

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

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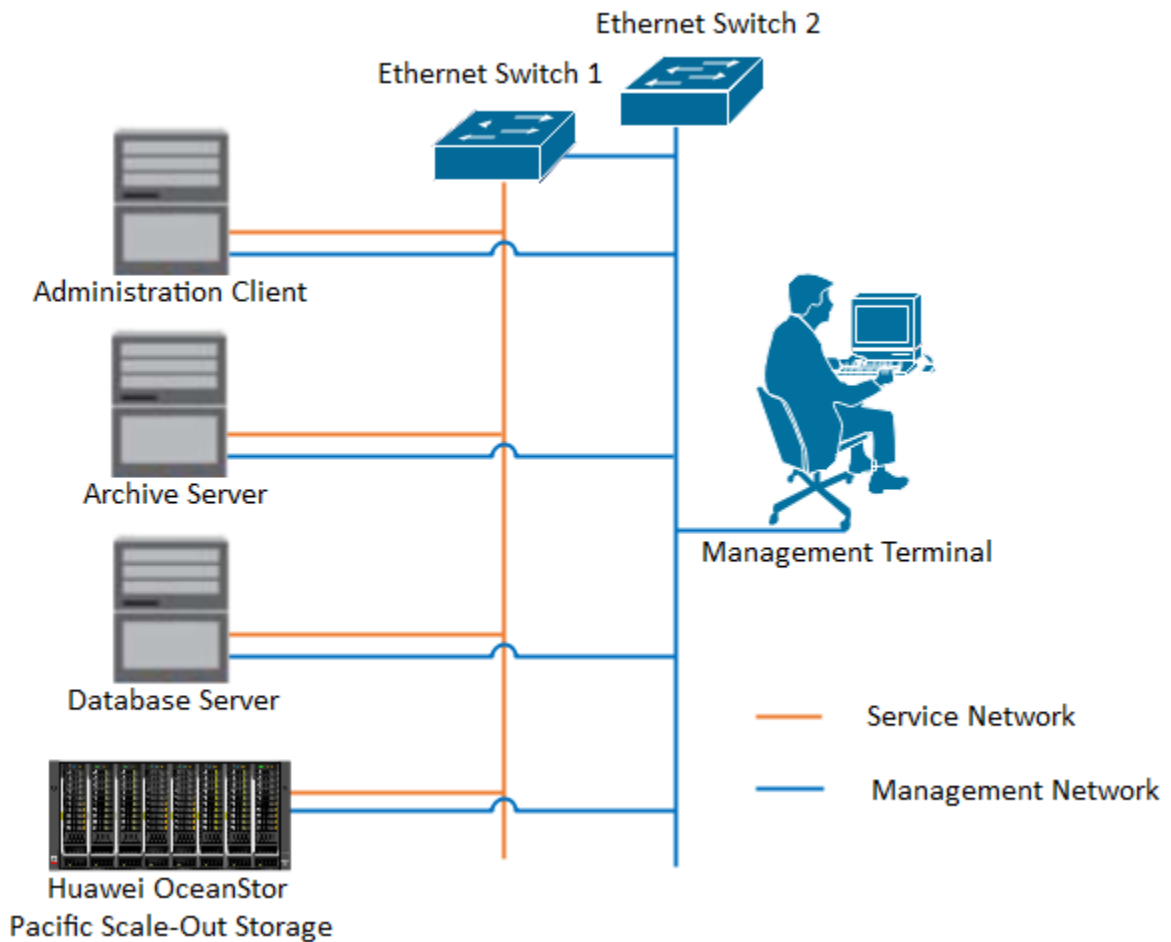
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# 1 Environment Configuration

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## 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 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 Pacific Scale-Out Storage<br>(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

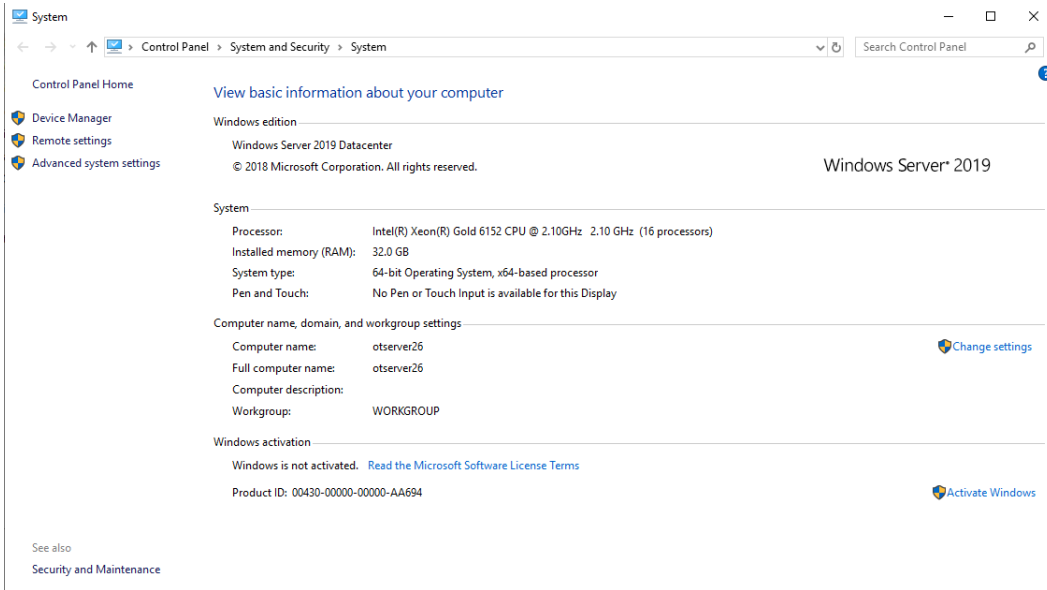
| Software Name         | Version         | Quantity |
|-----------------------|-----------------|----------|
| Administration Client | 22.4            | 1        |
| Archive Server        | 22.4            | 1        |
| SQL Server            | SQL Server 2019 | 1        |
| Operation System      | Windows 2019    | 1        |

Software Version:

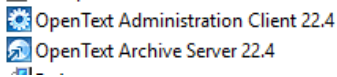
SQL Server:

|  |                       |           |         |                |
|--|-----------------------|-----------|---------|----------------|
| Microsoft ODBC Driver 17 for SQL Server                  | Microsoft Corporation | 3/17/2023 | 1.54 MB | 17.1.2.1       |
| Microsoft OLE DB Driver for SQL Server                   | Microsoft Corporation | 5/17/2023 | 11.3 MB | 18.5.0.0       |
| Microsoft SQL Server 2012 Native Client                  | Microsoft Corporation | 5/17/2023 | 9.71 MB | 11.4.7462.6    |
| Microsoft SQL Server 2019 (64-bit)                       | Microsoft Corporation | 5/17/2023 |         |                |
| Microsoft SQL Server 2019 Setup (English)                | Microsoft Corporation | 5/17/2023 | 40.3 MB | 15.0.2000.5    |
| Microsoft SQL Server 2019 T-SQL Language Service         | Microsoft Corporation | 5/17/2023 | 9.05 MB | 15.0.2000.5    |
| Microsoft SQL Server Management Studio - 18.9.2          | Microsoft Corporation | 5/17/2023 | 2.75 GB | 15.0.18386.0   |
| Microsoft Visual C++ 2008 Redistributable - x64 9.0.3... | Microsoft Corporation | 3/21/2023 | 13.2 MB | 9.0.30729.6161 |

## Windows:

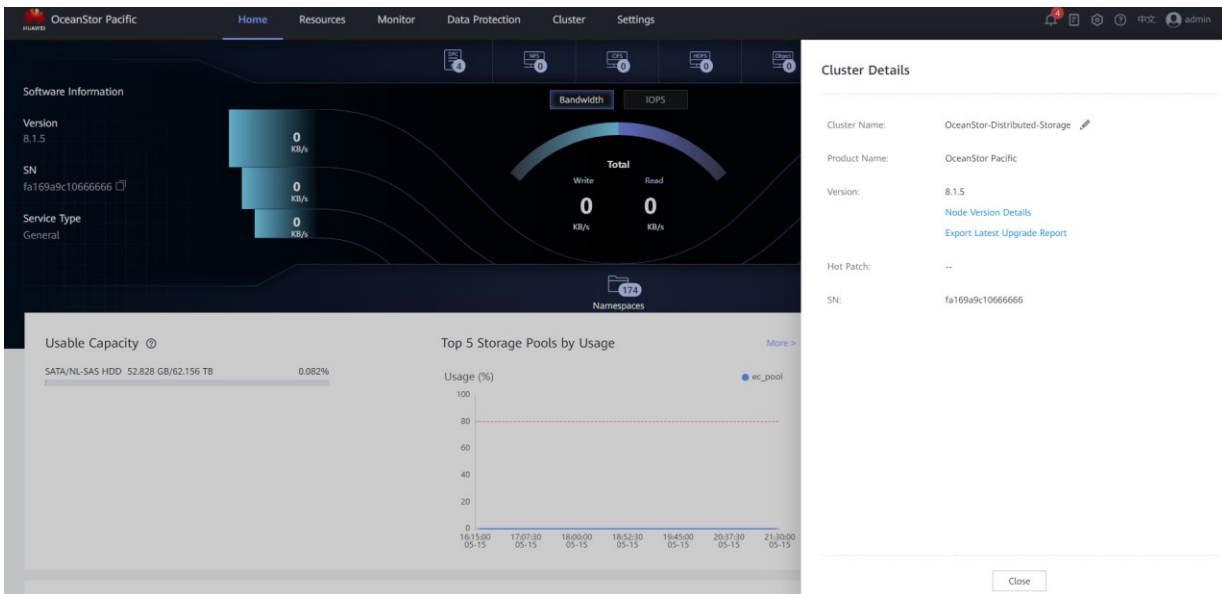


## Archive Server and Administrator Client



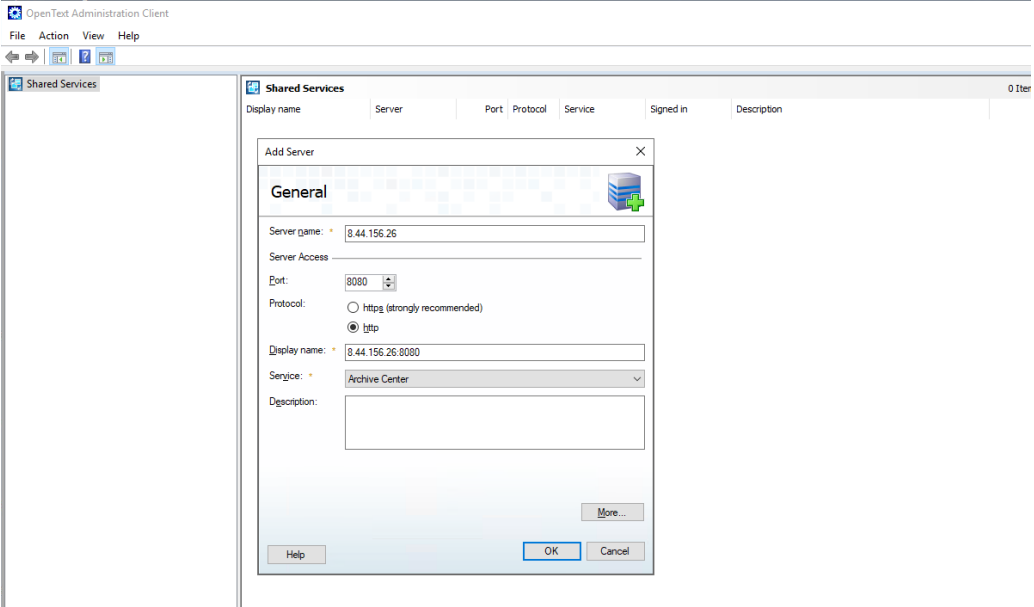
|                       |           |         |           |
|-----------------------|-----------|---------|-----------|
| Open Text Corporation | 5/17/2023 | 25.9 MB | 22.4.0.10 |
| OpenText Corporation  | 5/17/2023 | 669 MB  | 22.4.0.24 |

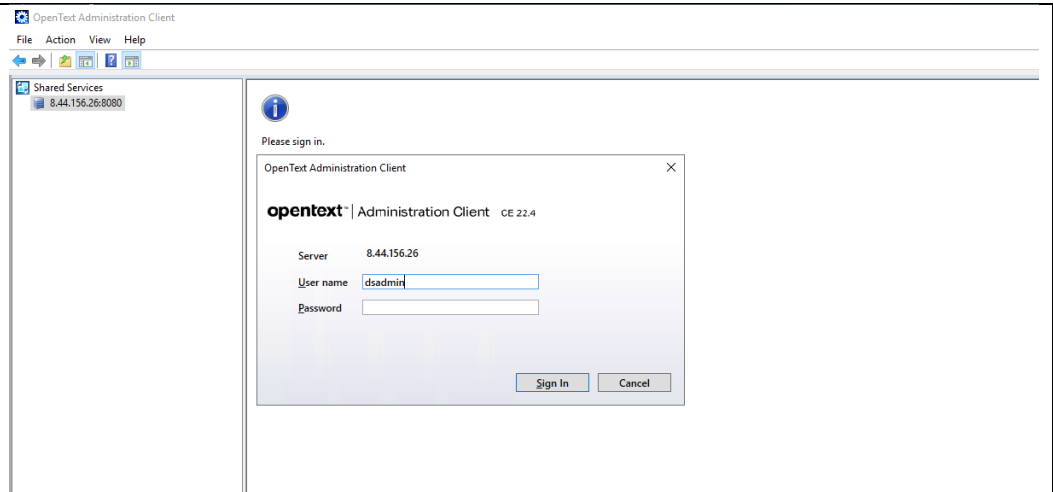
## Huawei OceanStor Pacific Scale-Out Storage:



