

Huawei OceanStor Pacific Scale-Out Storage and OpenText Archive Server Interoperability Test Report

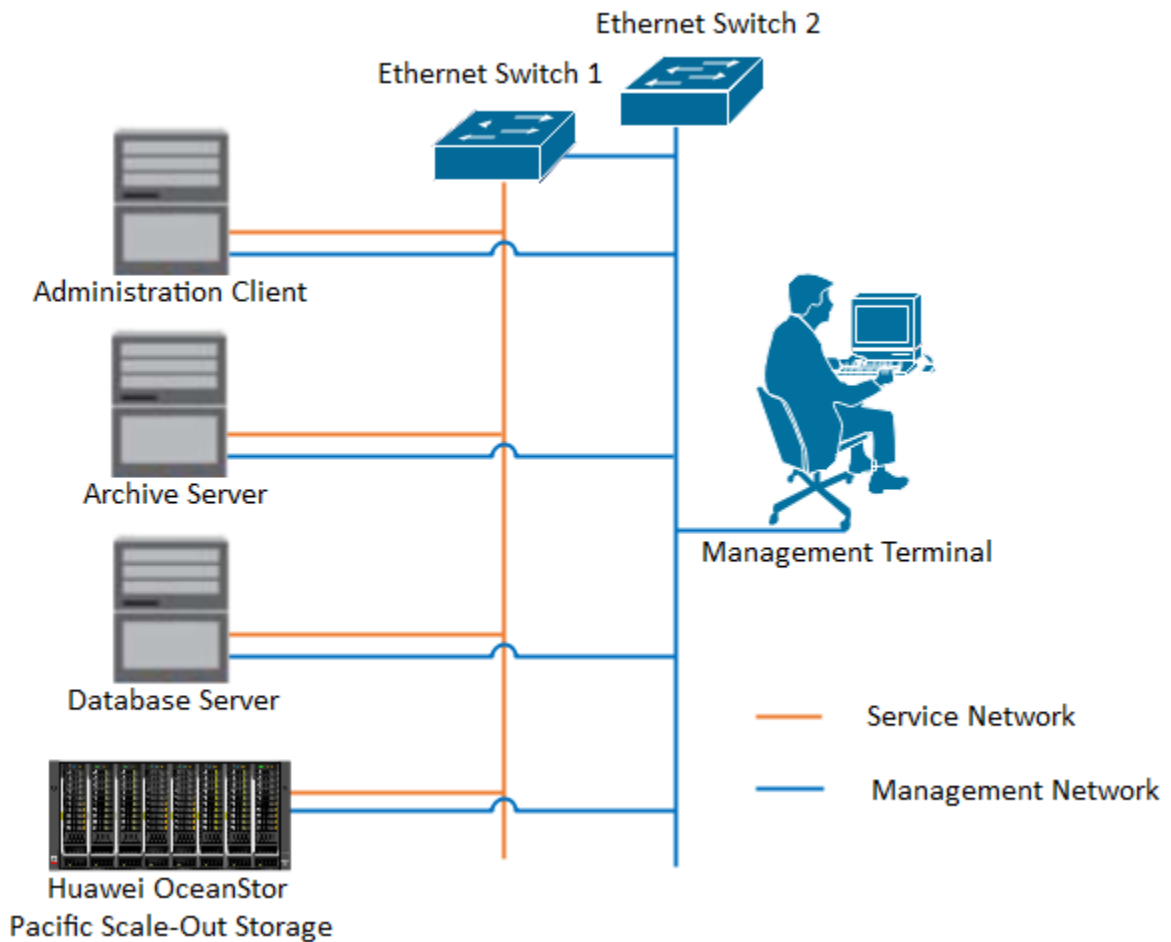
Table of Contents

1 Environment Configuration	2
1.1 Networking Diagram	2
1.2 Hardware and Software Configuration	3
1.2.1 Storage Configuration	3
1.2.2 Matching Hardware Configuration	3
1.2.3 Test Software and Tools	3
2 Verification.....	5
2.1 Add the storage to the archive server as S3 target storage	5
2.2 Archive files to the storage through the archive server	8
2.3 Retrieve archived files from the storage through the archive server.....	17
2.4 Retention Period Testing	22
3 Summary and Conclusion	32
3.1 Result Summary.....	32
3.2 Conclusion	32
3.3 Signature.....	32

1 Environment Configuration

1.1 Networking Diagram

Figure 1.1 Storage and Archive Server Test Networking



Networking Description:

The management network and service network are connected to the Administration client, Archive server, Database Server, and Huawei OceanStor Pacific Scale-Out Storage through switches.

1.2 Hardware and Software Configuration

1.2.1 Storage Configuration

Table 1-1 Huawei storage configuration table

Name	Model	Version	Quantity
Storage	Huawei OceanStor Pacific Scale-Out Storage (Hereinafter referred to as “the storage” as well)	8.1.5	1

1.2.2 Matching Hardware Configuration

Table 1-2 Hardware Configuration

Name	description	Quantity
Administration Client	Install the OpenText Administration Client software for management.	1
Archive Server	Install the OpenText Archive Server software.	1
Database Server	Install the SQL server and hold the configuration information for OpenText Archive Server.	1
Ethernet switch	Ethernet switches for management networking and service networking.	2

1.2.3 Test Software and Tools

Table 1-3 Test Software and Tool List

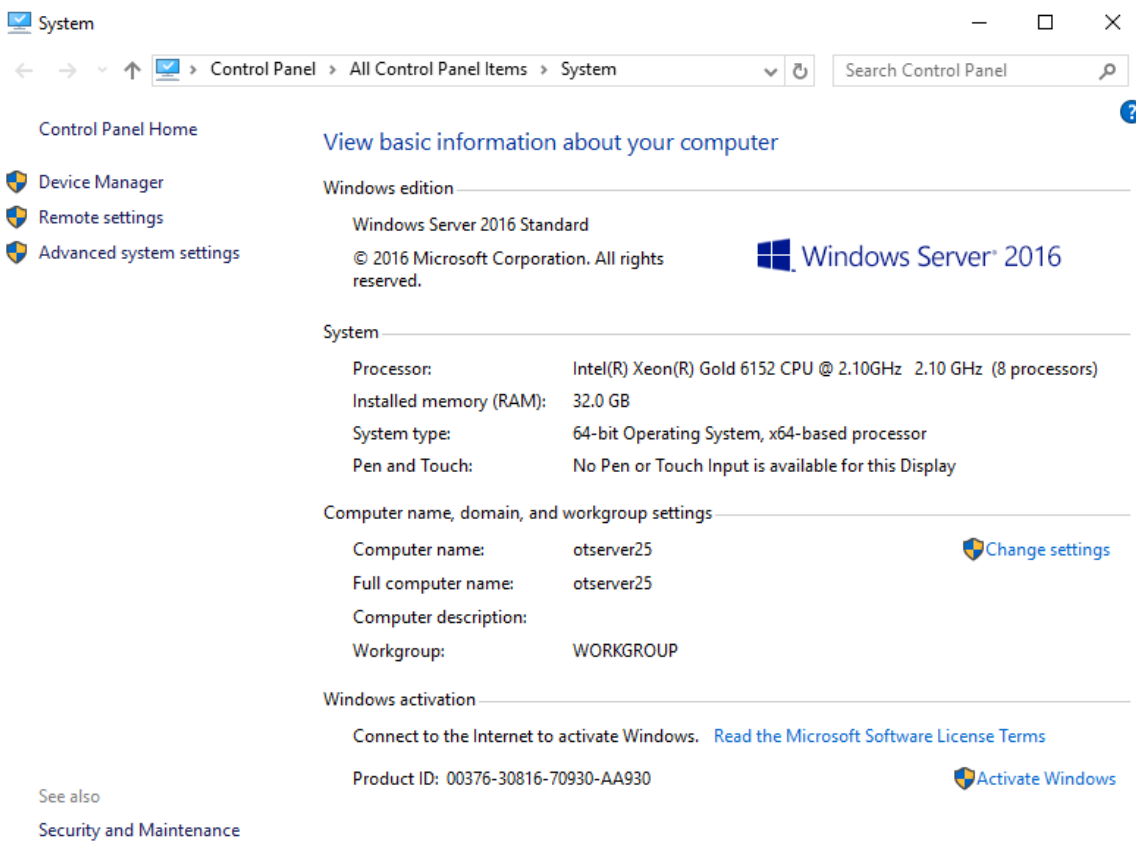
Software Name	Version	Quantity
Administration Client	20.2	1
Archive Server	20.2	1
SQL Server	SQL Server 2016	1
Operation System	Windows 2016	1

Software Version:

SQL Server:

Microsoft ODBC Driver 13 for SQL Server	Microsoft Corporation	5/9/2023	16.6 MB	13.0.1601.5
Microsoft SQL Server 2008 Setup Support Files	Microsoft Corporation	5/9/2023	62.1 MB	10.3.5500.0
Microsoft SQL Server 2012 Native Client	Microsoft Corporation	5/9/2023	14.3 MB	11.3.6518.0
Microsoft SQL Server 2014 Management Objects	Microsoft Corporation	5/9/2023	26.0 MB	12.0.2000.8
Microsoft SQL Server 2016	Microsoft Corporation	5/9/2023		
Microsoft SQL Server 2016 (64-bit)	Microsoft Corporation	5/9/2023		
Microsoft SQL Server 2016 Policies	Microsoft Corporation	5/9/2023	2.07 MB	13.0.1601.5
Microsoft SQL Server 2016 Setup (English)	Microsoft Corporation	5/9/2023	53.6 MB	13.0.1601.5
Microsoft SQL Server 2016 T-SQL Language Service	Microsoft Corporation	5/9/2023	14.5 MB	13.0.14500.10
Microsoft SQL Server 2016 T-SQL ScriptDom	Microsoft Corporation	5/9/2023	14.7 MB	13.0.1601.5
Microsoft SQL Server Data-Tier Application Framework...	Microsoft Corporation	5/9/2023	23.1 MB	13.0.3485.1
Microsoft SQL Server Management Studio - 16.5	Microsoft Corporation	5/15/2023	2.05 GB	13.0.16000.28

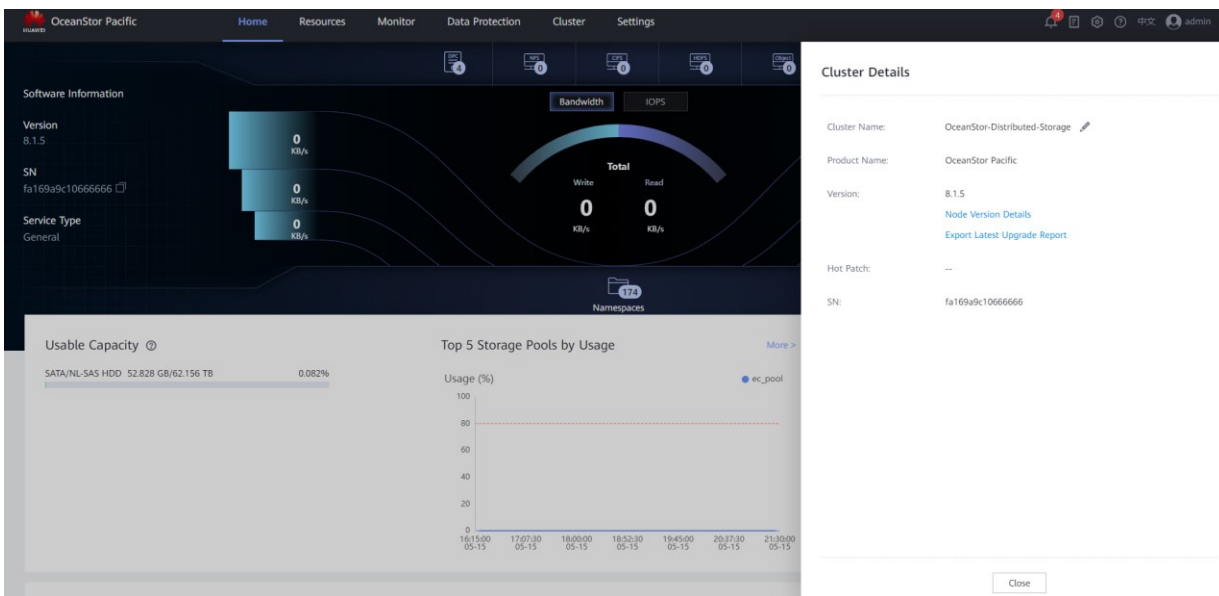
Windows:



Archive Server and Administrator Client:

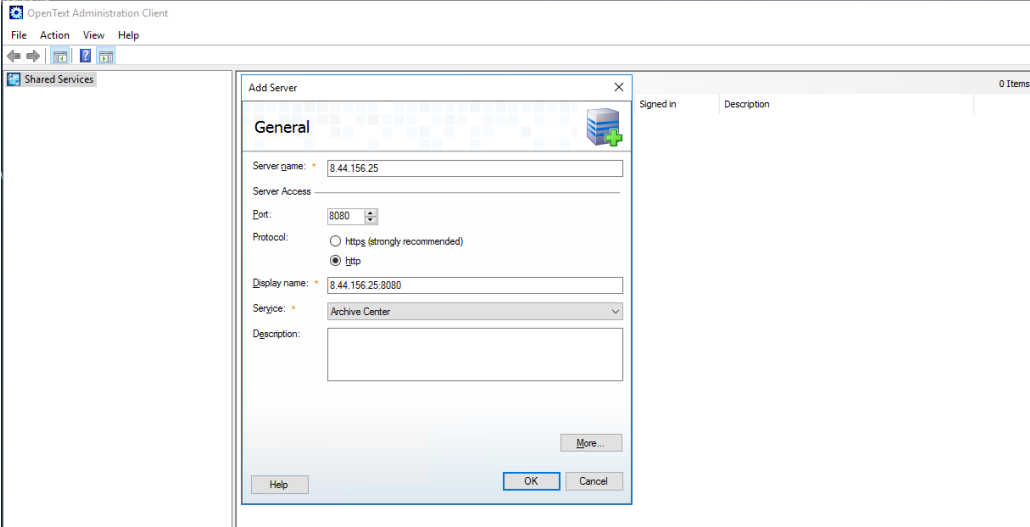
Product Name	Company Name	Installation Date	Size	Version
OpenText Administration Client 16.2.3 (20.2)	Open Text Corporation	5/15/2023	25.2 MB	16.2.0.572
OpenText Archive Server 16.2.3 (20.2)	OpenText Corporation	5/10/2023	1.28 GB	16.2.0.945

