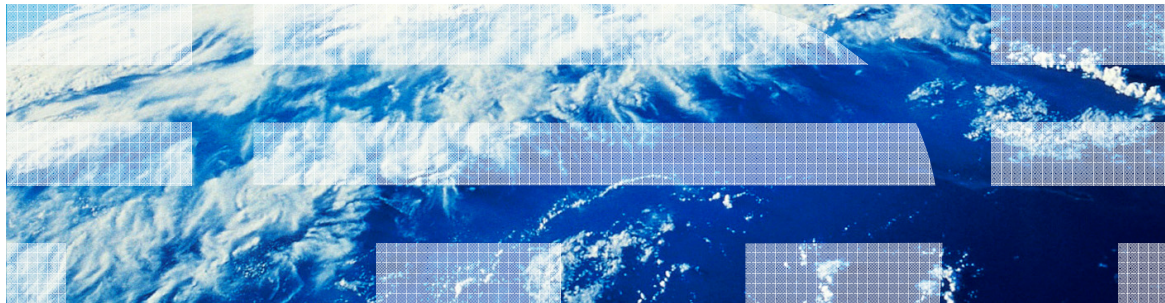
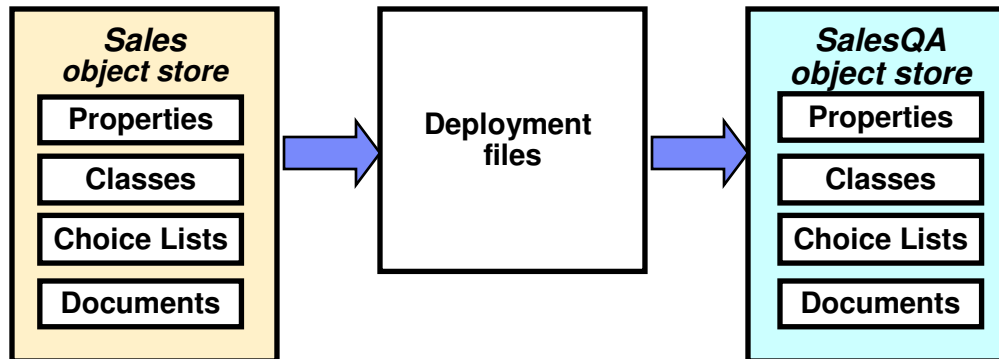


Deploying Content Engine Assets



What is application deployment?

- We are talking about ...
 - Getting all the pieces of your application in place, ready to function in a FileNet P8 system
 - Copying pieces of a FileNet P8 application between environments
- We are not talking about ...
 - The business problem of rolling out a new application
 - Deploying your WAR or EAR to WebSphere



What is a FileNet application?

- Data
 - Business information
 - Configuration information
 - Covered mostly by FileNet P8 import-Export and Deployment tools
- Executable code
 - Custom application source code
 - Custom application installers and executable code
 - Commercial FileNet P8 application installers and code
 - Covered mostly by FileNet P8 Install/Upgrade tools



FileNet P8 data and configuration information



- Content Engine data
 - Object store contents: subscriptions, folders, document classes, documents
- Process Engine data
 - Rosters, event logs, queues
 - Workflow definitions and subscriptions
- Workplace XT data
 - Site preferences, entry templates, and stored searches
- Content Navigator Desktop

FileNet deployment tool set



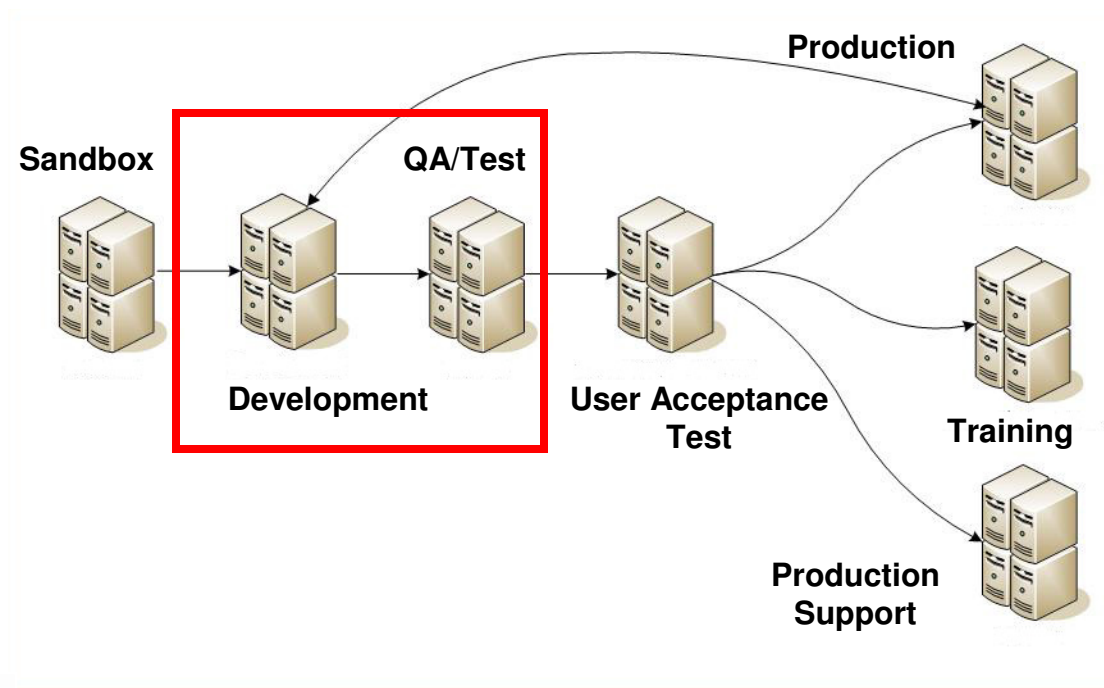
- IBM FileNet Deployment Manager
 - Subscriptions, folders, document classes, documents
 - Workflow definitions and subscriptions
 - Site preferences, entry templates and stored searches
 - Note:** Object stores, file stores, content cache stores, and the GCD cannot be exported using FileNet Deployment Manager.
- IBM FileNet Process Configuration Console
 - For transferring configuration information for an isolated region
 - Definitions for application spaces, queues, rosters, event logs
- Other tools
 - IBM Enterprise Records File Plan Import Export Tool

Application deployment use cases



- Initial deployment of an application
 - From a source environment
 - Sandbox, Development, Quality Assurance Test, or User Acceptance Test
 - To a destination environment
 - Development, Quality Assurance test, User Acceptance test, or Production
 - Examples:
 - Sandbox to Development, Development to Quality Assurance Test, and similar scenarios
- Propagating incremental sets of changes
 - From a source environment
 - To a subset of the existing objects in a destination (deployed) environment
 - This scenario is the most common deployment scenario.

Application deployment environments



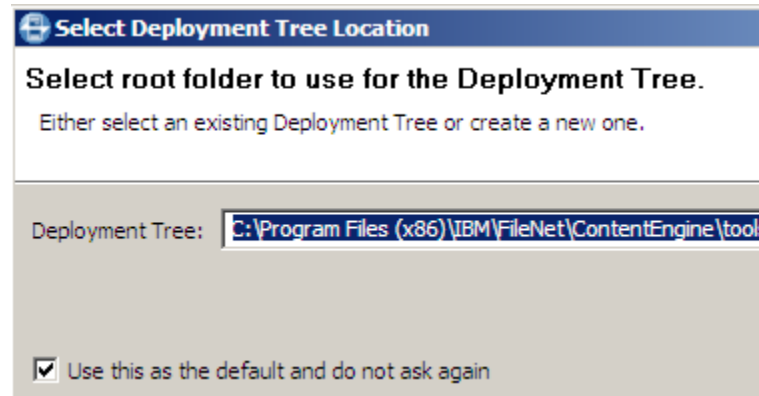
Note: Development and QA/Test are often in the same domain

What is FileNet Deployment Manager?

- A single tool for mapping and conversion
 - Support for CE, Workplace XT, Workflow Definitions, and eForms
 - Defines reusable environments and pairs
 - Retrieves environment-specific information
- Powerful principal (users and groups) retrieval and mapping
 - Creates reusable data maps with labels
 - Converts assets from source for import to destination
 - GUI and command-line interface (CLI)
 - Scriptable and able to be automated
 - XML-based
- A system or solution builders tool
 - For moving FileNet P8 objects through a sequence of development, testing, and production environments

What is a deployment tree?

