
7MTT – NFS 7mode to CDOT Work Instructions

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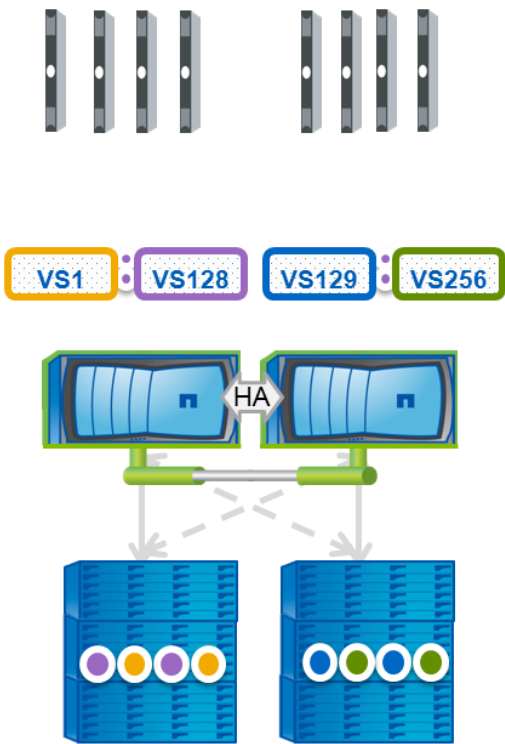
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1 Introduction

1.1 Management Summary

This document details the process used to migrate an NFS share from 7mode to CDOT with 7MTT.

- Servers connected via NFS or SMB
- One Vserver per application
- Up to 128 Vservers per node
- One LIF per Vserver with NFS or SMB
- FAS80xx or FAS32xx cluster with 2 to 8 nodes
- Single node cluster for SnapVault backup systems
- DS2246 or DS4246 SAS attached disk shelves
- Multiple volumes per Vserver
- LIFs and Volumes on same node for direct path I/O



1.2 Change History

Ver	Date	Author	Key Changes
1	March 2016	Ian Daniel	Initial Version
1.1	April 2016	Ian Daniel	Added performance checks and script details.
1.2	April 2016	Ian Daniel	Added export policy script
1.3	April 2016	Ian Daniel	Modified LIF naming to adhere to standards. Updated QoS check and fixed formatting issues.
1.4	April 2016	Ian Daniel	Updated with changes requested by Support
1.5	April 2016	Ian Daniel	Updated with changes to dedicated QoS settings

1.3 Distribution List

Name	Role
Storage Support	
Storage Delivery	

1.4 References

No.	Title	Location
1	cDOT Naming Standards	Link
2	cDOT AV	Link
3	cDOT Vserver Creation	Link
4	cDOT Consolidated Build Standards	Link
5	cDOT Replication Deployment Guidelines	Link
6		

1.5 Glossary

Term	Definition
cDOT	clustered Data ONTAP
Vserver	A logical storage virtual server, also known as a Storage Virtual Machine (SVM), which contains LIFs, Volumes, and configuration information such as access control details.
LIF	Logical Interface – a cDOT logical network interface with an IP address, assigned to a single Vserver.
7MTT	7mode Transition Tool – A tool used to migrate from 7mode to CDOT
WFA	OnCommand Workflow Automater – An automation framework application from NetApp, used for storage provisioning.

2 7-Mode to CDOT NFS Migration

2.1 High Level Migration Steps

Task	Owner
Create SVM and volume	Storage
Initialize snapmirror replication	Storage
Stop application during maintenance window	Application
Unmount source volumes during maintenance window	Platform
Final snapmirror sync/break during maintenance window	Storage
Update server mount info, e.g., '/etc/fstab'	Platform
Mount new volume during maintenance window	Platform
Start application	Application
Verify	Application/Platform

2.2 Pre-requisites

- **Ensure version of 7MTT is 2.3 or higher**
- **Ensure vfiler being migrated is not currently exceeding the 6K IOPS threshold unless it is moving to a dedicated controller.**
- **Ensure snapshot autodelete is disabled during the migration process for both source and destination.**
- Add the CDOT vsver name (not IP) to the source 7-Mode systems /etc/snapmirror.allow file
- Add the cDOT cluster ICL IP Addresses to the snapmirror.access option or the snapmirror.allow file on the source 7-Mode system prior to migration.
- Confirm the target aggregate has sufficient capacity
- Confirm the source volume is 64 bit
- Register the target vsver hostname in DNS
- Make note of service accounts on the source so they can be created in destination
- Confirm there is network connectivity between the source and target
- Make note of qtree quotas sizes so they can be applied in destination
- Make note of the source volume language
- Make note of the backup volume size

2.3 Vserver and LIF creation

2.3.1 Create Vserver (replace hyphen with underscore in vserver rootvolume name)

```
vserver create -vserver <vsname> -rootvolume <vsname>_root -aggregate <aggrname> -ns-switch file -  
nm-switch file -rootvolume-security-style unix -language <language>  
  
vserver show
```

2.3.2 Create LIF with default route and failover group

```
network interface create -vserver <vsname> -lif <vsname>-lif<lif#> -role data -data-protocol  
<protocol> -home-node <node> -home-port <port> -address <ip> -netmask <netmask> -status-admin up -  
firewall-policy mgmt -failover-group <group>  
  
network routing-groups route create -vserver <vsname> -routing-group d<network>/<mask> -destination  
0.0.0.0/0 -gateway <gateway>  
  
vserver show  
network interface show  
network interface show -failover  
network routing-groups route show -vserver <vsname>
```

2.4 DNS configuration

2.4.1 Setup DNS on a Vserver

```
vserver services dns create -vserver <vsname> -domains <domainname> -name-servers  
<comma_separate_name_server_list>  
  
vserver services dns show
```

2.4.2 Setup DNS on Cluster Admin Vserver

For ONTAP 8.2.x you need to make sure that whatever DNS domains are on your data vservers also get added to the admin vserver as DNS lookups can also be done via that vserver.

```
vserver services dns modify -vserver <admin_vsname> -domains <domainnames>  
  
vserver services dns show
```

2.5 Create service account if required

```
security login role create -role <ROLE_NAME> -cmddirname "<COMMAND>" -access <ACCESS_TYPE> -vserver  
<vserver> #Repeat this command for each required cDOT command  
  
security login create -username <USER_NAME> -application ontapi -authmethod <AUTHENTICATION_METHOD>  
-role <ROLE_NAME> -vserver <vserver>
```

2.5.1 Oracle Account and Role

```
security login role create -role oracle -cmddirname "volume snapshot" -access all -  
vserver  
security login role create -role oracle -cmddirname "set" -access all -vserver  
security login role create -role oracle -cmddirname "version" -access all -vserver  
security login role create -role oracle -cmddirname "job show" -access readonly -vserver  
security login role create -role oracle -cmddirname "df" -access readonly -vserver  
security login role create -role oracle -cmddirname "snapmirror list-destinations" -  
access readonly -vserver  
security login create -username oracle -application ssh -authmethod publickey -role  
oracle -vserver  
security login publickey create -username oracle -vserver-publickey "<ssh-dss  
pub_key_string>"
```

2.6 Enable NFS Protocol

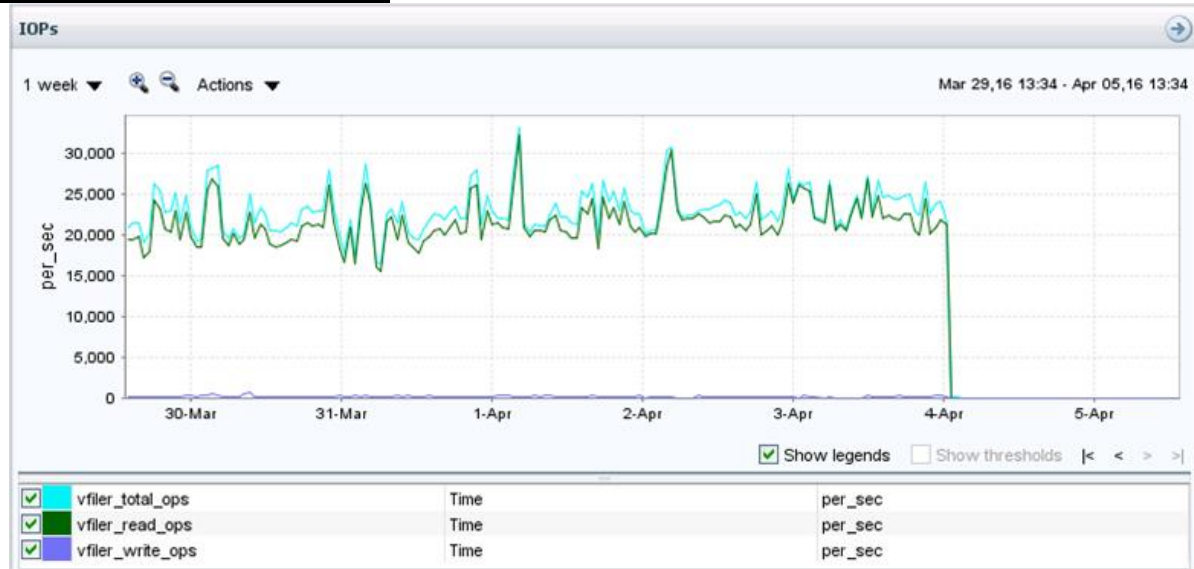
2.6.1 Enable NFS

```
vserver nfs create -vserver <vsname> -access true -v3 enabled  
  
vserver nfs show
```

2.7 Check Current IOPS In Use Prior To Migration – Shared Migrations ONLY

If the volume is seeing large periods of time over 6000 IOPs/sec please raise the flag that it needs to be looked at as 6000IOPs/sec will be the most they can use on cDOT due to QOS. So there is a high probability that the customer will feel the effect from this.