## 2 Verification

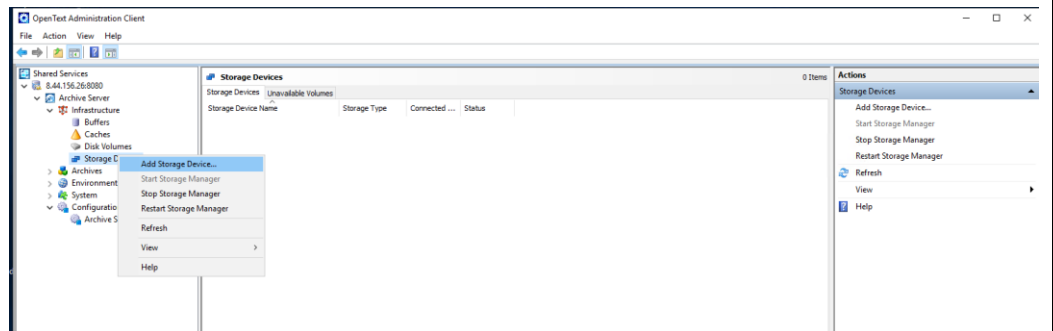
### 2.1 Add the storage to the archive server as S3 target storage

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

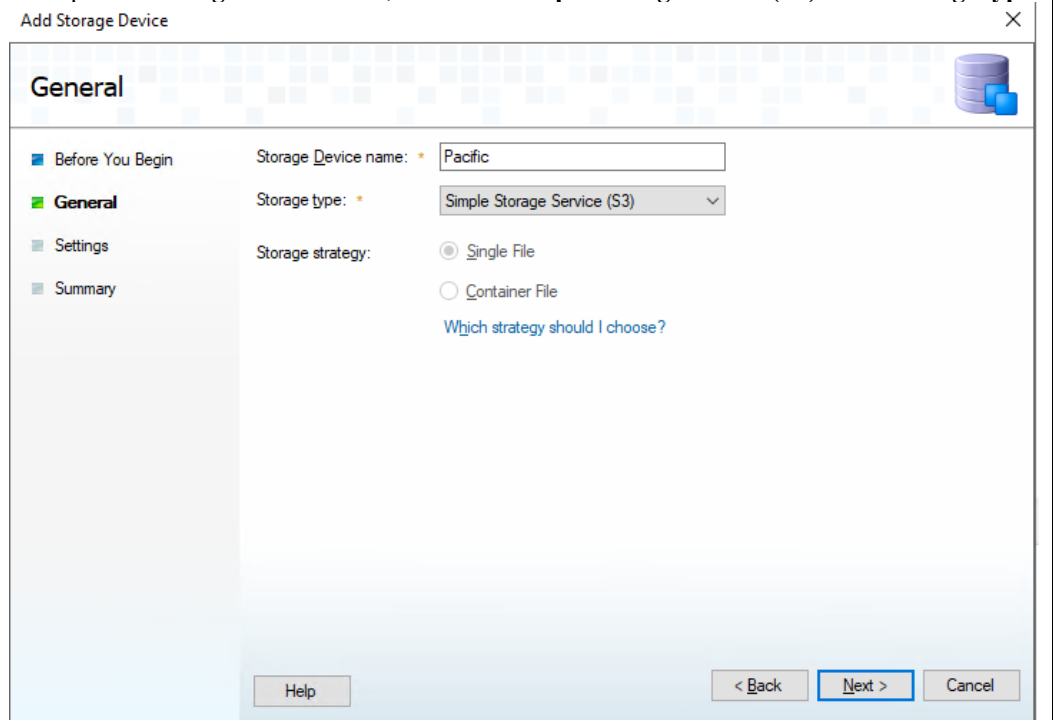


2. Add the storage to the archive server through the S3 protocol.

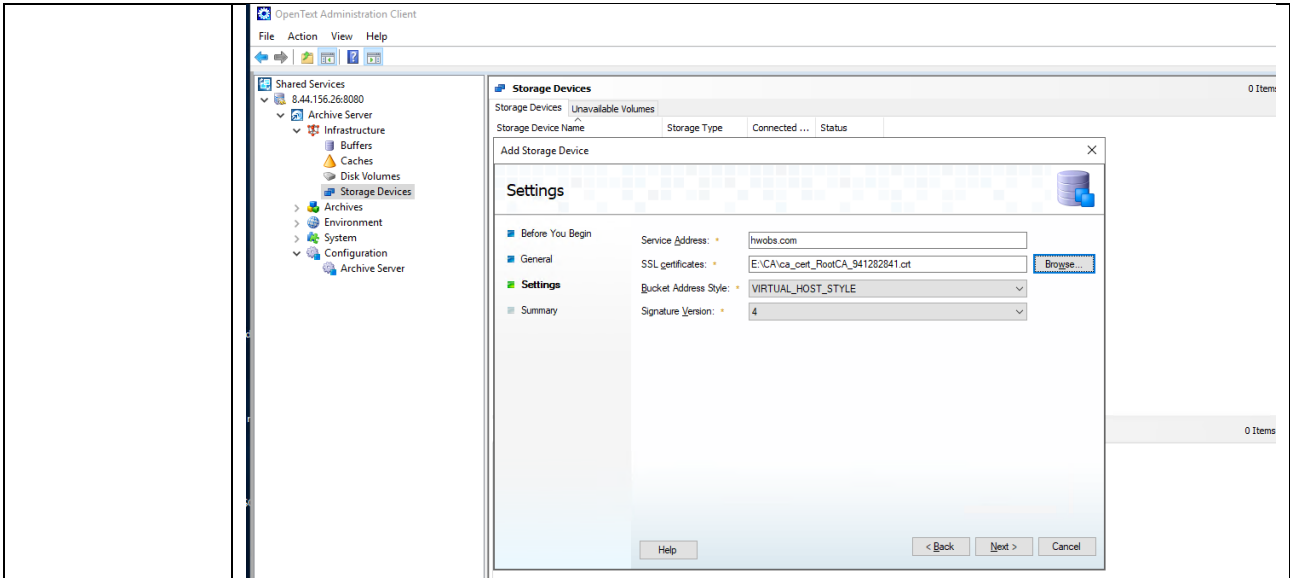
2.1 Right-click **Storage Devices** and choose **Add Storage Device**.



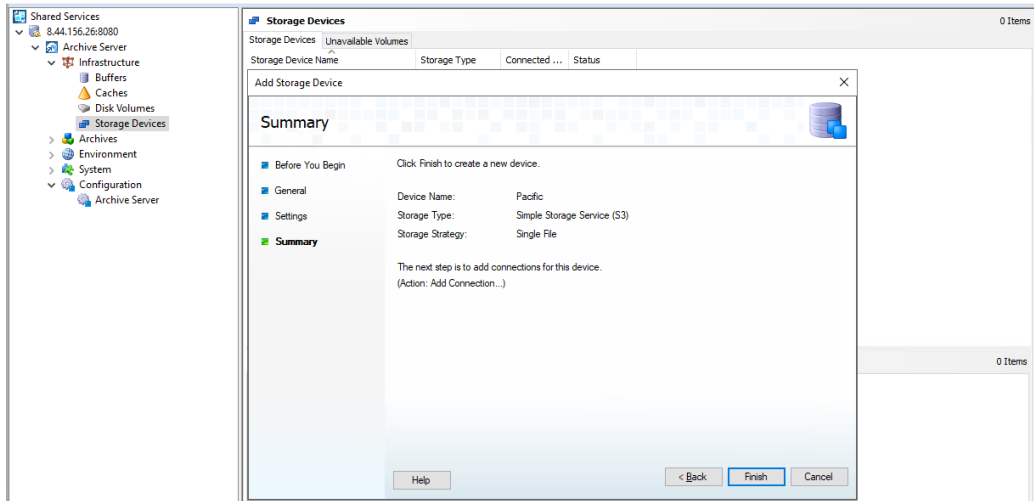
2.2 Input the **Storage Device name**, and select **Simple Storage Service(S3)** as the **Storage type**.



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**.

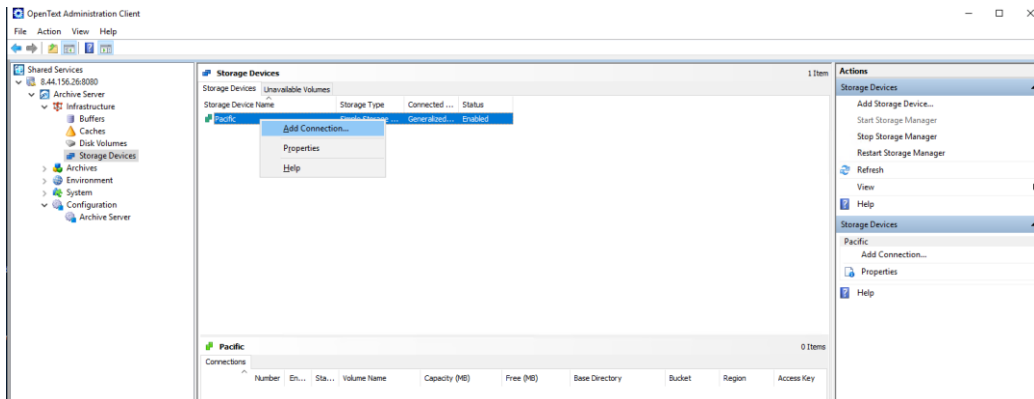


2.4 Click **Finish** to complete **Add Storage Device**.



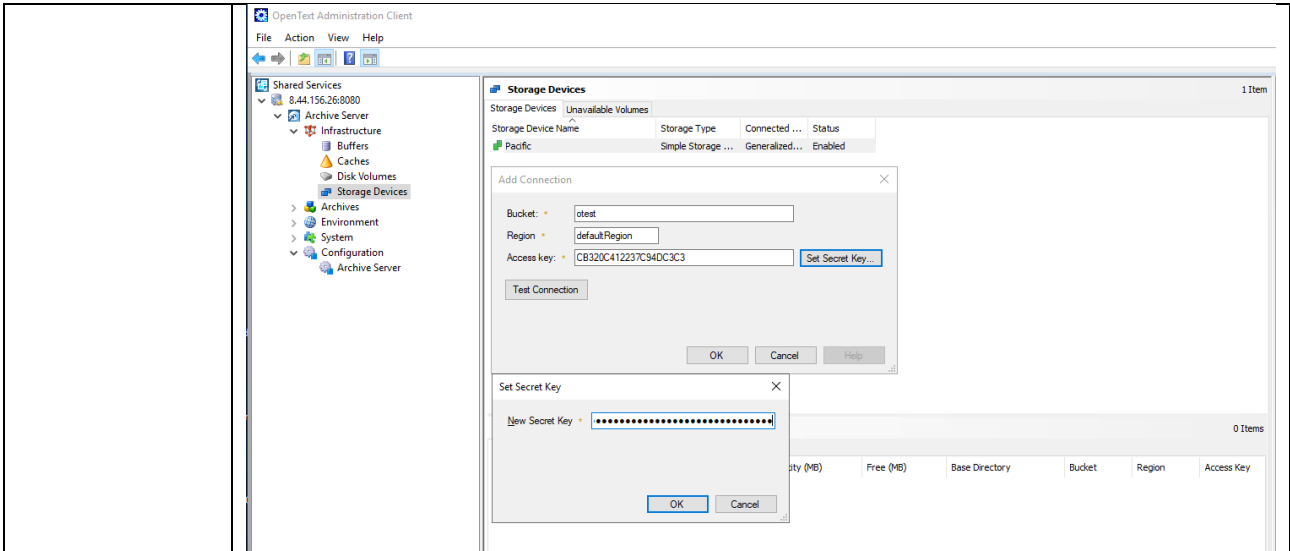
3. Test the connection between the storage and the archive server.

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

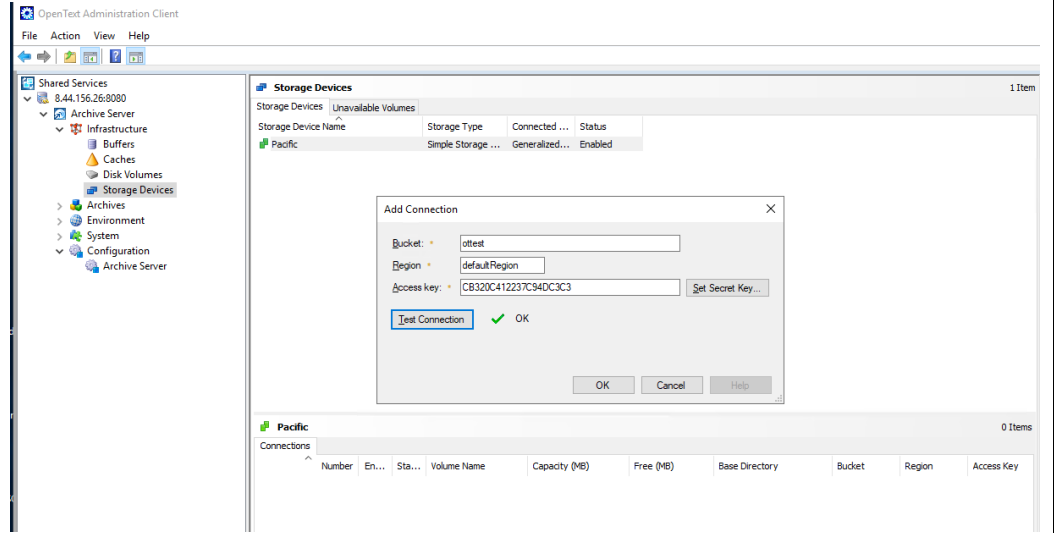


3.2 Input a name in the **Bucket** field. Select **defaultRegion** in the **Region** field. Input the **Access key** and **Secret key** of the storage.