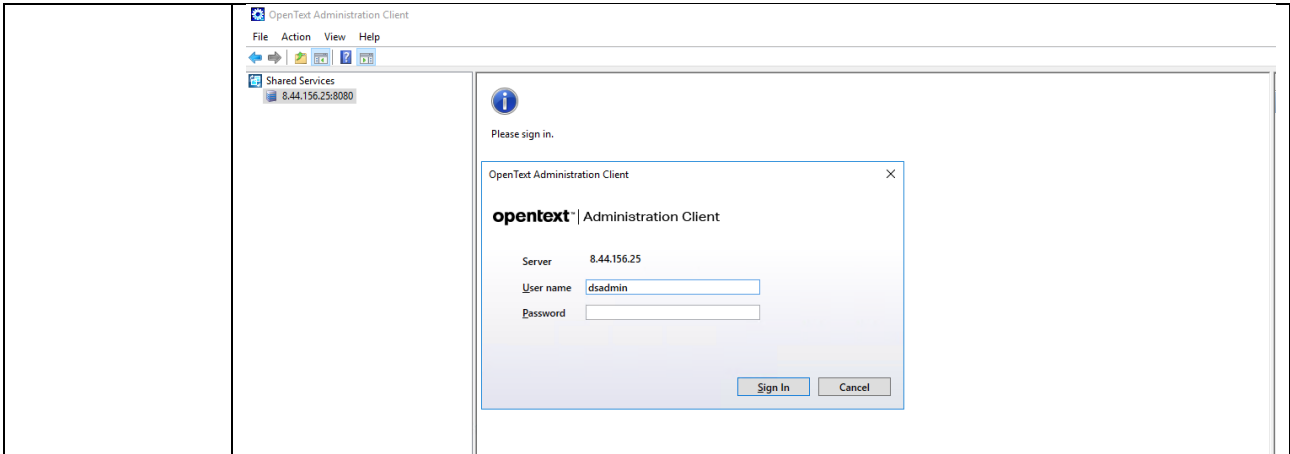
Huawei OceanStor Pacific Scale-Out Storage:



2 Verification

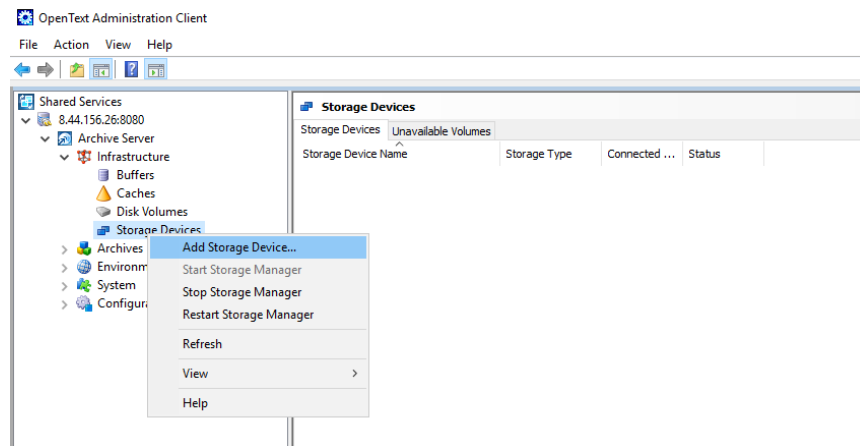
2.1 Add the storage to the archive server as S3 target storage

Test Purpose	To verify that the storage can be added to the archive server as S3 target storage.
Test Networking	Storage and Archive Server Test Networking
Prerequisites	<ol style="list-style-type: none"> 1. The administration client, archive server, and SQL database have been deployed and configured successfully. 2. The S3 services of the storage have been configured successfully, including accounts, namespace, access certificates, security certificates, and service networks.
Test Procedure	<ol style="list-style-type: none"> 1. On the administration client, add the archive server. 2. Add the storage to the archive server through the S3 protocol. 3. Test the connection between the storage and the archive server.
Expected Result	<ol style="list-style-type: none"> 1. In step 2, succeed to add the storage to the archive server successfully. 2. In step 3, the connection test succeeded.
Test Results	<ol style="list-style-type: none"> 1. On the administration client, add the archive server. <ol style="list-style-type: none"> 1.1 Input the IP address of the archive server in the Server name filed. And input the Port and Display name. Then click OK.  1.2 Sign in to the archive server created in the previous step.

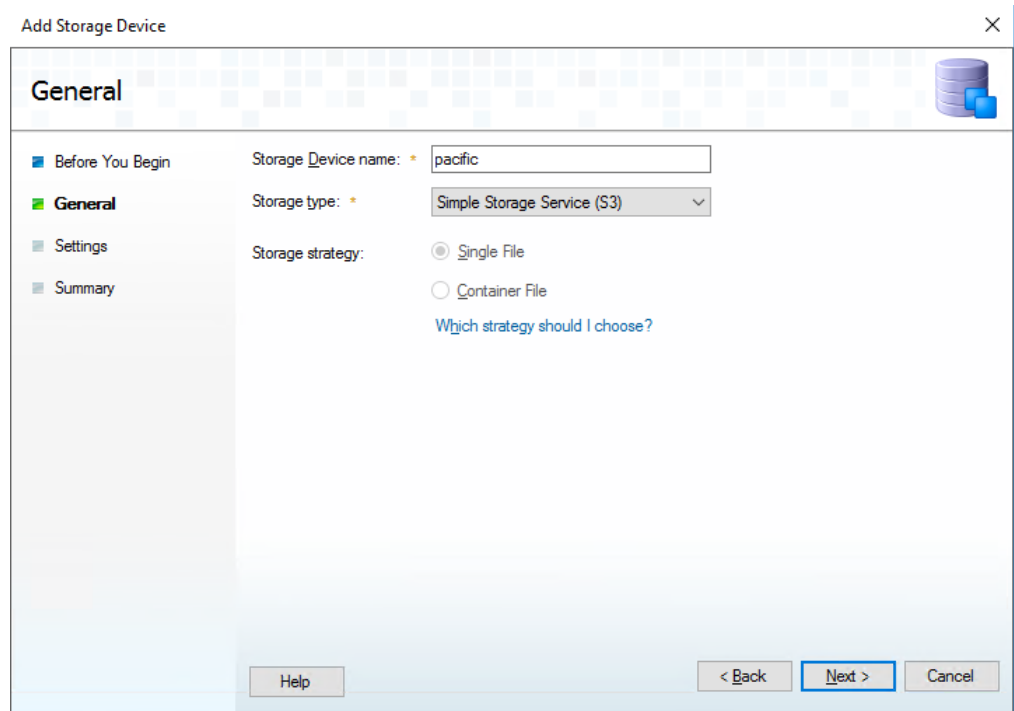


2. Add the storage to the archive server through the S3 protocol.

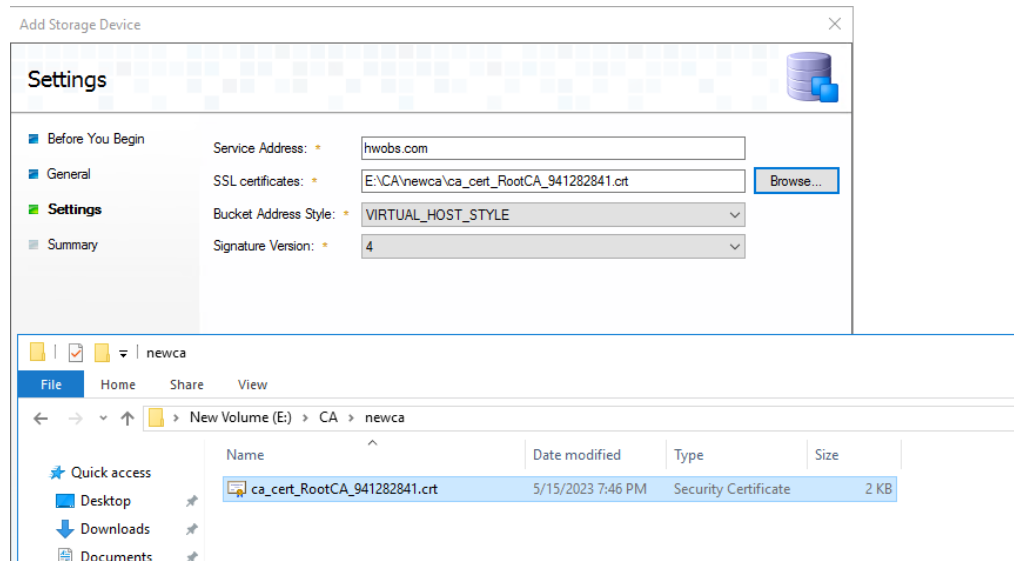
2.1 Right-click Storage Devices and choose Add Storage Device.



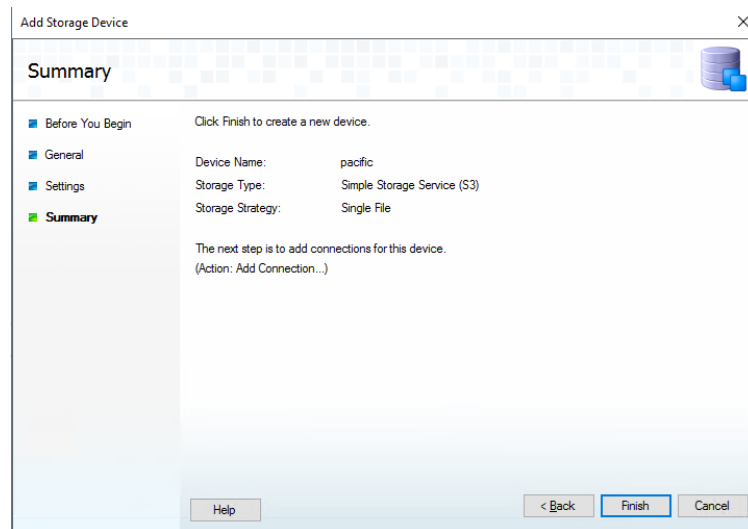
2.2 Input the Storage Device name, and select Simple Storage Service(S3) as the Storage type.



2.3 Input the domain name of the storage in the **Service Address** field, and choose the RootCA certificate exported from the storage as the **SSL certificates**.

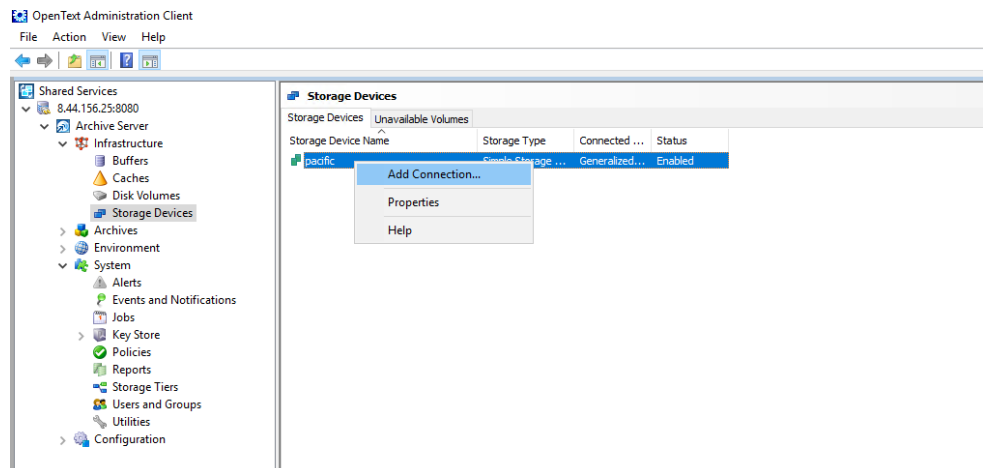


2.4 Click **Finish** to complete **Add Storage Device**.

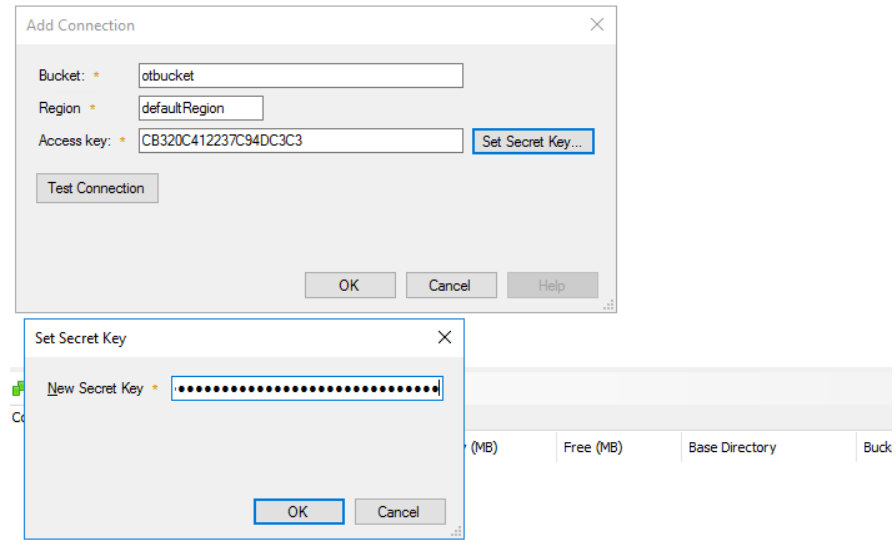


3. Test the connection between the storage and the archive server.

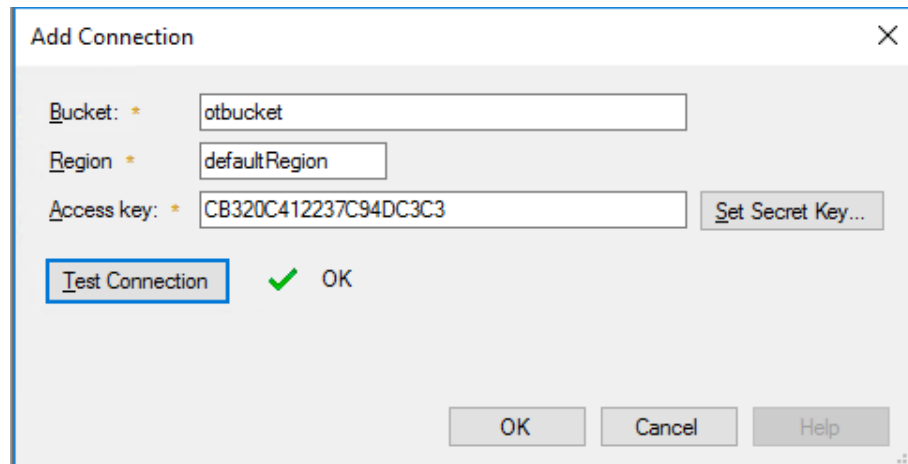
3.1 Right-click the storage device created in the previous step, and choose **Add connection**.



3.2 Input a name in the **Bucket** field. Select **defaultRegion** in the **Region** field. Input the **Access key** and **Secret key** of the storage.



