THOMSON REUTERS

7MTT – SMB 7-Mode to CDOT Work Instructions

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Contents

1 Introduction

1.1 Management Summary

This document details the process used to migrate an SMB 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	April 2016	Ian Daniel	Initial Version
1.1	April 2016	Ian Daniel	Minor corrections, added perf check
1.2	April 2016	Ian Daniel	Minor corrections

1.3 Distribution List

Name	Role
Storage Support	
Storage Delivery	

1.4 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 Additional 7-Mode SMB Configuration To Migrate To cDOT

2.1 Domain Users and Groups

There are often Domain users and Groups configured on a 7-Mode CIFS vfiler, these can be displayed as shown on a group-by-group basis and are transferred as part of the 7MTT migration process. To check members of a group you can use the following command. It is recommended to check all the groups.

Example

```
eag-laborf-nas6210ht-1> vfiler run si-nastest-01   useradmin domainuser list -g administrators

===== si-nastest-01

List of SIDS in administrators
S-1-5-21-1789992843-188582088-1440544181-131073
S-1-5-21-1789992843-188582088-1440544181-500
S-1-5-21-1042883198-748202677-1346798384-512
S-1-5-21-2012327785-2259879848-3711903672-512
S-1-5-21-2012327785-2259879848-3711903672-56518
S-1-5-21-2012327785-2259879848-3711903672-55774
For more information about a user, use the 'cifs lookup' and 'useradmin user list' commands.
```

You can determine the actual names of the displayed SIDs as follows. This can be useful when checking what was migrated across to cDOT as it will not display SIDs.

Example

```
eag-laborf-nas6210ht-1> vfiler run si-nastest-01  cifs lookup S-1-5-21-2012327785-2259879848-3711903672-
55774

===== si-nastest-01
name = TEN\M-Storage-admins.G

eag-laborf-nas6210ht-1> vfiler run si-nastest-01  cifs lookup S-1-5-21-2012327785-2259879848-3711903672-
56518

===== si-nastest-01
name = TEN\M-EaganServerAdmins

eag-laborf-nas6210ht-1> vfiler run si-nastest-01  cifs lookup S-1-5-21-2012327785-2259879848-3711903672-512

==== si-nastest-01
name = TEN\Domain Admins

eag-laborf-nas6210ht-1> vfiler run si-nastest-01  cifs lookup S-1-5-21-1042883198-748202677-1346798384-512

===== si-nastest-01
name = TLR\Domain Admins

eag-laborf-nas6210ht-1> vfiler run si-nastest-01  cifs lookup S-1-5-21-1789992843-188582088-1440544181-500

===== si-nastest-01
name = SI-NASTEST-01\administrator

eag-laborf-nas6210ht-1> vfiler run si-nastest-01  cifs lookup S-1-5-21-1789992843-188582088-1440544181-
131073

===== si-nastest-01
name = SI-NASTEST-01\root
```

2.2 Share Permissions

There are often Domain users and Groups configured on a 7-Mode CIFS share, these can be displayed as shown and will be transferred by 7MTT at migration time.

```
eag-laborf-nas6210ht-1> vfiler run si-nastest-01  cifs shares

===== si-nastest-01
Name          Mount Point                      Description
----          -----------                      -----------
ETC$          /vol/si_nastest_01_root/etc      Remote Administration

                        BUILTIN\Administrators / Full Control
HOME          /vol/si_nastest_01_root/home     Default Share
                        everyone / Full Control
C$            /                                Remote Administration
                        BUILTIN\Administrators / Full Control
TESTSHARE01   /vol/cifsmig01/share01
                        everyone / Full Control
                        TEN\M-Storage-admins.G / Full Control
                        TEN\uc136758 / Change
                        TLR\Domain Admins / Full Control
```

3 7-Mode to CDOT SMB Migration

3.1 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. change is server \\server\path	Platform
Mount new share(s) during maintenance window	Platform
Start application	Application
Verify	Application/Platform

3.2 Pre-requisites

- **Ensure version of 7MTT is 2.3 or higher**
- **Ensure vfiler being migrated is not currently exceeding the 6K IOPS threshold**
- Confirm the target aggregate has sufficient capacity
- Confirm the source volume is 64 bit
- Register the target vserver hostname in DNS
- Ensure the target vserver is in the required AD domain
- Ensure the destination cluster has AV enabled and the destination vserver has scanning turned on
- 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
- Add the CDOT vserver name (not IP) to the source systems /etc/snapmirror.allow file
- 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

3.3 Vserver and LIF creation

3.3.1 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
```

3.3.2 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>
```

3.4 DNS configuration

3.4.1 Setup DNS on a Vserver

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

vserver services dns show

3.4.2 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
```

3.5 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>
```

3.6 Enable CIFS Protocol

3.6.1 Enable CIFS

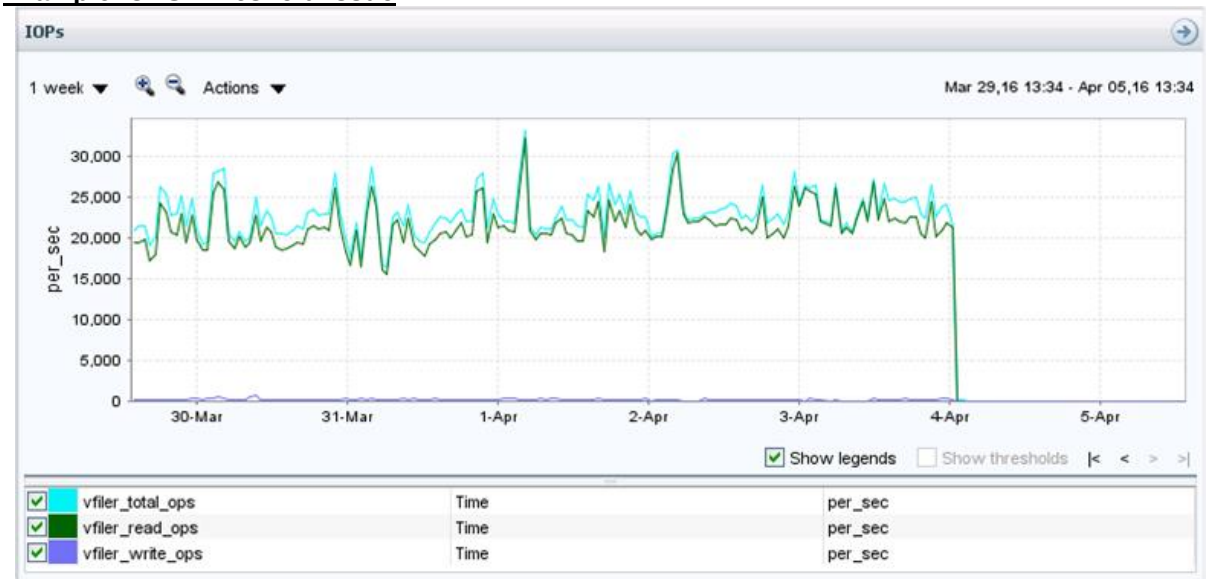
```
cifs create -cifs-server <vsname> -domain <ad_domain> -ou CN=Computers -status-
admin up -vserver <vserver>
```

```
cifs show
```

3.7 Check Current IOPS In Use Prior To Migration

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.