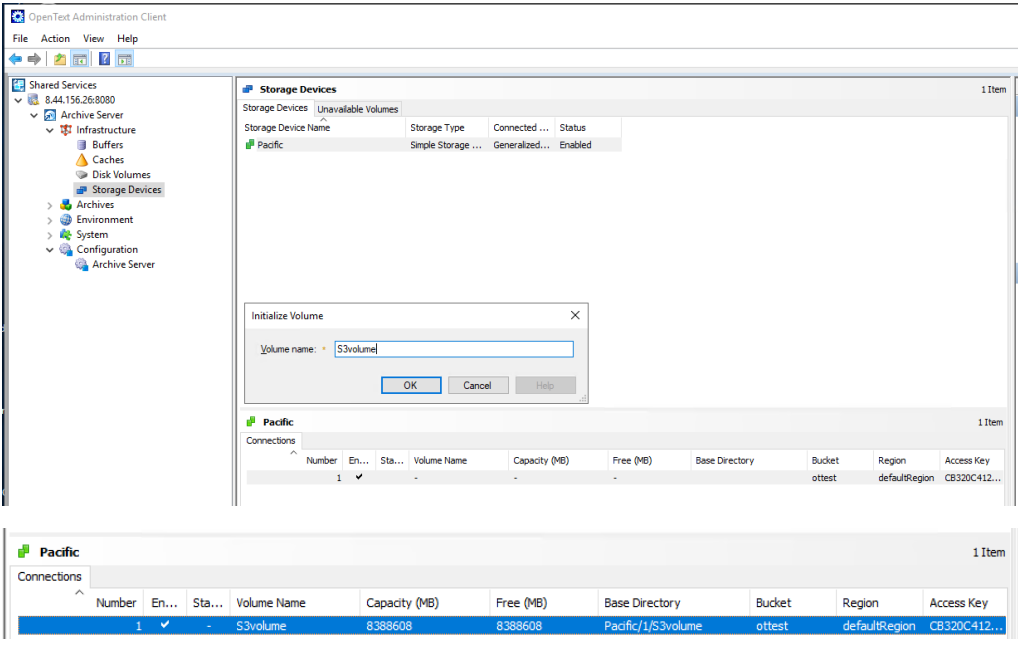
3.3 Click **Test Connection** and the result is **OK**.

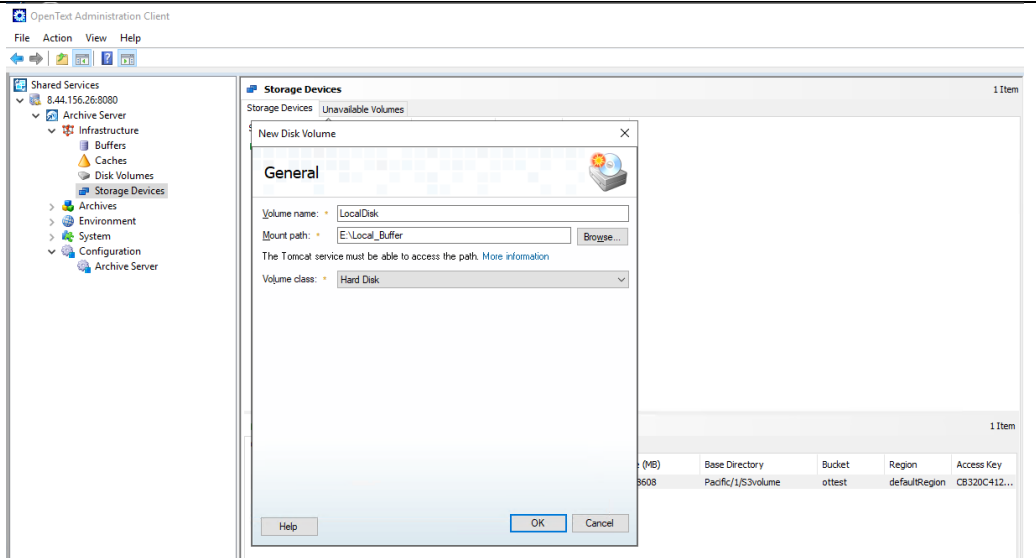


|                        |        |
|------------------------|--------|
| <b>Test Conclusion</b> | Passed |
|------------------------|--------|

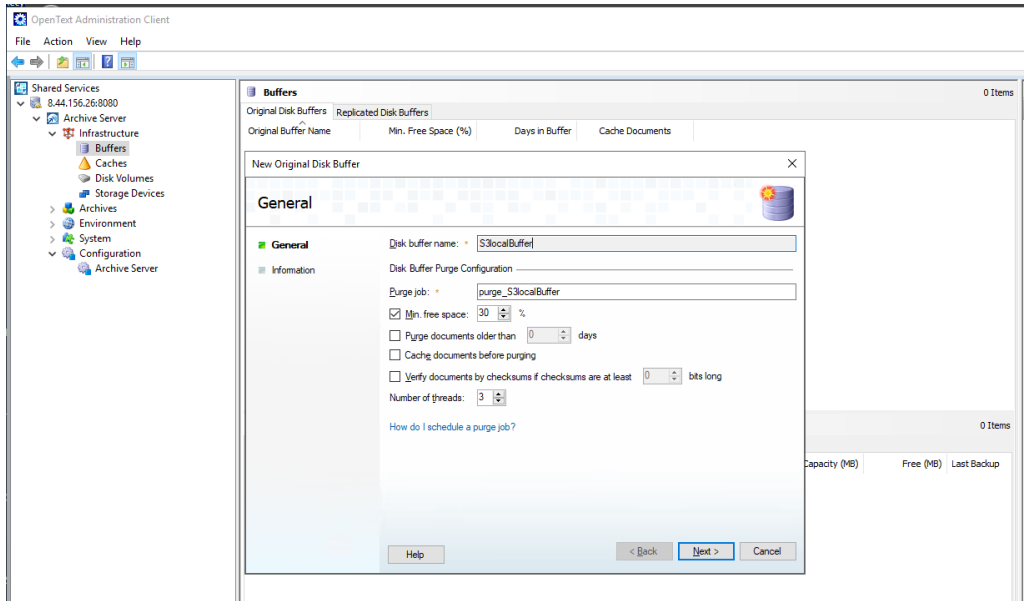
## 2.2 Archive files to the storage through the archive server

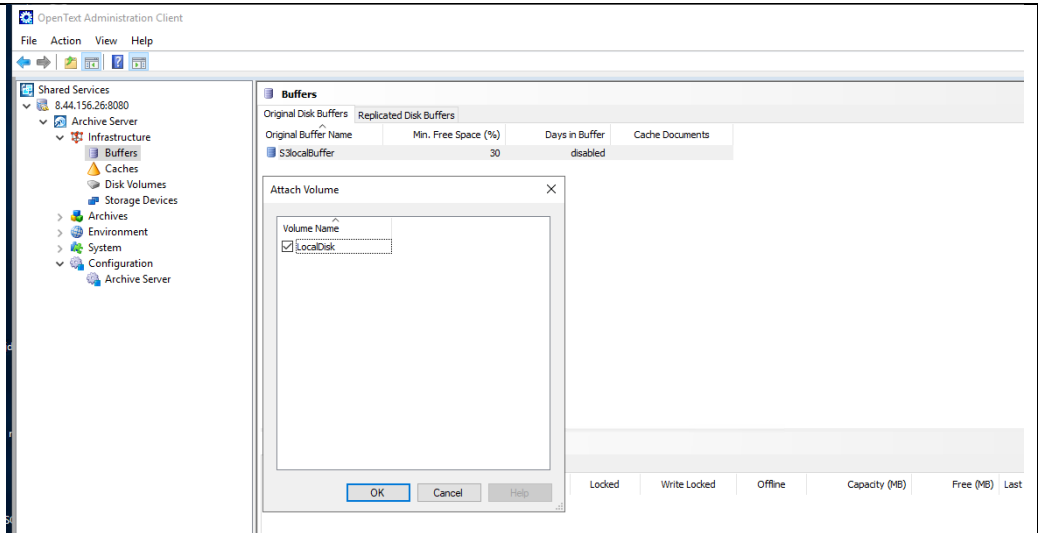
|                        |   |
|------------------------|---|
| <b>Test Purpose</b>    | To verify that the archive server can archive files to the storage.   |
| <b>Test Networking</b> | Storage and Archive Server Test Networking  |
| <b>Prerequisites</b>   | <ol style="list-style-type: none"> <li>1.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

|                               |  |
|-------------------------------|--|
| <p><b>Test Procedure</b></p>  | <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> </ol>   |
| <p><b>Expected Result</b></p> | <ol style="list-style-type: none"> <li>1. In step 1, the files are written to the archive server's local buffer successfully.</li> <li>2. In step 2, the files are written to the storage successfully.</li> </ol>   |
| <p><b>Test Results</b></p>    | <p><b>Prerequisites</b></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: Wed May 17 11:45:15 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:/&gt;show trim-slash-switch Command is executable now.  admin:/&gt;show trim-slash-switch Command is executable now.  admin:/&gt;show trim-slash-switch switch : true admin:/&gt; </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> |

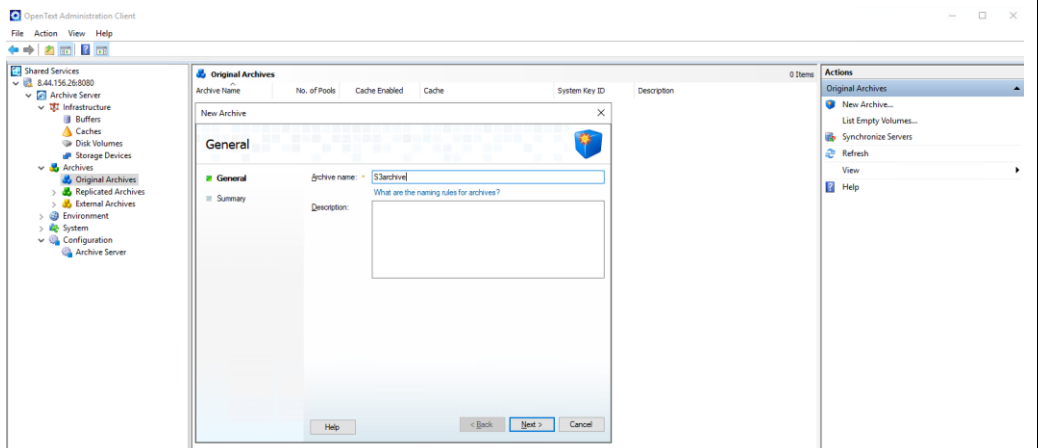


Pre2.3 Create a new disk buffer and attach the local disk volume created in the previous step.

