Setting up Rapid Air Gap for the DR Series System

Technical White Paper

Quest Engineering

October 2017

Patents

Trademarks

Legend

WARNING: A WARNING icon indicates a potential for property damage, personal injury, or death

CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

IMPORTANT, **NOTE**, **TIP**, **MOBILE**, or **VIDEO:** An information icon indicates supporting information.

Rapid Air Gap Solution Setup Guide

Updated – November 15, 2017

Contents

Revisions

Date	Description
October 2017	Initial Release

Executive Summary

The Air gap solution is a replication solution in which a secondary target DR in a three-way replication is in an isolated private network. The Secondary target will be up for replication for only a particular period of time (Air gap closes); and, only during this period will the replication between Primary and Secondary target DRs happen. Only a set of services will be running on the secondary target so that it is secured from the external environment. The primary target will act as the target for the Primary DR Series system and as the source for the Secondary target. The primary target will be in two different networks to cater to both the Primary DR and the Secondary target networks.

This document describes how to set up the Air Gap solution for your DR Series system environment.

NOTE: In this document, the Primary Source/Primary DR Series system, the Primary Target/Secondary Source, and Secondary Target are represented as DR1, DR2, and DR3 respectively.

Preparing the DR Series systems

Assumptions

Refer to the following assumptions, which are used to illustrate the basic setup for the air gap solution described in this document.

- The air gap setup described in this document requires three DR Series systems (DR1, DR2, and DR3). DR1 and DR2 have RDS containers with Op-dup enabled. DR3 is in an isolated network. The RDS container on DR2 will be replicated (Hybrid Replication) to a connection-less container on DR3.
- There are two NetVault Backup servers in the environment. One NetVault backup server is on the regular network to establish backups, restores, and Op-dups from DR1 and DR2. The second NetVault Backup server is in the isolated network, which can be used to restore data from DR3 in disaster recovery conditions.
- The data on DR3 is retained as per user requirements after it has been removed from DR1 and DR2.
- DR3 will have Air Gap enabled in which certain protocols (such as, CIFS/NFS) will not work.
- There will be an Air Gap between DR2 and DR3, which when open will have only a few required ports available. Replication will not be performed during this period. When the air gap is closed, additional ports will be available during which replication can continue.
- The isolation of DR3 can be obtained by using Switch or Wan Emulator software.

Upgrading the DR Series system to the required image

You first need to ensure the required latest version (version 4.0.3 and later) of the DR Series software is downloaded and installed on your DR Series systems.

Using the DR Series system CLI

1. Download the DR Series system image to any client and copy it to the DR Series system by using the following commands:

   ```
   scp oca-0.latest.tar.gz administrator@<DR_IP>:/root
   system –upgrade
   ```

2. Reboot the DR Series system if needed.

Using the DR Series system GUI

1. Log on to the DR Series system via your browser.
2. Navigate to Support > Software Upgrade >
3. Click Select DR binary package, upload the image, and click Upgrade.
4. Reboot the system if required after the upgrade process has finished.

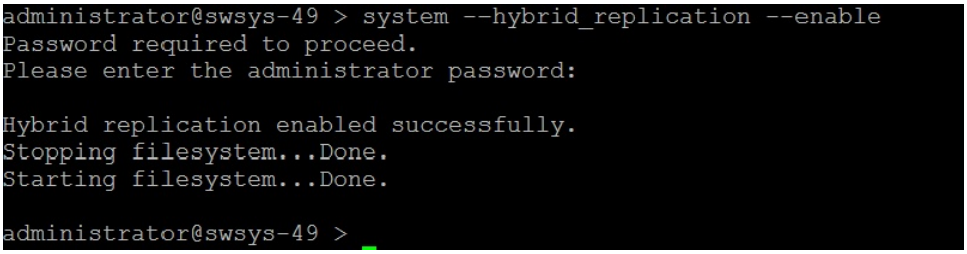
DR2 and DR3 prerequisites

Ensure that the following settings are configured on DR2 and DR3 for Air Gap setup.

Enabling hybrid replication on DR2

Hybrid replication is needed on DR2 so that replication can be set up from an RDA container that does not support legacy replications.