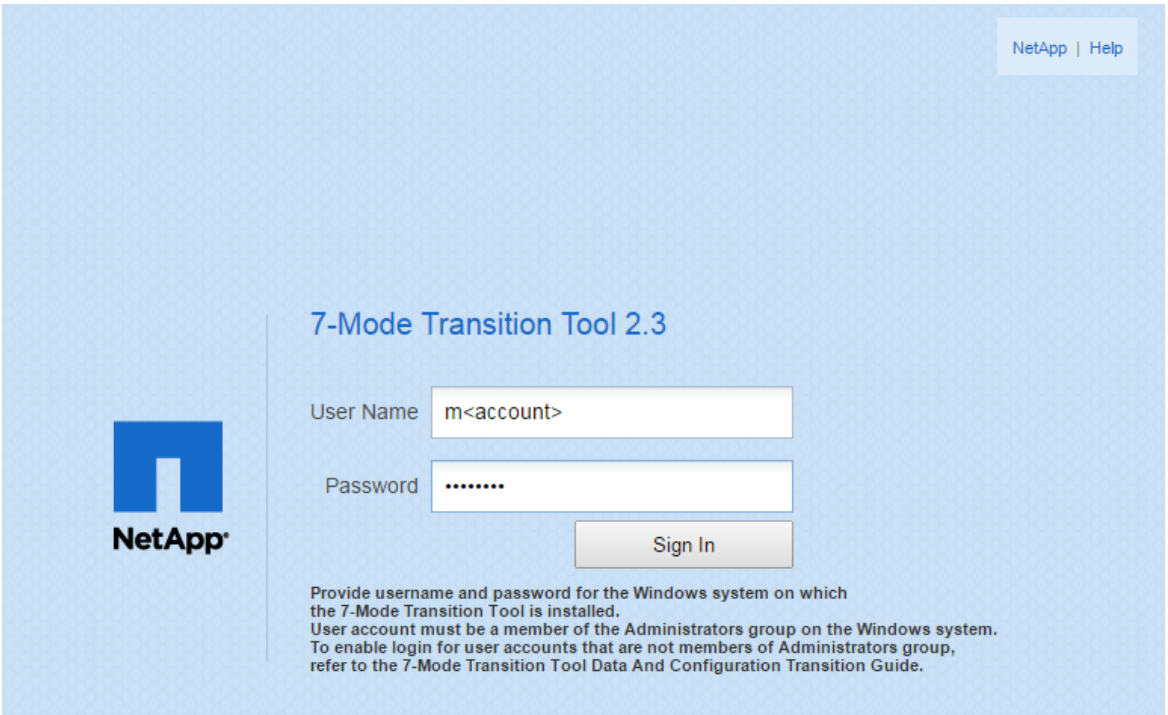
Example IOPS Threshold Issue



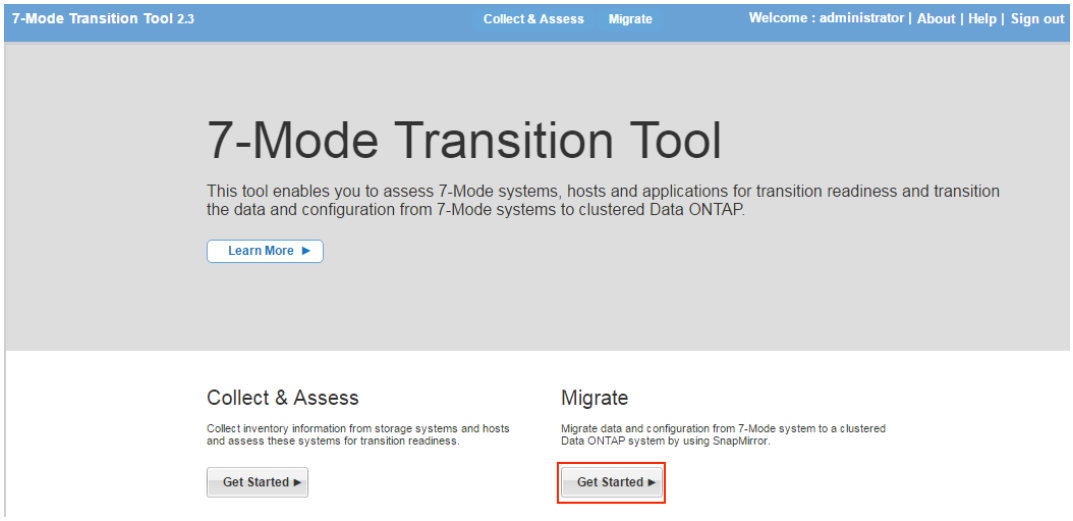
3.8 Start the Migration

3.8.1 Login to 7MTT

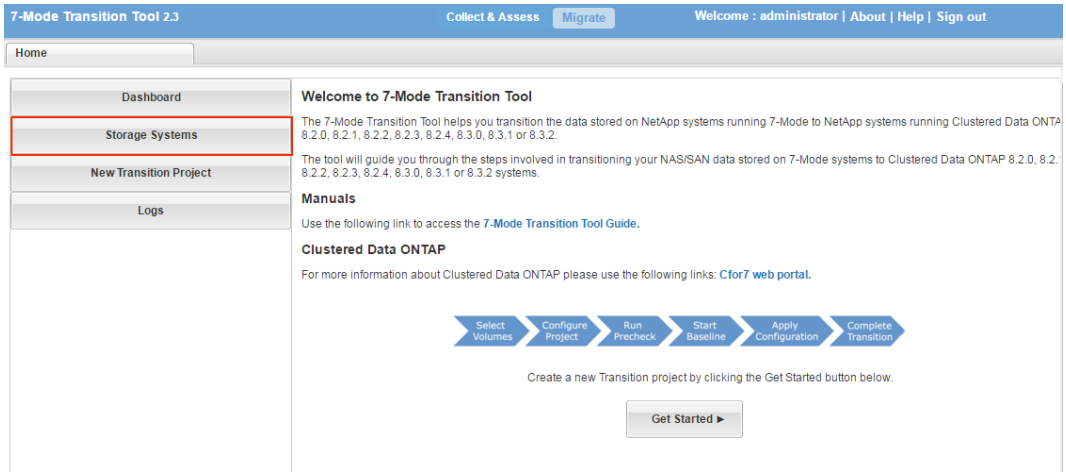
Connect the 7MTT (https://<7MTT_Server>:8443/transition) tool via web browser



Once logged in CLICK Get Started under Migrate’



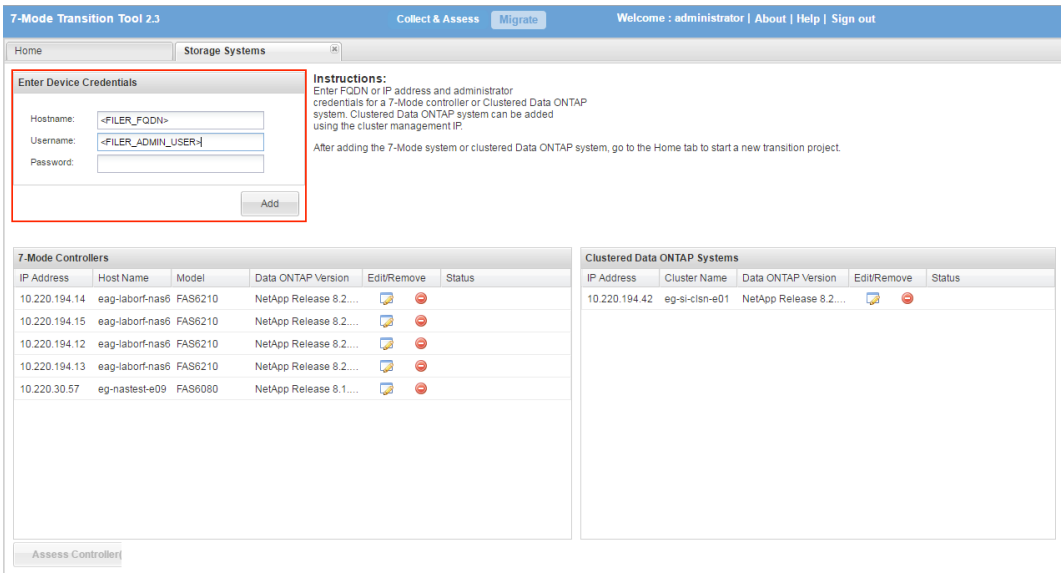
CLICK on the ‘Storage System’ button in the left pane:



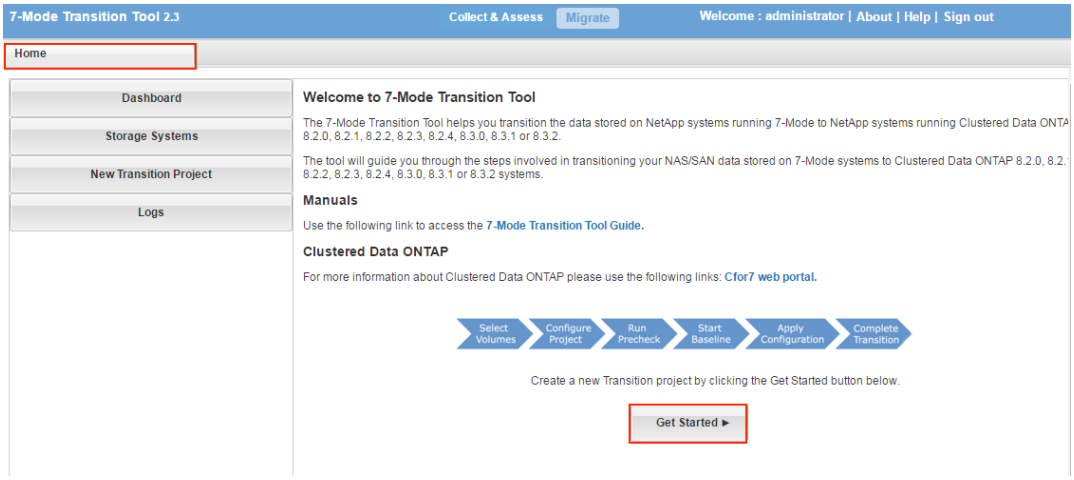
ADD storage systems to 7MTT (execute this step for the source and target storage systems):

ENTER the FQDN of the filer

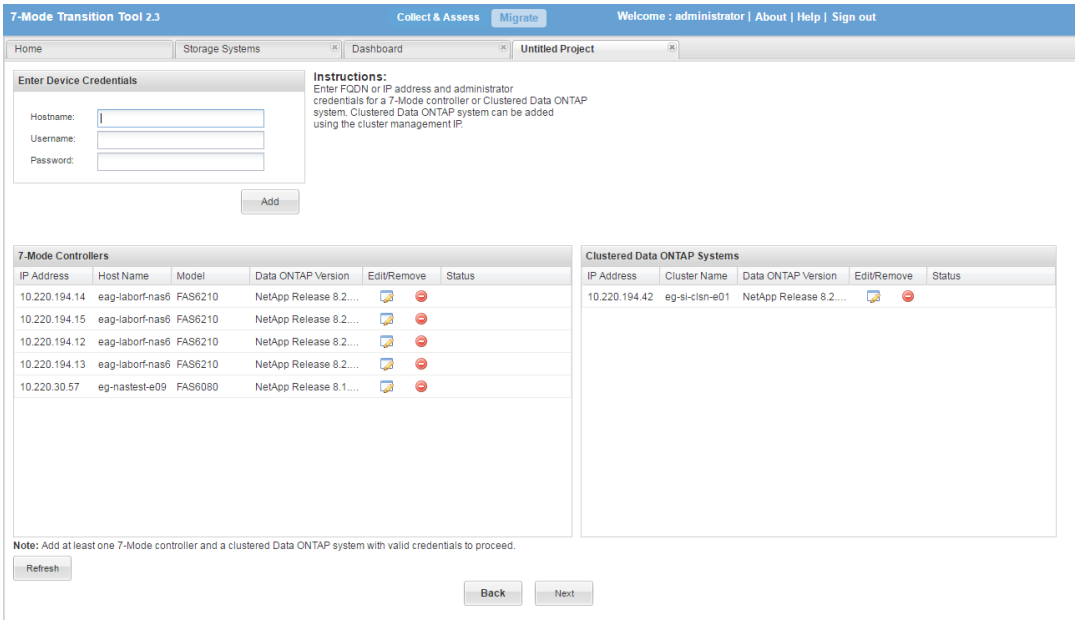
CLICK ADD



CLICK the ‘HOME’ tab -> CLICK ‘Get Started’