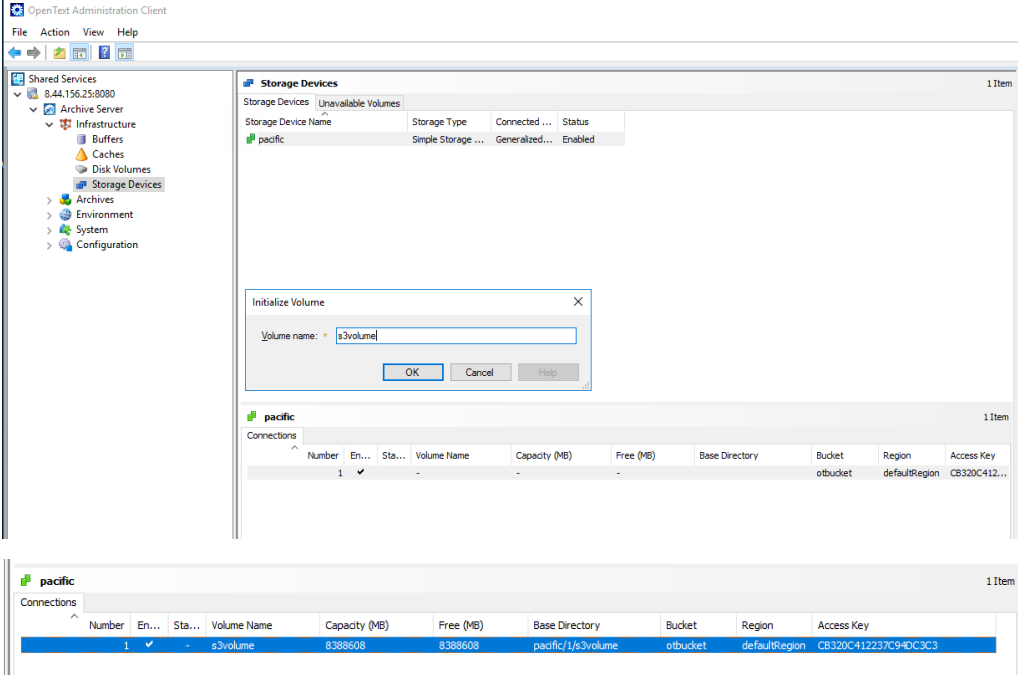
3.3 Click **Test Connection** and the result is **OK**.

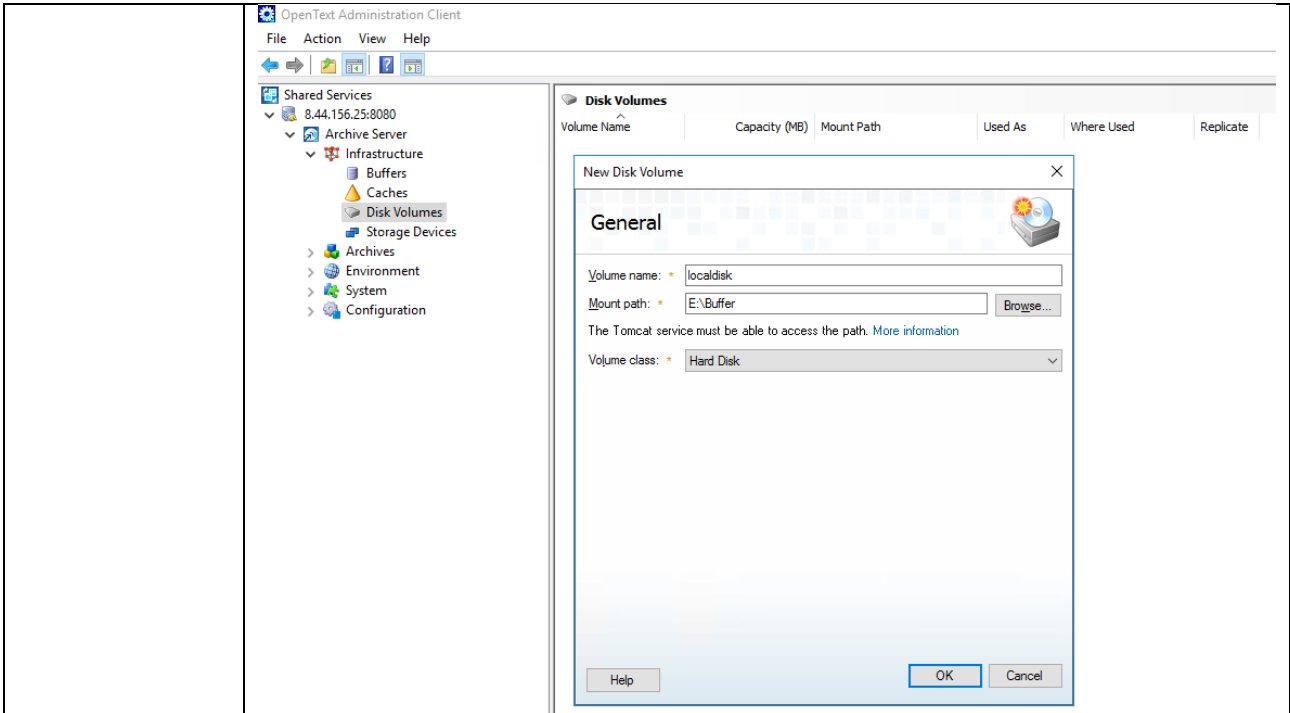


Test Conclusion	Passed
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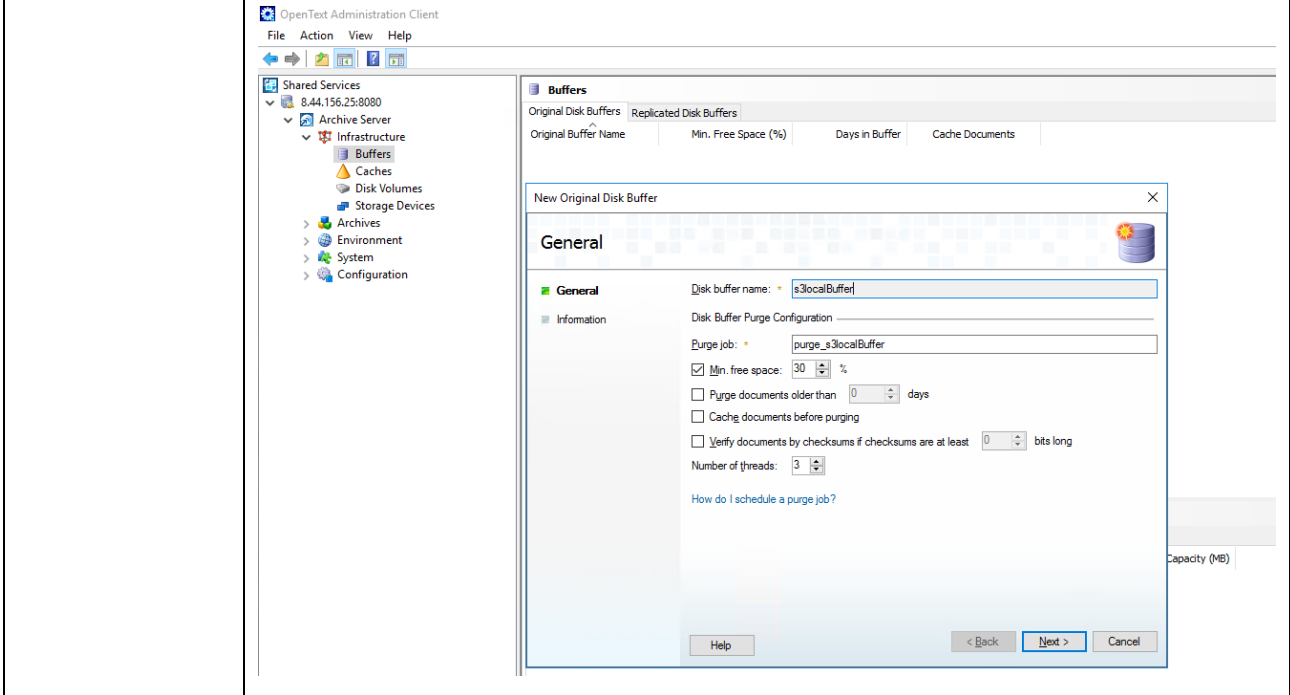
2.2 Archive files to the storage through the archive server

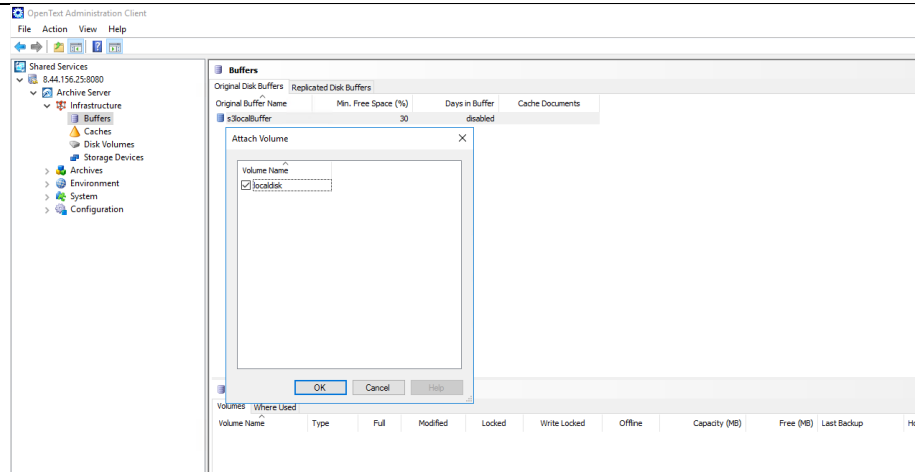
Test Purpose	To verify that the archive server can archive files to the storage.
Test Networking	Storage and Archive Server Test Networking
Prerequisites	<ol style="list-style-type: none"> 1. The administration client, archive server, and SQL database have been deployed and configured successfully. 2. The S3 services of the storage have been configured successfully, including accounts, namespace, access certificates, security certificates, and service networks. 3. The storage has been added to the archive server successfully.

<p>Test Procedure</p>	<ol style="list-style-type: none"> 1. Prepare some files and write the files to the archive server's local buffer. And check the files in the archive server's local buffer. 2. Run related PoolWrite job to write the files in the archive server's local buffer to the volumes of the storage. And check the files in the storage.
<p>Expected Result</p>	<ol style="list-style-type: none"> 1. In step 1, the files are written to the archive server's local buffer successfully. 2. In step 2, the files are written to the storage successfully.
<p>Test Results</p>	<p>Prerequisites</p> <p>Pre1 Configuration of the storage</p> <p>Set the trim-slash-switch to true so that the storage allows object name can contain more than two consecutive directory separators.</p> <pre> Authorized users only. All activities may be monitored and reported. Last login: Tue May 16 11:15:01 2023 [root@fsm2 ~]# sudo -u oam service_cli_start -u admin ***** Usage: service_cli_start -u username service_cli_start -u username ["cmd"] For example: service_cli_start -u omuser service_cli_start -u omuser "show system general" The CLI supports only characters in the ASCII format, and the command output supports both characters in the ASCII and UTF-8 formats. ***** Please input password: Login succeed. admin:~>change trim-slash-switch switch=true Command executed fully. admin:~> </pre> <p>Pre2 Configuration of the archive server</p> <p>Pre2.1 Initialize a new volume.</p>  <p>Pre2.2 Create a new disk volume in the local disk E:\.</p>

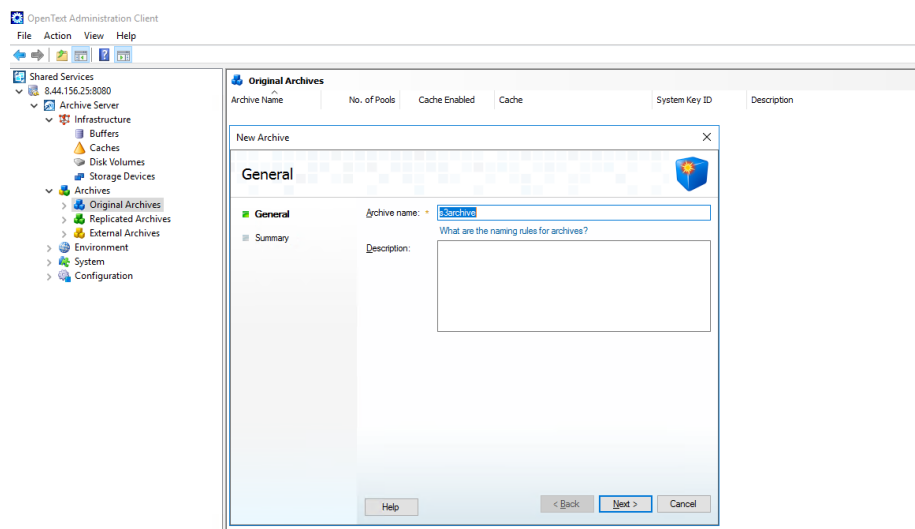


Pre2.3 Create a new disk buffer and attach the local disk volume created in the previous step.

