



DELL EMC UNITY: COMPRESSION FOR FILE

Achieving Savings In Existing File Resources

A How-To Guide

ABSTRACT

In Dell EMC Unity OE version 4.2 and later, compression support was added for Thin File storage resources created on Dell EMC Unity OE version 4.2 or later code. This document outlines how Dell EMC Unity Asynchronous Replication can be leveraged to achieve savings within SMB/NFS File Systems or NFS Datastores created on OE version 4.1 and earlier. This process can also be used to compress existing data within a File System or VMware NFS Datastore created on OE version 4.2 and later.

In Dell EMC Unity OE version 4.3 and later, Dell EMC Unity Data Reduction replaces Dell EMC Unity Compression. Data reduction includes compression and deduplication logic within the space savings algorithm. This guide covers enabling compression specifically, but can be utilized to achieve savings with data reduction as well.

For full details on compression or data reduction, including an overview, management options, and interoperability with other features, refer to the Dell EMC Unity Compression or the Dell EMC Unity Data Reduction white paper, both found on Dell EMC Online Support.

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EXECUTIVE SUMMARY

Data reduction technologies play a critical role in environments in which storage administrators need to do more with less. Dell EMC Unity Compression aids in this effort by attempting to reduce the amount of physical storage needed to save a dataset, which helps reduce the Total Cost of Ownership of a Dell EMC Unity storage system. Dell EMC Unity Compression is easy to manage, and once enabled, is intelligently controlled by the storage system. Configuring compression and reporting savings is simple, and can be done through Unisphere, Unisphere CLI, or REST API.

In Dell EMC Unity OE version 4.2 and later, compression support was added for Thin File Systems (SMB/NFS) and Thin VMware NFS Datastores. To support compression, Thin File storage resources must be created on Dell EMC Unity OE version 4.2 or later and be created within an All Flash Pool. In the OE version 4.2 release, multiple architecture changes were made to allow File storage resources to support compression. File storage resources created on Dell EMC Unity OE versions prior to version 4.2 do not support compression.

This document outlines how existing File storage resources can leverage Dell EMC Unity Native Asynchronous Replication to achieve compression savings. It includes the steps needed to complete the procedure in a simple, step-by-step process which leverages Native Asynchronous Replication. By utilizing Native Asynchronous Replication, all data transfer operations are handled locally within the storage system, which eliminates the need for a host level migration. As Dell EMC Unity Compression is only supported on physical systems, this guide is not applicable to Dell EMC UnityVSA.

AUDIENCE

This white paper is intended for customers, partners, and employees who want to achieve compression savings within File storage resources within their Dell EMC Unity system. It assumes familiarity with Dell EMC Unity and the management software.

INTRODUCTION

USING COMPRESSION WITH UNITY FILE

Dell EMC Unity OE version 4.2 introduces the ability to enable compression on File Systems and VMware NFS Datastores in order to reduce the amount of storage capacity needed for these File resources. As with compression for Block storage resources, File Systems that use compression must reside in an All Flash Pool. File storage objects created in OE version 4.2 include an architectural change to the way that Thin File Systems consume slices from the underlying storage pool, in order to support compression. With this change, all Thin File resources that are created on a Dell EMC Unity system running OE 4.2 or later can simply enable and disable compression.

For Thin File resources from created on an earlier OE version (4.0 or 4.1), the compression-ready architecture does not exist. Therefore, compression cannot be enabled directly on these File storage resources.

As with Block storage, Thick File resources are not capable of supporting compression. Compression is designed to achieve space efficiency, but Thick storage objects are not space-efficient by nature. Therefore, compression cannot be enabled directly on a Thick File resource.

The following table provides a high-level view of how to enable compression with different File resource scenarios:

	Created on version	Compression Ready?	How to enable Compression	Reason
Thin File Resource	OE version 4.2 or later	Yes	Simply check the box*	
Thin File Resource	OE version 4.1 or earlier	No	Use Asynchronous Replication to migrate the resource to a Thin resource created on OE version 4.2 or later	File resources created on earlier versions do not have the compression-ready architecture
Thick File Resource	Any OE version	No	Use Asynchronous Replication to migrate the resource to a Thin resource created on OE version 4.2 or later	Compression cannot be enabled on ANY Thick objects, as Thick objects are not space-efficient

Note - This procedure can also be used to compress existing data within a File resource which already supports compression.

The remainder of this document describes the method used to migrate to a compression-ready File resource on OE version 4.2.

USING ASYNCHRONOUS REPLICATION TO ACHIEVE COMPRESSION SAVINGS

BACKGROUND INFORMATION

The following guide provides a step-by-step procedure which can be followed to achieve compression savings within existing File storage resources created on a Dell EMC Unity system. The main use case of this procedure is to convert File storage resources created prior to the Dell EMC Unity OE 4.2 release and Thick File resources to resources which support compression. The procedure, outlined in more detail below, requires replicating the existing File storage resources to a NAS Server within the same system. As this process is a migration of existing data, it can also be used to compress existing data within a File System or VMware NFS Datastore which already supports compression.

The step-by-step procedure below will not only be outlined, but examples within each step will also be provided as needed. As part of the example in this document, we will be utilizing replication to convert File Systems created prior to Dell EMC Unity OE version 4.2 release to ones which support compression. Figure 1 shows the sample configuration which will be used throughout this document. The configuration includes a NAS Server containing four File Systems which is currently being replicated from a system in the local data center to a system at a remote location. The NAS Server and File Systems were created on a code prior to the Dell EMC Unity OE 4.2 release. While this example is specific to remote replication, this process also applies to local replication as well.

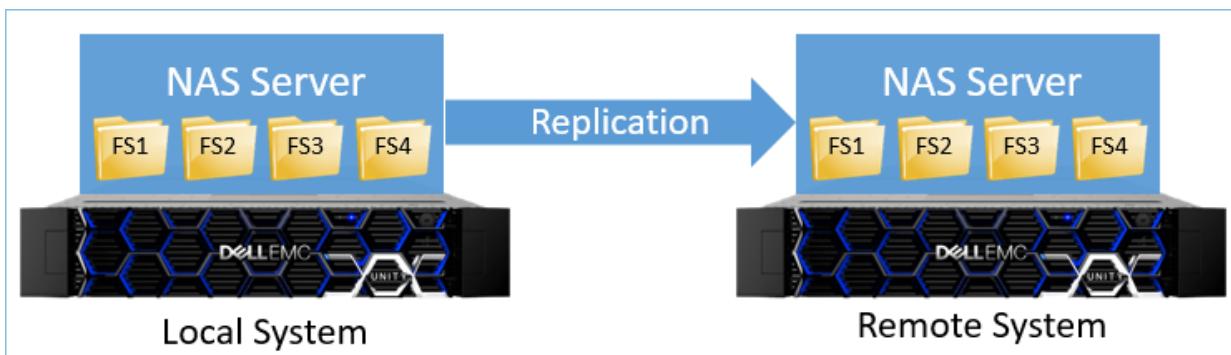


Figure 1. Example Configuration

Figure 2 below shows the File Systems tab within the File page in Unisphere for the local system. As shown, there are four File Systems created within this system. In this example, we will be using replication to move the data from these File Systems to new File Systems which support compression. Even though the **Thin** column within the figure below says **Yes**, compression is not supported on these resources as the **Compression** column contains “--” for each of the resources, which signifies that compression is not available. Thick resources would also have “--” shown in the **Compression** column.