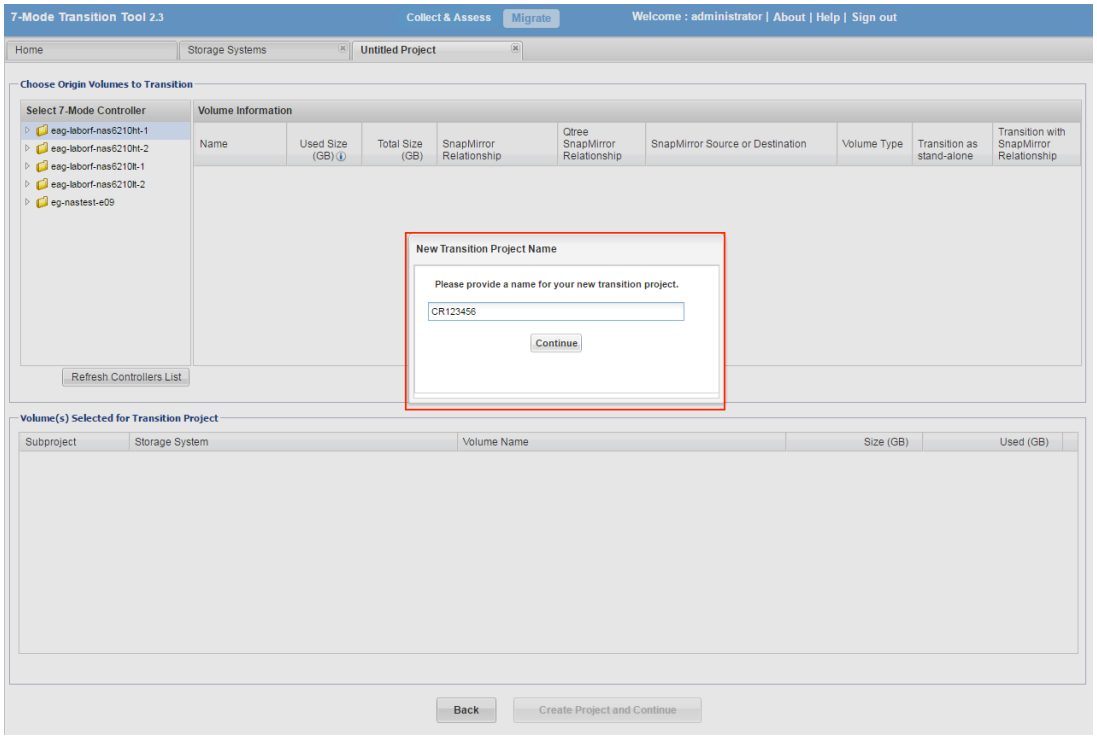
CONFIRM that the source and destination storage systems are listed



CLICK ‘Next’

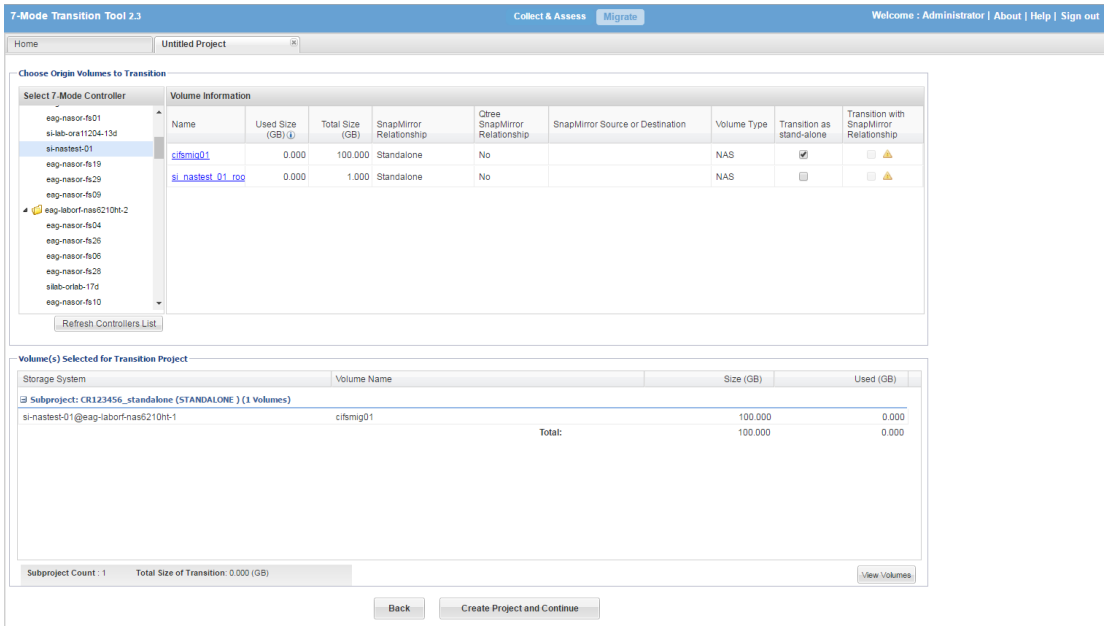
ENTER a name for the project

CLICK ‘Continue’



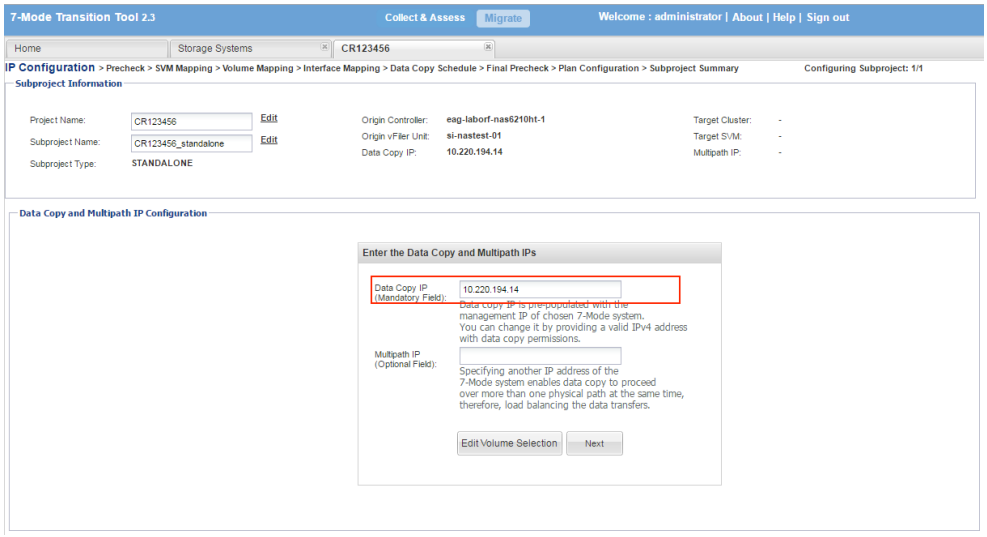
SELECT the source vfiler and volume(s):

CLICK ‘Create Project and Continue’



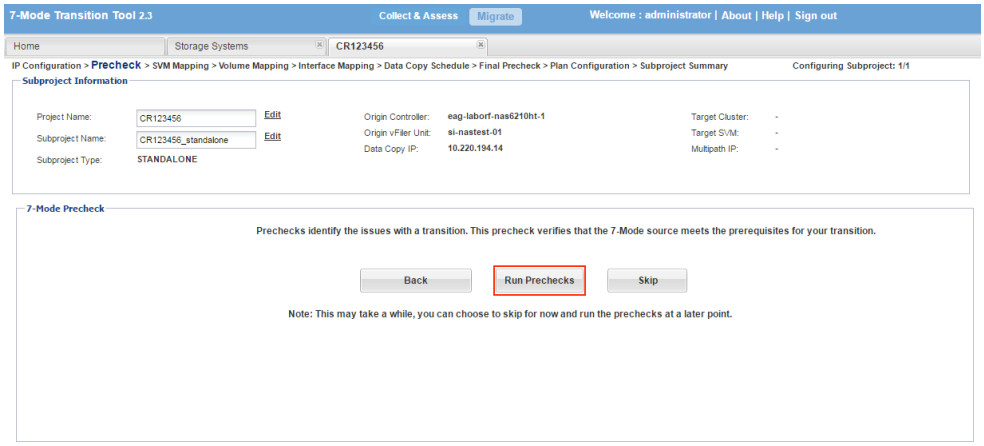
ENTER an IP to be used for replication traffic on the source filer

CLICK ‘Next’



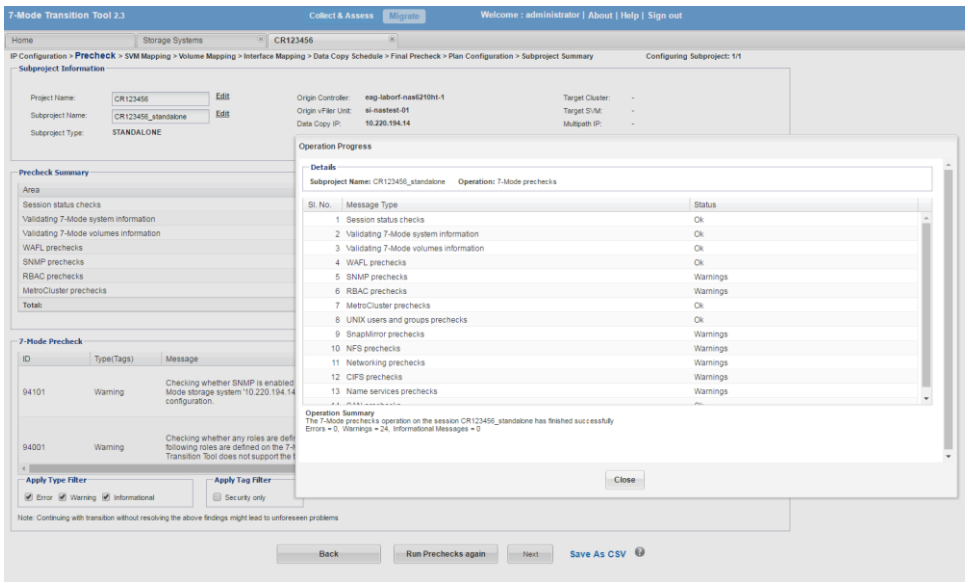
The next window will ask if you want to run pre-check.