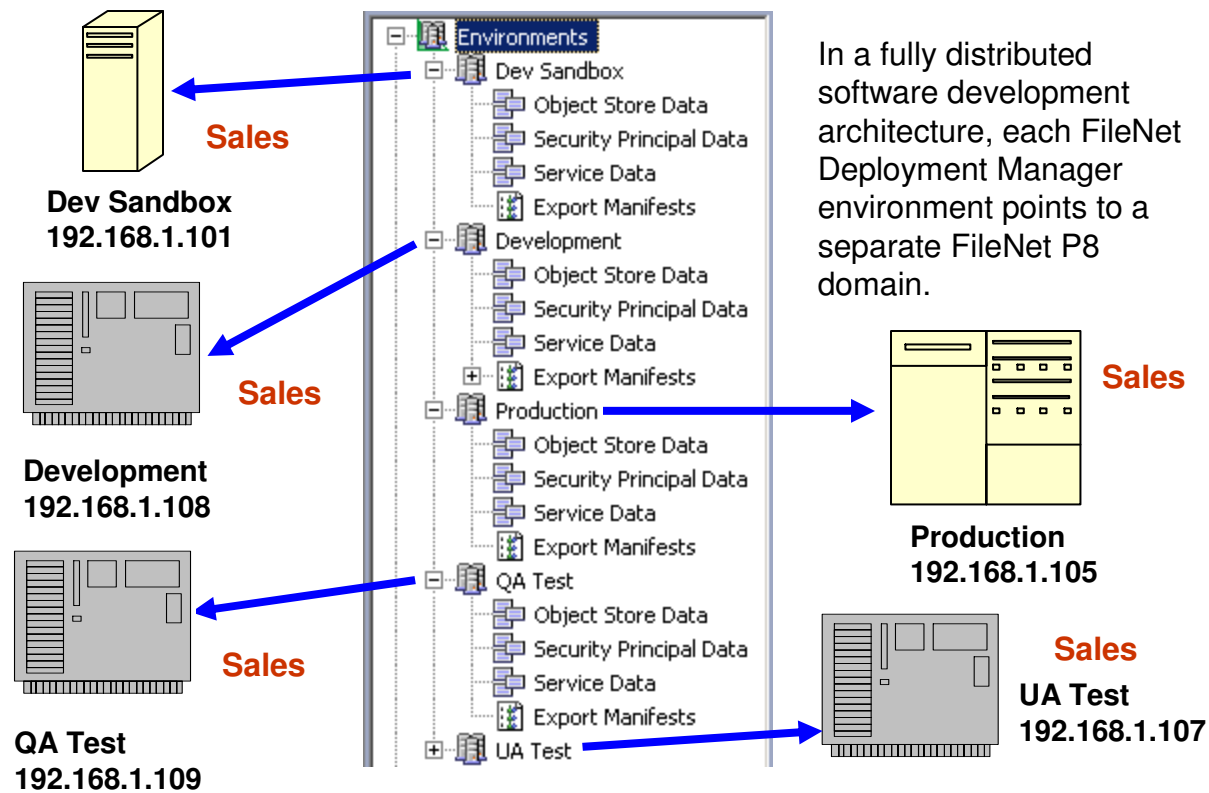
- A predefined folder structure
 - Contains all files created by FileNet Deployment Manager
 - Environments
 - Source-Destination Pairs
 - Root folder location specification required at first use of FileNet Deployment Manager
- Additional deployment trees can be created.
 - Default location:
`C:/.../FileNet/
ContentEngine/
tools/deploy`



What is an environment?

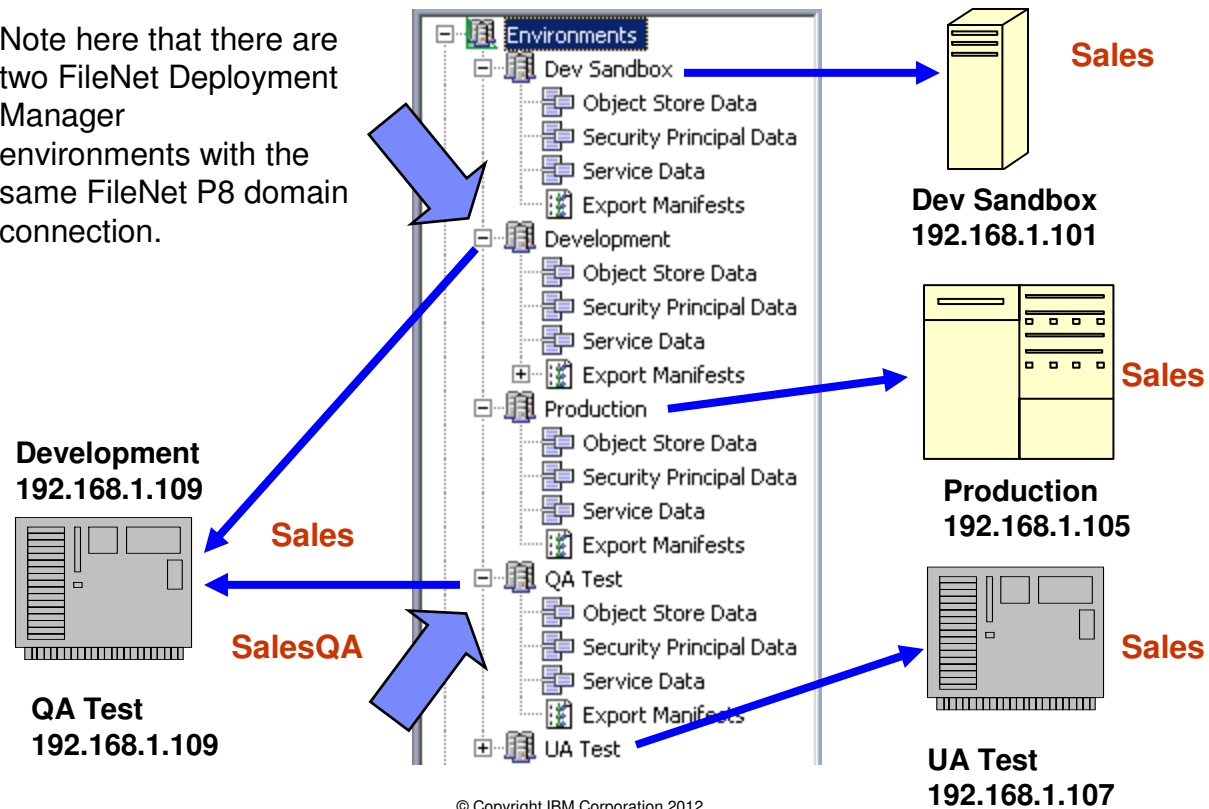
- A hardware logical entity
 - A collection of one or more servers that belong to a FileNet P8 domain
 - Used for a particular purpose (sandbox, development, functional testing, system testing, or production)
- A user-defined, logical entity within FileNet Deployment Manager that includes the following:
 - A user-defined name (such as *Development*, *QA Test*, *UA Test*)
 - Connection information for connecting to a specified FileNetP8 domain
 - A set of half maps that store retrieved information from the specified Content Engine
 - Object stores
 - Security principals
 - Process Engine services
 - An export manifest (if environment is configured as a source)

One environment per FileNet P8 domain

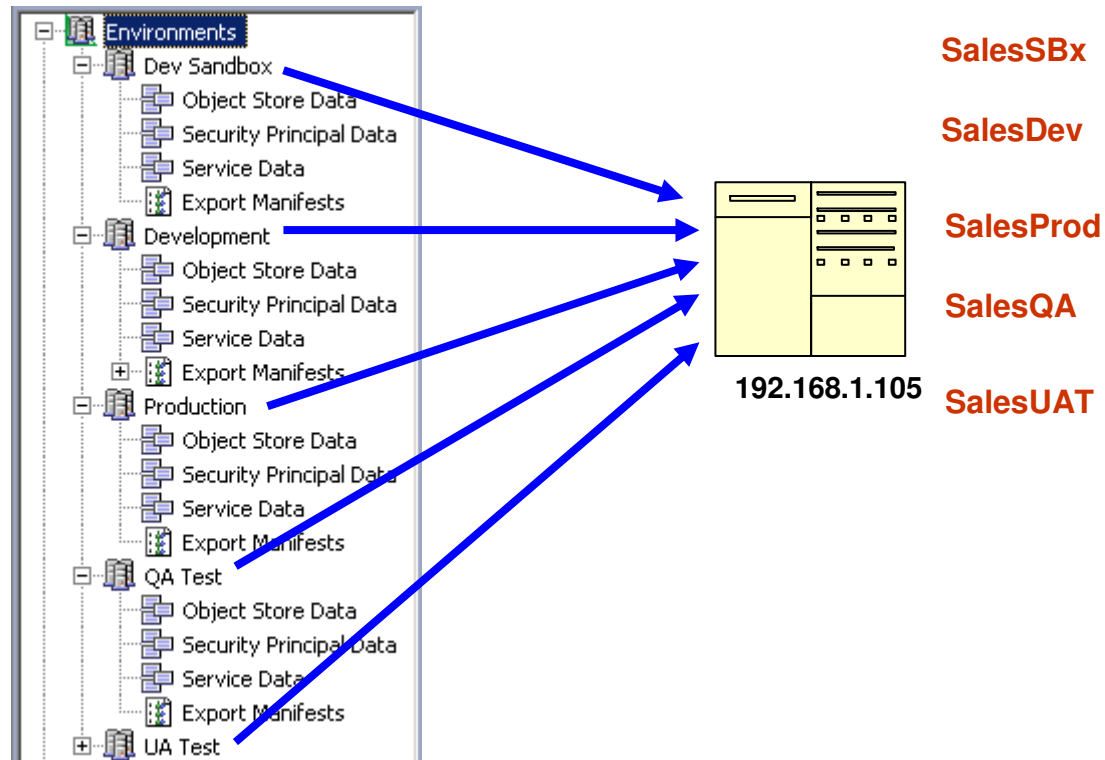


Mixed environment configuration

Note here that there are two FileNet Deployment Manager environments with the same FileNet P8 domain connection.