Example IOPS Threshold Issue



2.8 Start the Migration

2.8.1 Login to 7MTT

Connect the 7MTT (https://<7MTT_Server>:8443/transition) tool via web browser

NetApp | Help

7-Mode Transition Tool 2.3

User Name

Password

Provide username and password for the Windows system on which the 7-Mode Transition Tool is installed.
User account must be a member of the Administrators group on the Windows system.
To enable login for user accounts that are not members of Administrators group, refer to the 7-Mode Transition Tool Data And Configuration Transition Guide.

Once logged in CLICK Get Started under Migrate'

7-Mode Transition Tool 2.3

Collect & AssessMigrate

Welcome : administrator | About | Help | Sign out

7-Mode Transition Tool

This tool enables you to assess 7-Mode systems, hosts and applications for transition readiness and transition the data and configuration from 7-Mode systems to clustered Data ONTAP.

[Learn More ▶](#)

Collect & Assess

Collect inventory information from storage systems and hosts and assess these systems for transition readiness.

[Get Started ▶](#)

Migrate

Migrate data and configuration from 7-Mode system to a clustered Data ONTAP system by using SnapMirror.

[Get Started ▶](#)

CLICK on the 'Storage System' button in the left pane:

7-Mode Transition Tool 2.3

Collect & AssessMigrate

Welcome : administrator | About | Help | Sign out

Home

Dashboard

Storage Systems

New Transition Project

Logs

Welcome to 7-Mode Transition Tool

The 7-Mode Transition Tool helps you transition the data stored on NetApp systems running 7-Mode to NetApp systems running Clustered Data ONTAP 8.2.0, 8.2.1, 8.2.2, 8.2.3, 8.2.4, 8.3.0, 8.3.1 or 8.3.2.

The tool will guide you through the steps involved in transitioning your NAS/SAN data stored on 7-Mode systems to Clustered Data ONTAP 8.2.0, 8.2.2, 8.2.3, 8.2.4, 8.3.0, 8.3.1 or 8.3.2 systems.

Manuals

Use the following link to access the [7-Mode Transition Tool Guide](#).

Clustered Data ONTAP

For more information about Clustered Data ONTAP please use the following links: [Cfor7 web portal](#).

Select Volumes

Configure Project

Run Precheck

Start Baseline

Apply Configuration

Complete Transition

Create a new Transition project by clicking the Get Started button below.

[Get Started ▶](#)

ADD storage systems to 7MTT (execute this step for the source and target storage systems):

ENTER the FQDN of the filer

CLICK ADD

7-Mode Transition Tool 2.3

Collect & AssessMigrate

Welcome : administrator | About | Help | Sign out

HomeStorage Systems

Enter Device Credentials

Hostname: <FILER_FQDN>

Username: <FILER_ADMIN_USER>

Password:

Add

Instructions:

Enter FQDN or IP address and administrator credentials for a 7-Mode controller or Clustered Data ONTAP system. Clustered Data ONTAP system can be added using the cluster management IP.

After adding the 7-Mode system or clustered Data ONTAP system, go to the Home tab to start a new transition project.

7-Mode Controllers

IP Address	Host Name	Model	Data ONTAP Version	Edit/Remove	Status
10.220.194.14	eag-labofr-nas6	FAS6210	NetApp Release 8.2...		
10.220.194.15	eag-labofr-nas6	FAS6210	NetApp Release 8.2...		
10.220.194.12	eag-labofr-nas6	FAS6210	NetApp Release 8.2...		
10.220.194.13	eag-labofr-nas6	FAS6210	NetApp Release 8.2...		
10.220.30.57	eg-nastest-e09	FAS6080	NetApp Release 8.1...		

Clustered Data ONTAP Systems

IP Address	Cluster Name	Data ONTAP Version	Edit/Remove	Status
10.220.194.42	eg-si-clsn-e01	NetApp Release 8.2...		

Assess Controller

CLICK the 'HOME' tab -> CLICK 'Get Started'

7-Mode Transition Tool 2.3 Collect & Assess Migrate Welcome : administrator | About | Help | Sign out

Home

Welcome to 7-Mode Transition Tool

The 7-Mode Transition Tool helps you transition the data stored on NetApp systems running 7-Mode to NetApp systems running Clustered Data ONTAP 8.2.0, 8.2.1, 8.2.2, 8.2.3, 8.2.4, 8.3.0, 8.3.1 or 8.3.2.

The tool will guide you through the steps involved in transitioning your NAS/SAN data stored on 7-Mode systems to Clustered Data ONTAP 8.2.0, 8.2.2, 8.2.3, 8.2.4, 8.3.0, 8.3.1 or 8.3.2 systems.

Manuals

Use the following link to access the [7-Mode Transition Tool Guide](#).

Clustered Data ONTAP

For more information about Clustered Data ONTAP please use the following links: [Cfor7 web portal](#).

Select Volumes Configure Project Run Precheck Start Baseline Apply Configuration Complete Transition

Create a new Transition project by clicking the Get Started button below.

Get Started ►

CONFIRM that the source and destination storage systems are listed

7-Mode Transition Tool 2.3 Collect & Assess Migrate Welcome : administrator | About | Help | Sign out

Home Storage Systems Dashboard Untitled Project

Enter Device Credentials

Instructions: Enter FQDN or IP address and administrator credentials for a 7-Mode controller or Clustered Data ONTAP system. Clustered Data ONTAP system can be added using the cluster management IP.

Hostname:
Username:
Password:

Add

7-Mode Controllers

IP Address	Host Name	Model	Data ONTAP Version	Edit/Remove	Status
10.220.194.14	eag-labof-nas6	FAS6210	NetApp Release 8.2....		
10.220.194.15	eag-labof-nas6	FAS6210	NetApp Release 8.2....		
10.220.194.12	eag-labof-nas6	FAS6210	NetApp Release 8.2....		
10.220.194.13	eag-labof-nas6	FAS6210	NetApp Release 8.2....		
10.220.30.57	eg-nas-test-e09	FAS6080	NetApp Release 8.1....		

Clustered Data ONTAP Systems

IP Address	Cluster Name	Data ONTAP Version	Edit/Remove	Status
10.220.194.42	eg-si-clin-e01	NetApp Release 8.2....		

Note: Add at least one 7-Mode controller and a clustered Data ONTAP system with valid credentials to proceed.

Refresh

Back Next

CLICK 'Next'

ENTER a name for the project

CLICK 'Continue'

7-Mode Transition Tool 2.3 Collect & Assess Migrate Welcome : administrator | About | Help | Sign out

Home Storage Systems Dashboard Untitled Project

Choose Origin Volumes to Transition

Select 7-Mode Controller

- eag-labof-nas6210s-1
- eag-labof-nas6210s-2
- eag-labof-nas6210s-1
- eag-labof-nas6210s-2
- eg-nas-test-e09

Volume Information

Name	Used Size (GB)	Total Size (GB)	SnapMirror Relationship	Other SnapMirror Relationship	SnapMirror Source or Destination	Volume Type	Transition as stand-alone	Transition with SnapMirror Relationship

New Transition Project Name

Please provide a name for your new transition project.

CR123456

Continue

Refresh Controllers List

Volume(s) Selected for Transition Project

Subproject	Storage System	Volume Name	Size (GB)	Used (GB)

Back Create Project and Continue

SELECT the source vfiler and volume(s):

CLICK 'Create Project and Continue'

7-Mode Transition Tool 2.3 Collect & Assess **Migrate** Welcome : administrator | About | Help | Sign out

Home Storage Systems **Untitled Project**

Choose Origin Volumes to Transition

Select 7-Mode Controller

- eag-nasor-fs01
- si-lab-cra11204-13d
- si-nastest-01
- eag-nasor-fs19
- eag-nasor-fs29
- eag-nasor-fs09
- eag-laborf-nas6210ht-2
- eag-nasor-fs04
- eag-nasor-fs26
- eag-nasor-fs06
- eag-nasor-fs28
- slab-orlab-17d
- eag-nasor-fs10

Refresh Controllers List

Volume Information	
Name	Used Size (GB) (0)
migtest01	0.000
si_nastest_01_roo	0.000

Volume(s) Selected for Transition Project

Storage System	Volume Name	Size (GB)	Used (GB)
Subproject: CR123456_standalone (STANDALONE) (1 Volumes)			
si-nastest-01@eag-laborf-nas6210ht-1	migtest01	100.000	0.000
Total:		100.000	0.000

Subproject Count : 1 Total Size of Transition: 0.000 (GB) View Volumes

Back Create Project and Continue

ENTER an IP to be used for replication traffic on the source filer

CLICK 'Next'

7-Mode Transition Tool 2.3 Collect & Assess **Migrate** Welcome : administrator | About | Help | Sign out

Home Storage Systems **CR123456**

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > Data Copy Schedule > Final Precheck > Plan Configuration > Subproject Summary Configuring Subproject: 1/1

Subproject Information

Project Name: CR123456 Edit Origin Controller: eag-laborf-nas6210ht-1 Target Cluster: -

Subproject Name: CR123456_standalone Edit Origin vFiler Unit: si-nastest-01 Target S/M: -

Subproject Type: STANDALONE Data Copy IP: 10.220.194.14 Multipath IP: -

Data Copy and Multipath IP Configuration

Enter the Data Copy and Multipath IPs

Data Copy IP (Mandatory Field): 10.220.194.14

Multipath IP (Optional Field):

Specify another IP address of the 7-Mode system enables data copy to proceed over more than one physical path at the same time, therefore, load balancing the data transfers.

Edit Volume Selection Next

The next window will ask if you want to run pre-check.