1. To enable hybrid replication, execute the following command on DR2:
   `system --hybrid_replication --enable`

2. Confirm that hybrid replication is enabled on DR2 by using the command: `system --show`

```
administrator@swsys-49 > system --show
System Name                    : swsys-49
Current Time                   : Mon Aug 21 03:18:59 2017 PDT
Service Tag                    : JMWT8Q1
Product Name                   : Dell DR4000
BIOS Version                   : 1.11.0
Version                        : 4.0.0631.4
Build                          : 64586
Build Date                     : Fri Aug 18 03:06:49 PDT 2017
IP Addr                        : 10.250.241.44
Mac Addr                       : 78:2B:CB:0D:BB:C2
Telnet State                   : Disabled
Time Zone                      : US/Pacific
Data Check                     : Enabled - namespace,blockmap,throttle:50%
Verify on Read                 : Disabled
Marker Detection               : Enabled
Storage Usage Alert            : 90%
Hybrid replication             : Enabled
NTPD Service is                : UP
System State                   : Operational Mode
Reason                         : Filesystem is fully operational for I/O.
Diagnostics Collector          : RUNNING Aug 21 01:40:28
Configuration Server           : RUNNING Aug 21 03:14:17
Filesystem Server              : RUNNING Aug 21 03:14:19
NDMP Daemon                    : RUNNING Aug 21 03:15:56
Windows Access Server          : RUNNING Aug 21 03:14:17
HTTP Server                    : RUNNING Aug 21 01:40:06
Hardware Health Monitor        : RUNNING Aug 21 01:40:35
Windows Active Directory Client : RUNNING Aug 21 01:44:47
Filesystem Checker             : STOPPED
VTL Daemon                     : RUNNING Aug 21 03:15:59
ISCSI Server                   : RUNNING Aug 21 03:15:59
Global View Process            : RUNNING Aug 21 01:40:06
Support Portal Agent Process   : STOPPED
administrator@swsys-49 >
```

Enabling Air Gap on DR3

You must enable the Air Gap feature for DR3 to work in air gap mode (close/open).

1 Using the DR Series system CLI, enter the following command to enable Air Gap: `system --rdairgap --enable`

NOTE: By default, Air Gap is set to the **open** state, and the retention period is set to 180 days.

```
administrator@dr6300-35 > system --rdairgap --enable
Password required to proceed.
Please enter the administrator password:

Airgap mode enabled successfully.
Stopping filesystem...Done.
Starting filesystem...Done.
administrator@dr6300-35 >
```

2 Confirm that DR3 is in air gap mode by using the command: `system --show`

```
administrator@dr6300-35 > system --show
System Name                     : dr6300-35
Current Time                    : Mon Aug 21 03:35:46 2017 PDT
Service Tag                     : 3H3MFB2
Product Name                    : Dell DR6300
BIOS Version                    : 1.3.6
Version                         : 4.0.0631.4
Build                           : 64586
Build Date                      : Fri Aug 18 03:04:59 PDT 2017
IP Addr                         : 10.250.240.195
Mac Addr                        : 14:18:77:60:A6:FC
Telnet State                    : Disabled
Time Zone                       : US/Pacific-New
Data Check                      : Enabled - namespace,blockmap,throttle:50
Verify on Read                  : Disabled
Marker Detection                : Enabled
Storage Usage Alert             : 90%
Airgap state                    : Enabled and Open
Airgap retention period         : 180 days
NTPD Service is                 : DOWN
System State                    : Operational Mode
Reason                          : Filesystem is fully operational for I/O.
Diagnostics Collector           : RUNNING Aug 21 02:23:35
Configuration Server            : RUNNING Aug 21 03:21:35
Filesystem Server               : RUNNING Aug 21 03:21:37
NDMP Daemon                     : STOPPED
Windows Access Server           : STOPPED
HTTP Server                     : RUNNING Aug 21 02:23:18
Hardware Health Monitor         : RUNNING Aug 21 02:37:58
Windows Active Directory Client : RUNNING Aug 21 02:41:37
Filesystem Checker              : STOPPED
VTL Daemon                      : STOPPED
ISCSI Server                    : STOPPED
FC Server                       : STOPPED
Global View Process             : RUNNING Aug 21 02:23:18
Support Portal Agent Process    : STOPPED
administrator@dr6300-35 >
```

3 You can change the Air Gap mode by using the command: `system --rdairgap --close/open`

4 You can change the retention period by using the command:
`system --rdairgap --set_retention_period <value in days>`

5 You can view the retention period by using the command:
`system --airgap --get_retention_period`

```
administrator@dr6300-35 > system --rdairgap --close
Password required to proceed.
Please enter the administrator password:
Airgap close successfully.

administrator@dr6300-35 >
administrator@dr6300-35 > system --rdairgap --set_retention_period 20
Password required to proceed.
Please enter the administrator password:

Airgap retention period set successfully.
administrator@dr6300-35 > system --rdairgap --get_retention_period

Airgap retention period is : 20 days.
```

6 You can view Air Gap mode status by using the command: `system --status`

```
administrator@dr6300-35 > system --rdairgap --status

Airgap mode is enabled and in Close State on the system.

administrator@dr6300-35 >
```

Configuring backup and op-dup

Creating containers and setting up the backup job

- Create RDA containers on DR1 and DR2, and create a container without any connection on DR3. The steps in this document will use the following example containers: rda_s on DR1, rda_m on DR2, and rda_t on DR3.