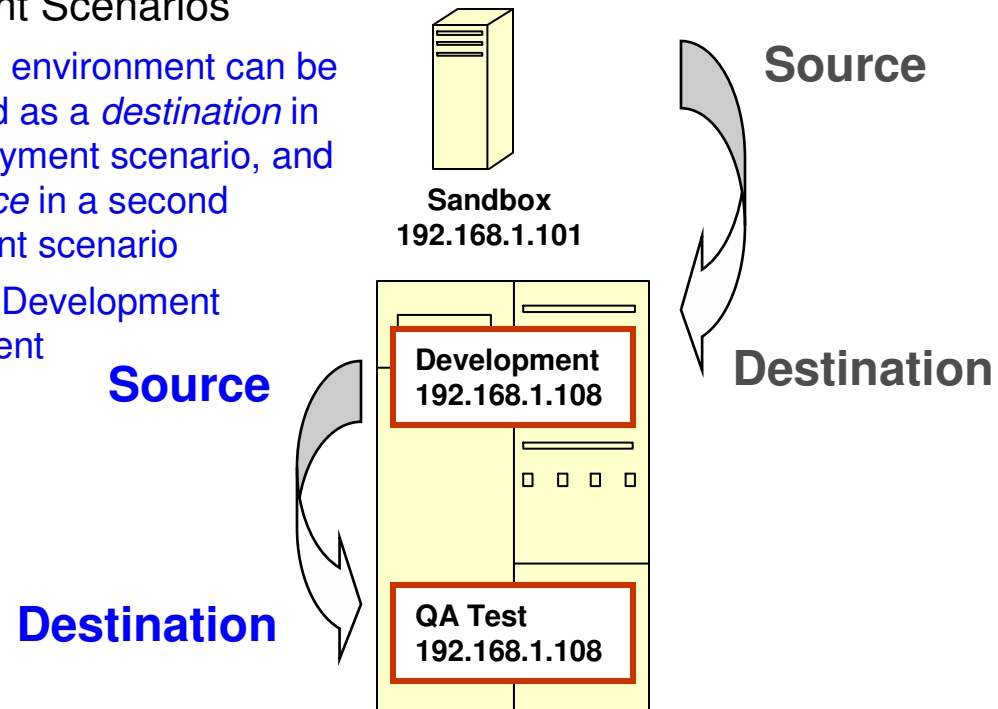


All environments point to one FileNet P8 domain



Source and destination environments

- Deployment Scenarios
 - The same environment can be configured as a *destination* in one deployment scenario, and as a *source* in a second deployment scenario
 - Example: Development Environment



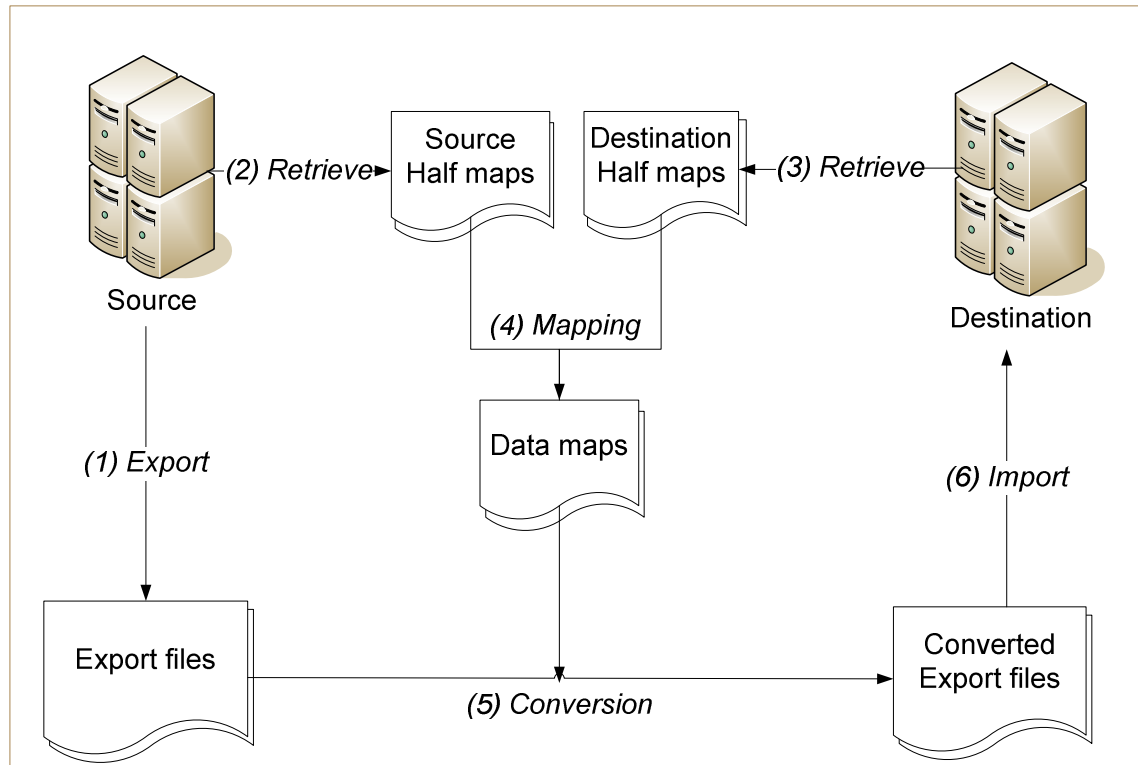
Deploying data with FileNet Deployment Manager



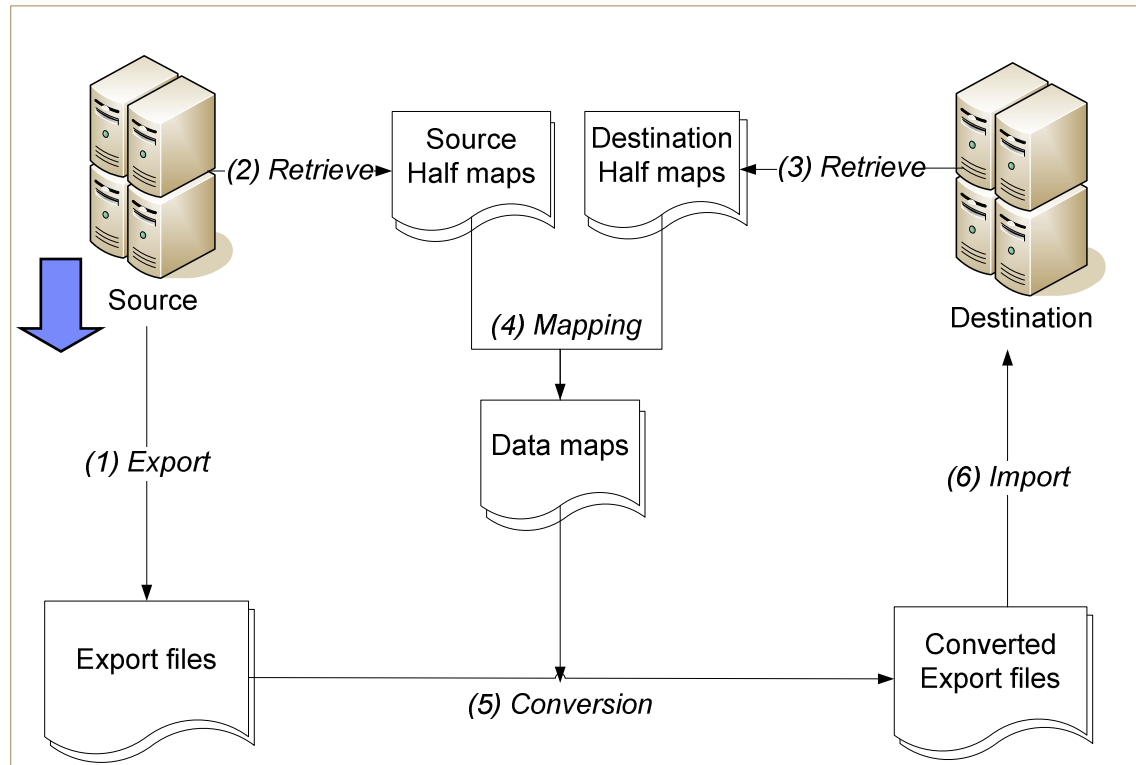
- Export
 - 1a. Add objects to export manifest of source environment.
 - 1b. Run export to create deploy dataset.
- Process
 - 2. Retrieve source half maps.
 - 3. Retrieve destination half maps.
 - 4. Create data maps (source to destination) from half maps.
 - 5. Convert exported objects.
 - 6a. Analyze and validate converted objects.
- Import
 - 6b Import into destination system.

