Unit 2. Content Storage

Unit Overview

This unit contains these lessons.

Lessons

Lesson 2.1 - Content storage concepts and components, page 2-3

Lesson 2.2 - Create an object store, page 2-9

Lesson 2.3 - Configure a file storage area and policy, page 2-31

Lesson 2.4 - Create a content cache, page 2-51

Skill levels

Select one of these skill levels to perform the activities:

Challenge: Minimal guidance

Walkthrough: More guidance, with step-by-step directions

Unit dependencies

The activities in this unit must be performed in the given order.

The activities in this unit have no dependencies on other units.

Requirements

The activities in this unit assume that you have access to the student system configured for these activities.

Lesson 2.1. Content storage concepts and components

Why is this lesson important to you?

You are going to implement the content storage design requirements given to you by the system designers of your IBM FileNet P8 system. You need to be familiar with the basic storage capabilities and components of an IBM FileNet Content Manager system.

Activities

 Activity: Examine the storage components in a FileNet P8 domain, page 2-4

User accounts: Windows

Where used	User ID	Password
Enterprise Manager	filenetadmin	IBMFileNetP8



Passwords are always case-sensitive. User names are not case-sensitive.

Activity: Examine the storage components in a FileNet P8 domain

Introduction

In this activity, you examine the components of the Initial Site for this FileNet P8 domain, and then examine the storage components for two object stores that have different types of storage configuration.

Procedures

Procedure 1, Examine storage areas for the site, page 2-4

Procedure 2, Examine storage areas for individual object stores, page 2-5

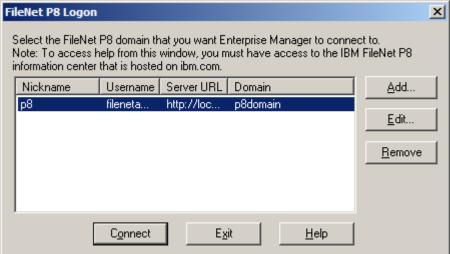


Windows

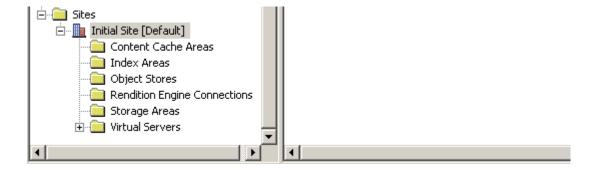
You use the Windows student system for this activity.

Procedure 1: Examine storage areas for the site

- 1. Start FileNet Enterprise Manager Administration Tool:
 - a. Choose the p8 Nickname entry and Connect

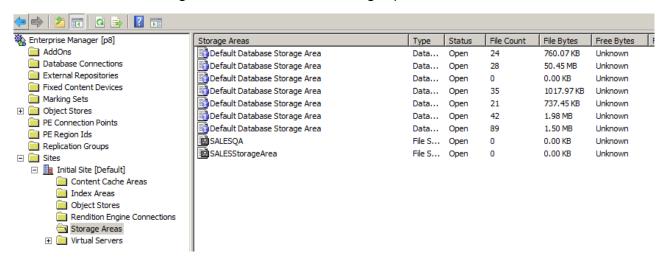


- 2. List the *Initial Site* components.
 - a. Expand the Sites node at the bottom of the left pane of the tool.
 - b. Expand the Initial Site [Default] node.



- 3. Examine the Storage Areas folder.
 - a. In the left pane, click Initial Site > Storage Areas node.

Two sets of storage areas are listed in the right pane.



- Default Database Storage Areas have been created, one for each of the object stores that have been configured for this site.
- File storage areas has been configured for SALES and SALESQA object stores.

Procedure 2: Examine storage areas for individual object stores

- 1. Examine the storage areas for the Operations object store.
 - The Operations object store is an example of an object store in which all content is stored in database tables (a *Database Storage Area*).
 - a. In Enterprise Manager, expand Object Stores > Operations

b. Click the Storage Areas folder.

A Default Database Storage Area is listed in the right pane. Note that the type is *Database Storage Area*.



c. Select the *Default Database Storage Area*, and from the menu bar, click Action > Properties.

The Default Database Storage Area Properties window opens.

Click the Statistics tab.

Note values of the File count, and File bytes.

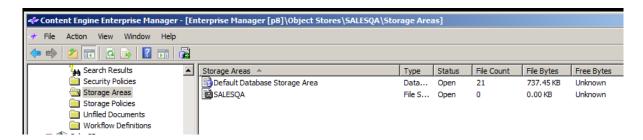
- e. Click Cancel to close the Default Database Storage Area Properties window.
- 2. Examine the storage areas for the SalesQA object store.