CLICK ‘Run Prechecks’



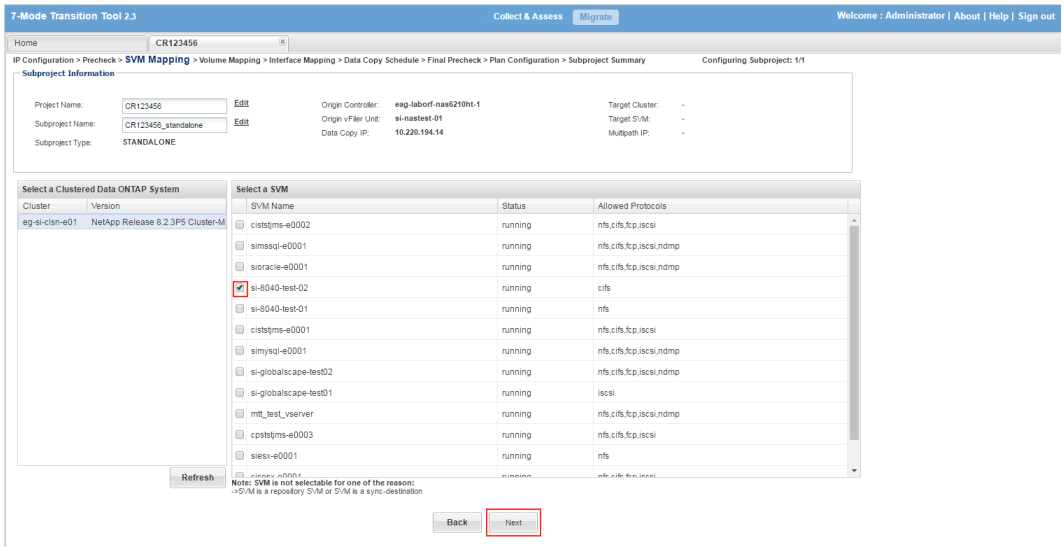
Review the Report. You can ignore the warnings listed below. Resolve errors if they appear.

CLICK ‘Close’ and then click Next’



SELECT a target vserver

CLICK ‘Next’



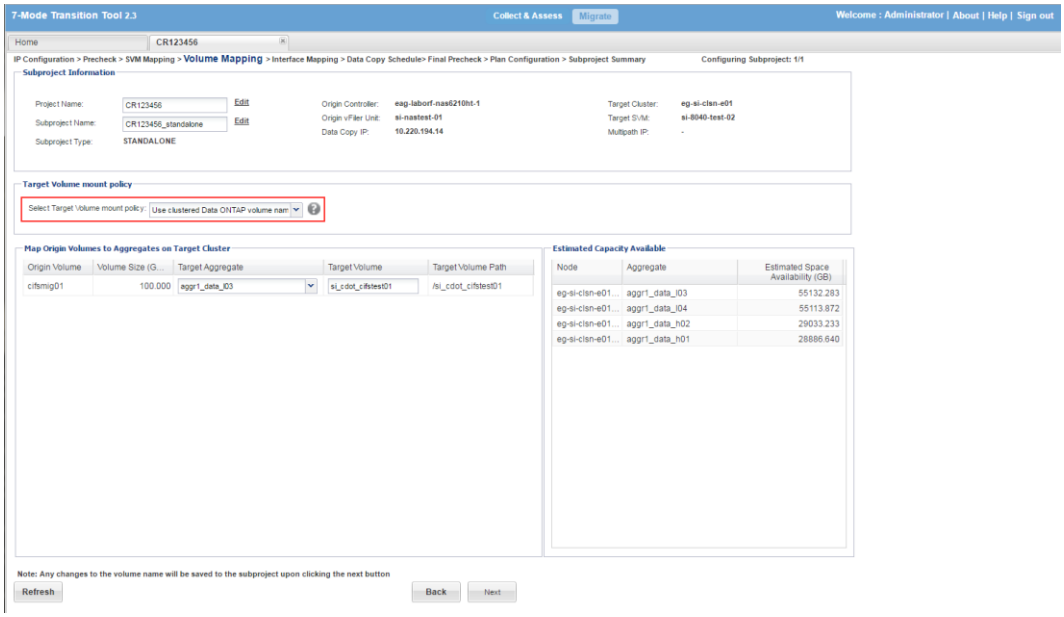
IMPORTANT: Make sure you enter the correct information in the next section! This version of 7MTT allows you to set junction path = volume name, this is the DCO standard. But, you need to modify the junction-path after the cut-over manually in older versions of 7MTT.

ENTER the destination aggregate

ENTER the destination volume name

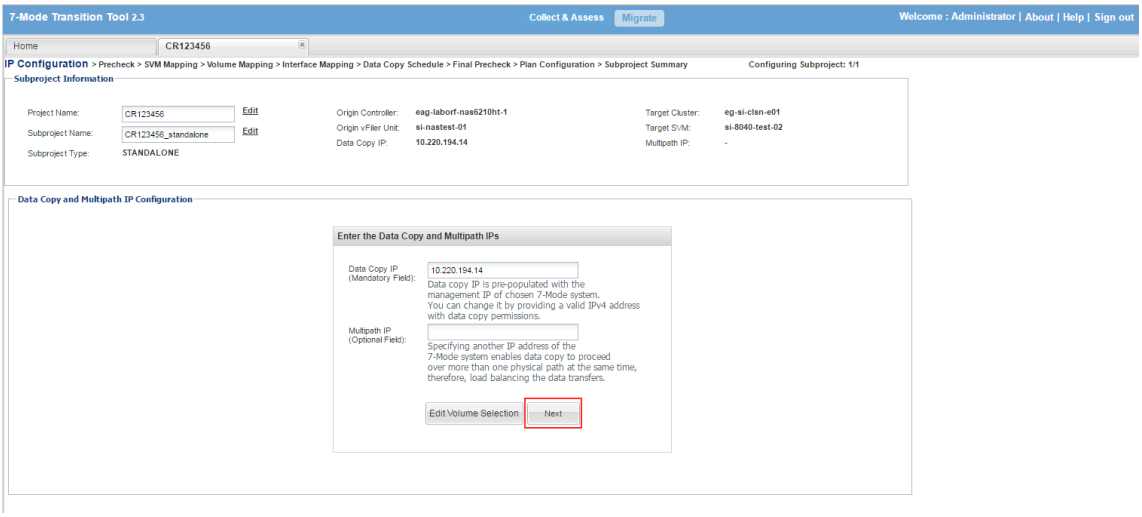
SELECT ‘Use Clustered OTAP volume name’ from ‘Target Volume Mount Policy’

CLICK ‘Next’



NOTE: We are not migrating IP addresses

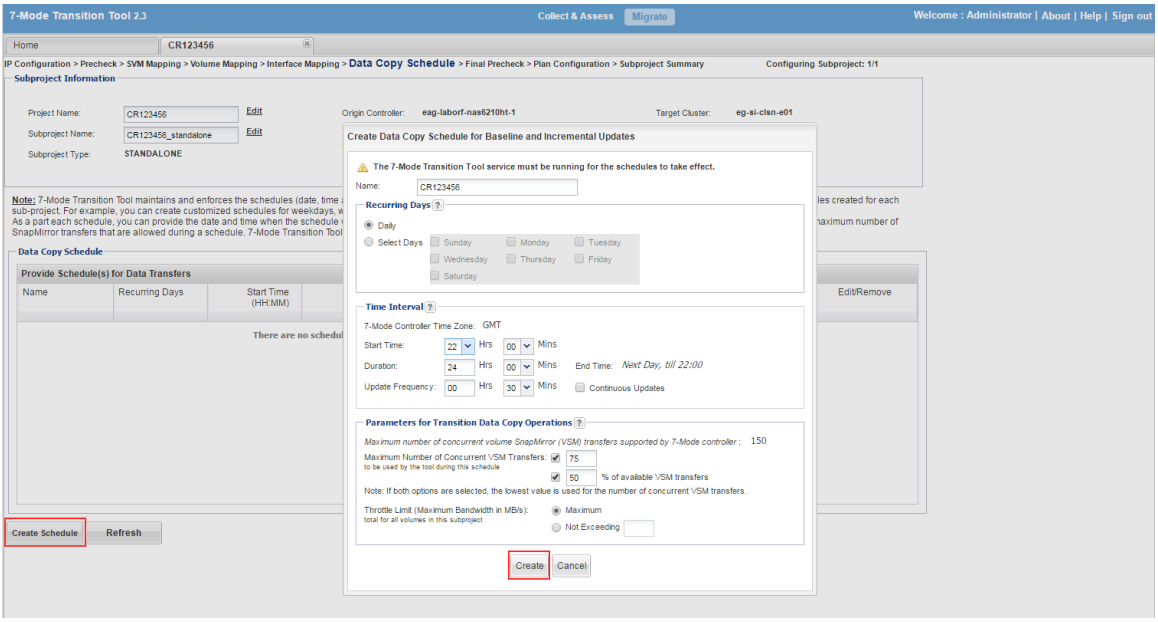
CLICK ‘Next’



CLICK ‘Create Schedule’, a popup box will appear

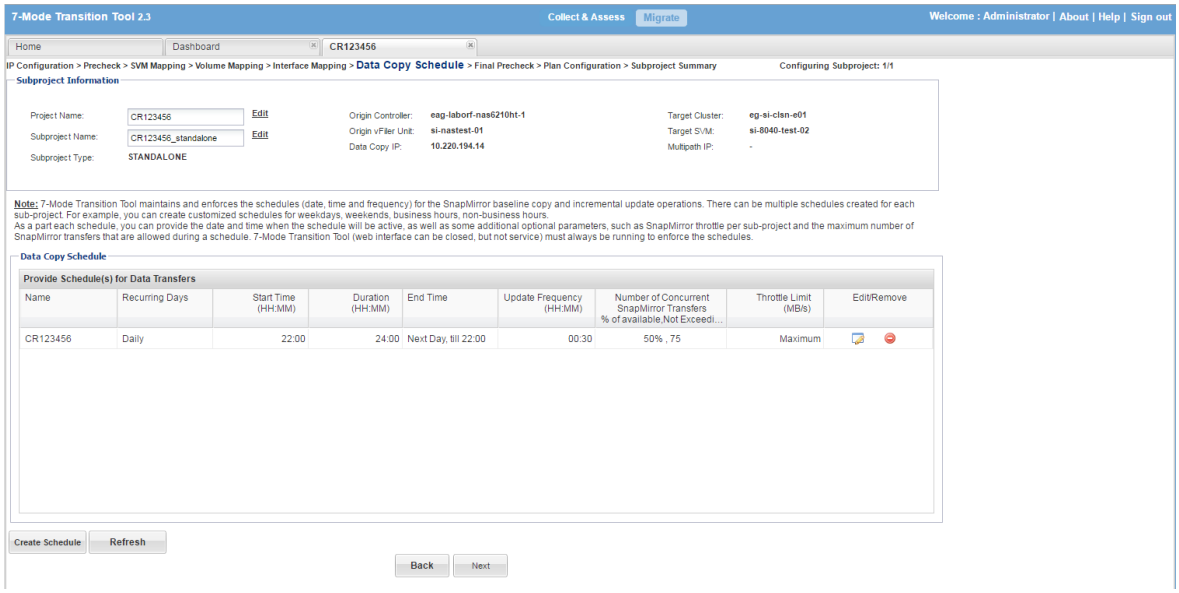
ENTER a replication schedule (run off hours)