See diagram on the following page.

Asset deployment process



Export assets from source environment

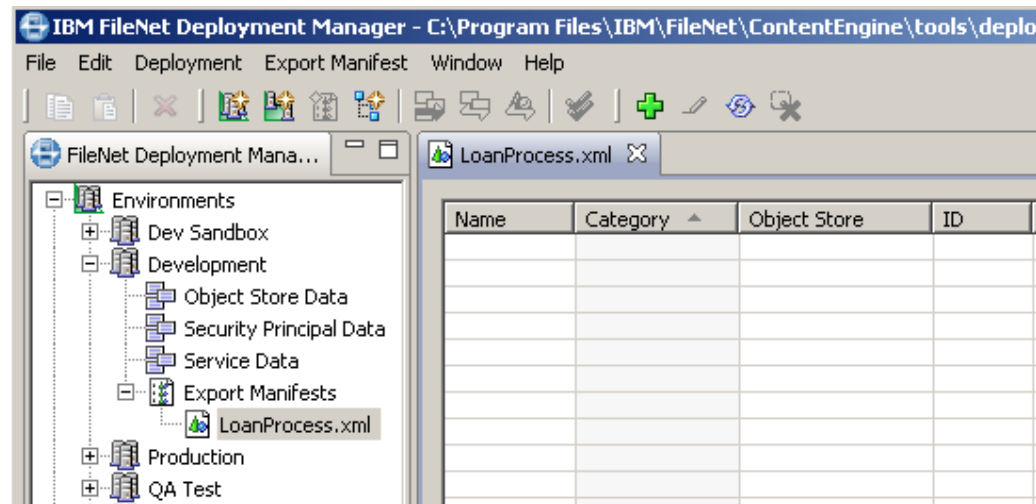


What are FileNet P8 assets?

- Object store content
 - Documents, stored searches, search templates
 - Folders or folder hierarchies created for the application
 - Custom objects
 - Class definitions, property templates, choice lists
 - Event actions, subscriptions, and associated scripts
 - Document classification actions,
 - Security policies and storage policies
 - Document lifecycles actions and policies
- Application Engine preferences
 - User and site preference information

What is an export manifest?

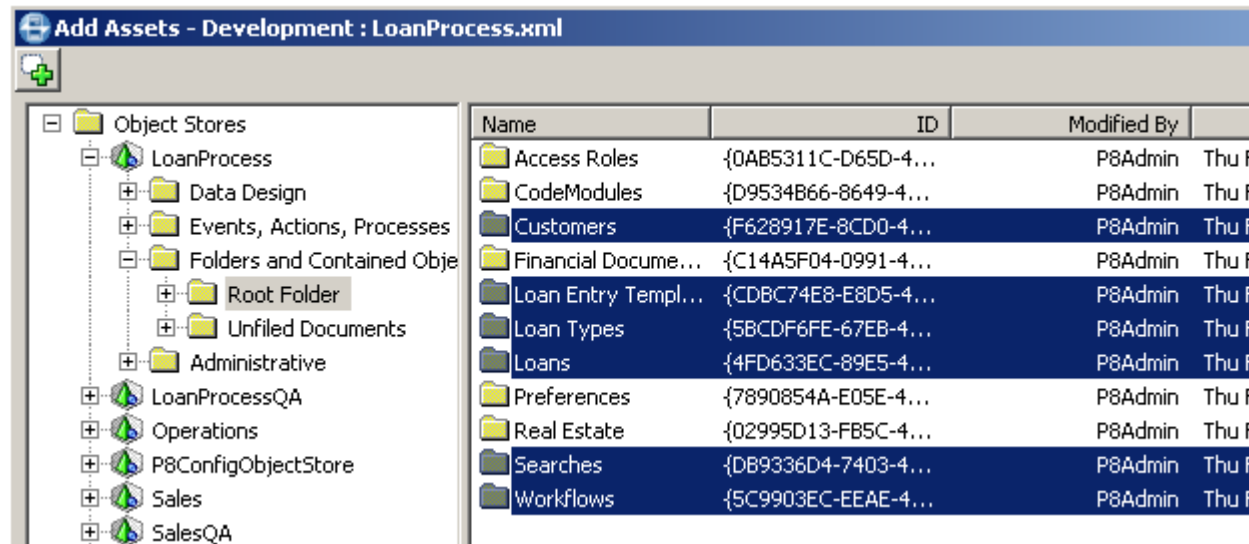
- A file that lists selected source environment assets
 - It is created as an empty file using FileNet Deployment Manager, from within an FileNet Deployment Manager Environment node being configured as a source environment.
- Is created with a user-defined name, such as LoanProcess.xml.




Assets and deployment datasets

How do you add assets to the export manifest?

- In the *Add Assets* window, expand the source object store
 - Select assets from any of four categories: (1) Data Design, (2) Events, Actions, Processes, (3) Folders and Contained Objects, (4) Administrative.



Edit the export manifest



Name	Category	Object Store	ID	Include Options
Customers	Folder	LoanProcess	{F628917E..	Default
Loan Entry Templates	Folder	LoanProcess	{CDBC74E..	Custom
Loan Types	Folder	LoanProcess	{5BCDF6F..	All
Loans	Folder	LoanProcess	{4FD633E..	All
Searches	Folder	LoanProcess	{DB9336D..	Custom
Workflows	Folder	LoanProcess	{5C9903E..	Default

- Export manifest editor
 - Contents are populated from the *Add Assets* operation.
 - Double-click the export manifest to open it.
 - *Include Options* can be set for each asset.
 - Default, All, or Custom

Asset include options

- Include options window contents
 - General
 - Include immediate user-defined object-valued properties.
 - Include security objects.
 - 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.
 - Data Design
 - Include subclasses, non-system classes, modified system classes.
 - Include property templates on classes.
 - Include choice lists on property templates.

Asset include option propagation

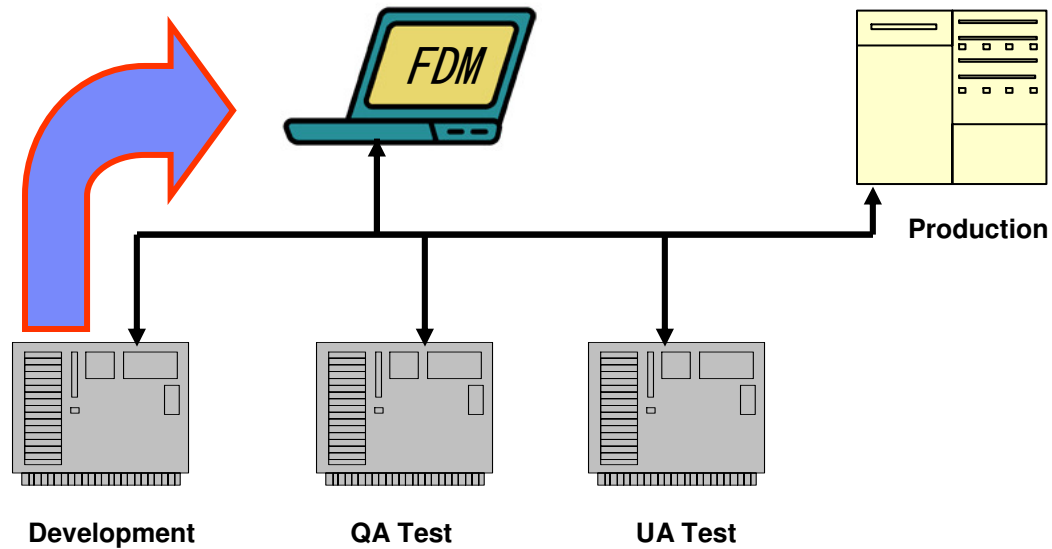
- Example
 - Assume that the following include options are selected for a specific folder in the export manifest: *Include subfolders*, *Include contents of folders*, and *Include annotations on documents, folders, and custom objects*.
 - Then the following items are added in a cascading sequence to the export (deploy) dataset during the export operation:
 - The specified folder, subfolders, and the entire folder tree of those subfolders, as if each of these folders had been originally listed in the export manifest
 - The entire contents (documents and custom objects) of each folder in the folder tree, as if each of these objects had been originally listed in the export manifest
 - Every annotation on all of the above objects, as if each of these annotations had been originally listed in the export manifest

Export Options dialog box

- Run the Export command.
- Complete the Export Options dialog box.
 - Export Manifest File:
 - The named export manifest file (such as *LoanProcess.xml*) including the full path name on the client system
 - Output Folder for Deploy Dataset:
 - Specifies a default path on the client system (example)
`C:\Program Files\IBM\FileNet\ContentEngine\tools\deploy\EduDeploymentData\Environments\Development\Assets`
 - Deploy Dataset name:
 - Specifies a default name based on the export manifest name
 - Example: *LoanProcess* (name can be changed by user)

Deploy dataset location

- Deploy dataset
 - Exported asset are copied to the specified deploy dataset on the file system of the windows client running FileNet Deployment Manager.