The SalesQA object store is an example of an object store in which all content is stored in the file system (type is *File Storage Area*).

- a. In Enterprise Manager, expand Object Stores > SalesQA.
- b. Click the Storage Areas folder.

Note that two storage areas are listed in the right pane.

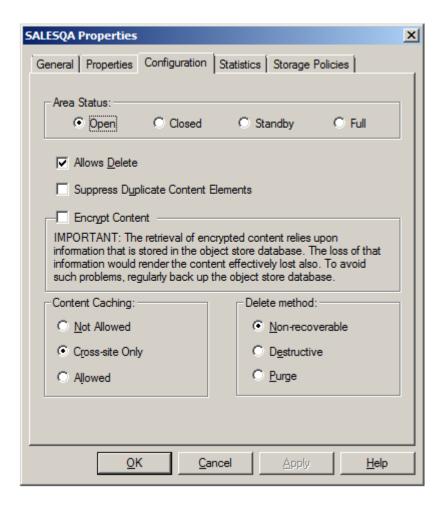
- The File Count is 21 for the Default Database Storage Area.
- The File Count is 0 for the SalesQA file storage area.



c. Select the SalesQA storage area, and from the menu bar, click Action > Properties.

The SalesQA Properties window opens.

Note the value of the Location field:



- Note that new content can be added to this storage area (Open)
- Content can be deleted from this storage area (for users with this level of access control).
- 3. Click Cancel to close the SalesQA Properties window.
- 4. Minimize Enterprise Manager.

Activity: Create an object store

Summary

Create a new object store using the Create an Object Store wizard in Enterprise Manager.

Procedures

Procedure 1, Create a target database, page 2-10

Procedure 2, Examine the MARKDB database, page 2-16

Procedure 3, Create the required data sources, page 2-17

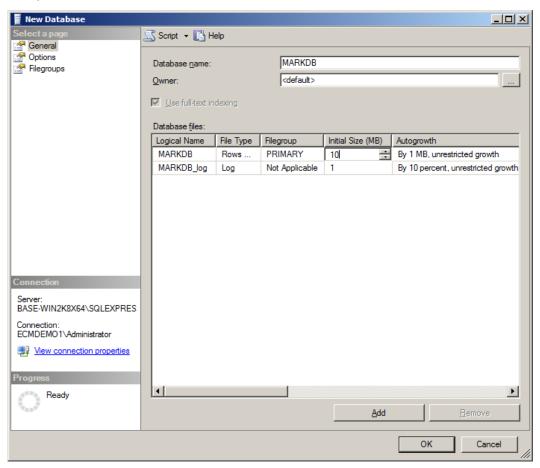
Procedure 4, Test the data sources from the WebSphere Application Server Administrative Console, page 2-23

Procedure 5, Create an object store, page 2-26

Procedure 1: Create a target database

In this procedure, you use the SQL Server Management Studio to create the a database names MARKDB. This database will be used by the object store.

- 1. Start the SQL Server Studio
- 2. Connect to the database (choose the defaults)
- Right click on Databases → New database and enter the parameters as below

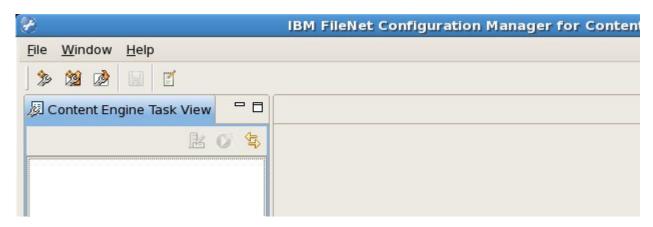


Procedure 3: Create the required data sources

In this procedure, you use the Configuration Manager to create the data sources that are required for the Content Engine to access the MARKDB database.

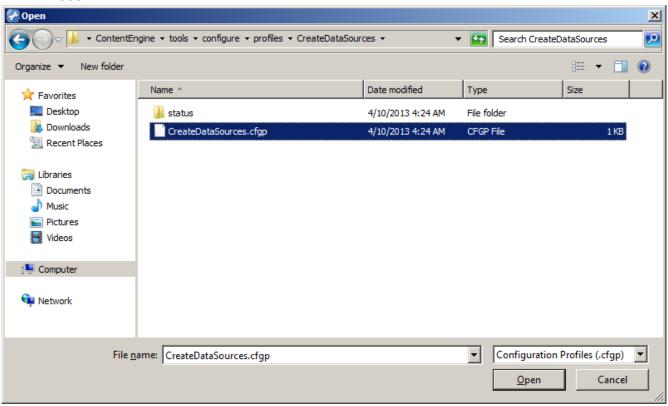
4. Start the IBM FileNet Configuration Manager using the Desktop icon

The IBM FileNet Configuration Manager for Content Engine window opens.