CLICK 'Run Prechecks'

7-Mode Transition Tool 2.3 Collect & Assess **Migrate** Welcome : administrator | About | Help | Sign out

Home Storage Systems **CR123456**

IP Configuration > **Precheck** > SVM Mapping > Volume Mapping > Interface Mapping > Data Copy Schedule > Final Precheck > Plan Configuration > Subproject Summary Configuring Subproject: 1/1

Subproject Information

Project Name: CR123456 Edit Origin Controller: eag-laborf-nas6210ht-1 Target Cluster: -

Subproject Name: CR123456_standalone Edit Origin vFiler Unit: si-nastest-01 Target S/M: -

Subproject Type: STANDALONE Data Copy IP: 10.220.194.14 Multipath IP: -

7-Mode Precheck

Prechecks identify the issues with a transition. This precheck verifies that the 7-Mode source meets the prerequisites for your transition.

Back Run Prechecks Skip

Note: This may take a while, you can choose to skip for now and run the prechecks at a later point.

Review the Report. You can ignore the warnings listed below. Resolve errors if they appear.
CLICK ‘Close’ and then click Next’

7-Mode Transition Tool 2.3

Collect & AssessMigrate

Welcome : administrator | About | Help | Sign out

HomeStorage SystemsCR123456

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > Data Copy Schedule > Final Precheck > Plan Configuration > Subproject SummaryConfiguring Subproject: 1/1

Subproject Information

Project Name:CR123456Edit

Subproject Name:CR123456_standaloneEdit

Subproject Type:STANDALONE

Origin Controller:eag-labofr-nas6210ht-1

Origin vFiler Unit:si-nastest-01

Data Copy IP:10.220.194.14

Target Cluster:-

Target S/V/M:-

Multipath IP:-

Precheck Summary

Area

Session status checks

Validating 7-Mode system information

Validating 7-Mode volumes information

WAF prechecks

SNMP prechecks

RBAC prechecks

MetroCluster prechecks

Total:

7-Mode Precheck

ID	Type(Tags)	Message
94101	Warning	Checking whether SNMP is enabled Mode storage system 10.220.194.14 configuration
94001	Warning	Checking whether any roles are defined on the 7-4 Transition Tool does not support the t

Apply Type Filter

☒ Error☒ Warning☒ Informational☐ Security only

Apply Tag Filter

Note: Continuing with transition without resolving the above findings might lead to unforeseen problems

Operation Progress

Details

Subproject Name: CR123456_standaloneOperation: 7-Mode prechecks

Sl. No.	Message Type	Status
1	Session status checks	Ok
2	Validating 7-Mode system information	Ok
3	Validating 7-Mode volumes information	Ok
4	WAF prechecks	Ok
5	SNMP prechecks	Warnings
6	RBAC prechecks	Warnings
7	MetroCluster prechecks	Ok
8	UNIX users and groups prechecks	Ok
9	SnapMirror prechecks	Warnings
10	NFS prechecks	Warnings
11	Networking prechecks	Warnings
12	CIFS prechecks	Warnings
13	Name services prechecks	Warnings

Operation Summary
The 7-Mode prechecks operation on the session CR123456_standalone has finished successfully
Errors = 0, Warnings = 24, Informational Messages = 0

Close

Back

Run Prechecks again

Next

Save As CSV

SELECT a target vserver
CLICK ‘Next’

7-Mode Transition Tool 2.3

Collect & AssessMigrate

Welcome : administrator | About | Help | Sign out

HomeStorage SystemsCR123456

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > Data Copy Schedule > Final Precheck > Plan Configuration > Subproject SummaryConfiguring Subproject: 1/1

Subproject Information

Project Name:CR123456Edit

Subproject Name:CR123456_standaloneEdit

Subproject Type:STANDALONE

Origin Controller:eag-labofr-nas6210ht-1

Origin vFiler Unit:si-nastest-01

Data Copy IP:10.220.194.14

Target Cluster:-

Target S/V/M:-

Multipath IP:-

Select a Clustered Data ONTAP System

Cluster	Version
eg-si-clsn-e01	NetApp Release 8.2.3P5 Cluster-M

Refresh

Select a SVM

SVM Name	Status	Allowed Protocols
ciststms-e0002	running	nfs,cifs,fc,iscsi
simssqi-e0001	running	nfs,cifs,fc,iscsi,ndmp
sioracle-e0001	running	nfs,cifs,fc,iscsi,ndmp
si-8040-test-02	running	nfs,cifs
<input checked="" type="checkbox"/> si-8040-test-01	running	nfs
ciststms-e0001	running	nfs,cifs,fc,iscsi
simysqi-e0001	running	nfs,cifs,fc,iscsi,ndmp
si-globalscape-test02	running	nfs,cifs,fc,iscsi,ndmp
si-globalscape-test01	running	iscsi
mtt_test_vserver	running	nfs,cifs,fc,iscsi,ndmp
cpststms-e0003	running	nfs,cifs,fc,iscsi
siesx-e0001	running	nfs

Note: SVM is not selectable for one of the reason:
--SVM is a repository S/V/M or S/V/M is a sync-destination

BackNext

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IMPORTANT: Make sure you enter the correct information in the next section! This version of 7MTT allows you to set junction path = volume name, this is the DCO standard. But, you need to modify the junction-path after the cut-over manually in older versions of 7MTT.

ENTER the destination aggregate

ENTER the destination volume name

SELECT 'Use Clustered OTAP volume name' from 'Target Volume Mount Policy'

CLICK 'Next'

7-Mode Transition Tool 2.3 Collect & Assess Migrate Welcome : administrator | About | Help | Sign out

Home C123456

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > Data Copy Schedule > Final Precheck > Plan Configuration > Subproject Summary Configuring Subproject: 1/1

Subproject Information

Project Name: C123456 Edit Origin Controller: eag-laborf-nas6210ht-1 Target Cluster: eg-si-clsn-e01
Subproject Name: C123456_standalone Edit Origin vFiler Unit: si-nastest-01 Target SVM: si-8040-test-01
Subproject Type: STANDALONE Data Copy IP: 10.220.194.14 Multipath IP: -

Target Volume mount policy

Select Target Volume mount policy: Use clustered Data ONTAP volume name ?

Map Origin Volumes to Aggregates on Target Cluster

Origin Volume	Volume Size (G...)	Target Aggregate	Target Volume	Target Volume Path
migtest01	100.000	aggr1_data_i03	siL_cdot_migtest01	/si_cdot_migtest01

Estimated Capacity Available

Node	Aggregate	Estimated Space Availability (GB)
eg-si-clsn-e01...	aggr1_data_i03	55111.989
eg-si-clsn-e01...	aggr1_data_i04	55116.272
eg-si-clsn-e01...	aggr1_data_h02	29033.233
eg-si-clsn-e01...	aggr1_data_h01	28886.345

Note: Any changes to the volume name will be saved to the subproject upon clicking the next button

Refresh Back Next

NOTE: We are not migrating IP addresses

CLICK 'Next'

7-Mode Transition Tool 2.3 Collect & Assess Migrate Welcome : administrator | About | Help | Sign out

Home Storage Systems CR123456

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > Data Copy Schedule > Final Precheck > Plan Configuration > Subproject Summary Configuring Subproject: 1/1

Subproject Information

Project Name: CR123456 Edit Origin Controller: eag-laborf-nas6210ht-1 Target Cluster: eg-si-clsn-e01
Subproject Name: CR123456_standalone Edit Origin vFiler Unit: si-nastest-01 Target SVM: si-8040-test-01
Subproject Type: STANDALONE Data Copy IP: 10.220.194.14 Multipath IP: -

Note:
-> Migrating IP addresses is an optional step. If you do not plan to migrate any 7-Mode IP addresses, you can skip this step by clicking on Next button.
-> Transitioning of iSCSI and FCP interfaces is not supported

Map 7-Mode IP Addresses to Cluster LIFs

	Origin IP Address	Target Default Gateway	Target Netmask	Target Interface	Target Node	Target Port	Target Port...	Node Port Chooser	Remove
<input type="checkbox"/>	10.220.181.76	10.220.181.126	255.255.255.128					Choose Node and Port	

New LIF Refresh Back Next

CLICK 'Create Schedule', a popup box will appear

ENTER a replication schedule (run off hours)

CLICK CREATE

7-Mode Transition Tool 2.3 Collect & Assess Migrate Welcome : administrator | About | Help | Sign out

Home Storage Systems CR123456

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > **Data Copy Schedule** > Final Precheck > Plan Configuration > Subproject Summary Configuring Subproject: 1/1

Subproject Information

Project Name: CR123456 Edit Origin Controller: eag-laborf-nas6210ht-1 Target Cluster: eg-si-clsn-e01
 Subproject Name: CR123456_standalone Edit Origin vFilter Unit: si-nastest-01 Target S/V/M: si-8040-test-01
 Subproject Type: STANDALONE Data Copy IP: 10.220.194.14

Note: 7-Mode Transition Tool maintains and enforces the schedules (date, time and frequency) for the SnapMirror base sub-project. For example, you can create customized schedules for weekdays, weekends, business hours, non-business hours. As a part each schedule, you can provide the date and time when the schedule will be active, as well as some additional SnapMirror transfers that are allowed during a schedule. 7-Mode Transition Tool (web interface can be closed, but not service must always be running to enforce the schedules).

Data Copy Schedule

Provide Schedule(s) for Data Transfers

Name	Recurring Days	Start Time (HH:MM)	Duration (HH:MM)	End Time
There are no schedules present in this subproject. To create a new schedule, click the 'Create Schedule' button.				

Create Schedule Refresh Back Next

Create Data Copy Schedule for Baseline and Incremental Updates

The 7-Mode Transition Tool service must be running for the schedules to take effect.