Deploy dataset structure



- Contents of:
 - ...\[Environments](#)\<source_environment>\Assets
 - A *Content* subfolder
 - FN0, FN1, ..., FNyy subfolders
 - Catalog.xml
 - deployDataSet1.xml
 - DeploymentOperation_Export.xml
 - <export manifest name>.xml
 - ObjectList.xml

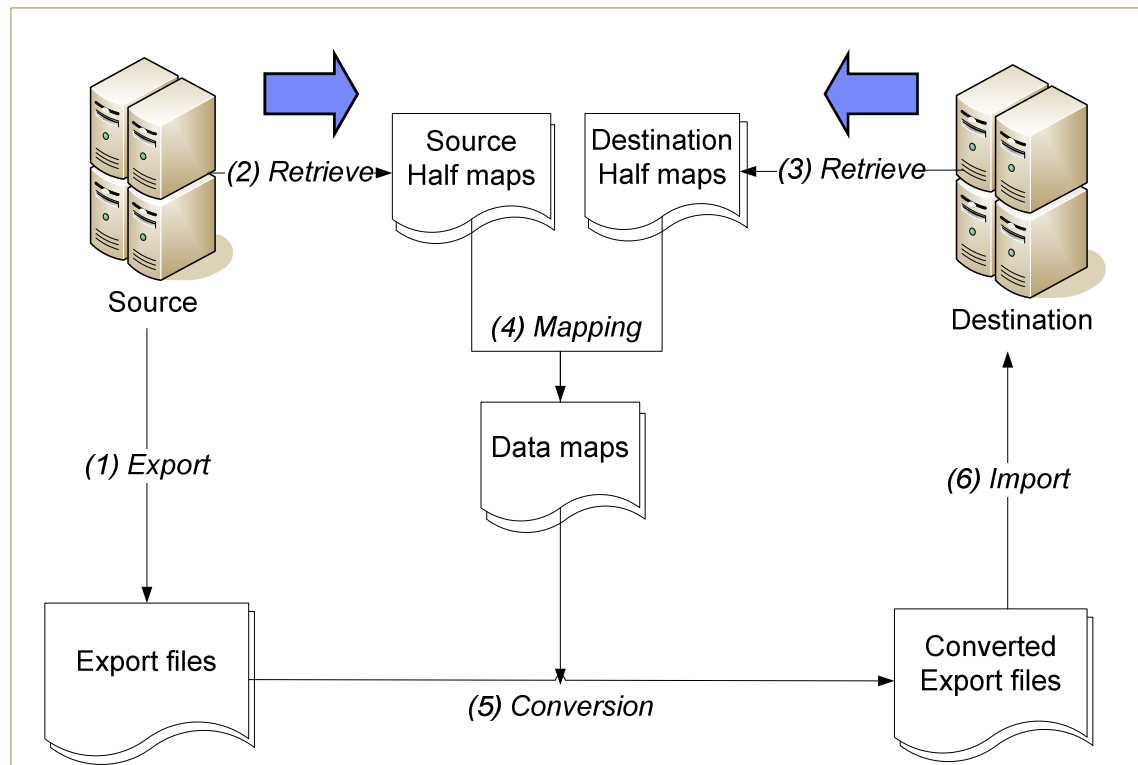
Lesson terminology



- Half Map
 - A set of environment-specific data extracted from one environment, for example: a list of principals from the source environment
- Data Map
 - A map between environment-specific data from two environments
- Mapping
 - Building the half maps and data maps needed to do a conversion
- Environment-specific data
 - Object store names, user and group IDs, and server names

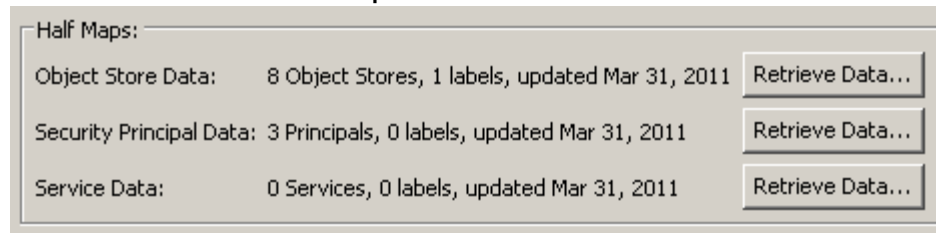
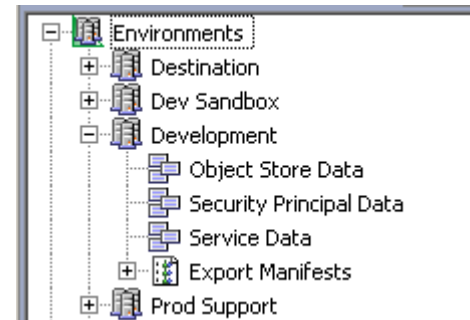
Working with half maps

Retrieve half maps



What is a half map?

- Each FileNet Deployment Manager environment stores three half maps:
 - Object Store Data
 - Security Principal Data
 - Service Data
- Half map data
 - Populated with *Retrieve Data* function
 - Two sets of half maps must be populated for a specific deployment
 - Source environment half maps
 - Destination environment half maps



Working with half maps

What is Object Store Data?

- Retrieve Data
 - Returns a list of all object stores for this FileNet P8 domain.
- Object Store editor window
 - Double-click Object Store Data to open the half map.
- Source and destination Object Store Data half maps
 - Identical if both environments are in the same FileNet P8 domain

Label	Name	Symbolic Name	ID
	LoanProcess	LoanProcess	{...}
	LoanProcessQA	LoanProcessQA	{...}
	Operations	Operations	{...}
	P8ConfigObjectStore	P8ConfigObjectStore	{...}
	Sales	Sales	{...}
	SalesQA	SalesQA	{...}
	{...}

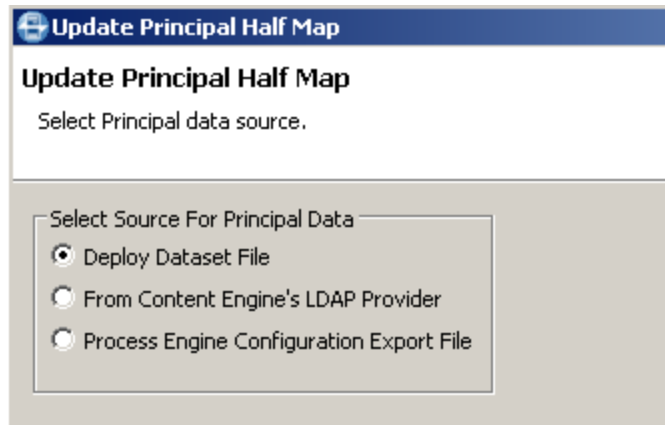
What is Security Principal Data?

- A list of users and groups
- Is available to FileNet Deployment Manager from three sources
 - The deploy dataset file generated from a previous export operation for a specific FileNet P8 domain (environment)
 - Contains only the principals associated with the exported object store assets
 - The Content Engine's LDAP provider for that same FileNet P8 domain
 - All of the principals for that FileNet P8 domain (environment)
 - Generally a much larger dataset
 - The Process Engine Configuration Export File

Working with half maps

Retrieving Security Principal Data from source

- For the *source environment*
 - When deploying Content Engine assets, select *Deploy Dataset File* as the source for the principals.



Update Principal Half Map

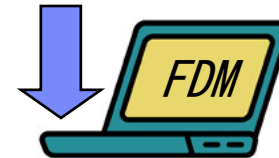
Update Principal Half Map

Select Principal data source.

Select Source For Principal Data

- ☒ Deploy Dataset File
- ☐ From Content Engine's LDAP Provider
- ☐ Process Engine Configuration Export File

Note: the Deploy Dataset File is located on the client from which you are running FileNet Deployment Manager.



Working with half maps

Security Principal Data (source environment)

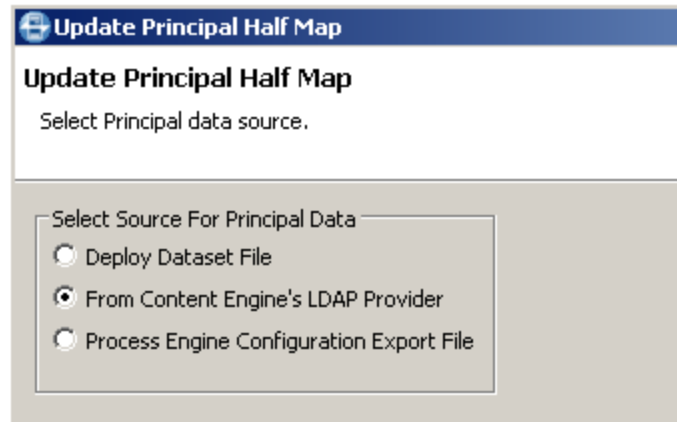
- Retrieve Data (select *Deploy Dataset File*).
 - Returns a list of all principals in the deploy dataset, generated from the export operation, as specified in the export manifest.
- Security Principal Data editor window
 - Double-click *Security Principal Data* in source environment to open half map.