- c. If necessary, click the X icon on the Welcome tab to close the Welcome screen.
- 2. Open the profile locator window.
 - a. Click File > Open Profile.
 - b. Open the

C:\Program
Files\IBM\FileNet\ContentEngine\tools\configure\profiles\CreateDataSour
ces



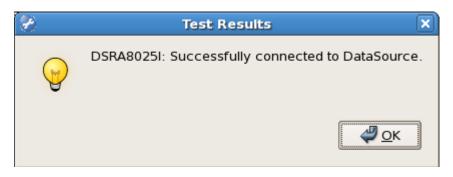
- 3. Open the CreateDataSources.cfgp profile.
 - a. Complete the configuration properties page for the task using the following data.

Item	Value
JDBC driver name	Microsoft JDBC Driver
JDBC data source name	MarketingDS
JDBC XA data source name	MarketingDSXA
Database server name	localhost
Database port number	1433
Database name	MARKDB
Database user name	osdbuser
Database password	IBMFileNetP8

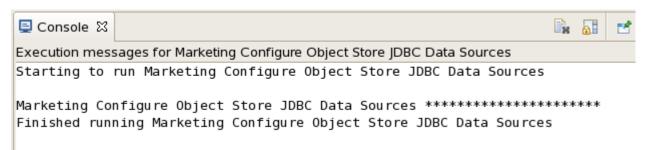
- b. Accept the default settings for any values not specified in the table.
- c. Click *Test Database Connection* in the lower left of the configuration panel. Click Yes on the *Action Required* window to save the task before proceeding.

A Test Results window is displayed with the following message:

Successfully connected to DataSource



- d. Click OK to close the Test Results message window.
- 5. Run the task to create and configure the data sources:
 - a. Right-click the Configure Object Store JDBC Data Sources task in the left pane and click Run Task.
 - b. Monitor the status of the running task in the Console section in the lower right corner of the window. Wait for the message Finished running Configure JDBC Data Sources to be displayed in the Console.



- 6. Close the profile and exit Configuration Manager.
 - a. From the menu bar, click File > Close Profile.
 - b. Click File > Exit to close the Configuration Manager.

Procedure 4: Test the data sources from the WebSphere Application Server Administrative Console

- 1. Open the Content Engine WebSphere Application Server Administrative Console.
 - a. Open a Firefox browser.
 - b. Click the *WAS Console* link in the bookmarks toolbar to open the Integrated Solutions Console.

Note the URL for this page:

https://<ServerName>:9043/ibm/console/logon.jsp

- c. Enter your account information and click Log in.
 - · User ID: filenetadmin
 - Password: IBMFileNetP8

The Welcome page is displayed.

- 2. Open the Data sources page.
 - a. In the left pane, expand the Resources link.
 - b. Expand the JDBC link.
 - c. Click the Data sources link.

The *Data sources* page is displayed in the right pane.

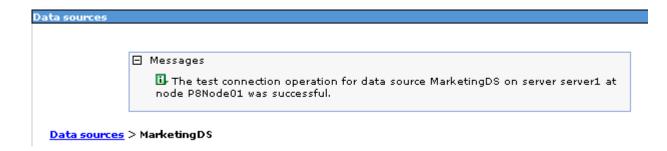
d. Scroll down and locate the MarketingDS data source.



	<u>MarketingDS</u>	MarketingDS	Cell=P8Node01Cell
	MarketingDSXA	MarketingDSXA	Cell=P8Node01Cell
	OperationsD8	OperationsDS	Cell=P8Node01Cell

b. Select the MarketingDS and MarketingDSXA check boxes and Click *Test connection*.

After a few moments, a message is displayed on the same page indicating that the test connection operation for data source MarketingDS was successful.