Name: CR123456

Recurring Days

☒ Daily
☐ Select Days ☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Time Interval

7-Mode Controller Time Zone: GMT
 Start Time: 22 Hrs 00 Mins
 Duration: 24 Hrs 00 Mins End Time: Next Day, till 22:00
 Update Frequency: 00 Hrs 30 Mins ☐ Continuous Updates

Parameters for Transition Data Copy Operations

Maximum number of concurrent volume SnapMirror (VSM) transfers supported by 7-Mode controller : 150
 Maximum Number of Concurrent VSM Transfers: ☒ 75
 to be used by the tool during this schedule
☒ 50 % of available VSM transfers
 Note: If both options are selected, the lowest value is used for the number of concurrent VSM transfers.

Throttle Limit (Maximum Bandwidth in MB/s): ☒ Maximum
 total for all volumes in this subproject ☐ Not Exceeding

Create Cancel

The newly created schedule will appear

CLICK 'Next'

7-Mode Transition Tool 2.3 Collect & Assess Migrate Welcome : administrator | About | Help | Sign out

Home Storage Systems CR123456

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > **Data Copy Schedule** > Final Precheck > Plan Configuration > Subproject Summary Configuring Subproject: 1/1

Subproject Information

Project Name: CR123456 Edit Origin Controller: eag-laborf-nas6210ht-1 Target Cluster: eg-si-clsn-e01
 Subproject Name: CR123456_standalone Edit Origin vFilter Unit: si-nastest-01 Target S/V/M: si-8040-test-01
 Subproject Type: STANDALONE Data Copy IP: 10.220.194.14 Multipath IP: -

Note: 7-Mode Transition Tool maintains and enforces the schedules (date, time and frequency) for the SnapMirror baseline copy and incremental update operations. There can be multiple schedules created for each sub-project. For example, you can create customized schedules for weekdays, weekends, business hours, non-business hours. As a part each schedule, you can provide the date and time when the schedule will be active, as well as some additional optional parameters, such as SnapMirror throttle per sub-project and the maximum number of SnapMirror transfers that are allowed during a schedule. 7-Mode Transition Tool (web interface can be closed, but not service) must always be running to enforce the schedules.

Data Copy Schedule

Provide Schedule(s) for Data Transfers

Name	Recurring Days	Start Time (HH:MM)	Duration (HH:MM)	End Time	Update Frequency (HH:MM)	Number of Concurrent SnapMirror Transfers % of available, Not Exceedi...	Throttle Limit (MB/s)	Edit/Remove
CR123456	Daily	22:00	24:00	Next Day, till 22:00	00:30	50% , 75	Maximum	

Create Schedule Refresh Back **Next**

RUN PreCheck and make sure there are no errors

CLICK 'Run Precheck'; REVIEW the output

CLICK 'Close'

CLICK 'Next'

7-Mode Transition Tool 2.3

Collect & Assess **Migrate** Welcome : administrator | About | Help | Sign out

Home Storage Systems CR123456

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > Data Copy Schedule > **Final Precheck** > Plan Configuration > Subproject Summary Configuring Subproject: 1/1

Subproject Information

Project Name: CR123456 Edit
Subproject Name: CR123456_standalone Edit
Subproject Type: STANDALONE

Origin Controller: eag-laboff-nas6210ht-1
Origin vFilter Unit: si-nas6210-01
Data Copy IP: 10.220.194.14

Target Cluster: eg-si-clsn-e01
Target SVM: si-8040-test-01
Multipath IP: -

Precheck Summary

Area

- Session status checks
- Validating 7-Mode system information
- Validating 7-Mode volumes information
- Validating clustered Data ONTAP storage system information
- Validating clustered Data ONTAP volumes information
- Validating LIF information
- WAFL prechecks
- Total:

Precheck details

ID	Type(Tags)	Message
99162	Informational	Checking to see if LIF information is the session 'CR123456_standalone'
90701	Warning	Warning about conversion of director the transitioned volume will be converted using NFSv4 or CIFS). The conversion

Operation Progress

Details

Subproject Name: CR123456_standalone Operation: Final prechecks

Sl. No.	Message Type	Status
1	Session status checks	Ok
2	Validating 7-Mode system information	Ok
3	Validating 7-Mode volumes information	Ok
4	Validating clustered Data ONTAP storage system information	Ok
5	Validating clustered Data ONTAP volumes information	Ok
6	Validating LIF information	Ok
7	WAFL prechecks	Warnings
8	SNMP prechecks	Warnings
9	RBAC prechecks	Warnings
10	MetroCluster prechecks	Ok
11	UNIX users and groups prechecks	Warnings
12	SnapMirror prechecks	Warnings
13	NFS prechecks	Errors

Operation Summary

The Final prechecks operation on the session CR123456_standalone has failed
Errors = 2, Warnings = 30, Informational Messages = 1

Apply Type Filter

☒ Error ☒ Warning ☒ Informational

Apply Tag Filter

☐ Security only

Note: Continuing with transition without resolving the above findings might lead to unforeseen consequences

Back Run Prechecks again **Next** Save As CSV ?

Modify the options to remove exports creation on destination vserver.

7-Mode Transition Tool 2.3

Collect & Assess **Migrate** Welcome : administrator | About | Help | Sign out

Home Storage Systems CR123456

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > Data Copy Schedule > Final Precheck > **Plan Configuration** > Subproject Summary Configuring Subproject: 1/1

Subproject Information

Project Name: CR123456 Edit
Subproject Name: CR123456_standalone Edit
Subproject Type: STANDALONE

Origin Controller: eag-laboff-nas6210ht-1
Origin vFilter Unit: si-nas6210-01
Data Copy IP: 10.220.194.14

Target Cluster: eg-si-clsn-e01
Target SVM: si-8040-test-01
Multipath IP: -

Note: Configuration Planning enables you to customize the way 7-Mode Transition Tool transitions the configurations. For more information, click the ? icon.

SVM Configuration

☐ Select All

☒ CIFS (6 Items)

- ☐ CIFS Options
- ☐ CIFS User Mapping Configuration
- ☐ Widelinks
- ☐ CIFS Local Users and Groups
- ☐ Preferred Domain Controllers List
- ☐ Audit Configuration

☒ NFS (1 Item)

- ☒ NFS Options

☐ Name Services (8 Items)

- ☒ UNIX Users and Groups
- ☐ Name Service Switch Configuration (/etc/nsswitch.conf)
- ☐ Hosts Configuration (/etc/hosts)
- ☒ Netgroups
- ☐ NIS Configuration
- ☐ DNS Configuration
- ☐ LDAP Configuration
- ☐ Name Mapping Switch Configuration

Volume Configuration

☐ Select All

☐ CIFS (3 Items)

- ☐ Shares and ACLs
- ☐ Home Directory Paths
- ☐ Symlinks

☐ NFS (3 Items)

- ☐ NFS Exports
- ☐ Consolidate 7-Mode NFS Export Rules
- ☐ Reuse Export Policies of SVM

☐ SAN (1 Item)

- ☐ Igroups and LUN Mapping

☐ Snapshot Schedules Configuration (3 Items)

- ☐ Snapshot Schedules
- ☐ Reuse Snapshot Policies of SVM
- ☐ Consolidate 7-Mode Snapshot Policies

Back SelectAll **Next**

Relevant Options Description

Option	Description	Set
NFS Options	If the NFS options are not selected for transition, the following 7-Mode NFS options are not transitioned to the clustered Data ONTAP: nfs.udp.xfersize, nfs.v4.id.domain, nfs.v4.acl.max.aces, nfs.tcp.xfersize, nfs.rpcsec.ctx.high, nfs.rpcsec.ctx.idle, nfs.response.trigger, wafl.default_nt_user, nfs.mount_rootonly, nfs.tcp.enable, nfs.udp.enable, nfs.response.trace, nfs.v4.read_delegation, nfs.v4.write_delegation, nfs.v4.acl.enable, nfs.vstorage.enable, nfs.v3.enable, nfs.v4.enable.	Yes
UNIX Users and Groups	Copies local user/group information	Yes
Name Service Switch Configuration (/etc/nsswitch.conf)	Copies nsswitch.conf across	No
Host Configuration (/etc/hosts)	Copies host entries over	No
Netgroups	If Netgroups are selected for transition, all the existing Netgroups on the target SVM are replaced with the Netgroups transitioned from the 7-Mode. If there are no Netgroups configured in the '/etc/netgroups' file of the 7-Mode system, then existing Netgroups on the target SVM are retained	Yes
NIS Configuration	If NIS configuration is not selected for transition, NIS is not added to the name service switch on the target SVM.	No
DNS Configuration	Copies DNS configuration over	No
LDAP Configuration	If LDAP configuration is not selected for transition, LDAP is not added to the name service switch and Name mapping switch on the target SVM.	No
Name Mapping Switch Configuration	If LDAP configuration is not selected for transition, LDAP is not added to the name mapping switch on the target SVM even if 7-Mode has the option 'ldap.usermap.enable' set to on. You must manually add LDAP to the name mapping switch after LDAP is configured on the target SVM.	No
NFS Exports	Create export policies on destination	No
Consolidate Export Rules	If this option is selected, only one NFS export policy is created on the target SVM for all the volumes and qtrees with matching 7-Mode export rules. And the created NFS export policy is used to export all those volumes/qtrees on the target SVM. If the 'Reuse the export policies of SVM' option is selected, and if there is a matching NFS export policy existing on the target SVM, the pre-existing policy is reused rather than creating a new export policy.	No
Re-Use Export Policies	If this option is selected, and if there is a pre-existing NFS export policy that matches with 7-Mode export policy, the pre-existing export policy is reused rather than creating a new export policy.	No
Snapshot Schedules	If the Snapshot schedules are not selected for transition, Snapshot schedules of 7-Mode volumes are not transitioned to clustered Data ONTAP and the 'default' Snapshot policy of the target SVM is assigned to the transitioned volumes.	No
Reuse Snapshot Policies of SVM	If this option is selected, and if there is a pre-existing Snapshot policy that matches with 7-Mode Snapshot policy, the pre-existing policy is reused rather than creating a new policy.	No
Consolidate 7-Mode Snapshot Policies	If this option is selected, only one Snapshot policy (with all the required schedules) is created on the target SVM for all the 7-Mode volumes with matching 7-Mode Snapshot schedules. And the created Snapshot policy is used for all those volumes on the target SVM. If the 'Reuse Snapshot Policies of SVM' option is selected, and if there is a matching Snapshot policy existing on the target SVM, the pre-existing policy is reused rather than creating a new policy.	No