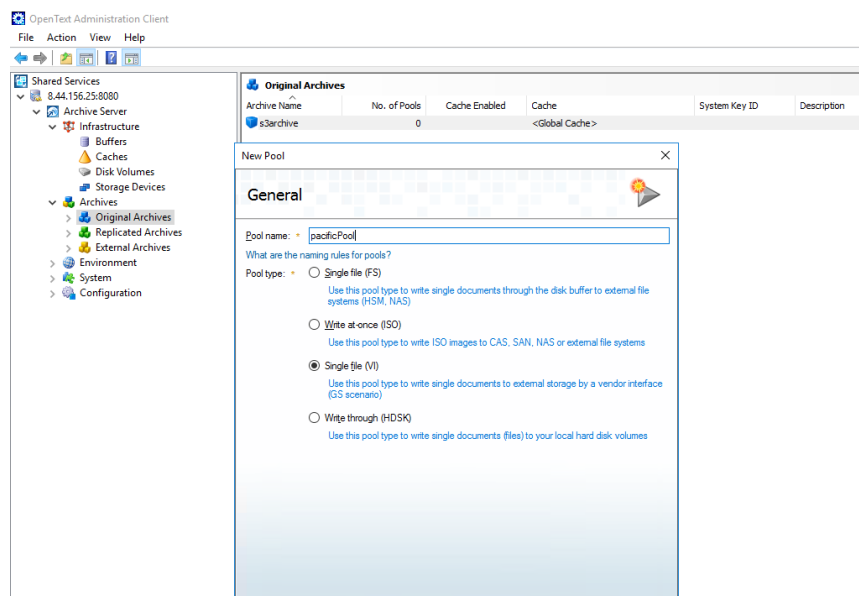


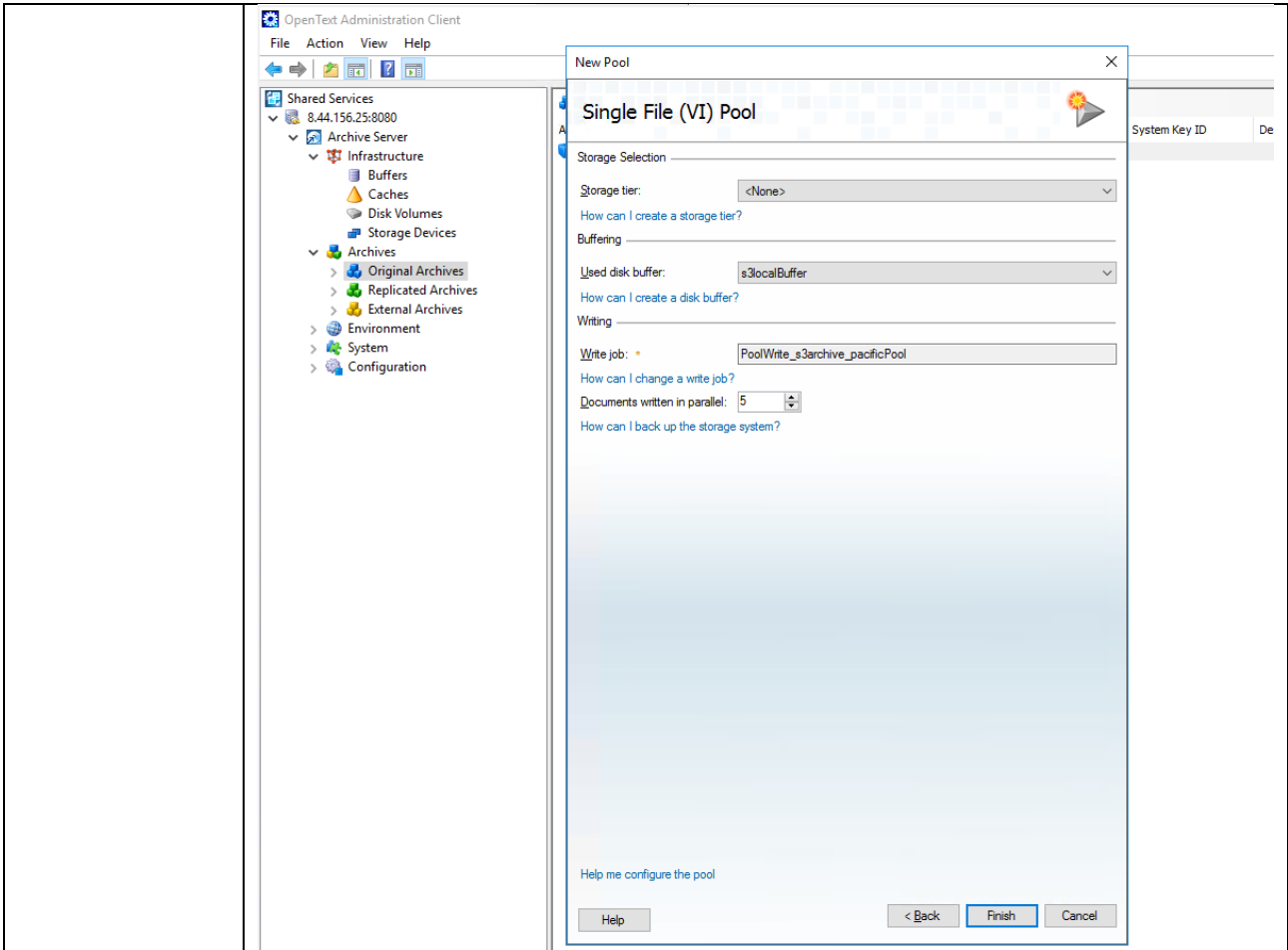


Pre2.4 Create a new archive.

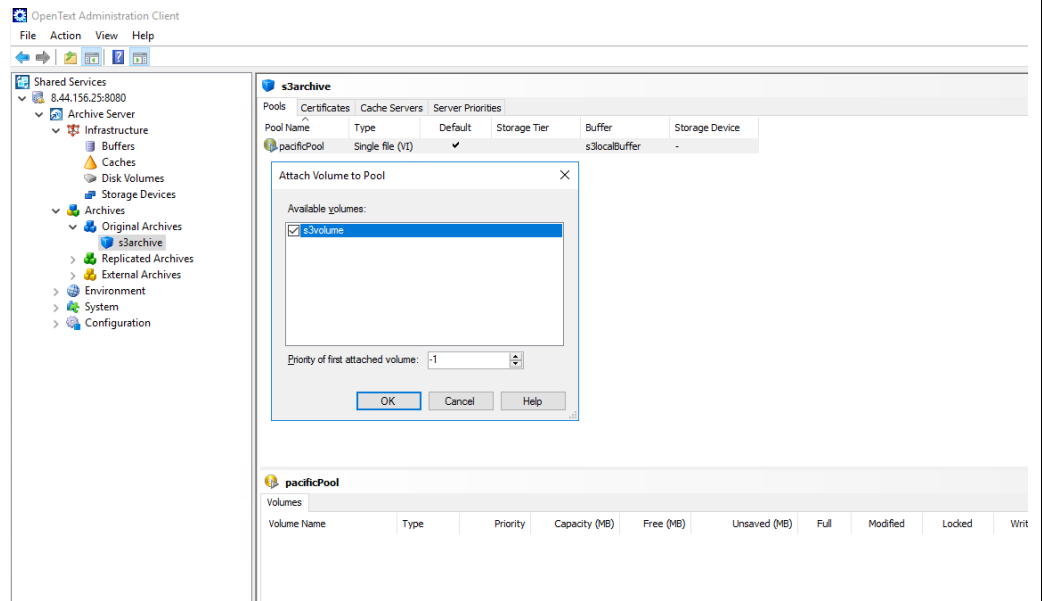


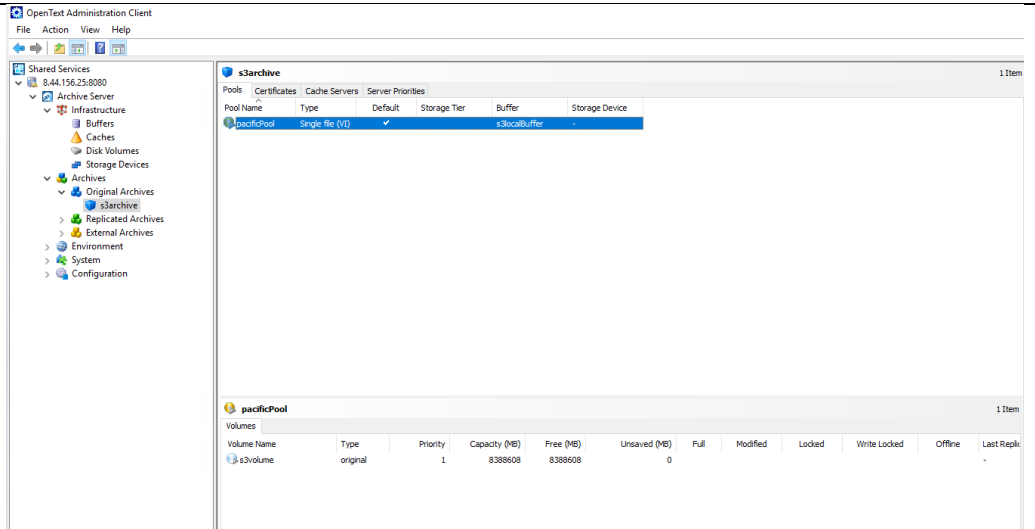
Pre2.5 Create a new pool in **Single file (VI) type and select the disk buffer created earlier.**





Pre2.6 Attach the volume created earlier.

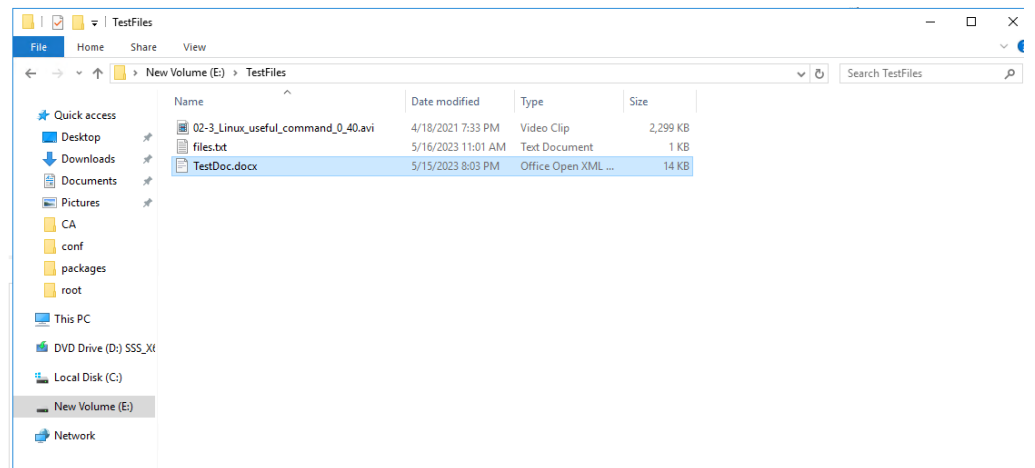




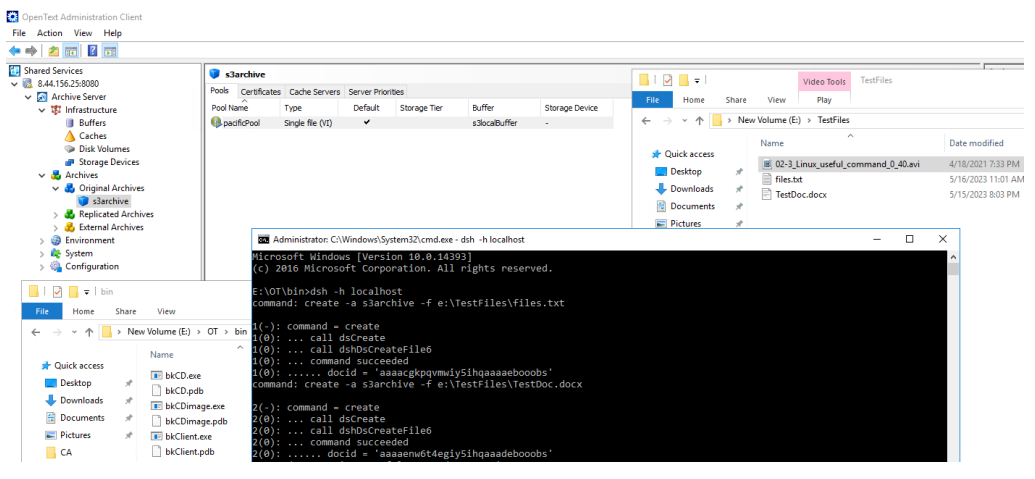
Test Result

1. Prepare some files and write the files to the archive server's local buffer. And check the files in the archive server's local buffer.

1.1 Test files are created.



1.2 Write the test files to the archive server's local buffer.

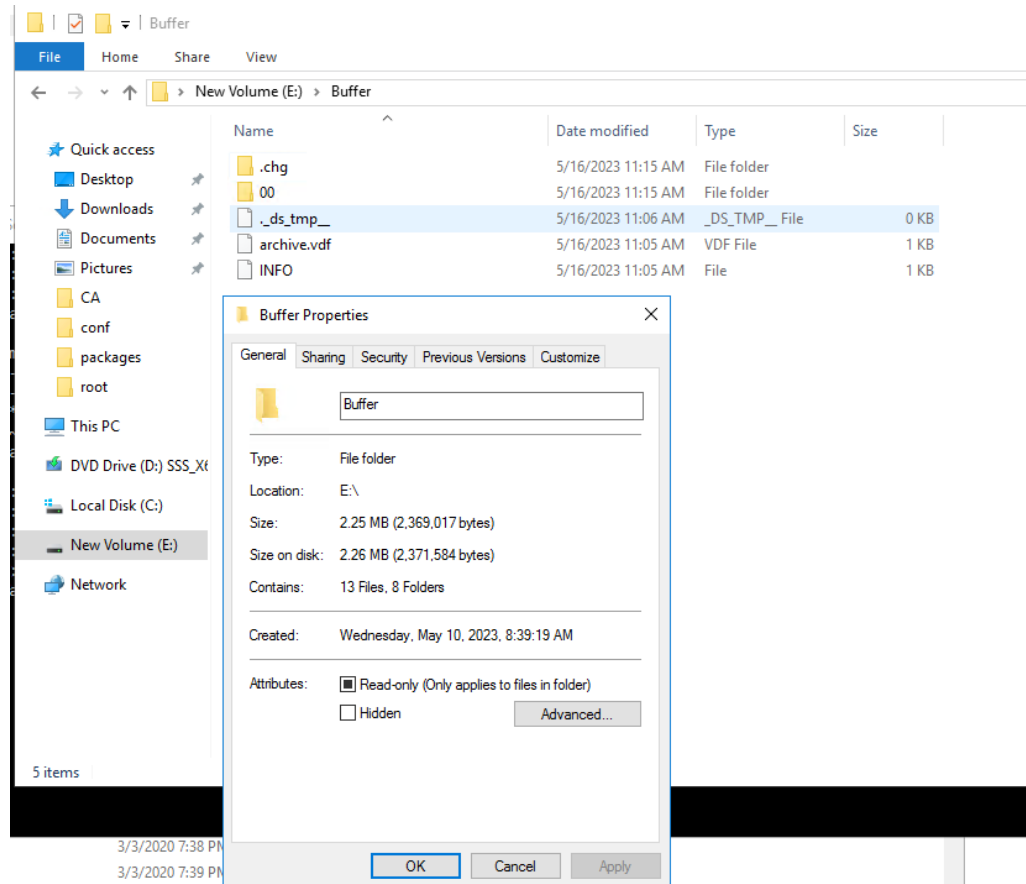


```

C:\> Select Administrator: C:\Windows\System32\cmd.exe - dsh -h localhost
( ~ = deprecated function )
command: create -a s3archive -f e:\TestFiles\02-3_Linux_useful_command_0_40.avi
4(-): command = create
4(0): ... call dsCreate
4(0): ... call dshDsCreateFile6
4(0): ... command succeeded
4(0): ..... docid = 'aaaahhtqvbwwiy5ihqaaahmboobobs'
command:

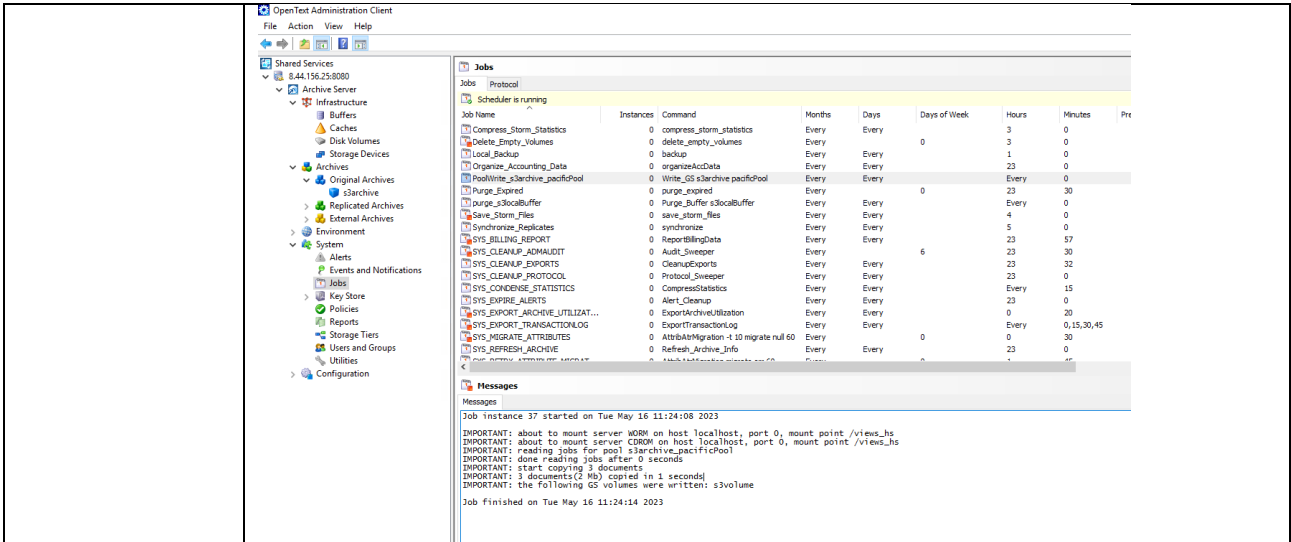
```