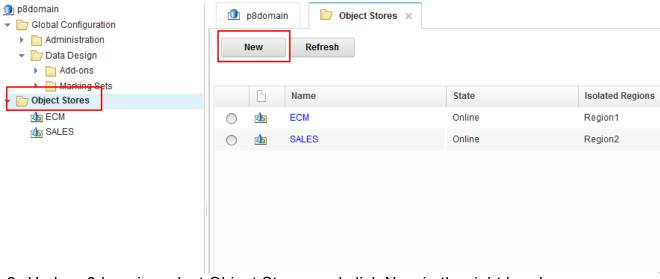


3. Minimize the browser.

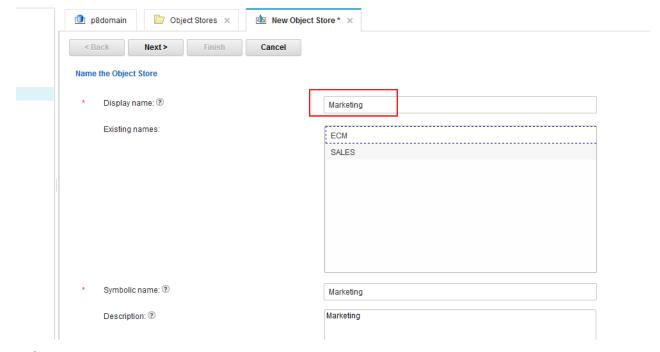
Procedure 5: Create an object store

Use the ACCE to Create an Object Store

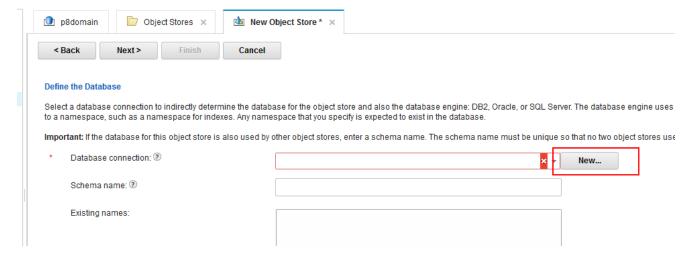
Login to Administration Console for Content Engine (ACCE).
 filenetadmin/IBMFileNetP8



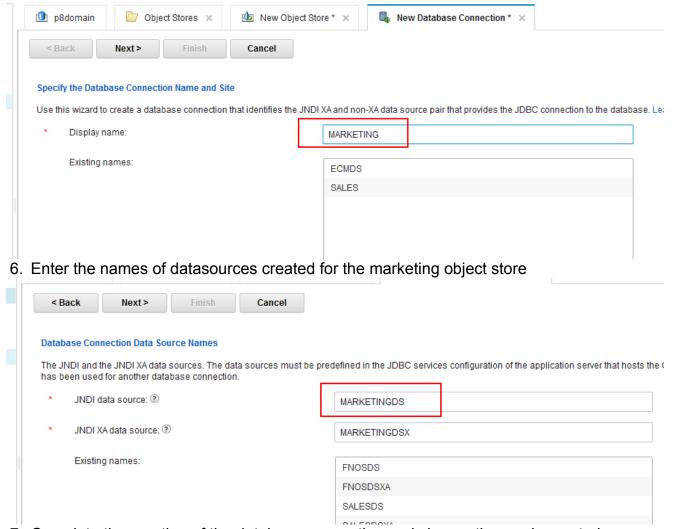
- 2. Under p8domain, select Object Stores and click New in the right hand pane:
- 3. Complete the Name and Describe the Object Store page.
 - a. Type Marketing in the Display Name field.
 The Symbolic Name and Description fields are populated automatically with the same name.
 - b. Click Next.



4. Click New to create a new database connection



5. Specify the name of the database connection (Marketing)

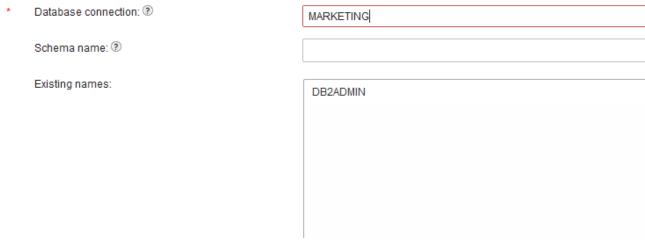


7. Complete the creation of the database connection and choose the newly created connection in the object store creation page as shown below:

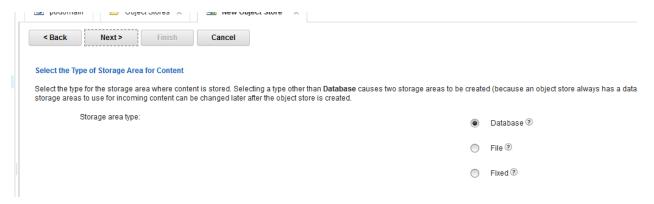
Define the Database

Select a database connection to indirectly determine the database for the object store and also the database engine: DB2, Oracle, or S0 to a namespace, such as a namespace for indexes. Any namespace that you specify is expected to exist in the database.