File Systems		SMB Shares	NFS Shares	NAS Servers	Tenants						
More Actions 4 items Filter Settings Download											
	!	Name	Size (GB)	Allocated (%)	Used (%)	NAS Server	Pool	Thin	Compression	Compression Savings (GB)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS1	250.0	<div style="width: 70%;">70%</div>	<div style="width: 70%;">70%</div>	NAS_Server	Pool 1	Yes	--	--	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS2	250.0	<div style="width: 40%;">40%</div>	<div style="width: 40%;">40%</div>	NAS_Server	Pool 1	Yes	--	--	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS3	250.0	<div style="width: 30%;">30%</div>	<div style="width: 30%;">30%</div>	NAS_Server	Pool 1	Yes	--	--	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS4	250.0	<div style="width: 50%;">50%</div>	<div style="width: 50%;">50%</div>	NAS_Server	Pool 1	Yes	--	--	

Figure 2. Unisphere – File Page – File Systems Tab

SOLUTION OVERVIEW AND HIGH-LEVEL STEPS

As mentioned previously, the following procedure is not limited to converting File storage resources from the pre-OE 4.2 architecture to the 4.2 and later architecture, but can also be used to compress existing data within a File Storage Resource. Below is an outline of the high-level steps to migrate data to a compression supported resource using Native Asynchronous Replication. When following the conversion process, all resources including the NAS Server are converted at the same time, regardless if the intention is to convert only a subset of the NAS Server's resources. You will have the choice if compression should be enabled on each File storage resource or not. Other methods to convert to a compression enabled storage resource include host-based migration to a Dell EMC Unity OE 4.2 or later File System or VMware Storage VMotion for VMs created on NFS Datastores. These and any intermediate steps will be discussed in further detail later in this document.

- Upgrade the Dell EMC Unity system to the Dell EMC Unity OE version 4.2 or later
- Take a backup of your data
- Delete any existing replication sessions for the NAS Server in question and its related storage resources
- Create new destination storage resources on the local system for the NAS Server and its storage resources
- Configure local Asynchronous Replication for the NAS Servers and its storage resources
- After the data has been synchronized with the destination, stop all host I/O and issue a Failover with Sync operation for the NAS Server and its storage resources
- Pause and delete all replication sessions for the NAS Server and its storage resources
- Configure replication on the new NAS Server and its storage resources to the remote system (if previously configured)
- Clean up any old configurations

Note - For the duration of the above procedure, there will be no 'DR' remote NAS Server or File Resources available on the Remote System for the resources being converted if remote replication is utilized.

PREREQUISITES

UPGRADE THE SYSTEM

Before beginning the following procedure, the system must be running Dell EMC Unity OE version 4.2 or later. In this release, compression support was added for Thin File Systems (SMB/NFS) and Thin VMware NFS Datastores. If the system is not upgraded, creating compression enabled File resources will not be available.

BACK UP YOUR DATA

Before performing any operations which involve manipulating data, Dell EMC highly recommends you perform a full backup of your data. This is done to protect against any unforeseen issues, though unlikely, that may arise during this procedure.

THE STEP-BY-STEP PROCEDURE

OTHER DELL EMC RESOURCES

The following guide provides information on each individual step of the conversion process. For more information on the procedure within a particular step, consult the following resources which can be found on Dell EMC Online Support:

- Dell EMC Unity: Replication Technologies
- Dell EMC Unity Family – Configuring Replication
- Dell EMC Unity Family – Unisphere Command Line Interface User Guide

STEP 1 – IDENTIFY THE STORAGE RESOURCES YOU WISH TO ENABLE COMPRESSION ON

Before making changes to the system, it is suggested to first identify the File storage resources you wish to enable compression on. A desired change to a single File System or VMware NFS Datastore on a NAS Server will require replication for the entire NAS Server and its resources to be deleted and recreated. Also, when following the conversion process, all resources on the NAS Server are changed to a Dell EMC Unity OE version 4.2 or later resource regardless if the intention is to enable compression on only a subset of the NAS Server's resources. Because of this impact, it is only suggested to follow the procedure when a benefit will be seen.

Information on compression and best practices about when to use compression can be found in the *Dell EMC Unity: Best Practices Guide*.

The following table is an example of the information that should be documented. In this example, we will enable compression on 2 File Systems, *FS1* and *FS2*, within the NAS Server named *NAS_Server*. Empty tables can be found in Appendix A.

Table 1. Storage resources to enable compression.

Storage Resource Name	NAS Server	Enable Compression?
FS1	NAS_Server	Yes
FS2	NAS_Server	Yes

STEP 2 – DOCUMENT THE CURRENT CONFIGURATION

After documenting which File Systems and/or VMware NFS Datastores will have compression enabled, the current configuration should be documented. During the conversion process, all File storage resources within a NAS Server will need to be replicated locally before replication can be recreated to the original configuration. Table 2 below shows the information that should be documented. The table has been updated to include information about the source system's example configuration in this document. This information assumes that the NAS Server and its resources are replicated to a remote system. Your information may vary depending on your current configuration.

Table 2. Current Configuration of the source Dell EMC Unity system.

System	Source Resources						
	Storage Resource Name	NAS Server	SP	Pool	Thin / Thick	Size (GB)	Enable Compression?
Local System	NAS_Server	N/A	SPA	Pool 1	N/A	N/A	N/A
Local System	FS1	NAS_Server	N/A	Pool 1	Thin	250	Yes
Local System	FS2	NAS_Server	N/A	Pool 1	Thin	250	Yes
Local System	FS3	NAS_Server	N/A	Pool 1	Thin	250	No
Local System	FS4	NAS_Server	N/A	Pool 1	Thin	250	No

The configuration for the destination of the replication sessions should also be documented, as shown in Table 3 below.

Table 3. Current Configuration of the destination Dell EMC Unity system.

Destination Resources						
System	Storage Resource Name	NAS Server	SP	Pool	Size (GB)	Enable Compression?
Remote System	NAS_Server	N/A	SPA	Pool 1	N/A	N/A
Remote System	FS1	NAS_Server	N/A	Pool 1	250	Yes/No*
Remote System	FS2	NAS_Server	N/A	Pool 1	250	Yes/No*
Remote System	FS3	NAS_Server	N/A	Pool 1	250	Yes/No*
Remote System	FS4	NAS_Server	N/A	Pool 1	250	Yes/No*

Note - You may choose to enable or disable compression on the destination resources if the destination system and configuration supports it.