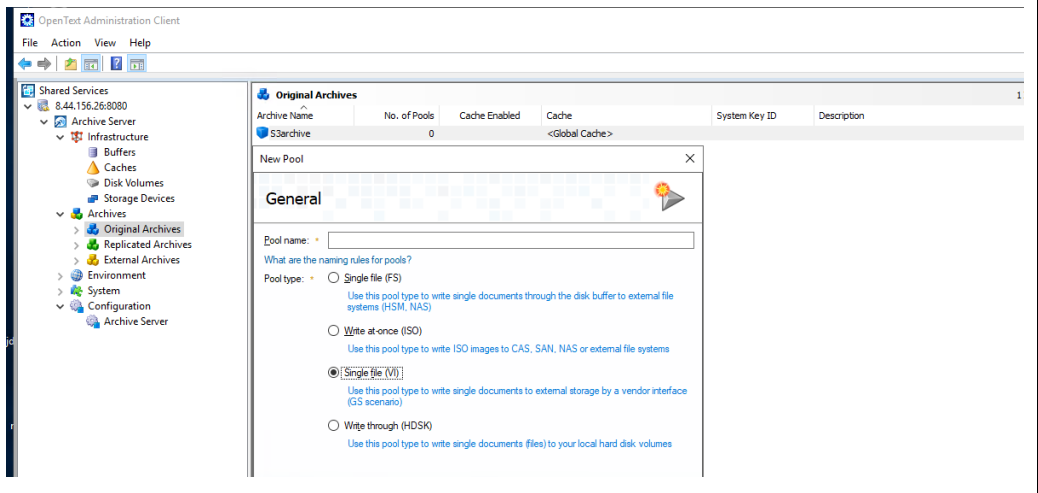


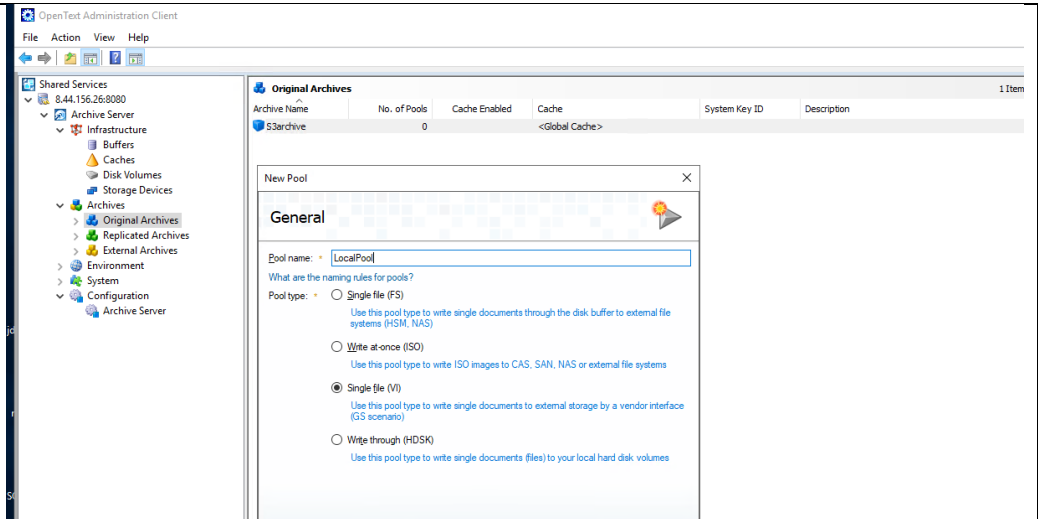


#### Pre2.4 Create a new archive.

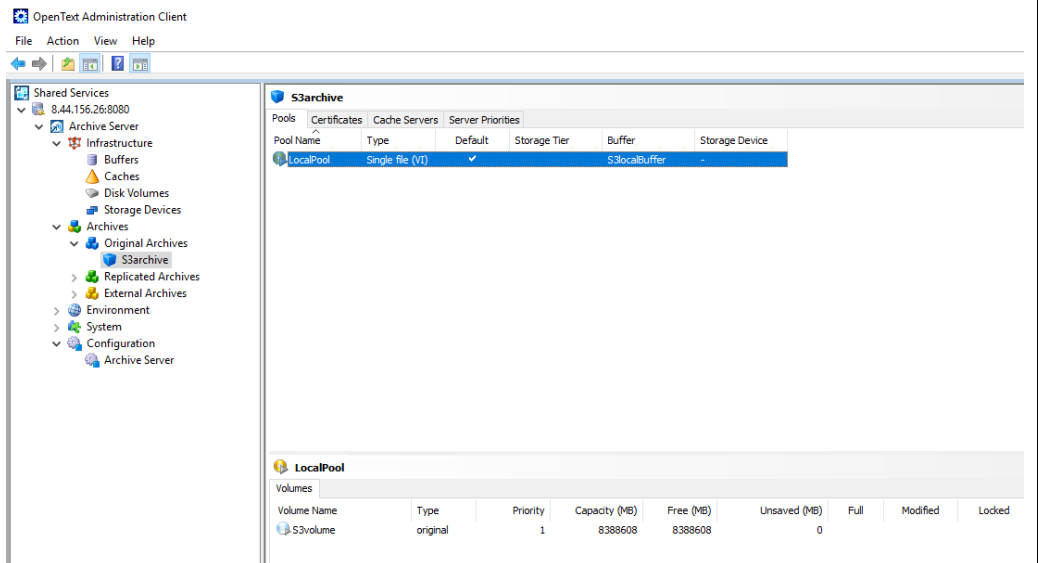
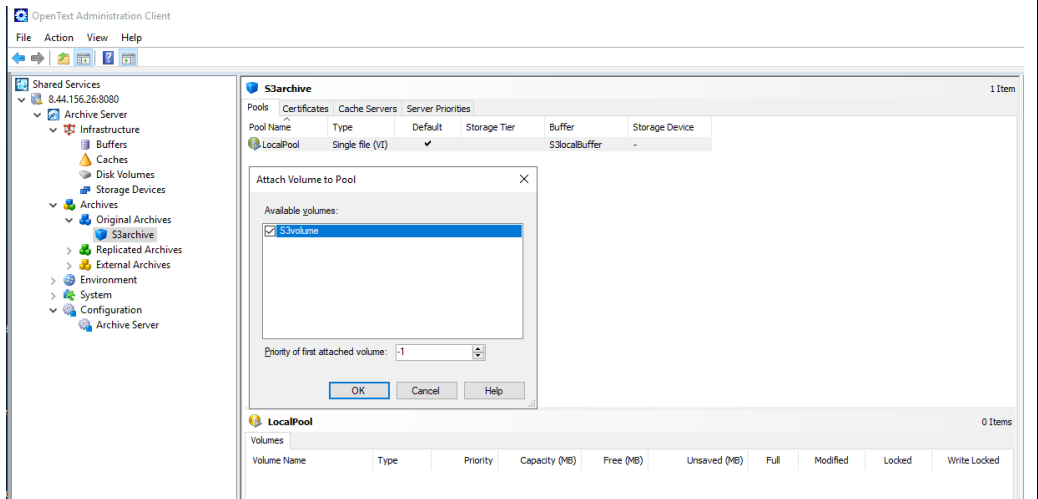


#### Pre2.5 Create a new pool in **Single file (VI)** type and select the disk buffer created earlier.





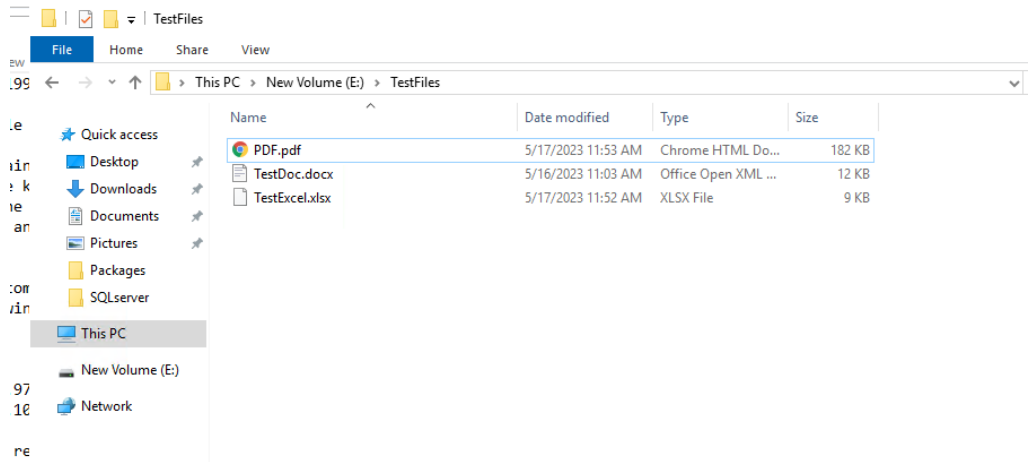
Pre2.6 Attach the volume created earlier.



## 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.

```
Select Administrator: C:\Windows\System32\cmd.exe - dsh -h localhost
Microsoft Windows [Version 10.0.17763.107]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Program Files\OpenText\Archive Server 22.4.0\bin>dsh -h localhost
command: create -a S3archive -f e:\TestFiles\PDF.pdf

1(-): command = create
1(0): ... call dsCreate
1(0): ... call dshDsCreateFile6
1(0): ... command succeeded
1(0): ..... docid = 'aaaad41pv3rwizobjqaaaaebooobu'
command: create -a S3archive -f e:\TestFiles\TestDoc.docx

2(-): command = create
2(0): ... call dsCreate
2(0): ... call dshDsCreateFile6
2(0): ... command succeeded
2(0): ..... docid = 'aaaafpmopkpgizobjqaaambooobu'
command: create -a S3archive -f e:\TestFiles\TestExcel.xlsx

3(-): command = create
3(0): ... call dsCreate
3(0): ... call dshDsCreateFile6
3(0): ... command succeeded
3(0): ..... docid = 'aaaag4cgg4ggizobjqaaah3booobu'
command: _
```

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

The screenshot displays the OpenText Administration Client interface. The top pane shows the 'S3archive' configuration with tabs for Pools, Certificates, Cache Servers, and Server Priorities. Below this, a file explorer window shows the 'Local\_Buffer' folder on 'New Volume (E:)'. A 'Local\_Buffer Properties' dialog box is open, showing details for the 'Local\_Buffer' folder: Type: File folder, Location: E:\, Size: 203 KB (208,538 bytes), Size on disk: 208 KB (212,992 bytes), Contains: 13 Files, 8 Folders, Created: Today, May 18, 2023, 3 hours ago, and Attributes: Read-only (checked), Hidden (unchecked).

Below the file explorer, two 'Properties' dialog boxes are shown side-by-side. The left one is for 'TestFiles' and the right one is for 'Local\_Buffer'. Both show similar metadata: Type: File folder, Location: E:\, Size: 202 KB (207,053 bytes) for TestFiles and 203 KB (208,538 bytes) for Local\_Buffer; Size on disk: 208 KB (212,992 bytes) for both; Contains: 3 Files, 0 Folders for TestFiles and 13 Files, 8 Folders for Local\_Buffer; Created: Today, May 18, 2023, 3 hours ago; and Attributes: Read-only (checked), Hidden (unchecked).

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 S3 bucket of the storage.





The screenshot shows a Windows File Explorer window at the path `This PC > New Volume (E:) > Local_Buffer > 00 > 00 > 00`. It displays three folders: `000000C8`, `000000C9`, and `000000CA`, all created on 5/18/2023 at 2:16 PM.

Below it is the S3 Browser interface for the bucket `ottest`. The path is `S3volume/ 2023/ 05/ 18/ 06/ 2d86a13a/`. The bucket contains three folders: `aaaa4lpv3nwizobjqaaaeeboobu-00_00_00_000000C8/`, `aaaafpmopkpgizobjqaaaeeboobu-00_00_00_000000C9/`, and `aaaag4cgg4ggizobjqaaaah3boobu-00_00_00_000000CA/`.

The bucket properties are as follows:

| Property      | Value                                      |
|---------------|--|
| Owner         | opentext (000001882237C6BE011EFAF8B2F793A) |
| Name          | ottest                                     |
| Creation date | 5/17/2023 11:28:02 AM                      |
| Location      | Default Region (us-east-1)                 |
| Total objects | 15   |
| Total files   | 6  |
| Total folders | 9  |
| Total size    | 203.28 KB (208 155 bytes)                  |
| Logging       | Disabled                                   |
| Versioning    | Disabled                                   |

2.5 The files have been written into the storage successfully.

The screenshot shows the S3 Browser interface for the bucket `ottest`, displaying the details of a file upload to the folder `aaaa4lpv3nwizobjqaaaeeboobu-00_00_00_000000C8/`. The path is `S3volume/ 2023/ 05/ 18/ 06/ 2d86a13a/`.

The uploaded files are:

| Name          | Size      | Type       | Last Modified        | Storage Class |
|---------------|-----------|------------|----------------------|---------------|
| 000X000.000.1 | 181.33 KB | 000.1 File | 5/17/2023 2:32:22 PM | STANDARD      |
| ATTRIB.ATR    | 359 bytes | ATR File   | 5/17/2023 2:32:22 PM | STANDARD      |

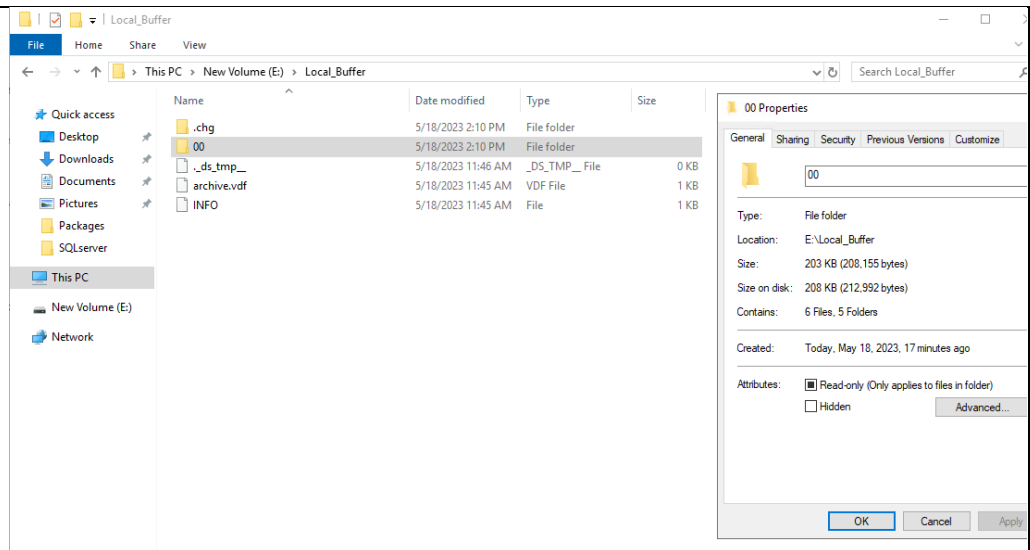
The interface shows 2 files (181.68 KB) and 0 folders.