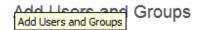
Important: If the database for this object store is also used by other object stores, enter a schema name. The schema name must be u



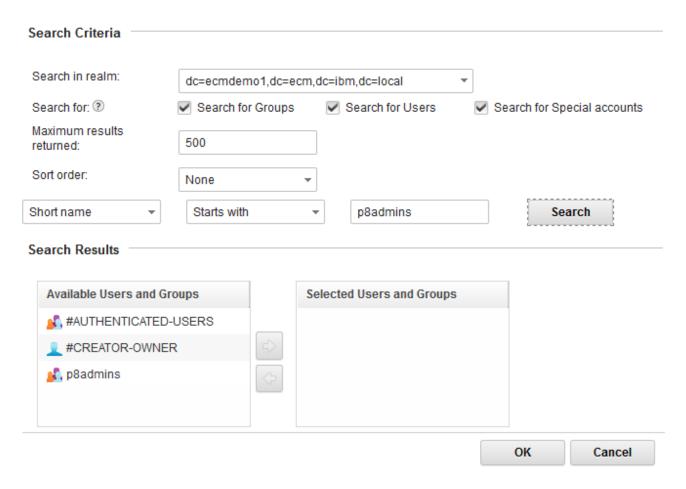
- 8. Take the defaults and click Next
- 9. Complete the Specify the default Content Store page.



- 10. Complete the Specify object store administrators.
 - a. Click Add, which opens the Add Users and Groups window.
 - b. In the Search Criteria panel, type p8admins in the text field.



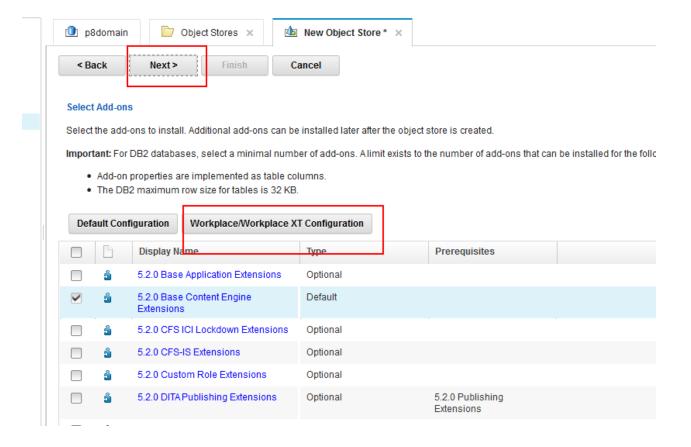
You can search for the user and group accounts to whom you want to allow or deny access. The accounts that you select are added to the access control list of the object with default permissions that you can view and modify.



- c. Select the group name P8Admins and click OK.
- d. Click Next.
- 12. Complete the Specify Initial User Groups page.
- 13. Click Add and pick p8users and click Next

Add Users and Groups You dand Users and Groups and group accounts to whom you want to allow or deny access. The accounts that you select are added to the access control list of the object with default permissions that you can view and modify. Search Criteria Search in realm: dc=ecmdemo1,dc=ecm,dc=ibm,dc=local Search for: 2 Search for Groups Search for Users Search for Special accounts Maximum results 500 returned: Sort order: None р8 Short name Starts with Search Search Results **Available Users and Groups** Selected Users and Groups ♣ #AUTHENTICATED-USERS 🖍 p8users #CREATOR-OWNER 🖍 p8admins OK Cancel

14. Select the Workplace/WorkplaceXT Configuration and click Next



15. Click Finish to create the Object Store.



It can take several minutes before the progress bar changes, and another minute or more for the new object store to be created.

- 16. Verify that the new object store is usable:
 - a. Run Workplace XT.
 - b. Enter your account information and click Log in.

User name: filenetadminPassword: IBMFileNetP8

- c. Select the Marketing object store.
- d. Click the Add Folder icon.

The Add Folder browser window opens.

- e. Type Test Folder in the Folder Name field under Properties.
- f. Click Add, and the click OK to close the Add Folder window. If the new folder is added, you have successfully created the object store.
- g. Log out of Workplace XT.

Lesson 2.2. Configure a file storage area and policy

Why is this lesson important to you?

Your business solution requires creating file storage areas and using them as part of a storage area farm. As the solution builder, you must create the file storage areas, define a storage area farm, and create a file storage policy to manage how the storage area farm is used.

Activities

- Activity: Create a file storage area, page 2-32
- Activity: Create and use a file storage policy, page 2-43

Activity: Create a file storage area

Summary

Create a file storage area and set it as the default storage area for the Email class. Edit the storage area configuration to not allow caching and to set the deletion method to Purge.