CLICK CREATE



The newly created schedule will appear

CLICK ‘Next’

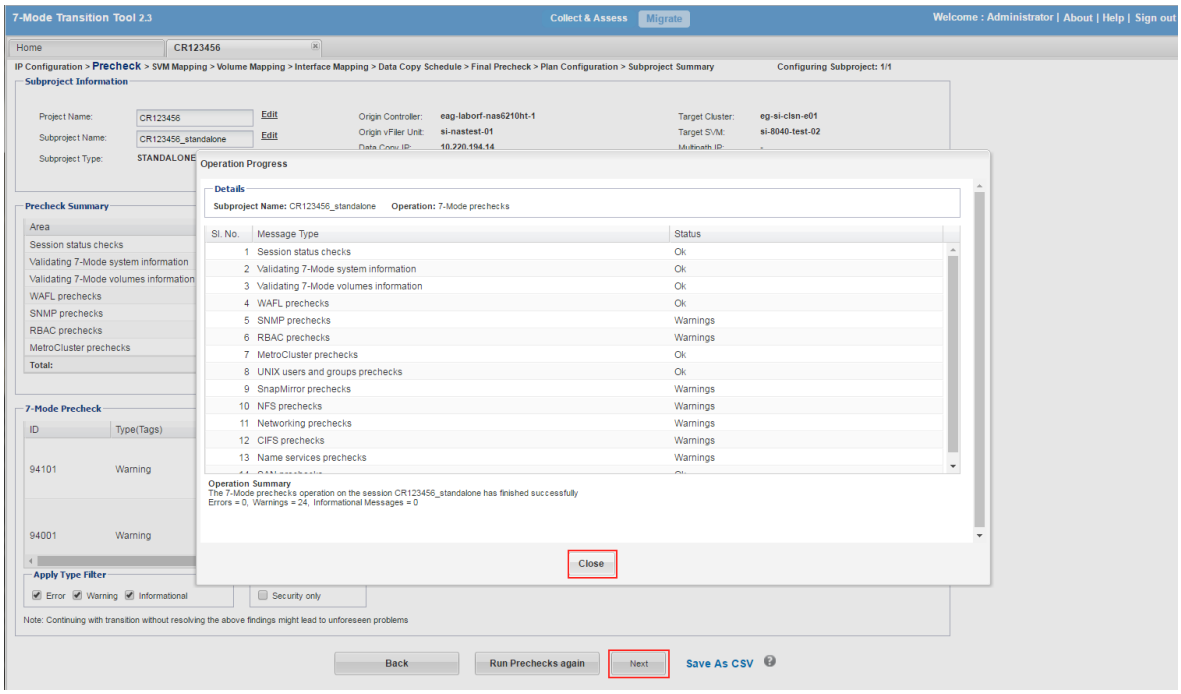


RUN PreCheck and make sure there are no errors

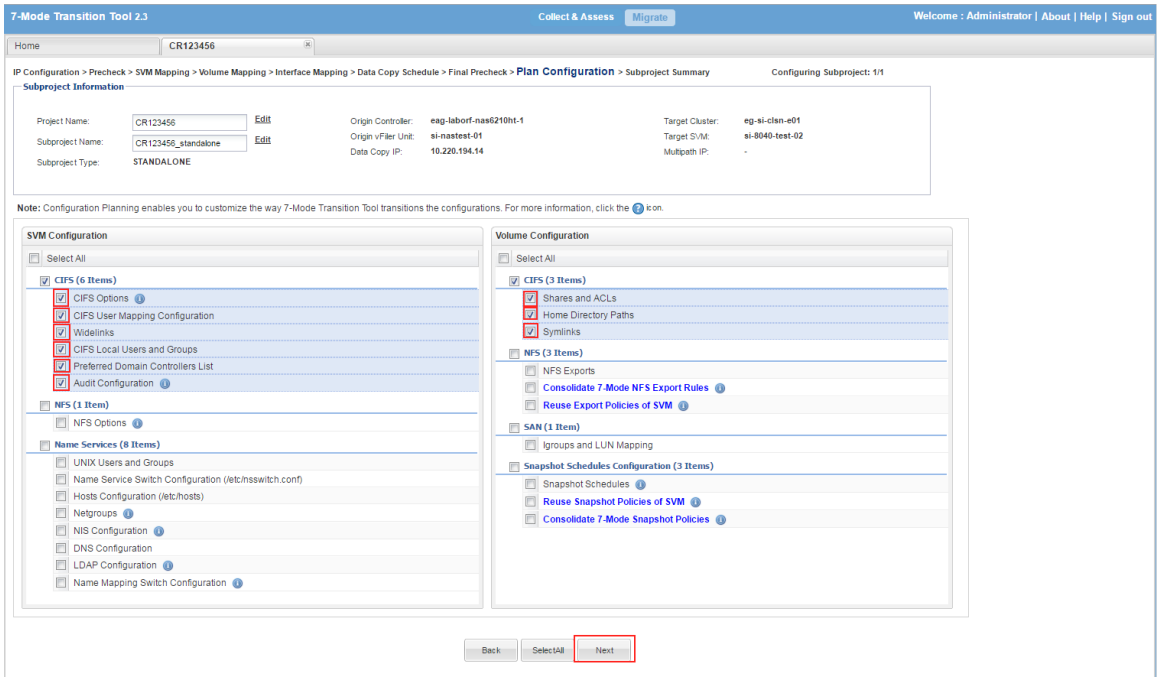
CLICK ‘Run Precheck’; REVIEW the output

CLICK ‘Close’

CLICK ‘Next’

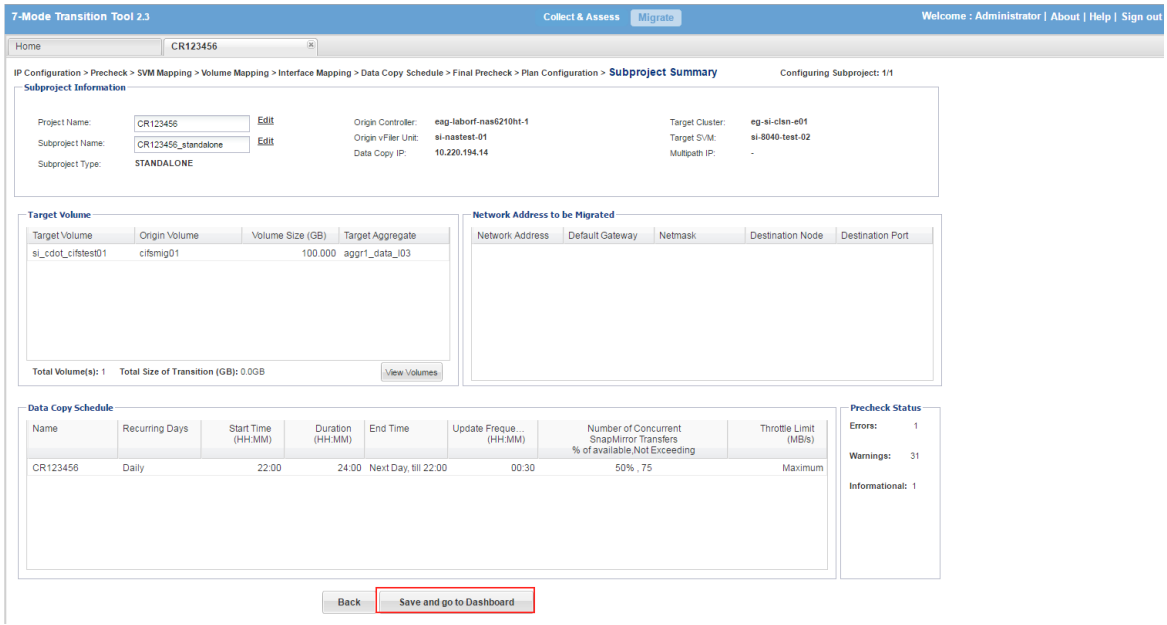


Modify the options to ensure all correct data is transferred to the destination vserver.



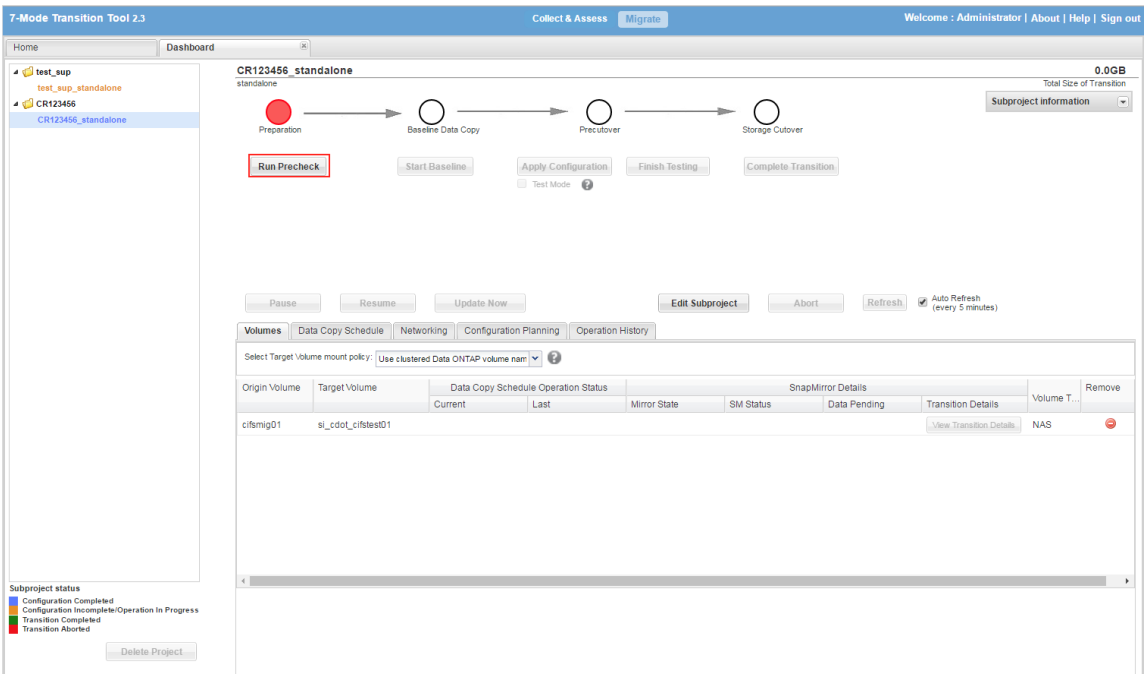
Click Next

CLICK ‘Save and go to Dashboard’