1.3 Data of the test files has been written into the local buffer.

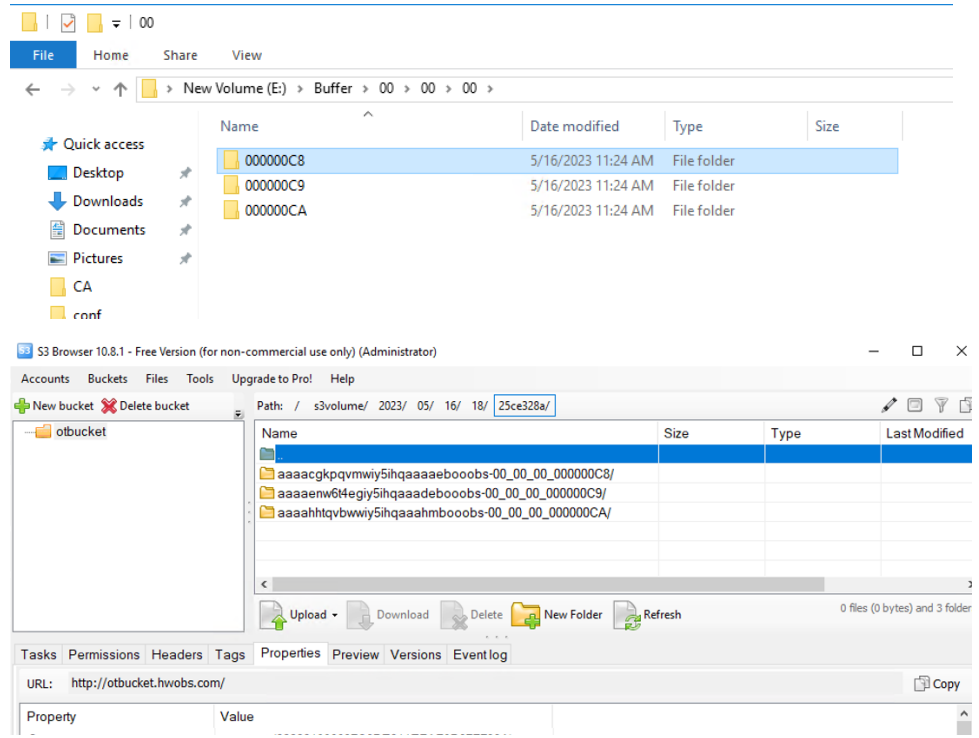


2. Run related PoolWrite job to write the files in the archive server's local buffer to the volumes of the storage. And check the files in the storage

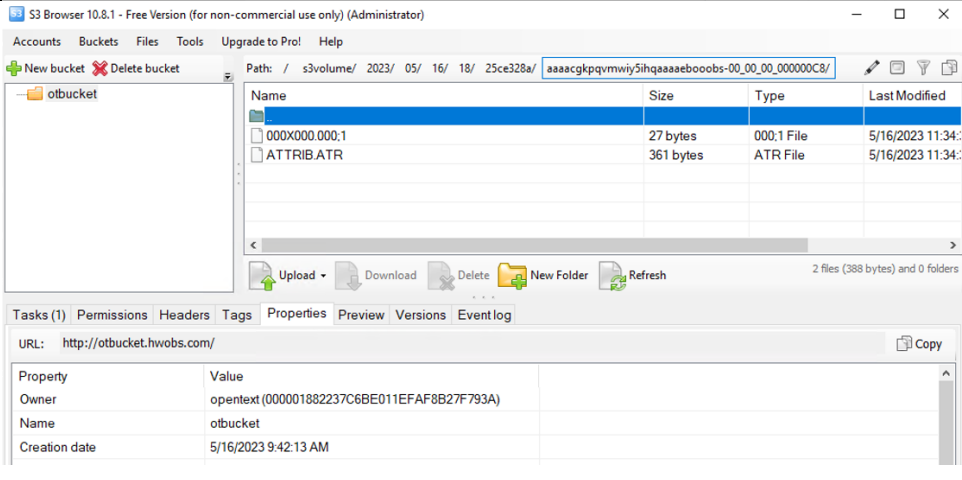
2.1 Before running the job, there is no data in the S3 bucket of the storage.



2.4 The folder structure in the storage is the same as that in the local buffer.



2.5 The files have been written into the storage successfully.

	
Test Conclusion	Passed

2.3 Retrieve archived files from the storage through the archive server

Test Purpose	To verify that archived files can be retrieved from the storage through the archive server.
Test Networking	Storage and Archive Server Test Networking
Prerequisites	<ol style="list-style-type: none"> 1. The administration client, archive server, and SQL database have been deployed and configured successfully. 2. The S3 services of the storage have been configured successfully, including accounts, namespace, access certificates, security certificates, and service networks. 3. The storage has been added to the archive server successfully. 4. Some files (original files) have been archived to the storage successfully and the docids have been recorded.
Test Procedure	<ol style="list-style-type: none"> 1. Run related Purge job to clean the archive server's local buffer. And check the files in the archive server's local buffer. 2. Prepare a destination directory for retrieving files. 3. In the archive server, retrieve the archived files from the storage to the destination directory. 4. Check the consistency of the retrieved files and original files.
Expected Result	<ol style="list-style-type: none"> 1. In step 1, the files in the archive server's local buffer are cleared successfully. 2. In step 2, the files are retrieved to the destination directory successfully. 3. In step 3, the retrieved files and original files are consistent.
Test Results	<p>Prerequisites</p> <p>The docids have been recorded while archiving the files.</p> <p><i>e:\TestFiles\files.txt</i></p> <p><i>docid = 'aaaacgkqvmwiy5ihqaaaaebooobs'</i></p>

e:\TestFiles\TestDoc.docx

docid = 'aaaaenw6t4egiy5ihqaaadeboobobs'

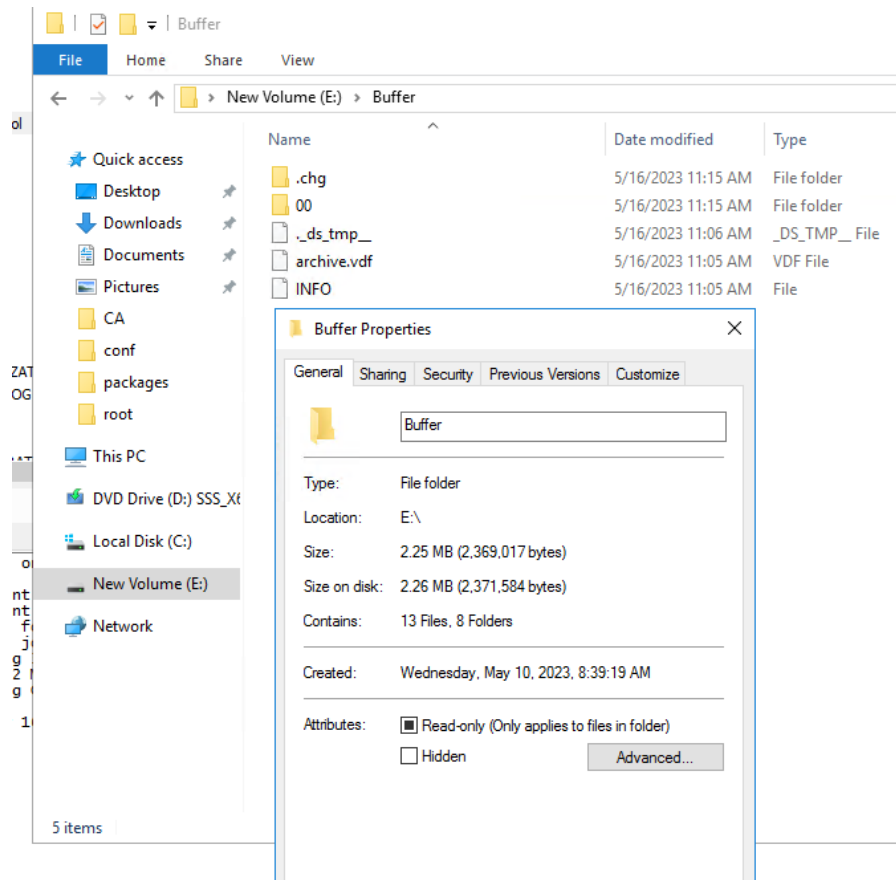
e:\TestFiles\02-3_Linux_useful_command_0_40.avi

docid = 'aaaahhtqvbwwiy5ihqaaahmboobobs'

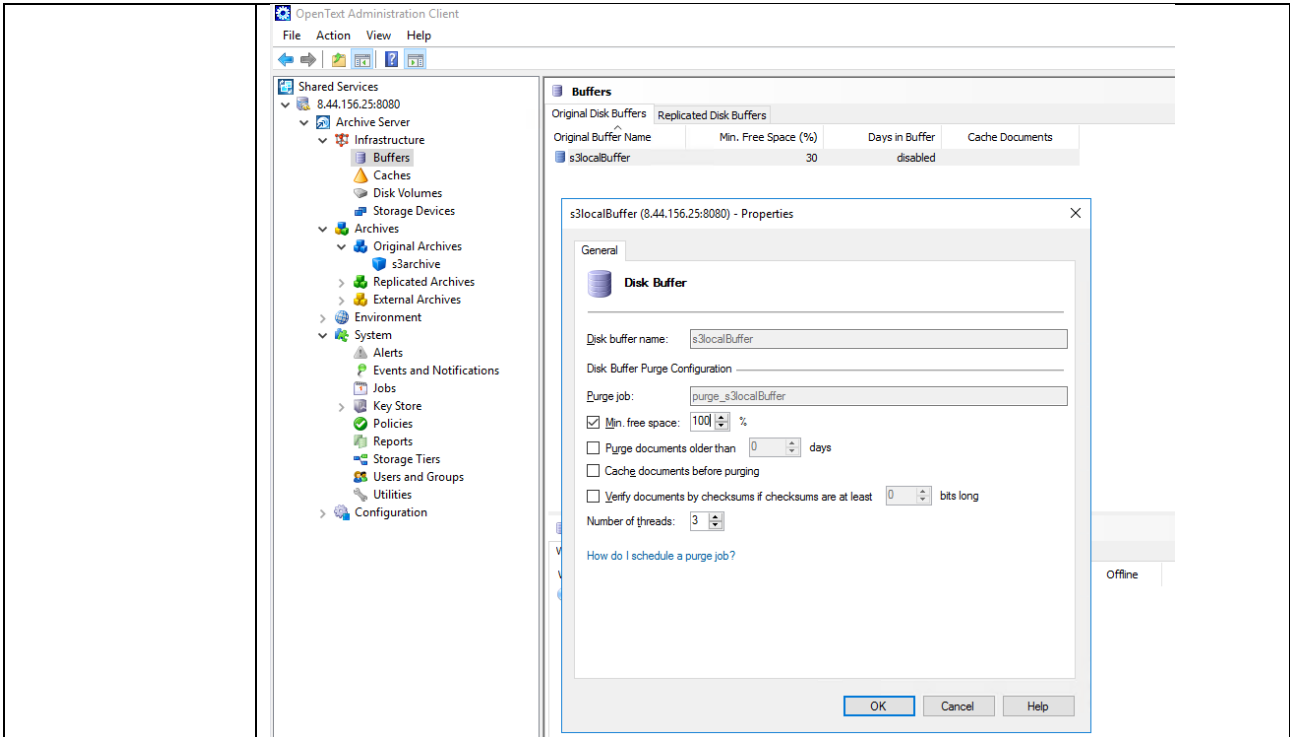
Test Result

1. Run related Purge job to clean the archive server's local buffer. And check the files in the archive server's local buffer.

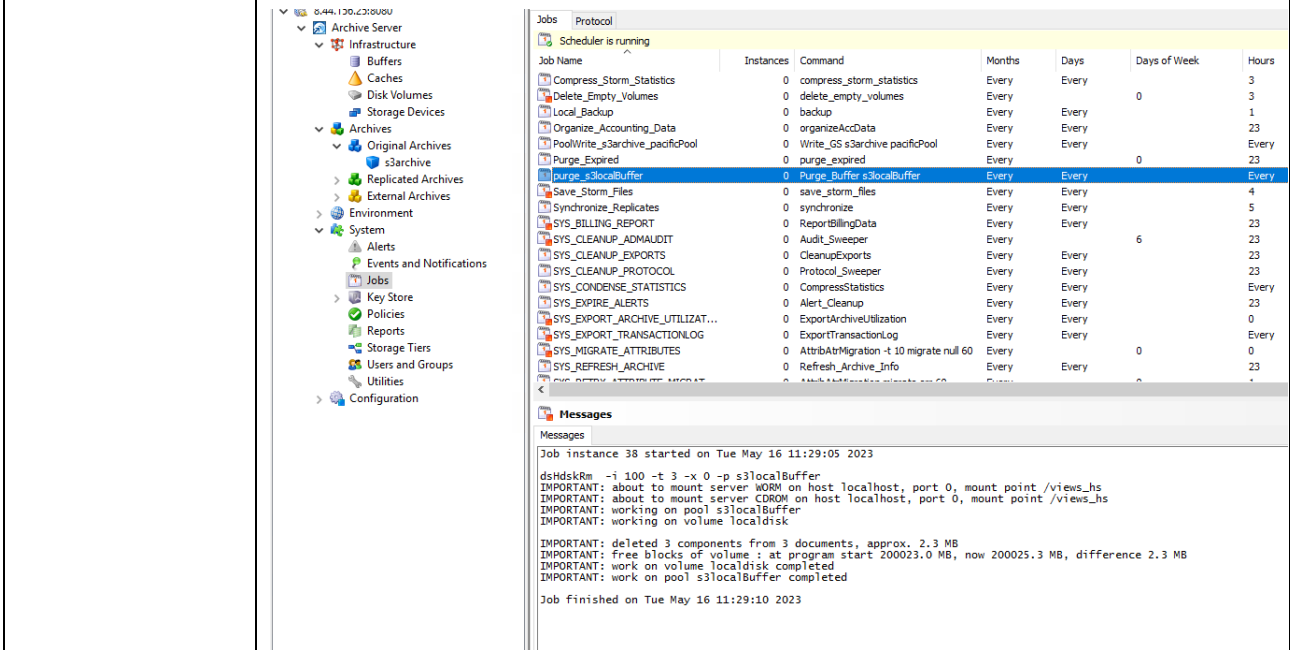
1.1 Before running the job, folder '00' is in the local buffer.