Dell EMC also suggests collecting service and configuration information from the local and remote system (if applicable) before following the conversion process. In Unisphere, go to the **Service** page, which can be found under **SYSTEM** in the left-hand navigation pane of Unisphere, then select the **Service Tasks** tab. To collect information about the system, select **Collect Service Information** and click **Execute**. Once in the **Collect Service Information** page, click the + symbol and select **Full Collect**. This will run and automatically download service information to your computer. To collect configuration information, from the **Service Tasks** tab select **Save Configuration**. This will create and download a file to your computer containing configuration information about your system.

STEP 3 – DELETE ANY EXISTING REPLICATION SESSIONS

Before creating new resources and configuring replication, any existing replication sessions must be removed. To protect against unforeseen issues that may arise during the procedure, the current DR NAS Server and its resources can exist for the duration of this process. Before deleting replication, it is suggested to complete a final update to the destination with host I/O stopped. This ensures that a clean point in time copy of the data exists within the destination.

Before stopping I/O, it is suggested to issue a Sync operation on the replication sessions for the NAS Server and its resources. This will copy the current changed data within the source resources to the destination. This will help to reduce the amount of time host I/O is stopped for. When all replication updates have completed, stop all I/O on all File storage resources on the NAS Server in question, then complete a final Sync of the data for the NAS Server and the resources to the current destination. After the updates have finished on each of the resources, the replication sessions should be paused, and the host I/O can continue. If stopping host I/O is not possible at this time, then a final sync should be issued before pausing replication. The amount of time the final sync operation takes directly depends on the change rate of the File resources being replicated.

Once all replication sessions for the NAS Server and its resources are paused, they can be deleted. When deleting the replication sessions, the sessions for File Systems and VMware NFS Datastores must be deleted first, before deleting the session on the NAS Server. Once the replication sessions are deleted, replication cannot be reestablished without being reconfigured from. This will require that all data be replicated to new destination resources. Deleting of the replication sessions can be done from Unisphere, Unisphere CLI, or REST API.

STEP 4 – CREATE NEW RESOURCES ON THE SOURCE SYSTEM

In this step, the new File storage resources will be created with the desired settings on the source system. These resources will replace the current NAS Server and its storage resources later in the conversion process. At this time, you should finalize which resources will be Thin with compression enabled, Thin with compression disabled, or Thick (non-Thin). As long as the resource is Thin, compression can be enabled or disabled at any time. If you need to change the Pool a resource should be created in, such as switching the File storage resource to an All Flash Pool to support compression, you can do it at this time. You can also move to a Dynamic Pool if that is desired. When selecting a Pool, the Pool must have enough space to temporarily store all data within the source storage resource, and any changed data contained in Read-Only snapshots, if the snapshots will be replicated. These resources must be created using Unisphere CLI, as they will be created as Replication Destination resources. When creating Replication Destination resources, the -repIDest option must be used within the CLI command. For more information on Unisphere CLI including its usage, refer to the *Dell EMC Unity Family – Unisphere Command Line Interface User Guide* found on Dell EMC Online Support.

In the example configuration, there is only 1 Pool configured within the system, and all new resources will be created within the same Pool as the original resources. This configuration will not restrict us from utilizing local replication as a migration method, as replication can be configured between two resources within the same Pool via Unisphere CLI. This configuration is not suggested for DR purposes as the Pool is considered a single point of failure for the solution. Before proceeding, the ID of the Pool must be determined on the source system. This can be found in Unisphere on the Pools page when the **CLI ID** column has been added to the view. An example of the Pools page with the **CLI ID** column displayed can be found in Figure 3 below. For this system, the ID of the Pool is *pool_1*.

Pools							
	!	Name	Size (TB)	Free (TB)	Used (%)	Subscription (%)	CLI ID
	!	Pool 1	2.8	2.0	<div style="width: 25%;"><div style="width: 100%;"> </div></div>	97.6	pool_1

Figure 3. Unisphere – Pools Page

The ID can also be determined using Unisphere CLI and the `/stor/config/pool show` command. An example of this command and a subset of the output is displayed below.

```
uemcli -d <system_IP> -u <username> -p <password> /stor/config/pool show
1:   ID          = pool_1
      Name        = Pool 1
```

Note: For the remaining Unisphere CLI commands in this document, `-d <system_IP> -u <username> -p <password>` will not be displayed, but are assumed to be included in the command.

Before creating the File storage resources, a new NAS Server must be created as a replication destination via Unisphere CLI. The NAS Server will be an “empty” NAS Server, and will inherit the configuration and settings from the original NAS Server once replication is configured. The name of this NAS Server must be different than the original NAS Server as two NAS Servers with the same name can’t exist within the same system, however the name can be changed at a later time. In the example configuration, the original NAS Server is named *NAS_Server*. In this example we will name the new NAS Server *NEW_NAS_SERVER*, so it is not confused with the original. You may create the NAS Server with any name, but make sure to document the name used for tracking purposes.

The following command is utilized to create the new NAS Server as a replication destination on the same SP and Pool as the original NAS Server. If you need to change which Pool the NAS Server is created on or any other settings, you can do it at this time. Remember, the NAS Server created here will later be the production NAS Server on the source system.

```
uemcli /net/nas/server create -name "NEW_NAS_SERVER" -sp spa -pool pool_1 -replDest yes
ID = nas_2
Operation completed successfully.
```

After issuing the command, be sure to document the ID of the new NAS Server, as it will be used later. In this example, *nas_2* is the ID of the new NAS Server.

Next, new File Systems and/or VMware NFS Datastores must be created via Unisphere CLI for all File storage resources currently residing on the NAS Server. When creating the new resources, you need to use the same names as the source File Systems and/or VMware NFS Datastores. Duplicate names are allowed within Unity as long as the resources reside within different NAS Servers. For instance, two File Systems named *FS1* can be created on two different NAS Servers. In the example configuration, *FS1* and *FS2* will have compression enabled, and *FS3* and *FS4* will not. The following commands outline the creation of these example four File Systems. Be sure to document the ID of each of your resources as they will be used in a later step. For syntax information when creating VMware NFS Datastores, refer to the *Dell EMC Unity Family – Unisphere Command Line Interface User Guide* found on Dell EMC Online Support.

```
uemcli /stor/prov/fs create -name FS1 -server nas_2 -pool pool_1 -size 250G -type cifs -replDest yes -compression yes
ID = res_5
Operation completed successfully.
```

```
uemcli /stor/prov/fs create -name FS2 -server nas_2 -pool pool_1 -size 250G -type cifs -replDest yes -compression yes
ID = res_6
Operation completed successfully.
```

```
uemcli /stor/prov/fs create -name FS3 -server nas_2 -pool pool_1 -size 250G -type cifs -replDest yes -compression no
ID = res_7
Operation completed successfully.
```

```
uemcli /stor/prov/fs create -name FS4 -server nas_2 -pool pool_1 -size 250G -type cifs -replDest yes -compression no
ID = res_8
```

Operation completed successfully.