Label	Short Name	Display Name	Type	Name	SID
	admin1	Admin1	User	cn=Admin1,ou=FileNet,...	S-1-97..
	cmAdmins	CMadmins	Group	cn=CMadmins,ou=FileNet,	S-1-97..
	cmviewers	CMViewers	Group	cn=CMviewers,ou=FileNet,	S-1-97..
	cmworkers	CMWorkers	Group	cn=CMWorkers,ou=FileNet,	S-1-97..
	p8users	P8Users	Group	cn=P8Admins,ou=FileNet,	S-1-97..

Working with half maps

Retrieving Security Principal Data from destination

- For the *destination environment*
 - Select *From Content Engine's LDAP Provider*



Update Principal Half Map

Update Principal Half Map

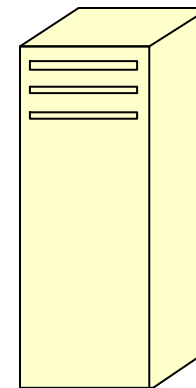
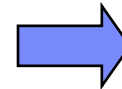
Select Principal data source.

Select Source For Principal Data

☐ Deploy Dataset File

☒ From Content Engine's LDAP Provider

☐ Process Engine Configuration Export File



LDAP Server

Update Principal Half Map

- For the destination environment
 - Retrieve realms and select an LDAP realm.
 - Only one realm (o=sample) on your student system
 - Select the filter to be applied in retrieving the users and groups.
 - None – can be selected if LDAP directory is small
 - Use Environment's Principal Half Map
 - Use a Label File
 - Select Mode
 - Merge
 - Overwrite

Working with half maps

Security Principal Data (destination environment)

- Retrieve Data (select *From Content Engine's LDAP provider*).
 - Returns list of principals from destination environment LDAP server.
- Security Principal Data editor window
 - Double-click Security Principal Data to open the half map.

Label	Short Name	Display Name	Type	Name	SID
	ceadmin	CEadmin	User	CN=CEadmin,cn=users,	...
	ceadmins	CEadmins	Group	CN=CEadmins,cn=groups,	...
	finance admins	Finance Admins	Group	CN=Finance Admins,cn=groups	...
	finance clerks	Finance Clerks	Group	CN=Finance Clerks,cn=groups	...
	finance managers	Finance Managers	Group	CN=Finance Managers,cn=g...	...
	finance reviewers	Finance Reviewers	Group	CN=Finance Reviewers,cn=g..	...
	p8admin	P8admin	User	CN=P8admin,cn=users	...

What is Service Data?

- Service data half maps
 - Mapping of service data such as server names, URLs, and similar data
 - Used for conversion of form templates, workflow definitions, and so on..
 - Converts PE Configuration data such as queue and roster definitions.
 - Supports deployment of workflow event action subscriptions.
 - Documented process to export, import, and manually update
 - Automated conversion of *web service* type workflows
 - Automated conversion of form templates with embedded service data

Note: The object store sample data for this course does not include any service data.

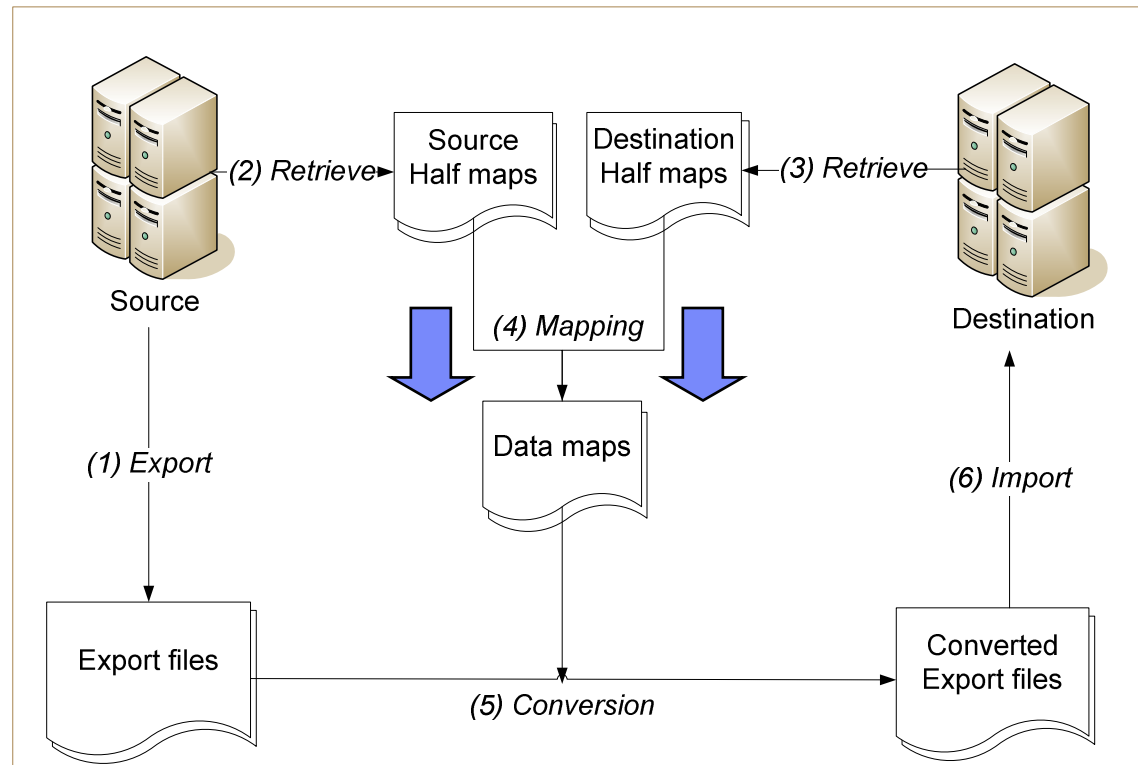
Lesson terminology



- Mapping
 - Building the half maps and data maps needed to do a conversion
- Source and destination
 - The source environment has the assets needed to deploy assets to the destination environment
- Source-destination pair
 - A configured pair of environments with one tagged as the source and the other as the destination
- Conversion
 - Preparing exported assets for import into destination environment, by replacing all environment-specific data through use of data maps

Working with data maps

Configure data maps (Mapping)



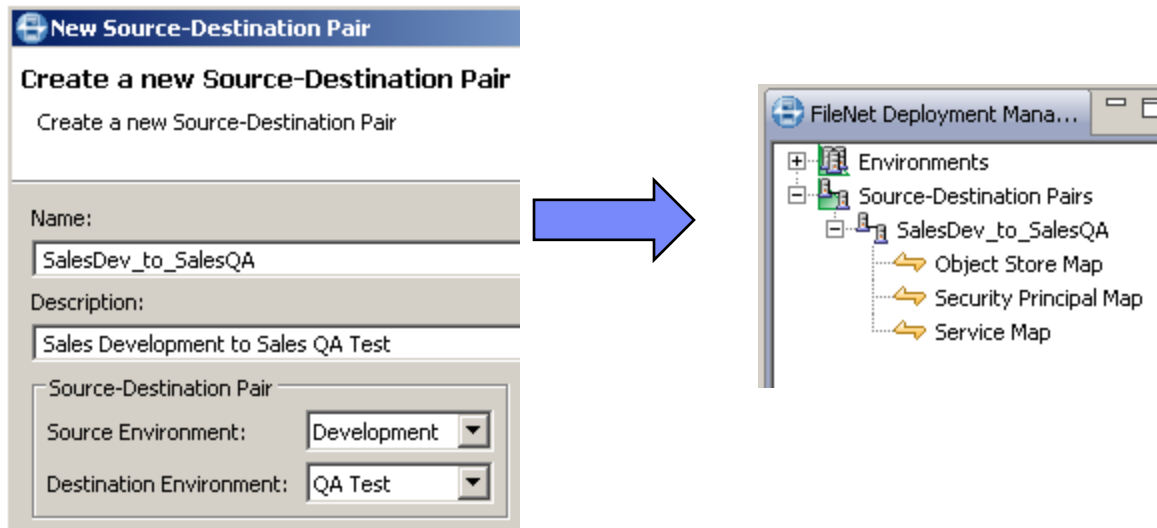


Additional Slides

Working with data maps

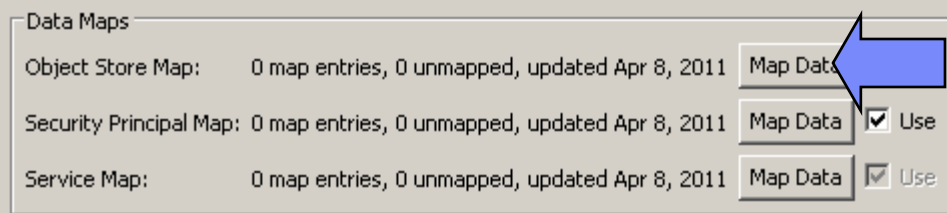
What is a source-destination pair?

