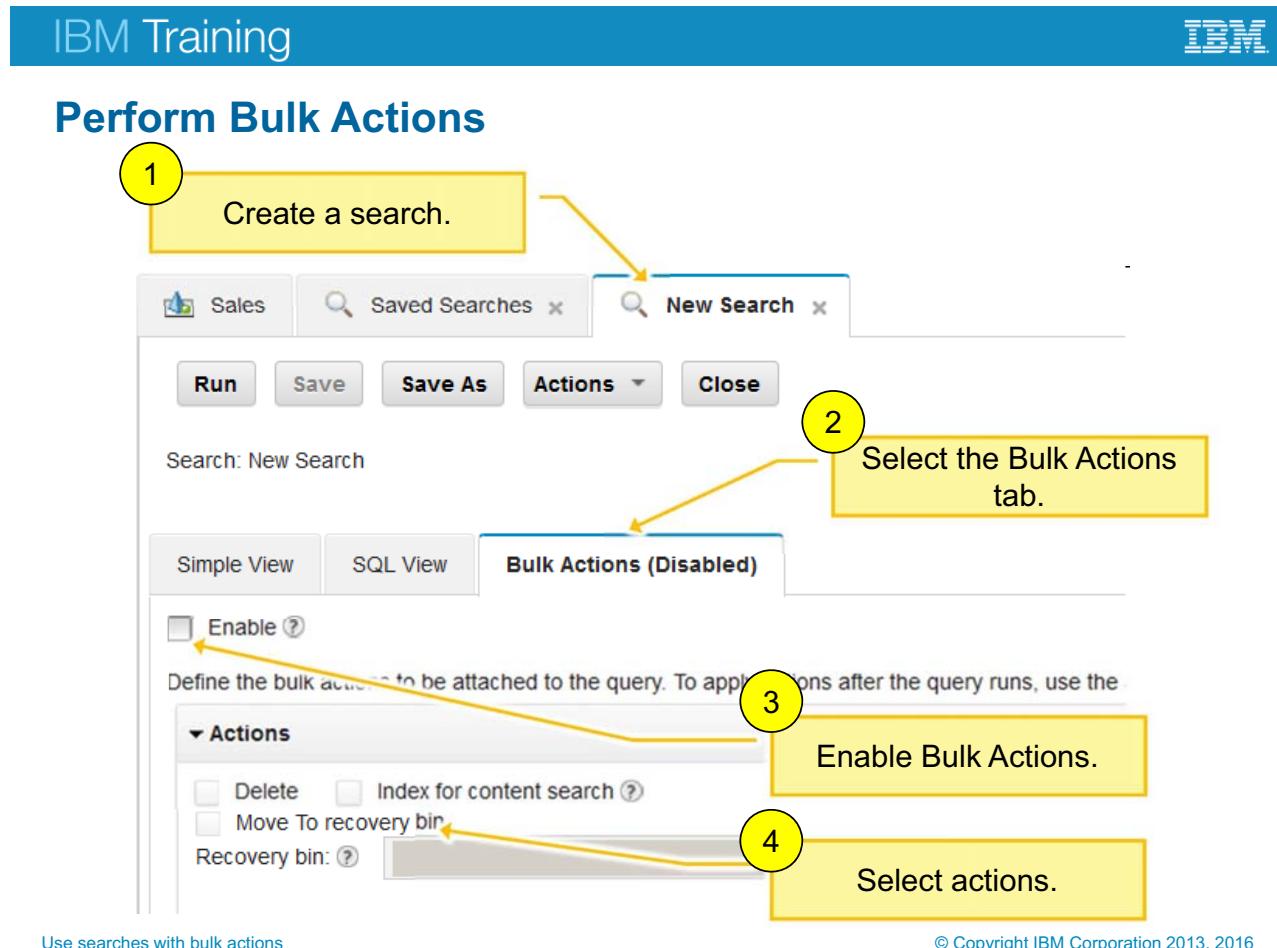


Figure 14-5. Perform Bulk Actions

The graphic shows how to start Bulk Actions.

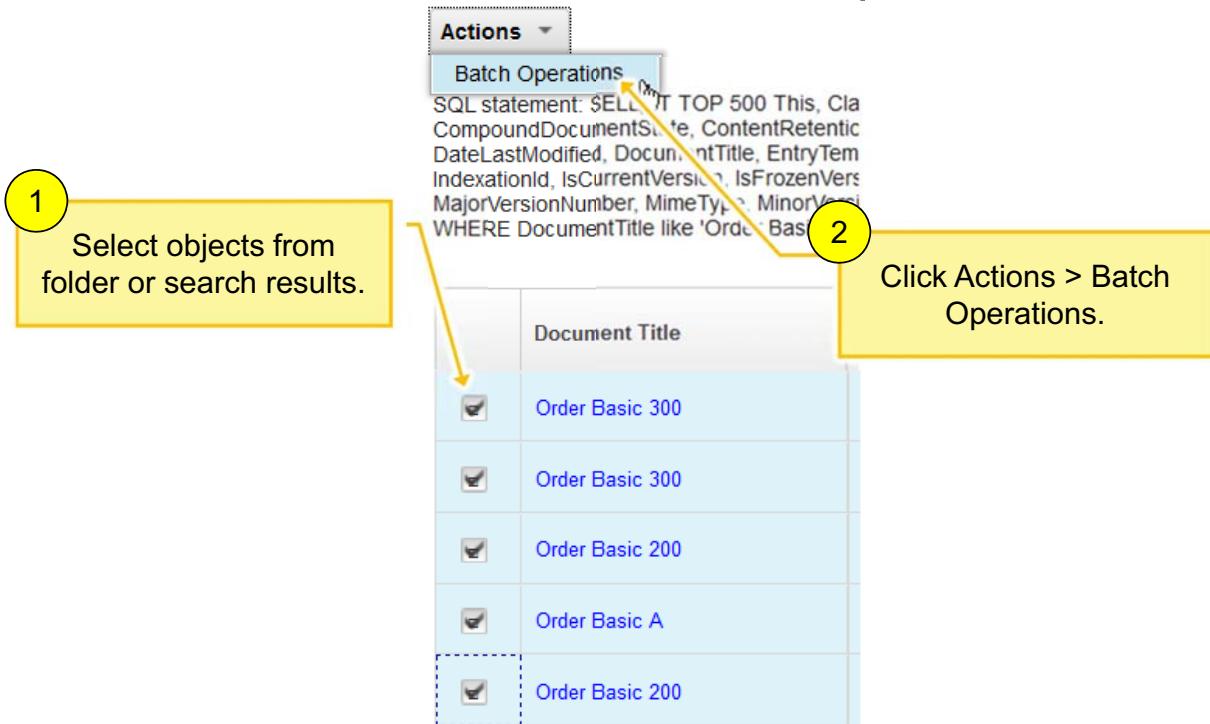
1. Create a search using Administration Console for Content Platform Engine.
2. Select the Bulk Actions tab.
3. Enable Bulk Actions.
4. Select the Bulk Actions to run.

You can select multiple bulk actions, as long as they are not logically inconsistent. For example, you cannot file a document in a folder after deleting it.

Bulk actions are disabled by default to prevent unintended actions, such as deleting objects.



Perform Batch Operations (1)



Use searches with bulk actions

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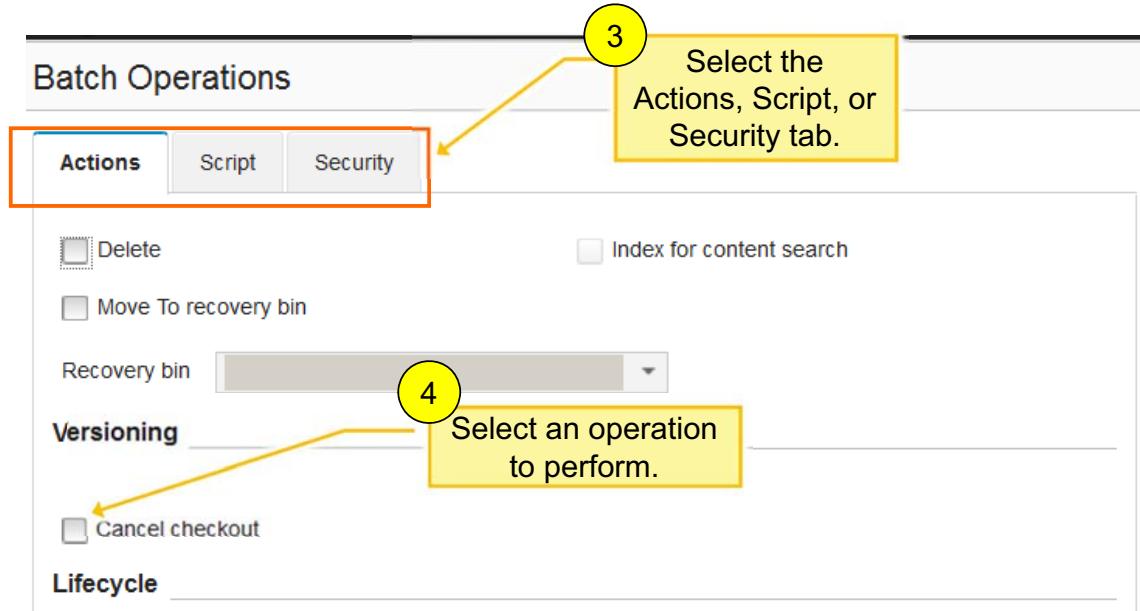
Figure 14-6. Perform Batch Operations (1)

The graphic shows the first two steps for performing a batch operation.

1. Select the objects from the folder or search results.
2. Click Actions > Batch Operations.



Perform Batch Operations (2)



Use searches with bulk actions

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Figure 14-7. Perform Batch Operations (2)

The graphic shows the 3rd and 4th steps for performing a batch operation.

3. Select the Actions, Script, or Security tab, depending on the type of action you want to perform.
4. Select the operation to perform. The operation depends on which tab is selected.

When you select an operation, all of the other operations are disabled.

Unit summary

- Use bulk actions to modify multiple documents.

Use searches with bulk actions

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Figure 14-8. Unit summary

Exercise: Perform searches and bulk actions

Use your student system and the Course Exercises guide to complete the exercise.

Use searches with bulk actions

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Figure 14-9. Exercise: Perform searches and bulk actions

Exercise introduction

- Use bulk actions to modify multiple documents
 - Create a search for Marketing documents
 - Run bulk action to modify security
- Practice using bulk actions
 - Cancel the checkout of documents that are checked out by a user.



Use searches with bulk actions

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Figure 14-10. Exercise introduction

Unit 15. Configure Content Search Services

Estimated time

00:30

Overview

To search for documents based on their content, you must configure an IBM Content Search Services server. This unit shows how to configure IBM Content Search Services server in IBM FileNet Content Manager.

How you will check your progress

- Complete lesson exercises.

References

IBM Knowledge Center: P8 Platform

<http://www.ibm.com/support/knowledgecenter/SSNW2F>

Unit objectives

- Configure a text search server.

Configure Content Search Services

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Figure 15-1. Unit objectives

What is content-based retrieval (CBR)?

- Searches content, annotations, and properties for
 - Words, phrases
 - Words in proximity
- Supports most document types:
 - Microsoft Office documents, PDF, HTML, ASCII, and other formats.
 - Can search in XML tags.
- Most Content Platform Engine search utilities support CBR.
 - IBM Content Navigator searches, stored searches, search templates, and Query Builder
- Documents are indexed.
 - IBM Content Search Services provides full-text indexing.

Figure 15-2. What is content-based retrieval (CBR)?

Content-based retrieval (CBR) is also known as full-text searching. Full-text indexing is not related to creating index properties (known as single indexing or database indexing).

CBR finds words or phrases within the text of a document. In addition, CBR searches can find words that are similar to one another. CBR searches can find annotations and string properties that include XML tags. CBR-enabled folders and custom objects can have CBR-enabled string properties that can be used in content-based searches. However, you enable CBR on an entire class, not on specific folders or custom objects.

What is a content index?

- Content index
 - A file that contains pointers to the character-based content in an object store
 - Like an index in the back of a book
 - Instead of page numbers, index stores references to documents.
- What is searched?
 - Content Based Retrieval searches the index file, not the actual documents

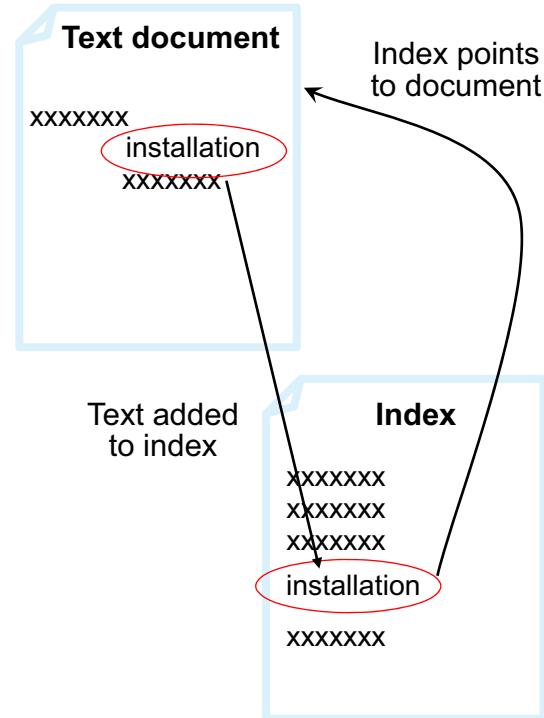


Figure 15-3. What is a content index?

The diagram shows the relationship between an index entry and a document.

What are IBM Content Search Services?

- Indexing and search services for content based retrieval.
- Provided by an IBM Content Search Services server.
- Registered with the FileNet P8 Domain as a Text Search Server.
- Text Search Server Modes:
 - Index only
 - Search only
 - Index and search
- You can change the server status:
 - Enabled
 - Disabled

[Configure Content Search Services](#)

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Figure 15-4. What are IBM Content Search Services?

To distribute workload, a text search server can be registered for indexing, searching, or both indexing and searching tasks. If you have only one server, you must configure it for both indexing and searching.

Starting and stopping IBM Content Search Services

- If IBM Content Search Services is installed on Windows as a service
 - Start > Control Panel > Administrative Tools > Services
 - Can be configured to start automatically.
- Windows (32 and 64 bit) startup and shutdown
 - [css_install_location]\[Server_name]\bin\startup.bat
 - [css_install_location]\[Server_name]\bin\shutdown.bat
- AIX, Linux, Solaris startup and shutdown
 - [css_install_location]\[Server_name]\bin\startup.sh
 - [css_install_location]\[Server_name]\bin\shutdown.sh

Configure Content Search Services

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Figure 15-5. Starting and stopping IBM Content Search Services

Help path

FileNet P8 Platform 5.2.1>Administering>Starting and stopping FileNet P8 components>Starting and stopping IBM Content Search Services

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.admin.doc/startup_shutdown/content_search_services.htm

What is an index area?

- An index area is a file system folder that contains the indexes that are used for content-based retrieval.
 - Each index area is associated with a particular object store.
- An Index Area **object** Is an object in an object store.
 - It contains the path the index area.
- Multiple index areas can be associated with one object store.
- Load balancing
 - Content Search Servers are assigned to indexes automatically.
 - Provided by a Content Platform Engine algorithm.
- Affinity groups
 - You can override the automatic load balancing algorithm by creating affinity groups.
 - A server in an affinity group serves only indexes that are assigned to that affinity group

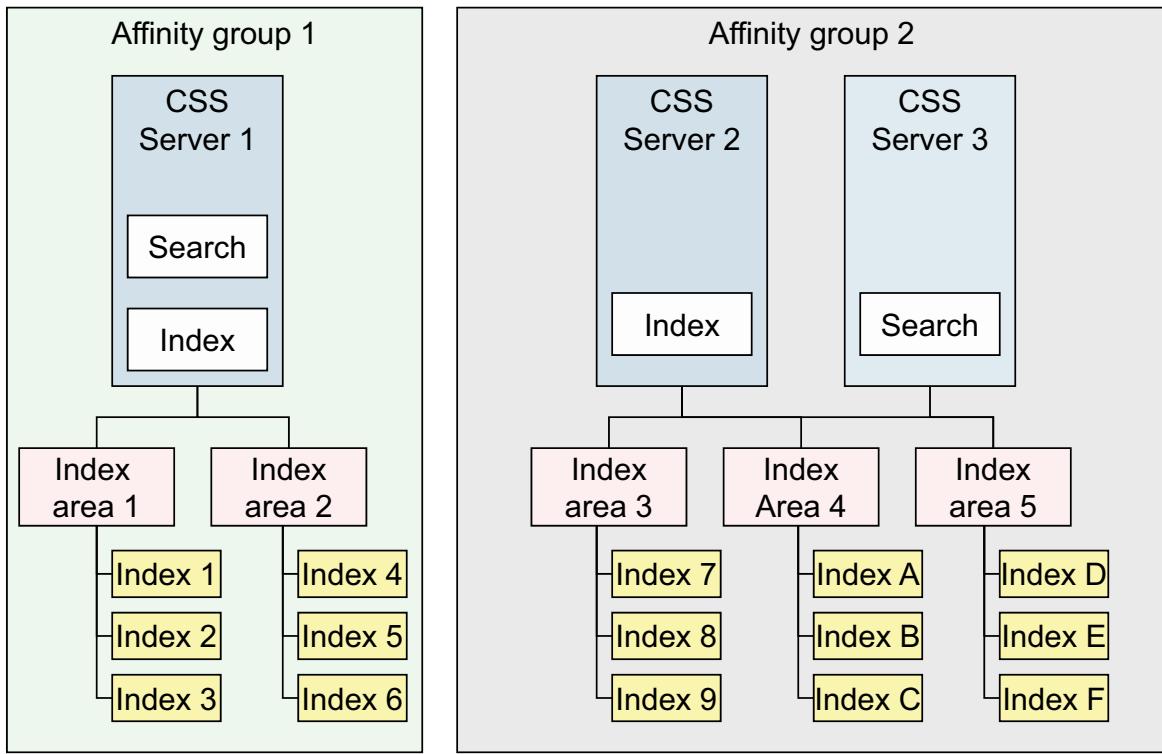
Figure 15-6. What is an index area?

Help path

FileNet P8 Platform 5.2.1>Planning and preparing>Planning and preparing for FileNet P8 installation>Performing the required installation preparation tasks>IT administrator installation tasks>Preparing for IBM Content Search Services>Choosing a load balancing method for IBM Content Search Services servers

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.planprepare.doc/p8ppi255.htm

Use affinity groups to control server assignment



Configure Content Search Services

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Figure 15-7. Use affinity groups to control server assignment

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Configuring the object indexing process>Preparation phase>Controlling the indexing workload>Affinity groups

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_affinitygroups.htm

The diagram shows how affinity groups are used to limit the assignment of indexes to IBM Content Search Services servers.

By default, all Content Engine servers send data to Content Search Services indexing servers. The amount of indexing work that each server does can be controlled by the FileNet P8 administrator (the maximum threads, batch sizes, and total concurrent text extractions are all exposed in Administration Console for Content Platform Engine).

When multiple Content Search Services servers are configured for search, the Content Engine distributes the workload among them to balance the load.

Indexing is a site-specific job. The location of the indexed data (index area root directory) needs to be in the same site as the object store to prevent performance issues with slow disk access. A search server is always used with the same site designation as the object store.

Each index area allows a new root directory to be specified. The root directory that is used to store indexing data is configured by an administrator by using the Index Area object. The operating system user that runs IBM Content Search Services processes must have read and write access to the directory.

A network share is required to have multiple Content Search Services servers on different computers. Access speed to the disk can impact indexing and search performance. The share must be at the same site as the object store where the index areas are defined. Searching and indexing failures can occur if the disk is not accessible because of a failure.

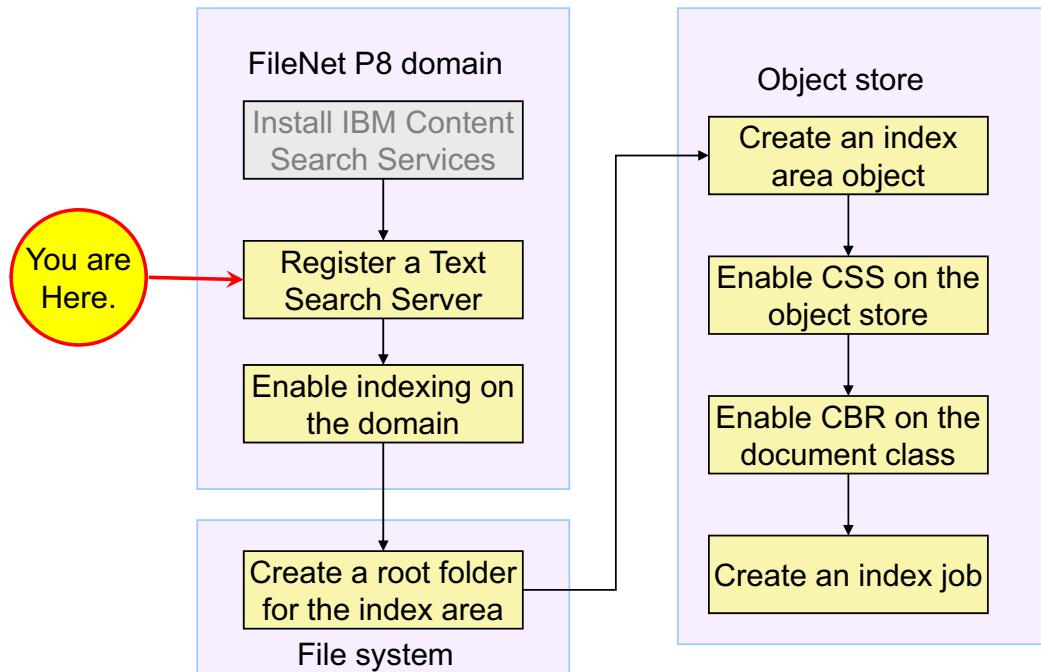
Administrators can protect against these failures with disk mirroring or other highly available solutions. Lost index data can be regenerated with an index job, but that task can take a significant amount of time to complete. Multiple Content Search Services servers are also useful for failure cases. When one server is not running, another one is used.

The assignment algorithm considers only active full text indexes. Assignments are determined by server indexing rates. Faster servers are assigned more indexes.

The affinity group improves performance because you can index your data on a disk that is local to IBM Content Search Services.

Without affinity groups, servers are assigned to indexes by using a Content Platform Engine algorithm based on server speed. You can use affinity groups to enhance efficiency by assigning indexes to servers that are collocated. The downside is that Content Platform Engine cannot provide failover. If the local disk that hosts the index area fails, all indexing and search requests to that index area fail.

Enable Content Based Retrieval



Configure Content Search Services

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Figure 15-8. Enable Content Based Retrieval

Install IBM Content Search Services

In a production environment, you typically install IBM Content Search Services on its own server. At the completion of the installation wizard, the authentication token is displayed. Record the authentication token so that you can use it when you register the server with the P8 Domain.

Register the IBM Content Search Services server as a Text Search Server on the P8 Domain.

You must have the authentication token when you register the IBM Content Search Services server with the P8 Domain. If you did not get the token during installation, you can request it from the server using a command.

Create an index area on a shared file system.

Avoid the root area where the file stores exist to avoid disk I/O bottlenecks.

Enable indexing at the domain level (or site level).

Sites inherit their settings from the domain, so if you enable indexing at the domain level, it is enabled for all sites unless you choose to override the settings for any particular site.

Create an index area on the object store.

The index area has a pointer to the root directory on the file share. The index area object is also where you configure the index size parameters.

Enable IBM Content Search Services on the object store.

You select the Indexing language and select the partitions if you have them. The index area must exist before you can enable IBM Content Search Services on the object store.

Enable CBR on the document class.

You must enable CBR on each document class that you want to index. You can index subclasses at the same time.

Create an index job.

You initiate the index job on the document class. Schedule index jobs to run during off-peak usage hours. Index jobs can be expensive in time and resources.

Domain level tasks

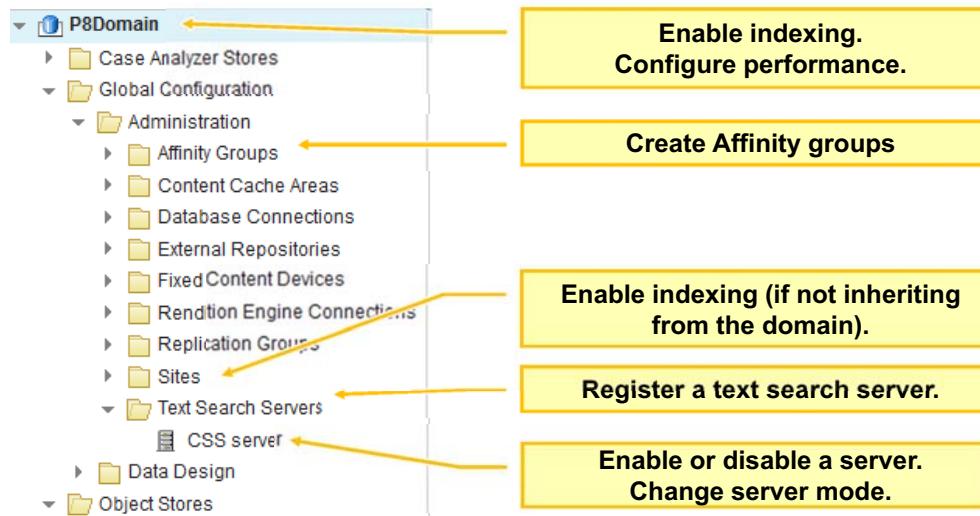


Figure 15-9. Domain level tasks

The diagram shows the P8 Domain tree view in Administration Console for Content Platform Engine. The indicated locations show where the domain level tasks for implementing CBR are performed.

IBM Content Search Server console commands

- **configTool sysinfo**
 - Provides information about the server environment
- **configTool printToken -configPath [local]**
 - Provides authentication token and encryption key
- **configTool generateToken**
 - Generates an authentication token,
- **adminTool version -configPath**
 - Provides version information
- Commands run from the CSS Server\bin directory
- configPath is the config folder path for IBM Content Search Services.

[Configure Content Search Services](#)

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Figure 15-10. IBM Content Search Server console commands

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Command-line tools: General usage reference>Configuration tool usage

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_configtool_usage.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Command-line tools: General usage reference>Administration tool usage

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_admintool_usage.htm

You use console commands to configure and administer IBM Content Search Services.

Useful Administration tool commands:

- Configure server logging level
- Get software version of the server

Use the Configuration tool commands to do the following:

- Get authentication tokens
- Get system information
- Configure update information for index pipeline statistics

Instructor demonstration

- Create a text search server



Configure Content Search Services

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Figure 15-11. Instructor demonstration

Unit summary

- Configure a text search server.

Configure Content Search Services

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Figure 15-12. Unit summary

Exercise: Configure a text search server

Use your student system and the Course Exercises guide to complete the exercise.

Configure Content Search Services

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Figure 15-13. Exercise: Configure a text search server

Exercise introduction

- Content Search Services is installed, but not yet configured as a text search server on the object store.
- Procedures:
 - Obtain the authentication token
 - Create a text search server
 - Inspect the text search server
 - Verify indexing on P8 Domain
 - Verify indexing at the site level



Configure Content Search Services

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Figure 15-14. Exercise introduction

Unit 16. Configure index partitions

Estimated time

00:20

Overview

This unit describes how you can make searches faster in some cases creating an index partition. Many documents fall into a few categories that vary on a string property. You can make the searches more efficient by creating an index partition. Users often search for time-sensitive documents. You can make the searches more efficient by creating an index partition that is based on a date property.

How you will check your progress

- Complete the lesson exercises.

References

IBM Knowledge Center:

<http://www.ibm.com/support/knowledgecenter/SSNW2F>

Unit objectives

- Select a property for an index partition.
- Configure a string index partition.
- Configure a date index partition

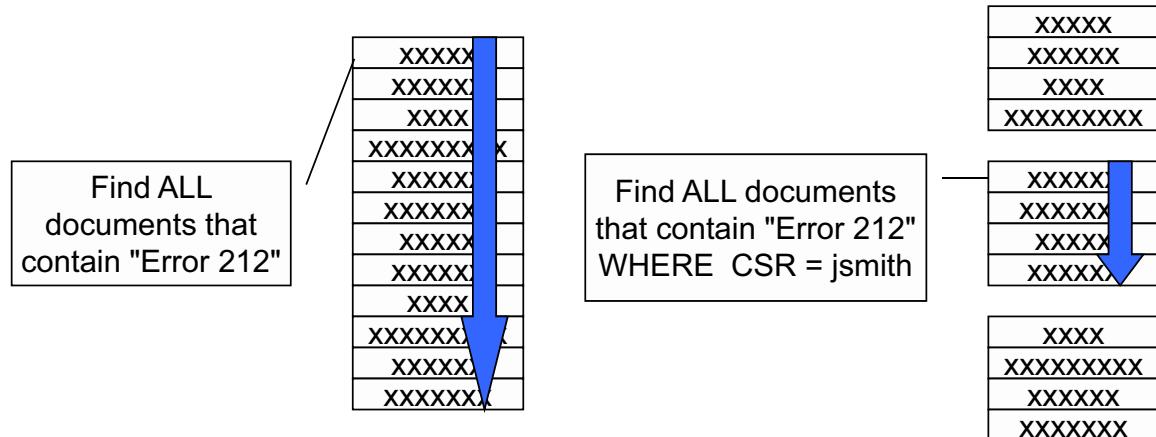
Configure index partitions

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Figure 16-1. Unit objectives

What is an index partition?

- An index partition is a grouping of object index information into separate CBR indexes that are based on object property values.
- It can reduce the amount of index information that must be searched.
- It potentially improves search performance.



Configure index partitions

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Figure 16-2. What is an index partition?

Help path

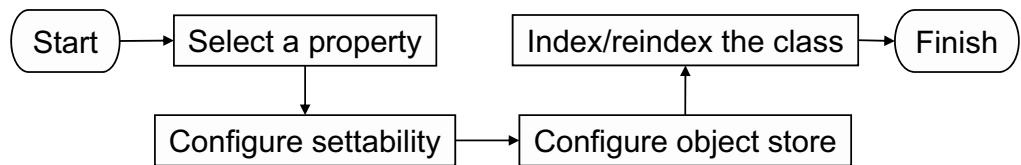
FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index areas and full-text indexes>Partitioning indexes

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_partition_configuring.htm

An index partition can reduce the amount of index information that must be searched by breaking up the index into smaller indexes based on a property value. In the graphic, the first search is for all documents in an object store that contains the phrase "Error 210." Without an index partition, the entire index is searched for the relevant documents. In the second example, the index is partitioned by the "CSR" property. To be effective, the person that does the search must include a value for the CSR property, such as "jsmith." When the search is run, only the index partition for "jsmith" is searched.

Configuring Index partitions

- Create the index partition before you create the index.
 - Otherwise, you must reindex the class.
- Configure index partitions on the object store.
- Only one string-valued property and one date property can be configured for each object store.
- Properties must be set to SETTABLE_ONLY_ON_CREATE to be selected as an index partition.
 - Properties can be set in Administration Console for Content Platform Engine.



Configure index partitions

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Figure 16-3. Configuring Index partitions

Settability values

Name	Value	Description
READ_ONLY	3	Indicates that a property is read-only; only the server can set its value.
READ_WRITE	0	Indicates that a property is read/write; you can set its value at any time.
SETTABLE_ONLY_BEFORE_CHECKIN	1	Indicates that you can only set the value of a property before you check in the object to which it belongs.
SETTABLE_ONLY_ON_CREATE	2	Indicates that you can only set the value of a property when you create the object to which it belongs. After you save the object for the first time, the property's value cannot be changed.

Configure index partitions

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Figure 16-4. Settability values

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index areas and full-text indexes>Partitioning indexes>Setting index partition properties

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc215.htm

In Administration Console for Content Platform Engine, you must use an integer to set the Settability value of the property. The table shows the integer value for each settability setting.

Selecting a string property for an index partition

- To be effective, a string property must be carefully chosen for the index partition.
- Use a string property that has the following characteristics:
 - It must be a custom property.
 - It is often used in searches.
 - It has few, non-unique values.
- Avoid using properties with unique values.
 - A separate partition for every document is inefficient.
- Avoid using properties that are not often used in searches
 - The index partition is only applied when the property is specified in a search.

[Configure index partitions](#)

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Figure 16-5. Selecting a string property for an index partition

Help Path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index areas and full-text indexes>Partitioning indexes>Index partitioning by string value

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_string_partition.htm

String-partitioned indexes have an associated value for the string partition property of the indexed objects. For example, the associated string value might be email. Such an index contains the index information for any objects with email as the string partition property value. The first object indexed for an index determines the associated string value for the index.

To avoid the creation of superfluous indexes, select a property with few possible values as the string partition property for the object store.

Use a date property for a partition

- An object store has two date partition-related properties:
 - Date Partition Property
 - Date Partition Interval
- Use a Date Partition Property as an index partition if the property is commonly used in searches.
- Set the date property interval to create index partitions for the wanted time interval.
 - Example: Set the interval to one month to partition the index by month.
 - Documents that are added during a particular month are indexed in that month's partition.
 - A search that includes a date searches only the documents that were indexed within that month interval.

[Configure index partitions](#)

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Figure 16-6. Use a date property for a partition

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index areas and full-text indexes>Partitioning indexes>Index partitioning by date range

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_date_partition.htm

Date partition property

The date partition property is the name of a property that takes a date/time value. For example, suppose that you want to partition documents that belong to an email class based on the received date. You might set the date partition property to DateReceived.

Date partition interval

The interval is the length of time in months of the associated date range of the date partitioned indexes. The possible interval values are 1, 2, 3, 4, 6, 12, 60, or 120. (The default value of null or a value of zero indicates that partitioning is disabled).

Instructor demonstration

- Configure an index partition



Configure index partitions

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Figure 16-7. Instructor demonstration

Configure an index partition.

1. Log on to ACCE as p8admin.
2. On the Sales object store, open the po_number property template.
3. Change the setability value to 2.
4. Save.
5. Open the Text Search tab of the Sales object store.
6. Select po_number as the string property index partition.

Unit summary

- Select a property for an index partition.
- Configure a string index partition.
- Configure a date index partition

Configure index partitions

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Figure 16-8. Unit summary

Exercise: Configure index partitions

Use your student system and the Course Exercises guide to complete the exercise.

Configure index partitions

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Figure 16-9. Exercise: Configure index partitions

Exercise introduction

- Configure a string index partition
 - Select a string property
 - Change the property setability option
 - Create the index partition
- Configure a date index partition
 - Practice: optional exercise



Configure index partitions

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Figure 16-10. Exercise introduction

Unit 17. Create content-based indexes

Estimated time

00:50

Overview

In order for users to be able to perform content-based searches, there must exist content-based indexes. In this unit you learn how to create and configure a content-based index area and to start an index job. You also learn how to configure content-based retrieval searches to run more efficiently when users search for documents with a mixed query that includes both metadata and content search elements.

How you will check your progress

- Complete lesson exercises.

References

IBM Knowledge Center: P8 Platform

<http://www.ibm.com/support/knowledgecenter/SSNW2F>

Unit objectives

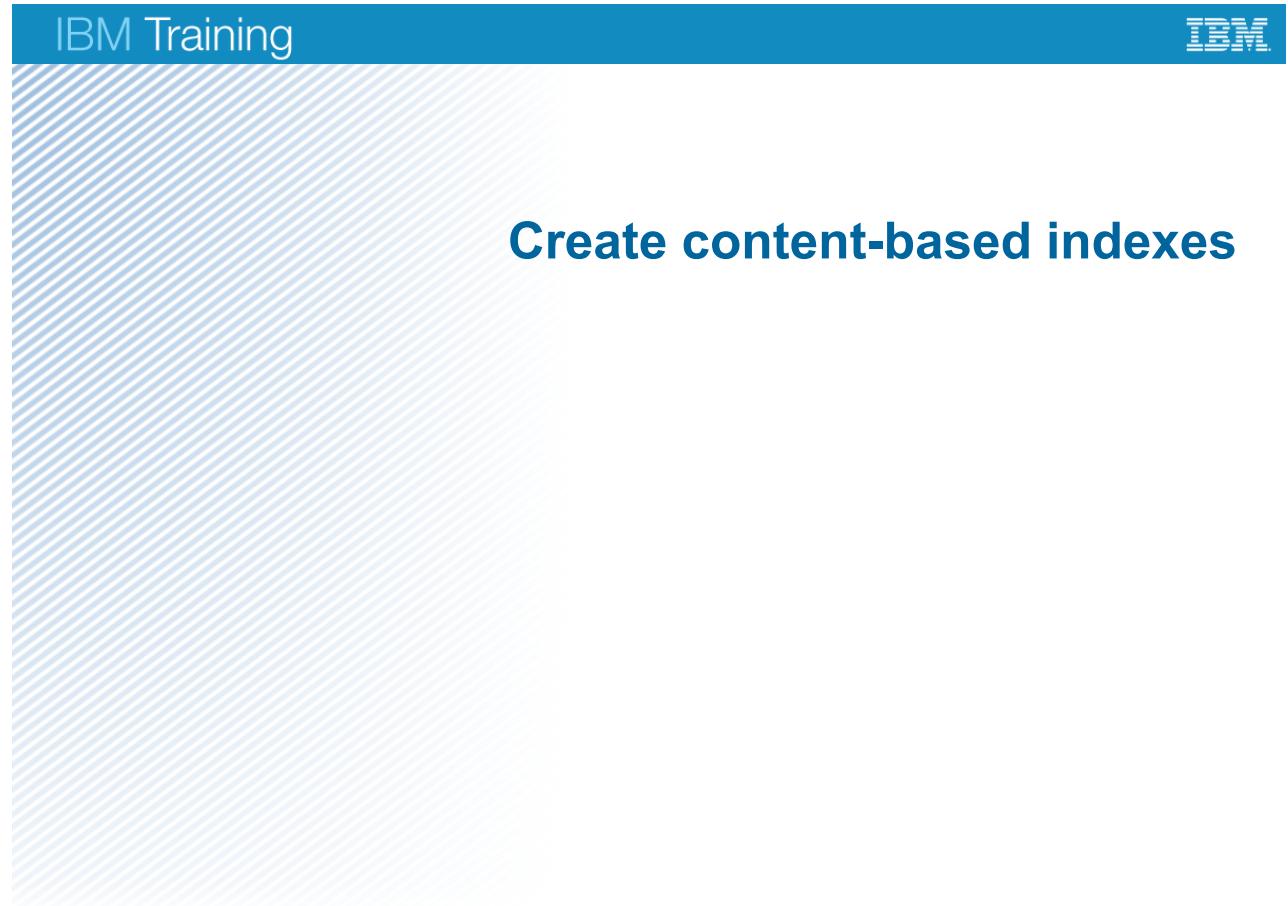
- Configure CBR.
- Configure an index area.
- Check indexing logs.
- Reindex.
- Optimize CBR queries.

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Figure 17-1. Unit objectives

17.1. Create content-based indexes



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Figure 17-2. Create content-based indexes

Topics

- ▶ Create content-based indexes
 - Optimize CBR queries

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Figure 17-3. Topics

Index areas and full-text indexes

- An object store can have multiple index areas.
 - You create index areas manually.
- An index area can have multiple full-text indexes.
- Objects that belong to a full-text index must share the following characteristics:
 - Belong to the same indexable base class or to some subclass of the indexable base class.
 - Have the same partition property value if a string property partition is configured.
 - Have a partition property value within the same date range if a date partition property is configured.
- Content Platform Engine automatically creates full-text indexes to satisfy these requirements.

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Figure 17-4. Index areas and full-text indexes

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index areas and full-text indexes>Index areas and full-text indexes

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_indexarea.htm

Index area states

- An index is in one of the following states:
 - Open
 - Closed
 - Full
 - Standby
- Only Open index areas allow full-text index creation and index entry creation.
- You can create an index area in the OPEN or STANDBY state.
- You can manually set an index area to CLOSED.
- Index areas and full-text indexes have separate states.
 - Indexes can be UNAVAILABLE, REPLACING,

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Figure 17-5. Index area states

The states of the index determine which actions can be performed on the index area.

Open

- Full-text index creation
- Object index entry creation
- Object index entry update
- Object index entry deletion

Closed

- Object Index entry update
- Object index entry deletion

Full

- Object index entry update
- Object index entry deletion

Standby

- Object Index entry update
- Object index entry deletion



Index area settings

Index Area: Sales Index Area 2

General **Properties** **Index**

An index area is a container for full-text indexes, which are used to perform full-text searches against documents in the object store.