STEP 5 – CONFIRM THE RESOURCES ARE CREATED CORRECTLY

After the new NAS Server and File resources are created, you must confirm they are created correctly with the desired settings. If any resources have an incorrect setting, they can either be modified at this time, or deleted and recreated with the correct settings. Figure 4 below shows the **NAS Servers** tab within the **File** page. In this example, the existing NAS Server and the new NAS Server are displayed. By customizing the view by clicking the gear icon and adding the columns desired, we can easily review the settings of the new NAS Server. For the NAS Server named *NEW_NAS_SERVER*, we need to confirm it was created in the correct **Pool**, that the **SP** matches the SP of the original NAS Server, and that the **Restricted Replication Access** setting is set to **Yes**. In Dell EMC Unity OE version 4.2 and later, the SP of the NAS Server can be changed via the NAS Server properties window, or through Unisphere CLI or REST API.

File Systems SMB Shares NFS Shares NAS Servers Tenants								
More Actions								
	!	Name	Tenant	SP	CLI ID	Pool	Restricted Replication Access	Replication Type
<input type="checkbox"/>	!	NAS_Server	--	SP A	nas_1	Pool 1	No	None
<input type="checkbox"/>	!	NEW_NAS_SERVER	--	SP A	nas_2	Pool 1	Yes	None

Figure 4. Unisphere – File Page, NAS Servers Tab

Figure 5 below shows the **File Systems** tab within the **File** page. Here we must confirm the new File Systems match the settings we desire. For easy viewing, sorting on the **NAS Server** column puts all of the new File Systems together that were created on *NEW_NAS_SERVER*. Here we must confirm that the **Name** of each File System, the **Size (GB)**, the **NAS Server**, the **Pool**, whether the resource is **Thin**, and the **Compression** settings are correct. You will also need to confirm other settings via the File System Properties window, such as the sharing protocol of the File Systems. You must also ensure the **Restricted Replication Access** setting is set to **Yes** for the new resources. Again, if any of these settings are incorrect, you must change or recreate them at this time.

File Systems SMB Shares NFS Shares NAS Servers Tenants											
More Actions											
	!	Name	Size (GB)	Allocated (%)	Used (%)	NAS Server	↑	Pool	Thin	Restricted Replication Access	Compression
<input type="checkbox"/>	!	FS1	250.0	<div style="width: 50%;"></div>	<div style="width: 50%;"></div>	NAS_Server		Pool 1	Yes	No	--
<input type="checkbox"/>	!	FS2	250.0	<div style="width: 30%;"></div>	<div style="width: 30%;"></div>	NAS_Server		Pool 1	Yes	No	--
<input type="checkbox"/>	!	FS3	250.0	<div style="width: 10%;"></div>	<div style="width: 10%;"></div>	NAS_Server		Pool 1	Yes	No	--
<input type="checkbox"/>	!	FS4	250.0	<div style="width: 20%;"></div>	<div style="width: 20%;"></div>	NAS_Server		Pool 1	Yes	No	--
<input type="checkbox"/>	!	FS1	250.0	<div style="width: 0%;"></div>	<div style="width: 0%;"></div>	NEW_NAS_SERVER		Pool 1	Yes	Yes	Yes
<input type="checkbox"/>	!	FS2	250.0	<div style="width: 0%;"></div>	<div style="width: 0%;"></div>	NEW_NAS_SERVER		Pool 1	Yes	Yes	Yes
<input type="checkbox"/>	!	FS3	250.0	<div style="width: 0%;"></div>	<div style="width: 0%;"></div>	NEW_NAS_SERVER		Pool 1	Yes	Yes	No
<input type="checkbox"/>	!	FS4	250.0	<div style="width: 0%;"></div>	<div style="width: 0%;"></div>	NEW_NAS_SERVER		Pool 1	Yes	Yes	No

Figure 5. Unisphere – File Page, File Systems Tab

STEP 6 – CONFIGURE REPLICATION TO THE NEW RESOURCES

In this step you will configure replication to the new resources. This will synchronize the data within the current resources to the resources you will later utilize as production. It is suggested to create replication during a low I/O period, as system resources will be used to copy the data from the source resources to the new resources.

In Dell EMC Unity OE version 4.2 and later, Asynchronous Replication supports the replication of read-only File and Block snapshots locally or to a remote site along with the storage resource's data. Both scheduled snapshots and user created snapshots can be replicated. In this example we will preserve the Read-Only (hidden .ckpt access) File snapshots by replicating them to the new resources. All Read/Write File snapshots (shares) will be lost as they cannot be replicated. For more information on Snapshot Shipping, refer to the *Dell EMC Unity– Replication Technologies* white paper found on Dell EMC Online Support.

The first replication session that must be created is for the NAS Server. In this example, we will be configuring replication between *NAS_Server* (CLI ID: nas_1) and *NEW_NAS_SERVER* (CLI ID: nas_2). We will name the replication session

Temp_Session_NEW_NAS_SERVER as to not confuse it with other sessions within the system. The command to create this replication session is shown below:

```
uemcli /prot/rep/session create -name "Temp_Session_NEW_NAS_SERVER" -srcRes nas_1 -dstType local  
-dstRes nas_2 -syncType auto -rpo 60m
```

```
ID = 103079215107_FNM00161700156_0000_103079215108_FNM00161700156_0000  
Operation completed successfully.
```