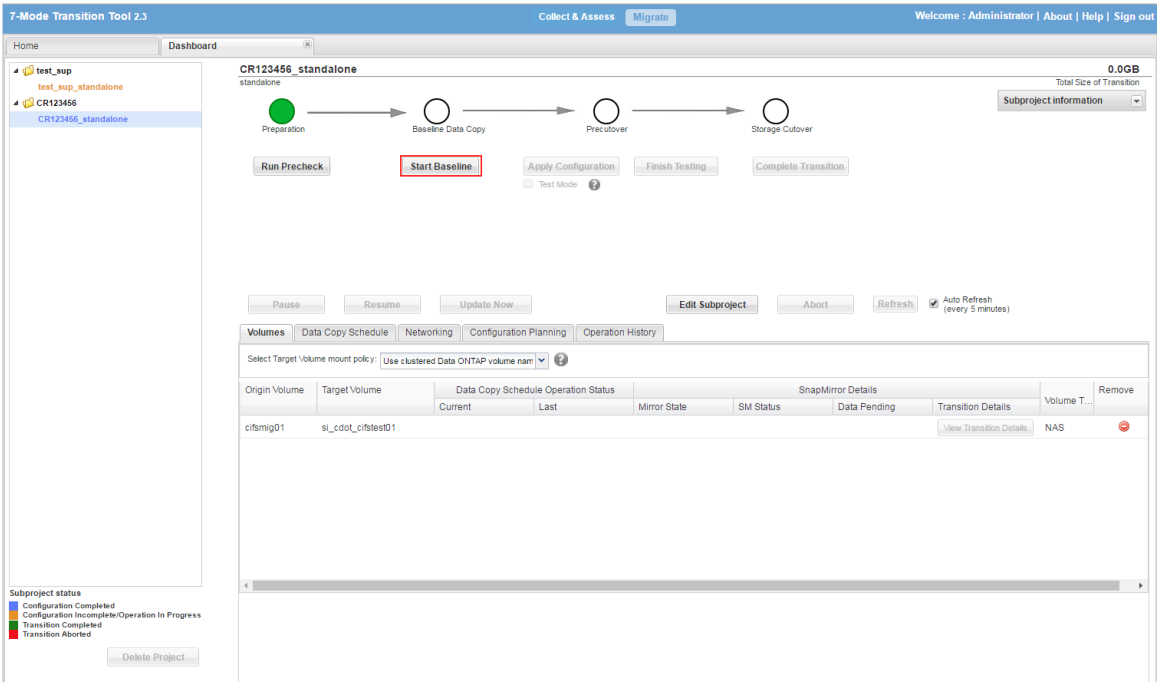


A data transfer workflow will be displayed in the top of the page. The circle above ‘Baseline Data Copy’ will have a white fill color before your first transfer. It will have an orange fill color while the first transfer is running. Then a green fill color after your first successful transfer.

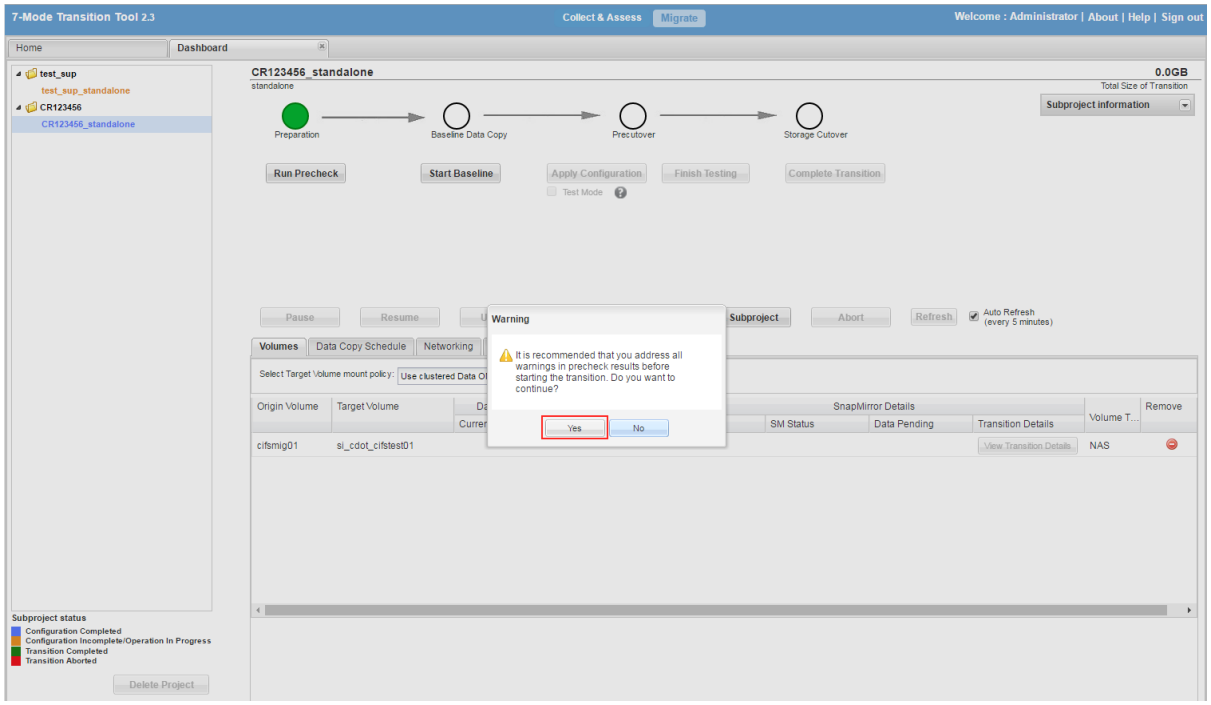
CLICK ‘Run Pre-Check’; REVIEW output



CLICK ‘Start Baseline’

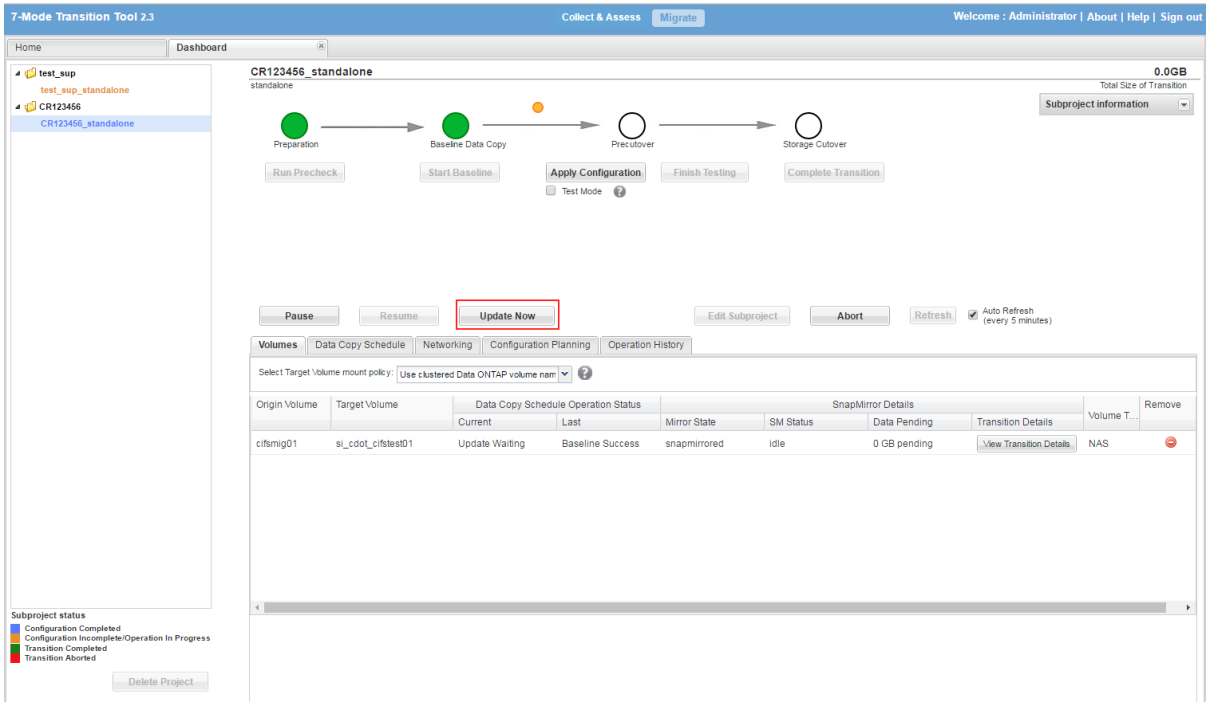


A popup window will appear, CLICK ‘yes’



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

CLICK ‘Update Now’