**Test Conclusion**

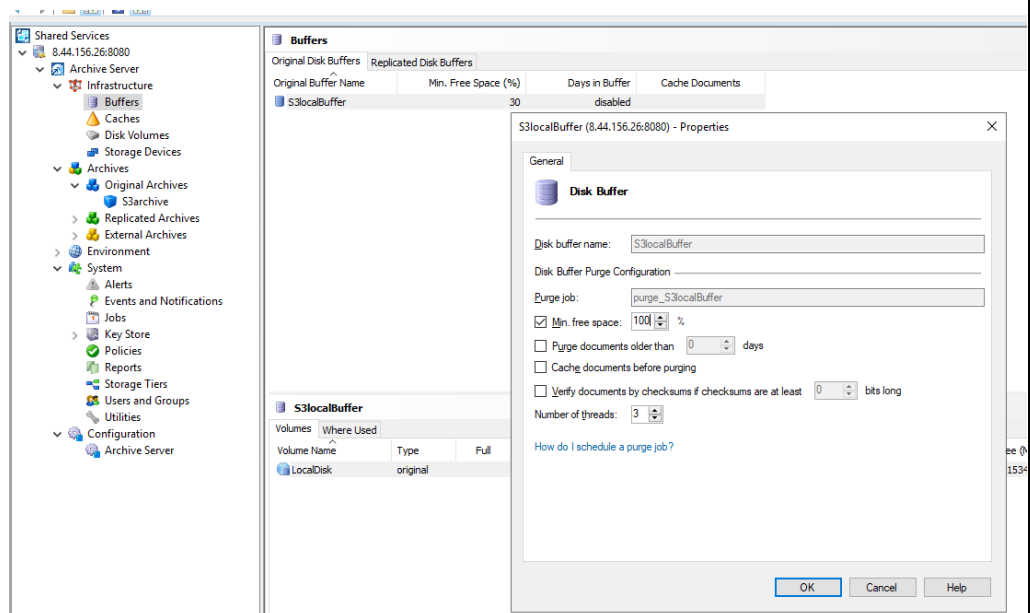
Passed

## 2.3 Retrieve archived files from the storage through the archive server

|                        |  |
|------------------------|--|
| <b>Test Purpose</b>    | To verify that archived files can be retrieved from the storage through the archive server.  |
| <b>Test Networking</b> | Storage and Archive Server Test Networking   |
| <b>Prerequisites</b>   | <ol style="list-style-type: none"> <li>1. The administration client, archive server, and SQL database have been deployed and configured successfully.</li> <li>2. The S3 services of the storage have been configured successfully, including accounts, namespace, access certificates, security certificates, and service networks.</li> <li>3. The storage has been added to the archive server successfully.</li> <li>4. Some files (original files) have been archived to the storage successfully and the docids have been recorded.</li> </ol>   |
| <b>Test Procedure</b>  | <ol style="list-style-type: none"> <li>1. Run related Purge job to clean the archive server's local buffer. And check the files in the archive server's local buffer.</li> <li>2. Prepare a destination directory for retrieving files.</li> <li>3. In the archive server, retrieve the archived files from the storage to the destination directory.</li> <li>4. Check the consistency of the retrieved files and original files.</li> </ol>  |
| <b>Expected Result</b> | <ol style="list-style-type: none"> <li>1. In step 1, the files in the archive server's local buffer are cleared successfully.</li> <li>2. In step 2, the files are retrieved to the destination directory successfully.</li> <li>3. In step 3, the retrieved files and original files are consistent.</li> </ol>   |
| <b>Test Results</b>    | <p><b>Prerequisites</b></p> <p>The docids have been recorded while archiving the files.</p> <p><i>e:\TestFiles\PDF.pdf</i><br/> <i>docid = 'aaaad4lpv3rwizobjqaaaeeboobu'</i></p> <p><i>e:\TestFiles\TestDoc.docx</i><br/> <i>docid = 'aaaafpmopkpgizobjqaaemboobu'</i></p> <p><i>e:\TestFiles\TestExcel.xlsx</i><br/> <i>docid = 'aaaag4cgg4ggizobjqaaah3boobu'</i></p> <p><b>Test Result</b></p> <ol style="list-style-type: none"> <li>1. Run related Purge job to clean the archive server's local buffer. And check the files in the archive server's local buffer. <ol style="list-style-type: none"> <li>1.1 Before running the job, folder '00' is in the local buffer.</li> </ol> </li> </ol> |



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.

OpenText Administration Client

File Action View Help

Shared Services  
8.44.156.26:8080  
Archive Server  
Infrastructure  
Buffers  
Caches  
Storage Devices  
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

Jobs Protocol

Scheduler is running

| Job Name                      | Instances | Command                      | Months | Days  | Days of Week | Hours | Minutes    |
|-------------------------------|-----------|------------------------------|--------|-------|--------------|-------|------------|
| Compress_Storm_Statistics     | 0         | compress_storm_statistics    | Every  | Every |              | 3     | 0          |
| Delete_Empty_Volumes          | 0         | delete_empty_volumes         | Every  | Every | 0            | 3     | 0          |
| Local_Backup                  | 0         | backup                       | Every  | Every |              | 1     | 0          |
| Organize_Accounting_Data      | 0         | organizeAcctData             | Every  | Every |              | 23    | 0          |
| PoolWrite_S3archive_LocalPool | 0         | Write_GS S3archive LocalPool | Every  | Every |              | Every | 0          |
| Purge_Expired                 | 0         | purge_expired                | Every  | Every | 0            | 23    | 30         |
| Purge_S3localBuffer           | 0         | Purge_Buffer S3localBuffer   | Every  | Every |              | Every | 0          |
| Save_Storm_Files              | 0         | save_storm_files             | Every  | Every |              | 4     | 0          |
| Synchronize                   | 0         | synchronize                  | Every  | Every |              | 5     | 0          |
| SYS_BILLING                   | 0         | ReportBillingData            | Every  | Every |              | 23    | 57         |
| SYS_CLEANUP                   | 0         | Audit_Sweeper                | Every  | Every | 6            | 23    | 30         |
| SYS_CLEANUP                   | 0         | CleanupExports               | Every  | Every |              | 23    | 32         |
| SYS_CLEANUP                   | 0         | Protocol_Sweeper             | Every  | Every |              | 23    | 0          |
| SYS_CONDENSE                  | 0         | CompressStatistics           | Every  | Every |              | Every | 15         |
| SYS_EXPORT                    | 0         | Alert_Cleanup                | Every  | Every |              | 23    | 0          |
| SYS_EXPORT                    | 0         | ExportArchiveUtilization     | Every  | Every |              | 0     | 20         |
| SYS_EXPORT                    | 0         | ExportTransactionLog         | Every  | Every |              | Every | 0.15.30.45 |

Messages  
Messages

OpenText Administration Client

File Action View Help

Shared Services  
8.44.156.26:8080  
Archive Server  
Infrastructure  
Buffers  
Caches  
Storage Devices  
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  
Archive Server

Jobs Protocol

Scheduler is running

| Job Name                       | Instances | Command                      | Months | Days  | Days of Week | Hours | Minutes    |
|--------------------------------|-----------|------------------------------|--------|-------|--------------|-------|------------|
| Compress_Storm_Statistics      | 0         | compress_storm_statistics    | Every  | Every |              | 3     | 0          |
| Delete_Empty_Volumes           | 0         | delete_empty_volumes         | Every  | Every | 0            | 3     | 0          |
| Local_Backup                   | 0         | backup                       | Every  | Every |              | 1     | 0          |
| Organize_Accounting_Data       | 0         | organizeAcctData             | Every  | Every |              | 23    | 0          |
| PoolWrite_S3archive_LocalPool  | 0         | Write_GS S3archive LocalPool | Every  | Every |              | Every | 0          |
| Purge_Expired                  | 0         | purge_expired                | Every  | Every | 0            | 23    | 30         |
| Purge_S3localBuffer            | 0         | Purge_Buffer S3localBuffer   | Every  | Every |              | Every | 0          |
| Save_Storm_Files               | 0         | save_storm_files             | Every  | Every |              | 4     | 0          |
| Synchronize_Replicates         | 0         | synchronize                  | Every  | Every |              | 5     | 0          |
| SYS_BILLING_REPORT             | 0         | ReportBillingData            | Every  | Every |              | 23    | 57         |
| SYS_CLEANUP_ADMALDIT           | 0         | Audit_Sweeper                | Every  | Every | 6            | 23    | 30         |
| SYS_CLEANUP_EXPORTS            | 0         | CleanupExports               | Every  | Every |              | 23    | 32         |
| SYS_CLEANUP_PROTOCOL           | 0         | Protocol_Sweeper             | Every  | Every |              | 23    | 0          |
| SYS_CONDENSE_STATISTICS        | 0         | CompressStatistics           | Every  | Every |              | Every | 15         |
| SYS_EXPORT_ALERTS              | 0         | Alert_Cleanup                | Every  | Every |              | 23    | 0          |
| SYS_EXPORT_ARCHIVE_UTILIZAT... | 0         | ExportArchiveUtilization     | Every  | Every |              | 0     | 20         |
| SYS_EXPORT_TRANSACTIONLOG      | 0         | ExportTransactionLog         | Every  | Every |              | Every | 0.15.30.45 |

Messages  
Messages

Job instance 36 started on Thu May 18 14:28:09 2023

```
dsHdskRm -i 100 -t 3 -x 0 -p S3localBuffer
IMPORTANT: about to mount server NORM on host localhost, port 0, mount point /views_hs
IMPORTANT: about to mount server COROM on host localhost, port 0, mount point /views_hs
IMPORTANT: working on pool S3localBuffer
IMPORTANT: working on volume LocalDisk

IMPORTANT: deleted 3 components from 3 documents, approx. 0.2 MB
IMPORTANT: Free blocks of volume : at program start 153477.1 MB, now 153477.3 MB, difference 0.2 MB
IMPORTANT: work on volume LocalDisk completed
IMPORTANT: work on pool S3localBuffer completed

Job finished on Thu May 18 14:28:14 2023
```

1.4 The folder '00' in the archive server local buffer has been removed.

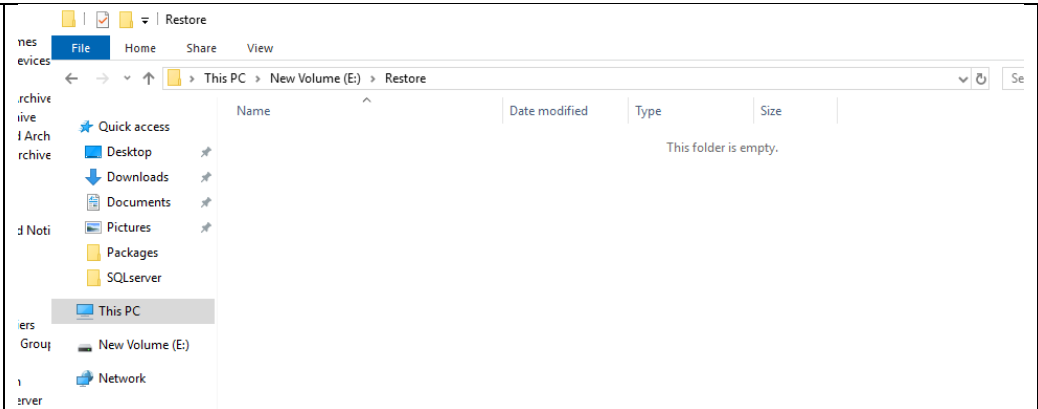
Local\_Buffer

File Home Share View

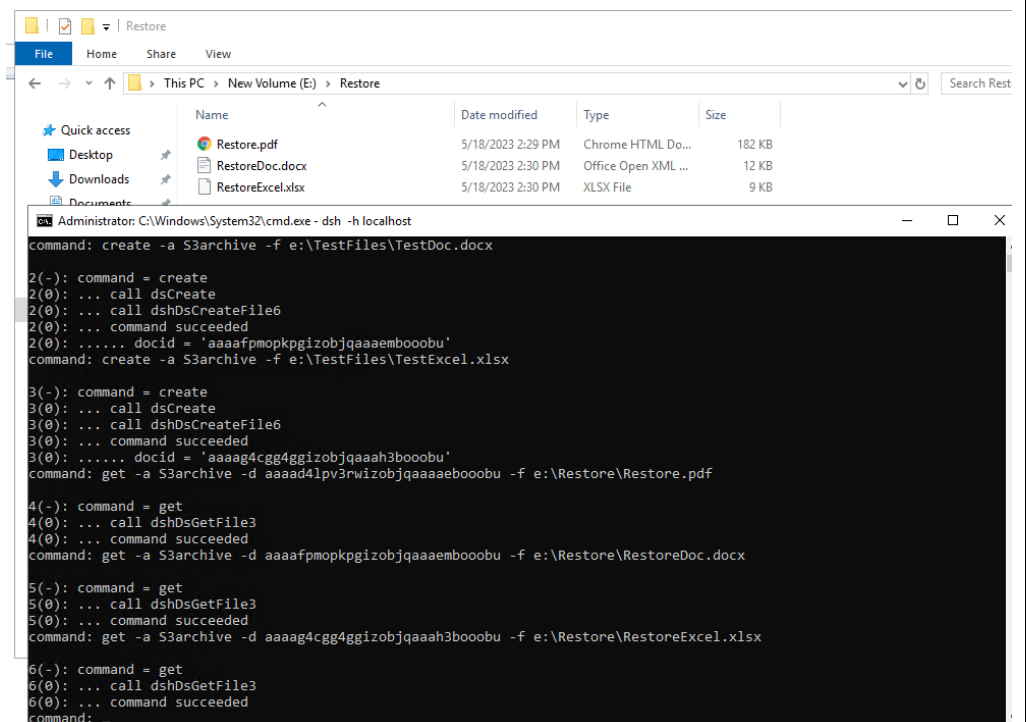
This PC > New Volume (E:) > Local\_Buffer >

| Name        | Date modified      | Type          | Size |
|-------------|--------------------|---------------|------|
| .chg        | 5/18/2023 2:10 PM  | File folder   |      |
| ._ds_tmp_   | 5/18/2023 11:46 AM | _DS_TMP_ File | 0 KB |
| archive.vdf | 5/18/2023 11:45 AM | VDF File      | 1 KB |
| INFO        | 5/18/2023 11:45 AM | File          | 1 KB |

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.