After the NAS Server replication session has been created, replication for the File storage resources within the NAS Server can be created. In this example, we will be replicating the original *FS1* File System to the new *FS1* File System, the original *FS2* File System to the new *FS2* File System, and so on. We will also preserve the Read-Only (hidden .ckpt access) File snapshots with their original retention periods for the original File Systems. We will do this by utilizing the *-replicateHourlySnaps*, *-replicateDailySnaps*, and *-replicateExistingSnaps* options with the *-keepSameAsSource* option within the replication session creation command. You may customize these additional options depending on what should be replicated to the new resources. For more information about these options and their usage, along with information on creating replication sessions for VMware NFS Datastores, refer to the *Dell EMC Unity Family – Unisphere Command Line Interface User Guide* found on Dell EMC Online Support. Below are the individual replication creation commands for the File Systems in the example.

```
uemcli /prot/rep/session create -name "Temp_Session_FS1" -srcRes res_1 -dstType local -dstRes res_5  
-syncType auto -rpo 60m -replicateHourlySnaps yes -keepSameAsSource -replicateDailySnaps yes  
-replicateExistingSnaps  
ID = 171798691845_FNM00161700156_0000_171798691861_FNM00161700156_0000  
Operation completed successfully.
```

```
uemcli /prot/rep/session create -name "Temp_Session_FS2" -srcRes res_2 -dstType local -dstRes res_6  
-syncType auto -rpo 60m -replicateHourlySnaps yes -keepSameAsSource -replicateDailySnaps yes  
-replicateExistingSnaps  
ID = 171798691846_FNM00161700156_0000_171798691862_FNM00161700156_0000  
Operation completed successfully.
```

```
uemcli /prot/rep/session create -name "Temp_Session_FS3" -srcRes res_3 -dstType local -dstRes res_7  
-syncType auto -rpo 60m -replicateHourlySnaps yes -keepSameAsSource -replicateDailySnaps yes  
-replicateExistingSnaps  
ID = 171798691847_FNM00161700156_0000_171798691863_FNM00161700156_0000  
Operation completed successfully.
```

```
uemcli /prot/rep/session create -name "Temp_Session_FS4" -srcRes res_4 -dstType local -dstRes res_8  
-syncType auto -rpo 60m -replicateHourlySnaps yes -keepSameAsSource -replicateDailySnaps yes  
-replicateExistingSnaps  
ID = 171798691848_FNM00161700156_0000_171798691864_FNM00161700156_0000  
Operation completed successfully.
```

After the replication sessions are configured, the data within the File storage resources and any Read-Only snapshots will be replicated to the new resources. If a destination resource has compression enabled, the data will be compressed before it is written to the back-end drives, saving space within the destination resource. To view the replication sessions, select **Replication** under **PROTECTION & MOBILITY** in the left Unisphere pane. If any performance impact is seen due to the replication traffic, some or all of the replication sessions can be paused to reduce the overhead on the storage processors and the Pool. In Dell EMC Unity OE version 4.2 and later, a File group replication operation feature has been added for replication, which propagates many replication operations at the NAS Server level to the underlying File resources. For example, pausing and resuming replication on a NAS Server will also Pause or Resume the replication sessions on all underlying File resources. Once it is OK to resume replication, the sessions can be resumed. The amount of time the replication sessions will take to Sync the data to the destination resources directly depends on the amount of data to be synchronized and the activity levels within the system.

Figure 6 below shows an example of the Replication page within Unisphere. Here we can confirm the correct source resources are replicating to the correct destination resources. If any sessions are created incorrectly, the session must be deleted and recreated.

Sessions		Connections						
		More Actions						
	!	Name	State	Source		Resource Type	Destination	
				System	Resource		System	Resource
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Temp_Session_NEW_NAS_SERVER	Auto Sync Configured	Local System	NAS_Server	NAS Server	Local System	NEW_NAS_SERVER
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Temp_Session_FS4	Auto Sync Configured	Local System	FS4 (NAS_Server)	File System	Local System	FS4 (NEW_NAS_SERVER)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Temp_Session_FS3	Auto Sync Configured	Local System	FS3 (NAS_Server)	File System	Local System	FS3 (NEW_NAS_SERVER)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Temp_Session_FS2	Auto Sync Configured	Local System	FS2 (NAS_Server)	File System	Local System	FS2 (NEW_NAS_SERVER)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Temp_Session_FS1	Auto Sync Configured	Local System	FS1 (NAS_Server)	File System	Local System	FS1 (NEW_NAS_SERVER)

Figure 6. Unisphere – Replication Page – Sessions Tab

STEP 7 – VIEW THE PROGRESS OF THE REPLICATION SESSIONS

Before switching access to the new resources, an initial synchronization of each of the resources must complete. The current Sync Progress for the initial copy of data can be seen in the Details window of a replication session. To view the Details page for a replication session, select **Replication** under **PROTECTION & MOBILITY** in the left Unisphere pane, then select a replication session and click the View/Edit pencil icon. Figure 7 below shows an example of the Details window for the *Temp_Session_FS1* replication session. The **Time of Last Sync** value is currently --, which indicates that the initial copy of the data has not yet completed. This needs to complete for the NAS Server and its storage resources before continuing. The **Sync Progress** value within this window gives you a percent complete, and also an estimation of when the current update should finish.

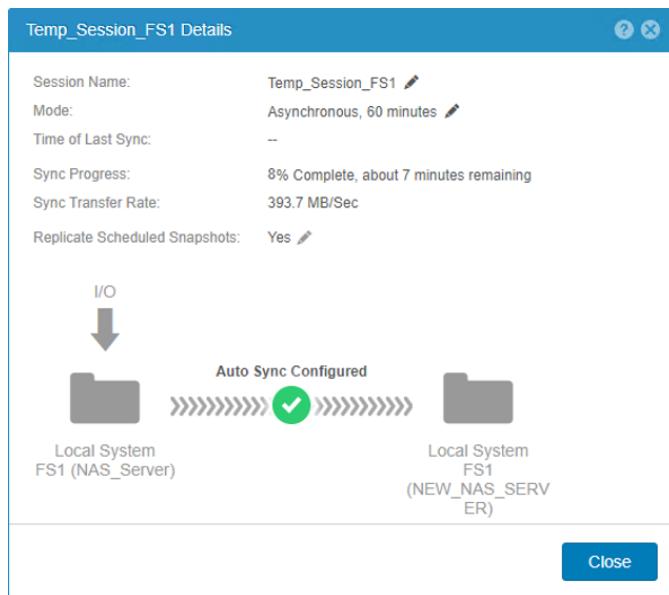


Figure 7. Unisphere – Replication Session Details Window – Sync Not Complete

Figure 8 below shows the replication session Details page after the initial synchronization of the data has completed. At this point, we know at the very least an initial copy of the data has completed as the **Time of Last Sync** value has been updated. Before proceeding to the next step, ensure that the NAS Server and any storage resources on the NAS Server have a **Time of Last Sync** defined.

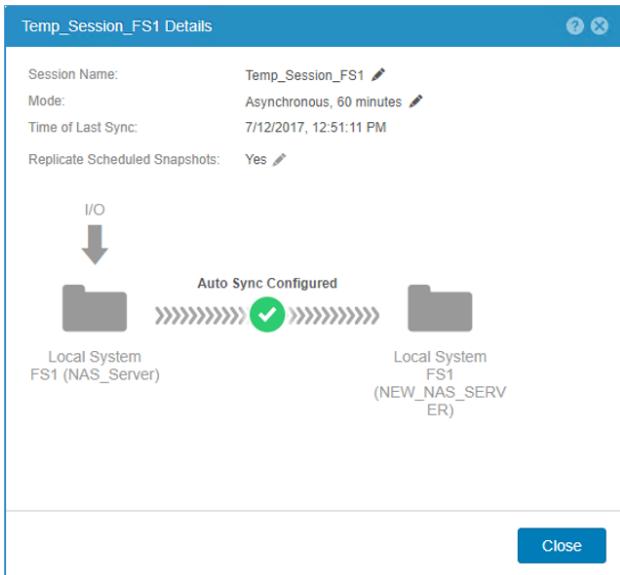


Figure 8. Unisphere – Replication Session Details Window – Sync Complete

STEP 8 – STOP ALL I/O AND ISSUE THE FAILOVER WITH SYNC OPERATION TO THE REPLICATION SESSIONS

With the initial copy of all data to the new destination resources complete, the new storage resources can now become the new production resources. To do this, host I/O must be stopped, and the replication sessions for the NAS Server must be failed over to the destinations. This process will officially put the new resources into production, and then host I/O can be resumed.

