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Product Implementation Training (PIT)

FileNet Content Manager 5.2.1

ECM Atmos Cloud Storage Support

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Introduction

- Course Overview
  - This course will provide an overview of CPE support for Atmos content storage
- Target Audience
  - IBM FileNet Content Platform Engine system administrators and support personnel
- Suggested Prerequisites
  - Familiarity with the IBM FileNet Content Platform Engine administration environment
  - Familiarity with the IBM FileNet Content Platform Engine content subsystem and concepts related to Fixed Content Devices
- Version Release Date October, 2014

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Course Objectives

After this course you will be able to:

- Describe the new Atmos feature in functional terms
- Provide a high level description of the Atmos features used by the CPE
- Describe how to configure the CPE as an Atmos client
- Provide a high level description of how the Atmos feature is implemented
- Create an Atmos Fixed Content Device and Fixed Storage Area
- Configure a Fixed Storage Area for Strict Alignment Mode
- Troubleshoot common problems encountered when configuring the CPE to use Atmos

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Course Roadmap

- ➔ Feature Description
- Atmos Overview
- Configuring the Content Engine as an Atmos client
- Feature Implementation
- Using ACCE to create an Atmos Fixed Content Device
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Feature Description

- CPE now supports storing and retrieving content to and from an EMC Atmos cloud storage service
- This feature is designed to allow customers with an existing investment in Atmos technology or who choose to purchase Atmos Storage services from a 3rd party cloud provider to leverage the full range of ECM services and features offered by CPE with content stored in Atmos
- Includes support for aligning retention management so that it is consistently applied by both the CPE and by Atmos

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Atmos Overview

- Atmos is a cloud oriented content storage product offered by EMC with features that include:
  - Scalability across geographically dispersed servers
  - Hardware independence
  - Content replication
  - Multi-tenancy
  - Policy based object management
  - Retention management
  - REST API

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Atmos Overview

Metadata

- Atmos supports applying arbitrary metadata tags to objects in the form of name=value pairs
- There are two types of metadata: Listable and non-listable
- Listable metadata are indexed and allow searching for objects tagged with specific metadata values
- CPE applies non-listable metadata to enable retention

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Atmos Overview

Atmos Policies

- Atmos Policies are administrative objects that define various content management behaviors including object retention
- All Atmos objects must be associated with a specific policy
- Objects are assigned to Policies indirectly by way of a Policy Selector or a Policy Transition Specification or at creation time by designating a default policy
- Policy Selectors are an event based mechanism that allows object policy assignment to be triggered by metadata values
- Objects for which Policy assignment is not triggered by a Policy Selector at creation time will be assigned to the designated default Policy
- Policy Transition Specifications are a directed graph of Policy objects that represents an information lifecycle storage strategy for objects that are associated with it. An Object associated with a Policy Transition Specification is automatically assigned to a Policy based on its age and current state
- CPE does not support the use of Policy Transition Specifications

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Atmos Overview

Atmos retention support

- Retention behavior is enabled or disabled for an object depending on the Policy to which it is assigned
- A retention date can only be applied to on an object that is assigned to a Policy that enables retention
- An initial retention date is applied to an object when it is assigned to a Policy supporting retention. This initial retention date is computed from the default retention period specified by the Policy
- Atmos allows the initial retention date on an object to be extended but does not allow it to be reduced
  - Once a retention date has been applied, it can only be changed if the new value is a date more distant in the future - it cannot be changed to a date that is nearer to the present or to a date that is in the past
- Atmos does not support legal holds or indefinite retention
- Atmos policies can also be configured for automatic disposal when retention had expired
  - Use of Atmos automatic disposal capability is not supported by CPE

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Atmos Overview

Tenants and Subtenants

- Atmos supports a multi-tenancy architecture in which a dedicated set of configuration data and other system resources are partitioned for the private use of a specific client organization or application. Such partitions are called ‘Tenants’
- Objects created within the scope of a Tenant are not visible to other Tenants
- Tenants have:
  - A Web Access Node, aka the root URL
  - A unique Id
  - A set of Policies, Policy Selectors, and Policy Transition Specifications
- Tenants can also be subdivided into one or more subtenants
- Each Subtenant has its own set of users
- A CPE Atmos Fixed Content Device will be associated with a specific subtenant

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Configuring the Content Engine as an Atmos client

- The CPE uses the Atmos REST API for all communication with Atmos so there is no requirement for a separate client install and no additional jar files that need to be in the server class path
- It maybe necessary to obtain and install a client side certificate in the application server where your CPE is deployed
  - By default, Atmos uses a self-signed certificate for SSL connections, although this will typically be replaced by a certificate provided by the tenant administrator
  - Root certificates for the major certificate authorities are typically already present in the Java VMs used by the various application servers supported by CPE. If Atmos is configured to use a certificate from one of these certificate authorities, there is usually no additional configuration necessary.
  - The procedure for deploying a certificate is dependent on the application server type. You must consult the documentation specific to your application server for detailed instructions on how to add a certificate to your application server's trust store