* Display name:	Sales Index Area 2
Description:	Sales Index Area 2
Object store:	Sales
Resource status:	<input type="radio"/> Open ? <input checked="" type="radio"/> Closed ? <input type="radio"/> Standby ? <input type="radio"/> Full ?
* Root directory:	c:\Indexes
* Standby activation priority:	0
* Site:	Initial Site

Index area states

Index area location

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Figure 17-6. Index area settings

The graphic shows the index area general settings. From here you can change the resource status, root directory, and other settings.



Full text index settings

Index Area: Sales Index Area 2

General Properties **Index**

The displayed property values are for the selected index.

Index selection:

- * Base classes: ?

Document

Index identification:

{3DD167D3-5ED5-4BE4-B9BE-55ECB0F7E652}

Resource Status:

Indexing status:

Index folder name

Index ID

Index states

Diagram description: This screenshot shows the 'Index' tab of the 'Full text index settings' interface. A red box highlights the 'Index' tab. Below it, a yellow box labeled 'Index folder name' points to the 'Sales_Index_Area_2' field. Another yellow box labeled 'Index ID' points to the 'Document' field. A third yellow box labeled 'Index states' points to the radio button group for indexing status, which includes options like Open, Closed, Full, Unavailable, Normal, Replacing, Rebalancing, and Resyncing. The 'Normal' option is selected.

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Figure 17-7. Full text index settings

Help paths:

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving Documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index jobs and index requests>Identifying and resolving indexing failures>Fixing a corrupt full-text index

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_corruptindex_fixing.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index jobs and index requests>Identifying and resolving indexing failures>Fixing an out-of-sync full-text index

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc212.htm

The graphic shows the settings of the Index tab. The Index tab is where you configure the settings for the full text index. From here, you can also reindex and resync the index.

Reindex: If you suspect that the index has been corrupted, you can set the index to UNAVAILABLE and then reindex. After the index job completes, the index state returns to Open.

Note: If you set the index area to UNAVAILABLE, you cannot change the value again.

Resync: The index can become desynchronized if you restore the object store from a backup. You can resync the index from this interface. During the resynchronizing process, the index state becomes CLOSED. After resynching, it becomes open.

The system updates the Indexing status. For example, during a resynchronizing operation, the resource status is CLOSED and the indexing status is RESYNCING.

Automatic activation of index areas

- You set the capacity of an index area by defining limits.
 - When an index area or full-text index reaches the maximum, its status changes from OPEN to FULL.
- Automatic activation
 - When an index area becomes FULL, Content Platform Engine activates an index area that is in STANDBY.
- Activation priority
 - You can specify the activation priority.
 - Index areas with the highest activation priority are activated first.
- Result:
 - Constant number of index areas with an OPEN status.

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Figure 17-8. Automatic activation of index areas

Help paths

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index areas and full-text indexes>Controlling index area use>Prioritizing index areas for automatic activation

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_indexarea_autoactivating.htm

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index areas and full-text indexes>Controlling index area use>Resource status automatic transitions

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_resourcestatus_autotransitions.htm

Index area limits:

Maximum number of full-text indexes

Full-text index limits:

Maximum number of index entries

Maximum disk space

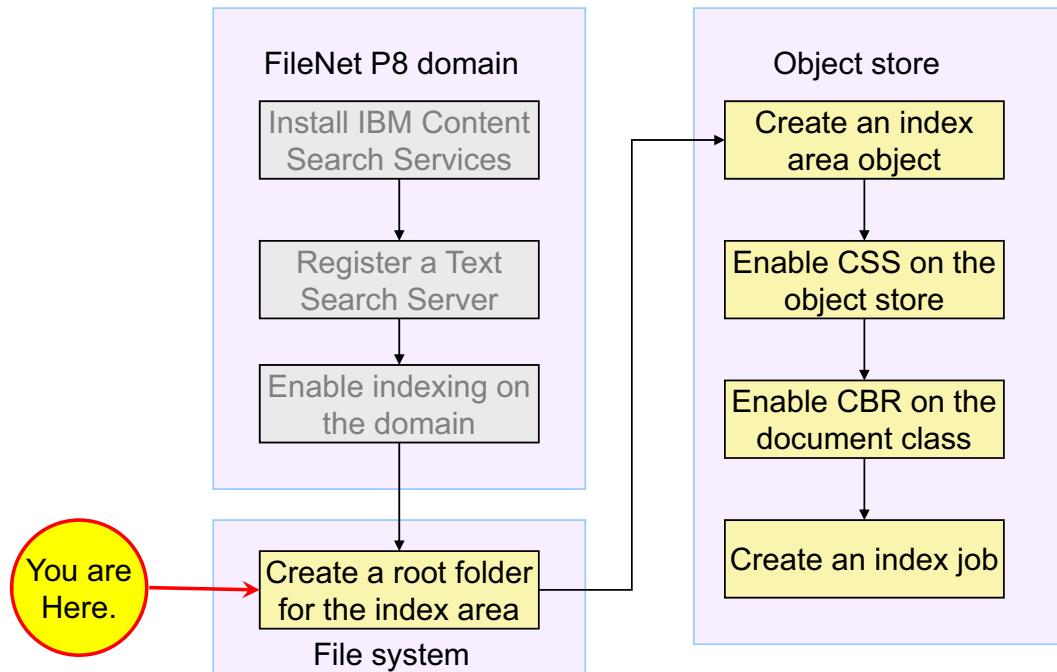
Both

Reduced number of OPEN index areas can result in reduced indexing rates. Automatic activation of STANDBY indexes prevents the reduction of OPEN index areas. The system maintains a steady number of OPEN index areas without manual intervention.

For automatic activation to work, Both index areas must be on the same object store.



Enable Content Based Retrieval



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Figure 17-9. Enable Content Based Retrieval

The diagram shows the steps that are required to configure content based retrieval.

Install IBM Content Search Services

In a production environment, you typically install IBM Content Search Services on its own server. At the completion of the installation wizard, the authentication token is displayed. Record the authentication token so that you can use it when you register the server with the P8 Domain.

Register the IBM Content Search Services server as a Text Search Server on the P8 Domain.

You must have the authentication token when you register the IBM Content Search Services server with the P8 Domain. If you did not get the token during installation, you can request it from the server by using a command.

Create an index area on a shared file system.

Avoid the root area where the file stores exist to avoid disk I/O bottlenecks.

Enable indexing at the domain level (or site level).

Sites inherit their settings from the domain, so if you enable indexing at the domain level, it is enabled for all sites unless you choose to override the settings for any particular site.

Create an index area on the object store.

The index area has a pointer to the root directory on the file share. The index area object is also where you configure the index size parameters.

Enable IBM Content Search Services on the object store.

You select the Indexing language and select the partitions if you have them. The index area must exist before you can enable IBM Content Search Services on the object store.

Enable CBR on the document class.

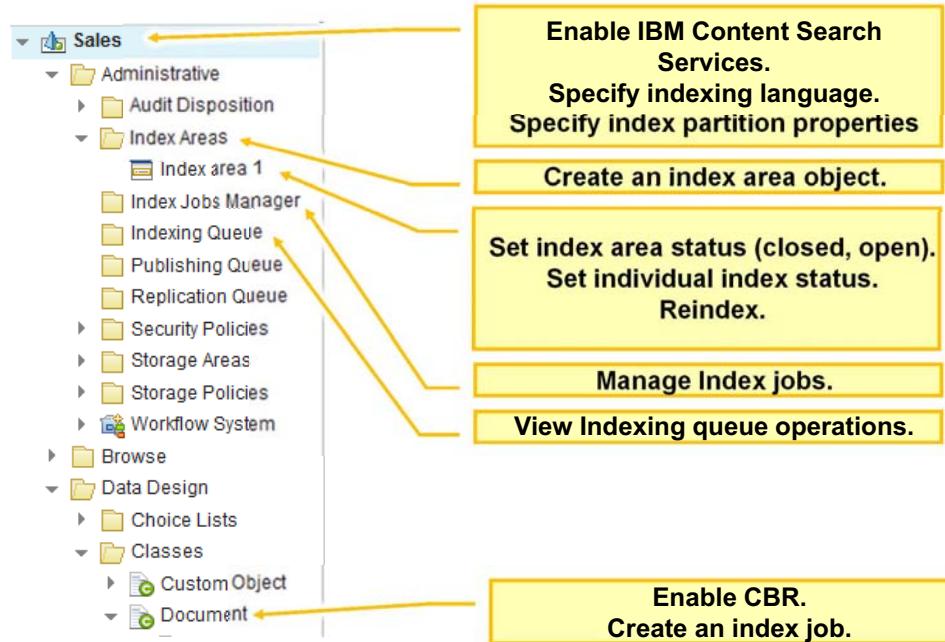
You must enable CBR on each document class that you want to index. You can index subclasses at the same time. Avoid indexing document subclasses that do not need to be indexed. Indexing is expensive in resources and time. Nothing is indexed until you enable CBR on the document class.

Create an index job.

You initiate the index job on the document class. Schedule index jobs to run during off-peak usage hours. Index jobs can be expensive in time and resources.



Object store level tasks



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Figure 17-10. Object store level tasks

The graphic shows the object store tree view in Administration Console for the Content Platform Engine. The locations for object store level tasks for enabling content based indexes are indicated.

Create an index area object

- You create a shared folder in the file store.
 - CSS Server service user must have authorization.
- Create an index area object that references the folder.
- Configure index area properties
 - Root directory
 - Maximum index count
 - Index maximum size
 - Resource status
 - Affinity group
 - Standby activation priority

Configure the Index Area

* Root directory: ?	c:\indexes
Maximum index count: ?	-1
Index maximum object count: ?	-1
* Index maximum size: ?	256,000
Resource status:	<input checked="" type="radio"/> Open ? <input type="radio"/> Standby ?
Affinity group: ?	<None>
* Standby activation priority: ?	0

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Figure 17-11. Create an index area object

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index areas and full-text indexes>Creating an index area

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.install.doc/p8pin329.htm?pos=2

When you create the index area folder on the network share, make sure that the folder grants full control to the CSS Server service account, otherwise, the indexes cannot be created.

Index area properties

- Root directory: the location of the index area in the file share that contains the indexes.
- Maximum index count: A threshold that governs when the status of the index area is automatically changed to full. The status is changed when the number of full-text indexes equals or exceeds this threshold. A value of -1 indicates that no threshold applies.
- Index maximum size: A threshold that governs when the status of the index area is automatically changed to full. The status is changed when the number of indexed objects that

are assigned to the index equals or exceeds this threshold. A value of -1 indicates that no threshold applies.

- Resource status: Indicates the status of the index area.

You can set the status directly if the index area is not full.

- Affinity group
- Standby activation priority

Index jobs

- An index job represents one or more index requests for Content Platform Engine objects.
- You create an index job on the document class that you want to index.
 - The document class must first be CBR-enabled.
- The index job is queued and then runs.
 - Indexing occurs automatically after the index job is queued.
- Schedule to run index jobs during non-peak hours:
 - P8Domain > Text Search Subsystem tab > Schedule
- Use the Index Jobs Manager to check index progress
- Index errors are logged in the P8_Server_error.log files.

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Figure 17-12. Index jobs

Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Maintaining indexes for the CBR text configuration>Managing index jobs and index requests>Running index jobs

http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_indexjob_running.htm

To create an index job in Administration Console for Content Platform Engine, open the class definition and then select Action > Index Class for Content Search (include subclasses).

Scheduling index jobs

Index jobs can be time and resource expensive. To avoid inconvenience to users, schedule the index job during non-peak usage hours.

Use the Index Jobs Manager to perform the following actions:

View job status.

Pause or resume jobs.

Cancel jobs.

Delete jobs.

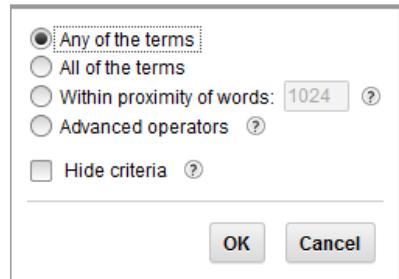
View index requests.



How to run a CBR search

- From IBM Content Navigator
 - Create a search on the Search page.
 - Enter words into the *Find items with the following terms* field.
 - Select text options.
- From Administration Console for Content Platform Engine
 - Open the object store page.
 - Select the Search link
 - Open the SQL Query tab.
 - Enter the SQL query

Text options: Any of the terms



Text options in IBM Content Navigator CBR search.

Figure 17-13. How to run a CBR search

IBM Content Navigator

IBM Content Navigator changes your CBR search. For example, if you enter the text "Lion tiger" either "Lion AND tiger," or "Lion OR tiger," is sent to the database, depending on the text option that you selected.

The graphic shows the text options that are available in IBM Content Navigator. Selecting "Any of the terms" inserts an OR between search terms. Selecting All of the terms inserts an AND between search terms. With the Proximity option you can search for terms that must be in proximity to one another. You set the number of words that can separate the terms. Use Advanced operators to include more complex queries with mixed expressions.

Users can use IBM Content Navigator to perform routine searches for their content. Administrators typically use Administration Console for Content Platform Engine to find documents in order to perform administration tasks, such as changing metadata or security, or to perform bulk operations.

CBR SQL query format

- You might have to create a CBR query in SQL query format.
- Use this syntax:
 - ```
SELECT d.This
 FROM Document d
 INNER JOIN ContentSearch c ON d.This = c.QueriedObject
 WHERE CONTAINS(d.*,'lion AND tiger')
```
- Substitute your search terms for lion AND tiger
- You can use AND, OR, or NOT in the CONTAINS statement.

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Figure 17-14. CBR SQL query format

### Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Querying for object text>CBR query syntax introduction

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr\\_cbrquery\\_introduction.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_cbrquery_introduction.htm)

The CBR SQL query format is the standard method for making a CBR query. This query statement is useful if you must use a content search to find documents for administration tasks, such as bulk operations.



### Note

You can save the search and then reuse it by changing the highlighted text.

## CBR enabled properties

- You can enable properties for CBR.
  - Property values are included in the full-text index.
- Why enable properties for CBR?
  - A CBR search can provide many query syntax capabilities that a DB search cannot:
  - Examples: Phrase, wildcard, synonyms, language processing, grouping.
  - A property can be combined with other CBR criteria for a more efficient query.
  - Adding a database index might be more expensive than an entry to the full text index.
- Configuration:
  - Class > Property Definition > CBR Enabled [True or False].

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Figure 17-15. CBR enabled properties

### Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Setting the CBR-enabled status for a class

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr\\_class\\_cbrenabling.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_class_cbrenabling.htm)

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Indexing object text>Enabling CBR for a property

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr\\_property\\_cbrenabling.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_property_cbrenabling.htm)

## Guidelines

- When you use IBM Content Navigator to do queries based on document contents, be aware that:
  - The text that is entered into the content field in IBM Content Navigator is augmented before being sent to the database.
  - Boolean expressions, such as AND and OR are added to the query.
- Index only the document subclasses that are going to be searched.
- Schedule indexing jobs for non-peak hours.
- Reindex
  - When an index failure occurs.
  - If you create a partition.

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Figure 17-16. Guidelines

## 17.2. Optimize CBR queries

## Optimize CBR queries

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*Figure 17-17. Optimize CBR queries*

## Topics

- Create content-based indexes
- ▶ Optimize CBR queries

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Figure 17-18. Topics

## Combined CBR ad database searches

- A search can include both content and relational database criteria:
  - Example: Find all documents with document title LIKE "Test" and that contain the word "Copyright."
- CBR searches can sometimes take too long in these circumstances:
  - Too many full-text search hits.
  - Too few relational database hits.
  - Example: All of the documents contain the word "Copyright," but only one document has "Test" in the document title.
- This search is slow because it retrieves many full-text hits that are not needed.

Figure 17-19. Combined CBR ad database searches

## How the mixed query works

- Query statement
  - Select D.This FROM Document D INNER JOIN ContentSearch CS  
ON D.This = CS.QueriedObject  
WHERE D.DocumentTitle LIKE 'Test%'  
AND CONTAINS (\*, 'copyright')
- What happens:
  1. The full text portion of the search retrieves a batch.
  2. The batch of full text hits is inserted into a DB Temp table.
  3. A JOIN query is issued between the Temp and DocVersion tables.
  4. Steps 1-3 are repeated to fill the page.
- Limitation
  - Works poorly if many full text hits and many iterations of the join query are needed to fill the page.

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*Figure 17-20. How the mixed query works*

### Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Querying for object text>CBR query syntax introduction

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr\\_cbrquery\\_introduction.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_cbrquery_introduction.htm)

## CBR Query Optimization

- What is Dynamic Switching?
  - For every CBR search, an estimate is first made of the full text hit count based on the full text search criteria.
  - If the estimate is larger than a configured threshold, the relational database portion of the search is run first (DB First).
  - Otherwise, the full-text search is issued first (CBR First).
  - The database results are then searched against Content Search Services.
- Benefits
  - Much faster searches in the case of few relational results.
  - All of the results can be found quickly in the database.

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Figure 17-21. CBR Query Optimization

### Help path

FileNet P8 Platform 5.2.1>Developing FileNet P8 applications>Content Engine Development>Content Engine .NET API Reference>FileNet.Api.Core Namespace>IObjectStore Interface>IObjectStore Properties>CBRQueryOptimization Property

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.dev.net.doc/P\\_FileNet\\_Api\\_Core\\_IObjectStore\\_CBRQueryOptimization.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.net.doc/P_FileNet_Api_Core_IObjectStore_CBRQueryOptimization.htm)

## Configuration

- You set the CBR Query Optimization property on each Object Store
- Default value is Null (not set)
  - Searches are done Content First
- Set to value of 1 (Dynamic switching)
  - Searches dynamically switch
- Set CBR Query Dynamic Threshold property
  - For example: 10000
  - Only used if CBR Query Optimization property is set to Dynamic switching.

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Figure 17-22. Configuration

### Help path

FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Retrieving documents>Finding objects with content-based retrieval>Querying for object text>Optimizing CBR query performance

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr\\_queryperformance\\_optimizing.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/cbr/csscbr_queryperformance_optimizing.htm)

## Handling requests for ranked results

- Users can request search results to be ordered by rank.
  - Rank order can be calculated only when the search is CBR-first.
  - You specify how ranked results requests are handled.
- Grant always:
  - The server always runs CBR-first searches if rank order is requested.
- Grant conditionally:
  - CBR-first searches are ordered by rank.
  - DB-first searches are not ordered by rank.
- Grant never:
  - Searches are not ordered by rank.
  - This option can boost performance.

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Figure 17-23. Handling requests for ranked results

### Help path

FileNet P8 Platform 5.2.1>Developing FileNet P8 applications>Content Engine Development>Content Engine .NET API Reference>FileNet.Api.Core Namespace>IObjectStore Interface>IObjectStore Properties>CBRQueryRankOverride Property

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.dev.net.doc/P\\_FileNet\\_Api\\_Core\\_IObjectStore\\_CBRQueryRankOverride.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.net.doc/P_FileNet_Api_Core_IObjectStore_CBRQueryRankOverride.htm)

Search results are ordered by rank when you use the ORDER BY clause in a CBR query. Objects are returned in order of search relevance based on term instance frequency. IBM Content Search Services calculates the value of the Rank property for each returned object.



## Configure CBR query optimization options

General Properties Text Search **Query** Cache Security

\* Maximum RPC time limit:  seconds

Database time limit:  seconds

**CBR Query Optimization**

Query execution mode:

- Dynamic switching
- Default

Requests for ranked results:

- Grant always
- Grant conditionally
- Grant never

Excessive full-text search hits threshold:

**Turn on dynamic switching.**

**Configure ranked results options.**

**Set the CBR search hit threshold.**

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Figure 17-24. Configure CBR query optimization options

## Instructor demonstration

- Create an index area
- Create an index job



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Figure 17-25. Instructor demonstration

### Create an index area

1. Create a folder on C:\ named Indexes. Give P8Admin full control over this folder.
2. In Administration Console, go to Sales > Administrative > Indexes.
3. Create an index area.
4. Configure the index area by specifying the root directory (C:\Indexes).

### Create an index job (setup)

1. Setup
  - a. Enable IBM Content Search Services on the object store.
    - i. Open the Text Search tab of the Sales object store.
    - ii. Select a language.
    - iii. Check the option to Enable IBM Content Search Services.
    - iv. Save.
  - b. Enable CBR on a document class.
    - i. Select a document subclass, such as Product.

- ii. On the General tab, check CBR Enabled.
  - iii. Save.
2. Create an index job.
  - a. Open the document subclass that is CBR-enabled.
  - b. Click Actions > Index Class or Content Search (include subclasses).
  - c. Click OK.
3. View index job progress (optional)
  - a. Go to Sales > Administrative > Index Jobs Manager.
  - b. Review the information. Click Refresh if nothing is displayed.

## Unit summary

- Configure CBR.
- Configure an index area.
- Check indexing logs.
- Reindex.
- Optimize CBR queries.

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*Figure 17-26. Unit summary*

## Exercise: Create content based indexes

Use your student system and the Course Exercises guide to complete the exercise.

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Figure 17-27. Exercise: Create content based indexes

## Exercise introduction

- Configure CBR
  - Create an index area
  - Enable IBM Content Search Services on the object store
  - Enable CBR on a document class
  - Create an index job
- Configure an index area (optional challenge)
- Check indexing logs
  - Find index entries in the log file
- Reindex (optional challenge)
- Configure CBR query optimization options



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Figure 17-28. Exercise introduction

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## Part 6. Migrate Applications

# Unit 18. Application migration overview

## Estimated time

00:35

## Overview

In this unit, you learn the steps to migrate and deploy a FileNet Content Manager application between environments.

## How you will check your progress

Successfully complete the review questions

## References

FileNet P8 Platform 5.2.1 Knowledge Center

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

## Why is this lesson important to you?

- A FileNet Content Manager application is developed and tested. The next step is to move the application to the User Acceptance Test (UAT) environment and eventually to Production.
- You need to describe the migration and deployment process to move an application between environments.

Application migration overview

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Figure 18-1. Why is this lesson important to you?

## Unit objectives

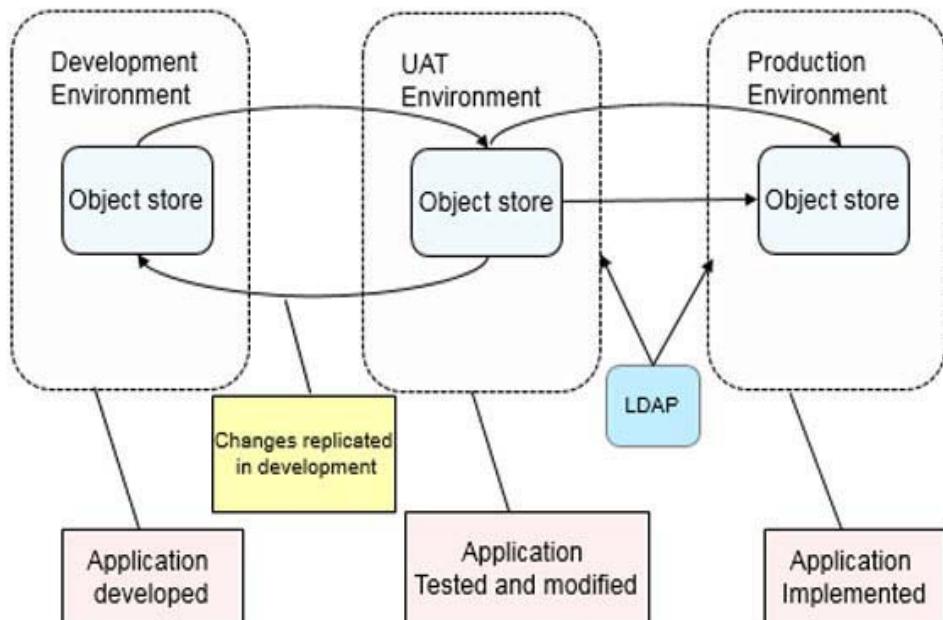
- Describe the process of moving FileNet Content Manager applications between environments.
- Identify the FileNet Content Manager application elements.
- Order and describe the migration and deployment phases.
- List the tools used for application migration and deployment.

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Figure 18-2. Unit objectives

## Application lifecycle



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Figure 18-3. Application lifecycle

The diagram shows three environments, Development, User Acceptance Test (UAT), and Production. Typical projects split their infrastructure into at least these three environments. An application moves in stages through the various environments during its lifecycle.

The application is developed in a development environment. When the application is ready for user acceptance testing, it is migrated and deployed to a UAT environment. In the UAT environment, you do production level testing and apply and test the security that is used in production. After user acceptance testing is completed, the application is migrated and deployed from UAT to Production.

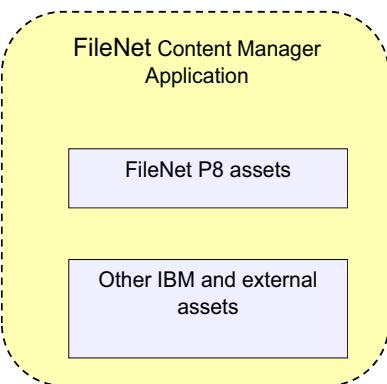
During acceptance test, if any changes are made to the application, those changes need to be replicated in development to ensure that the application is still in sync for future updates.

The lifecycle of an application includes two important stages:

- Initial deployment of an application from a source environment, such as a development environment, to a destination environment, such as a UAT environment.
- Propagation of incremental sets of changes from a source environment, such as a development environment, to a subset of the existing objects in a destination environment, such as a UAT environment.

## FileNet Content Manager application elements

- A FileNet application usually includes two types of elements
  - FileNet P8 assets
  - Other IBM and external assets



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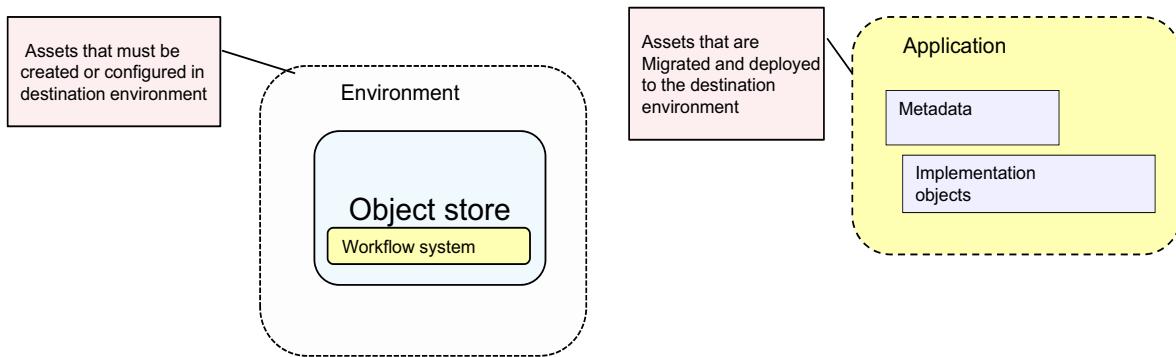
Figure 18-4. FileNet Content Manager application elements

A FileNet Content Manager application generally includes two categories of elements:

- a. FileNet P8 assets
- b. Other IBM and external assets

## FileNet P8 asset types

- FileNet P8 assets in a FileNet Content Manager application fall into two types:
  - Assets that you create or configure in the destination environment, for example:
    - Data Containers – object stores and workflow systems
    - Connections to external services
  - Assets that you migrate and deploy to the destination environment.
    - For example:
    - Metadata
    - Implementation objects



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Figure 18-5. FileNet P8 asset types

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Migration and deployment overview

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/overview\\_intro.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/overview_intro.htm)

FileNet Content Manager applications have two types of assets:

1. Assets that need to be created or configured in the destination environment, for example:
  - Containers such as object stores and workflow systems.
  - Connections to external services such as an External data service or a web service.
2. Assets that are migrated and deployed, for example:
  - Metadata such as class definitions, property templates, choice lists.
  - Implementation objects such as folders, documents, custom objects, event actions, and event subscriptions.
  - User interfaces such as IBM Content Navigator desktops.



## Other IBM and external assets

- IBM Content Navigator desktops
- External services
  - Web services
  - Database services
- Custom code

The screenshot shows the 'IBM Content Navigator Sample Desktop' interface. At the top, there's a navigation bar with buttons for 'Add Document', 'Add Document Using Entry Template', 'New Folder', and 'New Folder Using Entry Template'. On the right of the nav bar are user info ('P8Admin'), a menu icon, a help icon, and the 'IBM' logo. Below the nav bar is a toolbar with icons for Home, Refresh, Add Document, New Folder, Actions, and three document preview icons.

The main area has a sidebar on the left containing icons for Home, Search, Folders, Media, and Settings. The 'Sales' folder is expanded, showing subfolders: Customers, Manuals, Marketing, Orders, Products, TestBulkMove, and Workflows. To the right of the sidebar is a table titled 'Sales' with columns for Name, Modified By, and Modified On. The table lists the same seven subfolders from the sidebar, each with the 'P8Admin' user listed under 'Modified By' and the date '5/6/2013, 7:52 PM' listed under 'Modified On'.

At the bottom of the screen, there are copyright notices: 'Application migration overview' on the left and '© Copyright IBM Corporation 2016' on the right.

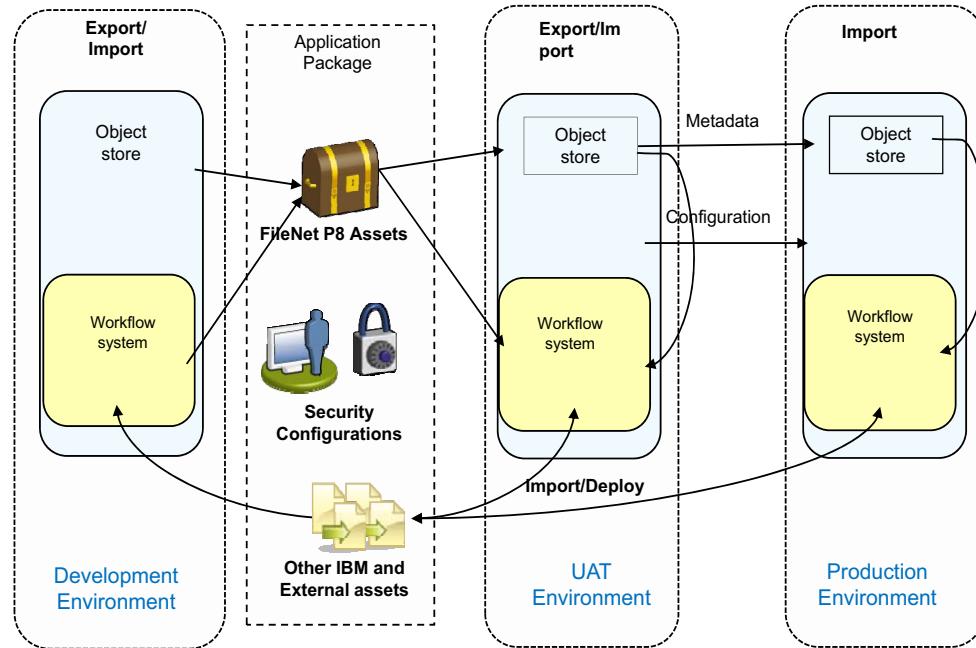
Figure 18-6. Other IBM and external assets

A FileNet Content Manager application often includes other IBM and external assets.

Such as:

- IBM Content Navigator desktops to provide custom user interfaces.
- External services like, web services and database services.
- Custom code

## Migration and deployment process



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Figure 18-7. Migration and deployment process

This diagram outlines the migration/deployment process for a FileNet Content Manager application, with FileNet P8 assets and other IBM and external assets. An Application Package, is a way to package the FileNet Content Manager application, created by the development team. When the application is packaged, it can be put under change control and handed over to the FileNet P8 administrators to migrate and deploy to other environments.

### Migration/deployment process for FileNet P8 assets

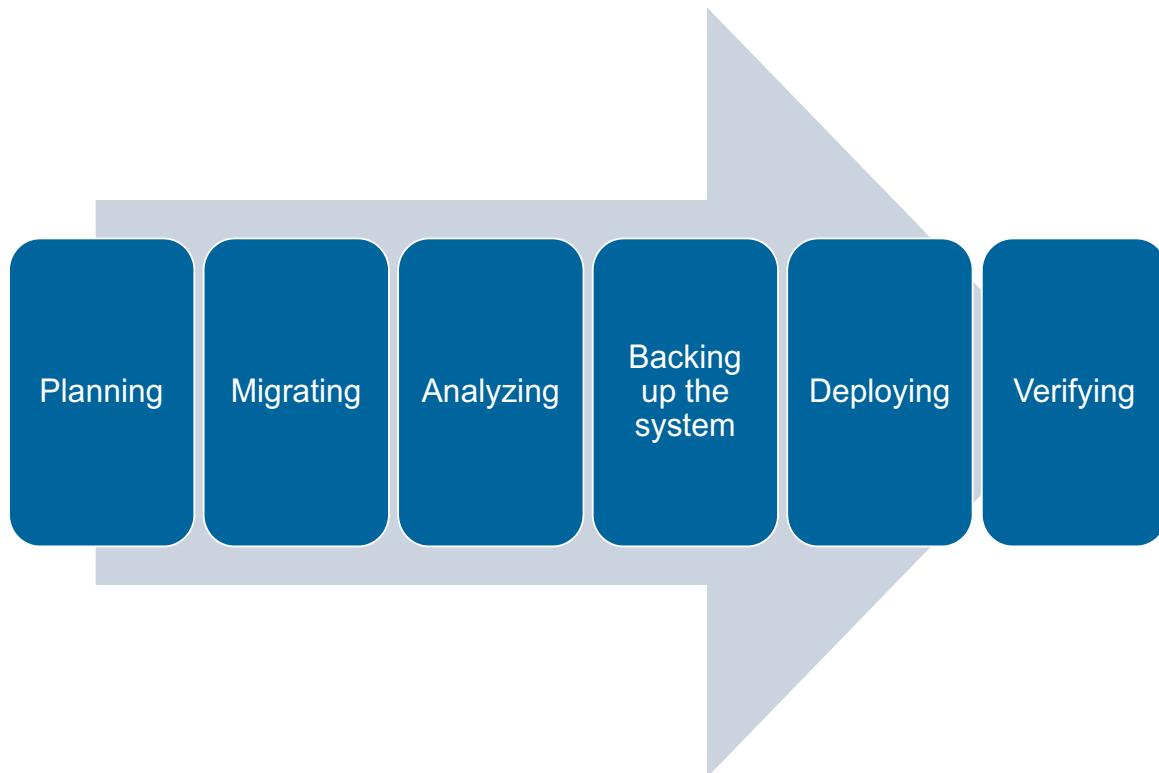
- Initial design occurs in the development environment, modifications might be made in preproduction environments, such as UAT.
- The migration/deployment moves from Dev > UAT > PROD.
  - Most organizations have a FileNet P8 domain for each environment. You migrate and deploy the FileNet P8 assets with FileNet Deployment Manager. Security usually differs between environments.

### Deployment process for other IBM and External assets

- You use application-specific tools to deploy other IBM and external assets.



## Migration and deployment phases



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Figure 18-8. Migration and deployment phases

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Migration and deployment overview>Migration and deployment phases

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8\\_pdb024.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8_pdb024.htm)

### ***Migration and deployment phases***

The migration and deployment process can be divided into five major phases: planning, migrating, analyzing, backing up the system, deploying and verifying.

#### ***Planning***

During the planning phase, you review information such as assets, objects, hardware and software requirements, system and asset configuration, and other aspects of the source and destination environments. As you complete this review, you document this information. You also begin creating migration/deployment instructions that are refined over time.

#### ***Migrating***

During the migrating phase, you use information from the planning phase to prepare an application package for deployment. To ensure that a consistent version of the application is packaged, stop all

development activities for the application that will migrate/deploy while the assets are exported. Ideally, the documentation that you develop during the planning phase includes both information about communicating the work stoppage to the correct teams and the steps for implementing it.

The responsibility for the migrating phase is shared between the solution builders and the administrators. In the development environment, the solution builders are responsible for exporting the application assets, packaging them and writing the migration/deployment instructions. The solution builders need to collaborate with the administrators, regarding the security in place in the destination environments. The administrators are responsible for migrating and deploying the application to the non-development environments.

### ***Analyzing***

During the analyzing phase, you analyze the impact of the migration/deployment on the destination environment. This analysis enables identification and mediation of issues that might cause errors. In some tools, this analysis is known as a change impact analysis report. If this report is generated, it can be archived and used for review or audit activities. The archived reports can be used iteratively to improve the migration deployment process.

### ***Backing up the system***

During the backing up the system phase, you suspend activity on the system for the destination environment and create a backup for that system. Before any system modification, it is always prudent to back up the portions of the system that are affected by the changes. This practice allows a consistent snapshot of all related data to be captured.

### ***Deploying***

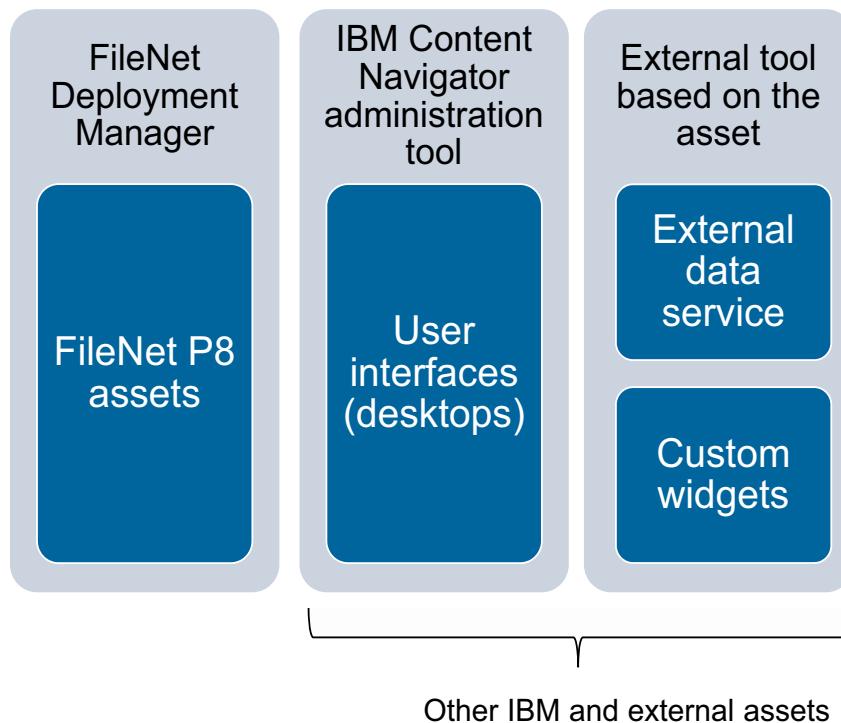
During the deploying phase, you follow the steps outlined in the migration deployment instructions to import the application into the destination environment. The needs of your organization, the architecture of your system, and requirements of the application itself all determine the number and order of these tasks.

### ***Verifying***

During the verifying phase, test the migrated application in the destination environment to verify that all of its components are working correctly. The tests that you need to complete vary according to the features and expected behaviors of the migrated application. The migration/deployment instructions should include a plan for verifying the migration, with specific tests to probe areas of change.



## Migration and deployment tools



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Figure 18-9. Migration and deployment tools

### Help paths

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager

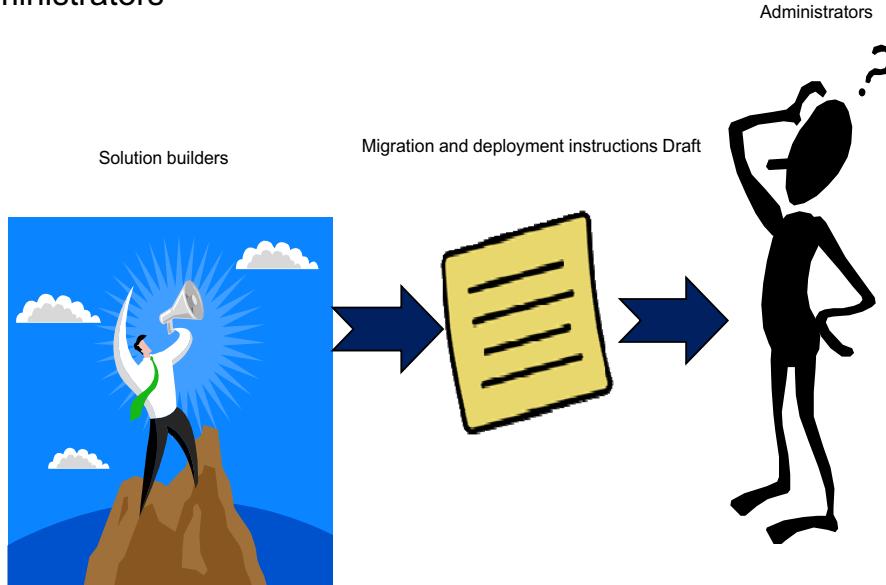
FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets based on Content Platform Engine

FileNet Deployment Manager is the tool that you use to migrate and deploy FileNet P8 assets. For example, classes, properties, and content-based objects such as forms, search templates, and entry templates.