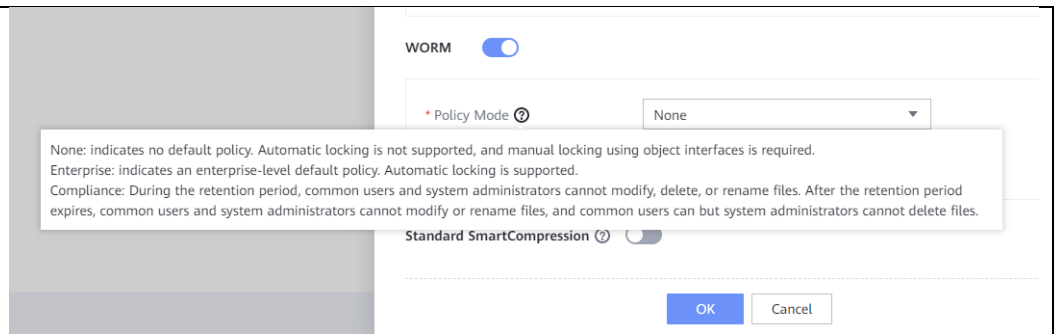


4. The MD5 value of the retrieved files and original files are the same. That indicates the retrieved files and original files are consistent.

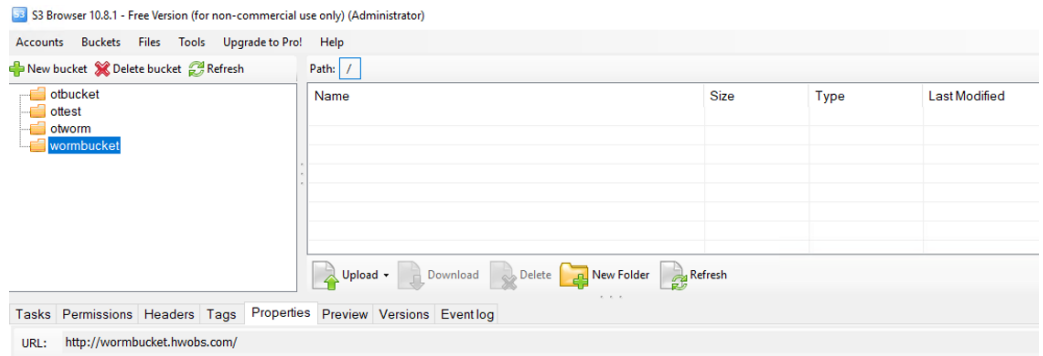
|                        |   |
|------------------------|---|
|                        | <pre> C:\Users\Administrator&gt;certutil -hashfile e:\TestFiles\PDF.pdf MD5 MD5 hash of e:\TestFiles\PDF.pdf: 3dbc63423a83e387675f02cc899889ff CertUtil: -hashfile command completed successfully.  C:\Users\Administrator&gt;certutil -hashfile e:\Restore\Restore.pdf MD5 MD5 hash of e:\Restore\Restore.pdf: 3dbc63423a83e387675f02cc899889ff CertUtil: -hashfile command completed successfully.  C:\Users\Administrator&gt;certutil -hashfile e:\TestFiles\TestDoc.docx MD5 MD5 hash of e:\TestFiles\TestDoc.docx: bd5f829d22b359b05f1e5306e12a459c CertUtil: -hashfile command completed successfully.  C:\Users\Administrator&gt;certutil -hashfile e:\Restore\RestoreDoc.docx MD5 MD5 hash of e:\Restore\RestoreDoc.docx: bd5f829d22b359b05f1e5306e12a459c CertUtil: -hashfile command completed successfully.  C:\Users\Administrator&gt;certutil -hashfile e:\TestFiles\TestExcel.xlsx MD5 MD5 hash of e:\TestFiles\TestExcel.xlsx: c127e1a0636b848c5e682168f0ba4e89 CertUtil: -hashfile command completed successfully.  C:\Users\Administrator&gt;certutil -hashfile e:\Restore\RestoreExcel.xlsx MD5 MD5 hash of e:\Restore\RestoreExcel.xlsx: c127e1a0636b848c5e682168f0ba4e89 CertUtil: -hashfile command completed successfully. </pre> |
| <b>Test Conclusion</b> | Passed  |

## 2.4 Retention Period Testing

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

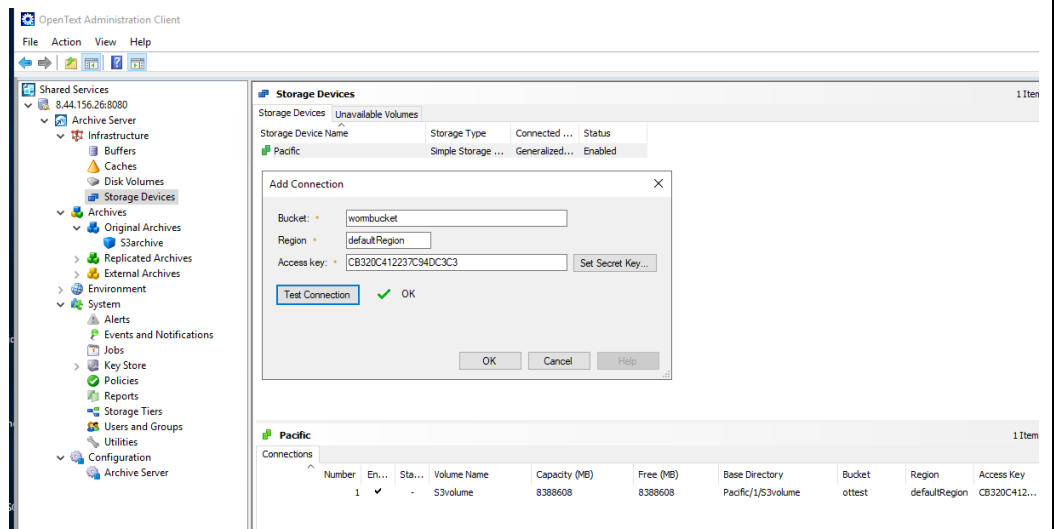


Pre1.2 In the S3 browser check the S3 worm bucket created in the previous step.

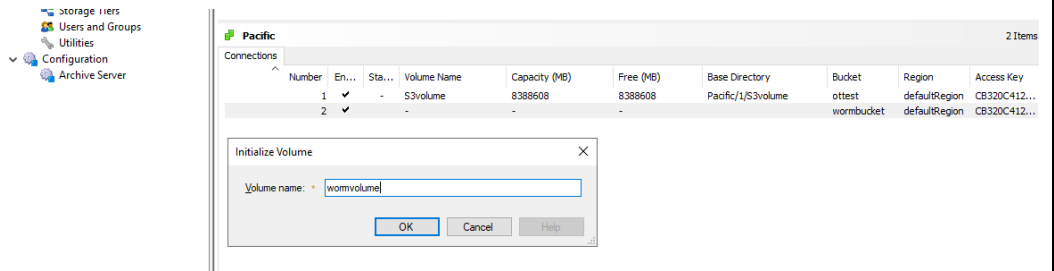


Pre2 Configuration of the archive server

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

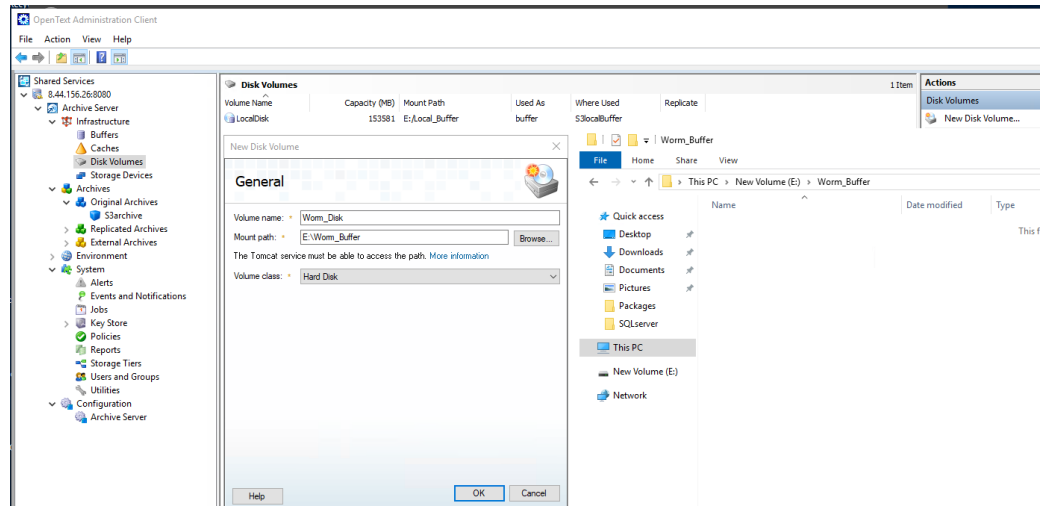


Pre2.2 Initialize a new volume.

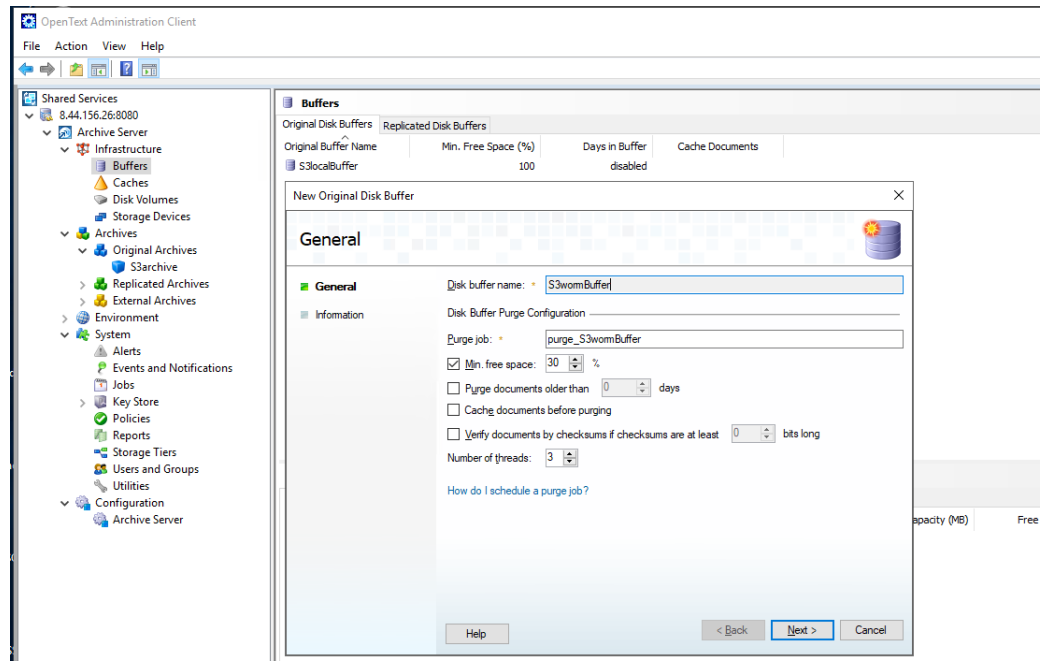


| Number | En... | Sta... | Volume Name | Capacity (MB) | Free (MB) | Base Directory       | Bucket     | Region        | Access Key  |
|--------|-------|--------|-------------|---------------|-----------|----------------------|------------|---------------|-------------|
| 1      | ✓     | -      | S3volume    | 8388608       | 8388608   | Pacific/1/S3volume   | ottest     | defaultRegion | CB320C412.. |
| 2      | ✓     | -      | wormvolume  | 8388608       | 8388608   | Pacific/2/wormvolume | wormbucket | defaultRegion | CB320C412.. |

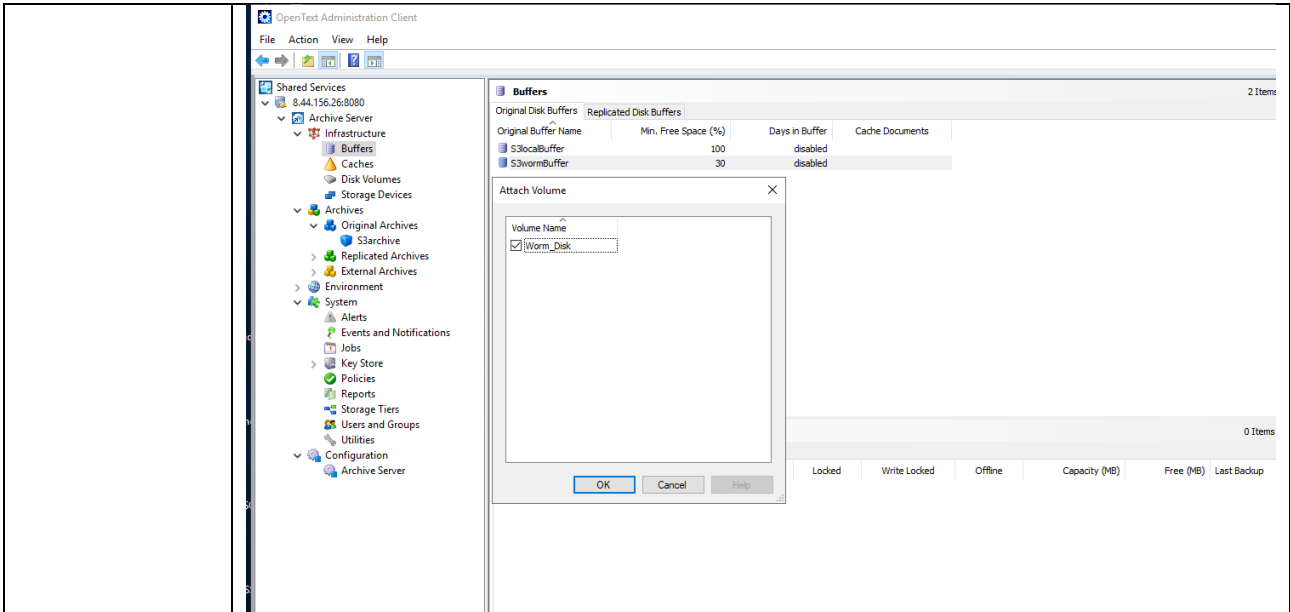
**Pre2.3 Create a new disk volume in the local disk E:\.**