- A FileNet Deployment Manager deployment tree component
 - Used to map the contents of the source environment half maps to the destination environment half maps.
 - This mapping process combines the information from the three half maps for each environment to create three data maps.



Source–destination pair data maps

- Object Store Map
 - For each object store in the source environment, this map identifies the corresponding object store in the destination environment.
- Security Principal Map
 - For each user or group in the source environment, this map identifies the user and group in the destination environment that is to be assigned the access privileges of that principal.
- Service Map
 - For each Process Engine service in the source environment, this map identifies the corresponding service in the destination environment.



















Data Maps	
Object Store Map: 0 map entries, 0 unmapped, updated Apr 8, 2011	Map Data
Security Principal Map: 0 map entries, 0 unmapped, updated Apr 8, 2011	Map Data <input checked="" type="checkbox"/> Use
Service Map: 0 map entries, 0 unmapped, updated Apr 8, 2011	Map Data <input checked="" type="checkbox"/> Use

**Click
Map Data
to populate
data maps.**

What is an Object Store Map?

- Default configuration
 - FileNet Deployment Manager defaults to mapping each object store in the source environment to an object store of the same name in the destination environment.
 - In most cases, the FileNet Deployment Manager user is mapping the contents of only one object store at a time.
 - To map a different object store pair, you need a different *source–destination pair* configuration (such as LoanProcDev_to_LoanProcQA, for example).











		Source Name	Destination Name	Source Symbolic Name	Destination Symbolic Name
		LoanProcess	LoanProcess	LoanProcess	LoanProcess
		LoanProcessQA	LoanProcessQA	LoanProcessQA	LoanProcessQA
		Operations	Operations	Operations	Operations
		P8ConfigObjectStore	P8ConfigObjectStore	P8ConfigObjectStore	P8ConfigObjectStore
		Sales	Sales	Sales	Sales
		SalesQA	SalesQA	SalesQA	SalesQA
		SalesSBx	SalesSBx	SalesSBx	SalesSBx
		Shared	Shared	Shared	Shared

Object Store Map editor

- | | Source Name | Destination Name | Source Symbolic Name |
|---------|---------------------|------------------|----------------------|
| [?] [?] | LoanProcess | ### | LoanProcess |
| [?] [?] | LoanProcessQA | ### | LoanProcessQA |
| [?] [?] | Operations | ### | Operations |
| [?] [?] | P8ConfigObjectStore | ### | P8ConfigObjectStore |
| [?] [✓] | Sales | SalesQA | Sales |
| [?] [?] | SalesQA | | SalesQA |
| [?] [?] | SalesSBx | | SalesSBx |
| [?] [?] | Shared | | Shared |

What is a Security Principal Map?

- Default configuration
 - FileNet Deployment Manager defaults to mapping each user and group in the source environment to the same users and groups in the destination environment.
 - The previous choice, to retrieve only the principals associated with the exported object store assets, constrains this map to a manageable size.

		Source Short Name	Destination Short Name	Source Display Name	Destination Disp
		admin1	admin1	Admin1	Admin1
		cmadmins	cmadmins	CMAdmins	CMAdmins
		cmviewers	cmviewers	CMViewers	CMViewers
		cmworkers	cmworkers	CMWorkers	CMWorkers
		p8users	p8users	P8Users	P8Users

Working with data maps

Security Principal Map editor

- Replace destination principal (short name).
 - Select destination principal short name from menu.
 - Destination Display Name is automatically updated.

Source Short Name	Destination Short Name	...	Source Principal Type	Destination Principal Type
admin1	ceadmin	...	User	User
cmadmins	ceadmins	...	Group	Group
cmviewers	Finance Reviewers	...	Group	Group
cmworkers	Finance Clerks	...	Group	Group
P8users	p8users	...	Group	Group

Many-to-one security principal mappings



- N to 1 mappings
 - Multiple users or groups on the source system are mapped to a single user or group on the target system.
 - Example 1:
 - Several named users (sue, sally and sam) all have system administration privileges on the source object store, and you want to consolidate these to a single Admin1 user on the destination object store.
 - Example 2:
 - One or more users or groups have been deleted from the LDAP system, but have not been deleted from the Content Engine object store.
 - To prevent these deleted users or groups from causing an error during asset conversion, you can map them to a single user or group on the target environment.

What is a Service Data Map?

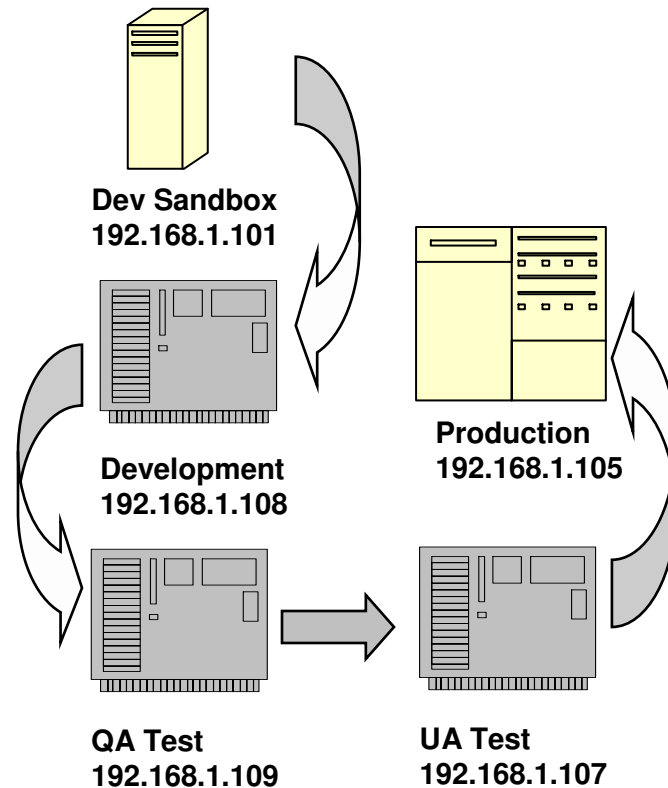
- Generated by FileNet Deployment Manager only if service half maps have been created
 - Services are mapped according to type.
 - Example: All services of type F_WebServer in the source half map are mapped to services of type F_WebServer in the destination half map.
 - Are fully editable using the FileNet Deployment Manager editor.

Note: The object store sample data for this course does not include any service data.

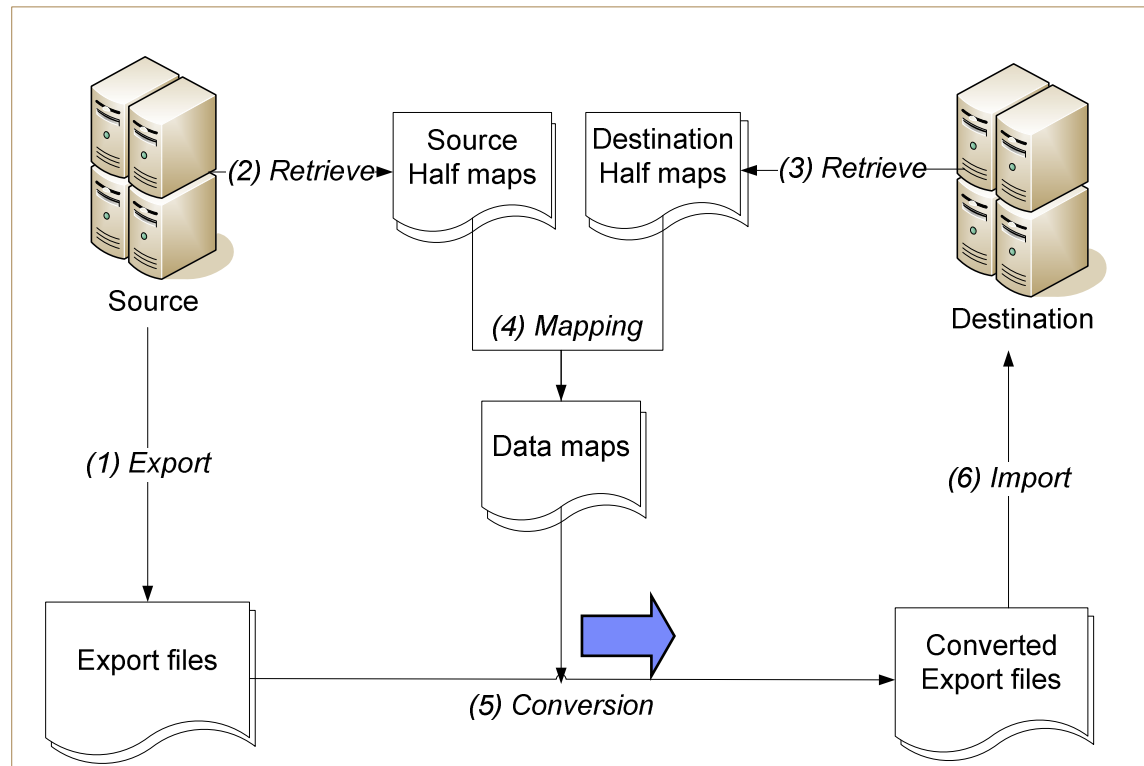
Source and destination pair examples

– A business solution implemented using the Sales object store as it moves from concept to deployment in the example application would require four separate source/destination pairs:

- SalesSBx_to_SalesDev
- SalesDev_to_SalesQA
- SalesQA_to_SalesUAT
- SalesUAT_to_SalesProd



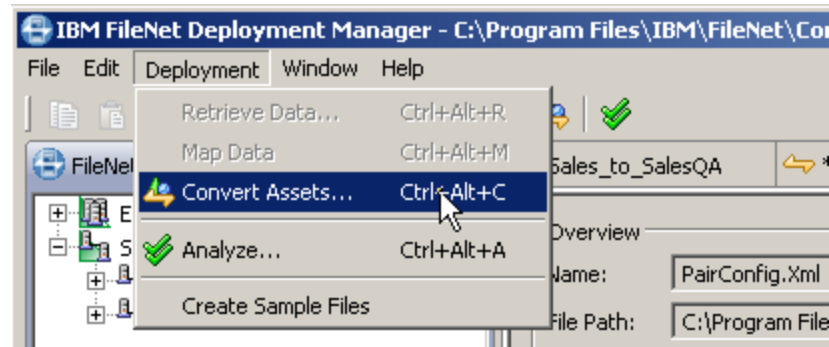
Data conversion



Working with data maps

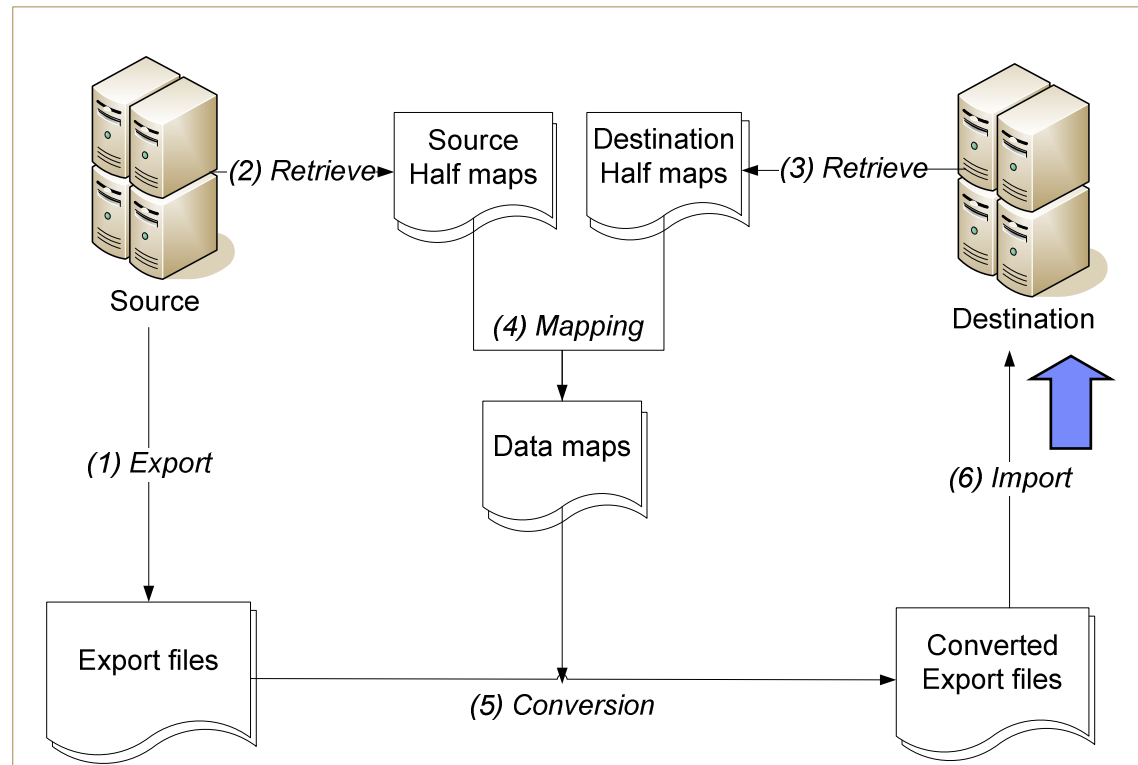
Convert assets

- High-level conversion algorithm
 - FileNet Deployment Manager reads from the exported deploy dataset file in the source environment.
 - It changes any object store and security principal references according to the data maps.
 - It writes the modified deploy dataset into a **<deploy-dataset-name>.converted** folder as the changes are executed.



Analyze and deploy data

Analyze data and import objects



Analyze and deploy data

What is a Change Impact Analysis Report?

- A validation report
 - Validates the converted deploy dataset file with the destination environment.
 - Does each referenced object exist in the destination environment?
 - Does every referenced security principal exist in the destination environment?
 - Is saved in the *converted* folder.

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](#)

[Detailed Information for Assets that have Passed Analysis](#)

Summary

Report Generated On:	2011-01-25 08:43:32 PST
Report Location:	C:\Program Files (x86)\IBM\FileNet ContentEngine\tools\deploy P8DeploymentData\Environments\marketingStore\Assets \SalesExport\converted\ChangeImpactReport.xml
Passed Assets Report Directory:	C:\Program Files (x86)\IBM\FileNet ContentEngine\tools\deploy P8DeploymentData\Environments\marketingStore\Assets \SalesExport\converted\ChangeImpactReport

Analyze and deploy data

Import Options window (1)

- Select Deploy Dataset
 - Defaults to the *<deploy-dataset-name>.converted* folder created by the conversion operation.
- Select Storage Policy for Imported Objects
 - Defaults to taking the storage policy from the class definition at the destination.
 - Other storage policy options:
 - Take the storage policy from the exported object.
 - Use a specific storage policy from the destination object store.

Analyze and deploy data

Import Options window (2)

- Import Security Permissions
 - Preserves the permissions assigned to the source objects.
- Import Owner
 - Preserves the owners assigned to the source objects.
- Import Object ID
 - Preserves the relationships to other exported objects that reference the object being imported.
- Use original create/update timestamps and users
 - If not selected, then the date and time of the import operation is used.

Analyze and deploy data

Import Options window (3)

- Use original create/update timestamps and users
 - Select this option to preserve the source system property settings for
 - Creator, DateCreated, DateLastModified, and LastModifier
 - These property values in the converted objects are carried over into the destination environment.
 - The default is enabled.
 - Requires that the connected user for the environment has the access right on the object store of *Modify certain system properties*.
 - If the option is not selected:
 - 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.

Analyze and deploy data

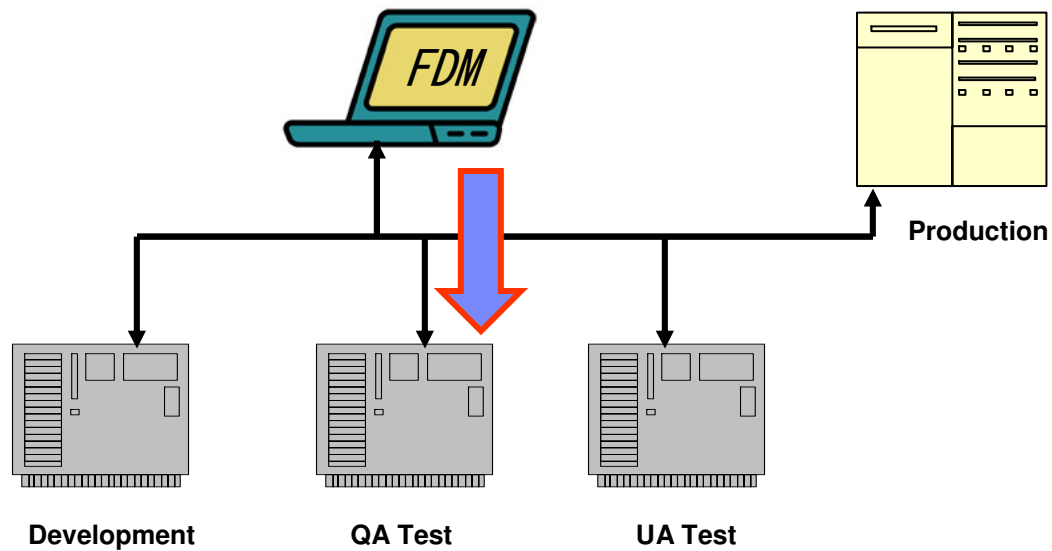
Import Options window (4)

- Update Options
 - Update if Newer:
 - Only updates the object if the instance in the import dataset is newer than the one at the destination.
 - The DateLastModified properties for the import object and the object in the destination environment are compared.
 - *Update if Newer* is the default setting.
 - Always Update:
 - Always updates the object if it exists at the destination.
 - Never Update:
 - Never updates the object if it exists at the destination.

Analyze and deploy data

Import data

- Converted deploy dataset
 - Imported asset are copied from the converted deploy dataset on the file system of the windows client running FileNet Deployment Manager to the object store of the destination system.



Analyze and deploy data

Running subsequent deployments