For other IBM and External assets, the tool you use depends on the asset. The slide lists examples of assets that are often used in FileNet Content Manager applications.

## Who is responsible for application migration?

- Shared Responsibility:
  - Solution builders
  - Administrators



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Figure 18-10. Who is responsible for application migration?

The migration and deployment of a FileNet Content Manager application from one environment to another, is not the sole responsibility of the administrators. Moving applications between environments requires collaboration of various people:

- Solution builders and developers
- Administrators
  - FileNet P8 administrators
  - Security administrators



## Coordinating application migration

| Migration deployment phase   | Solution builder responsibilities                                  | Developer responsibilities                                    | Administrator responsibilities                                                          |
|------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Planning</b>              | Identify and document the application assets                       | Identify and document custom code assets, widgets, and so on. | Assist with security considerations.                                                    |
|                              | Write migration and deployment instructions, including how to test |                                                               |                                                                                         |
| <b>Migrating</b>             | Export assets from development environment, package the assets     | Export custom code assets, widgets, and so on..               | Prepare destination environment (one-time configuration setup tasks).                   |
|                              | Create FDM development environment                                 |                                                               | Create FDM destination environments                                                     |
| <b>Analyzing</b>             | Assist the administrator if necessary                              |                                                               | Run impact analysis on destination environment.                                         |
| <b>Backing up the system</b> | Development environment: Collaborate with administrator            |                                                               | Non-Dev environments: Back up the destination system.                                   |
| <b>Deploying</b>             | Assist administrator                                               | Assist administrator                                          | Import the application to the destination environment.                                  |
|                              |                                                                    |                                                               | Update migration and deployment instructions if necessary.                              |
| <b>Verifying</b>             | Assist administrator                                               | Assist administrator                                          | Use the deployment instructions to test the application on the destination environment. |
|                              |                                                                    |                                                               | Update deployment instructions if necessary                                             |

Application migration overview

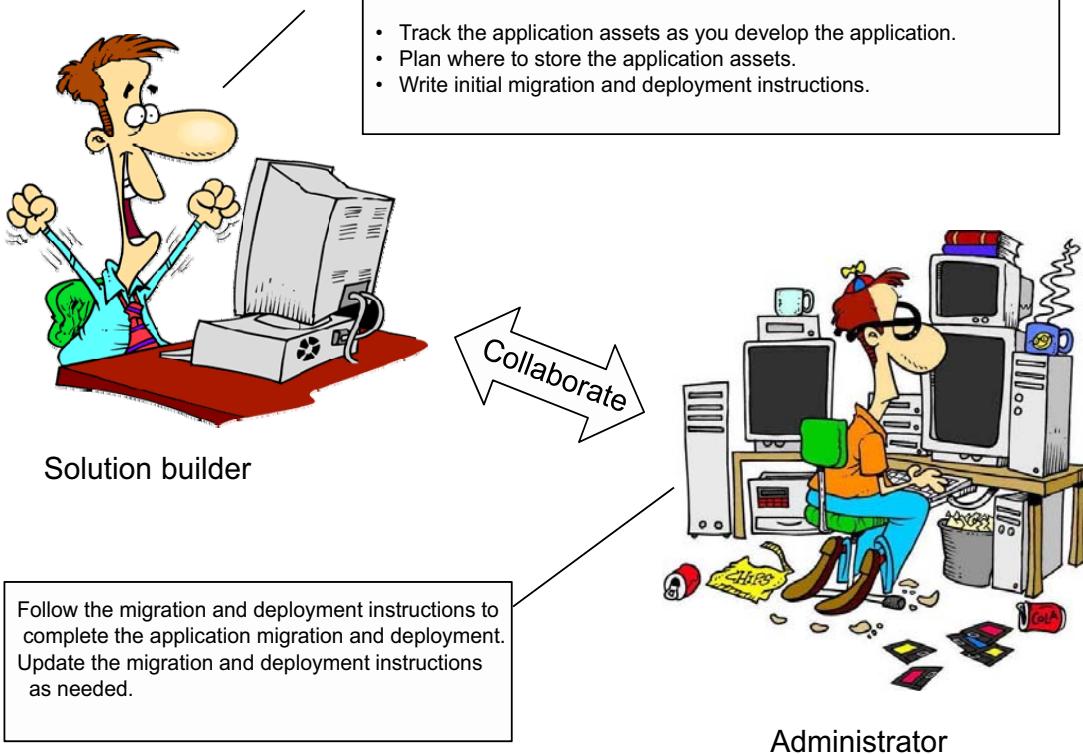
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Figure 18-11. Coordinating application migration

This table identifies the migration and deployment phases, the high-level tasks associated with each phase, and who is responsible.

The solution builder might test migrating and deploying the application in development as part of writing the deployment instructions. They should work with the administrator to plan how security is handled in the various environments.

## Guidelines



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Figure 18-12. Guidelines

The solution builder needs to:

- Track the application assets during design and development of the application. Adopting this practice saves time and increases the speed and success of the migration and deployment process.
- Plan where to store the application assets, for example a file system folder that can be compressed. The compressed file can serve as an application package, which can be checked into your company's change control system.
- Write the initial migration and deployment instructions to hand off to the administrator.

The solution builder and the administrator need to collaborate and carefully plan security.

- Security is generally different in development environments than it is in pre-production environments.
- It is a good idea to define a security mapping table, listing how the security users/groups map between the different environments.

The administrator needs to:

- Follow the migration and deployment instructions to complete the application migration.
- Update the migration and deployment instructions as needed for the different environments.

Goal:

The migration and deployment instructions are tested. By the time the administrator needs to migrate the application into Production, the migration and deployment instructions should outline a reproducible migration process.

## Unit summary

- Describe the process of moving FileNet P8 applications between environments.
- Identify the FileNet P8 application elements.
- Order and describe the migration and deployment phases.
- List the tools used to for FileNet P8 application migration and deployment.

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Figure 18-13. Unit summary

## Review questions

1. An IBM FileNet Content Manager application generally includes two types of elements. What are the two types of elements?
  - A. FileNet P8 assets and other IBM and external assets.
  - B. IBM assets and external assets.
  - C. FileNet P8 assets and FileNet Deployment Manager half maps.
  - D. FileNet P8 assets and external assets.
  
2. What is the second phase of the Migration and deployment phases?
  - A. Analyzing
  - B. Migrating
  - C. Deploying
  - D. Planning



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Figure 18-14. Review questions

Write your answers here:

- 1.
- 2.

## Review questions

3. The migration and deployment process for FileNet Content Manager applications is a multi-step process. Choose the answer that completes the following statement correctly.
- > *Initial design of the application occurs in the development environment. You create an Application Package in the development environment that you can put into change control. You migrate and deploy the Application Package to the other environments required.*
- For example: DEV > QA > Production. Modifications to security might be made in pre-production environments. All changes must be duplicated in development.
  - If changes are required in other environments, you make the changes in development and repeat the migration/deployment.
  - You make changes as you go in all pre-production environments, and update the migration and deployment instructions. You never revert to the development environment.
  - Modifications might be made in any environment, even Production.



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Figure 18-15. Review questions

Write your answers here:

3.

## Review questions

4. Backing up the system is one of the Migration and deployment phases. Which phase does Backing up the system precede?
  - A. Verifying Phase
  - B. Migrating Phase
  - C. Deploying Phase
  - D. Analyzing
5. What tool is used to migrate and deploy FileNet P8 assets?
  - A. IBM Content Navigator administration tool
  - B. Administration Console for Content Platform Engine
  - C. FileNet Enterprise Manager
  - D. FileNet Deployment Manager
6. True or False: External assets are migrated and deployed with an external tool, based on the asset.
7. True or False: The migration and deployment of a FileNet Content Manager application from one environment to another is the sole responsibility of the administrators.



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Figure 18-16. Review questions

Write your answers here:

- 4.
- 5.
- 6.
- 7.

## Review answers

1. An IBM FileNet Content Manager application generally includes two types of elements. What are the two types of elements?

- A. FileNet P8 assets and other IBM and external assets.
- B. IBM assets and external assets.
- C. FileNet P8 assets and FileNet Deployment Manager half maps.
- D. FileNet P8 assets and external assets.

The answer is A.

2. What is the second phase of the Migration and deployment phases?

- A. Analyzing
- B. Migrating
- C. Deploying
- D. Planning

3.

The answer is: B.

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Figure 18-17. Review answers



## Review answers



3. The migration and deployment process for FileNet Content Manager applications is a multi-step process. Choose the answer that completes the following statement correctly.
- > *Initial design of the application occurs in the development environment. You create an Application Package in the development environment that you can put into change control. You migrate and deploy the Application Package to the other environments required.*
- For example: DEV > QA > Production. Modifications to security might be made in pre-production environments. All changes must be duplicated in development.
  - If changes are required in other environments, you make the changes in development and repeat the migration/deployment.
  - You make changes as you go in all pre-production environments, and update the migration and deployment instructions. You never revert to the development environment.
  - Modifications might be made in any environment, even Production.

The answer is A.

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*Figure 18-18. Review answers*

## Review answers

4. Backing up the system is one of the Migration and deployment phases. Which phase does Backing up the system precede?

- A. Verifying Phase
- B. Migrating Phase
- C. Deploying Phase
- D. Analyzing

The answer is C.



5. What tool is used to migrate and deploy FileNet P8 assets?

- A. IBM Content Navigator administration tool
- B. Administration Console for Content Platform Engine
- C. FileNet Enterprise Manager
- D. FileNet Deployment Manager

The answer is D.

## Review answers

6. True or False: External assets are migrated and deployed with an external tool, based on the asset.  
The answer is True.



7. True or False: The migration and deployment of a FileNet Content Manager application from one environment to another is the sole responsibility of the administrators  
The answer is False.

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Figure 18-20. Review answers

# Unit 19. Plan and prepare for application migration

## Estimated time

00:30

## Overview

In this unit, you learn how to plan and prepare for a FileNet P8 application migration.

## How you will check your progress

Successfully complete the unit exercises.

## References

FileNet P8 Platform 5.2.1 Knowledge Center:

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

IBM Case Manager 5.2 Solution Deployment Guide, Part 2:

[https://www.ibm.com/developerworks/community/blogs/e8206aad-10e2-4c49-b00c-fee572815374/entry/ibm\\_case\\_manager\\_5\\_2\\_solution\\_deployment\\_guide](https://www.ibm.com/developerworks/community/blogs/e8206aad-10e2-4c49-b00c-fee572815374/entry/ibm_case_manager_5_2_solution_deployment_guide)

Chapter: Source and destination environment compatibility

## Why is this lesson important to you?

- You need to migrate and deploy a FileNet Content Manager application from one FileNet P8 environment to another. For example, from development to User Acceptance Test.
- You need to complete planning and preparation steps before you can start migrating and deploying the application.

Plan and prepare for application migration

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Figure 19-1. Why is this lesson important to you?

## Unit objectives

- Plan and prepare for application migration.
- Identify the application assets.
- Verify source and destination environment compatibility.
- Configure the environments in FileNet Deployment Manager.

Plan and prepare for application migration

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Figure 19-2. Unit objectives

## Planning for application migration

- Planning your application deployment is:
  - The first phase of application migration and deployment.
  - Key to a successful migration and deployment.
- Assemble Migration and deployment instructions
  - Comprehensive set of tailored instructions that document the process for migrating deploying an application.
- Identify and document application assets
  - Include roles and LDAP users or groups required.
  - Include a description of the application components and the tool used to develop them.
- Review source and destination environment compatibility
  - Review the equipment available
  - Acquire the appropriate access rights
  - Ensure compatibility of the object stores

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Figure 19-3. Planning for application migration

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Migration and deployment overview>Deployment planning

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/overview\\_planning.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/overview_planning.htm)

Planning your application deployment is the first phase of application migration and deployment. Planning is key to a successful application migration.

### ***Assemble Migration and deployment instructions***

You need to assemble a comprehensive set of tailored instructions that document the process for migrating and deploying an application from the development environment to other environments, such as User Acceptance Test.

### ***Identify and document all the application assets***

Document all the assets of the application as you design the application. Include:

- The roles and the LDAP users and groups required to associate with the roles.
- A description of the major components of the application with the tools used to create them.

***Review source and destination environment compatibility.***

Review the assets that you plan to move in both the source and destination environment.  
Understand any dependencies that might exist.

## Plan the migration and deployment strategy

- Things to consider:
  - What environments do you need to migrate/deploy to?
    - Test, QA, Production
  - How is Change Control implemented?
  - Different assets of the application might need to be modified at different times.
  - What security changes are needed when you migrate/deploy to Test, QA, or Production.
  - Who is exporting the assets from development and creating the application package?
  - What is the expected lifecycle of the application?
    - How to handle updates.

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*Figure 19-4. Plan the migration and deployment strategy*

It is important to plan the migration and deployment strategy for the application. Although the Administrator has primary responsibility for migrating and deploying the application to the non-development environments, the migration and deployment strategy should be coordinated between the Solution Builder/Developer, the Security Administrator, and the Administrator.

Things to consider when planning the application migration and deployment strategy:

- What environments do you need to migrate and deploy the application to?
- How is change control for the application maintained?
- Different application assets might need to be modified at different times.
- What security changes are needed on Test, QA, or Production environments.
- Who runs the export of the application assets in the development environment? Ideally the Solution Builder/Developer.
- What is the expected lifecycle of the application?
  - In what environment are updates made before migrating/deploying to Production?

## Assemble migration/deployment instructions

### Migration and Deployment instructions

- ▲ Application Package description:
  - ▲ Prerequisites
    - Destination environment required configuration
  - ▲ Migration and Deployment
    - Migrate and deploy FileNet P8 Assets:
    - Migrate and deploy other IBM Assets
  - ▲ Application Verification:
    - Application overview
    - How to test

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Figure 19-5. Assemble migration/deployment instructions

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Migration and deployment overview>Deployment planning>Assembling migration and deployment instructions

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8\\_pdb006.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8_pdb006.htm)

The migration/deployment instructions should include:

- A description of the contents of the Application Package.
- All the required steps, and their order of execution to migrate and deploy the application successfully.

Create this document during the development phase of your application to make the process more efficient. The Migration and Deployment instructions will need refining as the migration/deployment process begins.

The slide shows a sample of the headings that might be included in the Migration and Deployment Instructions.

Application Package description.

- A detailed description of the Application Package - lists all the components and a brief description, included in the Application Package zip file.

- Prerequisites

- Prerequisite system configuration steps that are needed before the use of FileNet Deployment Manager, such as:
    - Ensuring the necessary object store exists in the destination environment, with all the necessary Addons installed.
    - Ensuring that the two Document Approval workflows are configured and deployed in the destination environment.

- Migration and Deployment

- Detail steps on how to:
    - Migrate and deploy FileNet P8 assets.
    - Migrate and deploy other IBM assets.
    - Migrate and deploy external assets.
  - Post-requisite steps that are needed after the migration/deployment of the application. For example, the setup of printers that are expected to be available as a part of the user operating environment.
  - Security configuration details.

- Application Verification

- Describe the purpose of the application and the roles involved. If it makes sense include a diagram that outlines the flow of the application.
  - Include steps for testing the application in the destination environment, to verify that the application is operational.

## Identify application assets

- Track the application assets as you develop the application.
- Asset tracking spreadsheet
  - Prepared by the Solution Builder/Developer
  - Should include:
    - Name and type of the asset
    - Source security
    - Dependencies between assets
    - Location of assets

| Application Assets Tracking Spreadsheet |                  |                                                                                                                     |                                                                     |                                                                     |                                                                                 |                      |
|-----------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------|
| Name                                    | Category         | Description                                                                                                         | Dependencies                                                        | Location                                                            | Source Security                                                                 | Destination Security |
| Orders                                  | FileNet P8 Asset | Folder that contains:<br>Orders, product orders and service<br>orders. Tif files and pdfs<br>(total of 22 objects). | Document classes:<br>Orders<br>- Product Orders<br>- Service Orders | Object Store: Sales                                                 | Owner: P8Admin,<br>P8Admins<br>Reader: P8Users                                  |                      |
| Customers                               | FileNet P8 Asset | Folder that contains:<br>2 custom objects (A131, OC3213)                                                            | Document classes:<br>Customer                                       | Object Store: Sales                                                 | Owner: P8Admin,<br>P8Admins<br>Reader: P8Users                                  |                      |
| Sales desktop                           | Other IBM Asset  | IBM Content Navigator desktop for<br>Sales application                                                              | Requires IBM Administration<br>Console for Content Platform Engine  | Sales Application\Other IBM<br>assets\SalesDesktopExport.properties | Access not limited to<br>specific users. Uses<br>Object store<br>authentication |                      |

Plan and prepare for application migration

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Figure 19-6. Identify application assets

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Migration and deployment overview>Deployment planning>Identifying application artifacts and assets

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8\\_pdb004.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8_pdb004.htm)

The Solution Builder/Developer needs to use some method of tracking the assets of an application during development.

The information can be provided as a spreadsheet or document that should include:

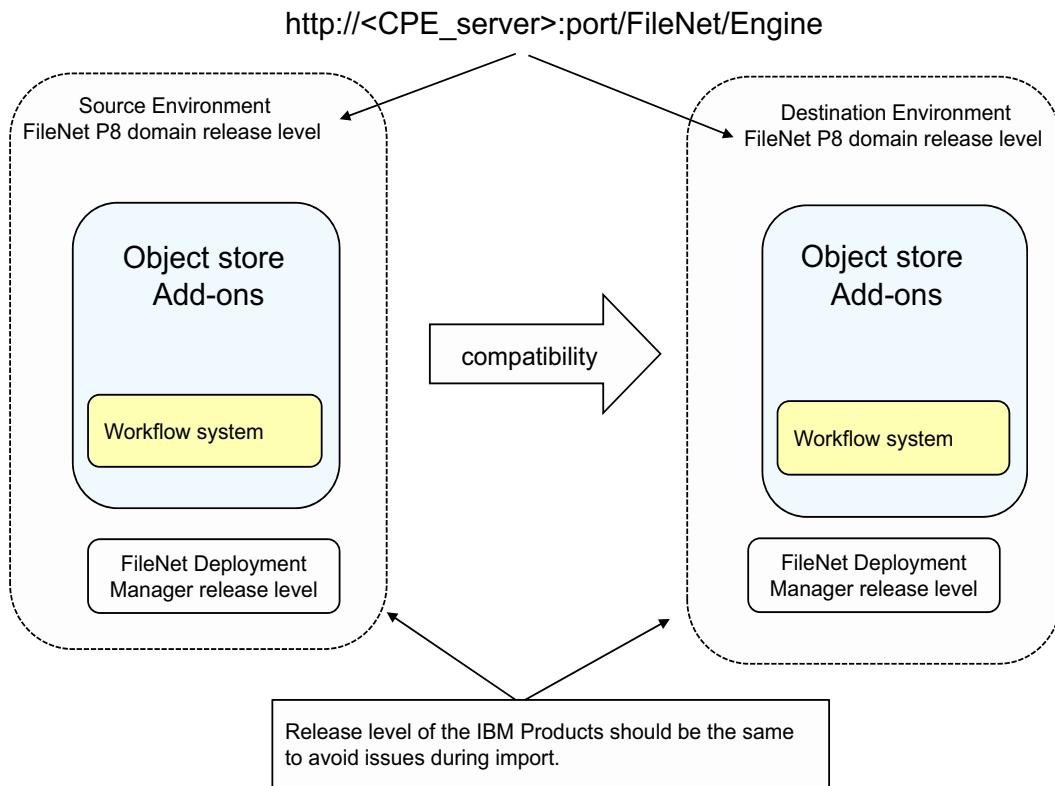
- The name of the asset.
- The type of the asset.
- Description of the asset.
- Any dependencies between assets.
- The location of the asset.
- Source Security.

The destination environment security is something that should also be included. However, the Solution Builder/Developer needs to collaborate with the FileNet P8 Administrator and the Security Administrator to define the destination environment security.

Optional comments might also be included to add special instructions.

The screen capture shows an example of an application assets tracking spreadsheet.

## Source and destination environment compatibility



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Figure 19-7. Source and destination environment compatibility

### Reference

**IBM Case Manager 5.2 Solution Deployment Guide, Part 2: Advanced Solution Migration and Deployment**

[https://www.ibm.com/developerworks/community/blogs/e8206aad-10e2-4c49-b00c-fee572815374/entry/ibm\\_case\\_manager\\_5\\_2\\_solution\\_deployment\\_guide](https://www.ibm.com/developerworks/community/blogs/e8206aad-10e2-4c49-b00c-fee572815374/entry/ibm_case_manager_5_2_solution_deployment_guide)

Chapter: Source and destination environment compatibility

Before application deployment, you need to ensure that the source and destination environments are compatible.

- Object store Add-ons must be the same in the source and destination object stores.
- The release level of the deployment tool, FileNet Deployment Manager should match the server that they are connecting to.
  - You do not need to worry about the fix pack level.
- The release level of the IBM Products should be the same in the source and destination environments to avoid issues during import.

To determine the release level for:

- A FileNet P8 domain, in a browser window, type, `http://<CPE_server>:port/FileNet/Engine`.
- FileNet Deployment Manager, open the FileNet Deployment Manager tool and select Help>about.

## Perform one-time configuration setup tasks

- Create FileNet Deployment Tree
  - Decide where to create the FileNet Deployment Tree.
    - Use default path or create a custom path?
  - Should you run FileNet Deployment Manager (FDM) Connected or Disconnected?
    - Connected - You must have internet access to both the source and destination environment.
    - Disconnected - The running FDM can connect only to one environment at a time.
- Create FileNet Deployment Environments:
  - Source Environment
  - Destination Environment

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Figure 19-8. Perform one-time configuration setup tasks

### Help paths

FileNet P8 Platform 5.2.1>Migrating and deploying applications>The FileNet Deployment Manager tool>Working with the interface>Creating or selecting a deployment tree

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_mgr\\_howto\\_deploy\\_tree.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_mgr_howto_deploy_tree.htm)

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Defining the deployment environment

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/definethedeploymentenvironment.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/definethedeploymentenvironment.htm)

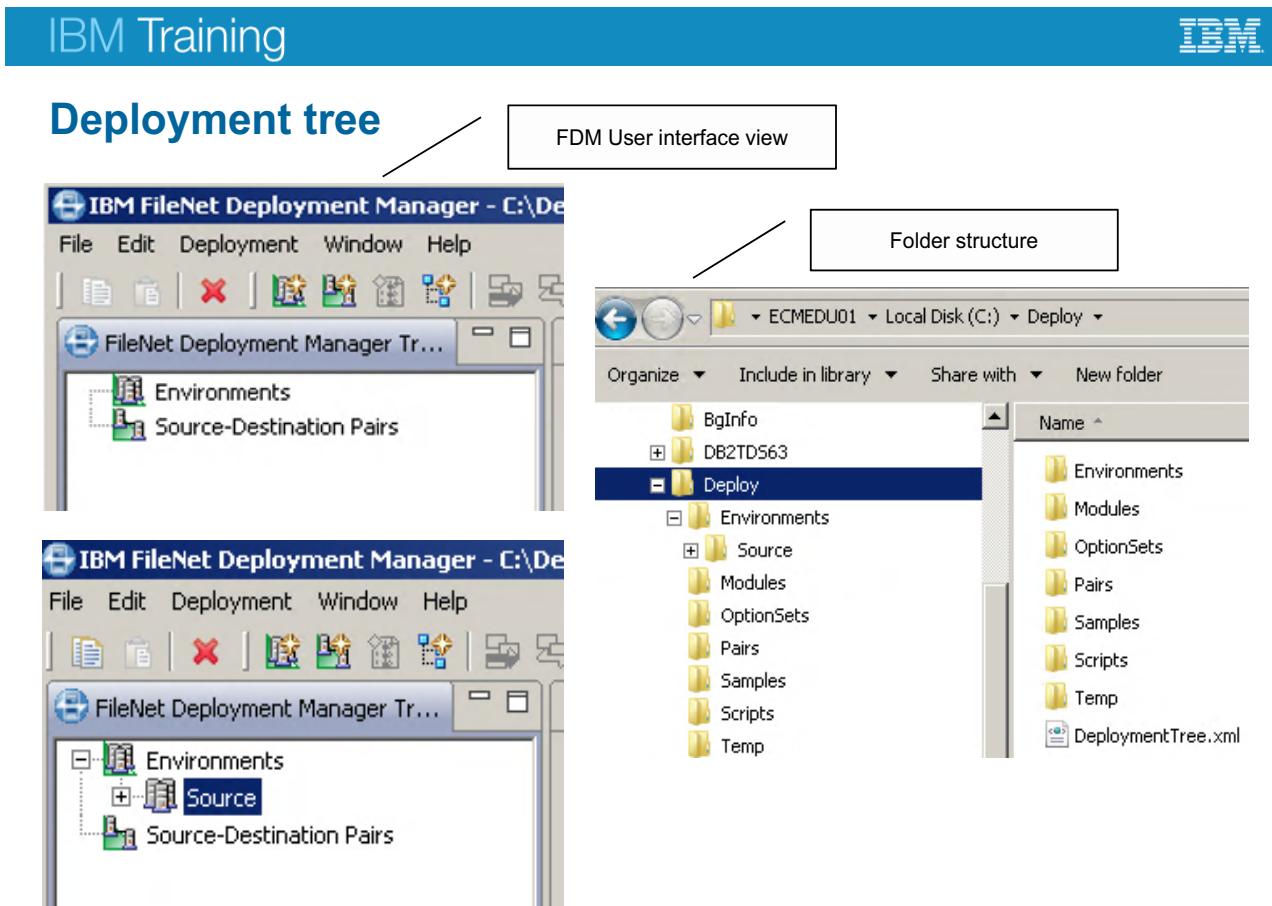
The last step in planning and preparing for application deployment is to run one-time configuration and setup tasks.

A few steps must be run only one time per source/destination environment pair.

- Create the FileNet Deployment Tree.
- Create the FileNet Deployment Environments.

When you create the FileNet Deployment tree, you need to make a couple of decisions:

- Where to create the FileNet Deployment tree? By default the system creates the deployment tree under <CPE\_install\_path>\tools\deploy\P8DeploymentData. You can accept the default path or choose a custom path.
- To run FileNet Deployment Manager connected or disconnected mode.
  - Connected mode: Do you have internet access to both the source and destination environments?
  - Disconnected mode: The running FDM instance can connect only to one environment at a time.
  - You could have two distinct instances of FDM running. One connected to the source environment and the other connected to the destination environment. The two instances must be running on different systems.
  - Do you have a shared drive that can be accessed from all environments?
- Create the FileNet Deployment Environments. At a minimum, you need to create one source. If you are running in connected mode, you can create destination environments for all environments that you can connect to. For example, you can create environments for:
  - Development environment
  - Test environment
  - UAT environment



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Figure 19-9. Deployment tree

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>The FileNet Deployment Manager tool>Deployment trees

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_mgr\\_concepts\\_deploy\\_trees.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_mgr_concepts_deploy_trees.htm)

FileNet Deployment Manager requires that you work within a predefined folder structure that is called the deployment tree.

When you first start FileNet Deployment Manager and create the deployment tree, two folders are created under the deployment tree:

- Environments
- Source-Destination Pairs

The screen capture on the upper left shows the navigation pane of FileNet Deployment Manager (FDM) after the creation of a new deployment tree.

When you create a source or destination environment, FileNet Deployment Manager creates a subfolder within the Environments folder for each environment.

The screen capture on the lower left, shows the FDM navigation pane after the creation of the environment, Source.

The screen capture on the right, shows the folder structure of the deployment tree, C:\Deploy.



### Note

You can create the deployment tree anywhere you want.

Characteristics of deployment trees:

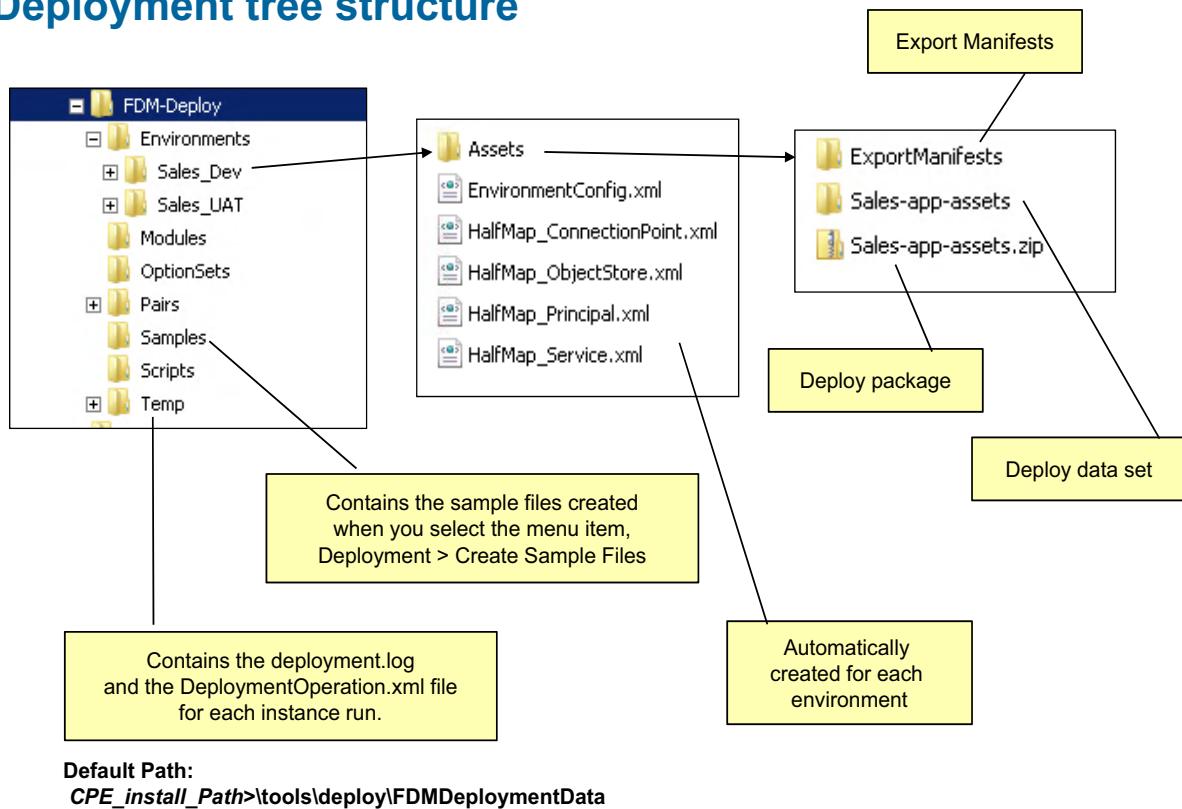
You can create an unlimited number of deployment trees.

You can move or copy an entire deployment tree structure; however, do not rename the individual folders or configuration files.

You can copy environments and pairs from one tree to another, provided you keep associated environments and pairs together.

You can delete a tree if the data is no longer needed.

## Deployment tree structure



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Figure 19-10. Deployment tree structure

The left screen capture shows a deployment tree that is created at C:\Deploy.

- Two environments are created, DeployApp\_QA and Dev\_Source.
  - When an environment is created, IBM FileNet Deployment Manager (FDM) automatically creates the folder structure that is shown, in the center screen capture.
  - The right screen capture shows the contents of the Assets folder:
    - The first two files are deploy data set folders.
    - The ExportManifests folder, contains all the export manifests created by FDM for the environment.
- The Samples folder contains the sample files. FDM provides a set of sample files that can be used as models to create the xml files that are needed to use with the command line interface (CLI). To create the sample files, select **Create Sample Files** from the **Deployment** menu.
- The temp folder contains a `Run.<timestamp>` folder for each time a deployment operation is run in FDM. The folder contains the deployment operation file, `DeploymentOperation.xml run`, and the `deployment.log`.
  - The `DeploymentOperation.xml` file can be used in the command-line interface.
  - The `deployment.log` is useful for troubleshooting.

- If running multiple instances of FileNet Deployment Manager
  - You can compress the entire folder structure or part of the folder structure and move it to another client with an instance of FDM, to easily reproduce the deployment tree or perhaps an environment.

FDM uses the default path show for the deployment tree. You can change the path, the next time you run FDM; it will remember the path that is most recently used.

## Environment half maps

- What is a half map?
  - A deployment file that contains a list of environment-specific information associated with the application.
  - Four files per environment
    - Object store half map
    - Security principle half map
    - Service half map
    - Connection point half map.

| Half Maps                        |                    |                                                            |
|----------------------------------|--------------------|------------------------------------------------------------|
| Action                           | Type               | Status                                                     |
| <a href="#">Retrieve Data...</a> | Object Store       | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| <a href="#">Retrieve Data...</a> | Storage Policy     | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| <a href="#">Retrieve Data...</a> | Storage Area       | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| <a href="#">Retrieve Data...</a> | Security Principal | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| <a href="#">Retrieve Data...</a> | Service            | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| <a href="#">Retrieve Data...</a> | Connection Point   | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |

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Figure 19-11. Environment half maps

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>The FileNet Deployment Manager tool>Deployment files

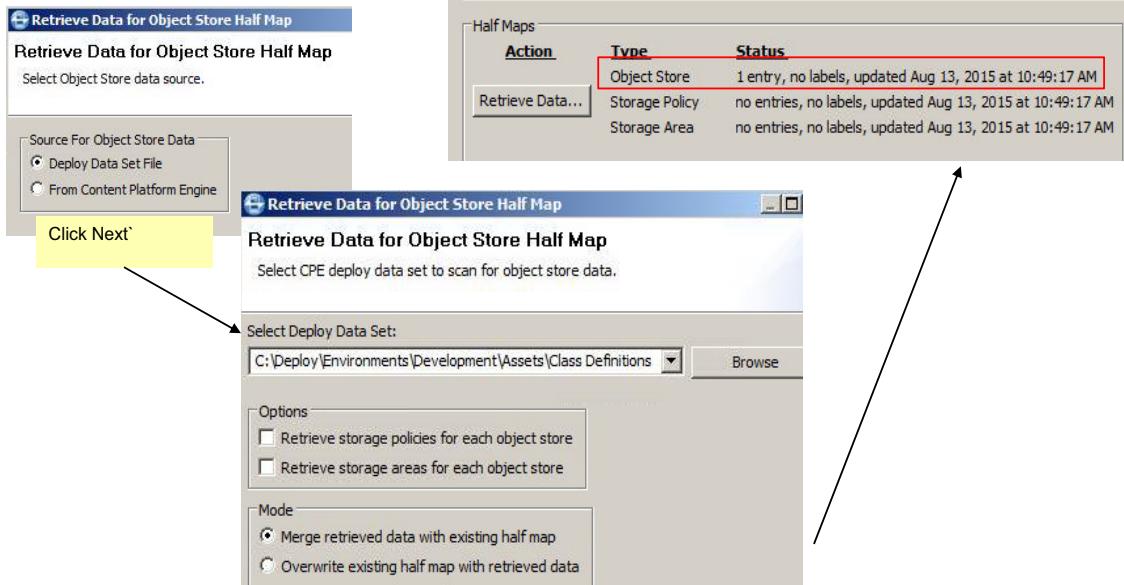
[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_mgr\\_concepts\\_deployment\\_files.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_mgr_concepts_deployment_files.htm)

FileNet Deployment Manager uses four files called half maps to contain environment-specific information. Each environment has its own set of half maps.

When you click Retrieve Data, for each of the half maps, you get two options to select what data source to use. The default selection for all of the half maps is to retrieve the data from a deploy data set. (Usually the preferred selection).

## Extract a source environment object store half map

- The object store half map contains a list of the object stores extracted from an environment.
  - File: HalfMap\_ObjectStore.xml



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Figure 19-12. Extract a source environment object store half map

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Extracting the source environment half maps>Extracting an object store half map

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_mgr\\_howto\\_object\\_store\\_half\\_maps.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_mgr_howto_object_store_half_maps.htm)

The object store half map contains the object stores of a specific environment. If you select to retrieve the object stores from a deploy data set, then the file contains only the object stores referenced in the exported deploy data set assets.

FileNet Deployment Manager stores the object store half map information in the file: <**deployment tree**>\Environments\<**environment\_name**>\HalfMap\_ObjectStore.xml.

When you click Retrieve Data, on the overview tab, you get a window that prompts you to select the object store data source (screen capture on the upper left).

- If you select **Deploy Data Set File**, all the object stores referenced by the assets, exported into the deploy data set, are added to the Object Store half map. (Usually the best selection).

- If you select **From Content Platform Engine**, all the object stores that are defined in the Content Platform Engine are added to the half map.

When you click Next, the screen capture on the bottom displays. If you selected to use a Deploy Data Set, then you need to specify the deploy data set. The remaining selections are displayed regardless of which option you select on the first window:

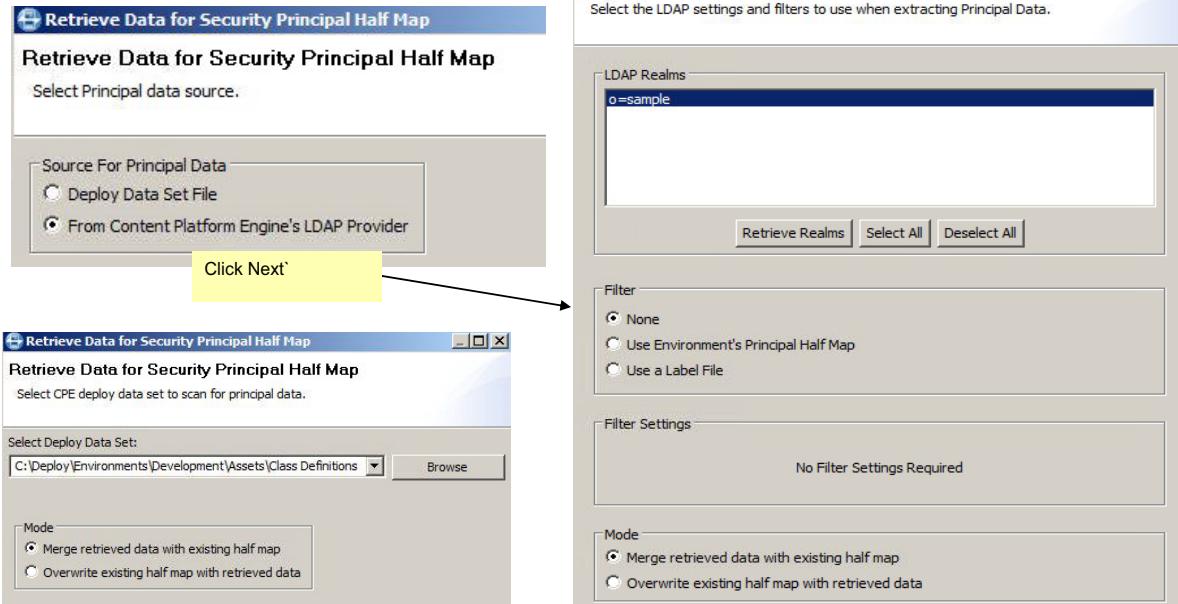
- **Options:**
  - **Retrieve the storage policies for each object store.**
  - **Retrieve storage areas for each object store.**
  - Select one or both of these options if your application requires them.
- **Mode**
  - **Merge retrieved data with an existing half map.**
  - **Overwrite existing half map with retrieved data.**

When you click Finish, the overview tab displays the number of object stores retrieved (screen capture on the upper right). In this example, one entry is retrieved.

If you have more than one deploy data set for your application, repeat the Retrieve Data steps, for each deploy dataset, and make sure that the **Mode** is set to **Merge retrieved data with existing half map.**

## Extract a source environment security principal half map

- The security principal half map contains a list of the security principals extracted from an environment.
  - File: HalfMap\_Principal.xml



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Figure 19-13. Extract a source environment security principal half map

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Extracting the source environment half maps>Extracting a security principal half map

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_mgr\\_howto\\_security\\_principal\\_half\\_map.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_mgr_howto_security_principal_half_map.htm)

The security principal half map contains a list of the security principals extracted from an environment.

FileNet Deployment Manager stores the principal half map information in the file: <**deployment tree**>\Environments\<**environment\_name**>\HalfMap\_Principal.xml.