Figure 9 below shows the current state of the File Systems within the example configuration. The initial copy of all data has completed, and we can see **Compression Savings (GB)** for the File Systems we enabled compression on. In this configuration, the original *FS1* File System on *NAS_Server* replicates to the new *FS1* File System on *NEW_NAS_SERVER*, the original *FS2* File System to the new *FS2* File System, and so on. At this time, the File resources on *NAS_Server* are source resources for replication sessions, as the **Replication Type** column says **Local** and the **Restricted Replication Access** column says **No**. For the *NEW_NAS_SERVER*, the resources are destinations of replication due to the **Replication Type** being **Local**, and the **Restricted Replication Access** stating **Yes**. This is how you can tell easily tell from this view which resources are source resources, and which are destination resources.

File Systems		SMB Shares	NFS Shares	NAS Servers	Tenants								
	!	Name	Size (GB)	Allocated (%)	Used (%)	NAS Server	↑	Pool	Replication Type	Thin	Restricted Replication Access	Compression	Compression Savings (GB)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS1	250.0	<div style="width: 10%;">10%</div>	<div style="width: 10%;">10%</div>	NAS_Server		Pool 1	Local	Yes	No	--	--
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS2	250.0	<div style="width: 10%;">10%</div>	<div style="width: 10%;">10%</div>	NAS_Server		Pool 1	Local	Yes	No	--	--
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS3	250.0	<div style="width: 10%;">10%</div>	<div style="width: 10%;">10%</div>	NAS_Server		Pool 1	Local	Yes	No	--	--
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS4	250.0	<div style="width: 10%;">10%</div>	<div style="width: 10%;">10%</div>	NAS_Server		Pool 1	Local	Yes	No	--	--
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS1	250.0	<div style="width: 10%;">10%</div>	<div style="width: 10%;">10%</div>	NEW_NAS_SERVER		Pool 1	Local	Yes	Yes	Yes	105.2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS2	250.0	<div style="width: 10%;">10%</div>	<div style="width: 10%;">10%</div>	NEW_NAS_SERVER		Pool 1	Local	Yes	Yes	Yes	64.5
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS3	250.0	<div style="width: 10%;">10%</div>	<div style="width: 10%;">10%</div>	NEW_NAS_SERVER		Pool 1	Local	Yes	Yes	No	0.0
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS4	250.0	<div style="width: 10%;">10%</div>	<div style="width: 10%;">10%</div>	NEW_NAS_SERVER		Pool 1	Local	Yes	Yes	No	0.0

Figure 9. Unisphere – File Page, File Systems Tab

Before stopping I/O, it is suggested to issue a Sync operation on the replication sessions for the source NAS Server and its resources. This will copy the current changed data within the source resources to the destination. This will help to reduce the amount of time host I/O is stopped for. When all replication updates have completed, stop all I/O on all File storage resources on the NAS Server in question.

After all host I/O has been stopped, the **Failover with Sync** replication operation must be run. The **Failover with Sync** operation will switch the roles of replication, promoting the newly created File resources as the new production resources. The **Failover with Sync** replication operation is part of the supported group operations in Dell EMC Unity OE version 4.2 and later. From the Replication page, select the NAS Server replication session, named *Temp_Session_NEW_NAS_SERVER* in the example, select the **More Actions** dropdown list, and select **Failover with Sync**. An example of this screen can be seen in Figure 10.

Sessions			Connections				
	C	Pause	Source		Resource Type	Destination	
		Name	System	Resource	↑	System	Resource
<input type="checkbox"/>	!	Temp_Session_NAS_Server	Auto Sync Configured	Local System	FS1 (NAS_Server)	File System	Local System
<input type="checkbox"/>	!	Temp_Session_NAS_Server	Auto Sync Configured	Local System	FS2 (NAS_Server)	File System	Local System
<input type="checkbox"/>	!	Temp_Session_NAS_Server	Auto Sync Configured	Local System	FS3 (NAS_Server)	File System	Local System
<input type="checkbox"/>	!	Temp_Session_NAS_Server	Auto Sync Configured	Local System	FS4 (NAS_Server)	File System	Local System
<input checked="" type="checkbox"/>	!	Temp_Session_NEW_NAS_SERVER	Auto Sync Configured	Local System	NAS_Server	NAS Server	Local System
More Actions ▾							
Pause							
Resume							
Sync							
Failover							
Failover with sync							
Fallback							

Figure 10. Unisphere – Replication Page – Sessions Tab

After the **Failover with Sync** operation completes, the new resources are promoted to production. Figure 11 below shows the replication session Details page after the Failover with Sync operation completes. As shown, I/O is now possible to the File resources via the *NEW_NAS_SERVER*. This is denoted by the I/O arrow pointing to the Local System *NEW_NAS_SERVER*. You may continue host I/O at this time.

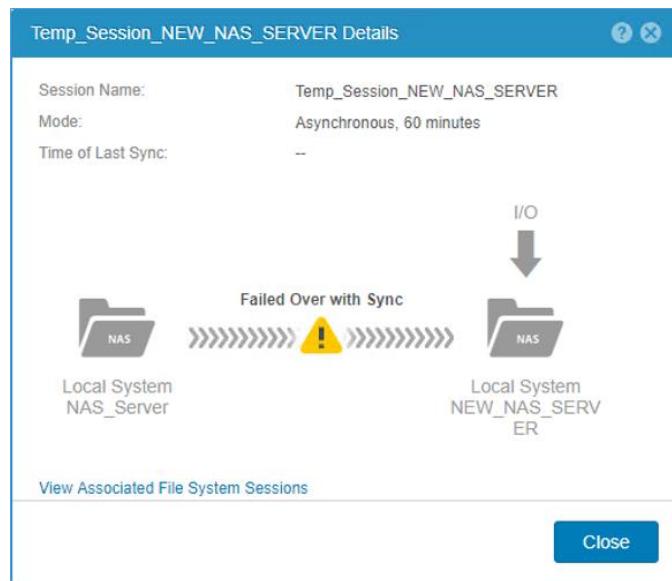


Figure 11. Unisphere – Replication Session Details Window – Sync Complete

The **File Systems** tab within the **File** page is also updated after the **Failover with Sync** operation. As shown in Figure 12, The **Restricted Replication Access** column has been updated. All *NAS_Server* resources are now restricted, while all *NEW_NAS_SERVER* resources are not.