Click Next

CLICK 'Save and go to Dashboard'

7-Mode Transition Tool 2.3 Collect & Assess **Migrate** Welcome : administrator | About | Help | Sign out

Home Dashboard CR123456

IP Configuration > Precheck > SVM Mapping > Volume Mapping > Interface Mapping > Data Copy Schedule > Final Precheck > Plan Configuration > **Subproject Summary** Configuring Subproject: 1/1

Subproject Information

Project Name:	CR123456 Edit	Origin Controller:	eaq-laborf-nas6210ht-1	Target Cluster:	eg-si-clsn-e01
Subproject Name:	CR123456_standalone Edit	Origin vFiler Unit:	si-nastest-01	Target SVM:	si-8040-test-01
Subproject Type:	STANDALONE	Data Copy IP:	10.220.194.14	Multipath IP:	-

Target Volume

Target Volume	Origin Volume	Volume Size (GB)	Target Aggregate
si_cdot_migtest01	migtest01	100.000	aggr1_data_i03

Total Volume(s): 1 Total Size of Transition (GB): 0.0GB [View Volumes](#)

Network Address to be Migrated

Network Address	Default Gateway	Netmask	Destination Node	Destination Port
-----------------	-----------------	---------	------------------	------------------

Data Copy Schedule

Name	Recurring Days	Start Time (HH:MM)	Duration (HH:MM)	End Time	Update Freque... (HH:MM)	Number of Concurrent SnapMirror Transfers % of available, Not Exceeding	Throttle Limit (MB/s)
CR123456	Daily	22:00	24:00	Next Day, till 22:00	00:30	50% , 75	Maximum

Precheck Status

Errors:

Warnings:

Informational:

[Back](#) [Save and go to Dashboard](#)

A data transfer workflow will be displayed in the top of the page. The circle above 'Baseline Data Copy' will have a white fill color before your first transfer. It will have an orange fill color while the first transfer is running. Then a green fill color after your first successful transfer.

CLICK 'Run Pre-Check'; REVIEW output

7-Mode Transition Tool 2.3 Collect & Assess **Migrate** Welcome : administrator | About | Help | Sign out

Home Dashboard CR123456

Subproject Summary

CR123456_standalone

0.0GB Total Size of Transition

Preparation → Baseline Data Copy → Precheck → Storage Cutover

[Run Precheck](#) [Start Baseline](#) [Apply Configuration](#) [Finish Testing](#) [Complete Transition](#)

[Pause](#) [Resume](#) [Update Now](#) [Edit Subproject](#) [Abort](#) [Refresh](#) [Auto Refresh \(every 5 minutes\)](#)

Volumes Data Copy Schedule Networking Configuration Planning Operation History

Select Target Volume mount policy: (Use cluster Data ONTAP volume name)

Origin Volume	Target Volume	Data Copy Schedule Operation Status	Snapshot Details	Volume T.	Remove			
		Current	Last	Mirror State	SM Status	Data Pending	Transition Details	
migtest01	si_cdot_migtest01							NAS

Subproject status

- Configuration Completed
- Configuration Incomplete/Operation In Progress
- Transition Completed
- Transition Aborted

[Delete Project](#)

CLICK 'Start Baseline'

The screenshot shows the 7-Mode Transition Tool 2.3 interface. The top navigation bar includes 'Collect & Assess' and 'Migrate' tabs. The main workflow area displays a sequence of steps: Preparation, Baseline Data Copy, Pre-cutover, and Storage Cutover. The 'Start Baseline' button is highlighted with a red box. Below the workflow, there are buttons for 'Run Precheck', 'Apply Configuration', 'Finish Testing', and 'Complete Transition'. A table at the bottom shows the 'Volumes' section with columns for 'Origin Volume', 'Target Volume', 'Data Copy Schedule', 'Operation Status', 'Mirror State', 'SM Status', 'Data Pending', 'Transition Details', 'Volume T', and 'Remove'. The table contains one entry for 'migtest01' with 'si_cdot_migtest01' as the target volume.

A popup window will appear, CLICK 'yes'

This screenshot shows the same interface as the previous one, but with a warning popup window displayed. The popup contains the text: 'Warning: It is recommended that you address all warnings in precheck results before starting the transition. Do you want to continue?'. There are 'Yes' and 'No' buttons at the bottom of the popup. The 'Start Baseline' button in the workflow is still highlighted.

Execute an update transfer before the cutover window so that you have minimal changes to transfer during the cutover window:

CLICK 'Update Now'

The screenshot shows the 7-Mode Transition Tool 2.3 interface after the 'Update Now' button has been clicked. The workflow now includes an additional step, 'Update Now', between 'Baseline Data Copy' and 'Pre-cutover'. The 'Update Now' button is highlighted with a red box. The 'Volumes' table at the bottom shows the 'Operation Status' for 'migtest01' as 'Update Waiting' and 'Baseline Success'. The 'Data Pending' column shows '0 GB pending'.

Ensure the steps below are completed during the downtime window:

The application/database has been shut down on all hosts

Source volumes have been unmounted on all hosts

Start the cutover process:

CLICK 'Apply Configuration'

7-Mode Transition Tool 2.3 | Collect & Assess | Migrate | Welcome: administrator | About | Help | Sign out

Home | Dashboard

test_wsp | test_wsp_standalone | C123456 | C123456_standalone

C123456_standalone

standalone

0.0GB Total Size of Transition

Subproject information

Preparation → Baseline Data Copy → Precutover → Storage Cutover

Run Precheck | Start Baseline | **Apply Configuration** | Finish Testing | Complete Transition

Test Mode

Pause | Resume | Update Now | Edit Subproject | Abort | Refresh | Auto Refresh (every 5 minutes)

Volumes | Data Copy Schedule | Networking | Configuration Planning | Operation History

Select Target Volume mount policy: Use clustered Data ONTAP volume name

Origin Volume	Target Volume	Data Copy Schedule	Operation Status	Current	Last	Mirror State	SM Status	Data Pending	Transition Details	Volume T	Remove
migtest01	si_cdot_migtest01	Update Waiting	Baseline Success	snapshotred	idle	0 GB pending	View Transition Details	NAS			

Subproject status

- Configuration Completed
- Configuration Incomplete/Operation In Progress
- Transition Completed
- Transition Aborted

Delete Project

A popup box will appear, CLICK 'Continue'

7-Mode Transition Tool 2.3 | Collect & Assess | Migrate | Welcome: administrator | About | Help | Sign out

Home | Dashboard

test_wsp | test_wsp_standalone | C123456 | C123456_standalone

C123456_standalone

standalone

0.0GB Total Size of Transition

Subproject information

Preparation → Baseline Data Copy → Precutover → Storage Cutover

Run Precheck | Start Baseline | **Apply Configuration** | Finish Testing | Complete Transition

Test Mode

Pause | Resume | Update Now | Edit Subproject | Abort | Refresh | Auto Refresh (every 5 minutes)

Volumes | Data Copy Schedule | Networking | Configuration Planning | Operation History

Select Target Volume mount policy: Use clustered

Origin Volume	Target Volume	Data Copy Schedule	Operation Status	Current	Last	Mirror State	SM Status	Data Pending	Transition Details	Volume T	Remove
migtest01	si_cdot_migtest01	Update Waiting	Baseline Success	snapshotred	idle	0 GB pending	View Transition Details	NAS			

Subproject status

- Configuration Completed
- Configuration Incomplete/Operation In Progress
- Transition Completed
- Transition Aborted

Delete Project

Apply Configuration(Precutover)

This operation transitions the 7-Mode configurations to the SVM and corresponding clustered Data ONTAP.

☒ Apply configuration in test mode

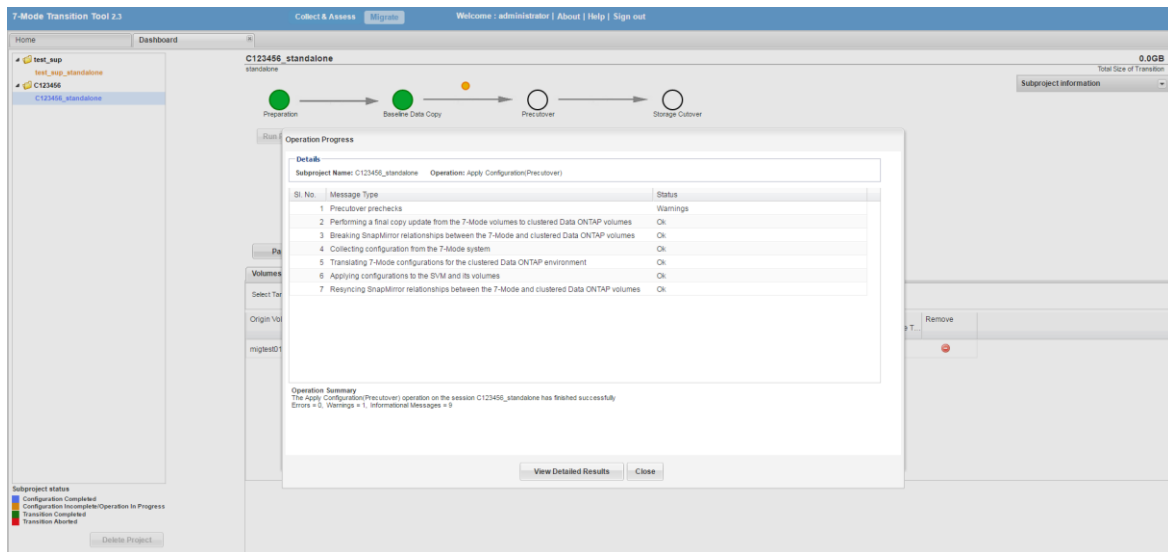
☒ Tool will use 50% available concurrent VSM transfers for SnapMirror data copy operation.