When you click Retrieve Data, on the overview tab, you get a window that prompts for the security principal data source.

- If you select **Deploy Data Set File**, all the users and groups associated with the assets, exported into the deploy data set, are added to the security principal half map (selection used most often). The windows that are displayed are similar to the windows on the previous slide, except that you get the Mode selection on the second screen only (screen capture on the lower left).

- If you select **From Content Platform Engine's LDAP Provider**, the **Select LDAP settings and filters to use when extracting Principal data** window opens (the screen capture on the right). You can retrieve LDAP realms. The screen capture shows the LDAP realm, o=sample. You have three options for filtering:
  - **None** – Retrieve data for all the users and groups in the LDAP realm specified.
  - **Use Environment's Principal Half Map** – Retrieve data only for the users and groups, from the LDAP realm, that match the specified environment's principal half map.
  - **Use a Label File** – Retrieve data only for the users and groups, from the LDAP realm, that are identified in the specified file.

If you have more than one deploy data set for your application, repeat the Retrieve Data steps, for each deploy dataset, and make sure that the **Mode** is set to **Merge retrieved data with existing half map**.

## Service and Connection Point half maps

Half Maps

| Action           | Type               | Status                                                     |
|------------------|--------------------|------------------------------------------------------------|
| Retrieve Data... | Object Store       | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| Storage Policy   | Storage Area       | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| Storage Area     |                    | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| Retrieve Data... | Security Principal | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| Retrieve Data... | Service            | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |
| Retrieve Data... | Connection Point   | no entries, no labels, updated Aug 10, 2015 at 10:42:47 AM |

FileNet Content Manager applications might have Service data.  
To find out whether you have service data, extract the service data from the deploy data set.

No Connection Point data for FileNet Content Manager applications

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Figure 19-14. Service and Connection Point half maps

### Help paths

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Extracting the source environment half maps>Extracting a service half map

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/extract\\_servicedata\\_halfmap.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/extract_servicedata_halfmap.htm)

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Extracting the source environment half maps>Extracting a connection point half map

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/extract\\_connection\\_point\\_halfmap.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/extract_connection_point_halfmap.htm)

### Service half map

In a few situations you might have service data for a FileNet Content Manager application. You always extract the service data from the deploy data set, if no entries are retrieved you know that you do not have service data.

FileNet Deployment Manager stores the service half map information in the file:

**<deployment tree>\Environments\<environment\_name>\HalfMap\_Service.xml.**

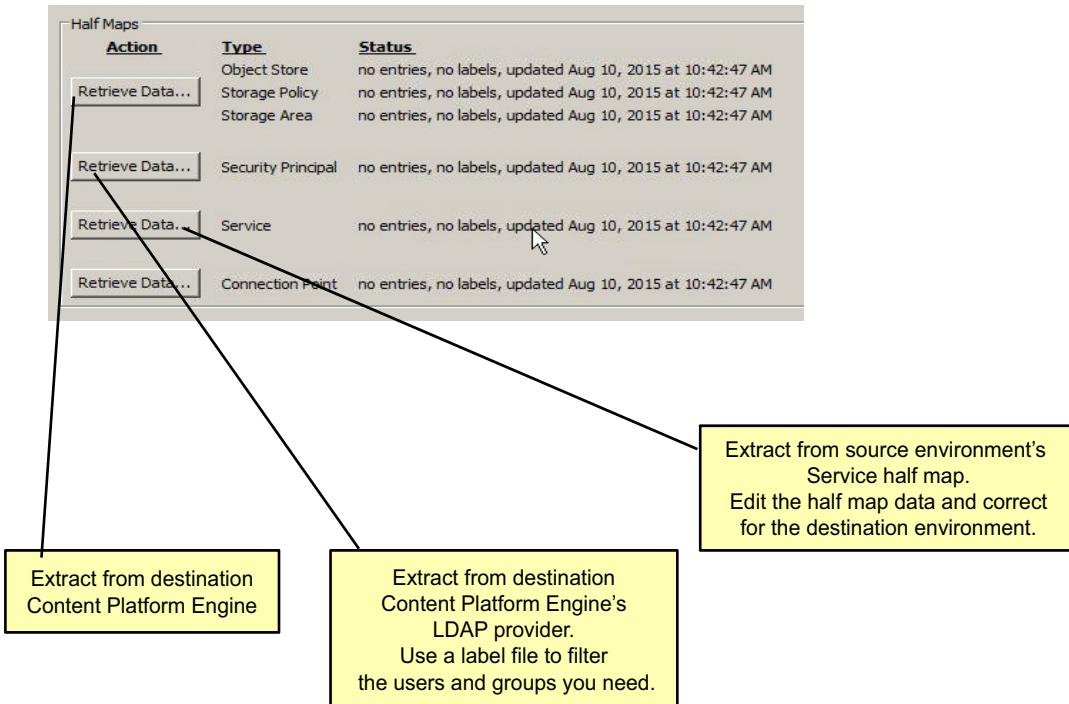
### **Connection point half map**

The connection point half map contains the workflow system connection points of a specific environment. FileNet Content Manager applications do not have connection point data. Connection point data applies to IBM Case Foundation applications that contain custom workflows.

FileNet Deployment Manager stores the connection point half map information in the file:

**<deployment tree>\Environments\<environment\_name>\HalfMap\_ConnectionPoint.xml.**

## Destination environment half maps



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Figure 19-15. Destination environment half maps

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Prepare the destination environment>Extracting the destination environment half maps

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8\\_pdb026.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8_pdb026.htm)

A destination environment half map is identical to a source environment half map, except it contains data for the destination environment. You typically retrieve the data for a destination environment half map from the destination environment, not a deploy data set.

#### Destination object store half map:

- Extract the object store data from the destination Content Platform Engine.

#### Destination security principal half map:

- Extract the security principal data from the destination Content Platform Engine's LDAP provider.
- Use a label file to filter the users and groups you need.

#### Destination service half map:

- Extract the service data from source environment's Service half map, if it exists.
- Edit the destination service half map data and make the necessary corrections for the destination environment.

**Destination Connection Point half map:**

- FileNet Content Manager applications do not contain connection point data.
- Connection Point data only applies to IBM Case Foundation applications that contain custom workflows.

## Instructor demonstration

- Getting started with FileNet Deployment Manager.



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Figure 19-16. Instructor demonstration

1. Start FileNet Deployment Manager.
2. Create a Deployment Tree. For example, C:\Deploy.
3. Create an environment. For example, Sales\_Test.
  - a. Configure the connection to the Content Platform Engine.
4. Explore the FileNet Deployment Manager menus and tool bar icons.
5. Expand the deploy package and create a source environment.
6. Examine the source environment half maps.

## Unit summary

- Plan and prepare for application migration.
- Identify the application assets.
- Verify source and destination environment compatibility.
- Configure the environments in FileNet Deployment Manager.

[Plan and prepare for application migration](#)

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*Figure 19-17. Unit summary*

## Exercise: Plan and prepare for application migration

Plan and prepare for application migration

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*Figure 19-18. Exercise: Plan and prepare for application migration*

## Exercise introduction

- Explore the Sales Application package
- Verify object store Add-ons
- Create a deployment tree.
- Create a source environment.
- Create a destination environment.
- Extract the destination environment half maps.



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Figure 19-19. Exercise introduction

In this exercise, you:

- Explore the Sales Application package that the Solution Builder provided.
- Complete one-time configuration setup tasks to prepare the Sales application for migration and deployment to the destination environment.

---

# Unit 20. Export the application assets

## Estimated time

00:30

## Overview

In this unit, you export the FileNet P8 application assets and create an application package for application migration.

## How you will check your progress

Successfully complete the unit exercises.

## References

FileNet P8 Platform 5.2.1 Knowledge Center:

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

## Why is this lesson important to you?

- You need to migrate and deploy an IBM FileNet Content Manager application from one FileNet P8 environment to another, for example development to User Acceptance Test.
- You need to export the application assets so that they can be imported into another environment.

[Export the application assets](#)

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*Figure 20-1. Why is this lesson important to you?*

## Unit objectives

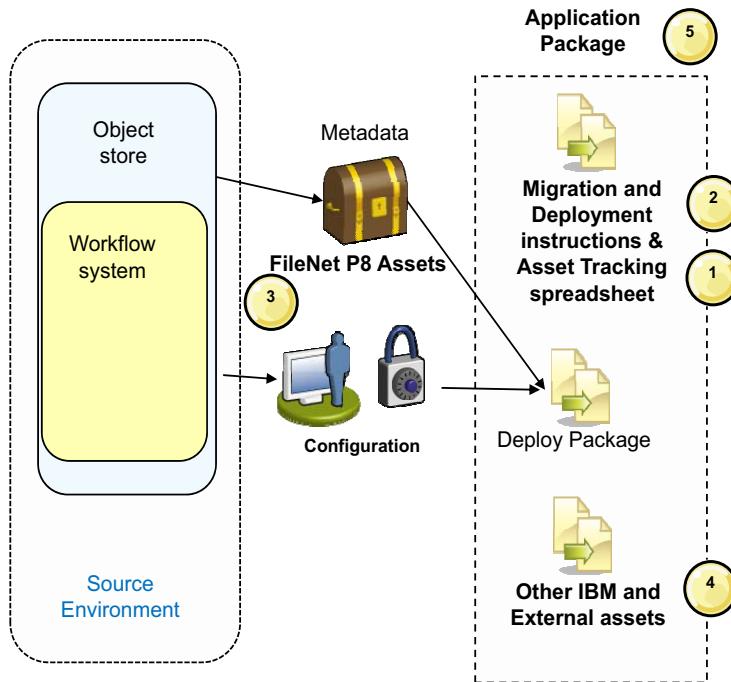
- Export the application assets.

Export the application assets

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*Figure 20-2. Unit objectives*

## Export the application assets



[Export the application assets](#)

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Figure 20-3. Export the application assets

Exporting the application assets is part of the Migrating Phase.

The diagram outlines the process that one goes through when exporting the application assets for the first time from a source environment.

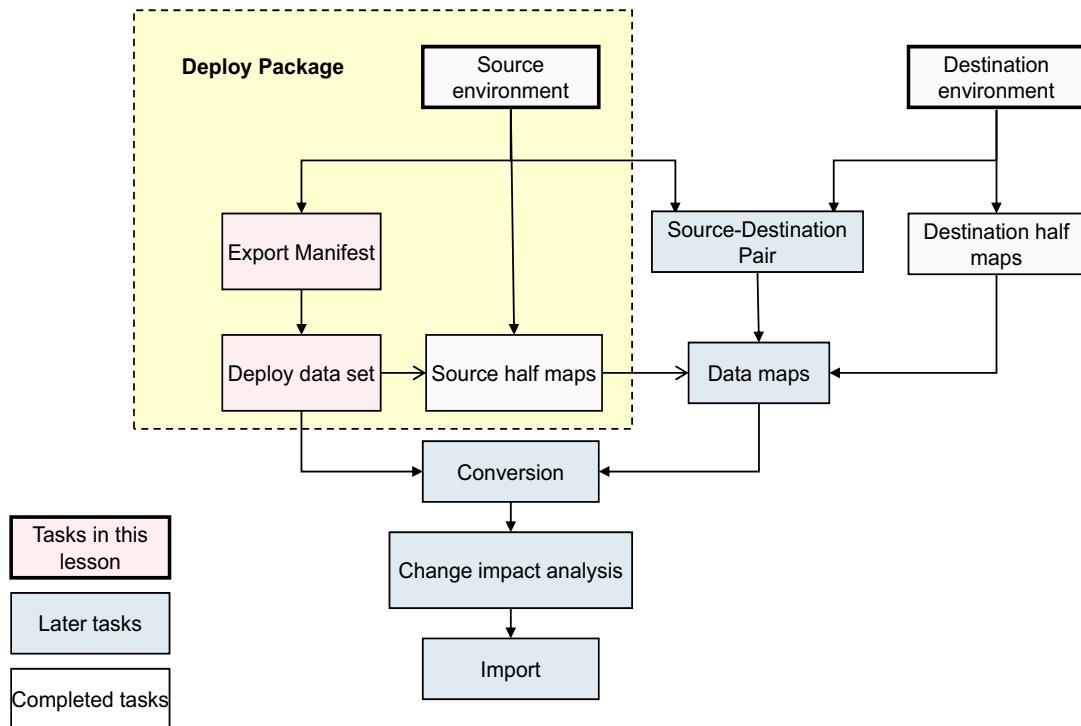
The Solution Builder/Developer, during application development:

1. Keeps track of all the assets of the application in the Asset Tracking spreadsheet.
2. Assembles the initial draft of the Migration and deployment instructions.

When the application is ready to deploy to another environment, you:

3. Export the FileNet P8 assets and any security configuration required and creates one or more Deploy Packages.
4. Export other IBM assets and external assets.
5. Create an Application Package.

## FileNet Deployment Manager – export tasks



Export the application assets

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Figure 20-4. FileNet Deployment Manager – export tasks

The diagram shows the FileNet Deployment Manager tasks that must be completed to migrate and deploy FileNet P8 assets. The order of tasks is flexible and based on object dependencies. The arrows indicate dependencies.

- The yellow box, labeled Deploy Package, which is outlined in dashes, shows the tasks that are completed to export the FileNet P8 assets and create a Deploy Package.

In the previous lesson, you created the source and destination environments and their respective half maps. If you have a deploy package, it means that someone else completed the export tasks:

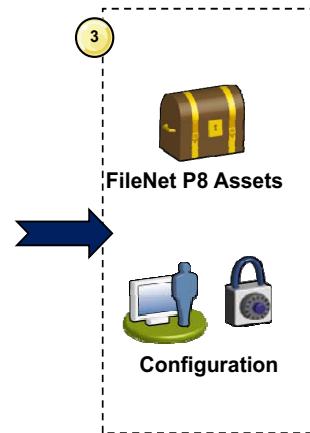
- Create the Export Manifest.
- Perform the export to create Deploy Datasets.
- Extract Source environment half maps.

In the next few slides you cover the tasks in light red:

- Export Manifest
- Deploy Dataset

## Export the FileNet P8 assets

- Create export manifests.
  - Might need to create more than one to handle asset dependencies.
- Add assets to the export manifests.
  - Include workflow definition and related workflow subscription in same export manifest.
- Define export include options.
  - Narrowly focus the export and avoid implicit inclusion of unwanted objects.
- Export to create a deploy data set.
  - Each export manifest creates a deploy data set.



[Export the application assets](#)

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Figure 20-5. Export the FileNet P8 assets

The primary type of assets that are included in an IBM FileNet Content Manager application are FileNet P8 assets.

Commonly used FileNet P8 assets:

- Classes, properties, and content-based objects like forms, search templates, and form templates.

Several steps are involved in exporting FileNet P8 assets with FileNet Deployment Manager (FDM).

- a. Create export manifests – lists the assets to export.
  - Starting with FDM version 5.2, if you include assets that have dependencies in a single export manifest, FDM will attempt to resolve the asset dependencies during the import.
  - In rare occasions, you might need to create multiple export manifests to handle the situations that FDM cannot handle.
- b. Add assets to the export manifests.



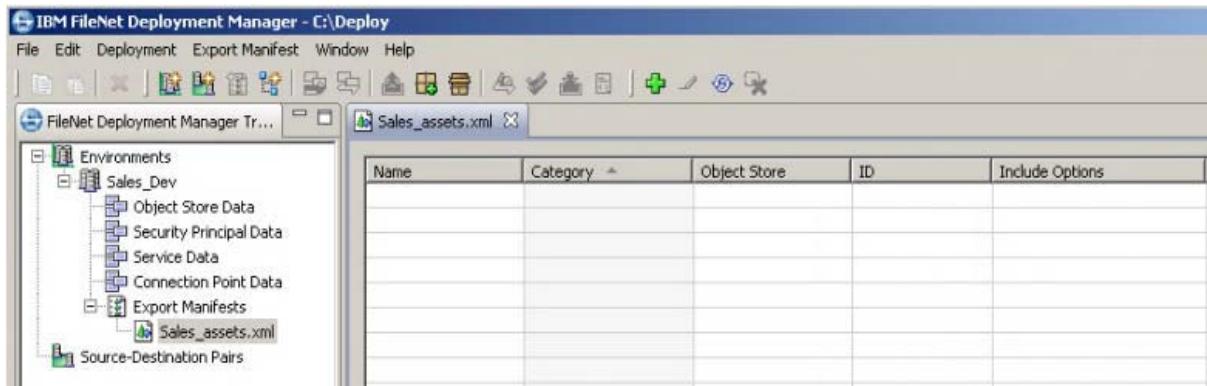
## Information

A new feature was added to FileNet Deployment Manager version 5.2, that provides the option to transfer a workflow definition after import.

- To link any related workflow subscriptions automatically, both assets must be included in the same export manifest.
  - This only works for the current version of the workflow, so make sure that the subscription is linked to the current version of the workflow definition.
  - If your workflow subscription is linked to say version 01 of the workflow definition, but the most recent workflow definition is version 02 and that is what is exported. Then, the import fails with a Java stack trace and an error of E\_REQUIRED\_VALUE\_ABSENT. This features applies to IBM Case Foundation applications.
- 
- c. Define export include options.
    - For a solution application deployment, the include options should narrowly focus the export and avoid implicit inclusion of unwanted objects.
  - d. Export the assets and create deploy datasets.
    - Each export manifest creates a deploy dataset.

## What is an export manifest?

- A file that lists the assets you want to export
  - FileNet Deployment Manager creates the export manifest file under an environment node.
    - Created with a user-defined name, such as Sales\_assets.xml
  - Each export manifest can contain only assets from a single object store.



[Export the application assets](#)

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Figure 20-6. What is an export manifest?

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Creating or updating an export manifest

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/prepare\\_data\\_ce\\_export\\_manifest.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/prepare_data_ce_export_manifest.htm)

An export manifest lists the assets that you want to export from the object store of an environment. After you create an export manifest, you can add assets to it and specify which referenced objects to include with each asset by specifying the appropriate include options. You can also refresh an export manifest to remove assets that are deleted or update asset names that changed. Each export manifest can contain assets from a single object store only. After you create an export manifest, you can use it to export the assets and create a deploy dataset.

## Add assets to the export manifests

- With the export manifest open, click the green cross to open the Add Assets window.
- In the *Add Assets* window, expand the source object store.
  - The folder structure is identical to the folder structure in the Administration Console for Content Platform Engine.

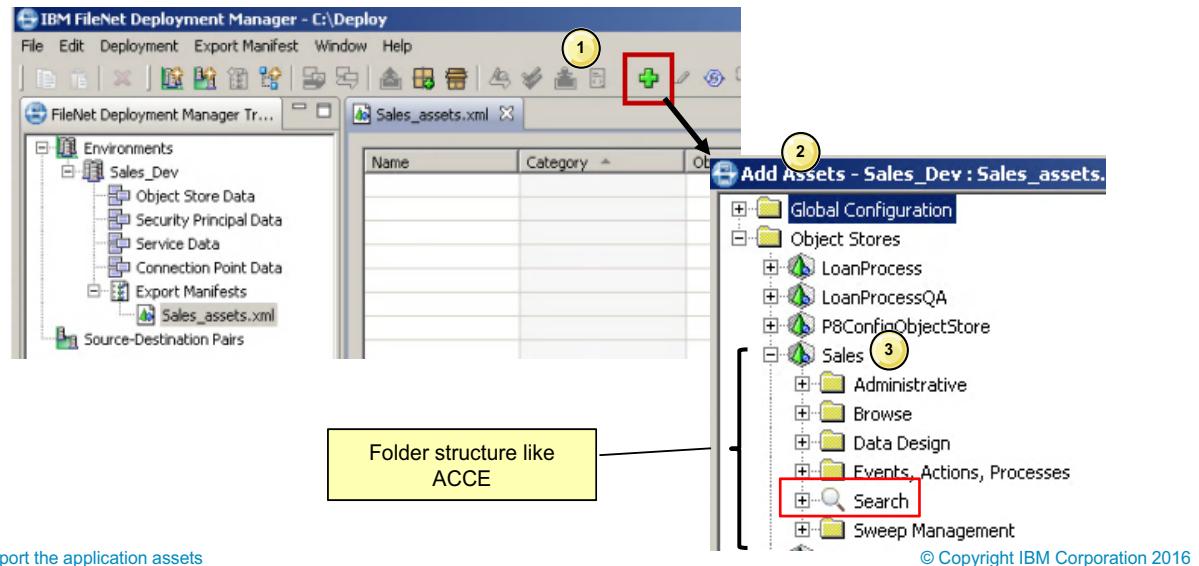


Figure 20-7. Add assets to the export manifests

### Help paths

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Creating or updating an export manifest>Adding assets to an export manifest by browsing

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/prepare\\_data\\_ce\\_add\\_assets.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/prepare_data_ce_add_assets.htm)

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Creating or updating an export manifest>Adding assets to an export manifest by using an SQL search

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8pdb031.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8pdb031.htm)

To add assets to an export manifest:

- Click the green cross in the toolbar.
- The Add Assets window opens.

- c. Open the object store that you want to add assets from. To make it easy for you to find the assets you want, the folder structure that is displayed is identical to the folder structure in the Administration Console for Content Platform Engine (ACCE).

The search node can be used to enter a SQL Search to retrieve a list of objects from which you can select items to include in the export manifest.

Any searches that are created in ACCE, show up as child nodes underneath the Search node and can be selected to load in the associated SQL Search query.

# IBM Training

## Edit the export manifest

| Name      | Category | Object Store | ID                                     | Include Options |
|-----------|----------|--------------|----------------------------------------|-----------------|
| Customers | Folder   | Sales        | {13B65E7C-AFAD-40F7-9A77-94102F9E36FE} | custom          |
| Orders    | Folder   | Sales        | {CB2B7966-DA8C-4FA4-818B-47B906175BA6} | custom          |

- Export manifest editor
  - Contents are populated from the *Add Assets* operation.
  - Double-click the export manifest to open it.
  - Export *Include Options* can be set for each asset
    - Default, All, or Custom
    - Workflow system assets do not have include options

[Export the application assets](#)

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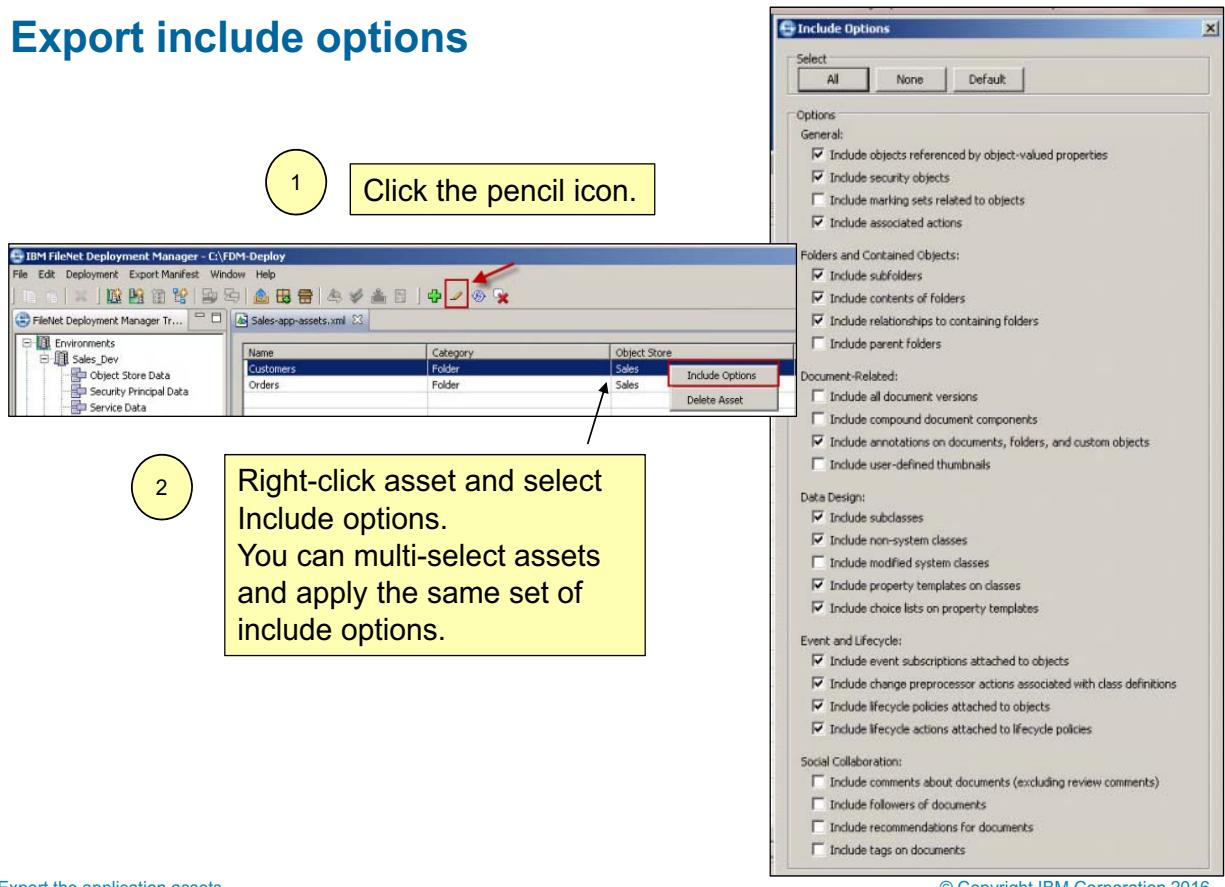
Figure 20-8. Edit the export manifest

Each asset that you select is added to the export manifest and is immediately visible in the export manifest editor. If you try to add an asset that exists in the export manifest, the operation is ignored.

Export ***Include Options*** can be set for each asset, except workflow system assets. When you add an asset, default export include options are set, based on the type of asset. You can edit the include options to customize the export include options.



## Export include options



Export the application assets

Figure 20-9. Export include options

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Creating or updating an export manifest>Adding assets to an export manifest by browsing>Specifying the include options of an asset

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/prepare\\_data\\_ce\\_include\\_options.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/prepare_data_ce_include_options.htm)

Within the export manifest, the export include options control export activities on individual assets or objects. This control includes what referenced objects for an asset, such as metadata or folders, are added to the deployment data set. For example, an export manifest includes a folder. If the Folders and Contained Objects option to Include contents of folders, is selected, then all the documents contained in the folder are included in the export.

In addition, the include options that are specified for an asset propagate to any referenced objects that are added as a result of the include options.

To add include options, you can either:

- Select one or more assets in the export manifest and click the pencil icon in the menu. Option 1 in the diagram.

- Select one or more assets in the export manifest, right-click and select Include Options from the menu.

The Include Options window is displayed, screen capture on the right.

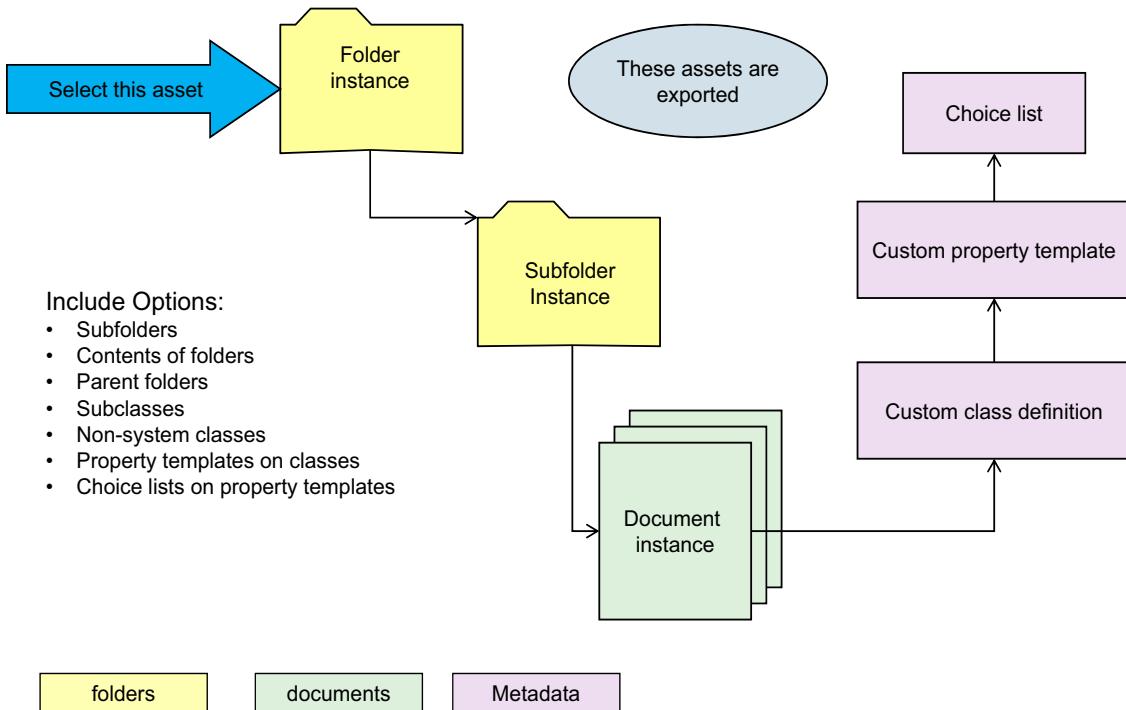
The Include Options window organizes the include options by object types.

Including too many objects in the export due to include options that add referenced objects can negatively affect the performance of both the export and import actions. For export, the number of referenced objects that result from the selected include options can increase the processing time associated with the export action. When you import the exported data, FileNet Deployment Manager must search the deploy data set for metadata and then arrange the import actions to ensure that the assets are imported in the correct order.

To avoid potential negative impacts:

- Only export the assets that are required.

## Asset Include Option propagation example



Export the application assets

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Figure 20-10. Asset Include Option propagation example

You can simplify the export process by using the Include Options propagation feature. For example, you can specify a folder and, by selecting the appropriate Include Options, export the documents, document classes, property templates, and choice lists, however, be careful that you are only exporting the objects you need.

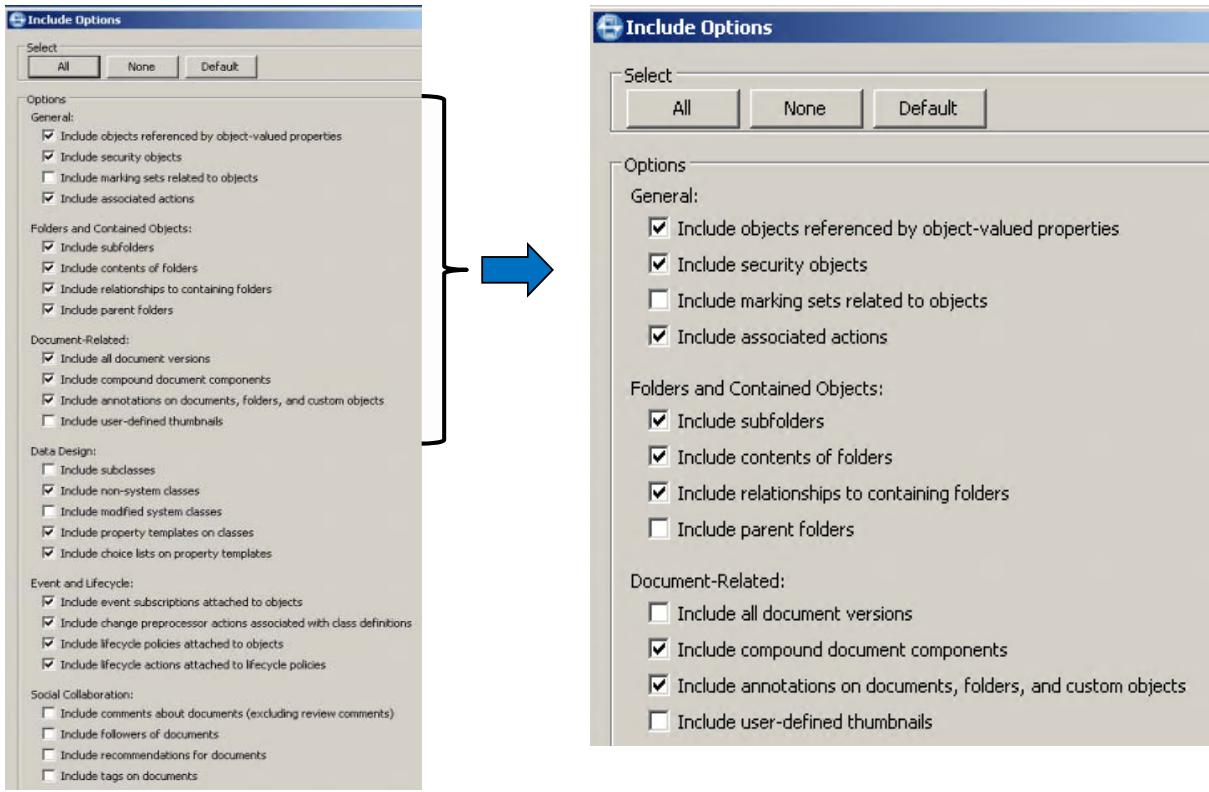
The diagram shows that by selecting a single folder and specifying the appropriate Include Options, you can export many other referenced objects without explicitly adding them to the Export Manifest.

The cascading action, from one asset or object, to its referenced objects, and then to more referenced objects, can result in a large number of objects added to the deployment data set that are not explicitly listed in the export manifest.

Verify the number of assets exported and make sure it is the number you expect.



## Export include options - guidelines



Export the application assets

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Figure 20-11. Export include options - guidelines

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Migrating data with FileNet Deployment Manager>Data migration: Recommendations for export include options

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8\\_pdb041.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8_pdb041.htm)

The screen capture on the left, shows the default include options for a folder. A different set of include options are set depending on the asset that you add to the export manifest.

You generally start with the default include options. To export only the assets you need, clear certain options, depending on the type of asset you are exporting. You might have to run several iterations of the export until you find the include options that export only the assets that you need.

The screen capture on the right, shows the first 3 types of assets and the include options commonly selected for a folder asset:

- General
  - Keep the default options
- Folders and Contained Objects

- Deselect include parent folders – It is best to explicitly add the parent folder. Many times the parent folder is a system folder, which you never want to include.
  - Document-Related
    - Deselect include all document versions – If you need to move all the document versions, then check this option.
- 



### Important

If you export only the most current version of a document, when a document is revised you need to edit the export manifest, delete the older document version, and add the most current document version to the export manifest.

---



## Export include options – guidelines (2)

**Include Options**

Select: All | None | Default

Options:

- General:
  - Include objects referenced by object-valued properties
  - Include security objects
  - Include marking sets related to objects
  - Include associated actions
- Folders and Contained Objects:
  - Include subfolders
  - Include contents of folders
  - Include relationships to containing folders
  - Include parent folders
- Document-Related:
  - Include all document versions
  - Include compound document components
  - Include annotations on documents, folders, and custom objects
  - Include user-defined thumbnails
- Data Design:
  - Include subclasses
  - Include non-system classes
  - Include modified system classes
  - Include property templates on classes
  - Include choice lists on property templates
- Event and Lifecycle:
  - Include event subscriptions attached to objects
  - Include change preprocessor actions associated with class definitions
  - Include lifecycle policies attached to objects
  - Include lifecycle actions attached to lifecycle policies
- Social Collaboration:
  - Include comments about documents (excluding review comments)
  - Include followers of documents
  - Include recommendations for documents
  - Include tags on documents

Export the application assets

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Figure 20-12. Export include options – guidelines (2)

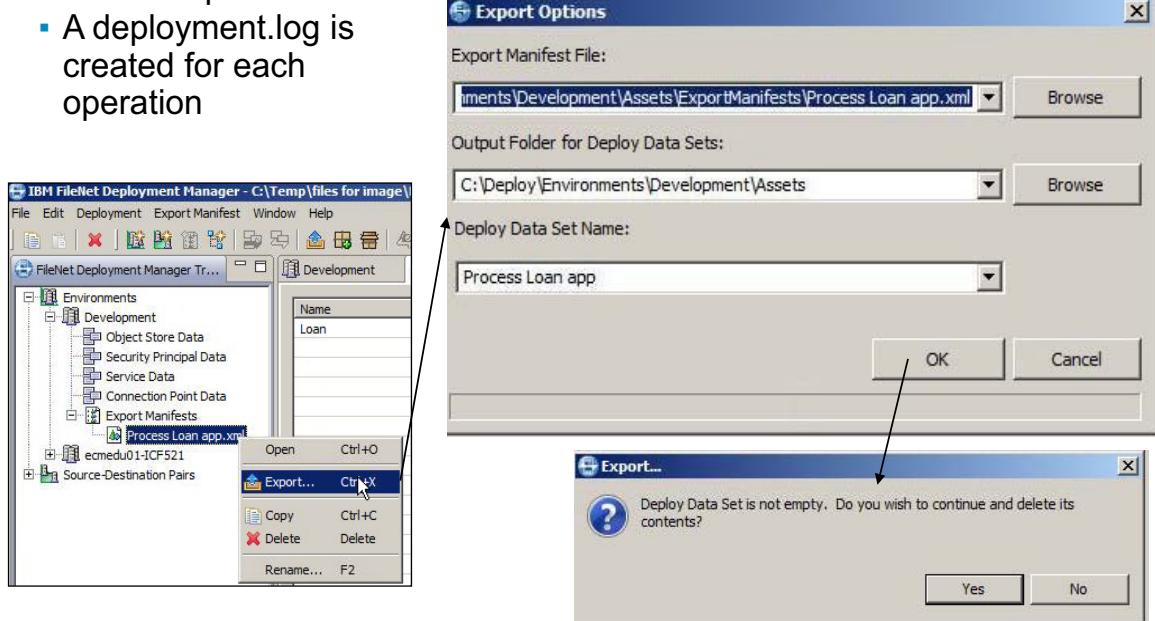
The screen capture on the left, shows the default include options for an asset of type folder.

The screen capture on the right, shows the last 3 types of include options and the options commonly selected:

- Data Design
  - Keep the defaults
- Event and Lifecycle
  - Keep the defaults
- Social Collaboration
  - Keep the defaults – if your source environment has IBM Connections configured and the application requires social collaboration information, then select the options you need.

## Export assets to a deploy data set

- In the FileNet Deployment Manager tree pane
  - Right-click the export manifest under the environment
  - Select Export
  - A deployment.log is created for each operation



Export the application assets

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Figure 20-13. Export assets to a deploy data set

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Exporting assets to a deployment data set

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/prepare\\_data\\_ce\\_create\\_export\\_dataset.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/prepare_data_ce_create_export_dataset.htm)

When you create the necessary export manifests and add the assets to them, the next step is to export the assets and create a deploy data set.

You right-click the export manifest that you want to export and select Export from the menu (screen capture on the left).

The Export Options window opens (screen capture on the upper right). FileNet Deployment Manager creates an Assets folder under the environment and uses the name of the export manifest for the **Deploy Data Set Name**. You can change the name if you want.

If the deploy data set exists, you get a prompt to confirm if you want to delete the existing deploy data set and re-create it (screen capture on the lower right).

During the export operation, a status window displays and shows the increasing count of items that are exported, when the operation is complete, the window shows the total number of items processed.

If the export results in more objects than you expect, open the file:

**<deployment\_tree>\Temp\Run.yyyy.mm.dd.hh.min.ss\deployment.log**, with a text editor and search for **Exported**. The deployment log lists how many items of each type were exported.