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Feature Implementation

- The CPE Integration with Atmos is implemented by the addition of a new type of Fixed Content Device
- The Atmos Fixed Content Device is backed by a new Fixed Content Provider that supports all the standard content streaming behaviors required by the CPE content sub-system such such as create, open, read, write, seek, close, and delete
- In addition, it also supports applying and altering retention dates
- The Atmos Fixed Content Provider implementation is based on the Atmos REST interface using the Id based addressing scheme for objects
- Each content element of a document that is checked into Atmos fixed storage area is stored as a separate Atmos object
- Atmos object Ids are generated and assigned at creation time, but are not visible to the user from ACCE
- Application of metadata is supported, but only non-listable metadata
- Limitations:
  - Indefinite retention is not supported
  - Use of Atmos automatic disposal is not supported
  - Atmos objects created by the CPE are not searchable from Atmos applications (they are searchable from the CPE)

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Atmos Fixed Content Device Non-inherited properties

Name	Description
Atmos URL	An HTTP URL that resolves to the base address and port number for the target Atmos storage service
Shared Secret	A 28 character string that is a base 64 encoded array of bytes assigned by Atmos for a specific UID. This value is used to digitally sign REST requests for purposes of authentication. It is also, in effect, the password used by the CPE for logging in to Atmos.
Atmos UID	A string assigned by the Atmos administrator that uniquely identifies a specific Atmos account and uniquely corresponds to a specific Shared Secret
Atmos Subtenant	A 32 character string that uniquely identifies a specific Atmos Subtenant
HTTPS Certificate Validation Enabled	A boolean flag that enables/disables hostname and certificate validation over an https connection to an Atmos storage service. Certificate validation can be disabled when the Atmos storage service being connected to is within the boundaries of the same firewall or for troubleshooting purposes. The default is enabled.
Retrieval Timeout	The maximum time in milliseconds that the CPE will wait for a response from the Atmos service after sending an HTTP REST request. Default is to wait indefinitely
Max Connections	*Not currently used*

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Using ACCE to create an Atmos Fixed Content Device

Prerequisites for creating an Atmos FCD

- *Administrative access privileges for your FileNet P8 Domain*
- *Obtain the following values from your Atmos tenant administrator:*
  - The Web Access Node (root URL) for your Atmos tenant
  - The Id of the Atmos subtenant designated for use by the CPE
  - The UID designated for use by the CPE (the CPE will always log in with the UID you specify)
  - The Shared Secret associated with the UID

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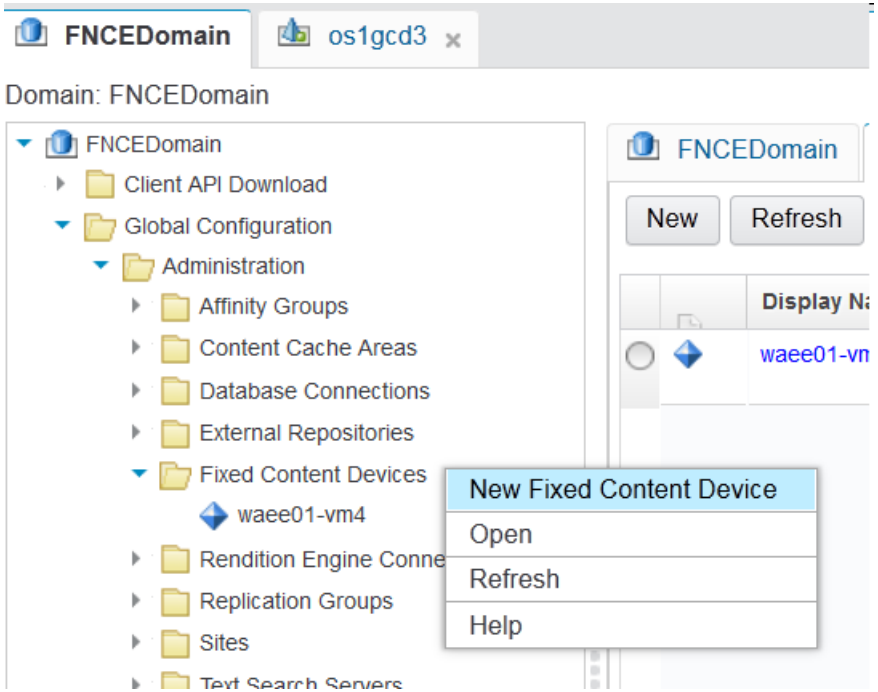
Using ACCE to create an Atmos Fixed Content Device



1. Log into ACCE as domain admin
2. Navigate to Domain tab
3. Open ‘Global Configuration’ folder
4. Open ‘Administration’ folder
5. Right click on Fixed Content Devices’ folder
6. Select ‘New Fixed Content Device’ to invoke the wizard