Procedures

Procedure 1, Create a folder for the file storage area, page 2-32

Procedure 2, Create a file storage area using Enterprise Manager, page 2-33

Procedure 3, Explore the storage area folder structure, page 2-35

Procedure 4, Configure the file storage area, page 2-36

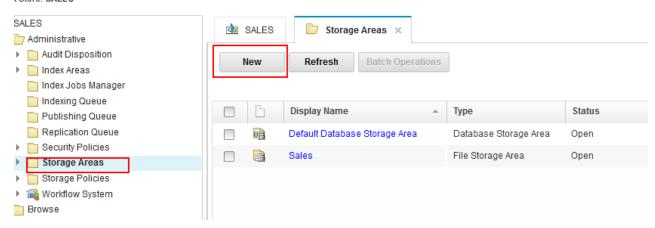
Procedure 5, Verify the configuration, page 2-38

Procedure 2: Create a file storage area using Enterprise Manager



Use the Windows student system for this procedure.

- 1. Create a file storage area for the Marketing object store:
 - a. Login to the ACCE and select the Marketing object store
- b. Select Administrative > Storage Areas and click New in the right hand pane t Store: SALES



c. Complete the wizard using the following table:

or complete are meaning are renorming takens.			
Item	Value		
Storage Area Name	FSMarketing		
Storage Area Type	File		
Site	Initial Site		
Root Directory	C:\Filestores\Marketing		
Size Parameters	Directory Structure: Small Maximum Size: Maximum allowed on device Maximum Number of Elements: Unlimited Delete Method: Standard Suppress Duplicate Content Elements: cleared		
Storage Area Policy	Do not select a storage area policy Do not create a new storage policy. The storage area will not be used until it is mapped to a storage policy.		

2. Complete the storage area creation by clicking Finish

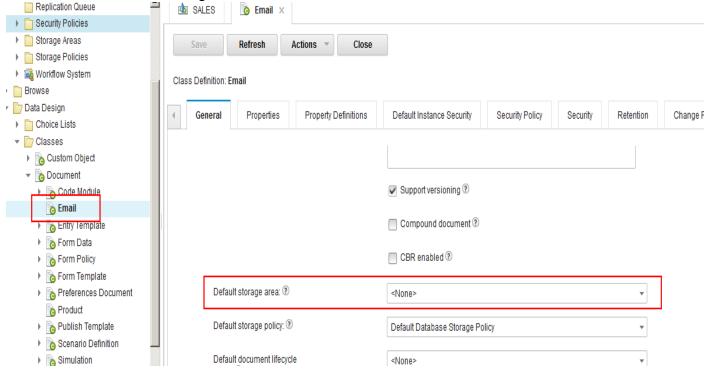
Procedure 3: Explore the Windows storage area directory structure

In this procedure, you examine the contents of the Marketing subdirectory that were created when the file storage area was created.

- Examine the Marketing subdirectory.
 - a. Open a windows explorer and view the C:\Filestores\Marketing folder
 - b. Note the structure:
 - content subdirectory
 - · fn stakefile.xml file
 - inbound subdirectory
 - c. Review the subfolders of the content subdirectory (the list of subdirectories may be different on your system)

Procedure 4: Configure the file storage area

- 1. Set default storage for Marketing Email class documents. Set the new file storage area of the Marketing object store as the default storage container for documents belonging to the Email class.
 - a. In ACCE, expand Object Stores > Marketing > Data Design > Classes > Document > Email Class.
 - b. Select Email class
 - c. In the right hand pane, on the General tab, select FSMarketing from in the Default Storage Area selection list.



- d. Click Save
- 2. Modify the properties of the FSMarketing storage area.
 - a. Select Marketing > Administrative > Storage Areas > FSMarketing.
 - b. In the right pane, select Click the Configuration tab.

Status	Option name	
Open	Resource Status	
selected	d Allows Delete	
	Suppress Duplicate Content Elements	

- c. Select the Not Allowed option in the Content Caching dropdown
- d. Select the Purge option in the Delete method panel.
- e. Update the Statistics tab.
 - i. In the *Storage Area Maximums section*, accept the default option of Unlimited for the *Maximum Number of Elements*.
 - ii. Change Maximum Size to 10 MB

Examine the Storage Policies tab.