# IBM Training

## Deployment.log

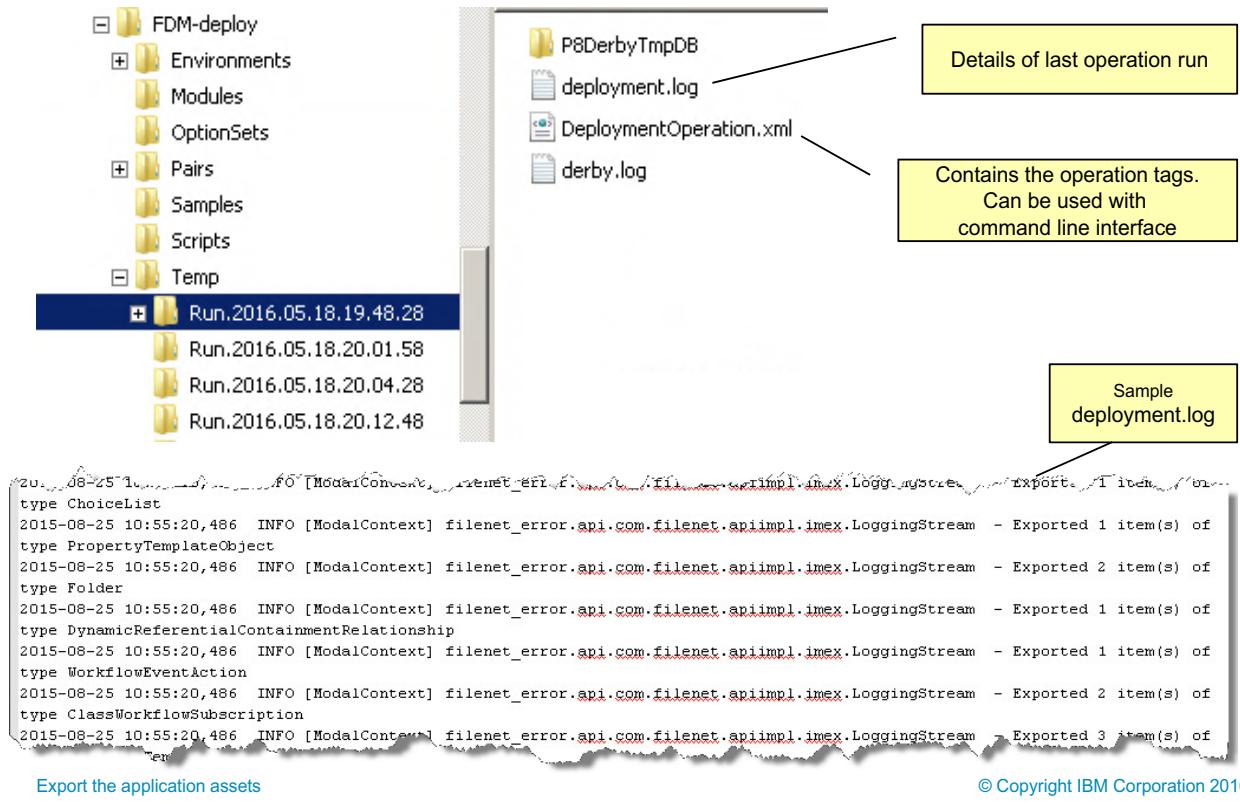


Figure 20-14. Deployment.log

Every time that you run any operation in FileNet Deployment Manager (FDM), a new Run.<timestamp> folder is created which contains

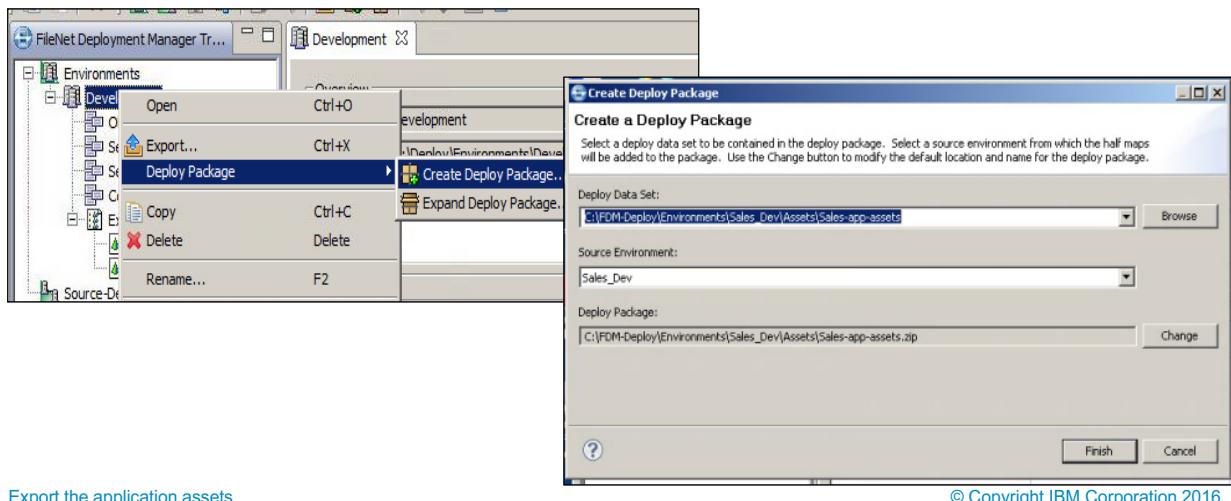
- deployment.log
  - Details of the operation run
  - Valuable for troubleshooting
- DeploymentOperation.xml
  - Script that is executed for the operation
  - Can be used with the command line interface.

FDM also keeps a running log in the <FDM\_install\_path>\deployment.log. This deployment.log is continually appended.

- On the student system, the path is: C:\Program Files\IBM\FileNet\ContentEngine\tools\deploy\deployment.log

## Create a deploy package

- What is a deploy package
  - A compressed file of deployable content that can be put under change control.
  - Includes the exported data and the half maps of an environment.
    - Does not include the export manifests
  - Facilitates use of FileNet Deployment Manager in disconnected mode.
- One deploy package per deploy data set.



Export the application assets

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Figure 20-15. Create a deploy package

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Creating a deployment package by using the FileNet Deployment Manager graphical user interface

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/roadmap\\_deploy\\_packages\\_01.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/roadmap_deploy_packages_01.htm)

You can create a deploy package for each deploy data set.

A deploy package is a compressed file of FileNet P8 deployable content that can be put under change control. A deploy package includes the exported data in a deploy dataset and the half maps of an environment. A deploy package facilitates the use of FileNet Deployment Manager in disconnected mode.

When you run FDM on a destination environment, that has no direct connection to the source environment, you can use a deploy package to extract the deploy data set and the source environment half maps.

A deploy package does not include the export manifest used to create the deploy dataset.

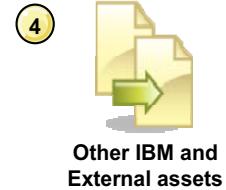
To create a deploy package, you right-click the environment and select **Deploy Package > Create Deploy Package**, the screen capture on the left.

The Create a Deploy Package window opens (screen capture on the right). You browse to the deploy data set that you want, and select the environment to use as the source environment. FileNet Deployment Manager displays the default path where it creates the deploy package, using the deploy dataset name for the deploy package file name with a .zip extension. You can change the name if you choose, but it must be a .zip file.

If you have more than one deploy data set, you can create multiple deploy packages.

## Export other IBM and external assets

- Examples:
  - IBM Content Navigator desktops
    - Use IBM Content Navigator administration tool to export
  - Custom widgets
- Use appropriate tool to export the asset.
- Solution Builder/Developer provides:
  - Exported asset
  - Deployment instructions



Other IBM and  
External assets

[Export the application assets](#)

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Figure 20-16. Export other IBM and external assets

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets based on Content Platform Engine

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8\\_pdb010.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8_pdb010.htm)

Export any application assets that are not FileNet P8 assets. For example:

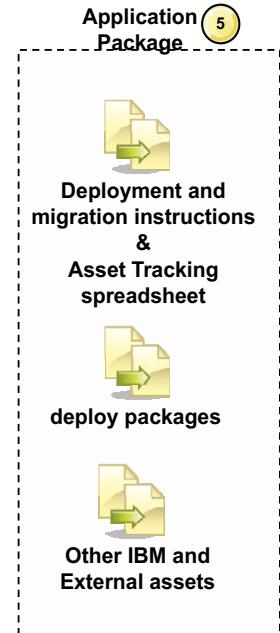
- IBM Content Navigator desktops – use the IBM Content Navigator administration tool to export.
  - Custom widgets

Use the appropriate tool to export the asset.

It is the responsibility of the Solution Builder or Developer to provide the exported asset and the instructions for how to migrate and deploy the asset to the destination environment.

## Assemble the application package

- Collect all the exported pieces of the application.
  - All the deploy packages for the FileNet P8 assets
  - All the exported other IBM and external assets
  - Asset tracking documentation
  - Deployment instructions
- Assemble into an application package
  - Compressed file
  - Change Control container
  - Any method that keeps all the pieces together
- Keep in mind that the individual components can require updates at different times.



[Export the application assets](#)

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Figure 20-17. Assemble the application package

You exported all the components of the IBM FileNet Content Manager application. You now need to assemble all the pieces into an application package that can be:

- Delivered to an administrator to deploy the application in other environments.
- Placed under a change control system.

An application package must include:

- All the deploy packages for the FileNet P8 assets.
  - It is also a good idea to include the export manifests used to create the deploy data sets.
- All the exported other IBM and external assets
- Asset tracking documentation
- Deployment and migration instructions

Decide how to assemble the application package. You can assemble the application package into:

- A compressed file
- A container that can be placed under change control
- Any method that facilitates keeping all the pieces together

When deciding how to assemble the application package, keep in mind that the individual components can require updates at different times.

## Instructor demonstration

- Export FileNet P8 assets with FileNet Deployment Manager



[Export the application assets](#)

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*Figure 20-18. Instructor demonstration*

Export FileNet P8 assets with FileNet Deployment Manager.

- Open the Application Assets Tracking spreadsheet. Use the spreadsheet as a guide to create the export manifest.
- Use FDM to extract a few of the assets
- Set the include options
- Export the assets and create a deploy dataset

## Unit summary

- Export the application assets.

Export the application assets

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Figure 20-19. Unit summary

## Exercise: Export the application assets

Export the application assets

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*Figure 20-20. Exercise: Export the application assets*

## Exercise introduction

- Export the FileNet P8 application assets.
- Extract the service data half map
- Create a deploy package
- Export an IBM Content Navigator desktop.



Export the application assets

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*Figure 20-21. Exercise introduction*

# Unit 21. Convert and analyze the FileNet P8 assets

## Estimated time

00:30

## Overview

In this unit you, convert the FileNet P8 assets of the application and run a change impact analysis to analyze the impact of the import on the destination environment.

## How you will check your progress

Successfully complete the unit exercises.

## References

FileNet P8 Platform 5.2.1 Knowledge Center:

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

## Why is this lesson important to you?

- You need to migrate and deploy an IBM FileNet Content Manager application from one FileNet P8 environment to another, for example development to User Acceptance Test.
- You must convert the assets and analyze the impact of the import on the destination environment.

Convert and analyze the FileNet P8 assets

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Figure 21-1. Why is this lesson important to you?

## Unit objectives

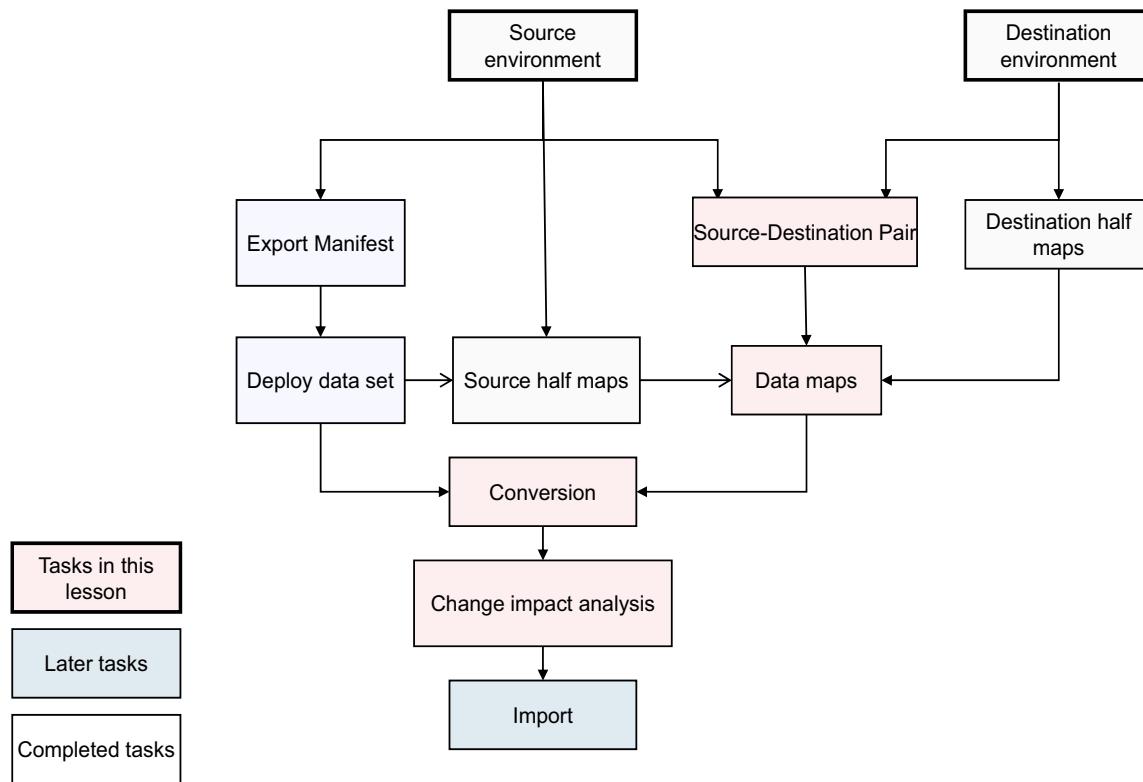
- Convert the FileNet P8 assets.
- Analyze the impact of the import on the destination environment.

Convert and analyze the FileNet P8 assets

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Figure 21-2. Unit objectives

## Migrating and analyzing phases



Convert and analyze the FileNet P8 assets

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Figure 21-3. Migrating and analyzing phases

The diagram shows the FileNet Deployment Manager tasks that must be completed to migrate and deploy FileNet P8 assets. This lesson focuses on tasks identified with light red squares.

You complete two of the Migration and deployment phases:

- Migrating phase
  - Create Source-Destination pair.
  - Create data maps, from the source and destination half maps.
  - Convert the FileNet P8 Assets.
- Analyzing phase
  - Perform a change impact analysis operation.

## Prepare the FileNet P8 destination environment

- Ensure that all content to be migrated and deployed is checked in.
- Ensure that only users who run essential activities are logged in to the destination environment.
- Ensure that any object store add-ons, required by the application, are installed and configured on the destination object stores.

[Convert and analyze the FileNet P8 assets](#)

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Figure 21-4. Prepare the FileNet P8 destination environment

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Prepare the destination environment

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_data\\_checklist\\_destination\\_env.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_data_checklist_destination_env.htm)

Before you begin importing data, complete the following steps to prepare the destination environment.

- Ensure that all content to be deployed is checked in.
- Ensure that only users who run essential activities are logged in to the system.
  - To reduce the load on the system and minimizes the risk of introducing unexpected changes.
- Ensure that any object store Add-ons, required by the application, are installed and configured on the destination object stores.
- Extract the destination environment half maps. This step can also be done during the plan and prepare phase, if the destination environment is ready.

## Prepare for asset conversion

- Create a source-destination pair.
- Create the source-destination pair data maps.

Convert and analyze the FileNet P8 assets

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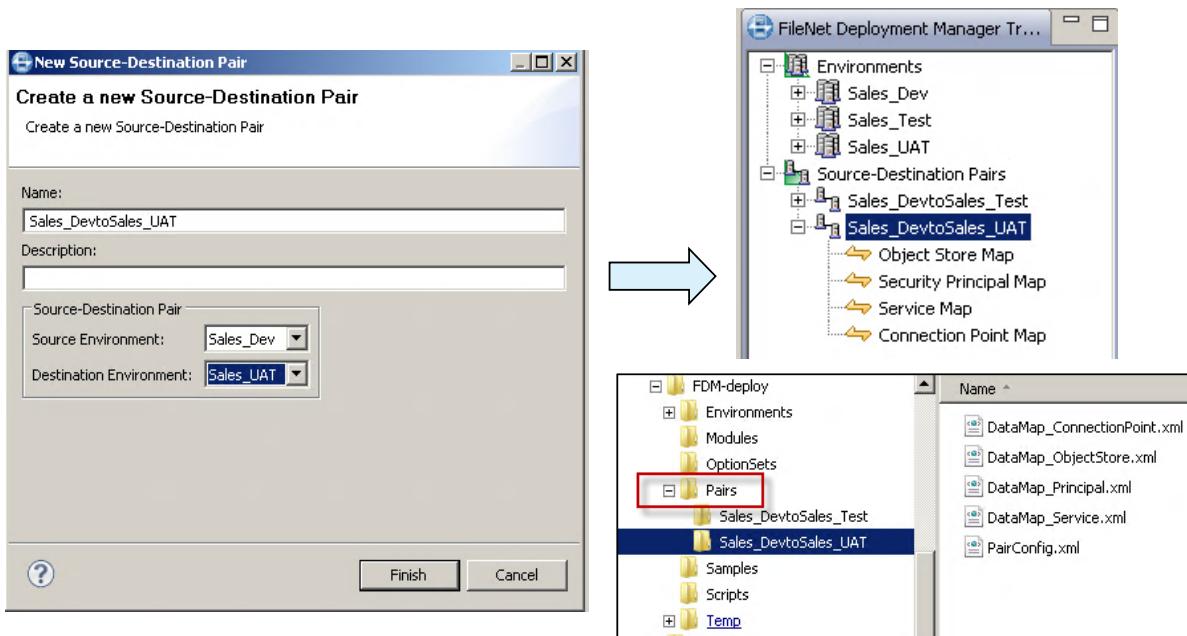
*Figure 21-5. Prepare for asset conversion*

To prepare for asset conversion, you must:

- Create a source-destination pair.
- Create the source-destination pair data maps.

## Create a source-destination pair

- What is a source-destination pair?
  - Connects a source environment to a destination environment.
  - A subfolder of the FDM deployment tree, one folder per pair.



Convert and analyze the FileNet P8 assets

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Figure 21-6. Create a source-destination pair

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Creating a source-destination pair definition

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_mgr\\_checklist\\_pair\\_def.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_mgr_checklist_pair_def.htm)

A source-destination pair connects a source environment to a destination environment and provides a mechanism for FileNet Deployment Manager to create data maps.

The data maps are created from the half maps that are associated with the source and destination environments. The object store, security principal, and service half maps for the source and destination environments are mapped to create object store, security principal, and service data maps.

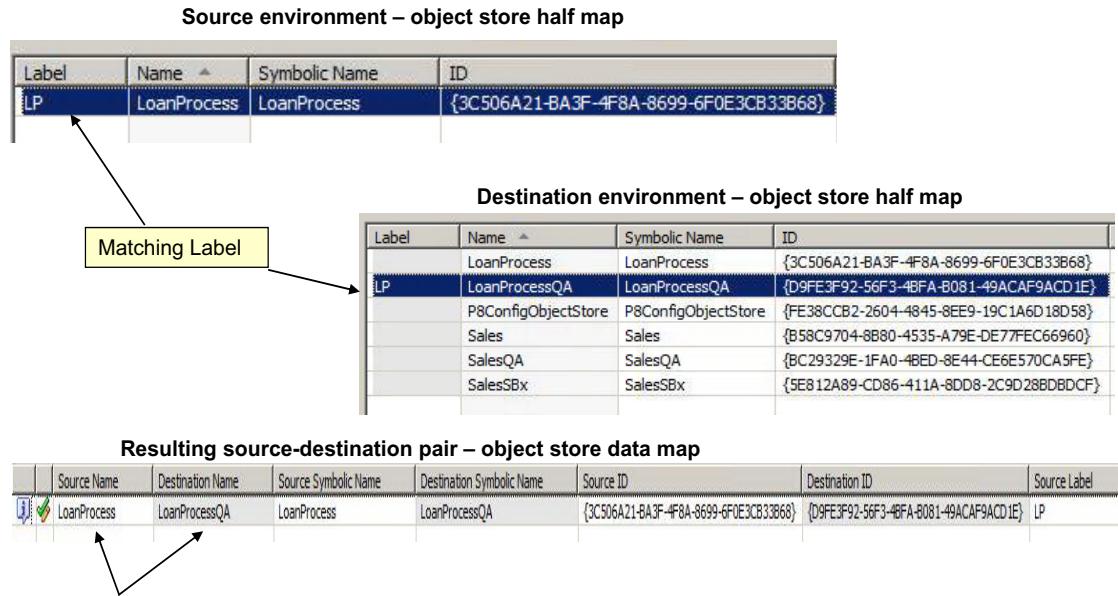
To create a source-destination pair, you right-click the Source-Destination Pairs node, in FileNet Deployment Manager, and select New > Source-Destination Pair. The Create a new Source-Destination Pair window displays (screen capture on the left). You type a name for the source-destination pair then select the source and destination environments.

The screen capture on the upper right, shows the source-destination pair expanded. The four data maps are listed.

The screen capture on the lower right, shows the deployment tree folder structure. The new source-destination pair is a subfolder under the folder, Pairs.

## How do labels affect data maps?

- Labels facilitate mapping half map entries to create data maps.
  - Add a matching label to a half map entry in the source and destination environments.



Convert and analyze the FileNet P8 assets

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Figure 21-7. How do labels affect data maps?

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Preparing the source environment>Extracting the source environment half maps>Editing labels in a half map

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_mgr\\_howto\\_resolve\\_unmapped\\_entries.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_mgr_howto_resolve_unmapped_entries.htm)

Labels make it easy for FileNet Deployment Manager (FDM) to map source half map entries to destination half map entries to create the source-destination pair data maps.

If entries in a source and destination half map, for example an object store half map, have a matching label, then FileNet Deployment Manager maps the two entries in the resulting data map.

When you map data for a source-destination pair, FDM will:

- Search for entries, in the source and destination half maps, with matching labels and map those entries in the new data map.
- Search for entries, without labels, where the symbolic names are identical, in the source and destination half maps, and map those entries in the new map.

- c. Entries that exist in the source half map, but not in the destination half map, are added to the new data map. The Destination information in the map has three # symbols, indicating that the destination entry is unmapped. You can leave entries unmapped that are not required by the application.

The screen capture on the upper left, shows an object store half map for a source environment, with the Label, "LP" added to the entry.

The screen capture in the center, shows an object store half map for a destination environment, with the Label, "LP" added to the entry.

The bottom screen capture, shows the resulting source-destination pair object store data map. Notice how the object store Loan Process is mapped to LoanProcessQA because the half maps have matching labels.

## Create the source-destination pair data maps

- Combine the source and destination half maps to create source-destination pair data maps.

**Overview**

Name: Dev\_to\_QA  
File Path: C:\Deploy\Pairs\Dev\_to\_QA\PairConfig.xml  
Description:

**Source-Destination Pair**

Source Environment: Development  
Destination Environment: QA

| Action   | Type               | Status                                                     | Use when converting assets          |
|----------|--------------------|------------------------------------------------------------|-------------------------------------|
| Map Data | Object Store       | 1 entry, all mapped, updated Aug 14, 2015 at 7:00:43 PM    | <input checked="" type="checkbox"/> |
| Map Data | Storage Policy     | no entries, all mapped, updated Aug 14, 2015 at 7:00:43 PM | <input type="checkbox"/>            |
| Map Data | Storage Area       | no entries, all mapped, updated Aug 14, 2015 at 7:00:43 PM | <input type="checkbox"/>            |
| Map Data | Security Principal | no entries, all mapped, updated Aug 14, 2015 at 7:00:27 PM | <input checked="" type="checkbox"/> |
| Map Data | Service            | no entries, all mapped, updated Aug 14, 2015 at 7:00:27 PM | <input checked="" type="checkbox"/> |
| Map Data | Connection Point   | no entries, all mapped, updated Aug 14, 2015 at 7:00:27 PM | <input checked="" type="checkbox"/> |

Convert and analyze the FileNet P8 assets

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Figure 21-8. Create the source-destination pair data maps

When you open a Source-Destination pair, the Overview window is displayed (screen capture shown). When you click Map Data, FileNet Deployment Manager combines the source and destination half maps to create the source-destination data maps.

## What options are available for Data Maps?

- Used when converting assets
  - You choose whether to apply the data mappings during the conversion operation.

The screenshot shows the 'Convert and analyze the FileNet P8 assets' interface. In the 'Data Maps' section, there is a table with columns 'Action', 'Type', and 'Status'. The 'Action' column has several rows labeled 'Map Data'. The 'Type' column includes 'Object Store', 'Storage Policy', 'Storage Area', 'Security Principal', 'Service', and 'Connection Point'. The 'Status' column provides details for each type. To the right of the table, there is a section titled 'Use when converting assets' with checkboxes for each type. Arrows from callout boxes point to specific checkboxes: one arrow points to the 'Object Store' checkbox (which is checked), another points to the 'Storage Policy' checkbox (unchecked), and a third points to the 'Connection Point' checkbox (checked). Callout boxes also provide context for these settings.

| Action   | Type               | Status                                                     |
|----------|--------------------|------------------------------------------------------------|
| Map Data | Object Store       | 1 entry, all mapped, updated Aug 14, 2015 at 7:00:43 PM    |
| Map Data | Storage Policy     | no entries, all mapped, updated Aug 14, 2015 at 7:00:43 PM |
| Map Data | Storage Area       | no entries, all mapped, updated Aug 14, 2015 at 7:00:43 PM |
| Map Data | Security Principal | no entries, all mapped, updated Aug 14, 2015 at 7:00:27 PM |
| Map Data | Service            | no entries, all mapped, updated Aug 14, 2015 at 7:00:27 PM |
| Map Data | Connection Point   | no entries, all mapped, updated Aug 14, 2015 at 7:00:27 PM |

**Use when converting assets**

- Object Store
- Storage Policy
- Storage Area
- Security Principal
- Service
- Connection Point

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Figure 21-9. What options are available for Data Maps?

Notice the default settings for the option **Use when converting assets**.

- For the object store and service data maps, it is not an option as those mappings must be applied.
- The option is not set for storage policy and storage area by default, you can choose to enable this, but many times the destination environment has its own Storage Areas already defined.
- Although the option to not apply the security principal mappings does exist, typically those mappings are important. They can be ignored only if you are sure that all referenced principals have the same names and SIDs in both environments.
- The Connection Point data map applies only to IBM Case Foundation applications, or IBM Case Manager solutions that have FileNet P8 workflows.

## View a data map

- Each row in a data map contains the information of the combined source and destination half maps for that data map type.
- The first two columns are the same for all four data map types

|           | Source Short Name          | Destination Short Name | Source Display Name        | Destination Display Name |
|-----------|----------------------------|------------------------|----------------------------|--------------------------|
| Manual    | loan officers              | ###                    | Loan Officers              | ###                      |
| Manual    | loan operations            | ###                    | Loan Operations            | ###                      |
| Manual    | loan underwriters          | ###                    | Loan Underwriters          | ###                      |
| Automatic | loan system administrators | finance admins         | Loan System Administrators | Finance Admins           |
| Automatic | loan business users        | finance clerks         | Loan Business Users        | Finance Clerks           |
| Automatic | loan processors            | finance clerks         | Loan Processors            | Finance Clerks           |
| Automatic | loan business analysts     | finance managers       | Loan Business Analysts     | Finance Managers         |
| Automatic | loan managers              | finance managers       | Loan Managers              | Finance Managers         |
| Automatic | loan guests                | clerks                 | Loan Guests                | Clerks                   |
| Automatic | ceadmins                   | ceadmins               | CEadmins                   | CEadmins                 |
| Automatic | p8admin                    | p8admin                | P8Admin                    | P8Admin                  |
| Automatic | p8admins                   | p8admins               | P8Admins                   | P8Admins                 |

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Figure 21-10. View a data map

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Creating a source-destination pair definition>Viewing or updating a data map

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_mgr\\_howto\\_view\\_data\\_map.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_mgr_howto_view_data_map.htm)

After you combine the half maps of a source and destination environment for object stores, security principals, or services, the data map editor is opened automatically. The screen capture shows the data map editor for a security principal data map.

The first two columns are identical for all four data map types.

- The first column is the information column. If you hover your mouse over the icon, a snapshot of the entire contents of the row is displayed.
- The second column is the mapping status column.
  - A green check mark indicates a successful mapping of a source and destination half map item.

- If the mapping was created manually, either by a matched user-entered label pair in the source and destination half map items, or by selecting from a list in the data map, a pencil symbol is included.
- If the mapping is the result of an automatic pairing of a source and a destination half map item that is based on matching column field values, a gear symbol is included in the icon.
- A red question mark icon indicates an unmapped source half map item. In a row that contains an unmapped item, the value of each destination field is set to the unmatched state ("###", red rectangle).

## Update a data map

- Data map editor makes it easy to update the data map.
  - Click a destination cell to display a choice list of valid values.

The screenshot shows a data map editor with two tables. The left table (Source) has columns: Source Short Name, Destination Short Name, and Source Display Name. The right table (Destination) has columns: Destination Short Name, Source Display Name, and Destination Display Name. A callout box points to the 'Destination Short Name' column in the right table with the text 'Click cell to get choice list to select from'. Another callout box at the top right is labeled 'Many to one' with arrows pointing to the right table's columns. A dropdown menu is open over the 'Destination Short Name' cell for the row 'loan operations', listing options like 'ceadmins', 'clerks', 'finance admins', etc., with 'p8admins' selected.

|  | Source Short Name          | Destination Short Name | Source Display Name        | Destination Display Name |
|--|----------------------------|------------------------|----------------------------|--------------------------|
|  | loan officers              | ###                    | Loan Officers              | ###                      |
|  | loan operations            | ###                    | Loan Operations            | ###                      |
|  | loan underwriters          |                        | Loan Underwriters          | ###                      |
|  | loan system administrators |                        | Loan System Administrators | Finance Admins           |
|  | loan business users        |                        | Loan Business Users        | Finance Clerks           |
|  | loan processors            |                        | Loan Processors            | Finance Clerks           |
|  | loan business analysts     |                        | Loan Business Analysts     | Finance Managers         |
|  | loan managers              |                        | Loan Managers              | Finance Managers         |
|  | loan guests                |                        | Loan Guests                | Clerks                   |
|  | ceadmins                   | p8admins               | CEadmins                   | CEadmins                 |
|  | p8admin                    | p8admin                | P8Admin                    | P8Admin                  |
|  | p8admins                   | p8admins               | P8Admins                   | P8Admins                 |

Figure 21-11. Update a data map

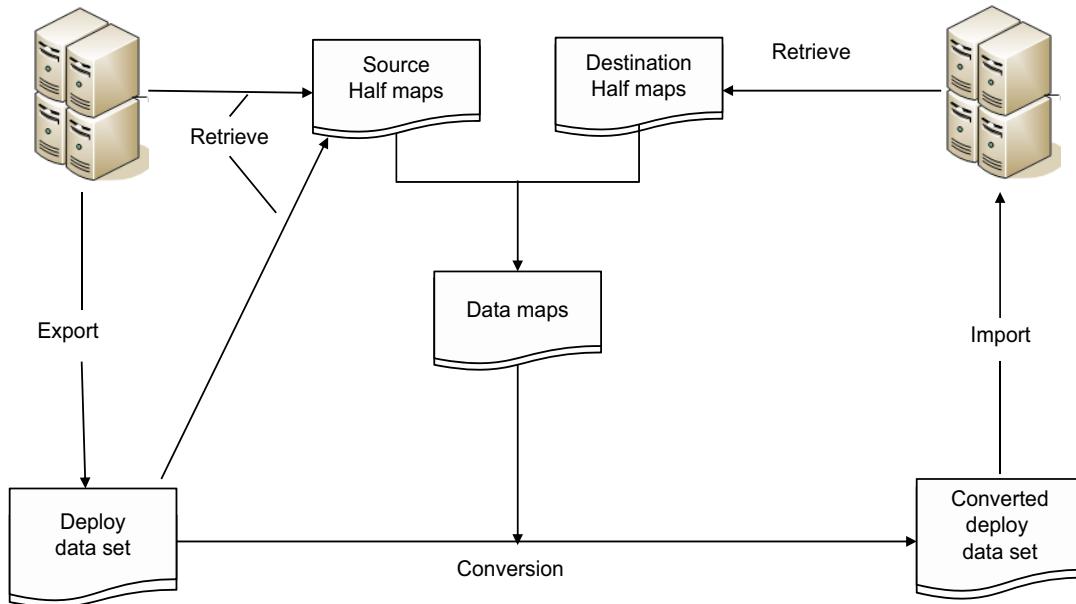
The screen capture shows the data map editor with a security principal data map.

When you click a destination cell, the data map editor displays a choice list that you can use to select the value you want. You map only rows that contain information that is referenced by the exported application assets. If you used a deploy data set to create the source half map, then all the destination cells must be successfully mapped.

For security principals, FileNet deployment Manager allows Many-to-one security principal mappings. In the screen capture, notice how the last column shows Finance Clerks as the destination display name for Loan Business Users and Loan Processors.

## Convert the FileNet P8 application assets

- Use FileNet Deployment Manager to convert the assets in the deploy data set.
- Right-click the source-destination pair > Convert Assets.



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Figure 21-12. Convert the FileNet P8 application assets

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Converting objects for import

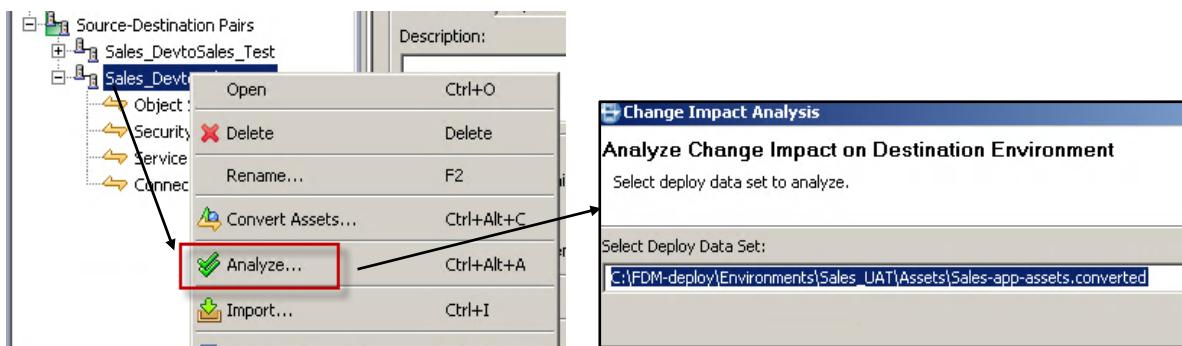
[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/prepare\\_data\\_ce\\_convert\\_objects.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/prepare_data_ce_convert_objects.htm)

FileNet Deployment Manager (FDM) uses the deploy data set and the mapping that is defined in the data maps to convert the source environment objects and create a converted deploy data set. The converted deploy data set contains mapped objects that can be imported into the destination environment.

To start the conversion process, right-click the source-destination pair and select Convert Assets.

## Run a pre-import analysis

- The change impact analysis operation is central to preparing data for deployment.
- The change impact analysis operation:
  - Validates the converted deploy data set file with the destination environment.
  - Generates a change impact analysis report.
    - Potential import errors in the destination environment.
    - Change impact on the destination environment.
  - Is an information only operation.
  - Does not modify the destination environment.



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Figure 21-13. Run a pre-import analysis

### Help paths

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Analyzing objects for import

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/prepare\\_data\\_ce\\_analyze.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/prepare_data_ce_analyze.htm)

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Analyzing objects for import>Change impact analysis

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/prepare\\_data\\_ce\\_analyze\\_concepts.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/prepare_data_ce_analyze_concepts.htm)

The change impact analysis operation is central to preparing data for deployment. The operation reports on the potential import errors in the destination environment and the change impact on the destination environment.

The change impact analysis operation validates the converted deploy data set with the destination environment. This operation provides information only; it does not actually import data, or modify the destination environment in any way.

To start the change impact analysis operation, in FileNet Deployment Manager, you right-click a source-destination pair and select Analyze (screen capture on the left). The Change Impact Analysis wizard displays (screen capture on the right). From the wizard, select the converted deploy data set to analyze. If you accept the default paths and names that FileNet Deployment Manager generates, then you can usually accept the path for the converted deploy data set.

## Change impact analysis report

- One or more XML files.
- HTML-formatted viewing from a web browser.

### Change Impact Analysis Report

#### Table of Contents

##### Summary

[Statistics by Class](#)

[Estimated Size Information by Class](#)

[Estimated Size Information by Data Type](#)

##### Details

[Assets that Passed Analysis with Warnings](#) ← Investigate

[Assets that Passed Analysis](#)

[Detailed Information for Assets that have Passed Analysis](#)

#### Summary

|                                 |                                                                                               |
|---------------------------------|-----------------------------------------------------------------------------------------------|
| Report Generated On:            | 2016-06-02 17:29:04 EDT                                                                       |
| Report Location:                | C:\FDM-deploy\Environments\Sales_UAT\Assets\Sales-app-assets.converted\ChangeImpactReport.xml |
| Passed Assets Report Directory: | C:\FDM-deploy\Environments\Sales_UAT\Assets\Sales-app-assets.converted\ChangeImpactReport     |

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Figure 21-14. Change impact analysis report

#### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>Prepare data for deployment>Analyzing objects for import>Change impact analysis

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/prep\\_data\\_ce\\_analyze\\_concepts.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/prep_data_ce_analyze_concepts.htm)

The change impact analysis report consists of one or more XML files, transformed to an HTML-formatted main report for viewing from a web browser.



#### Note

Occasionally the change impact analysis report opens in notepad instead of a web browser. If that occurs, use Windows Explorer to locate the file, then select to open with a web browser.

The screen capture shows the top section of a Change Impact Analysis Report. You need to investigate assets that fail or pass with warnings.

## Resolving failures

[Back To Top](#)

Object being imported:  
Name='Order Basic 200', ID={...}, Class=Order

Assets that Passed Analysis with Warnings (First 20 only - See detail report for more warnings.)

| Name            | Class | ID                                     | Analysis Status | Import Operation | Estimated Size | Comments                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-------|----------------------------------------|-----------------|------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Order Basic 200 | Order | {278A72C7-FFE5-447A-A856-7A569824288C} | Warning         | Update           | 0.40 KB        | Object to be imported references a storage object that does not exist at the destination. Import will fail if using storage policy or area from the exported object. Object being imported:<br>Name='Order Basic 200', ID={278A72C7-FFE5-447A-A856-7A569824288C}, Class=Order.<br>Related object: ID={000A8C36-3AF9-4167-AD23-EAC939A005CD}, Class=StorageArea |

ID of object being imported

Related object:  
ID={...}, Class=StorageArea

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Figure 21-15. Resolving failures

If you click the link, **Assets that Passed Analysis with Warnings**, on the previous slide, information similar to what is shown in this screen capture.

Notice the red rectangles in the Comments column.

The upper red rectangle describes the object to be imported; Object name, Order Basic 200, with the ID shown, and of class type, Order.

The lower rectangle identifies the related object. The ID is provided and the class type, StorageArea.

If you need to preserve the storage policy in the destination environment, use the Administration Console for Content Platform Engine (ACCE) to search for the ID, within the class, StorageArea. Find the storage area that you are missing in the destination environment and create it. If you plan to use a different storage area in the destination environment, then you can ignore the warning.

## Instructor demonstration

- Convert FileNet P8 assets with FileNet Deployment Manager
- Perform a change impact analysis with FileNet Deployment Manager



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Figure 21-16. Instructor demonstration

### Demonstration notes

Convert FileNet P8 assets with FileNet Deployment Manager

1. Explain how the conversion works. You need a source and destination environment that is created and the half maps ready.
  - a. Add labels to a half map.
2. Create a source-destination pair.
3. Show how to start the convert operation.

Perform a change impact analysis with FileNet Deployment Manager

1. Right-click the source-destination pair and select Analyze.
  - a. Select the converted deploy data set to analyze.
2. Examine the report.
  - a. Explore the Assets that passed with warnings.

## Unit summary

- Convert the FileNet P8 assets.
- Analyze the impact of the import on the destination environment.

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Figure 21-17. Unit summary

## Exercise: Convert and analyze the FileNet P8 assets

Convert and analyze the FileNet P8 assets

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*Figure 21-18. Exercise: Convert and analyze the FileNet P8 assets*

## Exercise introduction

- Convert the FileNet P8 assets
- Run a pre-import analysis on the destination environment.



[Convert and analyze the FileNet P8 assets](#)

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*Figure 21-19. Exercise introduction*

In this exercise, you complete two activities:

- Use FileNet Deployment Manager to convert the FileNet P8 assets. The procedures that you complete are:
  - Define a source-destination pair to connect Sales\_Dev to Sales\_UAT.
  - Create the object store and security principal data maps for the source-destination pair that you create.
  - Convert the exported assets using the data maps you create.
- Run a pre-import analysis. The procedures that you complete are:
  - Run a change impact analysis on the destination environment, Sales\_UAT.
  - Analyze the change impact analysis report and learn how to use the report to resolve issues.

# Unit 22. Import the application assets

## Estimated time

00:30

## Overview

In this unit you, import the application assets into the destination environment.

## How you will check your progress

Successfully complete the unit exercises.

## References

FileNet P8 Platform 5.2.1 Knowledge Center:

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

## Why is this lesson important to you?

- You need to migrate and deploy an IBM FileNet Content Manager application from one FileNet P8 environment to another, for example development to User Acceptance Test. You converted the assets and completed the impact analysis on the destination environment.
- You need to import the application assets into the destination environment and verify the migrated application.