File Systems		SMB Shares	NFS Shares	NAS Servers	Tenants							
	Name	Size (GB)	Allocated (%)	Used (%)	NAS Server	Pool	Replication Type	Thin	Restricted Replication Access	Compression	Compression Savings (GB)	
<input type="checkbox"/>	FS1	250.0	<div style="width: 20%;"></div>	<div style="width: 20%;"></div>	NAS_Server	Pool 1	Local	Yes	Yes	--	--	
<input type="checkbox"/>	FS2	250.0	<div style="width: 20%;"></div>	<div style="width: 20%;"></div>	NAS_Server	Pool 1	Local	Yes	Yes	--	--	
<input type="checkbox"/>	FS3	250.0	<div style="width: 20%;"></div>	<div style="width: 20%;"></div>	NAS_Server	Pool 1	Local	Yes	Yes	--	--	
<input type="checkbox"/>	FS4	250.0	<div style="width: 20%;"></div>	<div style="width: 20%;"></div>	NAS_Server	Pool 1	Local	Yes	Yes	--	--	
<input type="checkbox"/>	FS1	250.0	<div style="width: 10%;"></div>	<div style="width: 20%;"></div>	NEW_NAS_SERVER	Pool 1	Local	Yes	No	Yes	105.2	
<input type="checkbox"/>	FS2	250.0	<div style="width: 10%;"></div>	<div style="width: 20%;"></div>	NEW_NAS_SERVER	Pool 1	Local	Yes	No	Yes	64.5	
<input type="checkbox"/>	FS3	250.0	<div style="width: 10%;"></div>	<div style="width: 20%;"></div>	NEW_NAS_SERVER	Pool 1	Local	Yes	No	No	0.0	
<input type="checkbox"/>	FS4	250.0	<div style="width: 10%;"></div>	<div style="width: 20%;"></div>	NEW_NAS_SERVER	Pool 1	Local	Yes	No	No	0.0	

Figure 12. Unisphere – File Page, File Systems Tab

STEP 9 – DELETE THE REPLICATION SESSIONS

After the new NAS Server and its File resources have been promoted to production status, and the final resource configuration is in place, the current replication configuration can be removed. When deleting replication, first delete the replication session for each of the File resources on the new NAS Server, then the replication session for the new NAS Server. This can be achieved via the properties window for each of the resources in Unisphere, or via Unisphere CLI or REST API.

Once replication is deleted, the File Systems tab within the File page is updated. The **Replication Type** is now **None** for the resources on the original NAS Server and the new NAS Server, as displayed in Figure 13. Even without replication, the original resources still have a **Restricted Replication Access** status of **Yes**. This means they cannot be accessed by hosts on the system. These resources will eventually be deleted as part of this procedure.

File Systems												
		SMB Shares	NFS Shares	NAS Servers	Tenants							
More Actions		8 items										
!	Name	Size (GB)	Allocated (%)	Used (%)	NAS Server	↑	Pool	Replication Type	Thin	Restricted Replication Access	Compression	Compression Savings (GB)
<input type="checkbox"/>	FS1	250.0	<div style="width: 20%; background-color: #3366CC; height: 10px;"></div>	<div style="width: 20%; background-color: #3366CC; height: 10px;"></div>	NAS_Server	Pool 1	None	Yes	Yes	--	--	--
<input type="checkbox"/>	FS2	250.0	<div style="width: 20%; background-color: #3366CC; height: 10px;"></div>	<div style="width: 20%; background-color: #3366CC; height: 10px;"></div>	NAS_Server	Pool 1	None	Yes	Yes	--	--	--
<input type="checkbox"/>	FS3	250.0	<div style="width: 20%; background-color: #3366CC; height: 10px;"></div>	<div style="width: 20%; background-color: #3366CC; height: 10px;"></div>	NAS_Server	Pool 1	None	Yes	Yes	--	--	--
<input type="checkbox"/>	FS4	250.0	<div style="width: 20%; background-color: #3366CC; height: 10px;"></div>	<div style="width: 20%; background-color: #3366CC; height: 10px;"></div>	NAS_Server	Pool 1	None	Yes	Yes	--	--	--
<input type="checkbox"/>	FS1	250.0	<div style="width: 10%; background-color: #3366CC; height: 10px;"></div>	<div style="width: 10%; background-color: #3366CC; height: 10px;"></div>	NEW_NAS_SERVER	Pool 1	None	Yes	No	Yes		105.2
<input type="checkbox"/>	FS2	250.0	<div style="width: 10%; background-color: #3366CC; height: 10px;"></div>	<div style="width: 10%; background-color: #3366CC; height: 10px;"></div>	NEW_NAS_SERVER	Pool 1	None	Yes	No	Yes		64.5
<input type="checkbox"/>	FS3	250.0	<div style="width: 10%; background-color: #3366CC; height: 10px;"></div>	<div style="width: 10%; background-color: #3366CC; height: 10px;"></div>	NEW_NAS_SERVER	Pool 1	None	Yes	No	No		0.0
<input type="checkbox"/>	FS4	250.0	<div style="width: 10%; background-color: #3366CC; height: 10px;"></div>	<div style="width: 10%; background-color: #3366CC; height: 10px;"></div>	NEW_NAS_SERVER	Pool 1	None	Yes	No	No		0.0

Figure 13. Unisphere – File Page, File Systems Tab

STEP 10 – DELETE THE REMOTE RESOURCES ON THE DESTINATION SYSTEM

Before configuring replication for the final solution, the original destination resources must be deleted. The original configuration was documented previously in Step 2 of this procedure, and can be used as a reference if needed. Deleting these resources will allow the new destination resources to have the same names as the original configuration, as if they were the original configuration. The File resources contained within the destination NAS Server must be deleted before deleting the destination NAS Server.

Note - If you do not wish to delete the original destination resources at this time, you will need to name the new destination NAS Server differently than the original when configuring replication. This name cannot be modified once it is set. The Pool you are replicating to would also need to contain enough free space to contain the new resources.

STEP 11 – CONFIGURE REPLICATION ON THE NEW RESOURCES

In this step, you will configure replication on the new production resources. This can be done via Unisphere, Unisphere CLI, or REST API, and will be the final replication solution. When configuring replication, you have many options to consider, such as:

- The destination system
- Whether to replicate existing snapshots on the source File resources
- Whether to replicate scheduled snapshots
- The retention period of the snapshots if they will be replicated
- The name of the destination NAS Server
- The Pool for the NAS Server
- The Pool for each File resource on the NAS Server, and if compression will be enabled if it is supported

In this example, replication will be configured on *NEW_NAS_SERVER* and all of its File resources. The NAS Server on the destination system will match the original name of the destination NAS Server, which was *NAS_Server*. This is done to mimic the original configuration which was in place before this procedure was followed. The example configuration will also replicate all snapshots to the remote system. Figure 14 below shows the **Sessions** tab within the **Replication** page in Unisphere. As shown, *NEW_NAS_SERVER* and all of its File resources are being replicated to the remote system named *FNM00164700048*.