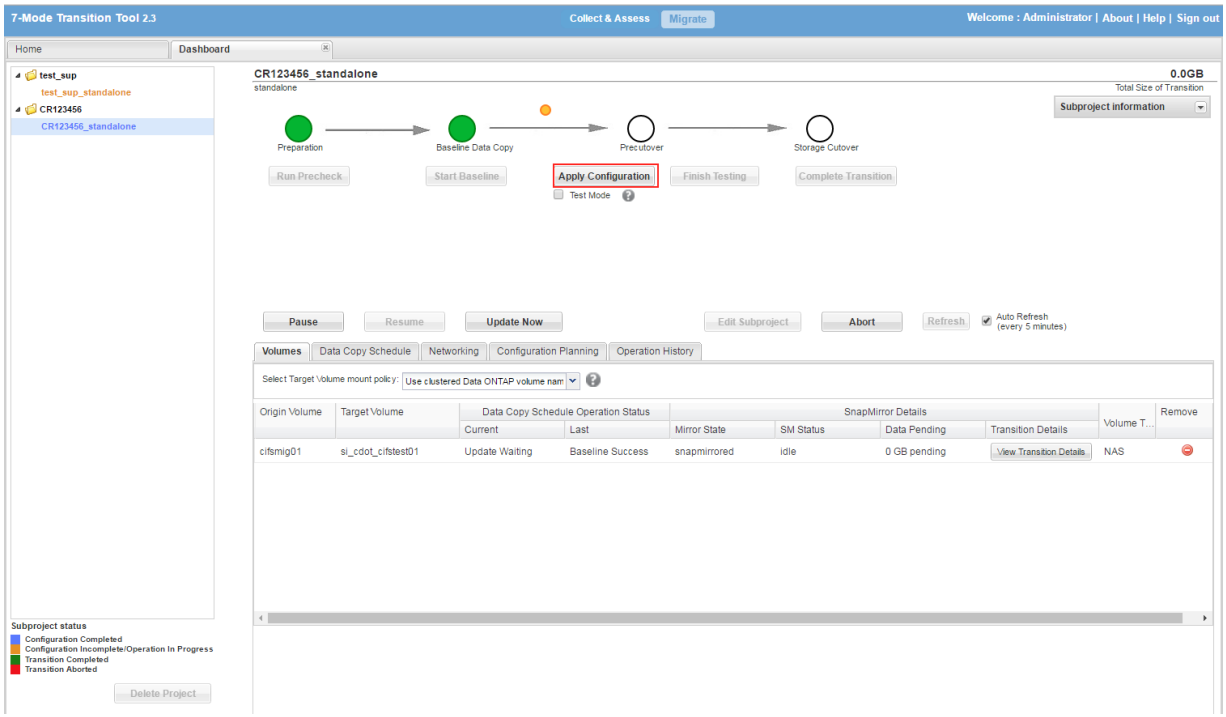
Ensure the steps below are completed during the downtime window:

The application/database has been shut down on all hosts

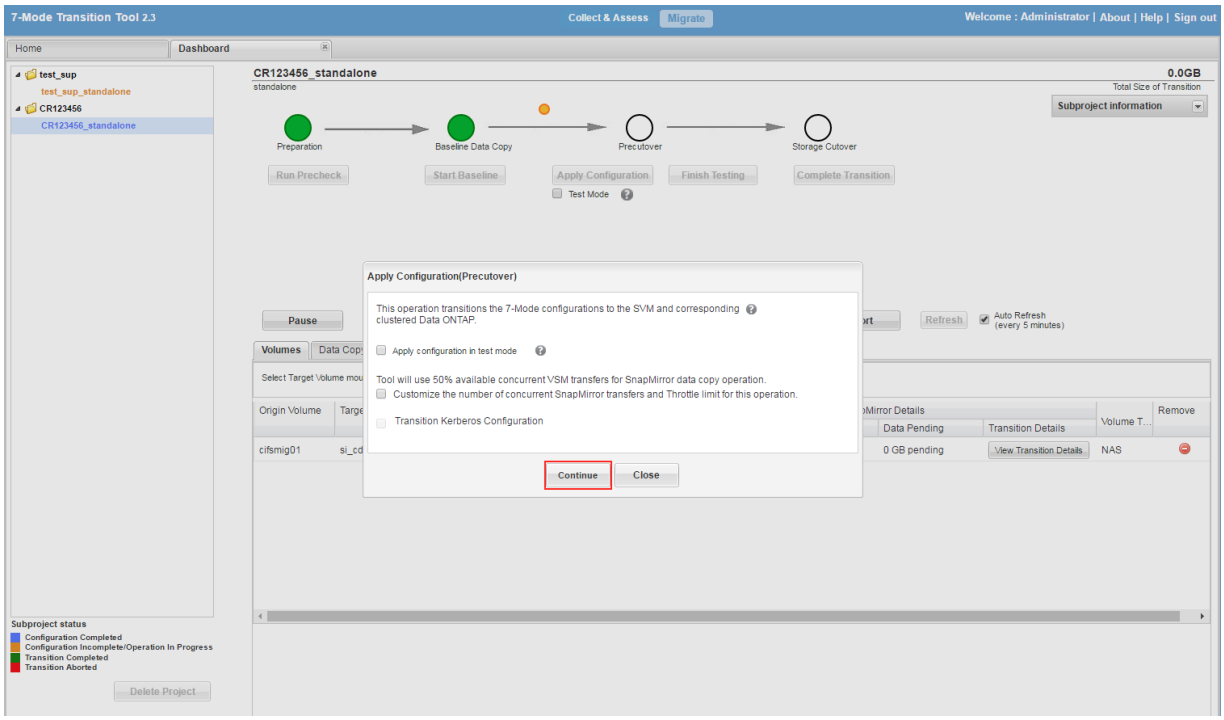
Source shares have been unmounted on all hosts

Start the cutover process:

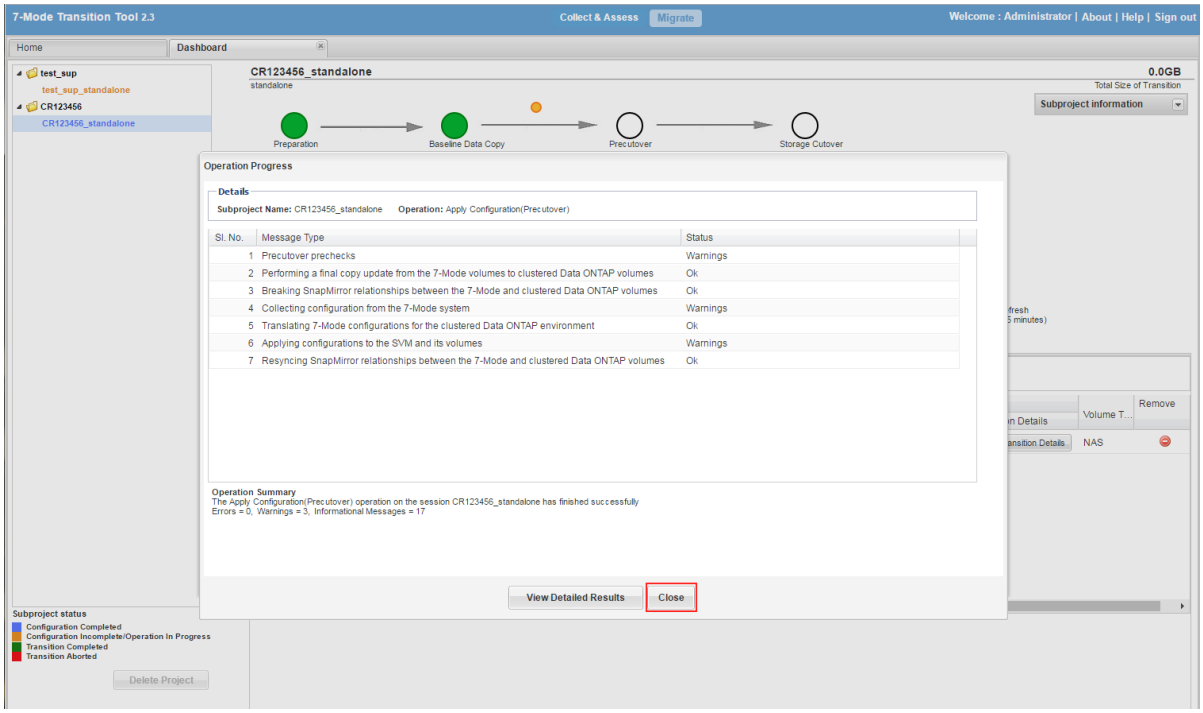
CLICK ‘Apply Configuration’



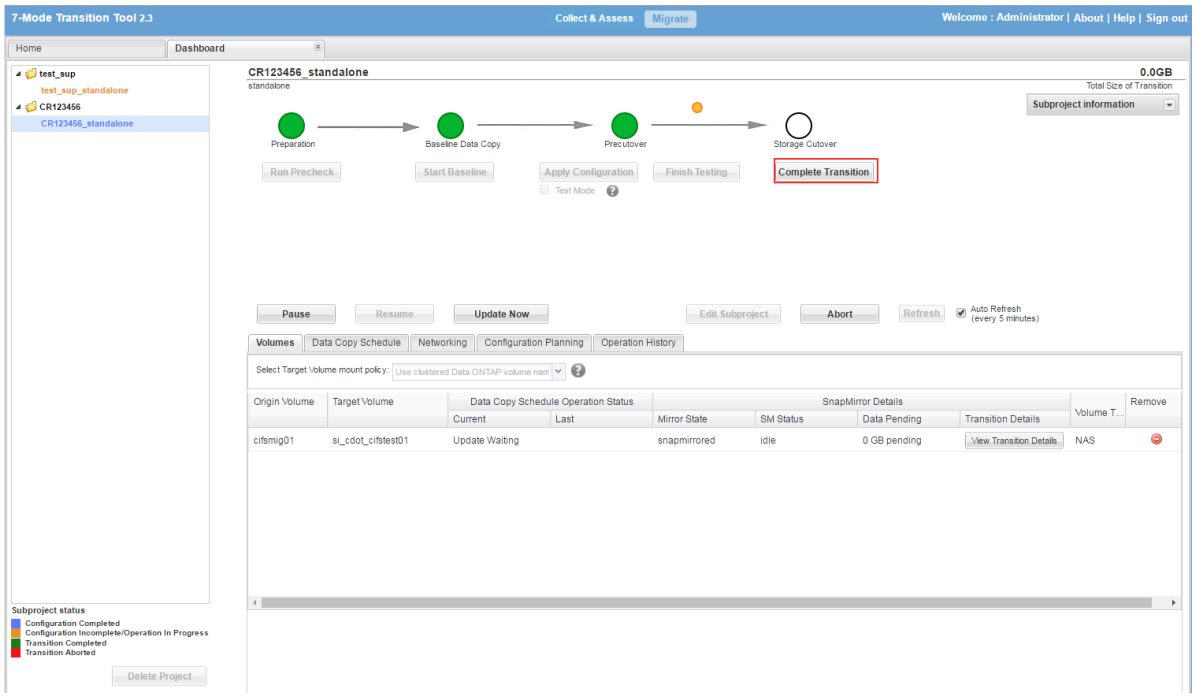
A popup box will appear, CLICK ‘Continue’