☒ Customize the number of concurrent SnapMirror transfers and Throttle limit for this operation.

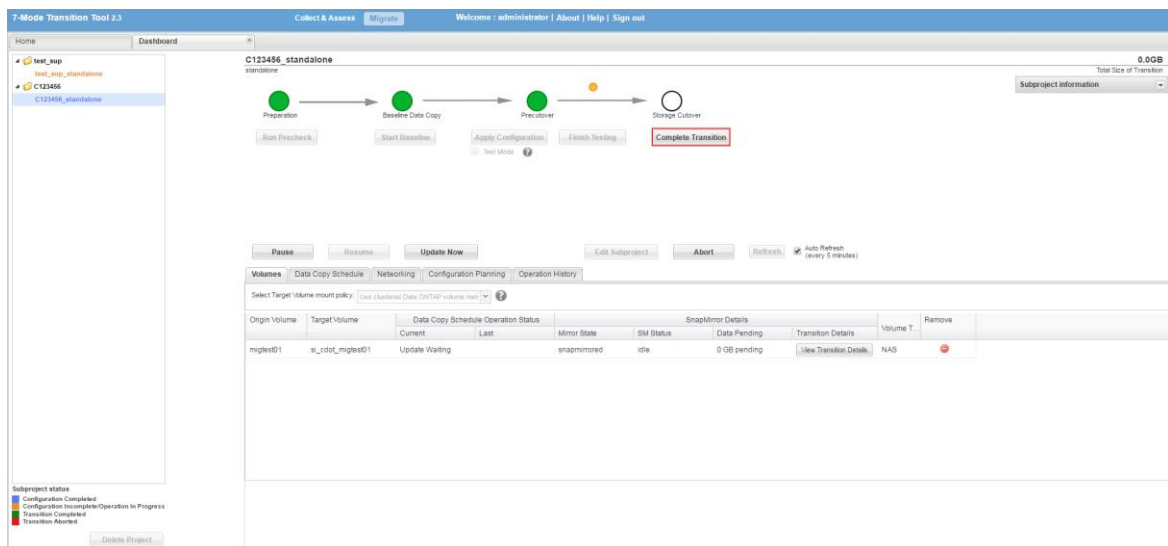
☐ Transition Kerberos Configuration

Continue | Close

REVIEW log for errors and CLICK 'Close'

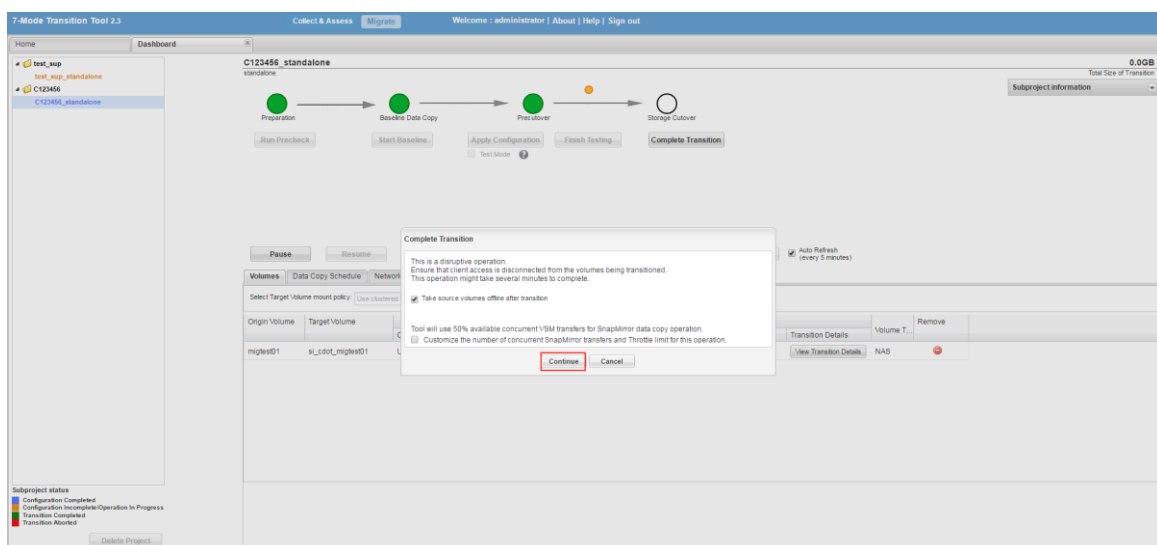


CLICK 'Complete Transition'



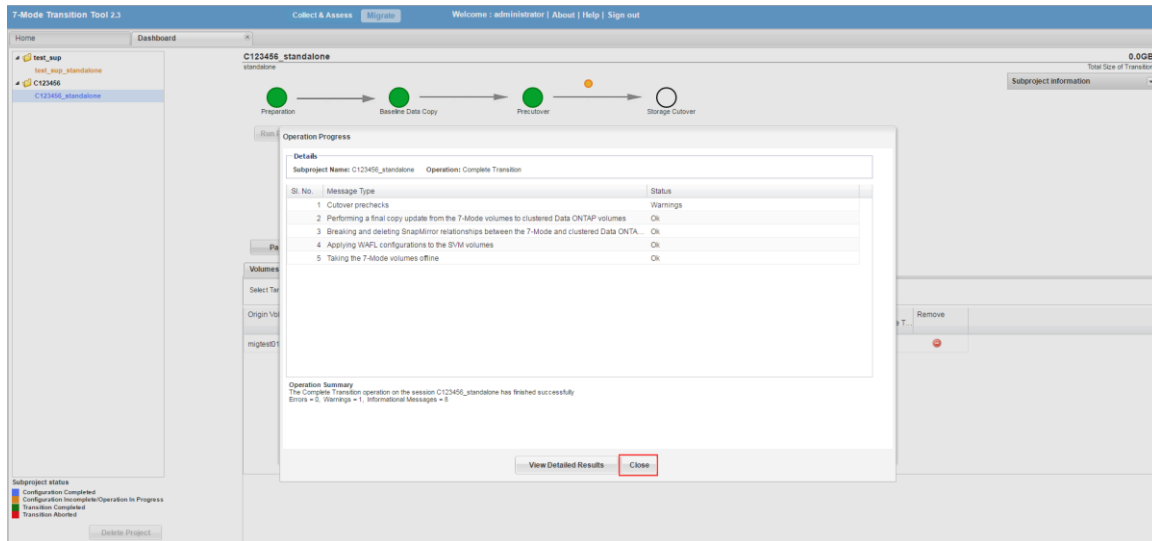
A popup box will appear, CLICK 'yes'

A popup box will appear stating that the source volume will be made offline, CLICK 'Continue'



REVIEW the log output for a successful transition

CLICK 'Close'



2.9 Post cut-over activities

2.9.1 Post Checks

- Check Only default export policy exists on destination
- Check any local users and groups were transferred
- Check any netgroups were transferred

2.9.2 Create job schedule and snapshot policy for SNAP volume(s)

```
job schedule cron create -name <volume_name> -minute <min> -hour <hour>
```

```
volume snapshot policy create -vserver <vsname> -policy <volume_name> -enabled true -schedule1  
<volume_name> -count1 7 -snapmirror-label1 snapvault -prefix1 sv_<volume_name>
```

```
job schedule cron show -name <vol_name>
```

```
volume snapshot policy show -vserver <vsname>
```

2.9.3 Export Policy Script

There is a script which can be run post migration to create volume export policies and also populate the default and volume export policy rules. The script arguments are shown below.

```
7-c_nfsexports.pl
```

```
Usage: ./7-c_nfsexports.pl --file <file name> --cb <CBEntry> --vserver <vserver name> --type <DB or  
STD> --user <user name> --cluster <C-DOT clustername>
```

Example

The following example will create volume export policies and populate the rules in both the default policy and volume export policies. The 7-Mode exports file used is below:

```
#Auto-generated by setup Tue Aug 25 23:10:21 GMT 2015  
/vol/si_nastest_01_root -sec=sys,rw,anon=0,nosuid  
#/vol/si_nas_test01 -sec=sys,rw,nosuid  
#/vol/Image1 -sec=sys,rw,nosuid  
#/vol/nfstest01 -sec=sys,rw,nosuid  
#/vol/nfstest02 -sec=sys,rw,nosuid  
/vol/nfstest01 -sec=sys,rw=10.220.177.29,root=10.220.177.29  
/vol/nfstest02/testqt01 -sec=sys,rw=10.220.177.29,root=10.220.177.29
```

You provide the cluster admin name/IP and the admin user. It is assumed you have SSH public key access.

```
7-c_nfsExports.pl --file ./expfile --cb cb123 --vserver si-8040-test-02 --type STD --user admin --cluster 10.220.194.42
```

```
Extracting the data from supplied exports file.....
Extracting the hosts list by options(ro,rw,root).....
Bringing up the qtree hosts to volume.....
Eliminating the duplicate hosts at vol level.....
generating volume export policies.....
Collect default and volume based exports: OUT .....
```

The script creates all of the objects on the cluster as shown below:

Default Export Policy Rules

```
eg-si-clsn-e01:> export-policy rule show -vserver si-8040-test-02 -policyname default
(vserver export-policy rule show)
```

Vserver	Policy Name	Rule Index	Access Protocol	Client Match	RO Rule
si-8040-test-02	default	1	any	10.220.177.29	sys

Volume Export Policy Rules

```
eg-si-clsn-e01:> export-policy rule show -vserver si-8040-test-02 -policyname cb123_nfstest01 -fields rorule ,rwrule ,superuser
(vserver export-policy rule show)
```

vserver	policyname	ruleindex	rorule	rwrule	superuser
si-8040-test-02	cb123_nfstest01	1	sys	sys	sys

```
eg-si-clsn-e01:> export-policy rule show -vserver si-8040-test-02 -policyname cb123_nfstest02 -fields rorule ,rwrule ,superuser
(vserver export-policy rule show)
```

vserver	policyname	ruleindex	rorule	rwrule	superuser
si-8040-test-02	cb123_nfstest02	1	sys	sys	sys

Volume Export Policies

```
vol show -vserver si-8040-test-02 -fields policy
(volume show)
```

vserver	volume	policy
si-8040-test-02	cb123_nfstest01	cb123_nfstest01
si-8040-test-02	cb123_nfstest02	cb123_nfstest02
si-8040-test-02	rootvol	default

3 entries were displayed.