Sessions		Connections							
		More Actions							
	!	Name		State	Source		Resource Type	Destination	
				System	Resource	↑	System	Resource	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	rep_sess_res_10_res_10_FNM00161700156_FNM00164700048		Auto Sync Configured	Local System	FS1 (NEW_NAS_SERVER)	File System	FNM00164700048	FS1 (NAS_Server)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	rep_sess_res_11_res_11_FNM00161700156_FNM00164700048		Auto Sync Configured	Local System	FS2 (NEW_NAS_SERVER)	File System	FNM00164700048	FS2 (NAS_Server)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	rep_sess_res_12_res_12_FNM00161700156_FNM00164700048		Auto Sync Configured	Local System	FS3 (NEW_NAS_SERVER)	File System	FNM00164700048	FS3 (NAS_Server)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	rep_sess_res_13_res_13_FNM00161700156_FNM00164700048		Auto Sync Configured	Local System	FS4 (NEW_NAS_SERVER)	File System	FNM00164700048	FS4 (NAS_Server)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	rep_sess_nas_3_nas_4_FNM00161700156_FNM00164700048		Auto Sync Configured	Local System	NEW_NAS_SERVER	NAS Server	FNM00164700048	NAS_Server

Figure 14. Unisphere – Replication Page – Sessions Tab

STEP 12 – DELETE THE ORIGINAL SOURCE STORAGE RESOURCES

Once replication is configured on the new storage resources, and an initial copy of the data is complete, it is safe to delete the original source resources. The original source resources, the ones we have replaced with this procedure, were documented in Step 2. These can be deleted using Unisphere, Unisphere CLI, or REST API. In Figure 15 below, the original File resources as contained within **NAS_Server**. These can also be identified as having a **Replication Type** of **None** and a **Restricted Replication Access** state of **Yes**. In this example, these resources and **NAS_Server** will be deleted.

File Systems		SMB Shares	NFS Shares	NAS Servers	Tenants								
	!	Name	Size (GB)	Allocated (%)	Used (%)	NAS Server	↑	Pool	Replication Type	Thin	Restricted Replication Access	Compression	Compression Savings (GB)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS1	250.0	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	NAS_Server		Pool 1	None	Yes	Yes	--	--
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS2	250.0	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	NAS_Server		Pool 1	None	Yes	Yes	--	--
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS3	250.0	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	NAS_Server		Pool 1	None	Yes	Yes	--	--
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS4	250.0	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	NAS_Server		Pool 1	None	Yes	Yes	--	--
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS1	250.0	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	NEW_NAS_SERVER		Pool 1	Remote	Yes	No	Yes	105.2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS2	250.0	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	NEW_NAS_SERVER		Pool 1	Remote	Yes	No	Yes	64.5
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS3	250.0	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	NEW_NAS_SERVER		Pool 1	Remote	Yes	No	No	0.0
<input type="checkbox"/>	<input checked="" type="checkbox"/>	FS4	250.0	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	<div style="width: 100px; height: 10px; background-color: #3399FF; margin-bottom: 5px;"></div> <div style="width: 100px; height: 10px; background-color: #3399FF;"></div>	NEW_NAS_SERVER		Pool 1	Remote	Yes	No	No	0.0

Figure 15. Unisphere – File Page, File Systems Tab

STEP 13 – RENAME THE NEW SOURCE NAS SERVER

Once the original NAS Server and File resources are deleted, the new NAS Server can be renamed. In this example, we will rename **NEW_NAS_SERVER** to **NAS_Server**, which matches the original configuration. The name of the NAS Server can be changed via the properties window of the NAS Server in Unisphere, or via Unisphere CLI or REST API. Figure 16 below shows the NAS Server properties page. To update the name of the NAS Server, find the **Name** field, which is located in the top left portion of the **General** tab. Once the name has been updated, click **Apply**.

NEW_NAS_SERVER Properties

General	Network	Naming Services	Sharing Protocols	Protection & Events	Security	Replication	
Name: * NEW_NAS_SERVER			Supported Protocols: SMB, NFS				
Pool: Pool 1			Current SP: SP A				
Type: 64 bits			SP Owner: * SPA				
Status: OK			Tenant: -				
The component is operating normally. No action is re...			Compression Savings: 169.7 GB (41% or 1.7:1)				
Network Interfaces:							
!	IP Address	Port	VLAN ID	Role			
<input checked="" type="checkbox"/>	192.168.2.40	SP A Ethernet Port 2	-	Production			

Close **Apply**

Figure 16. Unisphere – NAS Server Properties Page

STEP 14 – FINAL STEPS

This completes the procedure to migrate from File storage resources which do not support compression to File resources created on Dell EMC Unity OE version 4.2 or later. At this time, it is suggested to ensure any snapshot schedules required for the File resources have been configured. It is also suggested to resume the backup strategy for your solution, if one exists. If any scripts have been written for the File resources, they may need to be updated to reflect the new CLI IDs.

CONCLUSION

In Dell EMC Unity OE version 4.2 and later, compression support was added for Thin File Systems (SMB/NFS) and Thin VMware NFS Datastores. To support compression, Thin File storage resources must be created on Dell EMC Unity OE version 4.2 or later and be created within an All Flash Pool. This paper has outlined a zero-cost, step-by-step procedure for customers and Dell EMC personnel to follow to achieve compression savings within File resources which were created on a code prior to the Dell EMC Unity OE version 4.2 release or for Thick File storage resources. Other methods to convert to a compression enabled storage resource include host-based migration to a Dell EMC Unity OE 4.2 or later File System or VMware Storage VMotion for VMs created on NFS Datastores.

REFERENCES

White Papers

- Dell EMC Unity: Data Reduction
- Dell EMC Unity: Best Practices Guide
- Dell EMC Unity: Unisphere Overview
- Dell EMC Unity: Replication Technologies
- Dell EMC Unity Family – Configuring Replication

Other References

- Dell EMC Online Support
- Dell EMC Unity InfoHub (<http://bit.ly/unityinfohub>)
- Dell EMC Unity Family – Unisphere Command Line Interface User Guide

APPENDIX A - TEMPLATES

The following tables can be used as a template to document the various information for your configuration.

Storage resources to enable compression.

Current Configuration of the source Dell EMC Unity system.

Current Configuration of the destination Dell EMC Unity system.