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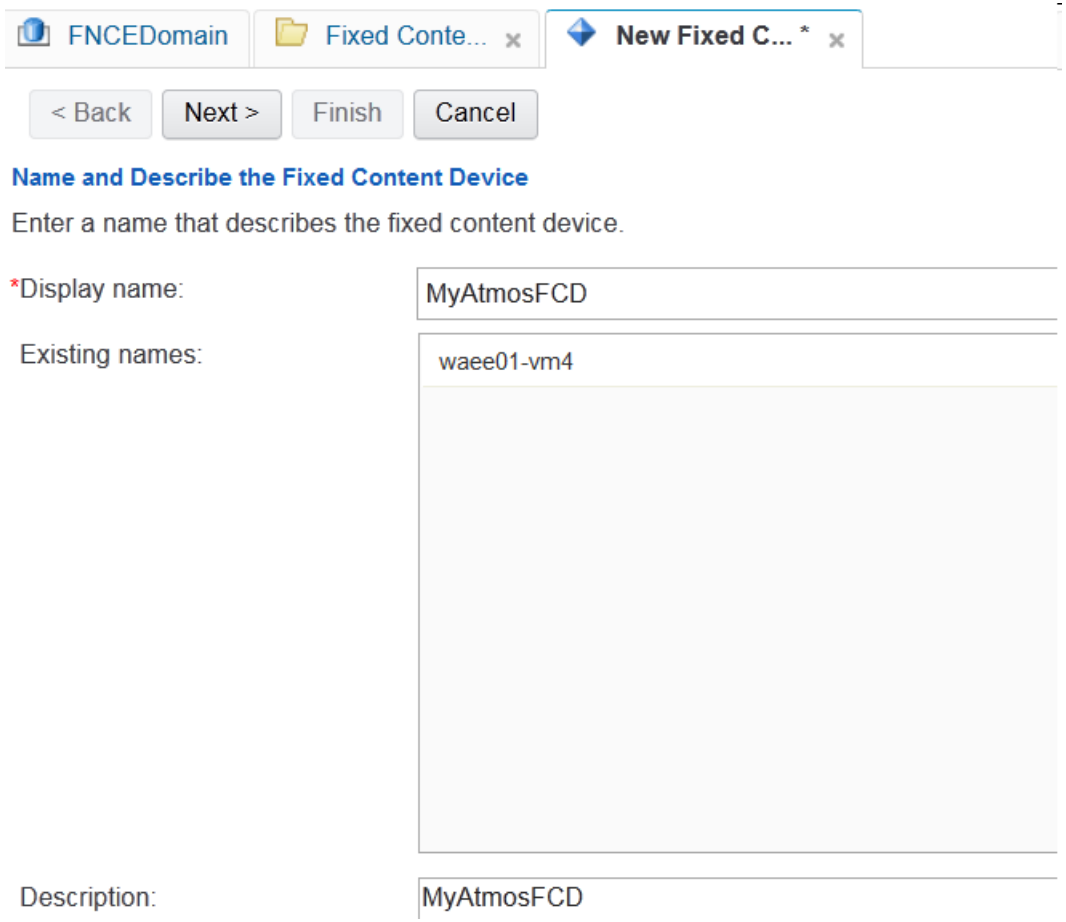
Using ACCE to create an Atmos Fixed Content Device



7. Enter a unique name
8. Enter a description (optional)
9. Click ‘Next’

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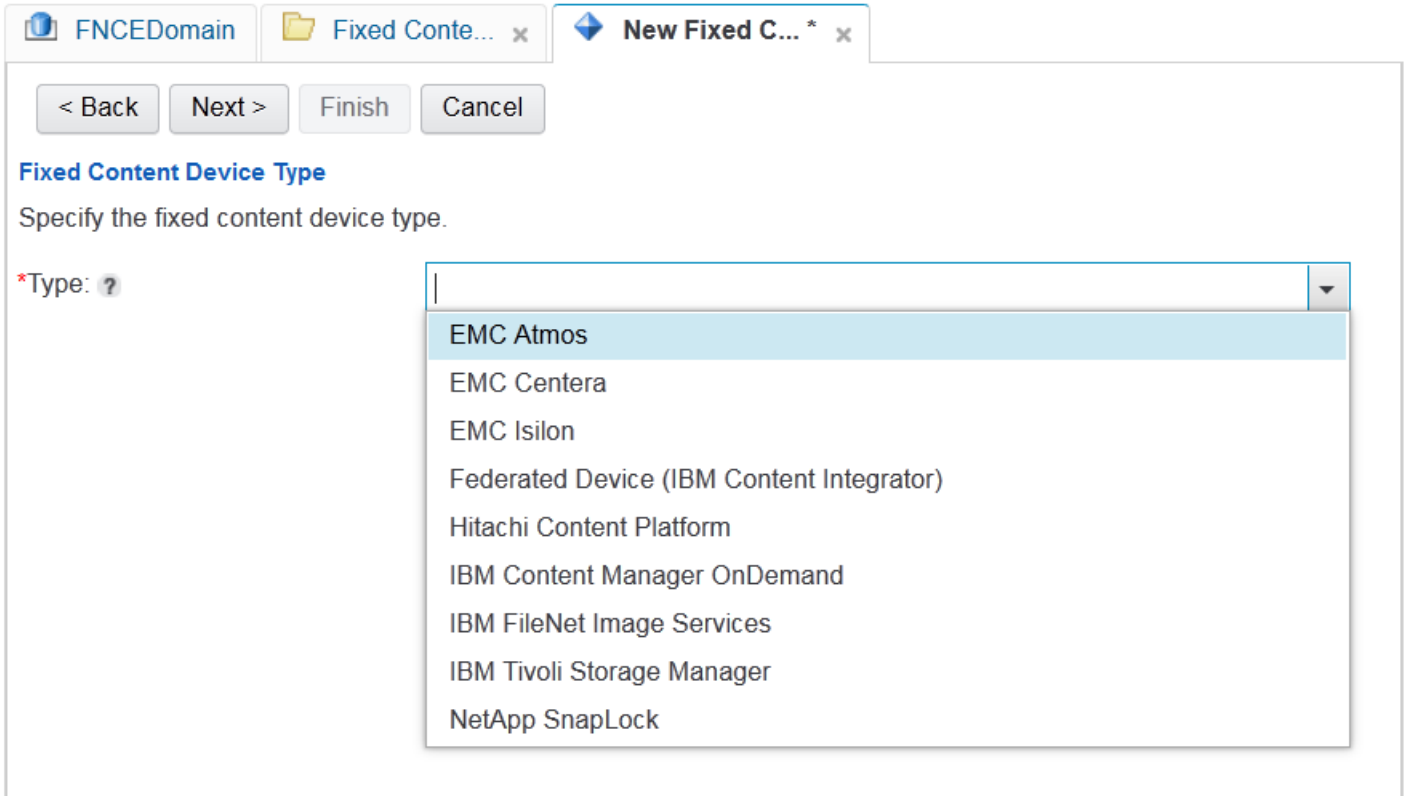
Using ACCE to create an Atmos Fixed Content Device