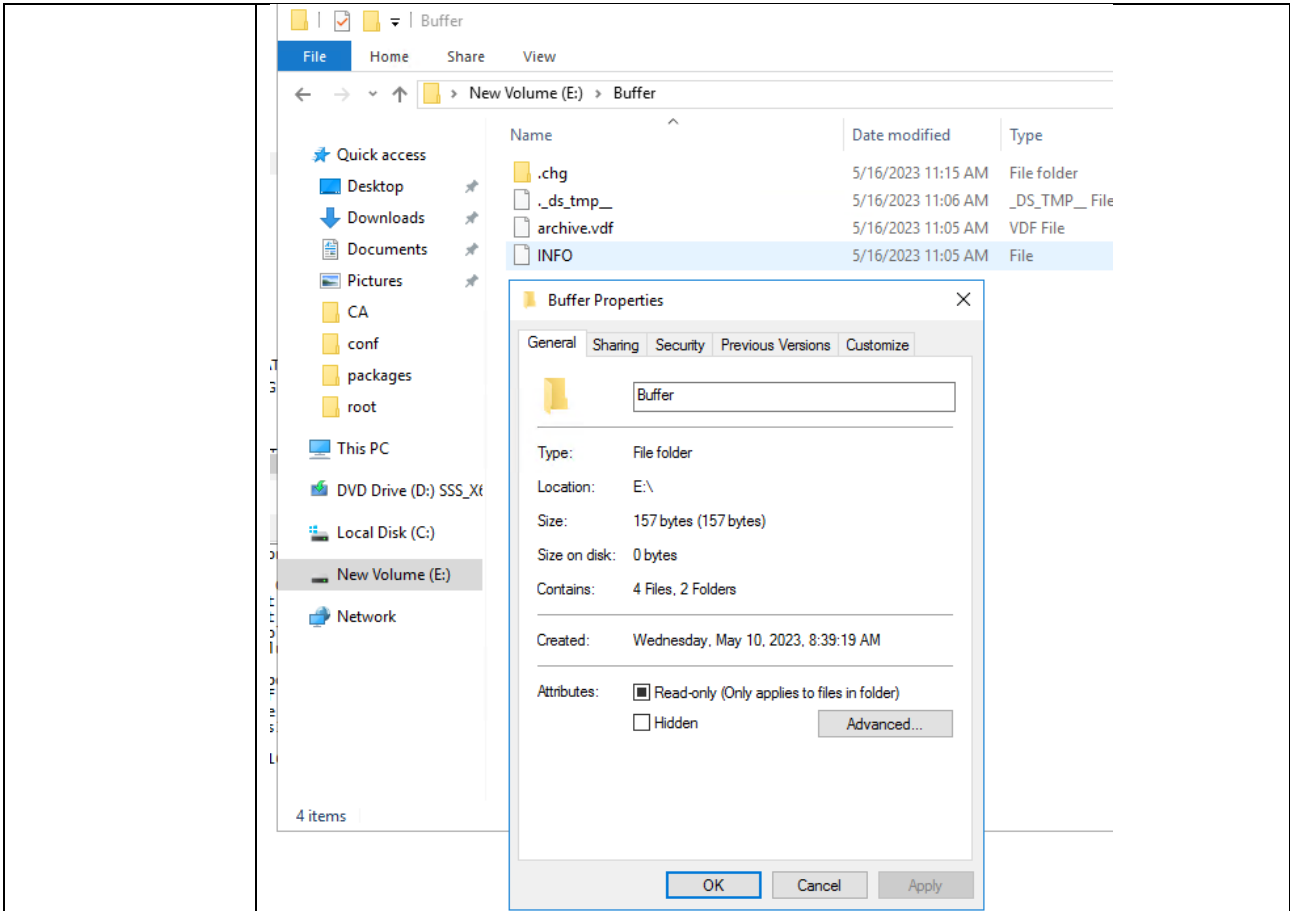
1.2 Change Min. free space to '100%' in related buffer properties, so that the data can be purged immediately for testing purposes.



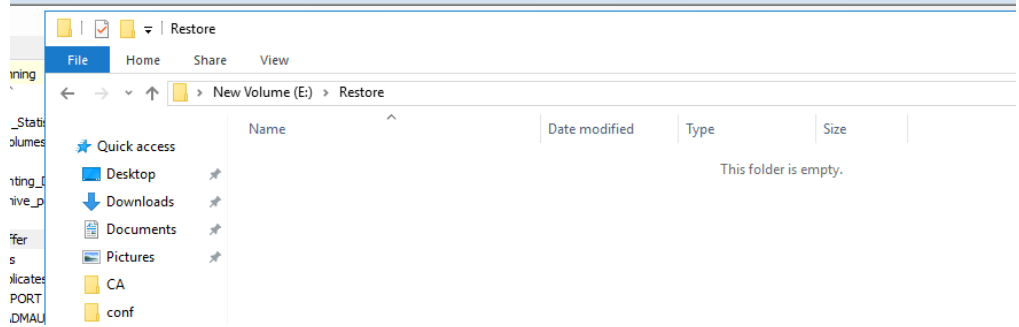
1.3 Start the purge job.



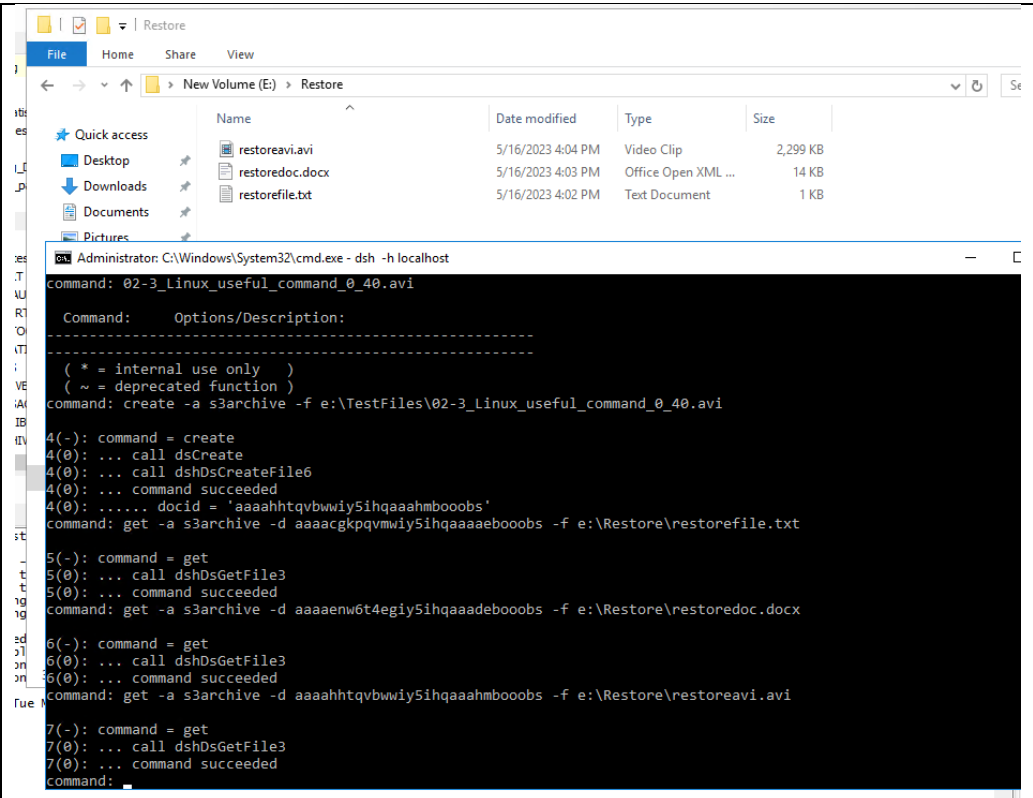
1.4 The folder '00' in the Archive Server local buffer has been removed.



2. Create a new folder in the local disk as the destination directory for retrieving files.



3. In the archive server, retrieve the archived files with the docids recorded earlier from the storage to the destination directory.



4. The MD5 value of the retrieved files and original files are the same. That indicates the retrieved files and original files are consistent.

```

C:\Users\Administrator>certutil -hashfile e:\TestFiles\TestDoc.docx MD5
MD5 hash of file e:\TestFiles\TestDoc.docx:
a4 50 f0 f6 1a 7f 1e 46 a3 3d 70 25 f4 43 2f 96
CertUtil: -hashfile command completed successfully.

C:\Users\Administrator>certutil -hashfile e:\Restore\restore.docx MD5
MD5 hash of file e:\Restore\restore.docx:
a4 50 f0 f6 1a 7f 1e 46 a3 3d 70 25 f4 43 2f 96
CertUtil: -hashfile command completed successfully.

C:\Users\Administrator>certutil -hashfile e:\TestFiles\files.txt MD5
MD5 hash of file e:\TestFiles\files.txt:
bb f2 8b b8 a4 e8 32 1d 2f d6 f1 e4 88 79 67 c8
CertUtil: -hashfile command completed successfully.

C:\Users\Administrator>certutil -hashfile e:\Restore\restorefile.txt MD5
MD5 hash of file e:\Restore\restorefile.txt:
bb f2 8b b8 a4 e8 32 1d 2f d6 f1 e4 88 79 67 c8
CertUtil: -hashfile command completed successfully.

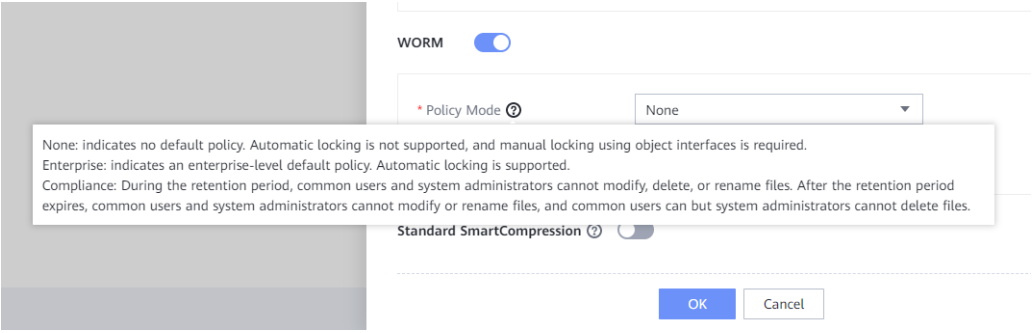
C:\Users\Administrator>certutil -hashfile e:\TestFiles\02-3_Linux_useful_command_0_40.avi MD5
MD5 hash of file e:\TestFiles\02-3_Linux_useful_command_0_40.avi:
57 e9 b0 ea 24 04 57 84 46 b6 98 d4 56 1d fa de
CertUtil: -hashfile command completed successfully.

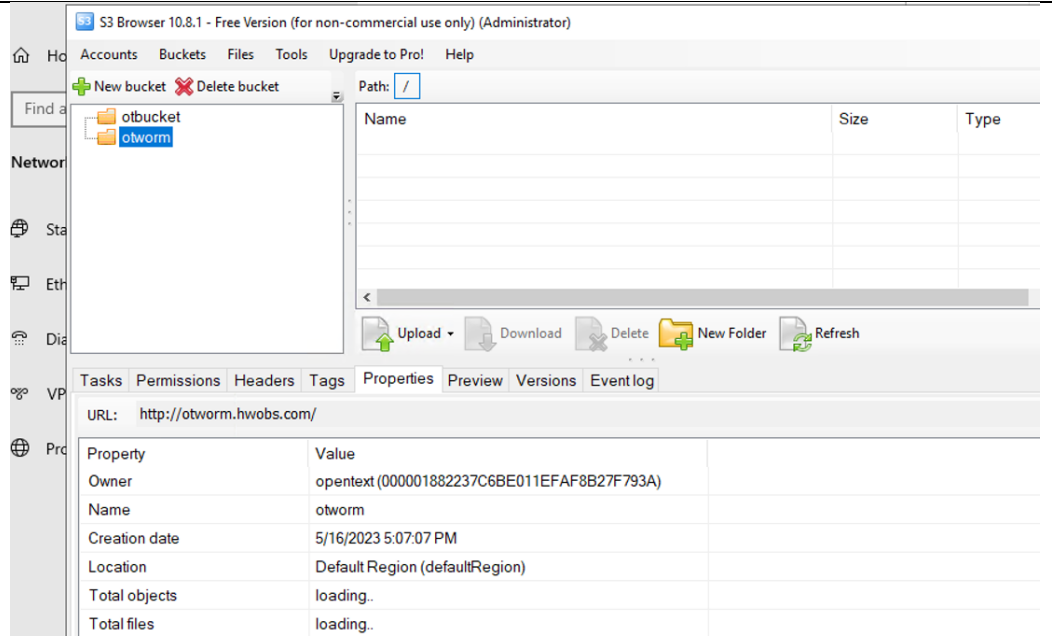
C:\Users\Administrator>certutil -hashfile e:\Restore\restore.avi MD5
MD5 hash of file e:\Restore\restore.avi:
57 e9 b0 ea 24 04 57 84 46 b6 98 d4 56 1d fa de
CertUtil: -hashfile command completed successfully.

C:\Users\Administrator>
  
```

Test Conclusion	Passed
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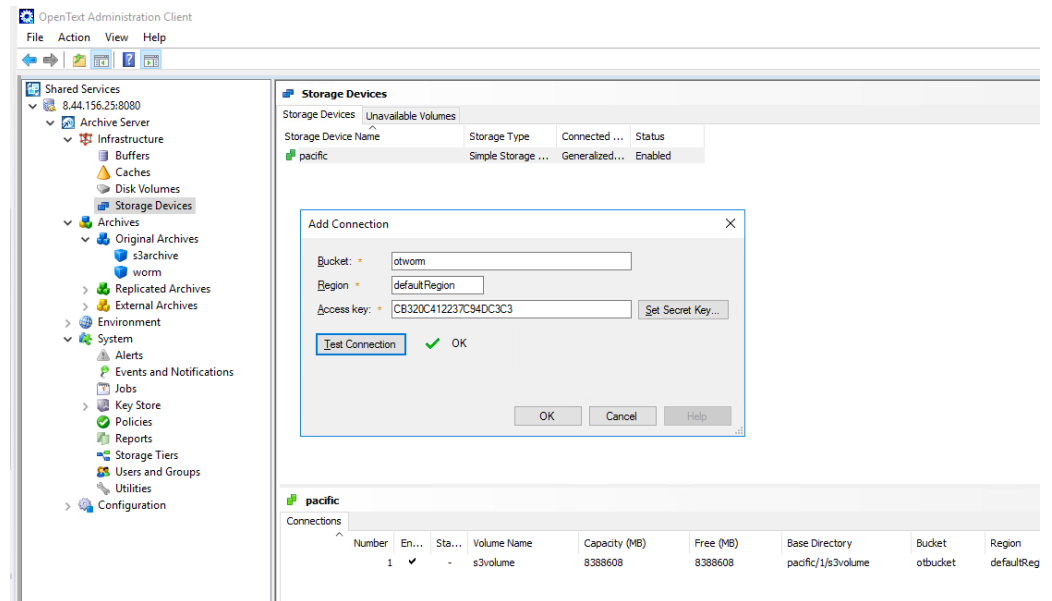
2.4 Retention Period Testing

Test Purpose	To verify that the retention period is supported when the storage is used as S3 target storage of the archive server.
Test Networking	Storage and Archive Server Test Networking
Prerequisites	<ol style="list-style-type: none"> 1. The administration client, archive server, and SQL database have been deployed and configured successfully. 2. The S3 services of the storage have been configured successfully, including accounts, namespace, access certificates, security certificates, and service networks. 3. The storage has been added to the archive server successfully.
Test Procedure	<ol style="list-style-type: none"> 1. On the administration client, set a retention period for the archive. 2. Archive files to the storage. 3. Check the headers of the archived files on the storage. 4. Delete the archived files within the retention period on the storage. 5. Delete the archived files after the retention period expires on the storage.
Expected Result	<ol style="list-style-type: none"> 1. In step 1, succeeded to set the retention period for the archive. 2. In step 3, the headers of the archived files show that the files are Read-only. 3. In step 4, fail to delete the archived files within the retention period. 4. In step 5, succeed to delete the archived files after the retention period expires.
Test Results	<p>Prerequisites</p> <p>Pre1 Configuration of the storage</p> <p>Pre1.1 Create a new bucket with WORM enabled and set the worm policy mode to None, so that the storage will use the retention period set by the archive server through the S3 interface.</p>  <p>Pre1.2 In the S3 browser check the S3 worm bucket created in the previous step.</p>



Pre2 Configuration of the archive server

Pre2.1 Add a new connection with the S3 worm bucket created earlier.