Import the application assets

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*Figure 22-1. Why is this lesson important to you?*

## Unit objectives

- Import the application assets into the destination environment.

Import the application assets

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Figure 22-2. Unit objectives

## Steps to complete the application migration

- Backing up the system phase:
  - Suspend activity on the system (destination environment).
  - Create a backup of the system.
- Deploying phase
  - Import the FileNet P8 application assets.
  - Import other IBM and external application assets.
- Verifying phase
  - Test the workflow application in the destination environment.

[Import the application assets](#)

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*Figure 22-3. Steps to complete the application migration*

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>FileNet P8 asset deployment

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deployfilenetcplatformassets.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deployfilenetcplatformassets.htm)

You are now at the final 3 phases of migration and deployment:

### Backing up the system phase

Before you start deploying any assets into the destination environment;

- Suspend system activities on the destination environment.
- Back up the portions of the system affected.

### Deploying phase

Two major tasks must be completed to complete the application deployment:

- Import the FileNet P8 application assets.
- Import other IBM and external application assets.

**Note**

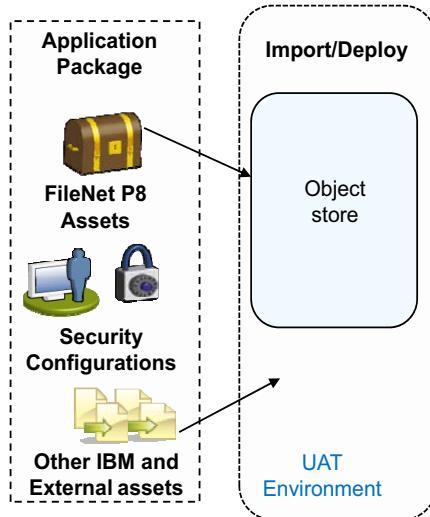
The sequence of individual tasks that are required to migrate and deploy an application into the destination environment can vary widely. The needs of your organization, the architecture of your system, and requirements of the application itself all determine the number and order of the tasks. The specific plan and procedures for the migration and deployment that is documented in the Migration and deployment instructions.

**Verifying phase**

Follow the instructions in the Migration and deployment instructions to test the migrated application and ensure that it is operational.

This lesson does not cover the Backing up your system phase. Consult the IBM FileNet P8 5.2.1 Knowledge Center for information on suspending activity and creating a backup of the system.

## Import the assets into the destination environment



[Import the application assets](#)

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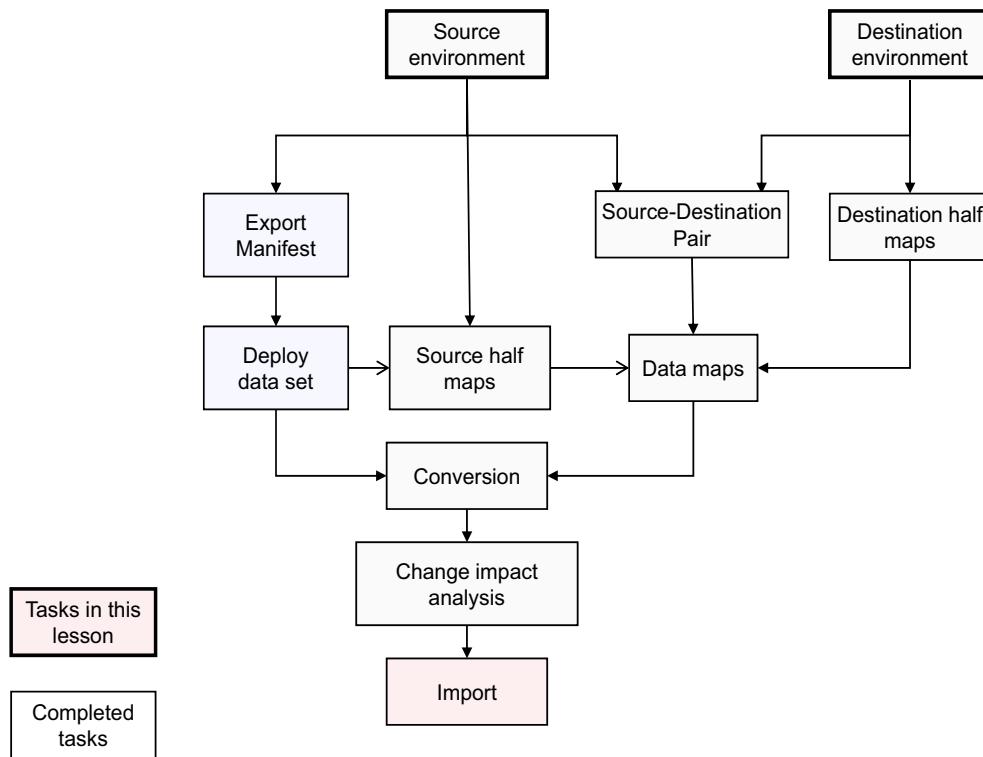
Figure 22-4. Import the assets into the destination environment

In this lesson, you complete final import task. The diagram shows the part of the migration and deployment process that focuses on the import of the assets from the Application Package into the destination environment.

There can be several import tasks to complete:

- Import the FileNet P8 assets.
- Import other IBM assets.
- Import External assets.

## FileNet Deployment Manager – import task



Import the application assets

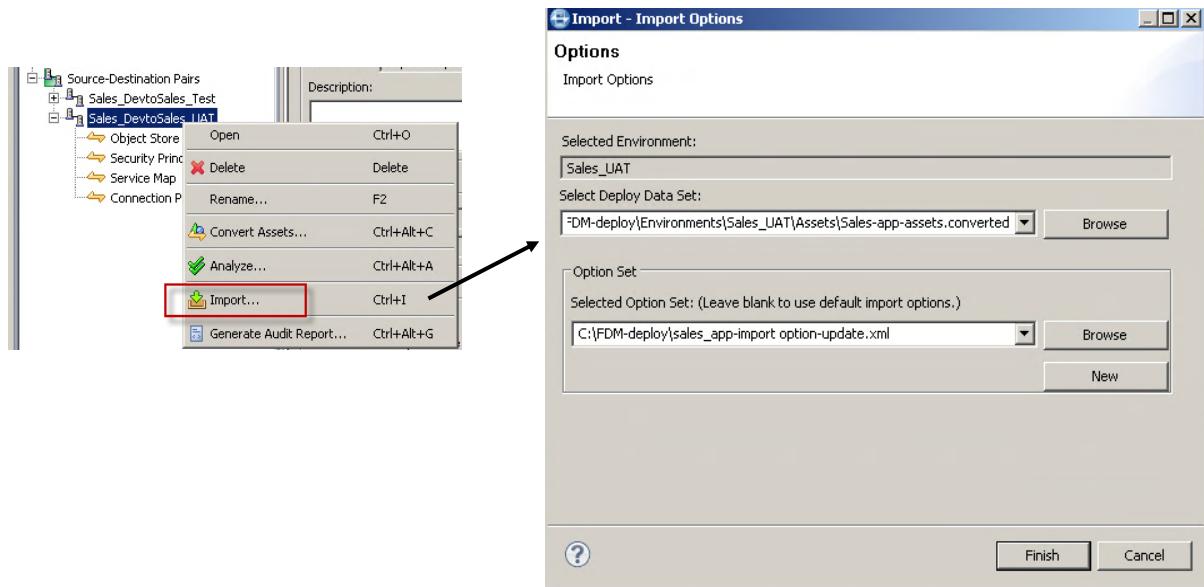
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Figure 22-5. FileNet Deployment Manager – import task

The diagram shows the FileNet Deployment Manager tasks that must be completed to migrate and deploy FileNet P8 assets. This lesson focuses on the import task.

## Import the FileNet P8 application assets

- Use FileNet Deployment Manager.
  - Import the converted deploy data sets.
    - Follow the order specified in the Migration and deployment instructions.
  - Create option set file (optional)



Import the application assets

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Figure 22-6. Import the FileNet P8 application assets

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>FileNet P8 asset deployment>Importing converted objects

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_ce\\_import\\_objects.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_ce_import_objects.htm)

You use FileNet Deployment Manager to import the FileNet P8 application assets. You import all the converted deploy data sets, in the order specified in the Migration and deployment instructions, into the destination environment. Some objects can have dependencies and cannot be imported before the dependent object.

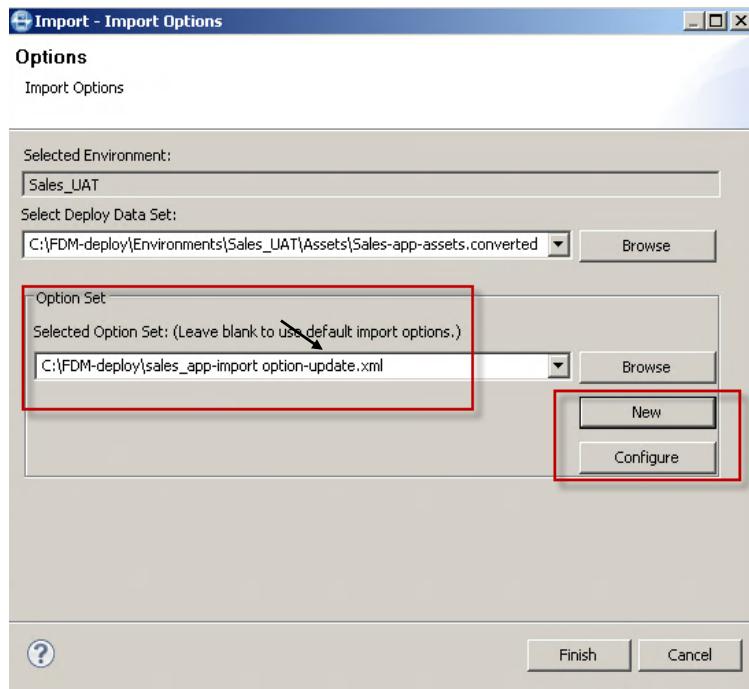
To start the import, right-click the source-destination pair and select Import, shown in the screen capture on the left. The import window is displayed, screen capture on the right. You select the converted deploy data set that you want to import and the option set file to use. The ability to specify an option set file was introduced in FileNet Deployment Manager 5.2.0. If you create an option set file, you can save it and include it with the application package, making your import operation reproducible and reducing errors. The import wizard provides four options for the option set:

- Browse: Browse to an existing option set file.

- New: Create an option set file.
- Configure: Configure import options manually. This option displays the import options, on the option set file, and lets you modify and save the modified import options (this option is only available if you select an options set file).
- Leave the Option set blank: The import uses the default import options.



## Import option set file



[Import the application assets](#)

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Figure 22-7. Import option set file

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>FileNet P8 asset deployment>Import options

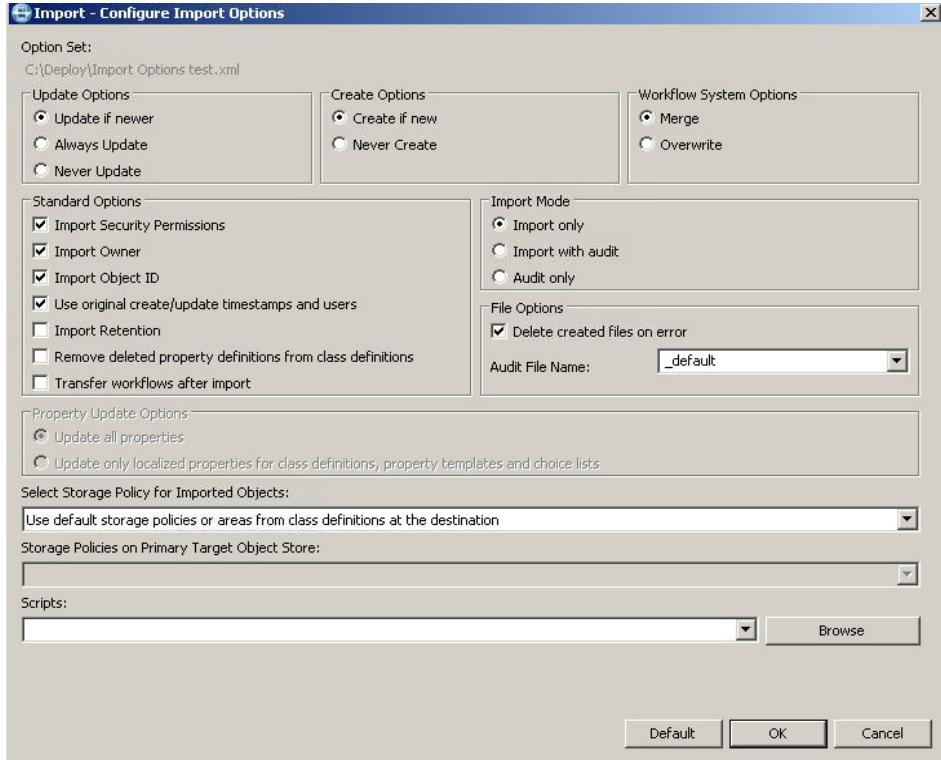
[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/import\\_options.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/import_options.htm)

Import options control how the converted objects are imported into the destination environment.

To set the import options you create or configure an option set file. The screen capture shows, an option set file and the options, New and Configure.



## Import options - defaults



Import the application assets

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Figure 22-8. Import options - defaults

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>FileNet P8 asset deployment>Import options

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/import\\_options.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/import_options.htm)

The screen capture shows all the import options that you can configure. The default import options are selected.

### Update Options and Create Options

- Selects the behavior you want to occur when the object to be imported exists in the destination object store.
- The Update Options work with the Create Options to determine how objects are handled.

### Workflow System Options

- Applies only to IBM Case Foundation applications or IBM Case Manager solutions that have custom workflows.

### Standard Options

- Import security permissions – retains object permissions from the source environment.
- Import Owner – retains the object owner information from the source environment.
- Import Object ID – If this option is not selected, the import process generates new object IDs in the destination environment. The option is generally selected, to ensure that object relationships are preserved.
- Use Original Create/Update Timestamps and Users – retains the source system property settings for the Creator, DateCreated, DateLastModified and LastModifier properties.
  - Requires the Modify certain system properties privilege on the destination object store.
  - Set by default.
  - If not set:
    - The date and time of the import operation are used for the DateCreated and DateLastModified properties.
    - The Creator and LastModifier properties are set to the user who is performing the import.
- Import Retention
  - If set, retain the retention date from the source object.
  - If not set, the FileNet P8 default setting for the retention date property is used.
- Remove deleted property definitions from class definitions
  - Select this option to remove property definitions from the updated class definitions in the destination environment that were deleted from the source environment class definitions.
- Transfer workflows after import
  - If set, a workflow definition, included in the objects to import, is automatically transferred in the destination environment after the import.
  - Referencing objects, such as workflow subscriptions, must be configured to use the current version of the workflow definition.
  - This option is used by IBM Case Foundation applications and IBM Case Manager solutions only.

## Import Mode

- Choose the type of import to run:
  - Import only – imports the objects into the destination environment and does not create an audit file.
  - Import with audit -- imports the objects into the destination environment and creates an audit file.
  - Audit only – simulates the import and creates an audit file. The destination environment is not modified.
- Select audit file options
  - Delete created files on error – if errors occur, the audit file is deleted.

- Audit File Name – specify an audit file name (The audit file is created in the destination environment's Assets folder).

#### **Property Update Options** – update all properties or only localized properties.

- Option is only available if Create Option > Never Create is selected.

#### **Select Storage Policy for Imported Objects**

- Options used to control the storage policies and location for imported content.
  - Use default storage policies or areas from the class definitions at the destination object store.
  - Use storage policies or areas from the imported objects.
  - Select a specific storage policy from the destination object store. This option activates the next option.

#### **Storage Policies on Primary Target Object Store**

- Select a storage policy to use in the destination object store.

#### **Scripts**

- Specify the scripts to run during the import.
  - Specify the type of script and the order to run the script.

For more information about each of the options, see the IBM Knowledge Center topic.

## Import options - guidelines

- Ensure that the user ID that runs the operation has sufficient privileges.
  - User ID specified in the FDM connection for the destination environment.
    - Needs sufficient privileges on the destination object store to complete all necessary actions during the import.
    - Optimally, specify an object store administrator.
  - Import option, ***Use Original Create/Update Timestamps and Users*** requires extra system privileges:  
***Modify certain system properties***

[Import the application assets](#)

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Figure 22-9. Import options - guidelines

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Migrating data with FileNet Deployment Manager>Data migration: Recommendations for import options

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8\\_pdb042.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8_pdb042.htm)

Before you run the import operation, ensure that the user ID that runs the operation has sufficient privileges. The user ID that is specified in the FileNet Deployment Manager connection for the destination environment must have sufficient privileges on the destination object store to complete all necessary actions during the import. Optimally, specify an object store administrator as the user in the connection information for the destination environment.

If the import option, Use Original Create/Update Timestamps and Users is selected, then modifications to Content Platform Engine system properties might occur. To modify system properties, the FileNet Deployment Manager import user must have the Modify certain system properties privilege on the destination object store. If the user does not have this privilege, the import operation fails.

## Simulate and audit the import

- Audit-only mode supported.
  - Simulated import that captures the audit file.
  - The audit file captures differences between:
    - The assets to be imported in the destination environment
    - Saved to:  
...\\<dest\_env>\\Assets\\<deploy\_data\_set.converted>\\<audit\_file\_name>
  - Generates an audit report from the audit file, which includes:
    - Objects in the deployment data set whose import causes changes in the destination environment.
    - Values for all scalar properties with before and after values when different.
    - IDs of all object-valued properties.

[Import the application assets](#)

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Figure 22-10. Simulate and audit the import

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets with FileNet Deployment Manager>FileNet P8 asset deployment>Importing converted objects>Audit changes to imported objects

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8\\_pdb036.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8_pdb036.htm)

The first time you run an import on the destination environment, it is a good idea to run a simulation of the import and capture the changes that will be made to the destination object store.

The FileNet Deployment Manager(FDM) import operation, supports an audit-only mode. In this mode, a simulated import is done, but no assets are created or updated and only the audit file is produced. The audit file is saved to the destination environment's converted deploy data set folder.

You can generate an audit report from the audit file.

**Note**

The audit changes to imported objects is a new feature introduced in FileNet Deployment Manager 5.2.1. Currently the audit report only captures information about Content Engine objects, not workflow system objects.



## Sample audit report

### Audit Report

#### Summary

Host Used to Create Audit Report: ECMEDU01  
 Date Audit Report was Created: Tue Aug 25 18:44:25 EDT 2015  
 Audit Option: Audit only  
 Audit/Import Performed On: Tue Aug 25 18:43:26 EDT 2015  
 Audit/Import Performed By: p8admin  
 Elapsed Time to Perform Audit/Import: 1078 msec  
 Report Location: C:\Deploy\Environments\DeployApp\_QA\Assets\App\_deploy\_isolated\_region\_objects\_converted\AuditReport.html  
 Deployment Data Set Used (Date Created): C:\Deploy\Environments\DeployApp\_QA\Assets\App\_deploy.converted (Tue Aug 25 18:31:21 EDT 2015)  
 Audit File Used (Date Created): C:\Deploy\Environments\DeployApp\_QA\Assets\App\_deploy.converted\import\_audit\_results.xau (Tue Aug 25 18:43:26 EDT 2015)  
 Destination Content Platform Engine: http://ecmedu01:9080/wsi/FNCEWS40MTOM  
 Destination Environment Audited: DeployApp\_QA

Deployment data set used

Destination Content Platform Engine URL  
 Destination environment name

#### Details

| <a href="#">Collapse All</a> <a href="#">Expand All</a> <a href="#">Print</a>                                    |  | Expand for more details |                |
|------------------------------------------------------------------------------------------------------------------|--|-------------------------|----------------|
| Name : ClassId : ObjectId : ObjectStore                                                                          |  |                         | Access Allowed |
| <a href="#">+</a> CustomerName : PropertyTemplateString : {55747A69-2C3F-4965-91BB-6C8C1A93C885} : LoanProcessQA |  |                         | 995587         |
| <a href="#">+</a> DownPayment : PropertyTemplateFloat64 : {F53E9796-DF6C-4035-AFE0-BAC6EA4DE201} : LoanProcessQA |  |                         | 995587         |
| <a href="#">+</a> LoanAmount : PropertyTemplateFloat64 : {EDF1E950-ABB5-4677-BDCB-3B915B7517F0} : LoanProcessQA  |  |                         | 995587         |
| <a href="#">+</a> LoanDate : PropertyTemplateDateTime : {C1C712F4-D094-4ABD-A34F-BBE5F59165C0} : LoanProcessQA   |  |                         | 995587         |
| <a href="#">+</a> LoanNumber : PropertyTemplateString : {9B3A219D-1F5E-4E93-9764-E3BEE68F7473} : LoanProcessQA   |  |                         | 995587         |
| <a href="#">+</a> TermList : ChainList : {AD0CF55B-C291-4105-BB92-FA0AA56423F0} : LoanProcessQA                  |  |                         | 995587         |

Import the application assets

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Figure 22-11. Sample audit report

The two screen captures show sections of a sample audit report. The upper section shows a summary, including:

- Outlined by upper left red rectangle
  - The host name of the client where the audit report was created.
  - The date the audit report was created.
  - The audit option: Audit only in this case.
  - When and by what user the audit was run.
  - The elapsed time during the import.
  - The deployment data set used (second red rectangle).
  - The destination Content Platform Engine URL (third red rectangle).
  - The destination environment name.
  - The import options selected.

The lower screen capture shows the **Details** section, which includes detailed information about every object that is imported or to be imported, depending on the import mode selected. Each plus sign can be expanded to see more details.

## Import other IBM and external assets

- Import other IBM assets and external assets required by the application.

Examples:

- IBM Content Navigator desktops
  - Use IBM Content Navigator administration tool to import
- Custom widgets
- Use appropriate tool to import the asset.



[Import the application assets](#)

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Figure 22-12. Import other IBM and external assets

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Deploying assets based on Content Platform Engine

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8\\_pdb010.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8_pdb010.htm)

Import any application assets that are not FileNet P8 assets. For example:

- IBM Content Navigator desktops – use the IBM Content Navigator administration tool to import and configure.



### Note

There is no option to map source to destination settings for IBM Content Navigator exports, depending on your environment, you might need to modify the configuration of the desktop after you import it in the destination environment

- Custom widgets

Use the appropriate tool to import the asset.

Follow the Migration and deployment instructions, provided by the Solution Builder, to import the asset into the destination environment.

## Complete additional system configuration tasks

- Complete any additional system configuration tasks required.
- Examples of server-level configuration tasks:
  - Setup of printers.
  - Creation of file system folders.
  - Installation of external web services used by the application.
  - Installation of additional software components integrated with the application.

Import the application assets

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Figure 22-13. Complete additional system configuration tasks

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>Completing additional system configuration tasks

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/p8pdb018.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/p8pdb018.htm)

When an application is migrated and deployed for the first time, extra steps that are not part of the migration and deployment steps might be required to complete the configuration within the destination environment. Also, when an application is redeployed, system configuration data might be overwritten during the redeployment process. The system configuration data that is overwritten might need to be specified again.

Complete any additional system configuration tasks that are required by the application.

The additional configuration tasks should be included in the Migration and deployment instructions.

## Verifying phase

- Verify imported assets in the destination environment.
- Test the application in the destination environment.
  - Steps are specific to the IBM FileNet Content Manager application.
  - Follow the steps in the Migration and deployment instructions.
- A sample of tests that might be run:
  - Access the user interface for the application.
  - Add a document of a specific class type, verify the property definitions.
  - Add a document of a specific class type and start a Document Approval workflow.

Import the application assets

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Figure 22-14. Verifying phase

Before releasing the system for testers or users, the migrated application should be tested to verify that all of its components are working correctly. The tests are specific to the environment and the application. The Migration and deployment instructions should include a plan for verifying the migrated application.

Verification steps:

1. Verify a subset of the imported assets in the destination environment. These should be included in the Migration and deployment instructions.
2. Test the migrated application in the destination environment.

## Unit summary

- Import the application assets into the destination environment.

Import the application assets

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Figure 22-15. Unit summary

## Exercise: Import the application assets into the destination environment.

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*Figure 22-16. Exercise: Import the application assets into the destination environment.*

## Exercise introduction

- Import the FileNet P8 assets.
- Import the Sales desktop.



Import the application assets

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Figure 22-17. Exercise introduction

In this exercise, you complete two activities:

- Import FileNet P8 assets. The procedures that you complete are:
  - Import the FileNet P8 assets into Sals\_UAT.
  - Troubleshoot a failed import.
  - Generate an audit report from an audit file.
  - Verify the imported FileNet P8 assets.
- Import the Sales desktop. The procedures that you complete are:
  - Import the Sales desktop with the IBM Content Navigation administration tool.
  - Configure the Sales desktop to work with the destination environment.
  - Test the desktop and validate the Sales Application.

---

# Unit 23. Automate FileNet P8 asset migration

## Estimated time

00:20

## Overview

In this unit you, learn how to use the FileNet Deployment Manager command line interface to script the migration of the FileNet P8 assets in a FileNet Content Manager application.

## How you will check your progress

Successfully complete the unit exercises.

## References

FileNet P8 Platform 5.2.1 Knowledge Center:

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

## Why is this lesson important to you?

- You need to use the FileNet Deployment Manager command line interface to script the migration of your IBM FileNet Content Manager application.

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Figure 23-1. Why is this lesson important to you?

## Unit objectives

- Automate FileNet P8 asset migration with the FileNet Deployment Manager command line interface.

Automate FileNet P8 asset migration

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*Figure 23-2. Unit objectives*

## FileNet Deployment Manager command line interface

- Supports scripting the migration of FileNet P8 assets.
  - Single program supports both the GUI and the command line interface.
    - The arguments specified determine the interface.
    - If no arguments are specified, the GUI is started.
- Supports all the operations that the GUI supports.
- To get the usage:
  - Windows: <FDM\_install\_path>\DeploymentManager.exe --help > help.txt
  - Windows: <FDM\_install\_path>\DeploymentManagerCMD.bat --help
    - Displays output in command prompt window
  - Linux: <FDM\_install\_path>\DeploymentManager --help

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Figure 23-3. *FileNet Deployment Manager command line interface*

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>The FileNet Deployment Manager tool>Use the command-line utilities

FileNet Deployment Manager supports both a graphical user (GUI) interface and command line interface. With the command line interface you can script the migration and deployment of FileNet P8 assets.

- A single program supports the GUI and the command line interfaces.
  - The arguments that are specified with the command determine which interface is started.
  - If no arguments are specified, then the GUI is started.

Both interfaces support the same operations.

The --help argument, displays the usage. The slide shows the command for Windows and Linux. There are two options for Windows.

- a. DeploymentManager.exe – does not write the output to the window, so you must redirect the output if you want to see it.
- b. DeploymentManagerCMD.bat – writes the output to the command prompt window.

## Deployment Operation command line syntax

- <FDM\_install\_path>\DeploymentManagerCMD.bat --operation *custom\_DeploymentOperation.xml* [-p password]
- *custom\_DeploymentOperation.xml* file
  - Includes xml tags that drive the operation
  - Sample of ConvertDeployDataSet operation.

```
<DeploymentOperation deploymentTreeLocation="C:\FDM-deploy" version="5.2.1">
 <ConvertDeployDataSet deleteDestinationFilesOnError="true" useStorageAreaMap="false" useStoragePolicyMap="false">
 <Pair>Sales_DevtoSales_UAT</Pair>
 <SourceDeployDataSet>C:\FDM-deploy\Environments\Sales_Dev\Assets\Sales-app-assets</SourceDeployDataSet>
 <ConvertedDeployDataSet>C:\FDM-deploy\Environments\Sales_UAT\Assets\Sales-app-assets.converted
 </ConvertedDeployDataSet>
</ConvertDeployDataSet>
</DeploymentOperation>
```

Automate FileNet P8 asset migration

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Figure 23-4. Deployment Operation command line syntax

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>The FileNet Deployment Manager tool>Use the command-line utilities>FileNet Deployment Manager command-line reference

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_mgr\\_command\\_line\\_ref.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_mgr_command_line_ref.htm)

The Deployment Operation command line syntax is the same for all the deployment operations:

- DeploymentManagerCMD.bat –operation *custom\_DeploymentOperation.xml* [-p password]

The *custom\_DeploymentOperation.xml* file, also called deployment operation file, is an xml file that contains tags that dictate what deployment operation is run.

The screen capture shows an example of a *custom\_DeploymentOperation.xml* that runs the ConvertDeployDataSet operation.

You can specify the password to use when retrieving information from, or sending information to the Content Platform Engine , with the –p option. Refer to the IBM Knowledge Center for a list of the operations that require a password.

## Deployment operations

- AnalyzeDeployDataSet
- CloneService
- ConvertDeployDataSet
- CreateDeployPackage
- CreateEnvironment
- CreateObjectStoreDataMap
- CreatePrincipalDataMap
- CreateServiceDataMap
- ExpandDeployPackage
- ExportDeployDataSet
- GenerateAuditReport
- ImportDeployDataSet
- ReassignObjectStore
- RetrieveObjectStoreInfoFromDeployData  
Set
- RetriveObjectStoreInfoFromDomain
- RetrievePrincipalInfoFromDeployDataSet

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*Figure 23-5. Deployment operations*

### Help path

FileNet P8 Platform 5.2.1>Migrating and deploying applications>The FileNet Deployment Manager tool>Use the command-line utilities>Deployment operation files

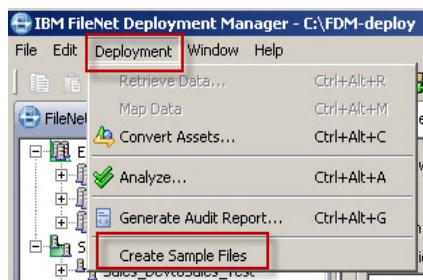
[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.deploy.doc/deploy\\_operation\\_formats.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.deploy.doc/deploy_operation_formats.htm)

The slide lists most of the deployment operations available. Each of the operations is an xml tag that you add to the deployment operations file.

## How to create a deployment operation file

- Two methods available:
  - Use the FDM GUI to create the *DeploymentOperation.xml*
    - Run the operation with the GUI
    - Save the DeploymentOperation.xml file created.
  - Use FDM to create sample files that you can edit.
    - Create samples from the GUI: Deployment > Create Sample Files
    - Use the –s or --samples option from the command line  
`<FDM_install_path>\DeploymentManagerCMD.bat --samples`

Graphical user interface



**Command line:**  
`<FDM_install_path>\DeploymentManagerCMD.bat --samples`

Figure 23-6. How to create a deployment operation file

FileNet Deployment Manager (FDM) provides two methods to create deployment operation files.

The easiest method is to run the deployment operation with the GUI interface.

When you are satisfied with the operation results, save the DeploymentOperation.xml file created. The file is located in a couple of locations:

- `<deployment tree>\Temp\Run.<Date&Time stamp> folder`
- `<deployment tree>\<environment>\Assets\<deploy_data_set>`
- `<deployment tree>\<destination environment>\Assets\<deploy_data_set.converted>`

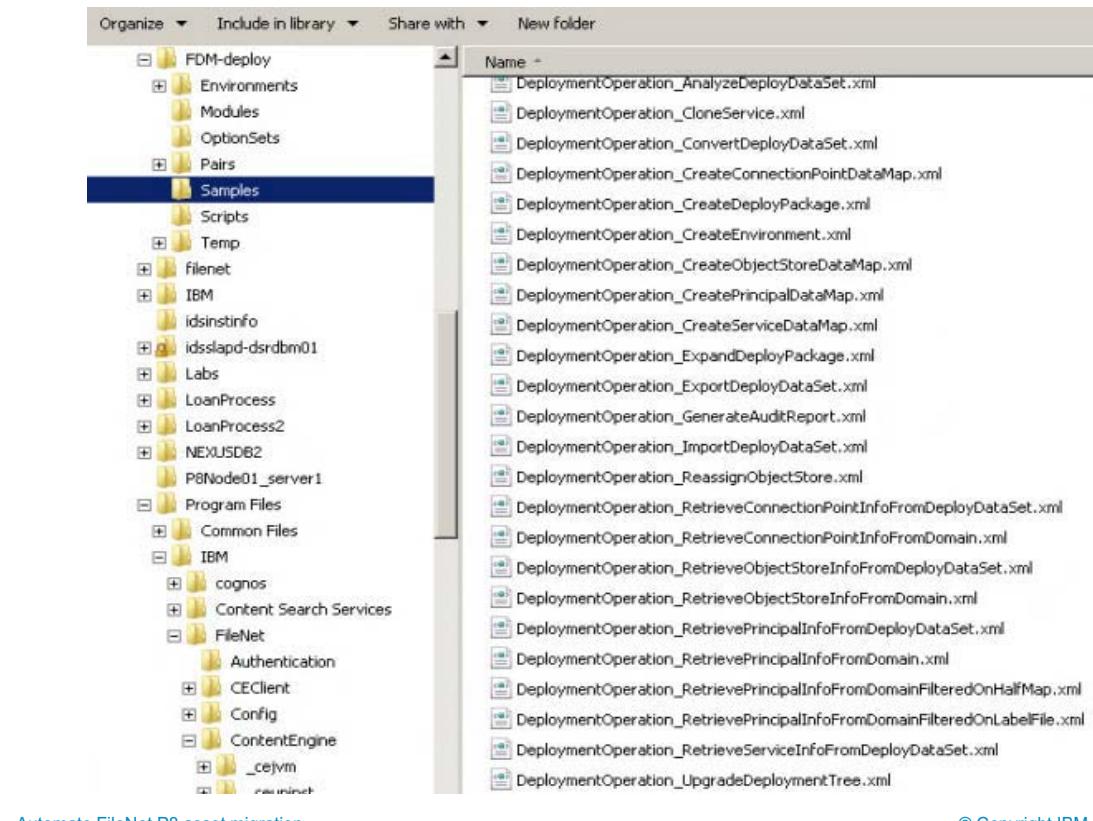
The other method is to have FDM create the sample files. A sample file for each operation is created. Copy and edit the file with configuration-specific information.

There are two ways to create the sample files:

1. Use the graphical user interface, Deployment > Create Sample Files (screen capture on the left).
2. Use the command line interface to create the sample files (text box on the right).

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## Sample files



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Figure 23-7. Sample files

The screen capture shows the sample deployment operation files created by FileNet Deployment Manager when you run the option to Create Sample Files.

## Guidelines

- Start by running the deployment operation with the GUI.
- When the deployment operation is running successfully:
  - Save the DeploymentOperation.xml file
  - Give it a name that identifies the deployment operation.
- Create a script that runs each deployment operation.

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Figure 23-8. Guidelines

## Unit summary

- Automate FileNet P8 asset migration with the FileNet Deployment Manager command line interface.

Automate FileNet P8 asset migration

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*Figure 23-9. Unit summary*

## Exercise: Automate deployment operations with FileNet Deployment Manager command line.

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*Figure 23-10. Exercise: Automate deployment operations with FileNet Deployment Manager command line.*

## Exercise introduction

- Run a change impact analysis.
- Expand a deploy package to a new environment.



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Figure 23-11. Exercise introduction

In this exercise, you run two deployment operations with the FileNet Deployment Manager command line interface:

- Run a change impact analysis.
  - You search for the deployment operation file that you created when you ran the change impact analysis in exercise 4.2.
  - You run the operation from a command prompt window.
  - You verify that the operation ran successfully.
  - You compare the deployment operation file, that you used, with the sample deployment operation file created by FileNet Deployment Manager.
- Expand a deploy package to a new environment.
  - You start with a sample deployment operation file.
  - You edit the deployment operation file.
  - You run the operation.

---

## Part 7. Manage Sweep Jobs

---

# Unit 24. Configure a sweep job

## Estimated time

00:35

## Overview

In this unit, you learn about the sweep management framework and how to configure a sweep job.

## How you will check your progress

Successfully complete the unit exercises.

## References

IBM Knowledge Center for FileNet P8 Platform 5.2.1

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

## Why is this lesson important to you?

- As an Administrator, you manage objects in a FileNet Content Manager repository by monitoring and controlling object activity. For example, you might need to move content for large numbers of documents and annotations from a primary storage area to another storage area. You use a bulk move content job to complete the task.

[Configure a sweep job](#)

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Figure 24-1. Why is this lesson important to you?

## Unit objectives

- Move documents from one storage area to another with a Bulk Move Content job.

[Configure a sweep job](#)

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*Figure 24-2. Unit objectives*

## Sweep Framework

- The Sweep Framework provides a mechanism for examining large sets of objects and applying one or more operations to a user-defined subset.

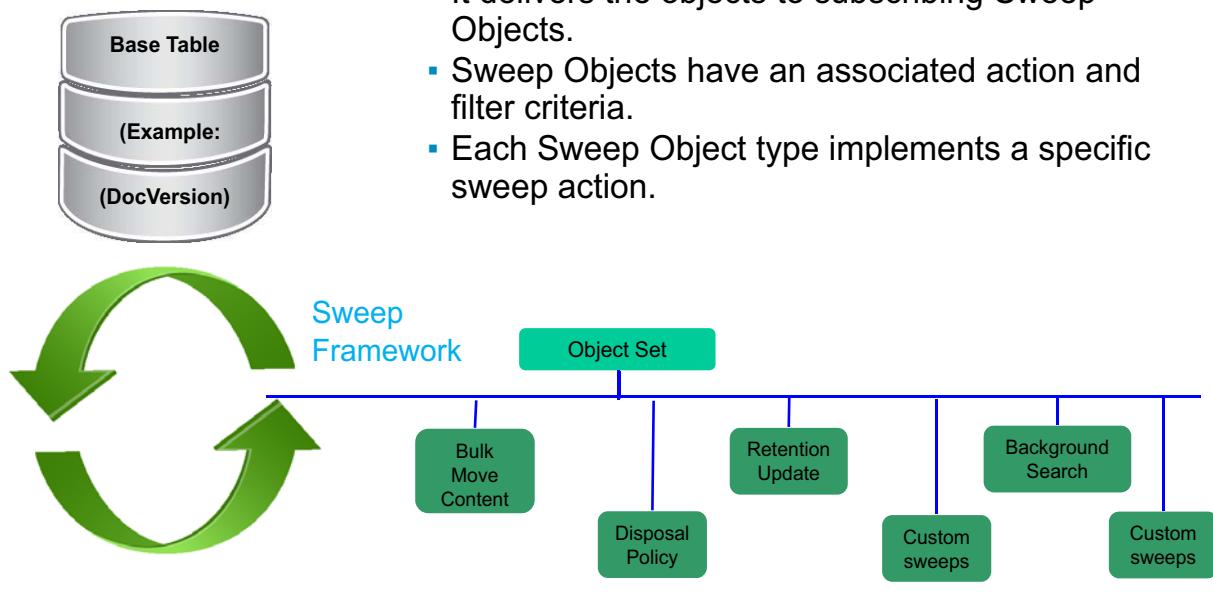


Figure 24-3. Sweep Framework

The diagram shows the Sweep Framework.

The Sweep Framework is a Content Platform Engine subsystem that provides a mechanism for efficiently examining large sets of objects and applying one or more operations to a user-defined subset. This process is called 'Sweeping'.

The Sweep Framework delivers batches of objects that are members of some target class to subscribing Sweep Objects.

Sweep Objects have an associated action and filter criteria that is applied to each object in the batch to determine whether the action should be applied.

Each Sweep Object type implements a specific sweep action.

## Sweep framework services

- Scalability
  - Horizontal scaling
    - Increase the number of server instances.
  - Vertical scaling
    - Increase the number of worker threads that are dedicated to sweep processing.
- Load management
  - Vary the allocation of server resources to sweeping.
- Scheduling
  - You can schedule Sweeps to run on specific days of the week and at specific times of the day.
- Provides:
  - The ability to halt and resume execution without losing context.
  - Failure recovery
  - Error logging and auditing
  - Performance monitoring

[Configure a sweep job](#)

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Figure 24-4. Sweep framework services

## What is a 'Sweep'?

- A user initiated background process.
  - Scans/examines (sweeps) a large set of objects once or multiple times.
  - Selects the objects that satisfy a rule/predicate.
  - Applies an action to each matching object.
- The Filter Expression property defines the rule/predicate.
- The action applied can be built in or custom.
  - Built in, system sweeps - the sweep type defines the action.
  - Custom sweeps - have a user defined the action.
- Much like running a query, iterating through the results and acting on each.

[Configure a sweep job](#)

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Figure 24-5. What is a 'Sweep'?