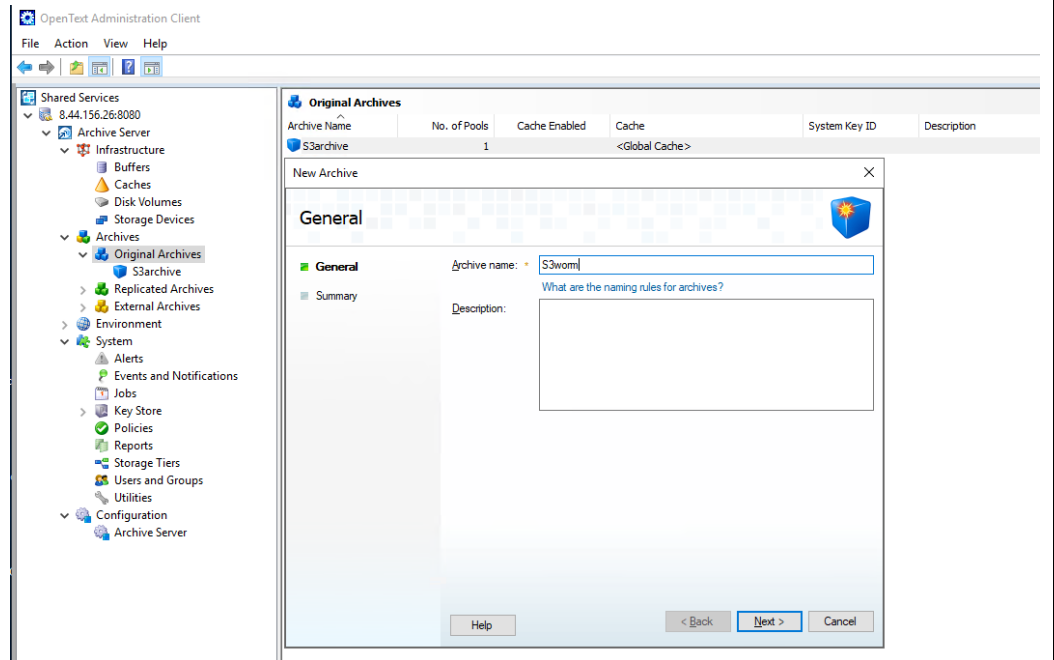
**Pre2.4 Create a new disk buffer and attach the local disk volume created in the previous step.**



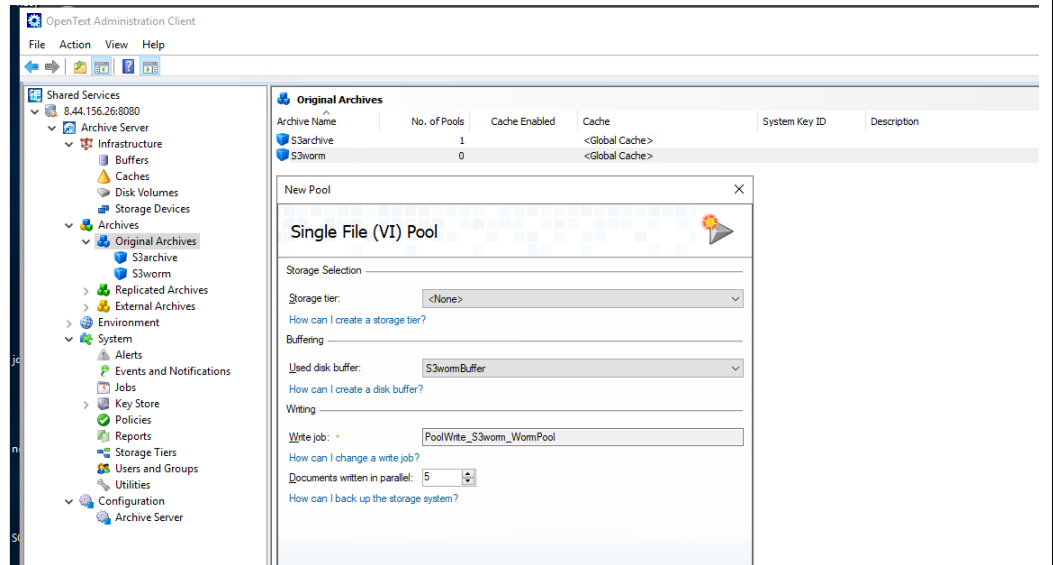
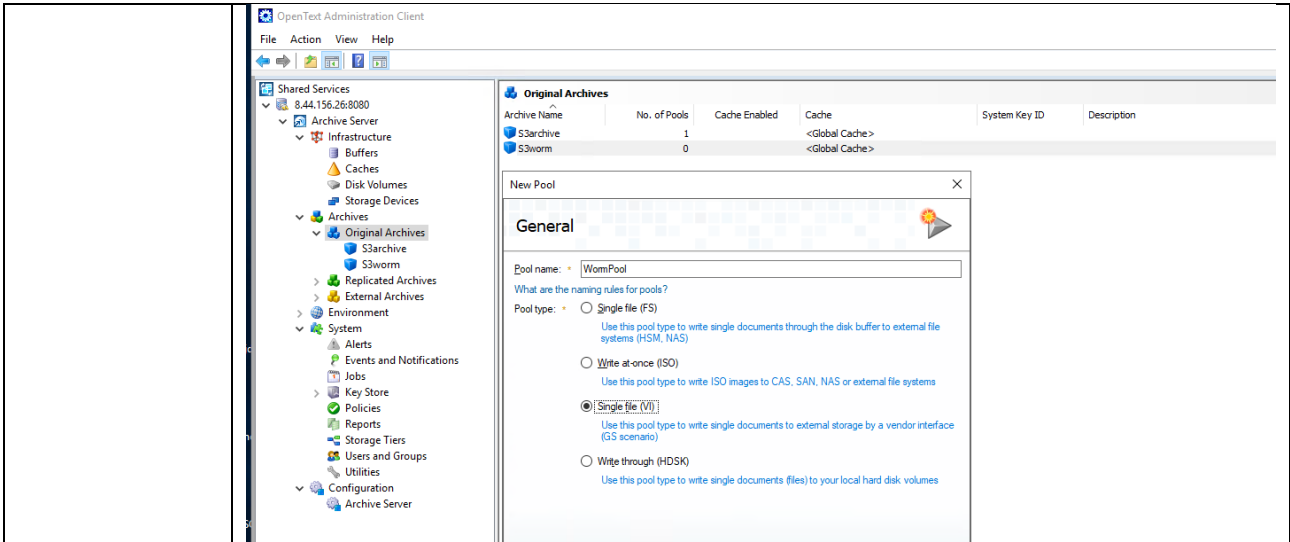




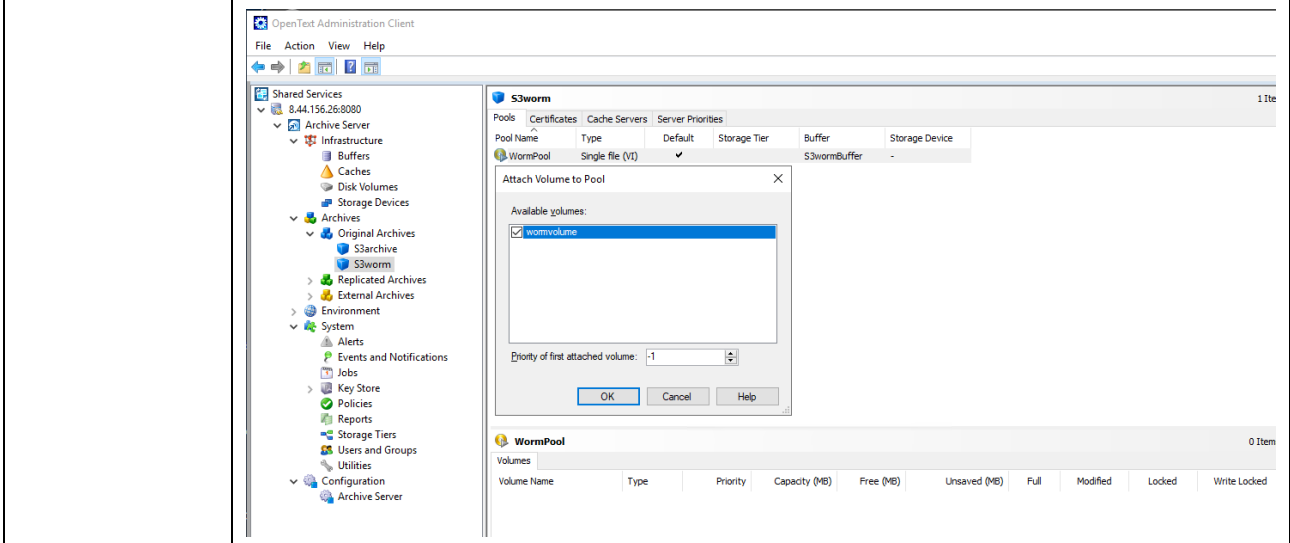
Pre2.5 Create a new archive.



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

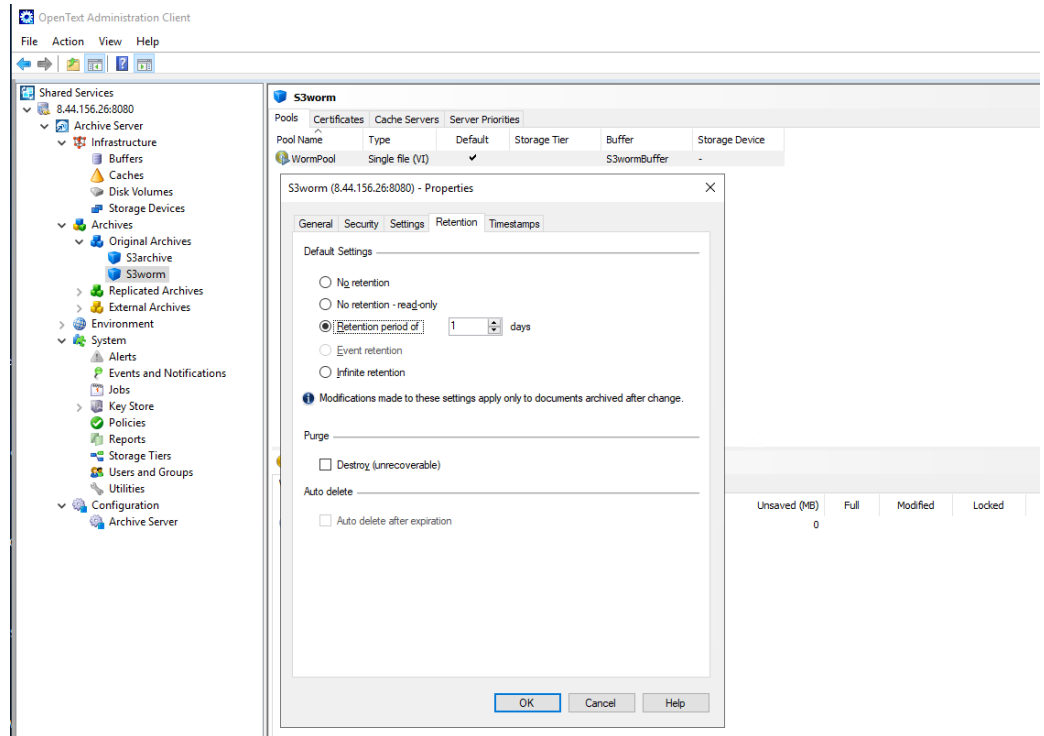


Pre2.7 Attach the volume created earlier.



## Test Result

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



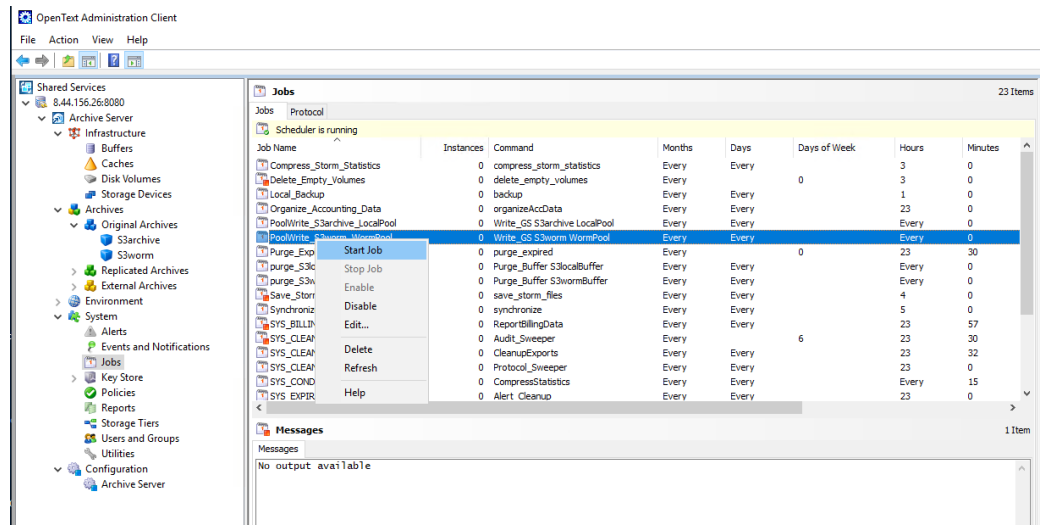
2. Archive files to the storage.