10. Select ‘EMC Atmos’ as the Type from the drop down menu

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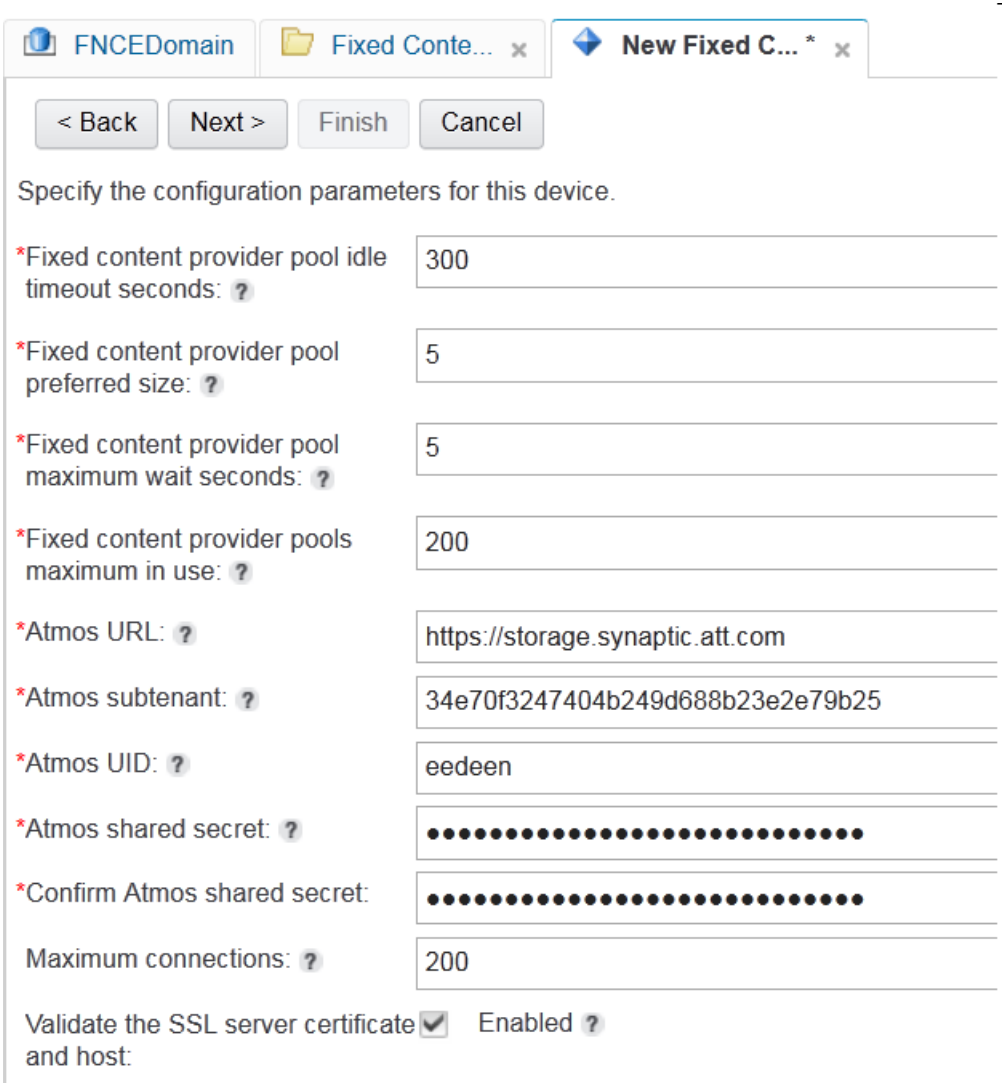
Using ACCE to create an Atmos Fixed Content Device