2.9.4 Setup snap autodelete on volumes (run for each SNAP volume)

```
volume modify -vserver <vsname> -volume <volname> -space-mgmt-try-first snap_delete
volume snapshot autodelete modify -vserver <vsname> -volume <vol_name> -enabled true
volume snapshot autodelete modify -vserver <vsname> -volume <vol_name> -trigger snap_reserve
volume snapshot autodelete show -vserver <vsname>
volume show -vserver <vsname> -fields space-mgmt-try-first
volume snapshot autodelete show -vserve <vsname>
```

2.10 QoS Policy Group Creation For Shared Filers

All shared filer volumes have a QoS policy set at 6000iops as shown below. Exceptions to this policy must be agreed by D&E management on a case by case basis.

2.10.1 Create QoS policy group and apply it at the volume level (create one QOS policy for each volume)

```
qos policy-group create -policy-group <volname> -vserver <vsname> -max-throughput 6000iops
volume modify -vserver <vsname> -volume <volume> -qos-policy-group <volname>
qos policy-group show
volume show -vserver <vsname> -fields qos-policy-group
```

2.11 QoS Policy Group Creation For Dedicated Filers

All dedicated filer volumes have a QoS policy set at **INF** as shown below. This enables statistics to be collected but no limits are placed on the volume with regard to IOPS.

2.11.1 Create QoS policy group and apply it at the volume level (create one QOS policy for each volume)

```
qos policy-group create -policy-group <volname> -vserver <vsname> -max-throughput INF
volume modify -vserver <vsname> -volume <volume> -qos-policy-group <volname>
qos policy-group show
volume show -vserver <vsname> -fields qos-policy-group
```

3 Snapvault Configuration

3.1 Cluster and Vserver Peering

3.1.1 Confirm that cluster peering has been enabled

```
cluster peer show
```

3.1.2 Create the cluster peer (skip this step if cluster peering has been configured)

```
cluster peer create -peer-addr <remote_ICL_IP1,remote_ICL_IP2> -username admin  
cluster peer show
```

3.1.3 Confirm if vsver peer has been configured

```
vserver peer show
```

3.1.4 Create vsver peer on the destination system (skip this step if vsver peer has been configured)

```
vserver peer create -vserver <destination_vserver> -peer-cluster <source_cluster> -peer-vserver  
<source_vserver> -applications snapmirror  
vserver peer show
```

3.1.5 Accept the vsver peer on the source system

```
vserver peer accept -vserver <source_vserver> -peer-vserver <destination_vserver>  
vserver peer show
```

3.2 SnapVault configuration

Volumes names in TR have 'SNAP' or 'NOSNAP' incorporated into them. SNAP volumes must have snapvault configured for disk based backups. NOSNAP do NOT require backups.

3.2.1 Create secondary volumes for SnapVault as type "DP" on the destination cluster

```
volume create -vserver <vserver> -volume <volume_name> -aggregate <aggr_name> -size <size> -  
security-style unix -space-guarantee none -percent-snapshot-space 0 -language <vol_language> -type  
DP  
volume show
```

3.2.2 Create a cron job schedule if it does not exist in the destination

```
job schedule cron create -name xdp_<hour> -minute 00 -hour <hour>  
job schedule show
```

3.2.3 Configure a snapmirror policy on the destination

```
snapmirror policy create -vserver <vserver> -policy <volume>  
snapmirror policy add-rule -vserver <vserver> -policy <volume> -snapmirror-label snapvault -keep  
<retention#>  
snapmirror show -destination-path * -fields Schedule  
snapmirror policy show
```

3.2.1 Initialize SnapVault relationship on the destination

```
snapmirror create -source-path <source_vserver>:<source_volume> -destination-path  
<destination_vserver>:<destination_volume> -type XDP -schedule <schedule_name> -policy  
<policy_name>  
snapmirror initialize -destination-path <destination_vserver>:<destination_volume>
```

4 Current Post Migration Configuration Script (4.7)

The following script can be run post 7MTT migration and will create all the required export policies and rules.

```
#!/usr/bin/perl
#Scriptname:7-c_nfsexports.pl
#Author:Sridhar Chevendra
#Version:4.5
#Version release
#V1.0 -02/06/2016 - Created by SCDraft version
#V2.0 -02/07/2016 - Updated by SCExtract hosts by access
#v3.0 -02/08/2016 - Updated by SCRemove duplicates hosts by volumes,Generate default and vol based
commands
#v4.0 -02/09/2016 - Updated by SCAdded command line options, Address multi-volume iterations and Final
release
#v4.2 -02/09/2016 - Updated by SC    Introduced vservers based out,log and error collection.
#v4.4 -02/13/2016 - Updated by SC    Removed #, added commands for DB LION/LOON, added ro wide open
option
#v4.5 -02/19/2016 - Updated by SC    Removed 0.0.0.0/0 entry
#v4.6 -04/07/2016 - Updated by SC    Creating the export policy,removing duplicate host entries bug
#v4.7 -04/08/2016 - Updated by SC    Script to support 7MTT 2.3, Additional fields for cluster, user
name and Applying export policy on the vservers

#use strict;
use warnings;
use Data::Dumper;
use Getopt::Long;
use Array::Utils qw(:all);

(@ARGV) or die "Usage: $0 --file <file name> --cb <CBEntry> --vserver <vserver name> --type <DB or STD>
--user <user name> --cluster <C-DOT clustername>";

GetOptions(
    "file=s" => \my $file,          #7-mode NFS exports file
    "cb=s"   => \my $cb,           #Charge back code for volumes
    "vserver=s" => \my $vname,     #C-DOT vservers name
    "type=s"  => \my $type,        #DB vs. standard NAS
    "user=s"  => \my $user,        #User name to login to C-DOT
    cluster  => \my $cluster,       #C-DOT DNS clustername or IP address
    ) or die "Usage: $0 --file <file name> --cb <CBEntry> --vserver <vserver name>
--type <DB or STD> --user <user name> --cluster <C-DOT clustername> \n";

(-f $file) or die "7-mode exports file is needed to proceed";
($cb) or die "CB code is needed in order to proceed";
($vname) or die "C-dot filer vservers name is needed to proceed";
($type) or die "Specify DB or STD";
($user) or die "Username required";
($cluster) or die "C-DOT cluster name is missing";

open ( STDERR, '>', "$vname\_err" ) or die "can't open STDERR file: err:$! \n";
open ( OUT, '>', "$vname\_out" ) or die "can't open OUT file: out:$! \n";
open ( LOG, '>', "$vname\_log" ) or die "can't open OUT file: out:$! \n";
my $conn = "$user@$cluster";

#my @keys = qw/rw ro root/;
#my $wanted = join "|",@keys;

my %data;
my $rid=1;                                #Default rule index
my $riv;                                  #Default volume index

print "Extracting the data from supplied exports file..... \n";
print LOG "Extracting the data from supplied exports file..... \n";

&exportsfile_dataextraction ();

print "Extracting the hosts list by options(ro,rw,root)..... \n";
print LOG "Extracting the hosts list by options(ro,rw,root)..... \n";
print "Bringing up the qtree hosts to volume..... \n";
print LOG "Bringing up the qtree hosts to volume..... \n";

&extracthosts_byaccess('ro','rw','root');

print "Eliminating the duplicate hosts at vol level..... \n";
print LOG "Eliminating the duplicate hosts at vol level..... \n";
```



```

#&eliminateduplicatehosts();

#print "Generating Default policy host access commands..... \n";
#print LOG "Generating Default policy host access commands..... \n";

&generatedefaultexportcommands();

print "generating volume export policies..... \n";
print LOG "generating volume export policies..... \n";

#&generatevolexportcommands ();
&generatevolexportcommands () if ( $type eq 'STD' );
&generatevoldbexportcommands () if ( $type eq 'DB' );

print LOG "Collect default and volume based exports: T..... \n";
print "Collect default and volume based exports: OUT ..... \n";

sub exportsfile_dataextraction (){

    #my $file='exportfs.txt';
    my @keys = qw/rw ro root/;
    my $wanted = join "|",@keys;

    open (my $r_fh, $file) or die "can not open file:$file:$! \n";

    while(<$r_fh){

        next unless /^(\/)/;
        next if /_root/;
        #$_ =~ s/ro(\,|\s)/ro=0.0.0.0\/0\,;/;
        $_ =~ s/ro(\,|\s)/;/;
        my ($path, $options) = split;
        my ($vol, $q) = (split '/', $path) [2,3];
        my %tmp = map {split /=/} grep /^(?:$wanted)/, split /\,/, $options;

        $data{$vol}{$q || 'nq'} = \%tmp;
    }
    print LOG Dumper \%data;

    close $r_fh;
}

sub extracthosts_byaccess () {
    while( $option = shift ( @_ ) ){
        #print $option;
        foreach my $vol ( sort keys %data ){

            foreach my $qtree ( keys %{ $data { $vol } } ){

                # print "$data{$vol}{$qtree}{rw}";
                $arrayname = "$vol\_ $option";
                # print $arrayname, "\n";
                my @tmp = split /\:/, $data{$vol}{$qtree}{$option};
                @ $arrayname = ( @ $arrayname, @tmp);

            }

            print LOG "===== \n";
            print LOG "$arrayname \n";
            print LOG Dumper @ $arrayname;

        }

    }
}

sub eliminateduplicatehosts () {

    $vol = shift ( @_ );
    print LOG $vol, "\n";

    $rohosts = "$vol\_ro";
    print LOG $rohosts, "\n";
    print LOG Dumper @ $rohosts;

    $rwhosts = "$vol\_rw";
    print LOG $rwhosts, "\n";
    print LOG Dumper @ $rwhosts;

    $roothosts = "$vol\_root";
    print LOG $roothosts, "\n";