### Help path

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc175.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc175.htm)

A sweep is a process that scans or sweeps through a set of objects (candidate objects) picking out the objects that meet a particular condition then doing something to those objects.

For system sweeps, the sweep type defines the action.

For custom sweeps, the action is user-defined. The custom action requires a Java class or JavaScript.

A sweep is like running a query, iterating through the results, and running an action on each.

## Types of sweeps

- Background search sweeps
- Job sweeps
- Sweep policies
- Queue sweeps
- Custom sweeps
  - Sweep Actions



[Configure a sweep job](#)

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Figure 24-6. Types of sweeps

### Help path

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweep>Sweep types

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc176.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc176.htm)

Five types of sweeps:

- Background search sweeps – a background search sweep runs one time to run a query that generates search results.
- Job sweeps – a job sweep runs one time to process instances of a target class.
- Sweep policies – a sweep policy is an object that specifies processing rules for a policy-controlled sweep. A policy-controlled sweep repeatedly visits all instances of a target class that is specified in the policy.
- Queue sweeps – queue sweeps provide a generic queuing service. They are especially useful in controlling the flow of work to a slow or resource-intensive process.
- Custom sweeps – custom sweeps process objects with user-implemented actions.

The screen capture shows the Sweep Management node in the Administration Console for Content Platform Engine.

Sweep Actions, are used to define the actions for custom sweeps.



## Background search sweeps

The screenshot illustrates the steps to start a background search sweep:

- OOTB templates:** A tree view shows various document usage templates under the Sales category.
- Start background search sweep:** A context menu is open over the "Document Usage By User" template, with the "Start" option highlighted.
- After the background search is started, you see the sweep job listed under Background Search Sweeps.**
- Sweep Management:** A list of sweep jobs is shown, with the newly created "Space per user" job highlighted.
- Space per user Sweep Details:** A detailed view of the sweep job, showing its ID, content size, creation date, and last modified date.

Configure a sweep job

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Figure 24-7. Background search sweeps

### Help path

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Sweep types>Background search sweeps

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc457.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc457.htm)

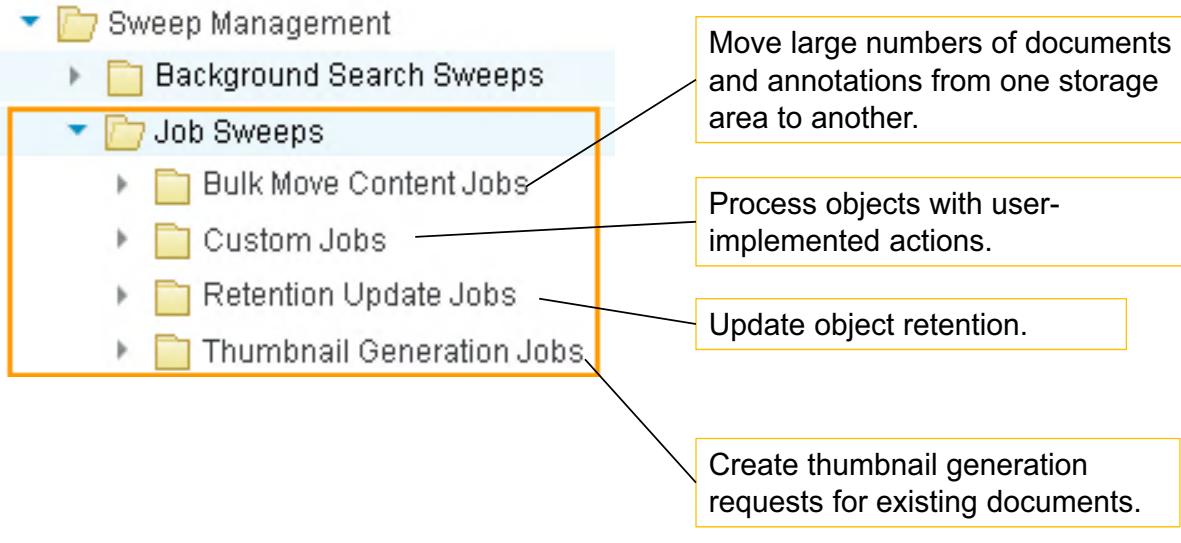
A background search sweep runs one time and generates search results. Background search sweeps are used for large queries that can take a long time to run. For example, creating reports on system usage. You can proceed with other activities while the background search runs. In addition, background searches are an essential part of the reporting framework that enables processing of search results. The reporting framework can be enhanced by installing the Reporting Enablement Extensions add-on.

The system provides a set of background search class templates. You can create your own custom search class template.

To start a background search sweep, right-click the template and select Start. (Screen capture on the left).

When you finish the wizard, the background search sweep is listed under the Sweep Management > Background Search Sweeps node (screen capture on the middle right). To view the search results, you open the search sweep, for example, Space per user, and click the Search Results tab (screen capture on the bottom). In addition to background search sweeps, sweep results are collected when the sweep mode is set to preview or when the option to record failures is set.

## Job sweeps



[Configure a sweep job](#)

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Figure 24-8. Job Sweeps

### Help paths

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Sweep types>Job Sweeps

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc430.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc430.htm)

FileNet P8 Platform 5.2.3 (Main)>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Creating sweeps>Moving content

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc172.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc172.htm)

FileNet P8 Platform 5.2.3 (Main)>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Creating sweeps>Updating object retention

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc133.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc133.htm)

FileNet P8 Platform 5.2.3 (Main)>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Creating sweeps>Generating thumbnails

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc186.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc186.htm)

The Content Platform Engine includes job sweep subclasses with built-in actions.

- Bulk Move Content Jobs – Move large numbers of documents and annotation from one storage area to another.
- Retention Update Jobs – Change the retention period of an object based on the class of an object or the state of its properties.
- Thumbnail Generation Jobs – Create thumbnail generation requests for existing documents. The Content Platform Engine includes a thumbnail generation service, the thumbnail generation sweep job creates requests to the thumbnail generation service to render the thumbnail images.

Custom jobs – Process objects in ways that are not built into the server. Requires that you define a custom action. The action requires a developer to write an action handler.

Jobs sweeps have a definite start and end:

- It starts when the first candidate object is examined.
- It ends when each candidate object is examined exactly one time.
- A sweep job cannot be restarted after it ends.
  - You can clone the original instance and run the new instance.

## Why use a bulk move content job

- Reasons for bulk move:
  - Retire an obsolete storage device by moving all the content to a replacement device.
  - Archive content by moving it from a primary storage device to an archival device or lower-cost storage.
  - Move content to fixed storage to satisfy regulatory requirements.

Bulk Move Content Job: MyBulkMove

General	Properties	Security	Sweep Results
A bulk move content job initiates a one-time sweep that moves documents and annotations that meet the following criteria to another. It is useful for tasks such as archiving content to an archival or fixed storage device, retiring content, and realigning storage among multiple storage areas.			
Status:	<input checked="" type="checkbox"/> Enable bulk move content job <a href="#">?</a> MyBulkMove		
* Display name:	<a href="#">?</a> MyBulkMove		
Description:	<a href="#">?</a> MyBulkMove		
Target class:	<a href="#">?</a> PriceQuote		
Filter expression:	<a href="#">?</a> DateCreated < NOW() - TimeSpan(2, 'Days')		

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Figure 24-9. Why use a bulk move content job

### Help path

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Creating sweeps>Moving content

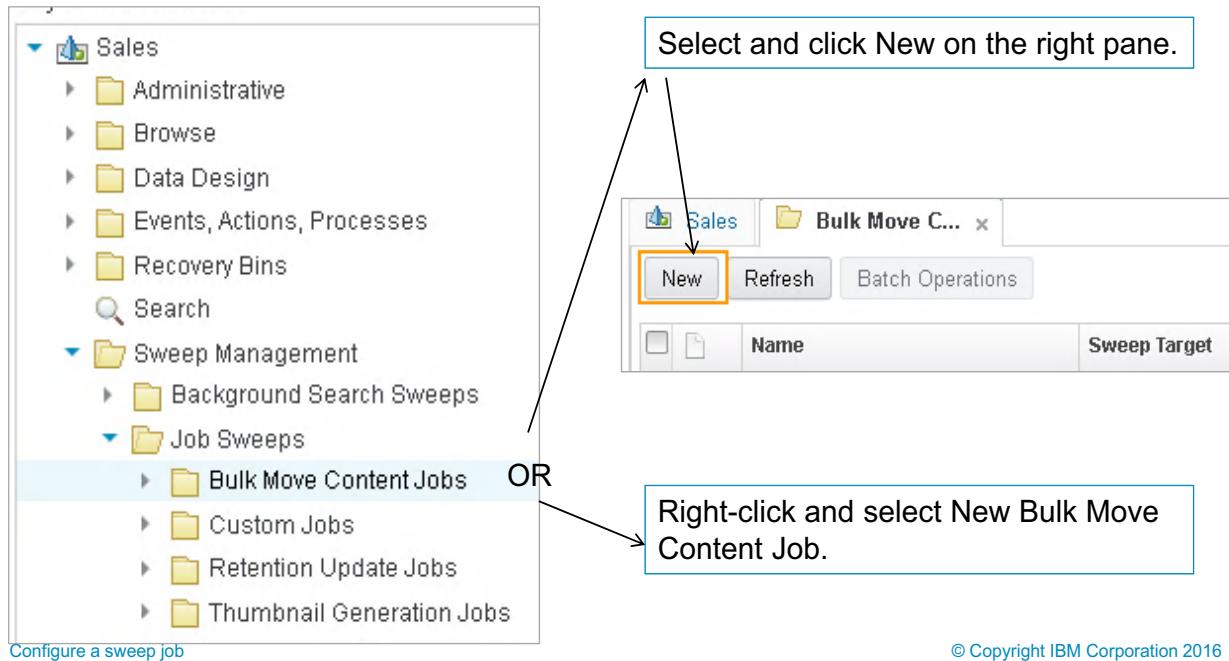
[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc172.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc172.htm)

The Target Class, and Filter Expression determine the affected documents (or annotations).

Target Class must point to a Document or Annotation class or a subclass of either.

## Create a bulk move content job

- Use the Content Platform Engine Administration Console to create sweep jobs.



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Figure 24-10. Create a bulk move content job

You use the Content Platform Engine Administration Console (ACCE) to create a sweep job. The screen captures show how to create a Bulk Move Content Job.

The screen capture on the left shows the navigation pane for ACCE, open to the Sales object store.

To create a new sweep job, either:

- Select the sweep job node and click New on the sweep job pane that is displayed on the right, or
- Right-click the sweep job node, and select New <sweep job type>.

## Properties of bulk move content jobs

- The target class
  - Determines the type of object you want to move.
  - Example: Document class or Annotation class.
- Filter Expression
  - Narrows the scope to include only objects that meet specific criteria.
- Sweep mode
  - Normal
  - Preview
  - Preview counters only
- Storage Policy
- Options
  - Include subclasses
  - End replication after move (Image Services only)
  - Record failures
- Start and end times
  - Effective start – if not set job starts immediately
  - Effective end – Date and time when job must end.

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Figure 24-11. Properties of bulk move content jobs

### Help path

FileNet P8 Platform 5.2.3 (Main)>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Sweep types>Job sweeps

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc430.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc430.htm)

Sweep jobs have a set of properties that you configure when you create them. The set of properties for the different types of sweep jobs are similar. The important properties that are listed, are for a Bulk Move Content job.

Before you create a bulk move content job, you must know:

- What objects do you need to move?
- Where do you need to move the objects?
- When do you need to move the objects?

### Target Class

- Must be a searchable class.
  - Searchable means that it can be used in a 'FROM' clause of a query.

- The scope can include instances of subclasses.

### Filter Expression

## Filter expression property

- Criteria to filter the candidate of objects defined by the target class.
- Expression that uses properties and values.
- Syntax similar to Where clause of an SQL query.
- Examples of filter expressions:
  - All superseded documents: `VersionStatus = 4`
  - All documents that were created at least a year ago:  
`DateCreated < NOW() - TimeSpan(365, 'Days')`
  - All content in a specific storage area:  
`StorageArea = OBJECT('{5E2BE09A-F4B1-49E2-A229-77FE32E5F0F1}')`
  - The result of a complex logical expression:  
`VersionStatus = 4 AND DateCreated < NOW() - TimeSpan(365, 'Days') AND ContentSize >(1024 * 1024 * 500)`



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Figure 24-12. Filter expression property

### Help path

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Administering>Administering Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Sweep filter conditions

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc178.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc178.htm)

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Developing FileNet P8 applications>Content Engine Development>Content Engine Java and .NET Developer's Guide>Reference>SQL Syntax Reference>Query Syntax

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.dev.ce.doc/query\\_sql\\_syntax\\_ref.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.dev.ce.doc/query_sql_syntax_ref.htm)

The filter expression can use any property of the Target Class. For example: If the document has a property that is called color and it has values red and green. You can create a filter expression for this property: `color = 'green'`

You can specify a filter expression for all the system sweep jobs.

The slide lists examples of filter expressions that might be used in a Bulk Content Move job.

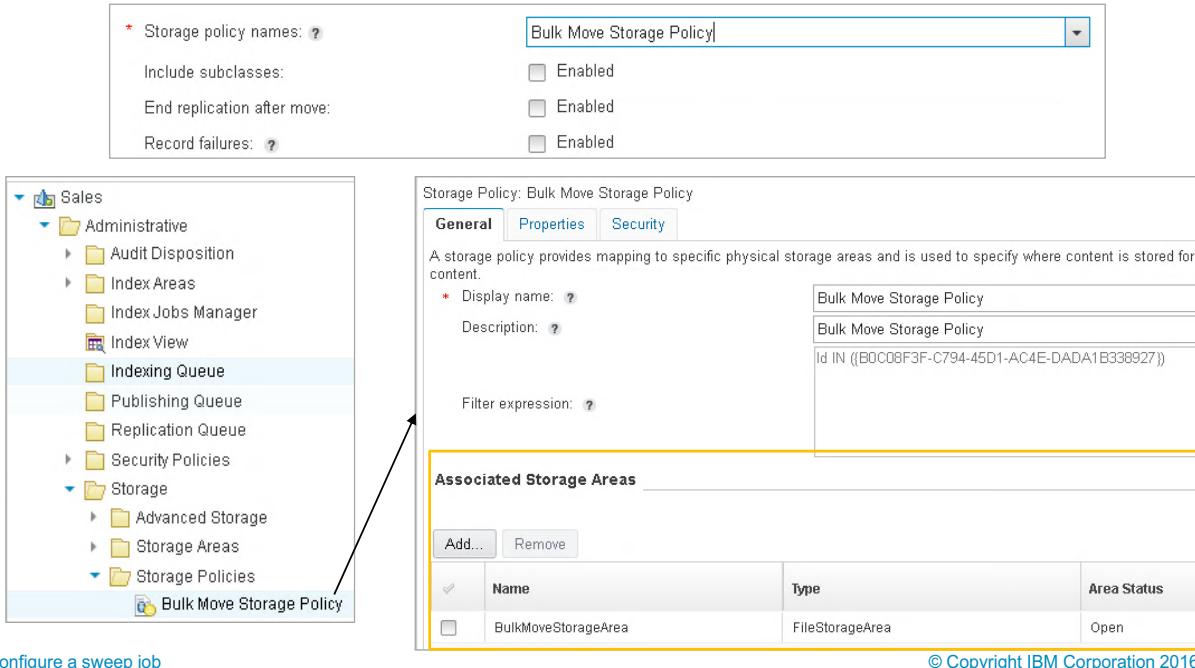
The screen capture shows a section of the define sweep targets wizard. For a Bulk Move Content Job, the default target class is Document. Notice that the Filter expression is not a required valued.

After the bulk move job is completed, you can use the properties and values, which are used in the filter expression, to run a search and verify that the content is moved. You can check the properties of the objects in the search results to view the current storage area.

The filter expressions are the same as the filter expressions used by subscriptions and audit definitions.

## Storage policy property

- Storage policy determines the destination storage for the moved content.
- Storage policy must be predefined.
  - Administrative node of Administration Console



Configure a sweep job

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Figure 24-13. Storage policy property

### Help path

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the repository infrastructure>Storing content>Assigning document content to a storage area>Storage policies

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/contentstores/cs\\_stp\\_about\\_storage\\_policies.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/contentstores/cs_stp_about_storage_policies.htm)

The storage policy name is selected from a list of predefined storage policies (screen capture on the top).

A storage policy is defined in the Content Platform Engine administration console, under Administrative > Storage > Storage Policies (screen capture on the lower left).

The screen capture on the lower right, shows the general properties for the storage policy, Bulk Move Storage Policy. Note the Associated Storage Areas section. Only one storage area is associated and it is a file storage area.

A storage policy can:

- Include fixed storage areas.
- Control multiple storage areas.

- One open storage area is chosen at random to move the content at the time of the sweep job.
- If content, for an object to be moved, exists in one of the storage areas that are referenced by the storage policy, the content is not moved, and the Processed Object Count property is not incremented.

## Define sweep target options

- Include subclasses
  - Enabled – include subclasses of the target class for the source of objects.
- End replication after move
  - Enable/disable replication on a document and its annotations after the content is moved to the destination storage area (Move content jobs only)
- Record failures
  - Enabled – record any failures during the content move.

	Source Object	Date Created	Type	Iteration	Description
<input type="checkbox"/>	{CC1F3B2C-62E5-CEFB-8465-491ACBA00000}	2014-10-16T23:37:01.317Z	Failed	1	Invalid node type: "TIMESPAN". The TimeSpan function is not valid in its present location. TimeSpan cannot be the first or only function in an expression or parenthesized alone with other TimeSpan functions.
<input type="checkbox"/>	{CC1F3B2C-62E5-CEFB-8465-491ACBA00000}	2014-10-16T23:27:01.270Z	Failed	0	Invalid node type: "TIMESPAN". The TimeSpan function is not valid in its present location. TimeSpan cannot be the first or only function in an expression or parenthesized alone with other TimeSpan functions.

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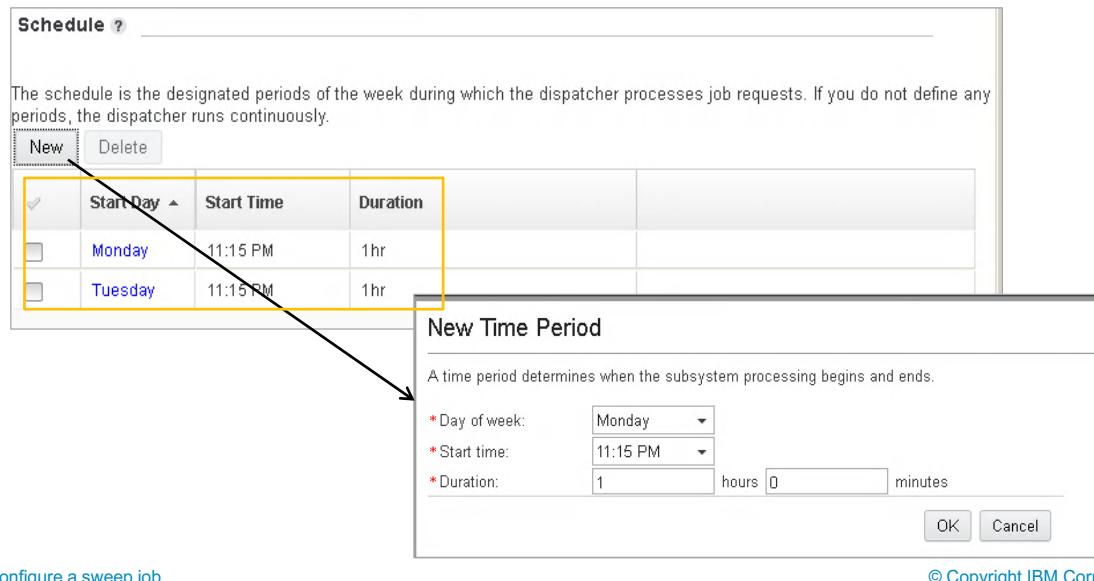
Figure 24-14. Define sweep target options

Options that you can specify for sweep jobs:

- Include subclasses
  - Enabled - target class and subclasses are examined for objects to act upon.
- End replication after move – applies to Bulk Move Content jobs only that are federating content from Image Services and is ignored otherwise.
  - Enabled – End the federation relationship with replicas that are stored in an Image Services repository
- Record failures
  - Enabled - record any failures that occur during execution of the sweep.
  - The failures are displayed in the sweep results as shown in the screen capture. You see the type that is listed as Failed. The details of the cause of the failure are included in the Description column.

## Schedule sweep runs

- Schedule a sweep to run within one or more time slots.
- Sweep is paused between time slots.
- Effective way to break up large jobs and run them during non-peak hours.



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Figure 24-15. Schedule sweep runs

### Help path

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Time slot scheduling

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc179.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc179.htm)

A sweep can be scheduled to run within one or more time slots. A single time slot specifies the day of the week, the start time, and the duration that the sweep runs.

A sweep is effectively paused between time slots.

- For example, suppose that the expiration of the current time slot stops a sweep mid-way through processing a set of items. When the sweep runs in its next time slot, it resumes from where it previously stopped.

For run-once sweep jobs that process small database tables, time slots have marginal utility.

For large jobs, configuring time slots can be beneficial.

- For example, say that you want to update the retention date on a Document subclass that consists of several thousands of instances. You can configure a sweep job to run during

non-peak hours, such as every day of the week between Midnight and 2 AM. The job runs in only those time slots until it completes processing.

You can configure time slots for the sweep subsystem at the server hierarchy level (domain, site, virtual server, or server instance). This global configuration impacts all of the sweeps within that hierarchy. You can also configure time slots for individual sweeps, which override the time slot configuration in the sweep subsystem.

To schedule time slots for a sweep job. First, create the sweep job and specify the effective start date. Edit the sweep job. In the General tab, under the **Schedule** section at the bottom, click New (upper screen capture). The **New Time Period** window displays. The lower screen capture, shows a time slot that is configured for Monday at 11:15 PM, with a 1-hour duration. The orange high-light box in the upper screen capture, shows two time slots configured.

## Sweep job monitoring tools

Sweep start date:	<a href="#">?</a>	July 21, 2016 at 7:57:58 PM Eastern Standard Time
Sweep end date:	<a href="#">?</a>	July 21, 2016 at 7:57:58 PM Eastern Standard Time
Effective start date:	<a href="#">?</a>	July 21, 2016 at 7:55:00 PM Eastern Standard Time
Effective end date:	<a href="#">?</a>	July 22, 2016 at 12:00:00 AM Eastern Standard Time
Examined object count:	<a href="#">?</a>	4
Processed object count:	<a href="#">?</a>	4
Failed object count:	<a href="#">?</a>	0

- Other monitoring tools:
  - Standard counters for
    - IBM System Dashboard for Enterprise Content Management
  - Audit logging

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Figure 24-16. Sweep job monitoring tools

Sweep jobs include the following monitoring properties:

- Sweep start date – the system date and time when the sweep job started.
- Sweep end date – the system date and time when the sweep job completed.
- Examined object count – The objects examined (objects that belong to the target class).
- Processed object count – The objects processed (objects that satisfy the filter expression).
- Failed object count – the objects that failed to process.

## Instructor demonstration

- Configure a background search.



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Figure 24-17. Instructor demonstration

Configure background search and create reports and charts to show the results.

Play the prerecorded demonstration. To do a live demonstration, requires many preexisting documents on the system.

<http://ibm.biz/BdrgFu>



### Information

The demonstration is also available on YouTube,  
<https://www.youtube.com/watch?v=OBS7YIBodVo>

## Unit summary

- Move documents from one storage area to another with a Bulk Move Content job.

[Configure a sweep job](#)

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*Figure 24-18. Unit summary*

## Exercise: Configure a sweep job

Configure a sweep job

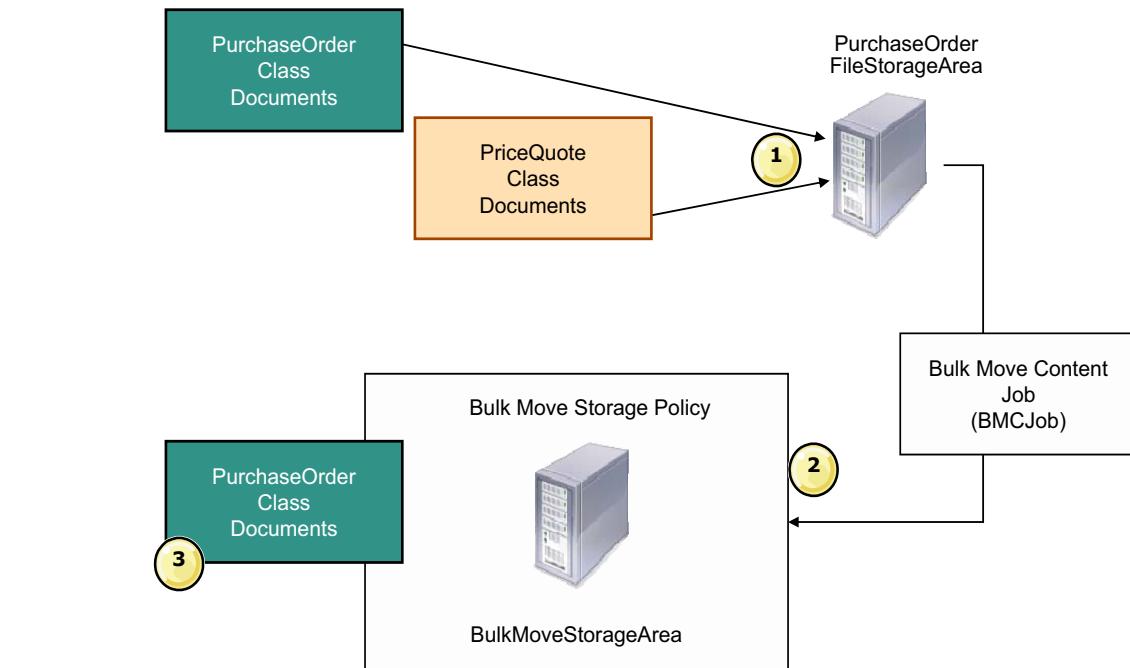
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Figure 24-19. Exercise: Configure a sweep job

## Exercise introduction



- Move documents from one storage area to another with a Bulk Move Content Job.



Configure a sweep job

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Figure 24-20. Exercise introduction

This exercise contains two activities in. Both involve configuring a bulk move content job.

- Activity 1.1, includes step-by-step instructions.
- Activity 1.2, is a challenge with high-level instructions to give the student the opportunity to practice the skills learned.

The diagram shows the different Content Platform Engine objects that are used in the activity, Bulk move content job.

- The content of documents that belong to the document classes, PurchaseOrder and PriceQuote, are stored in the storage area, PurchaseOrderFileStorageArea.
- You specify the Bulk Move Storage Policy as the destination for the Bulk Move Content Job.
  - When the Bulk Move Content Job runs, it moves the content from the source storage area, PurchaseOrderFileStorageArea, to the destination storage area that is defined in the Bulk Move Storage Policy, BulkMoveStorageArea.
- You define the Target class as PurchaseOrder. Only the documents that belong to the class, PurchaseOrder, are moved, even though the PurchaseOrderFileStorageArea contains two different types of documents.

---

# Unit 25. Work with sweep policies

## Estimated time

00:40

## Overview

In this unit, you learn about sweep policies and how to create a disposal policy.

## How you will check your progress

Successfully complete the unit exercises.

## References

IBM Knowledge Center for FileNet P8 Platform 5.2.1

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

## Why is this lesson important to you?

- As an administrator, you need to maintain the FileNet Content Manager repositories. You need to configure sweep policies to automatically:
  - Delete documents based on specified criteria.
  - Move content from high-cost storage to low-cost based on specified criteria.

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Figure 25-1. Why is this lesson important to you?

## Unit objectives

- Create a disposal policy.
- Create a content migration policy.

Work with sweep policies

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Figure 25-2. Unit objectives

## Sweep policy

- Object that defines target classes, filter condition, and the action to be applied.
- The Content Platform Engine includes several sweep policies with built-in actions.

The screenshot shows the IBM Content Platform Administration Console interface. On the left, there is a navigation tree with the following structure:

- Sweep Policies
  - Content Migration Policies
  - Custom Policies
  - Disposal Policies
  - Retention Update Policies

To the right of the tree, a detailed view of a specific sweep policy is shown. The title bar says "Disposal Policy: MyDisposalPolicy". Below it, there are tabs for General, Properties, Security, and Sweep Results. The General tab is selected. The content area contains the following fields:

- Status:  Enable disposal policy
- \* Display Name: MyDisposalPolicy
- Description: MyDisposalPolicy
- Target class: PriceQuote
- Policy controlled sweep: Document
- Filter expression: StorageArea = OBJECT({D2C01D30-5042-4597-947E-BB15B4ECE4A8})
- \* Sweep mode: Normal
  - Include subclasses
- Number of sweep iterations with result records to retain: 10

At the bottom left of the main window, there is a link "Work with sweep policies". At the bottom right, there is a copyright notice: "© Copyright IBM Corporation 2016".

Figure 25-3. Sweep policy

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Sweep types>Sweep policies

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc432.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc432.htm)

A sweep policy object, defines the target classes, the filter condition, and the action to be applied.

The Content Platform Engine includes several sweep policies with built-in actions. The screen capture on the upper right, shows the Sweep Policies node in the Administration Console and the four types of sweep policies:

- Content Migration Policies
- Custom Policies
- Disposal Policies
- Retention Update Policies

The lower screen capture, shows a disposal policy, opened to the General tab.

A sweep policy runs continuously, one iteration after another. A delay period between iterations can be configured and an end time for the sweep to stop running.

### **Sweep Policy has Sweep Results**

Policy-controlled sweeps run multiple iterations. Sweep Policies have a property, Number of sweep iterations with result records to retain that determines how long sweep results are kept until the system automatically deletes them (highlighted orange rectangle in lower screen capture).

## Policy-controlled sweep

- Policy-controlled sweep
  - Repeatedly examines all instances of a target class that is specified in the policy.
  - Have a definite start and indefinite completion.
    - Continue to run until they are either disabled or deleted.
  - Related to one or more sweep policies.
  - Indirectly created by creating a sweep policy.
  - Useful for running operations triggered by calendar-based events.
    - Automatically dispose of objects when their retention expires.

Policy-Controlled Sweep: Document

<b>General</b>	Properties	Security	Subscribers
----------------	------------	----------	-------------

A policy-controlled sweep is optimized for processing a large set of objects. It runs on a recurring schedule and can evaluate multiple rules. These characteristics make policy-controlled sweeps useful for processing recurring business events that are based on object age, such as disposal and retention.

[Work with sweep policies](#)

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Figure 25-4. Policy-controlled sweep

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Sweep types>Sweep policies

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc432.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc432.htm)

The policy-controlled sweep object, is what controls the actual scan and where timeslots for scheduled operation are applied.

A policy-controlled sweep runs at the start time for which it is configured. If a start time is not set, then the sweep is eligible to start immediately.

A sweep policy and the policy-controlled sweep are two separate objects. A third object, a sweep relationship, defines an association between a sweep policy and a policy-controlled sweep. In the relationship, the sweep policy is a subscriber to the policy-controlled sweep. A single policy-controlled sweep can be subscribed to by more than one sweep policy.

## Disposal policy

- Used to delete objects of a specified class that satisfies specified criteria.
  - Criteria can include the state of a property, such as the age of a document.
- Applies security differently than other sweeps.

**Define Sweep Targets**

Specify the criteria and rules that identify the objects that must be deleted from this object store.

* Target class: <input type="text"/>	<input type="button" value="Paste Object"/>
Filter expression: <input type="text"/>	
Include subclasses: <input type="checkbox"/>	<input checked="" type="checkbox"/> Enabled
* Number of sweep iterations with result records to retain: <input type="text" value="10"/>	

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Figure 25-5. Disposal policy

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Creating sweeps>Deleting objects with a sweep

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc167.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc167.htm)

A disposal policy is used to delete objects of a specified class that satisfy the specified criteria. The criteria can include the state of a property, such as the age of a document.

The disposal policy applies security differently than other sweeps.

- The disposal policy creator needs WRITE\_ANY\_OWNER permission on the object store.

A disposal policy contains the following details:

- Target class (required)
  - Class or type of the objects that you want to delete.
- A filter expression
- Whether to include subclasses of the target class in the list of objects to examine.

- The number of sweep iterations with result records to keep (required). By default 10 sweep iterations are kept.

The screen capture shows, the Define Sweep Targets window of the wizard when you add a disposal policy.

## Disposal policy examples

- Example 1: Delete superseded minor versions
  - Target class: Document (or Document subclass)
  - Filter expression: MinorVersionNumber > 0 AND IsCurrentVersion=False AND DateLastModified + TimeSpan(30,'days') < Now()
- Example 2: Delete temporary folders that no longer have any contents
  - Target class: TemporaryFolder
  - Filter expression: Containees IS NULL AND SubFolders IS NULL AND DateCreated + TimeSpan(24,'hours') < Now()

Work with sweep policies

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Figure 25-6. Disposal policy examples

Example 1: Delete superseded minor versions after 30 days from last modification, keeping only the latest version, and any older major versions.

Example 2: Imagine an application that creates temporary folders, which are used as transient containers for documents or subfolders that are later moved to a permanent location. This disposal policy removes the temporary folders that are empty after 24 hours.

## Content migration policy

- Used to configure an object store to automatically move content from one storage area to another.
  - Based on age, most recent access, or other business criteria.
- Typical use cases:
  - Implement a simple hierarchical storage scheme where content is moved between high-cost and low-cost storage media based on age or frequency of access.
  - Automatically move content to a fixed storage device for regulatory purposes based on business events.
  - Incrementally move federated content from a third-party repository into a FileNet P8 storage area.

**Enter Sweep Criteria**  
Enter criteria for selecting the objects that are to be moved to another storage area.

\* Target class:  Paste Object  
 Filter expression:   
 Storage policy names:  Bulk Move Storage Policy  
 Include subclasses:  Enabled  
 End replication after move:  Enabled  
 Result retention:  sweep iterations

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Figure 25-7. Content migration policy

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Creating sweeps>Moving content>Creating a sweep policy

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc185.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc185.htm)

A content migration policy is used by an administrator to configure an object store to automatically move content from one storage area to another based on age, most recent access, or other business criteria. This feature was introduced in the 5.2.1 release.

Typical use cases for content migration policies:

- Implement simple hierarchical storage scheme where content is moved between high-cost and low-cost storage media based on age or frequency of access.
- Automatically move content to a fixed storage device for regulatory purposes based on business events.
- Incrementally move federated content from a third-party repository into a FileNet P8 storage area.

A content migration policy contains the same properties as a disposal policy plus one option, End replication after move, highlighted in the screen capture.

The option, end replication after move, is a Boolean property that applies when you are federating content from Image Services and is ignored otherwise. When set, it causes to end the federation relationship with replicas that are stored in an Image Service repository.

## Retention update policy

- Used to update retention dates
- Can set the retention date to:
  - A specific value
  - Value relative to date-valued property
    - Normally relative to existing Retention Date value or Date Created or Date Last Modified
- Requires MODIFY\_RETENTION rights on the object store
- Example use case:
  - Release retention on unimportant documents
    - All incoming documents are given Indefinite retention.
    - Manual “classification” identifies important documents and sets specific retention.
    - After 30 days, any remaining unclassified documents are released from retention.

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Figure 25-8. Retention update policy

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Creating sweeps>Updating object retention

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc133.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc133.htm)

The Retention Update Policy can cause the retention date on the selected objects to be set to:

- A specific value, including the special Indefinite and Permanent values.
- A value relative to the value of a date-time property on the selected objects.

Creating a retention update sweep, requires that you have MODIFY\_RETENTION rights on the object store.

Example use case:

Suppose that by default all incoming documents are given indefinite retention so they cannot be deleted until a determination is made of their importance. The idea is that some manual process classifies the documents. For the documents that matter, set a specific retention period for them.

Documents that are not classified after 30 days (not important), are released from retention by setting the retention date to a value before the current date and time.

## Define time slots for sweep policies

- Cannot configure time slots directly on sweep policies.
- Configure time slots in the policy-controlled sweeps to which the sweep policies subscribe.

The screenshot shows the 'Policy-Controlled Sweep: Document' configuration interface. The 'General' tab is selected. A summary section indicates that a policy-controlled sweep is optimized for processing a large set of objects, running on a recurring schedule and evaluating multiple rules. It notes that sweeps are useful for processing recurring business events based on object age, such as disposal and retention. The 'Target class' is set to 'Document', and it has completed 366 iterations. The 'Examined object' count is 1. Below this is a 'Schedule' section with a table for defining time slots. The table has columns for 'Start Day', 'Start Time', and 'Duration'. Two entries are listed: Monday at 11:00 PM for 2hrs, and Wednesday at 11:00 PM for 2hrs. The 'Start Day' column uses a dropdown menu to select days of the week.

Start Day	Start Time	Duration
Monday	11:00 PM	2hrs
Wednesday	11:00 PM	2hrs

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Figure 25-9. Define time slots for sweep policies

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Time slot scheduling

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc179.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc179.htm)

Defining time slots for sweep policies is almost the same as defining time slots for sweep jobs. The only difference is where you define the time slots. You cannot define time slots directly on the sweep policies. You configure the time slots on the policy-controlled sweep to which the policy subscribes. The screen capture shows the general tab of a Policy-controlled sweep, Disposal. The lower half, shows two time slots configured.

## Manage sweep records

- Result records can quickly accumulate.
- Measures to limit the number of sweep records:
  - Set the number of sweep iterations with result records to retain (SweepResultIterationKeepCount).
  - Delete individual result records.
  - Delete the sweep policy to remove all the result records.

Sweep Results			
	Source Object	Date Created	Type
<input type="checkbox"/>	(0437A455-D6FF-4C0B-9721-5C5D24791186)	2016-07-21T23:57:58.667Z	Preview
<input checked="" type="checkbox"/>	(C3B7BA7C-2076-4F3D-ABCA-3D6AC9F3B86C)	2016-07-21T23:57:58.667Z	Preview
<input type="checkbox"/>	(B9673C9A-F538-44AE-96AD-26B42E6E1EE1)	2016-07-21T23:57:58.667Z	Preview
<input type="checkbox"/>	(E6954061-F009-4C02-AF7C-BBA86B669174)	2016-07-21T23:57:58.667Z	Preview

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Figure 25-10. Manage sweep records

Because policy-controlled sweeps run continuously, result records can quickly accumulate on the server. You can take the following measures to limit the number of sweep records that are stored on the server at any one time.

- Set the SweepResultIterationKeepCount property on the sweep policy. This property specifies the number of policy sweep iterations for which a sweep result record is preserved before it is automatically deleted. For example, if the value is one, result records are kept for the just-completed iteration, plus the in-progress iteration, if any.
- Delete individual result records. You can access result records by going to the Sweep Results tab of the policy. The screen capture, shows the sweep results tab. Two result records are selected. When you click Delete, the records are removed.
- To remove all of the result records at one time, delete the sweep policy itself.
- If many result records exist, and they can't be deleted within the global transaction timeout limit, the deletion of the sweep policy might fail. To resolve this issue, create a disposal policy that targets the sweep result class.

## Queue sweeps

- Specialized sweep that repeatedly scans entries of a subclass of Abstract Queue Entry.
  - Processing everything that is finds.
- Ongoing sweep
- Sweep results:
  - Include counters for:
    - The iteration that is running.
    - The cumulative total of all the iterations previously ran.
  - Status values for queue entries that do not process successfully:
    - WAITING – Operation is waiting to start.
    - IN-PROGRESS – Operation is in progress.
    - RETRY-WAIT – Operation fails and is being retried.
    - FAILED – Operation failed.
- Not really a queue in the normal FIFO sense.
  - No specific order in which entries (work items) are processed.
- More for developers than administrators

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Figure 25-11. Queue sweeps

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Sweep types>Queue sweeps

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc455.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc455.htm)

The queue sweeps topic, is more of a developer topic, administrators do not need to concern themselves.

A queue sweep is a specialized repeating scan over objects of a particular type, deriving from Abstract Queue Entry.

Each immediate subclass of Abstract Queue Entry represents a different type of work item, instances of which are stored in a separate table and can be the target of at most one queue sweep. So the idea is that an application, or perhaps an event action, creates, and saves one of these objects as a way of requesting a piece of work. The sweep then picks up the object, passes it to the handler, which runs the task and reports either success or failure.

In the sweep subsystem, items to be processed asynchronously are placed in a queue table. These items, referred to as *queue entries*, include the necessary information to allow processing by a queue sweep.