11. Enter values for required properties
12. Select ‘Finish’ (or ‘Next’ to confirm your configuration)

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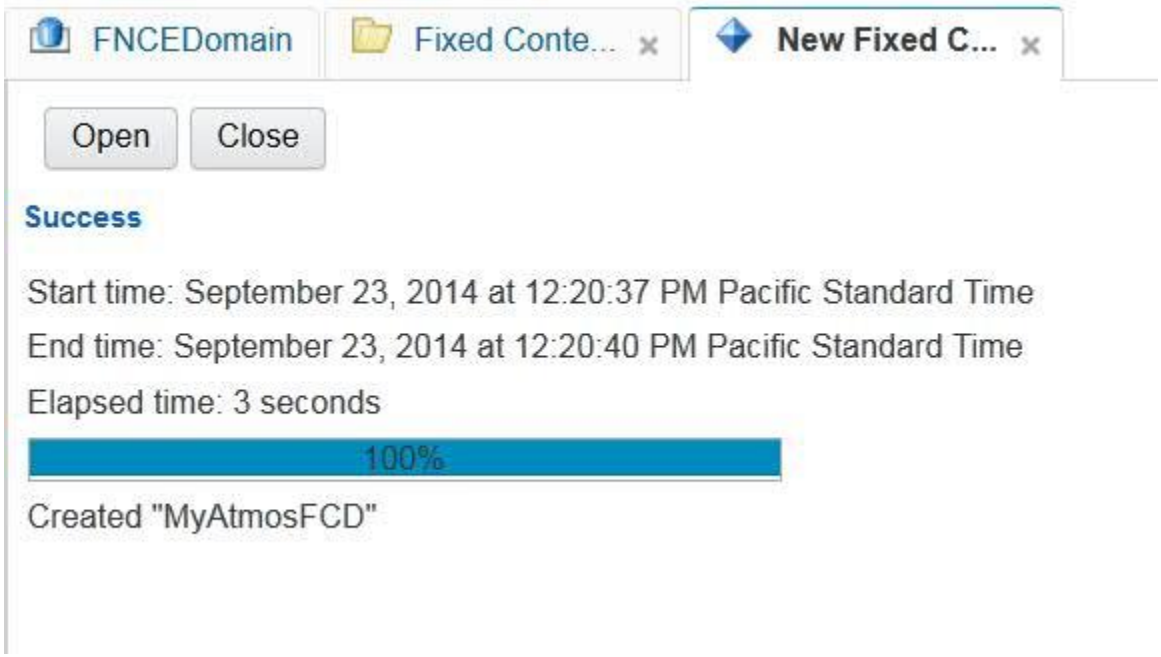
Using ACCE to create an Atmos Fixed Content Device



13. CPE will attempt to connect to the Atmos service using the connection values supplied and will display this message if successful

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Configuring the Retention Mode for Strict Alignment

- Strict Alignment means that retention dates will be aligned between the CPE and Atmos, that is, when the retention date on a document is set to 10/31/2020 in the CPE, then the same retention date will be applied to the associated content elements that are stored in Atmos. Retention enforcement will also occur in both places
- Strict alignment is enabled by setting the Retention Mode property on your Fixed Storage Area object
  - One of the implications of this is that it is possible to have two Fixed Storage Areas pointing at the same Atmos server and one is configured for strict retention alignment and the other is not

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Configuring the Retention Mode for Strict Alignment

- Recalling from our previous discussion of Atmos Policies:
  - Retention is enabled for an Atmos object by assigning it to a Policy that is configured for retention
  - Objects are assigned to Policies indirectly by setting metadata on the object that will trigger a Policy Selector or by using the Default Policy
  - Objects assigned to a Policy the supports retention will have a default retention date applied

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Configuring the Retention Mode for Strict Alignment

Prerequisites to configuring retention mode for strict alignment:

- At least one Policy in your subtenant must be configured to enable retention and the default retention period must not be greater than **one minute**
- This Policy must be the default

-OR-

- You must obtain the specific metadata setting from the subtenant administrator that will trigger a Policy Selector to select it
- Since the CPE can only apply retention dates that are greater than the default, setting the default to the lowest possible value allows the greatest leeway for the CPE to apply whatever retention date that is necessary

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Configuring the Retention Mode for Strict Alignment

Configuring the Fixed Storage Area for strict alignment mode:

- A Fixed Storage Area pointing to an Atmos Fixed Content Device is configured for strict retention when the Retention Mode property is set to a value of 1 (one)
- The Resource String property must also be set to a metadata string that will trigger a retention enabled policy if not using the Default Policy
  - Syntax is a string consisting of list of one or more comma separated name=value pairs
  - E.g. policy=policy50
- When the Fixed Storage Area is saved, the CPE will attempt to validate the configuration by creating a temporary object and will apply any metadata specified by the Resource String property. If a retention date can be applied, the update will succeed, otherwise it will fail. If it succeeds, the specified metadata will be applied to all new objects and to all existing objects when updating the retention