```

```

print LOG Dumper @ $roothosts;

#Remove duplicate in an array
print LOG "Refined list and remove duplicate host entries.....
\n";

@ $rohosts = unique( @ $rohosts );
@ $rwhosts = unique( @ $rwhosts );
@ $roothosts = unique( @ $roothosts );

print LOG $rohosts, "\n";
print LOG @ $rohosts, "\n";
print LOG $rwhosts, "\n";
print LOG @ $rwhosts, "\n";
print LOG $roothosts, "\n";
print LOG @ $roothosts, "\n";

$frohosts = "$vol\_rof";
$frwhosts = "$vol\_rwf";
$froothosts = "$vol\_rootf";
print LOG "Remove duplicates between RO and RW hosts and generate final lists.....
\n";

if ( !array_diff ( @ $rohosts, @ $rwhosts ) ) {
    print LOG "RW and RO hosts are same and RO Entries will be empty..... \n";
    @ $frwhosts = @ $rwhosts;
    @ $frohosts = ();

} else {

    my @tmpisect = intersect ( @ $rohosts, @ $rwhosts );
    @ $frohosts = array_diff ( @tmpisect, @ $rohosts );
    @ $frwhosts = @ $rwhosts;

    print LOG "Finding the common elements between RO and RW arrays .... \n";
    print LOG Dumper @tmpisect;
    print LOG "Final RO hosts...\n";
    print LOG @ $frohosts, "\n";
    print LOG "Final list of RW hosts... \n";
    print LOG Dumper @ $frwhosts, "\n";

}

print LOG "Remove duplicates between RW and ROOT hosts and generate final lists...\n";

if ( !array_diff ( @ $frwhosts, @ $roothosts ) ) {

    #@ $froothosts = @ $rwhosts;
    @ $froothosts = @ $frwhosts;
    @ $frwhosts = ();

    print LOG "ROOT and RW hosts are same and RO
Entries will be empty..... \n";

    print LOG @ $froothosts, "\n";
    print LOG @ $frwhosts, "\n";

} else {

    my @tmpisect = intersect ( @ $frwhosts, @
$roothosts );

    @ $frwhosts = array_diff ( @tmpisect, @ $frwhosts );
    @ $froothosts = @ $roothosts;

    print LOG "Finding the common elements between
ROOT and RW arrays .... \n";

    print LOG Dumper @tmpisect;
    print LOG "Final RW hosts...\n";
    print LOG @ $frwhosts, "\n";
    print LOG "Final list of Root hosts... \n";
    print LOG Dumper @ $froothosts, "\n";

}

print LOG Dumper @ $frohosts, @ $frwhosts, @ $froothosts;
}

sub generatedefaultexportcommands (){
    foreach my $vol ( sort keys %data ){

```

```

print LOG "Eliminating duplicates...., /n";

&eliminateduplicatehosts ($vol);

my @default = ( @ $frohosts, @ $frwhosts, @ $froothosts );
@fdefault = ( @fdefault, @default);
@fdefault = unique ( @fdefault );
}

@fdefault = qw(0.0.0.0/0) if ( grep ( /0.0.0.0\0/, @fdefault) );

while ( $client = shift ( @fdefault ) ){

    #print OUT "vserver export-policy rule create -vserver $vname -policyname
default -ruleindex $rid -protocol any -clientmatch $client -rorule sys -rwrule never -superuser never
\n";

    #print OUT "vserver export-policy rule create -vserver $vname -policyname
default -ruleindex $rid -protocol any -clientmatch $client -rorule sys -rwrule never -superuser none
\n";

    my $cmd = "vserver export-policy rule create -vserver $vname -policyname
default -ruleindex $rid -protocol any -clientmatch $client -rorule sys -rwrule never -superuser none";
    print OUT "ssh $conn $cmd \n";
    `ssh $conn $cmd \n`;
    $rid++;

}

}

sub generatevolexportcommands (){
    foreach my $vol ( sort keys %data ){

        print LOG "$vol \n";
        print LOG "===== \n";
        $riv=1;
        print LOG $riv;

        print OUT "Creating volume export policy";
        my $cmdvol = "export-policy create -vserver $vname -policyname $cb\_vol";
        my $cmdvola = "vol modify -vserver $vname -volume $cb\_vol -policy $cb\_vol";
        print OUT "ssh $conn $cmdvol \n";
        `ssh $conn $cmdvol`;
        print OUT "ssh $conn $cmdvola \n";
        `ssh $conn $cmdvola`;

        &eliminateduplicatehosts ($vol);

        while ( $client = shift (@ $froothosts) ){

            #print OUT "vserver export-policy rule create -vserver $vname -policyname $cb\_vol -
ruleindex $riv -protocol any -clientmatch $client -rorule sys -rwrule sys -superuser sys \n";
            my $cmdrule = "vserver export-policy rule create -vserver $vname -policyname $cb\_vol
-ruleindex $riv -protocol any -clientmatch $client -rorule sys -rwrule sys -superuser sys";
            print OUT "ssh $conn $cmdrule \n";
            `ssh $conn $cmdrule`;
            $riv++;

        }

        #Generating commands for rw access;

        while ( $client = shift (@ $frwhosts) ){

            #print OUT "vserver export-policy rule create -vserver $vname -policyname $cb\_vol -
ruleindex $riv -protocol any -clientmatch $client -rorule sys -rwrule sys \n";
            my $cmdrule = "vserver export-policy rule create -vserver $vname -policyname $cb\_vol
-ruleindex $riv -protocol any -clientmatch $client -rorule sys -rwrule sys";
            print OUT "ssh $conn $cmdrule \n";
            `ssh $conn $cmdrule`;
            $riv++;

        }

        #Generating commands for ro access;

        while ( $client = shift (@ $frohosts) ){

            #print OUT "vserver export-policy rule create -vserver $vname -policyname $cb\_vol
-ruleindex $riv -protocol any -clientmatch $client -rorule sys \n";
            my $cmdrule = "vserver export-policy rule create -vserver $vname -
policyname $cb\_vol -ruleindex $riv -protocol any -clientmatch $client -rorule sys";

```

```

        print OUT "ssh $conn $cmdrule \n";
        `ssh $conn $cmdrule`;
        $riv++;
    }
}

sub generatevoldbexportcommands () {
    foreach my $vol ( sort keys %data ) {

        print LOG "$vol \n";
        print LOG "===== \n";
        $riv=1;
        print LOG $riv;

        print OUT "Creating volume export policy";
        my $cmdvol = "export-policy create -vserver $vname -policyname $cb\_ $vol";
        my $cmdvola = "vol modify -vserver $vname -volume $cb\_ $vol -policy $cb\_ $vol";
        print OUT "ssh $conn $cmdvol \n";
        `ssh $conn $cmdvol`;
        print OUT "ssh $conn $cmdvola \n";
        `ssh $conn $cmdvola`;

        &eliminateduplicatehosts ($vol);

        while ( $client = shift (@ $froothosts) ){

            #print OUT "vserver export-policy rule create -vserver $vname -policyname $cb\_ $vol -
            ruleindex $riv -protocol any -clientmatch $client -rorule sys -rwrule sys -superuser sys \n";
            my $cmdrule = "vserver export-policy rule create -vserver $vname -policyname $cb\_ $vol
            -ruleindex $riv -protocol any -clientmatch $client -rorule sys -rwrule sys -superuser sys";
            print OUT "ssh $conn $cmdrule \n";
            `ssh $conn $cmdrule`;
            $riv++;
        }

        #Generating commands for rw access;

        while ( $client = shift (@ $frwhosts) ){

            #print OUT "vserver export-policy rule create -vserver $vname -policyname $cb\_ $vol -
            ruleindex $riv -protocol any -clientmatch $client -rorule sys -rwrule sys -superuser sys \n";
            my $cmdrule = "vserver export-policy rule create -vserver $vname -policyname $cb\_ $vol
            -ruleindex $riv -protocol any -clientmatch $client -rorule sys -rwrule sys -superuser sys";
            print OUT "ssh $conn $cmdrule \n";
            `ssh $conn $cmdrule`;
            $riv++;
        }

        #Generating commands for ro access;

        while ( $client = shift (@ $frohosts) ){

            #print OUT "vserver export-policy rule create -vserver $vname -policyname $cb\_ $vol
            -ruleindex $riv -protocol any -clientmatch $client -rorule sys \n";
            my $cmdrule = "vserver export-policy rule create -vserver $vname -
            policyname $cb\_ $vol -ruleindex $riv -protocol any -clientmatch $client -rorule sys";
            print OUT "ssh $conn $cmdrule \n";
            `ssh $conn $cmdrule`;
            $riv++;
        }
    }
}

```