REVIEW log for errors and CLICK ‘Close’

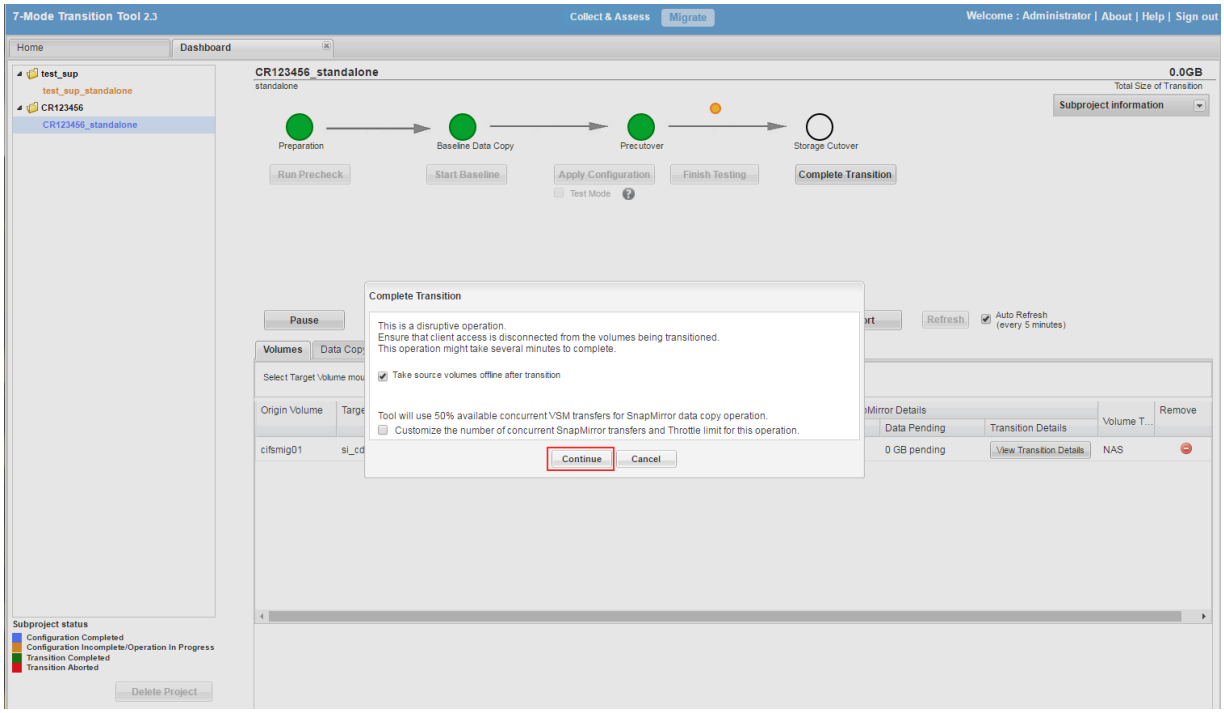


CLICK ‘Complete Transition’



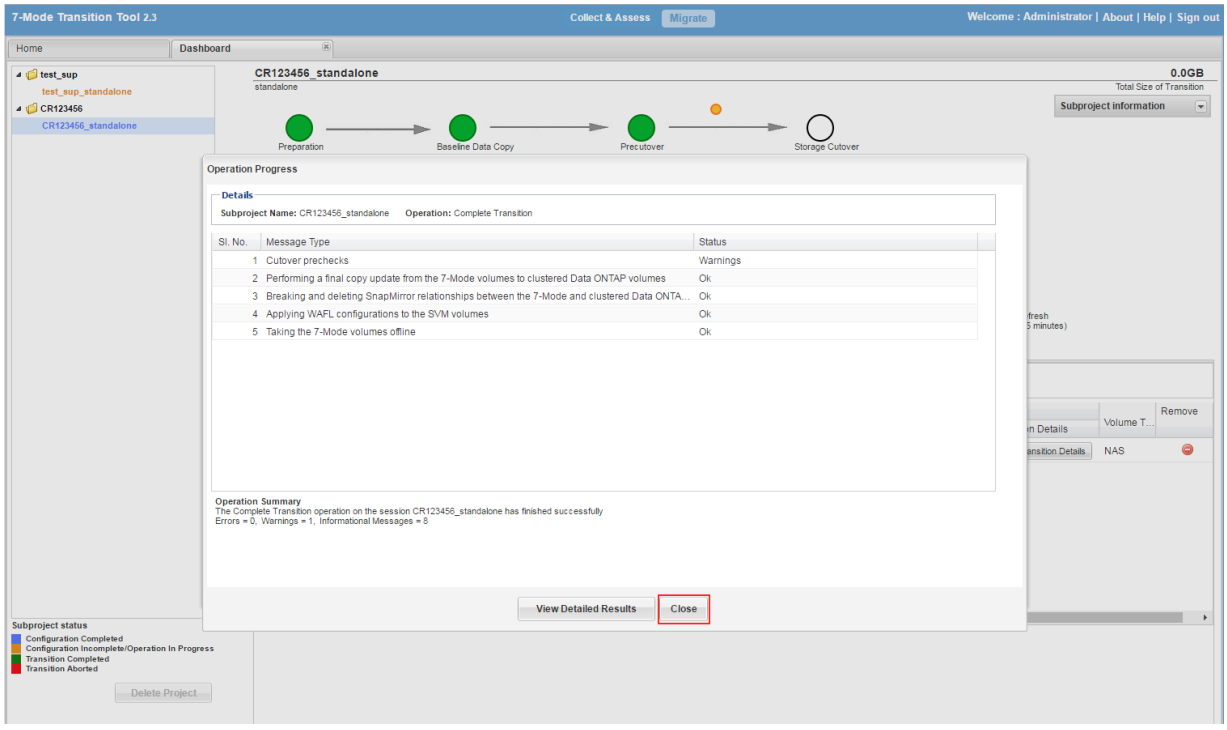
A popup box will appear, CLICK ‘yes’

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’



3.9 Post cut-over activities

3.9.1 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>
```

3.9.2 Check Group Membership

```
local-group show-members -vserver <vserver>
```

Example

```
eg-si-clsn-e01::> local-group show-members -vserver si-8040-test-02
  (vserver cifs users-and-groups local-group show-members)
Vserver        Group Name                     Members
-------------- ------------------------------ ------------------------
si-8040-test-02
               BUILTIN\administrators         SI-8040-TEST-02\administrator
                                              SI-8040-TEST-02\root
                                              TLR\Domain Admins
                                              TEN\Domain Admins
                                              TEN\M-Storage-admins.G
                                              TEN\M-EaganServerAdmins
               BUILTIN\users                  TLR\Domain Users
               SI-8040-TEST-02\monitor        SI-8040-TEST-02\monitoruser
                                              TLR\M-West-SiteScope_ServiceAccounts
9 entries were displayed.
```

3.9.3 Check Local Groups

```
local-group show -vserver <vserver>
```

Example

```
eg-si-clsn-e01::> local-group show -vserver si-8040-test-02


  (vserver cifs users-and-groups local-group show)
Vserver        Group Name                       Description
-------------- -------------------------------- ----------------------------
si-8040-test-02
               BUILTIN\administrators            Members can fully administer the filer
si-8040-test-02
               BUILTIN\backup operators          Members can bypass file security to backup files
si-8040-test-02
               BUILTIN\power users               Members that can share directories
si-8040-test-02
               BUILTIN\users                     Ordinary Users
si-8040-test-02
               SI-8040-TEST-02\compliance administrators
                                                 Members can perform compliance operations
si-8040-test-02
               SI-8040-TEST-02\monitor           use powerhell to alert users
6 entries were displayed.
```

3.9.4 Check Local Users

```
local-user  show -vserver <vserver>
```

Example

```
eg-si-clsn-e01::> local-user  show -vserver si-8040-test-02
  (vserver cifs users-and-groups local-user show)
Vserver      User Name                   Full Name     Description
------------ --------------------------- ------------  --------------
si-8040-test-02
             SI-8040-TEST-02\administrator
                                                       Built-in account for administering the filer
si-8040-test-02
             SI-8040-TEST-02\monitoruser               powershell user to monitor vfilers
si-8040-test-02
```

```
            SI-8040-TEST-02\root                    Default vfiler root
3 entries were displayed.
```

3.9.5 Check Share Permissions and Path To Volume/Qtree

```
cifs share show -vserver <vserver>
```

Example

```
eg-si-clsn-e01::> cifs share show -vserver si-8040-test-02

Vserver        Share         Path              Properties Comment  ACL

-------------- ------------- ----------------- ---------- -------- -----------

si-8040-test-02                                browsable
               admin$        /                         -    -
si-8040-test-02                                oplocks         BUILTIN\Administrators / Full Control
               c$            /                 browsable  -
                                                changenotify
si-8040-test-02                                browsable
               ipc$          /                         -    -
si-8040-test-02                                browsable       everyone / Full Control
               TESTSHARE01   /si_cdot_         oplocks    -    TEN\M-Storage-admins.G / Full Control
                             cifstest01/       changenotify    TEN\uc136758 / Change
                             share01                           TLR\Domain Admins / Full Control
4 entries were displayed.
```

3.9.6 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>
```

3.10 QoS Policy Group Creation

3.10.1 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
```

4 Snapvault Configuration

4.1 Cluster and Vserver Peering

4.1.1 Confirm that cluster peering has been enabled

```
cluster peer show
```

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

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

```
cluster peer show
```

4.1.3 Confirm if vserver peering has been configured

```
vserver peer show
```

4.1.4 Create vserver peering on the destination system (skip this step if vserver peering has been configured)

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

```
vserver peer show
```

4.1.5 Accept the vserver peering on the source system

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

```
vserver peer show
```

4.2 SnapVault configuration

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

4.2.1 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
```

4.2.2 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
```

4.2.3 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
```

4.2.1 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>

snapmirror show
```