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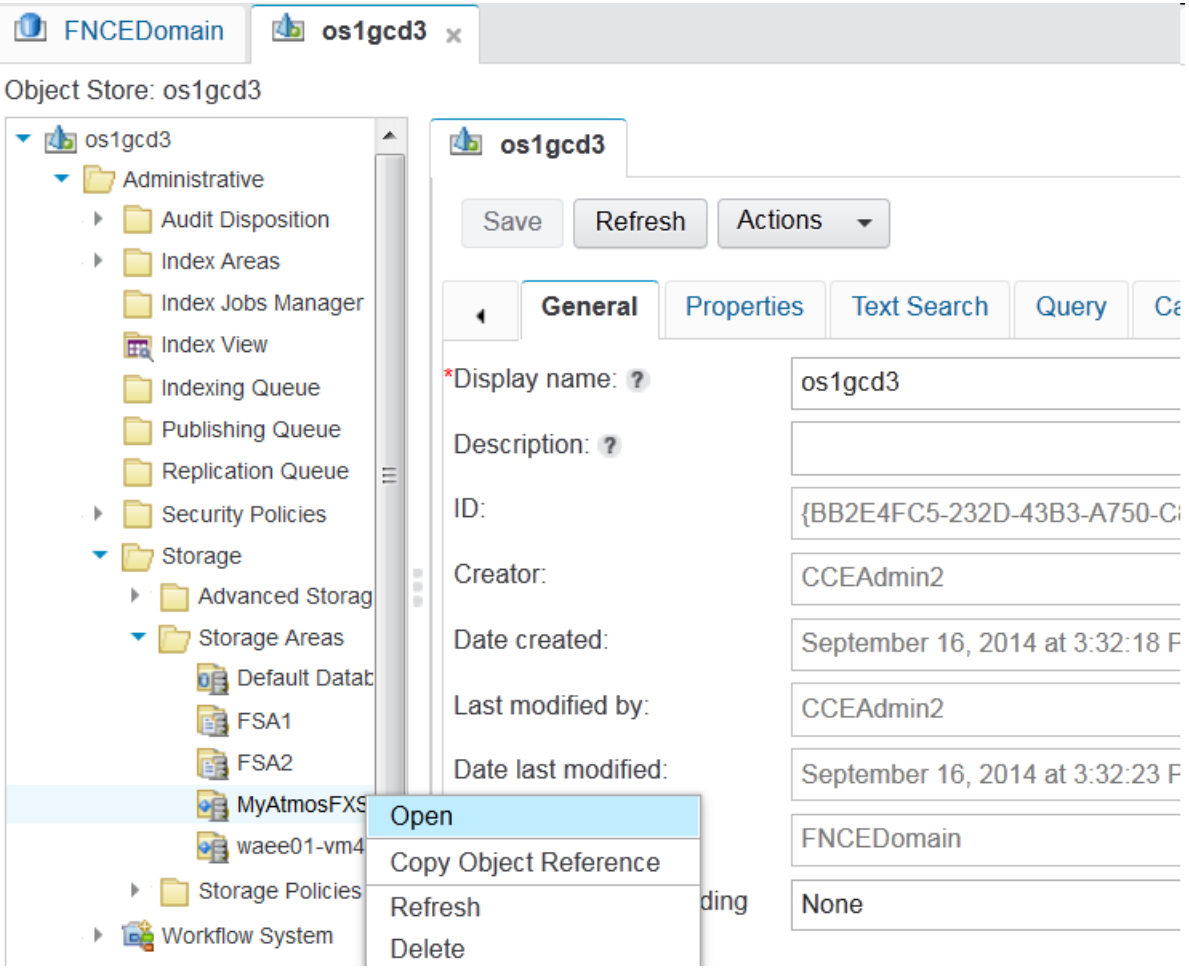
Using ACCE to configure the Retention Mode for Strict Alignment



1. Log into ACCE as an object store administrator
2. Navigate to your object store
3. Open the ‘Administration’ folder
4. Open the ‘Storage’ folder
5. Open the ‘Storage Areas’ folder
6. Right click on the Fixed Storage Area that points to your Atmos FCD and select ‘Open’

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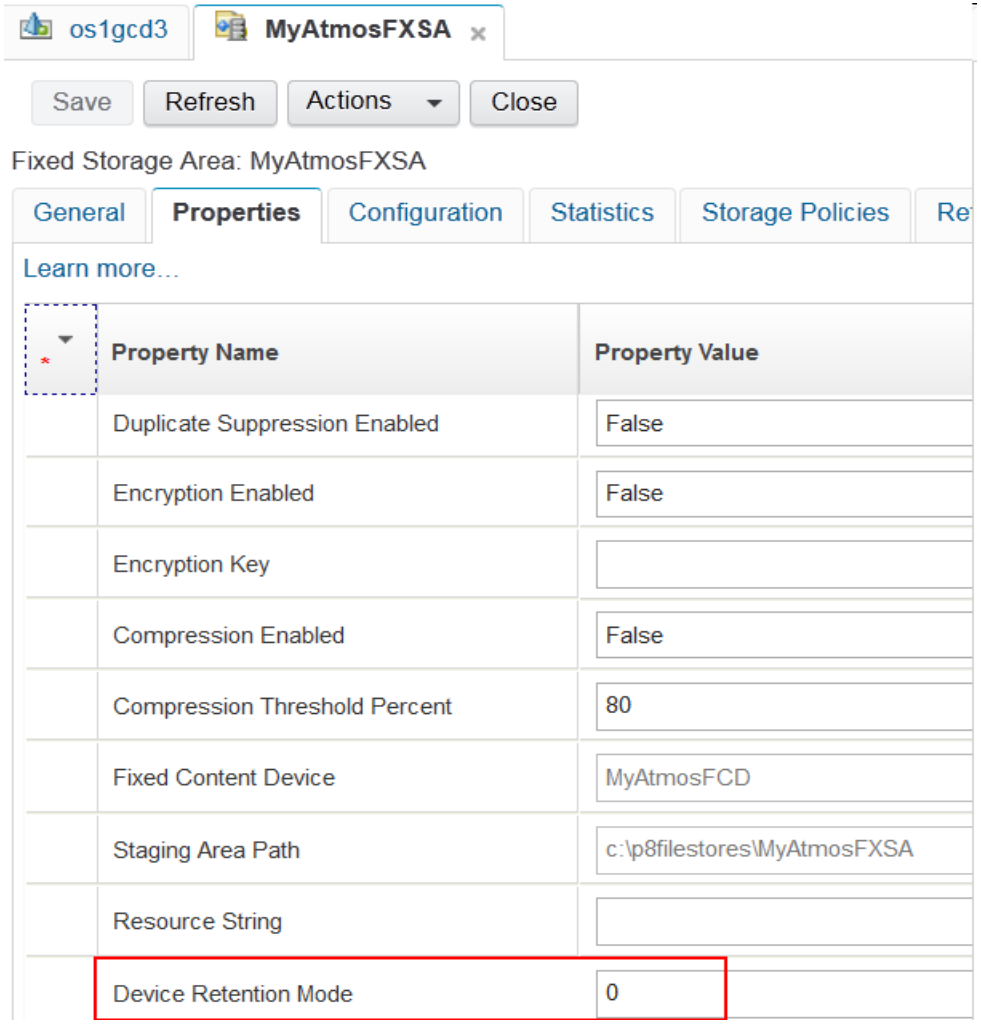
Using ACCE to configure the Retention Mode for Strict Alignment