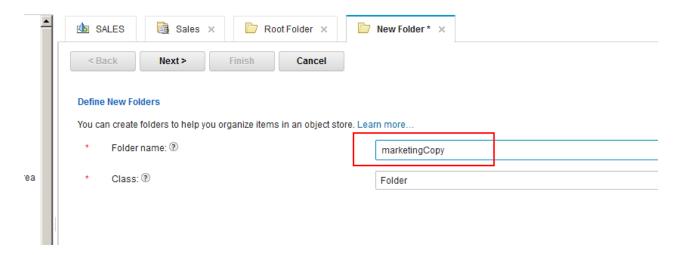
Note that the Storage Area is **not** mapped to any Storage Policies.

3. Click Save to apply your changes to the FSMarketing properties.

Procedure 5: Verify the configuration

Use the following procedure to verify that adding an email to the system adds the content to the new file storage area, and that adding a regular document adds it to the default storage area.

- 1. Create a new folder named marketingCopy in the Marketing object store:
 - a. Select Marketing > Browse > Root Folder.
 - b. Right click on the Root Folder and select New Folder



accept the defaults in the next 2 dialogs and click Finish to create the Folder

- 2. Add an email file (Class: Email) to the marketingCopy folder:
 - a. Login to WorkplaceXT. Navigate to the marketingCopy folder and add a document of type class Email. Use the Add Document wizard in WorkplaceXT to do so.
 - b. Choose the sample content in file sampleEmail.txt in
 - C:\Labs\P8Administration\ContentStorage
- 3. Add a document file (Class: Document) to the marketingCopy folder.
 - a. For content choose sampleDocument.txt in
- C:\Labs\P8Administration\ContentStorage
- 4. Verify content storage.

Here you verify that the documents were stored in the expected storage areas.

- a. In ACCE, select Marketing > Administrative > Storage Areas.
- b. From the menu bar, click Action > Refresh to ensure that the most

current data is displayed.

Two storage areas are listed.

- Default Database Storage Area
- FSMarketing
- c. Locate the file count column for the two storage areas and verify that one file occurs in each storage area.
- 4. These files are the test email and test document files that you added.

Activity: Create and use a file storage policy

Summary

Create two new file storage areas to represent a storage area farm. Create a new storage policy that includes both of these storage areas and assign it to the Document class. Add some documents to the object store and observe the file count information in the storage areas.

After you do these exercises, create a third storage area and add it to the storage policy. Add some more documents and observe the new file count information for the storage areas.

Procedures

Procedure 1, Create subdirectories on windows system

Procedure 2, Create storage area farms

Procedure 3, Configure a new file storage policy

Procedure 4, Verify that storage area farming is working, page

Procedure 5, Create another subdirectory on Linux system

Procedure 6, Add a new storage area to an existing storage farm

Procedure 1: Create sub folders on the Windows file system

1. In the C:\filestores\ folder create fsfarm1 and fsfarm2 folders

Procedure 2: Create storage area farms

The storage policy is going to make use of the Content Engine load-balancing capabilities to distribute content within a storage area farm. Use the following procedure to create two file storage areas to represent a storage area farm.

- 1. Create two file storage areas for the Marketing object store:
 - a. Follow the procedures from the previous section to create 2 file storage areas. Use the data provided below:

Area	Item	Value
	Specify a Site	Accept Initial Site
	File Storage Area Name	FS1
	Storage Area type	File Storage Area
Storage Area 1	Root Directory	C:\Filestores\fsfarm1
	Size Parameters	Accept defaults.
	Specify Storage Policy page	Do not create a new storage policy.

Area	Item	Value
	Specify a Site	Accept Initial Site
	File Storage Area Name	FS2
	Storage Area type	File Storage Area
Storage Area 2	Root Directory	C:\Filestores\fsfarm2
	Size Parameters	Accept defaults.
	Specify Storage Policy page	Do not create a new storage policy.

Procedure 3: Configure a new file storage policy

Now that you have a storage area farm, you can create a storage policy that assigns content to this farm. Use the following data and procedure to create a file storage policy and apply it to the Document class.

- 1. Create a new storage policy:
 - a. In Enterprise Manager, select Marketing > Storage Policies.
 - b. Click Action > New Storage Policy.

The Create Storage Policy Wizard opens.

- Click Next.
- ii. Use the data provided in the following table to complete the wizard.

Page or property	Value
Storage Policy Name	Farmed Storage
Select Content Storage Method	Select Storage Areas from a list
Selected Storage Areas	FS1
	FS2

- c. Select the Marketing object store and click Action > Refresh.
- 2. Assign the new storage policy to the Document class:
 - a. Select Marketing > Document Class.
 - b. Right-click Document Class and click Properties.
 - c. On the General tab, change the Default Storage Policy to Farmed Storage.