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

```
C:\Program Files\OpenText\Archive Server 22.4.0\bin>dsh -h localhost
command: create -a S3worm -f e:\TestFiles\Worm.txt

1(-): command = create
1(0): ... call dsCreate
1(0): ... call dshDsCreateFile6
1(0): ... command succeeded
1(0): ..... docid = 'aaaaj1nv1hagizobjqaaqymboobu'
command:
```

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

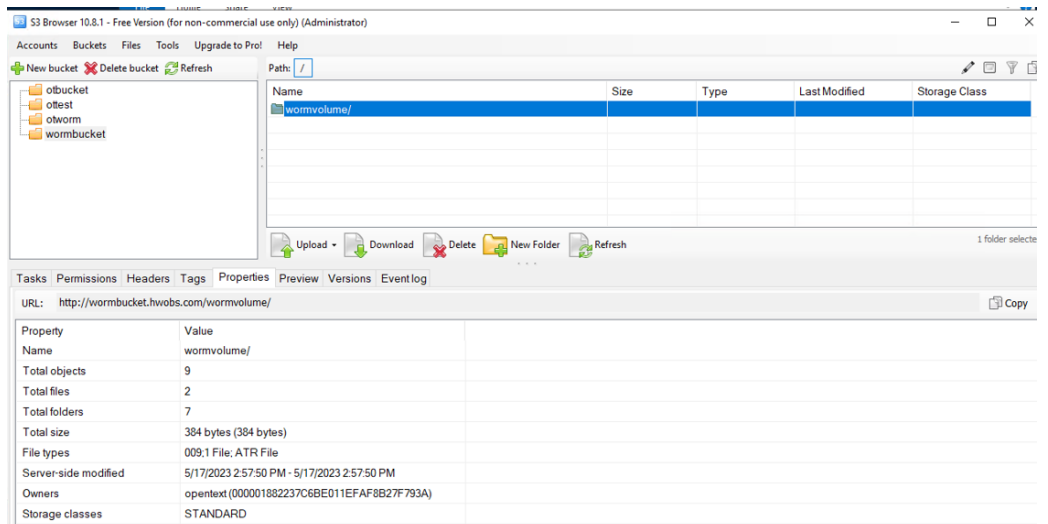


```

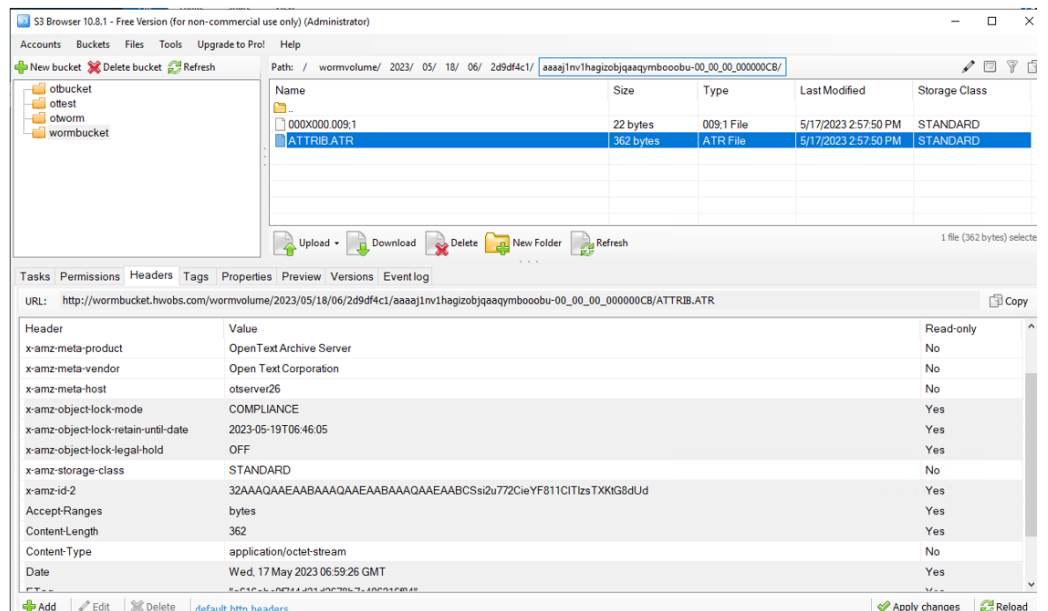
Messages
Messages
Job instance 38 started on Thu May 18 14:48:25 2023
IMPORTANT: about to mount server WORM on host localhost, port 0, mount point /views_hs
IMPORTANT: about to mount server CDROM on host localhost, port 0, mount point /views_hs
IMPORTANT: reading jobs for pool S3worm_WormPool
IMPORTANT: done reading jobs after 0 seconds
IMPORTANT: start copying 1 documents
IMPORTANT: 1 documents(0 Mb) copied in 1 seconds
IMPORTANT: the following GS volumes were written: wormvolume
Job finished on Thu May 18 14:48:31 2023

```

2.3 The files have been written into the storage successfully.



3. On the S3 browser the headers of the archived files on the storage contain the 'x-amz-object-lock-retain-until-date' and the value is 2023-05-19T06:46:05.



4. The archived files could not be deleted within the retention period (2023-05-19T06:46:05 UTC+0/ 2023-05-19T14:46:05 UTC+8).

4.1 The WORM clock in the storage is within the retention period.

**Settings**

- Object Service Settings
- Share Settings
- Data Security
- WORM Settings**

**WORM Settings**

**WORM Clock**

WORM Clock 2023-05-19 10:02:28 UTC+08:00

#### 4.2 Files could not be deleted.

S3 Browser 10.8.1 - Free Version (for non-commercial use only) (Administrator)

Path: / wormvolume/ 2023/ 05/ 18/ 06/ 2d9df4c1/ aaaaj1nv1hagizobjqaqymboobu-00\_00\_000000CB/

| Name          | Size      | Type       | Last Modified        | Storage Class |
|---------------|-----------|------------|----------------------|---------------|
| 000X000.009.1 | 22 bytes  | 009.1 File | 5/17/2023 2:57:50 PM | STANDARD      |
| ATTRIB.ATR    | 362 bytes | ATR File   | 5/17/2023 2:57:50 PM | STANDARD      |

2 files (384 bytes) and 0 folders

| Task   | Size | % | Prog. | Status                       |
|--|------|---|-------|------------------------------|
| Deleting wormbucket(wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00_00_000000CB/000X000.009.1 (VersionId: ...)  |      |   |       | Failed - AccessDenied: Oper  |
| 2 files could not be deleted: wormvolume/2023/05/17/10/29513018/aaabo2g13dgy5hgaqubooobu-00_00_000000DC/ATTRIB.ATR: Intern...    |      |   |       | Failed - System Exception: B |
| 2 files could not be deleted: wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00_00_000000CB/ATTRIB.ATR: Intern... |      |   |       | Failed - System Exception: B |

Tasks (3) Permissions Headers Tags Properties Preview Versions Eventlog

Tasks (3) Permissions Headers Tags Properties Preview Versions Eventlog

- [I] [2023-05-19 09:52:47] 2 files could not be deleted: wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00\_00\_000000CB/ATTRIB.ATR: Internal Errorwormvolume/2023/05/18/0...
- [W] [2023-05-19 09:52:47] 2 files could not be deleted: wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00\_00\_000000CB/ATTRIB.ATR: Internal Errorwormvolume/2023/05/18/...
- [W] [2023-05-19 09:52:47] System Exception: Bulk delete failed. Some files could not be deleted. Please check logs for more details: at te Do() at ig c(a bcw) TaskID: 55235
- [I] [2023-05-19 09:52:48] 2 files could not be deleted: wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00\_00\_000000CB/ATTRIB.ATR: Internal Errorwormvolume/2023/05/18/0...
- [W] [2023-05-19 09:52:48] 2 files could not be deleted: wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00\_00\_000000CB/ATTRIB.ATR: Internal Errorwormvolume/2023/05/18/...
- [W] [2023-05-19 09:52:48] System Exception: Bulk delete failed. Some files could not be deleted. Please check logs for more details: at te Do() at ig c(a bcw) TaskID: 55235
- [I] [2023-05-19 09:52:49] 2 files could not be deleted: wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00\_00\_000000CB/ATTRIB.ATR: Internal Errorwormvolume/2023/05/18/0...
- [W] [2023-05-19 09:52:49] 2 files could not be deleted: wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00\_00\_000000CB/ATTRIB.ATR: Internal Errorwormvolume/2023/05/18/...
- [W] [2023-05-19 09:52:49] System Exception: Bulk delete failed. Some files could not be deleted. Please check logs for more details: at te Do() at ig c(a bcw) TaskID: 55235
- [I] [2023-05-19 09:52:50] Task stopped (maximum number of retry attempts reached) TaskID: 55235
- [W] [2023-05-19 09:52:50] Task failed (System Exception: Bulk delete failed. Some files could not be deleted. Please check logs for more details) TaskID: 55235
- [I] [2023-05-19 09:52:50] Collecting files from wormbucket(wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00\_00\_000000CB/) (page 1) TaskID: 55238
- [I] [2023-05-19 09:52:50] Successfully collected files from wormbucket(wormvolume/2023/05/18/06/2d9df4c1/aaaaj1nv1hagizobjqaqymboobu-00\_00\_000000CB/) TaskID: 55238
- [I] [2023-05-19 09:52:50] Total objects: 2 (2 files and 0 folders) 384 bytes (384 bytes)

#### 5. Succeed to delete the archived files after the retention period (2023-05-19T06:46:05 UTC+0/2023-05-19T14:46:05 UTC+8) expires.

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

**Settings**

- Object Service Settings
- Share Settings
- Data Security
- WORM Settings**

**WORM Settings**

**WORM Clock**

WORM Clock 2023-05-19 15:34:09 UTC+08:00

##### 5.2 Files could be deleted.

|                               |   |
|-------------------------------|---|
|                               | <p>The screenshot shows the S3 Browser interface with a task log window open. The log contains the following entries:</p> <ul style="list-style-type: none"> <li>[W] [2023-05-19 09:52:48] System.Exception: Bulk delete failed. Some files could not be deleted. Please check logs for more details at te Do() at ig c(a bcw) TaskID: 55235</li> <li>[I] [2023-05-19 09:52:49] 2 files could not be deleted. wormvolume/2023/05/18/06/2d9d4c1/aaaaj1nv1hagizobjqaagyamboobu-00_00_000000CB/ATTRIB.ATR: Internal Errorwormvolume/2023/05/18/0...</li> <li>[W] [2023-05-19 09:52:49] 2 files could not be deleted. wormvolume/2023/05/18/06/2d9d4c1/aaaaj1nv1hagizobjqaagyamboobu-00_00_000000CB/ATTRIB.ATR: Internal Errorwormvolume/2023/05/18/...</li> <li>[W] [2023-05-19 09:52:49] System.Exception: Bulk delete failed. Some files could not be deleted. Please check logs for more details at te Do() at ig c(a bcw) TaskID: 55235</li> <li>[I] [2023-05-19 09:52:50] Task stopped (maximum number of retry attempts reached) TaskID: 55235</li> <li>[W] [2023-05-19 09:52:50] Task failed (System.Exception: Bulk delete failed. Some files could not be deleted. Please check logs for more details) TaskID: 55235</li> <li>[I] [2023-05-19 09:52:50] Collecting files from wormbucket(wormvolume/2023/05/18/06/2d9d4c1/aaaaj1nv1hagizobjqaagyamboobu-00_00_000000CB/ (page 1) TaskID: 55238</li> <li>[I] [2023-05-19 09:52:50] Successfully collected files from wormbucket(wormvolume/2023/05/18/06/2d9d4c1/aaaaj1nv1hagizobjqaagyamboobu-00_00_000000CB/ TaskID: 55238</li> <li>[I] [2023-05-19 09:52:50] Total objects: 2 (2 files and 0 folders) 384 bytes (384 bytes)</li> <li>[I] [2023-05-19 15:25:55] Bulk delete 2 files TaskID: 57055</li> <li>[I] [2023-05-19 15:25:56] Successfully completed bulk delete operation. TaskID: 57055</li> <li>[I] [2023-05-19 15:25:56] Collecting files from wormbucket(wormvolume/2023/05/18/06/2d9d4c1/aaaaj1nv1hagizobjqaagyamboobu-00_00_000000CB/ (page 1) TaskID: 57058</li> <li>[I] [2023-05-19 15:25:56] Successfully collected files from wormbucket(wormvolume/2023/05/18/06/2d9d4c1/aaaaj1nv1hagizobjqaagyamboobu-00_00_000000CB/ TaskID: 57058</li> <li>[I] [2023-05-19 15:25:56] Total objects: 0 (0 files and 0 folders) 0 bytes (0 bytes)</li> </ul> |
| <p><b>Test Conclusion</b></p> | <p>Passed</p>   |

## 3 Summary and Conclusion

---

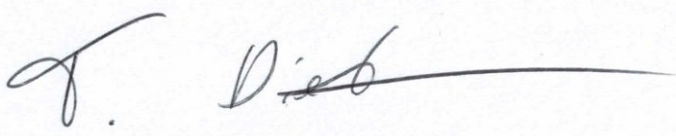
### 3.1 Result Summary

| 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:<br> |
| Date: May 31, 2023  |