7. Click on the ‘Properties’ tab
8. Scroll down to the bottom of the properties table until you see the ‘Device Retention Mode’ property and change 0 to 1

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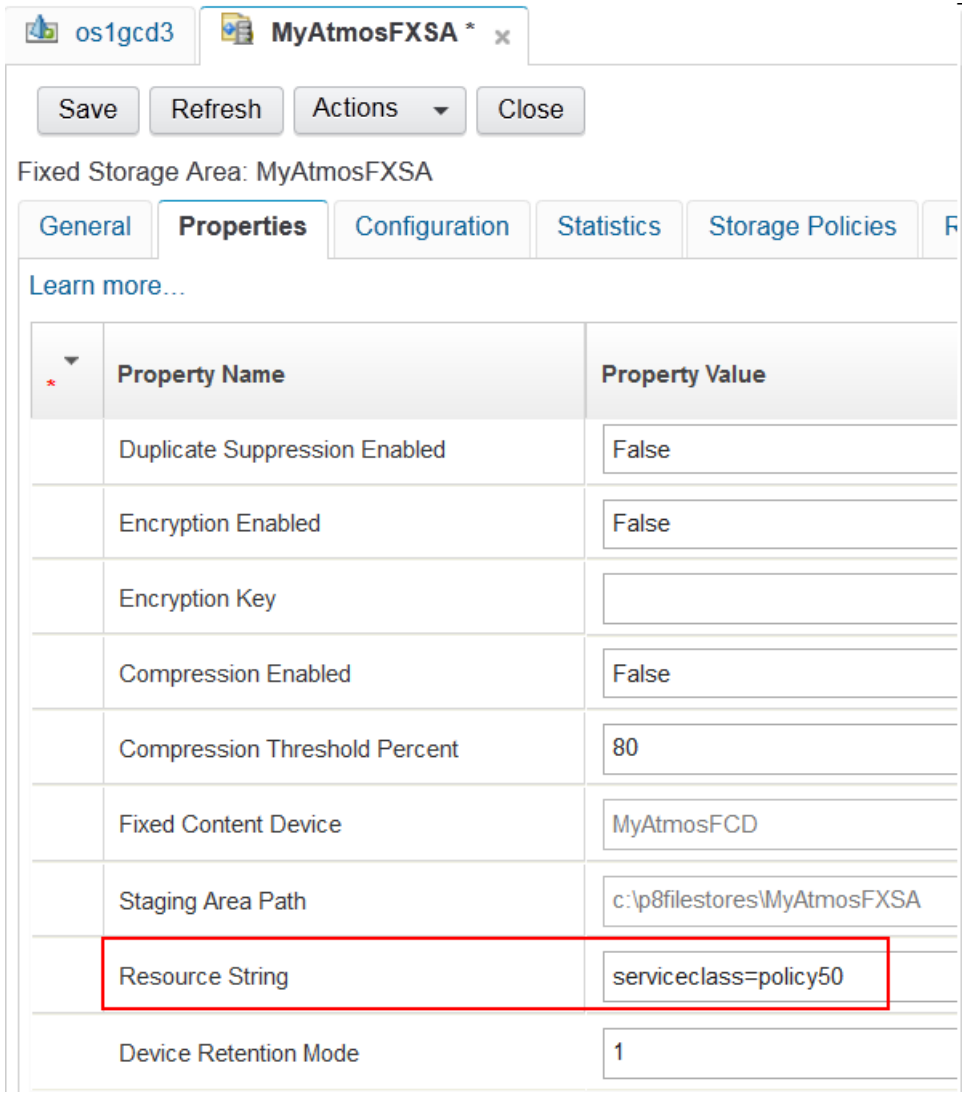
Using ACCE to configure the Retention Mode for Strict Alignment



9. If necessary, type in the metadata specification that will trigger the Policy Selector on your system to select the Policy configured for CPE
10. Click Save

Note: metadata shown here is just an example and will be different depending how the tenant administrator has configured the Policies and Policy Selectors in your subtenant

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Trouble Shooting

Problem: Cannot create Atmos Fixed Content Device

Error Message:

- The fixed content provider could not establish a connection to the fixed content device. Device Id: [{1409A4EE-43EF-4AA0-9E0E-3F7A98415BCC}]; Device Name: [MyAtmosFCD]; Root Cause [FNRCC0235: Unable to validate connectivity to the MyAtmosFCD fixed content device. Verify that the Atmos URL and other connection properties are valid. URL: [https://storage.synaptic.att.comm]; Subtenant: [34e70f3247404b249d688b23e2e79b25]; UID: [eedeen]; Caused by [FNRCC0226: Unable to connect to Atmos server at https://storage.synaptic.att.comm/rest/service using the MyAtmosFCD fixed content device. Caused by [**java.net.UnknownHostException: storage.synaptic.att.comm**]. Message was: storage.synaptic.att.comm]]

Cause:

- Host name specified in Atmos URL is unreachable

Remedial Actions:

- Verify URL is correct
- Verify that host name is resolvable from server on which CPE is deployed
- Verify network connectivity

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Trouble Shooting

Problem: Cannot create Atmos Fixed Content Device

Error Message:

- The fixed content provider could not establish a connection to the fixed content device. Device Id: [{0140D888-B06A-416B-B3DC-ECF4E89AC492}]; Device Name: [MyAtmosFCD]; Root Cause [FNRCC0235: Unable to validate connectivity to the MyAtmosFCD fixed content device. Verify that the Atmos URL and other connection properties are valid. URL: [https://storage.synaptic.att.com]; Subtenant: [44e70f3247404b249d688b23e2e79b25]; UID: [eedeen]; Caused by [com.filenet.engine.content.fcprovider.handlers.atmos.AtmosException: Atmos server error: code=1033; **message=Unable to retrieve the secret key for the specified user**.]]

Cause:

- The value for the Subtenant ID is incorrect

Remedial Actions:

- Verify the correct value with your tenant administrator

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Trouble Shooting

Problem: Cannot create Atmos Fixed Content Device

Error Message:

- The fixed content provider could not establish a connection to the fixed content device. Device Id: [{91C64024-5E2B-474D-B2BD-EBD2046715B7}]; Device Name: [MyAtmosFCD]; Root Cause [FNRCC0235: Unable to validate connectivity to the MyAtmosFCD fixed content device. Verify that the Atmos URL and other connection properties are valid. URL: [https://storage.synaptic.att.com]; Subtenant: [34e70f3247404b249d688b23e2e79b25]; UID: [eedeenn]; Caused by [com.filenet.engine.content.fcprovider.handlers.atmos.AtmosException: Atmos server error: code=1033; **message=Unable to retrieve the secret key for the specified user**.]]

Cause:

- The value specified for the UID is incorrect

Remedial Actions:

- Verify the value of the UID with your tenant administrator

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Trouble Shooting

Problem: Cannot create Atmos Fixed Content Device

Error Message:

- The fixed content provider could not establish a connection to the fixed content device. Device Id: [{C5E1F219-08A9-4BE3-948C-FD52DBC95477}]; Device Name: [MyAtmosFCD]; Root Cause [FNRCC0235: Unable to validate connectivity to the MyAtmosFCD fixed content device. Verify that the Atmos URL and other connection properties are valid. URL: [https://storage.synaptic.att.com]; Subtenant: [34e70f3247404b249d688b23e2e79b25]; UID: [eedeen]; Caused by [com.filenet.engine.content.fcprovider.handlers.atmos.AtmosException: Atmos server error: code=1032; **message=There was a mismatch between the signature in the request and the signature computed by the server**.]]

Cause:

- The value for the Shared Secret is incorrect

Remedial Actions:

- Verify the value of your Shared Secret with your tenant administrator

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Trouble Shooting

Problem: Cannot configure Fixed Storage Area for Strict Alignment Mode

Error Message:

- ***Invalid Resource String: [BadTagName=BadValue] The resource string must include metadata to trigger an Atmos policy that supports retention when the retention mode is configured for strict alignment***

Cause:

- The CPE was unable to create a temporary object to which it could apply retention when validating the resource string

Remedial Actions:

- Verify that your subtenant includes a Policy that enables retention and for which the default retention period does not exceed the maximum of one minute*
- Verify that the metadata string is correct
- Verify that the Default Policy is configured correctly if you are not using metadata to select a Policy
- Verify that there is no clock skew between the CPE server and the Atmos Server
- Increase the Maximum default retention by adding the following entry to the FileNet.properties file or setting it as a JVM argument:
  `Content.AtmosMaximumDefaultRetention=<new value in seconds>`

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Contacts

- Product Marketing Manager:
  - Robert Finn
- Product Manager:
  - Stephen Hussey
- Subject Matter Experts (SME)/Area of Expertise:
  - Grace Smith (Development Manager)
  - Eric Edeen (Software Developer)
  - Bob Kreuch (Software Developer)
  - Roger Bacalzo (Software Developer)
- Support:
  - Erik Fonkalsrud (L3 Manager)

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Product Help / Documentation / Resources

- P8 5.2.1 Information Center (available October 31st)
  http://www.ibm.com/support/knowledgecenter/SSNW2F_5.2.1/
- Location of Atmos documentation in TOC:
  - ➔ Administering
    - ➔ Administering Content Platform Engine
      - ➔ Defining the repository infrastructure
        - ➔ Storing content
          - ➔ Storage area types
            - ➔ Fixed storage areas
              - ➔ Fixed content devices
                - ➔ Atmos fixed content device
              - ➔ Configuring SSL for a fixed content device
                - ➔ Deploying a client SSL certificate

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