Pre2.2 Initialize a new volume.

OpenText Administration Client

File Action View Help

Shared Services

- 8.44.156.25:8080
 - Archive Server
 - Infrastructure
 - Buffers
 - Caches
 - Disk Volumes
 - Storage Devices
 - Archives
 - Original Archives
 - s3archive
 - worm
 - Replicated Archives
 - External Archives
 - Environment
 - System
 - Alerts
 - Events and Notifications
 - Jobs
 - Key Store
 - Policies
 - Reports
 - Storage Tiers
 - Users and Groups
 - Utilities
 - Configuration

Storage Devices

Storage Devices | Unavailable Volumes

Storage Device Name	Storage Type	Connected ...	Status
pacific	Simple Storage ...	Generalized...	Enabled

Initialize Volume

Volume name: wormvolume

OK Cancel Help

pacific

Connections

Number	En...	Sta...	Volume Name	Capacity (MB)	Free (MB)	Base Directory	Bucket	Reg
1	✓	-	s3volume	8388608	8388608	pacific/1/s3volume	otbucket	def
2	✓	-	wormvolume	8388608	8388608	pacific/2/wormvolume	otworm	def

pacific

Connections

Number	En...	Sta...	Volume Name	Capacity (MB)	Free (MB)	Base Directory	Bucket	Region	Access Key
1	✓	-	s3volume	8388608	8388608	pacific/1/s3volume	otbucket	defaultRegion	CB320C412237C94DC3C3
2	✓	-	wormvolume	8388608	8388608	pacific/2/wormvolume	otworm	defaultRegion	CB320C412237C94DC3C3

Pre2.3 Create a new disk volume in the local disk E:\.

OpenText Administration Client

File Action View Help

Shared Services

- 8.44.156.25:8080
 - Archive Server
 - Infrastructure
 - Buffers
 - Caches
 - Disk Volumes
 - Storage Devices
 - Archives
 - Original Archives
 - s3archive
 - Replicated Archives
 - External Archives
 - Environment
 - System
 - Alerts
 - Events and Notifications
 - Jobs
 - Key Store
 - Policies
 - Reports
 - Storage Tiers
 - Users and Groups
 - Utilities
 - Configuration

Disk Volumes

Volume Name	Capacity (MB)	Mount Path	Used As	Where Used	Replicate
localdisk	204669	E:\Buffer	buffer	s3localBuffer	

New Disk Volume

General

Volume name: wormdisk

Mount path: E:\Worm_Buffer

The Tomcat service must be able to access the path. [More information](#)

Volume class: Hard Disk

Worm_Buffer

Home Share View

New Volume (E:) > Worm_Buffer

Name	Date modified	Type	Size
This folder is empty.			

Pre2.4 Create a new disk buffer and attach the local disk volume created in the previous step.

OpenText Administration Client

File Action View Help

Shared Services

- 8.44.156.25:8080
 - Archive Server
 - Infrastructure
 - Buffers
 - Caches
 - Disk Volumes
 - Storage Devices
 - Archives
 - Original Archives
 - s3archive
 - Replicated Archives
 - External Archives
 - Environment
 - System
 - Alerts
 - Events and Notifications
 - Jobs
 - Key Store
 - Policies
 - Reports
 - Storage Tiers
 - Users and Groups
 - Utilities
 - Configuration

Buffers

Original Disk Buffers | Replicated Disk Buffers

Original Buffer Name	Min. Free Space (%)	Days in Buffer	Cache Documents
s3localBuffer	100	disabled	

New Original Disk Buffer

General

General

Disk buffer name: s3wormbuffer

Information

Disk Buffer Purge Configuration

Purge job: purge_s3wormbuffer

Min. free space: 30 %

Purge documents older than 0 days

Cache documents before purging

Verify documents by checksums if checksums are at least 0 bits long

Number of threads: 3

How do I schedule a purge job?

Help < Back Next > Cancel

OpenText Administration Client

File Action View Help

Shared Services

- 8.44.156.25:8080
 - Archive Server
 - Infrastructure
 - Buffers
 - Caches
 - Disk Volumes
 - Storage Devices
 - Archives
 - Original Archives
 - s3archive
 - Replicated Archives
 - External Archives
 - Environment
 - System
 - Alerts
 - Events and Notifications
 - Jobs
 - Key Store
 - Policies
 - Reports
 - Storage Tiers
 - Users and Groups
 - Utilities
 - Configuration

Buffers

Original Disk Buffers | Replicated Disk Buffers

Original Buffer Name	Min. Free Space (%)	Days in Buffer	Cache Documents
s3localBuffer	100	disabled	
s3wormbuffer	30	disabled	

s3wormbuffer

Volumes Where Used

Volume Name	Type	Full	Capacity (
wormdisk			

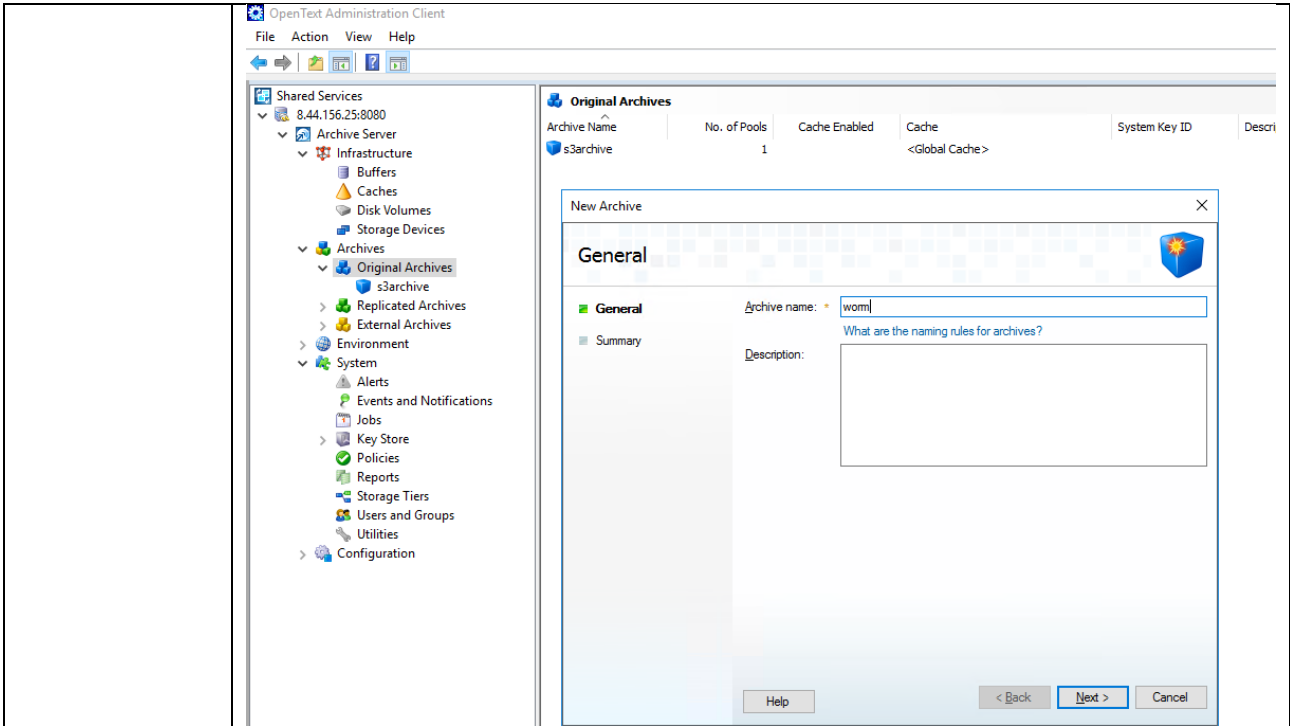
Attach Volume

Volume Name

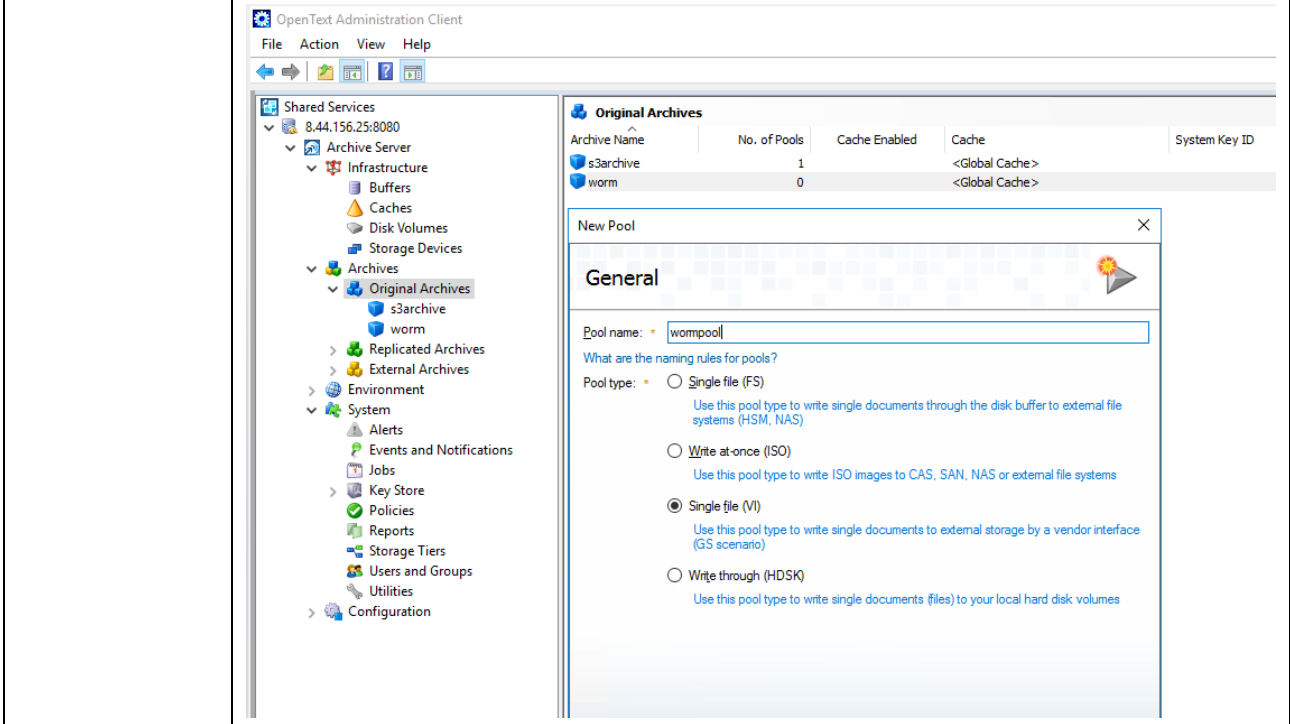
wormdisk

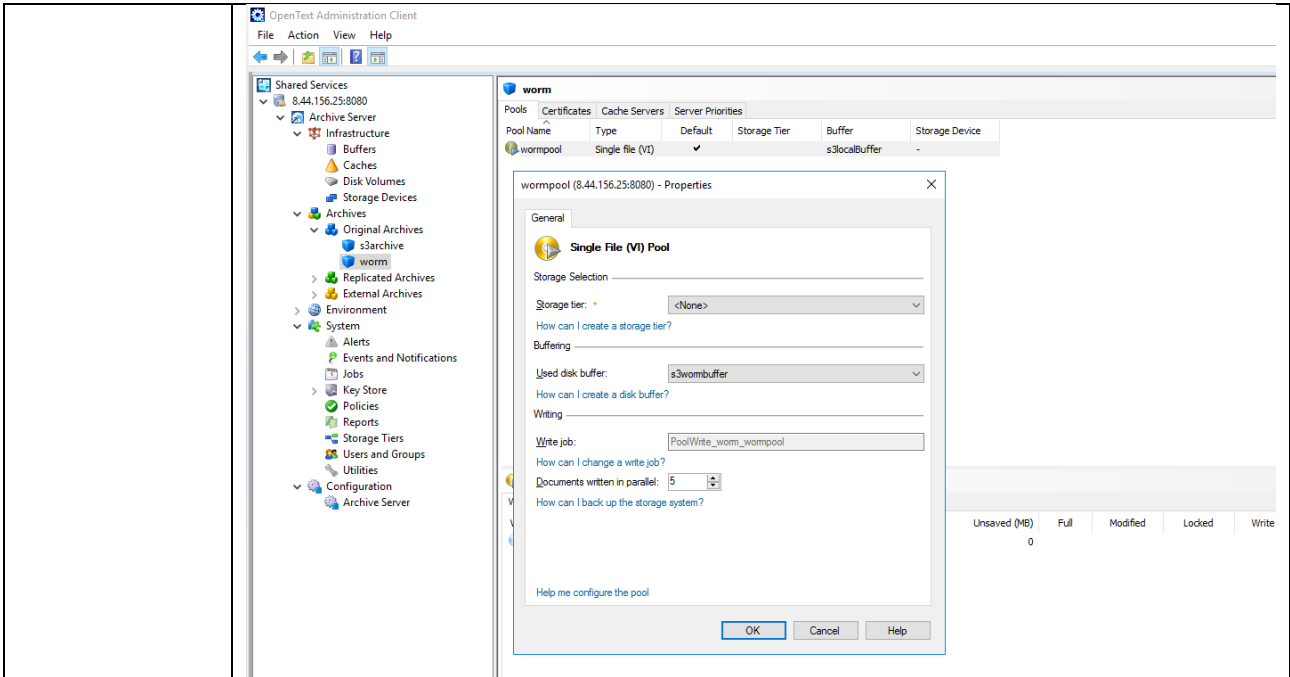
OK Cancel Help

Pre2.5 Create a new archive.