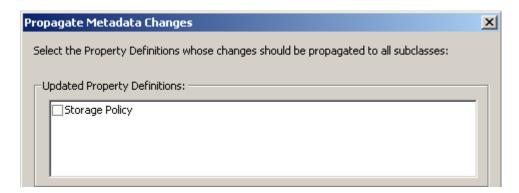
Verify that <None> is selected for the Default Storage Area. The Farmed Storage policy set in the previous procedure directs the system to use both the FS1 and FS2 storage areas.

If both the Default Storage Area and the Default Storage Policy are set, the Default Storage Area setting takes precedence and the storage policy that you defined is ignored.

d. Click Apply.

After a short while, the Propagate Metadata Changes window opens.

i. Ensure that the check box for the Storage Policy item is cleared so that the changes are not propagated to the Document subclasses.



- ii. Click OK to close the Propagate Metadata Changes window.
 - It can take another short while for the new default storage policy assignment to be completed by the system.
- e. Click OK to close the Properties window.

Procedure 4: Verify that storage area farming is working

To see the storage area farm at work, you are going to add some documents to the Marketing object store and then view the statistics of the FS1 and FS2 storage areas.

- 3. Add a document to the object store:
 - a. Run Workplace XT.
 - b. Enter your account information and click Log in.

User name: filenetadminPassword: IBMFileNetP8

- c. Go to Marketing > marketingCopy.
- d. Click the Add Document icon.

The Add Document browser window opens.

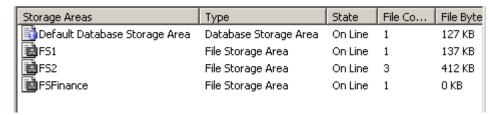
Browse to

C:\Labs\P8Administration\ContentStorage.

- ii. Select Testfile1.doc and click Open.
- e. Click Next on the Add Document window, f.

Click Add.

- g. Click OK to close the Add Document window.
- 4. Add three more documents.
 - a. Repeat steps 3d to 3g to add the files Testfile2.doc, Testfile3.doc, and Testfile4.doc to the Marketing > marketingCopy folder.
 - b. Note that all four files are listed in the right pane of Workplace XT.
- 5. Review the results in Enterprise Manager.
 - a. In Enterprise Manager, select Marketing > Storage Areas.
 - b. Click Action > Refresh to make sure that the information that is displayed for the storage areas is current.
 - Locate the File Count column for the FS1 and FS2 storage areas and verify that both storage areas contain files.



Lesson 2.4. Create a content cache

Why is this lesson important to you?

A department in your company frequently accesses document content that resides on geographically remote storage areas that are accessed through a wide area network (WAN). As the IBM FileNet P8 administrator, you must create a content cache to expedite access to this remote document content.

Activities

- Create a content cache: Challenge, page 2-53
- Create a content cache: Walkthrough, page 2-55

Create a content cache: Challenge

Challenge

Create a folder C:/contentcache subdirectory.

On the Windows student system, use Enterprise Manager and the data below to do the following:

- Create a content cache area.
- Configure the Virtual Server.
- · Configure the Default Database Storage Area.
- Modify the Operations > Document Class properties

Data

Required content cache area

Item	Value
Name	Cache1
Content Cache Area Folder page (Do not click Browse.)	C:/contentcache
Size Parameters page	<accept default="" values.=""></accept>
Processing Parameters page • Content Lifespan:	<accept pruning="" thresholds.=""> 5 Minutes</accept>

Virtual server configuration:

Sites > Initial Site > Virtual Servers > <serverName>

- Properties: Content Cache tab

Override inherited settings:

selected

Available Content Cache Areas:

Cache1

Default Database Storage Area configuration:

- Operations > Storage Areas > Default Database Storage Area
 - Properties: Configuration tab
 - Content Caching: Allowed

Operations > Document Class configuration:

- Properties > General tab
 - Default Storage Area: Default Database Storage Area
 - Default Storage Policy: None
- Propagate Metadata Changes to all subclasses
 - Storage Area
 - Storage Policy

Sample documents:

- Location: C:\Labs\P8Administration\ContentStorage
- File names: MarketingPlan1.doc

Verification

- Use Workplace XT (user ceadmin) to add the document specified in the data section to the Operation > Miscellaneous folder.
- Examine the Properties: Statistics tab of the following object: Sites > Initial Site > Content Cache Areas > Cache1 properties
- Verify that there is one element in the cache.
- Wait 5 minutes, refresh the Content Cache Areas object, and verify that no elements are displayed in the cache, and that one element has been deleted.

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