### Sweep results

A queue sweep includes properties for counters that reflect the results of the sweep. Properties for the iteration that is running and properties for the cumulative total of all of the iterations that previously ran. The following table lists the properties that reflect the current iteration and the total of all of the iterations.

When a queue entry is processed successfully, the item is removed from the queue. Items that do not process successfully are given a status, which is listed on the slide.

The name queue sweep, is a bit misleading. It does not operate in a First-in/First-out (FIFO) fashion. It is a bucket into which work items can be placed. The work items, or entries, are taken out and processed in an unpredictable order. Under conditions of low load, it is close to chronological.

## Custom sweeps

- Custom sweeps process objects with user-implemented actions.
- Custom sweep types supported:
  - Sweep jobs
  - Sweep policies
  - Queue sweeps
- Sweep action must be created first.

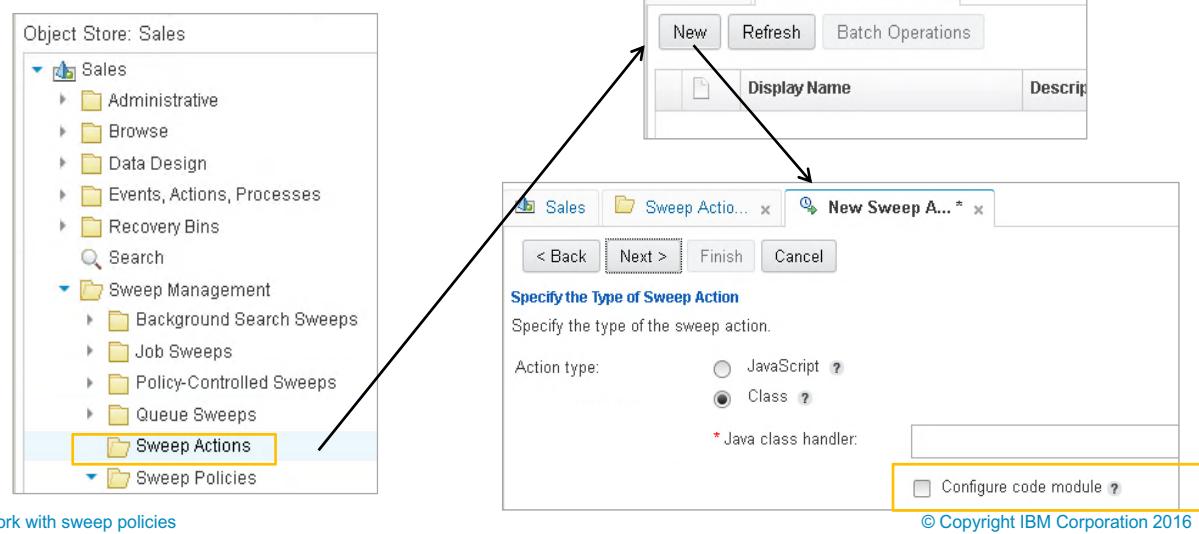


Figure 25-12. Custom sweeps

### Help paths

FileNet P8 Platform>FileNet P8 Platform

5.2.1>Administering>Administering>Administering Content Platform

Engine>Changing objects>Handling bulk processing with sweeps>Sweep types>Custom sweeps

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc456.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc456.htm)

FileNet P8 Platform> FileNet P8 Platform 5.2.1>Administering>Administering>Administering Content Platform Engine>Changing objects>Handling bulk processing with sweeps>Creating sweeps>Creating custom sweeps

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc346.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc346.htm)

Custom sweeps provide the flexibility to process objects in ways that are not built into the server.

- For example, you can use a custom sweep to change the class of multiple document instances.

You can create custom sweep jobs, custom sweep policies, and custom queue sweeps. You can use the administration console to create custom job sweeps and custom policy sweeps. Custom queue sweeps must be created programmatically.

To create a custom sweep, you must first create a sweep action. The screen capture on the left, shows the Sweep Management > Sweep Actions node.

When you click Sweep Actions, the Sweep Actions tab opens on the upper right. You click New, and enter a name for the custom action and an optional description. The wizard displays the window where you specify the type of sweep action and configure the event action handler (lower right). A developer creates the event action handler. The wizard accepts JavaScript or a Java class. The Configure code module option (highlighted), configures the Java class that you specify as a code module and checks it into the object store.

## Use content migration policies for HSM

- Implement hierarchical storage management (HSM) with content migration policies
- HSM scheme for a three-tiered storage plan:
  - Database Storage
  - NAS Storage
  - Fixed Storage
- Storage plan requirements
  1. All content for Invoices and Complaints must be stored in the database initially.
  2. After 30 days, Invoice content must be moved to NAS Storage.
  3. After 30 days, Complaint content must be moved to Fixed Storage.
  4. All NAS content must be moved to Fixed Storage after one year.

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Figure 25-13. Use content migration policies for HSM

You can use content migration policies to implement a simple hierarchical storage management scheme.

For example, the slide shows a possible scenario of a hierarchical storage management scheme for a three-tiered storage plan that uses database storage, NAS storage and fixed storage.

The remaining slides cover an example of how this scenario might be implemented. The slides are intended to serve as reference materials, not as explicit instructions.

The storage plan requirements are:

- All content for Invoices and Complaints must be stored in the database initially.
- After 30 days, Invoice content must be moved to NAS Storage.
- After 30 days, Complaint content must be moved to Fixed Storage.
- All NAS content must be moved to Fixed Storage after one year.

## Storage Plan Implementation

- Required Objects:
  - Three content migration policies
  - Two new Document classes: Invoice and Complaint
  - One Fixed Storage Device of the required type
  - One Fixed Storage Area pointing to the Fixed Storage Device
  - One Fixed Storage Policy that selects the Fixed Storage Area
  - One or more File Storage Areas pointing to NAS storage
  - One File Storage Policy that selects one of the NAS Storage Areas
  - Default Database Storage Area and Policy (created by default)

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*Figure 25-14. Storage Plan Implementation*

List of the required objects to implement the storage plan.

## Storage Plan Implementation(2)

- Requirement # 1:
    - All content for Invoices and Complaints must be stored in the database initially
  - Implementation:
    - Set the Default Storage Policy on the Invoice and Complaint classes to the Default Database Storage Policy
  
  - Requirement # 2:
    - Invoices must be moved to NAS storage after 30 days.
  - Implementation:
    - Create a Content Migration Policy that moves Invoice content from the Default Database Storage Area to NAS storage after 30 days
      - Set the Sweep Target property to point to the Invoice class definition
      - Set the Storage Policy property to point to the NAS Storage Policy.
      - Set the Filter Expression Property to:
 

```
DateCreated < NOW() - TimeSpan(30, 'days')
AND StorageArea = {9D5E78BC-AE54-4D1E-844F-903F3175821B}
```
- This filter selects Invoices that were created at least 30 days ago and the content is stored in the Database Storage Area.

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Figure 25-15. Storage Plan Implementation(2)

To satisfy requirement # 1: Store all the content for Invoices and Complaints in the database initially.

- Set the Default Storage Policy on the classes, Invoice, and Complaints, to the Default Database Storage Policy.

To satisfy requirement #2: Invoices must be moved to NAS storage after 30 days.

- Create a content migration policy that moves content of target class, Invoice, from the Default Database Storage Area to NAS storage.
  - Set the Filter Expression so Invoices created at least 30 days ago and the storage area is the Default Database Storage Area are moved.

## Storage Plan Implementation(3)

- Requirement # 3:
  - Complaints must be moved to Fixed storage after 30 days.
- Implementation:
  - Create a second Content Migration Policy that moves Complaint content from the Default Database Storage Area to Fixed storage after 30 days.
    - Set the Sweep Target property to point to the Complaint class definition.
    - Set the Storage Policy property to point to the Fixed Storage Policy.
    - Set the Filter Condition Property to:
 

```
DateCreated < NOW() - TimeSpan(30, 'days')
AND StorageArea = {9D5E78BC-AE54-4D1E-844F-903F3175821B}
```

This filter selects Complaints that were created at least 30 days ago and the content is stored in the Default Database Storage Area.

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Figure 25-16. Storage Plan Implementation(3)

To satisfy requirement #3: Complaints must be moved to NAS storage after 30 days.

- Create a second content migration policy that moves content of target class, Complaint, from the Default Database Storage Area to Fixed storage.
  - Set the Filter Expression so Complaints created at least 30 days ago and the storage area is the Database Storage Area are moved.
    - Notice that the filter expression is the same as the one used for requirement #2.

## Storage Plan Implementation(4)

- Requirement # 4:
    - All NAS content must be moved to Fixed Storage after one year.
  - Implementation:
    - Create a third Content Migration Policy that moves all document content from NAS Storage to Fixed storage after 1 year.
      - Set the Sweep Target property to point to the Document class definition.
      - Set the Include Subclasses property to 'True'
      - Set the Storage Policy property to point to the Fixed Storage Policy.
      - Set the Filter Condition Property to:

```
DateCreated < NOW() - TimeSpan(1, 'year')
AND (StorageArea = {59D2A07F-4117-C3A7-8768-4919CDA00000} OR
 StorageArea= {B276B984-A64E-C1EB-8613-4919CE400000})
AND (ClassDescription={392D70B9-C456-C9ED-849E-4919D2700000} OR
 ClassDescription={7F700DCE-8CDD-C8E2-8642490FC0600000})
```
- This filter selects all Complaints and Invoices that are at least one year old and that the content is stored in one of NAS Storage Areas.

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Figure 25-17. Storage Plan Implementation(4)

To satisfy requirement #4: All NAS content must be moved to fixed storage after one year.

- Create a third content migration policy that moves all Complaints and Invoices, from NAS Storage to Fixed storage.
  - Set the Filter Expression so documents that are at least one year old, the storage area is one of the NAS storage areas, and are of class, Complaint, or Invoice, are moved.

## Unit summary

- Create a disposal policy.
- Create a content migration policy.

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Figure 25-18. Unit summary

## Exercise: Work with sweep policies

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Figure 25-19. Exercise: Work with sweep policies

## Exercise introduction

- Create a disposal policy.
- Create a content migration policy.



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*Figure 25-20. Exercise introduction*

This exercise has two activities:

- In Activity 2.1, you create a disposal policy to delete documents of a particular class that belong to a specified storage area.
- In Activity 2.2, you create a content migration policy to preview moving documents of a particular class from one storage area to another.
  - You define a schedule to limit when the sweep policy runs.

---

## Part 8. Auditing and Logging

---

# Unit 26. Work with system logs

## Estimated time

00:35

## Overview

In this unit, you learn how to monitor the system logs and configure trace logging for troubleshooting.

## How you will check your progress

Successfully complete the unit exercises.

## References

IBM Knowledge Center for FileNet P8 Platform 5.2.1

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

## Why is this lesson important to you?

- As the system administrator, you must be familiar with:
  - The logs available to monitor IBM FileNet Content Manager environments.
  - How to monitor the content and size of the logs.
  - How to archive log files.
  - How to enable/disable trace logging for troubleshooting.

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Figure 26-1. Why is this lesson important to you?

## Unit objectives

- Monitor system logs
- Enable/disable trace logging for troubleshooting

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*Figure 26-2. Unit objectives*

## Content Platform Engine System Logs

- Content Platform Engine produces several log files during normal operation.
  - Primary troubleshooting tool for the administrator:
    - p8\_server\_error.log
    - pesvr\_system.log
    - p8\_server\_trace.log
- You must monitor these log files to do the following tasks:
  - Become familiar with normal log entries.
  - Observe changes in behavior that might indicate a problem.
  - Ensure that log files have enough space for growth.

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Figure 26-3. Content Platform Engine System Logs

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Viewing the FileNet P8 log files

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.common.admin.doc/logs/logs\\_reference.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.common.admin.doc/logs/logs_reference.htm)

The Content Platform Engine, which is the main engine of IBM FileNet Content Manager, provides logging capabilities for issue tracking, error tracking, troubleshooting, and auditing or process tracking.



### Information

If the organization uses the document approval workflows, there are more tools available to monitor the workflow system:

- vwtool
- vwmsg
- PElog
- vvverify

The IBM Case Foundation administration courses will help you use these tools effectively.

---

## Location of logs

- Default location:
  - WebSphere Application Server:
    - install\_root/profiles/profile\_name/FileNet/server\_instance\_name
    - Example:  
C:\Program Files\IBM\WebSphere\AppServer\profiles\AppSrv01\FileNet\server1
  - WebLogic Server:
    - bea/user\_projects/domains/domain\_name/FileNet/AdminServer
  - JBoss Application Server:
    - jboss\_install/jboss-as/bin/FileNet/server\_instance\_name
- File location can be configured.
- System log location is shown in the CE Ping page.
- In a clustered environment, the Content Platform Engine log files exist on each server.
  - Located in the *server\_instance\_name* under the current working directory of the deployed application.

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Figure 26-4. Location of logs

By default the Content Platform Engine logs are stored in the web application servers' profile or instance folder.

You can change the location where the files are stored.

The Content Engine Startup Content page (CE Ping page) shows the path configured for the log files.

In a clustered environment, each server will contain its own log files.

## Web application server logs

- Each web application server generates its own logs.
- WebSphere
  - Location: *install\_root/profiles/profile\_name/logs/server\_name*
  - Logs:
    - SystemOut.log
    - SystemErr.log
    - startServer.log
    - stopServer.log
- WebLogic
  - Location:
    - *oracle\_home/admin/domain\_name/aserver/servers/AdminServer/logs*
  - Logs:
    - AdminServer.log
    - access.log
    - Base\_domain.log
- JBoss
  - Location: *install\_root/server/server\_name/log*
  - Server.log

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Figure 26-5. Web application server logs

You might also need to monitor the web application server logs. When troubleshooting IBM FileNet Content Manager issues, you will need to collect the logs for the Content Platform Engine and the web application server. IBM Content Navigator, which provides the user interface for IBM FileNet Content Manager, logs errors and entries in the web application server's logs.

This slide lists the three web application servers supported, the default path for the log files and the log files in order of importance.

### WebSphere

Examples of log locations:

WebSphere (Windows): C:\Program Files\IBM\WebSphere\AppServer\profiles\default\logs\server1

WebSphere (Linux): /opt/ibm/WebSphere/AppServer/profiles/AppSrv01/logs/server1

### WebLogic

Example of log location:

WebLogic: C:\bea\user\_projects\domains\base\_domain\servers\AdminServer\logs

To change the name and location of server logs, refer to the BEA documentation.

## Trace logs

- Trace logs are used for troubleshooting particular problems.
- Often requested by a support representative.
- Content Platform Engine trace logging:
  - Use Administration Console for Content Platform Engine to configure trace logging
  - Configure at Domain level or site level
- Web application server trace logging
  - Configure level of detail
- Disable trace logging when you no longer need it.
  - Trace logs can grow quickly and impact system performance and disk space.

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Figure 26-6. Trace logs

### Help paths

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Troubleshooting>Creating a trace log

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc070.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc070.htm)

MustGather technote: <http://www.ibm.com/support/docview.wss?uid=swg21308231>

As an administrator you need to know how to configure trace logging.

Trace logs are used to troubleshoot specific issues. If you open a support call, the representative might request that you enable trace logging and reproduce the issue. In that situation, the representative will recommend which subsystem flags to enable and what level of detail to collect. The Must Gather technote, included in the help paths, provides guidelines for what data and logs to collect when reporting an issue with support. If your organization has a dedicated web application server administrator, you will need to collaborate to capture the web application server trace logs.

You can configure trace logging at the domain level or the site level. The site-level configuration takes precedence over the domain level. Site level configuration is used in organizations that have multiple sites.



## Trace subsystem – domain level configuration

Enable trace logging

Import Settings...

Trace logging generates detailed diagnostic information about server and client activity. To configure trace logging, you must enable logging and select the subsystems to be logged.

Enable trace logging ?

Log file location:

Use default ?

Other location: ?

Set location for trace log file.  
C:\Program Files\IBM\WebSphere\AppSer

Subsystems ?

Name	<input type="checkbox"/> Detail ?	<input type="checkbox"/> Moderate ?	<input type="checkbox"/> Summary ?	<input type="checkbox"/> Timer ?
API Trace Flags	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Asynchronous Processing Trace Flags	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Audit Disposition Trace Flags	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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Figure 26-7. Trace subsystem – domain level configuration

### Help paths

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Troubleshooting>Creating a trace log>Subsystems that support trace logging

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.dev.ce.doc/logging\\_concepts.htm#supported\\_subsystems](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.dev.ce.doc/logging_concepts.htm#supported_subsystems)

Configuration:

Enable trace logging on the domain or site object

Specify the subsystems and their flags.

For each flag, specify the level of detail.

The graphic shows the Trace Subsystem tab in the Administration Console for Content Platform Engine at the domain level. The call-outs show:

- How to enable trace logging.
- How to set the log file location.
- How select trace logging flags.
- How to set the level of detail to collect.

The trace logging subsystem can be configured at the domain level, the site level, or both. If the settings are configured at the site level, then those settings override the domain level settings.

You must first enable trace logging to be able to select any other settings.

**Important:** When you configure trace logging, make sure that you check the domain and site settings. Site settings override domain settings.

The server configures trace logging for a particular subsystem by setting the value of the corresponding trace logging configuration property.

### Trace flag detail levels

- **Summary** (value 2) Enables minimal high level logging by providing summary information for all operations. This setting should not significantly affect system performance.
- **Moderate** (value 4) Enables more detailed high level logging than the SUMMARY option for all operations (includes all SUMMARY level information). This setting has some impact on system performance.
- **Detail** (value 8) Enables the most detailed logging by providing detailed information for all operations. This setting is primarily used to aid in debugging (includes all SUMMARY and MODERATE level information). This setting significantly affects system performance, and in some cases, can have a severe impact.
- **Timer** (value 1) Provides the length of time (in milliseconds) that Content Platform Engine takes to complete an operation, such as uploading a file. This setting should not significantly impact system performance. Be aware that if detail or moderate logging levels are selected, the timing will be affected.



## Trace Subsystem – site level configuration

The screenshot shows the 'Trace Subsystem' tab selected in the navigation bar. The configuration source is set to 'P8Domain (server hierarchy object)'. The 'Enable trace logging' checkbox is checked. The log file location is set to 'Use default'. Below this, there is a table for 'Subsystems' with columns for Name, Detail, Moderate, Summary, and Timer. The 'API Trace Flags' row has checkboxes in the Detail, Moderate, Summary, and Timer columns.

**Callouts:**

- An orange callout points to the 'Configuration source' section with the text: 'Select which configuration to use'.
- An orange callout points to the 'Enable trace logging' checkbox with the text: 'Enable trace logging'.
- An orange callout points to the 'Log file location' section with the text: 'Set location for trace log file.'

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Figure 26-8. Trace Subsystem – site level configuration

The graphic shows the Trace Subsystem tab in the Administration Console for Content Platform Engine at the site level. The call-outs show:

- How to select whether to use domain level trace subsystem configuration or site level. For example, if Initial Site (this object) is selected, then the Trace Subsystem configuration defined for the P8Domain is ignored and the configuration defined for the Initial Site is used.
- How to enable trace logging.
- How to set the log file location.

How you select the trace flags and the level of detail to include, is configured the same way at the site level as it is configured at the domain level.

## Guidelines: Monitor log files

- Establish a baseline: Know what to expect.
  - Observe normal log activity so that you can identify changes.
- Monitor logs regularly (daily).
  - Watch for new error messages.
  - Watch for any change in error log size.
    - Example: 1 log file is normally 64 KB, and on one day it is 100 KB.
- Increase monitoring after any system changes.
  - Example: Patches applied
- Keep records of normal comparison logs.
  - Keep representative usage time intervals for each month.
  - After a year, keep representative time intervals for each year.

Figure 26-9. Guidelines: Monitor log files

Part of detecting problems is being aware of what normal activity looks like. If you establish a baseline of activity and you are familiar with the normal error messages that your system generates, you can better detect anomalies, such as new or more frequent error messages.

Log level sizes can be a clue that something is wrong. For instance, a single error might produce a new log entry every 5 minutes. This new log entry causes the log file to grow much more quickly, which you first detect by observing the change in the log file size. If you keep a week of logs each month, you have comparison information to use in case of a change. If you keep more than that, you might be using more space than you need. If no major changes have changed the log behavior after a year or so, you might decide that you need only a representative week for the whole year. It is important to have a baseline to compare your system logs to, so that you can observe changes. When you call customer support for help with a problem, the customer support technician does not know your system baseline log behavior. You can provide information about changes only if you are tracking the logs. This information can help the customer support technician isolate the problem and provide a quicker solution.

## Unit summary

- Monitor system logs
- Enable/disable trace logging for troubleshooting

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Figure 26-10. Unit summary

## Exercise: Work with system logs

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Figure 26-11. Exercise: Work with system logs

## Exercise introduction

- Archive and view system logs
- Configure trace logging



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*Figure 26-12. Exercise introduction*

---

# Unit 27. Work with audit logs

## Estimated time

00:30

## Overview

In this unit, you learn how to configure audit definitions to track object activity.

## How you will check your progress

Successfully complete the unit exercises.

## References

IBM Knowledge Center for FileNet P8 Platform 5.2.1

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8toc.doc/welcome\\_p8.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8toc.doc/welcome_p8.htm)

## Why is this lesson important to you?

- As a system administrator, you are asked to help determine when event actions are successful and when they fail. You must know how to configure auditing to log these event actions, search for the audit events, and manage the audit log size.

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Figure 27-1. Why is this lesson important to you?

## Unit objectives

- Create audit definitions
- View audit entries
- Prune audit entries

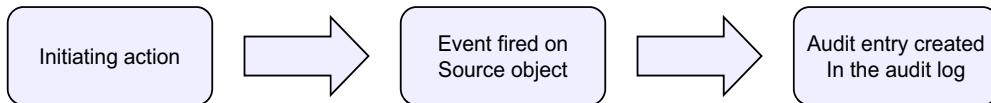
Work with audit logs

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Figure 27-2. Unit objectives

## What is auditing?

- Auditing is the automatic logging of actions that are performed on an object or class.
  - Applications can create custom audit classes.



### Example:

Configure an audit definition for a document class to automatically log audit entries when:

- Documents of that class are checked in.

[Work with audit logs](#)

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Figure 27-3. What is auditing?

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Managing objects>Tracking object activity

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc004.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc004.htm)

**Auditing** is the logging of custom or system events that occur for objects so that you can track critical activities. Most events on FileNet P8 classes can be audited including those events that pertain to security, content management, and business transactions. The automatic logging of an event creates an audit entry in the audit log (the database Event table). Audit entries can also be programmatically created by custom applications.

The diagram shows the sequence of cause and effect.

For example, you can configure an audit definition for a document class to automatically log audit entries whenever documents of that class are checked in. Checking in a document is the initiating action that causes the CheckinEvent event to fire, which in turn causes an audit entry to be logged.

## Why audit?

- You configure auditing to gain information about objects.
- For example:
  - How often was this document accessed?
  - When did this property value change?
  - User made the change.
  - Who deleted that document?
- More examples of other data that you can record:
  - Everything that ever changed on this document.
  - Every time something was filed in a folder.
  - When a user tries to open a document while lacking read access.
  - Every time a document is opened.

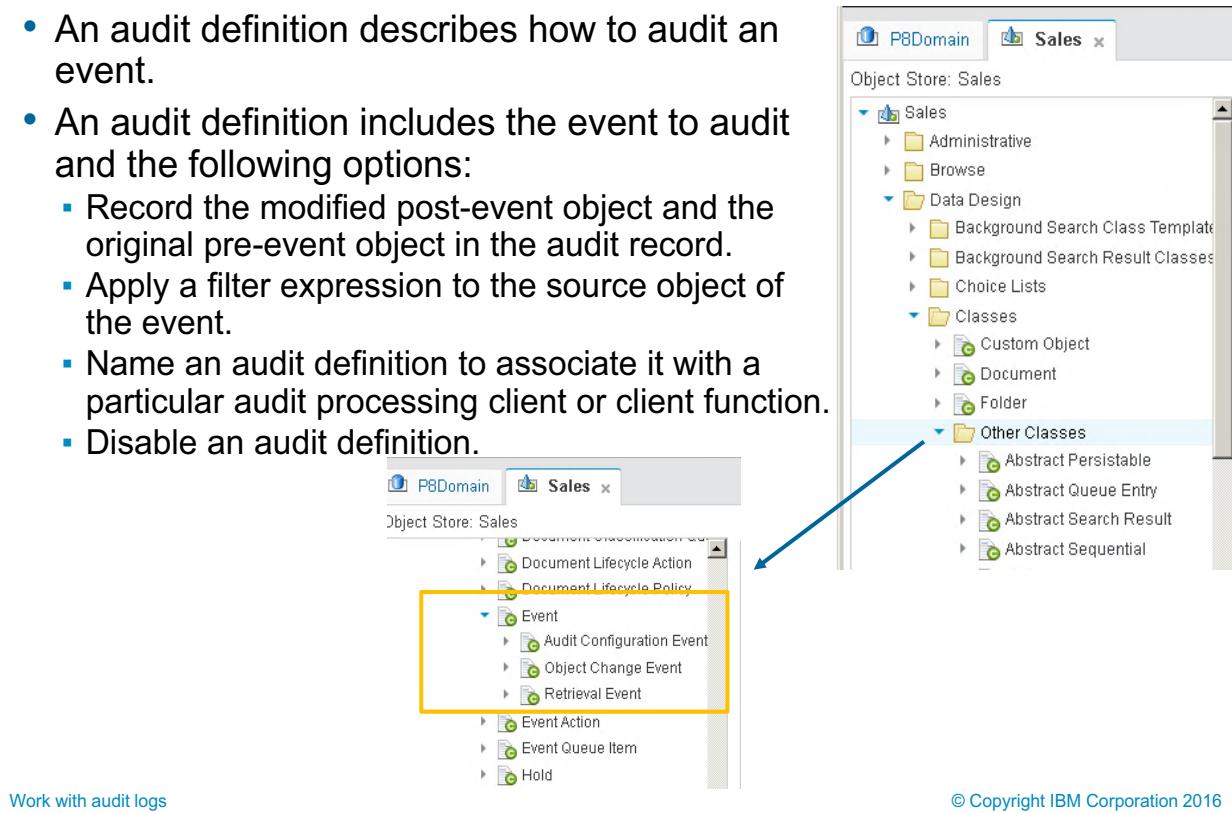
Work with audit logs

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Figure 27-4. Why audit?

## Audit Definitions

- An audit definition describes how to audit an event.
- An audit definition includes the event to audit and the following options:
  - Record the modified post-event object and the original pre-event object in the audit record.
  - Apply a filter expression to the source object of the event.
  - Name an audit definition to associate it with a particular audit processing client or client function.
  - Disable an audit definition.



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Figure 27-5. Audit Definitions

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Managing objects>Tracking object activity>Enabling audit logging>Configuring a class to log events>Audit definitions

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc005.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc005.htm)

You can find the event classes for an object store under Data Design > Classes > Other Classes > Event. The screen capture, on the right, shows the object store, Sales, in the Administration Console for Content Platform Engine. Data Design > Classes > Other Classes > Event > Other Classes. Scroll down the list of other classes until you see Event. If you expand the class, Event, you see the list of Event subclasses (screen capture on the left).



## Create an audit definition

The screenshot shows the 'Object Store: Sales' interface. On the left, a tree view lists 'Data Design' and 'Classes'. Under 'Classes', 'Document' is expanded, showing 'Book', 'Code Module', 'Email', 'Entry Template', and 'Order'. The 'Audit Definitions' tab is selected in the main panel. A 'New' button is highlighted with an orange box and a black arrow pointing to it from below. The 'New Audit Definition' dialog box is open, containing fields for 'Display Name' (set to 'Deletion Event'), 'Event' (set to 'Deletion Event'), 'Object state recording level' (set to 'None'), and 'Audit type' (checkboxes for 'Success' and 'Failure'). Other fields like 'Filter expression', 'Filter property name', and 'Options' are also visible.

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Figure 27-6. Create an audit definition

## Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Developing FileNet P8 applications> Content Engine Development> Content Engine Java and .NET Developer's Guide> Reference>SQL Syntax Reference>Relational Queries

[http://www.ibm.com/support/knowledgecenter/en/SSNW2F\\_5.2.1/com.ibm.p8.ce.dev.ce.doc/query\\_sql\\_syntax\\_rel\\_queries.htm](http://www.ibm.com/support/knowledgecenter/en/SSNW2F_5.2.1/com.ibm.p8.ce.dev.ce.doc/query_sql_syntax_rel_queries.htm)

To create an audit definition, you use the Administration Console for Content Platform Engine to create an audit definition. Open the object you want to audit and go to the Audit Definitions tab. For example, the upper screen capture show the document class, Order with the Audit Definitions tab selected. When you click New, to create a new audit definition, the New Audition Definition page is displayed (lower screen capture).

**Display name:** The name of the audit definition.

**Event:** The type of event to audit. In this example: Deletion Events are being audited. You can specify multiple audit definitions on a single class.

**Object state recording level:**

- None

- Modified object only – save only the modified object.
- Original and modified objects – save the original object and the modified object.



### Information

The objects are stored as binary objects in the Event table, not easily read.

**Filter expression:** The filter expression determines whether the event is audited. If the value of the expression evaluates to true, the event is audited; otherwise, the event is not audited. For example, a filter expression can test if a property on the source object changed; if not, the event is not audited. Filter expressions are applied only for successful operations. Functionality equivalent to subscription filtering.

For example, Audit update events when AccountBalance < 1000. Set Filter Expression to: "AccountBalance < 1000.0". Filter expression is an optional field. The IBM Knowledge Center topic, listed in the Help path, is a reference that will assist in creating filter expressions.

**Filter property name:** the symbolic name of the object-valued property that is defined on the source object for use in the evaluation by the filter expression.

#### Options:

- **Apply to subclasses:** Whether or not to apply the audit definition to the current class and all its subclasses or just the current class.
- **Is Enabled:** Whether or not to enable the audit definition. If the option is not selected, the audit definition is inactive. You can start or stop auditing for a specific event and class without having to re-create an audit definition.



## Object operations that you can audit

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Figure 27-7. Object operations that you can audit

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Managing objects>Tracking object activity>Subscribable and auditable events

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc197.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc197.htm)

You can subscribe to or audit many Content Platform Engine events. The IBM Knowledge Center topic, provides a table that lists:

- The events in alphabetical order, that you can audit.
- The actions that fire the events and the classes on which the actions apply.
- Additional event-related information.

**Note**

An action on an object can generate multiple events. For example, when you create a document, a Creation event is generated, an Update event is generated when the content is set to the document, and another Update event is generated when the system properties (for example Creator, Date Created) are set. A Checkin event is generated when you check in a document and also when you create a document. When you delete a document that has multiple versions, multiple Deletion events are generated, one for each document version.

## Audit entries

- Audit entries are stored in the Event table of the object store database.
  - Can be searched for, viewed, and exported for reporting purposes.
- Each entry is a subclass of the Event class.
  - CheckinEvent is an Event subclass.
- Audit entries contain the following information or properties:
  - The event, method, or action that occurred and any applicable parameters.
  - The date and time of the event.
  - The class and ID Of the associated object.
  - The event was a success or failure.
  - The names of any changed properties, depending on the object state recording level.
  - For queries, the text of the query.
  - For security updates, a statement that the permissions were modified.
- Audit entries have an ownership property.

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Figure 27-8. Audit entries

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Managing objects>Tracking object activity>Viewing audit entries>Audit entries

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc006.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc006.htm)

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Managing objects>Tracking object activity>Viewing audit entries>Audit entry security

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc037.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc037.htm)

When an audit event occurs, the Content Platform Engine creates *audit entries* in an audit log that is stored in the Event table of the object store database. Audit entries are instances of one of the subclasses of the Event class.



## View audit entries

- View the Audit History of an object by using Administration Console for Content Platform Engine.
  - Find the Audit History tab of the object.

Audit history					
	Event	Date Created	Event Status	Creator	Id
	Update	September 15, 2016 at 5:10:37 PM Eastern Standard Time	Succeeded	P8Admin	{9FB0B3B8-4700-436B-BD10-3CFC308CD4D7}
	Update	September 15, 2016 at 5:10:22 PM Eastern Standard Time	Succeeded	P8Admin	{63EC7E73-FA39-4632-A230-462D6ED13BAE}
	Creation	September 15, 2016 at 5:10:22 PM Eastern Standard Time	Succeeded	P8Admin	{5F7A1C7D-65C5-4BF8-B1CF-6D7A2B50869C}

- Create a search for audited events:
  - Specify class: Event, Object Change Event, Deletion Event, and so on.
  - Specify limiting criteria, such as Date Created.

Search: Query audit log, Version: 1.0, Status: Released

Description:

Simple View    SQL View    Bulk Actions (Disabled)

Construct or edit a query step-by-step by entering search criteria. You can optionally switch to the SQL View tab after you begin query construction here. Bulk actions to automatically apply to the query results, such as updating security.

Class: ?

Criteria: ?

Column	Condition	Value
A [Date Created]	Less Than	9/30/2016 [12:00 AM] <input type="button" value=""/>

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Figure 27-9. View audit entries

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Managing objects>Tracking object activity>Viewing audit entries

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc025.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc025.htm)

### Audit history:

You can view the audit entries in the audit history of the specific object. The upper screen capture, shows the audit history of a document of a specific document class, that is auditing for creation and update events.

### Audit log:

You can query the audit log with an object store search. You specify the class to search for as the class, event, object change event, which includes several of the events, or a specific event. For example, Deletion Event. You can enter criteria to further limit the search results returned. The lower screen capture, shows an object store search that will return audit entries for creation, checkout/checkin, deletion, update, and so on, where the date created is less than September 30, 2016 at midnight.



## Pruning audit entries

- Audit disposition subsystem
  - Controls the pruning of audit events from the audit log.
  - Can schedule to control when the audit pruning process runs.
- Audit disposition policy:
  - Automate the deletion of audit entries that you no longer need.
  - Useful for controlling the size of the audit log.
- Audit disposition bookmarks
  - Prevent deleting audit events that are still needed.
- Manual pruning – use search templates with bulk actions

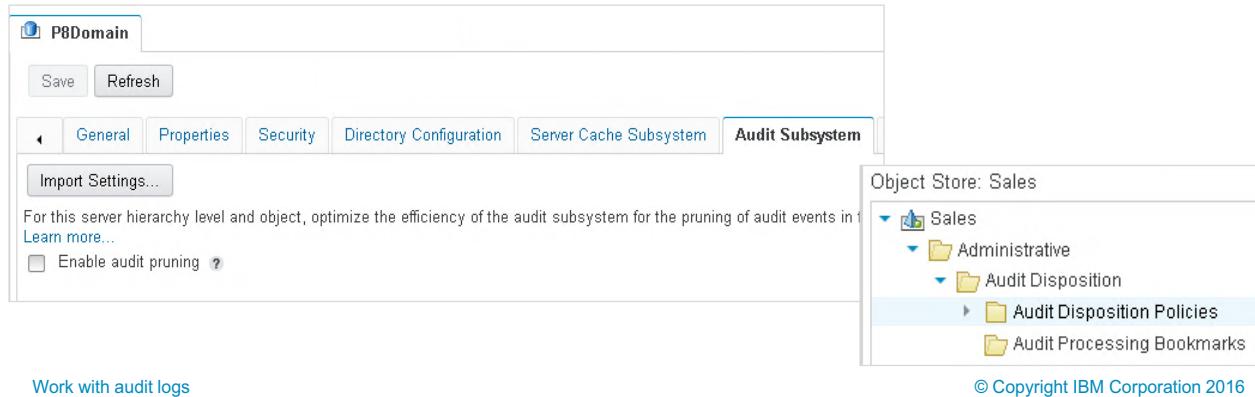


Figure 27-10. Pruning audit entries

### Help path

FileNet P8 Platform>FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Managing objects>Tracking object activity>Pruning audit entries

[http://www.ibm.com/support/knowledgecenter/SSNW2F\\_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc024.htm](http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/com.ibm.p8.ce.admin.tasks.doc/p8pcc024.htm)

### Audit disposition subsystem:

The audit disposition subsystem controls the pruning of audit event in the audit log. You enable the audit pruning from the Audit Subsystem tab of the P8 domain, using the Administration Console for Content Platform Engine (screen capture on the lower left). In the Audit Subsystem tab you can also schedule when you want the pruning process to run.

### Audit disposition policy:

At the object store level, you can define audit disposition policies, (screen capture on the lower right). The audit disposition policy defines exactly what to delete. For example, delete Update Events that are older than 90 days.

### Audit disposition bookmarks:

Audit disposition bookmarks are set to audit sequence numbers. The audit disposition subsystem does not delete any audit events that have audit sequence numbers greater than the lowest-valued bookmark. Applications can use the Content Engine API to set bookmarks so that audit events are not deleted before audit entries are processed. You can edit or delete audit disposition bookmarks using the Administration Console for Content Platform Engine.

**Manual pruning:**

Audit entries for deleted objects are not automatically deleted. You can manually manage the size of the audit log by using a query to retrieve and delete audit entries. For example, you can use a query to delete the audit entries that were created on a particular day or by a particular user.



**Important**

If an audit disposition policy is enabled for an audit log, do not manage the size of the log manually.



## Create an audit disposition policy

① Object Store: Sales

Sales  
Administrative  
Audit Disposition  
Audit Disposition Policies  
Audit Processing Bookmarks

New Refresh Batch Operations

Display Name Is Enabled

② Name the Audit Disposition Policy

A disposition policy specifies the criteria for selecting audit records for deletion. [Learn more...](#)

\* Name: Prune audit entries older than 90 days

Existing names:

- Prune audit logs
- Prune Managers

③ Set the Audit Disposition Policy parameters

\* Disposition rule: `DateCreated < Now () - TimeSpan(90, 'Days')`

\* Duration between completed sweeps: 86400 seconds

Enable audit disposition policy

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Figure 27-11. Create an audit disposition policy

To create an audit disposition policy:

1. Open object store in the Administration Console for Content Platform Engine, and go to Administrative > Audit Disposition > Audit Disposition Policies. Then click New (upper screen capture).
2. Type a name for the audit disposition policy. If audit disposition policies already exist, they are displayed under Existing names.
3. Set the Audit Disposition Policy parameters:
  - Disposition rule: Similar to the filter expression used to define the audited events.
  - Duration between completed sweeps: The number of seconds that the system waits before running the disposition policy again. By default the value is 84,600 seconds or 24 hours.
  - Enable audit disposition policy flag: If set the disposition policy is enabled to run.

The lower screen capture shows a disposition rule that will delete audit entries that are older than 90 days. The disposition policy will run once every 24 hours and it is enabled.



## Audit disposition schedule

The screenshot shows the Audit Subsystem configuration interface. At the top, there are tabs: Directory Configuration, Server Cache Subsystem, Audit Subsystem (which is selected), Content Subsystem, and Content Cache Sub. Below the tabs is a button labeled "Import Settings...". A note says: "For this server hierarchy level and object, optimize the efficiency of the audit subsystem for the pruning of audit events in the audit log. [Learn more...](#)". There is a checked checkbox labeled "Enable audit pruning". Below this are four input fields with validation messages: "Deletion batch size" (100), "Deletion query size" (100), "Wait interval" (30 sec), and "Maximum lease interval" (300 sec). A "Schedule" section follows, containing a table with columns "Start Day", "Start Time", and "Duration". One row is highlighted with a yellow box, showing "Tuesday" as the start day and "10:15 AM" as the start time. An arrow points from this row to a "New Time Period" dialog box on the right. The dialog box has fields for "Day of week" (Sunday), "Start time" (12:00 AM), and "Duration" (1 hours 0 minutes). It also contains "OK" and "Cancel" buttons.

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Figure 27-12. Audit disposition schedule

You can control when the deposition policy runs by configuring time periods in the schedule section of the audit subsystem.

The graphic shows the Audit Subsystem tab, at the domain level. The orange rectangle shows a time period scheduled to start on Tuesday at 10:15 AM that runs for 13 minutes. When the duration of 13 minutes expires, the audit subsystem will be suspended until the following Tuesday at 10:15 AM.

You can create multiple time periods to control when audit pruning runs. You click New, to create a new time period. The arrow points to the new time period wizard.

Scheduled time periods:

- Can be defined at the domain level and the site level.
- Control when audit definitions run as well.

## Unit summary

- Create audit definitions
- View audit entries
- Prune audit entries

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*Figure 27-13. Unit summary*

## Exercise: Work with audit logs

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Figure 27-14. Exercise: Work with audit logs

## Exercise introduction

- Create audit definitions
- Prune audit entries



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*Figure 27-15. Exercise introduction*



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