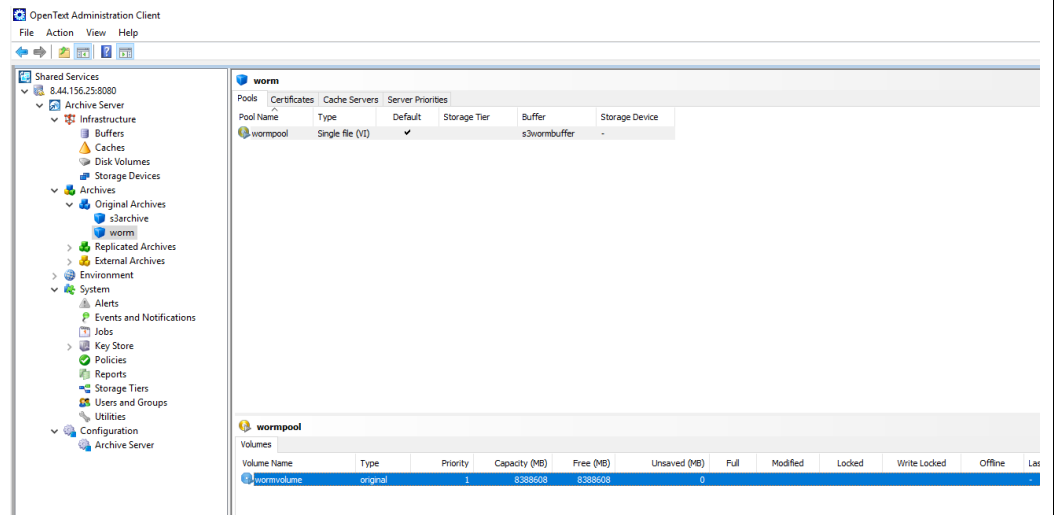


Pre2.6 Create a new pool in **Single file (VI)** type and select the disk buffer created earlier.



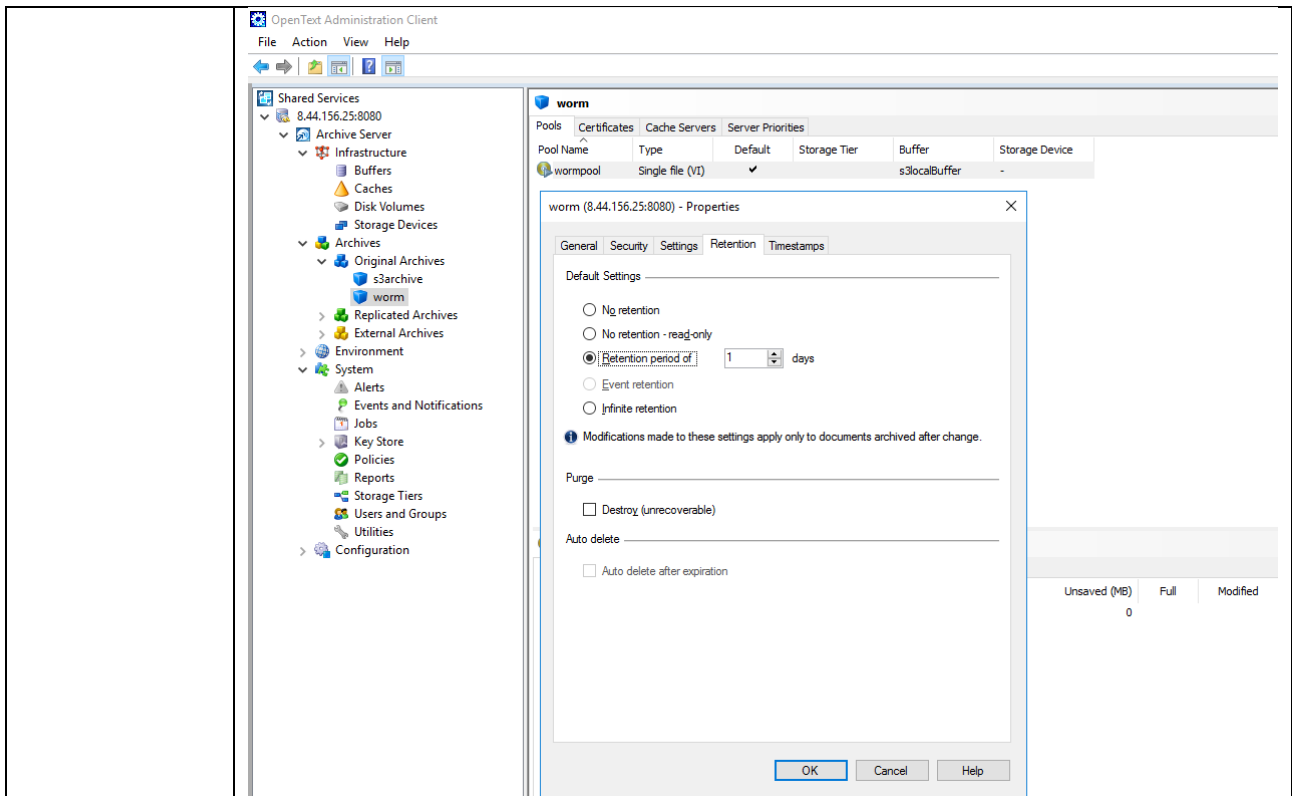


Pre2.7 Attach the volume created earlier.



Test Result

1. On the administration client, set the retention period to 1 day in archive properties.



2. Archive files to the storage.

2.1 Write the test files to the archive server's local buffer.

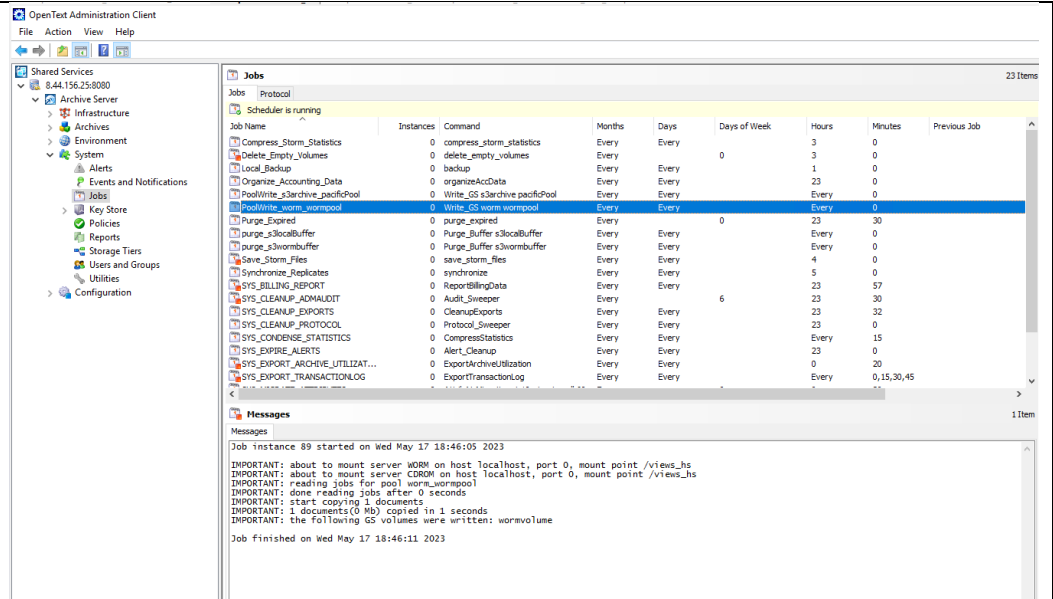
```

E:\OT\bin>dsh -h localhost
command: create -a worm -f e:\TestFiles\wormfile.txt

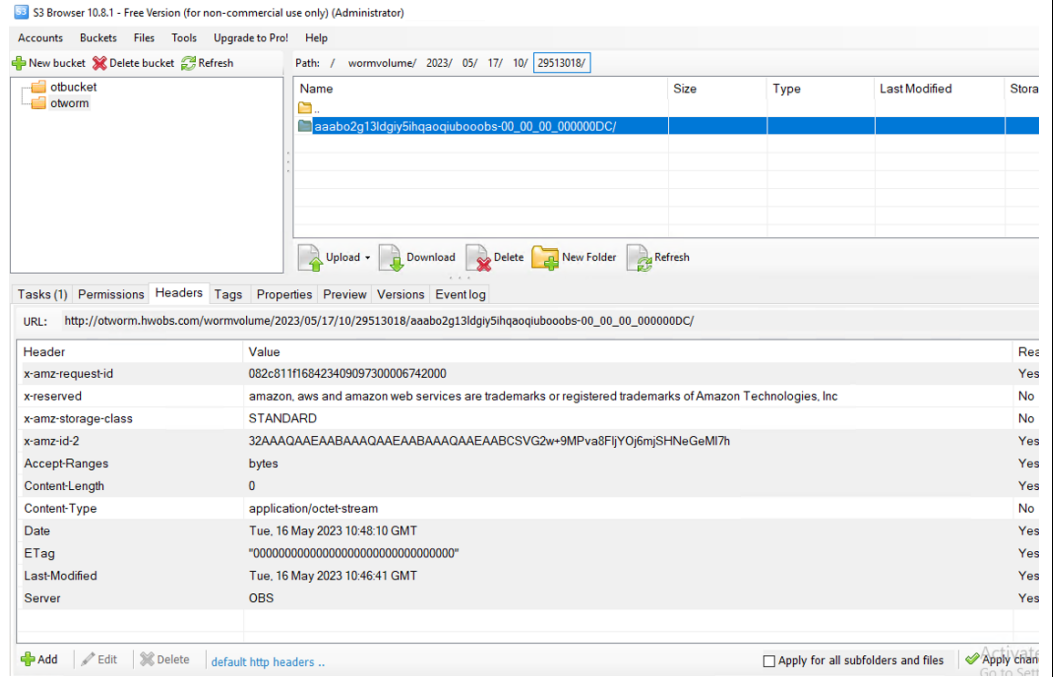
1(-): command = create
1(0): ... call dsCreate
1(0): ... call dshDsCreateFile6
1(0): ... command succeeded
1(0): ..... docid = 'aaabo2g13ldgiy5ihqaoqiubooobs'
command:

```

2.2 Start the related PoolWrite job to archive the file to the storage.



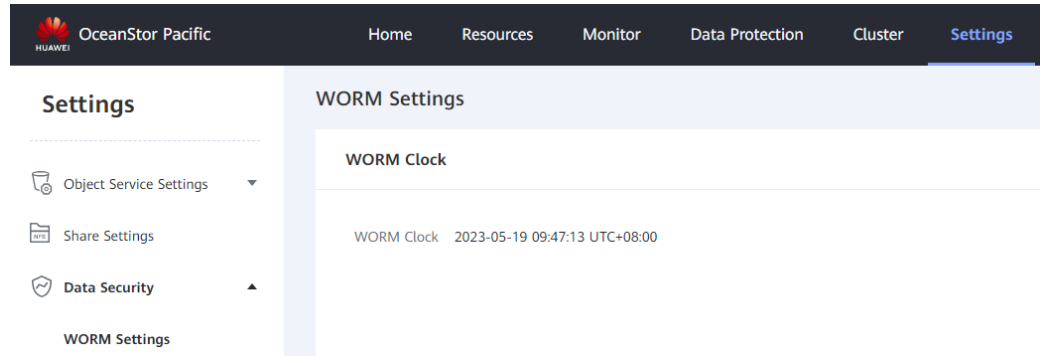
2.3 The files have been written into the storage successfully.



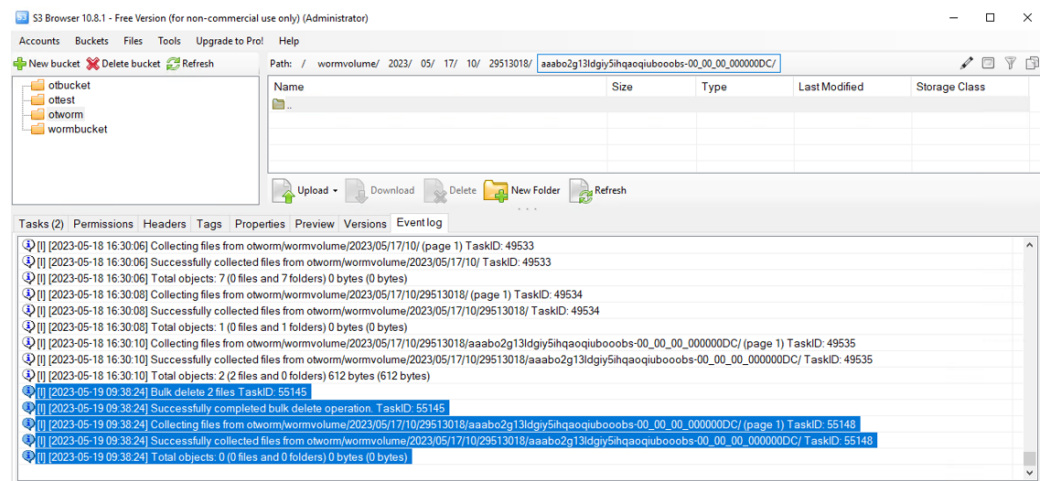
3. On the S3 browser the headers of the archived files in the storage contain the 'x-amz-object-lock-retain-until-date' and the value is 2023-05-18T10:45:50.

5. Succeed to delete the archived files after the retention period (2023-05-18 10:45:50 UTC+0/2023-05-18 18:45:50 UTC+8) expires.

5.1 Check the WORM clock in the storage to make sure the retention period has expired.



5.2 Files could be deleted.



Test Conclusion

Passed

3 Summary and Conclusion

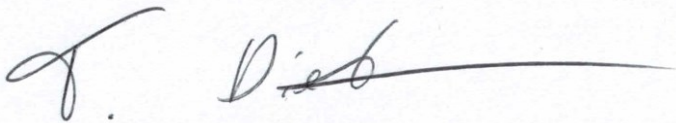
3.1 Result Summary

Number	Test Cases	Results
1	Add the storage to the archive server as S3 target storage	Passed
2	Archive files to the storage through the archive server	Passed
3	Retrieve archived files from the storage through the archive server	Passed
4	Retention Period Testing	Passed

3.2 Conclusion

All the interoperability test cases were completed. The Huawei OceanStor Pacific Scale-Out Storage supports connecting to the OpenText Archive Server through the S3 protocol as target storage. The system works as expected for file archiving, retrieving, and retention period. With regards to the test results, the Huawei OceanStor Pacific Scale-Out Storage and the OpenText Archive Server are well interoperable.

3.3 Signature

Company Name: Acondistec GmbH
Signature: 
Date: May 31, 2023