  Example CLI for adding container rda_s on DR1:

```
administrator@swsys-73 > container --add --name rda_s
Container "rda_s" created successfully.
administrator@swsys-73 > connection --add --name rda_s --type RDS
Successfully added connection entry.
RDS connection Quota            : Unlimited
RDS connection Enabled          : Yes
administrator@swsys-73 >
```

  Example CLI for adding container rda_m on DR2:

```
administrator@swsys-49 > container --add --name rda_m
Container "rda_m" created successfully.
administrator@swsys-49 > connection --add --name rda_m --type RDS
Successfully added connection entry.
RDS connection Quota            : Unlimited
RDS connection Enabled          : Yes
administrator@swsys-49 >
```

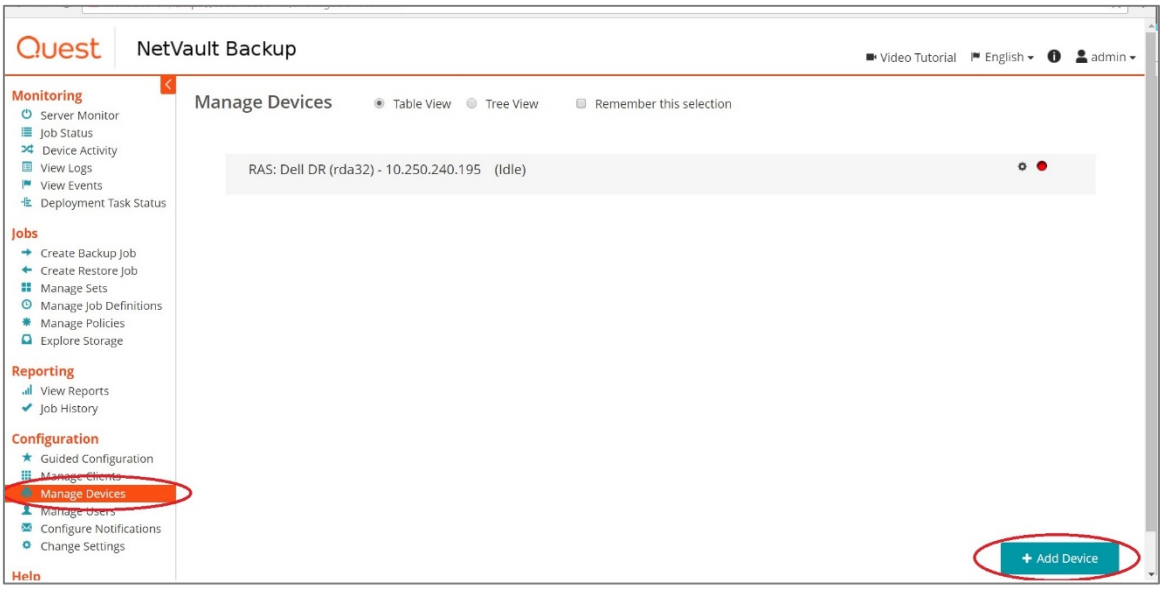
  Example CLI for adding container rda_t on DR3:

```
administrator@dr6300-35 > container --add --name rda_t
Container "rda_t" created successfully.
administrator@dr6300-35 >
```

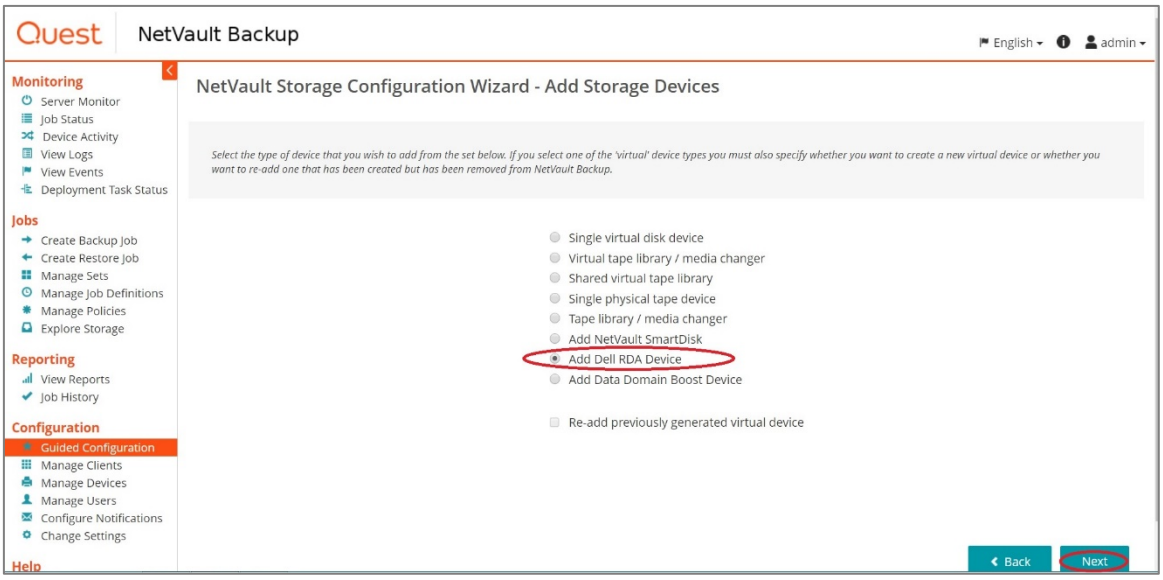
Adding DR1 and DR2 containers to NetVault Backup

In the following steps, you will add containers DR1 and DR2 to NetVault Backup by using the web interface.

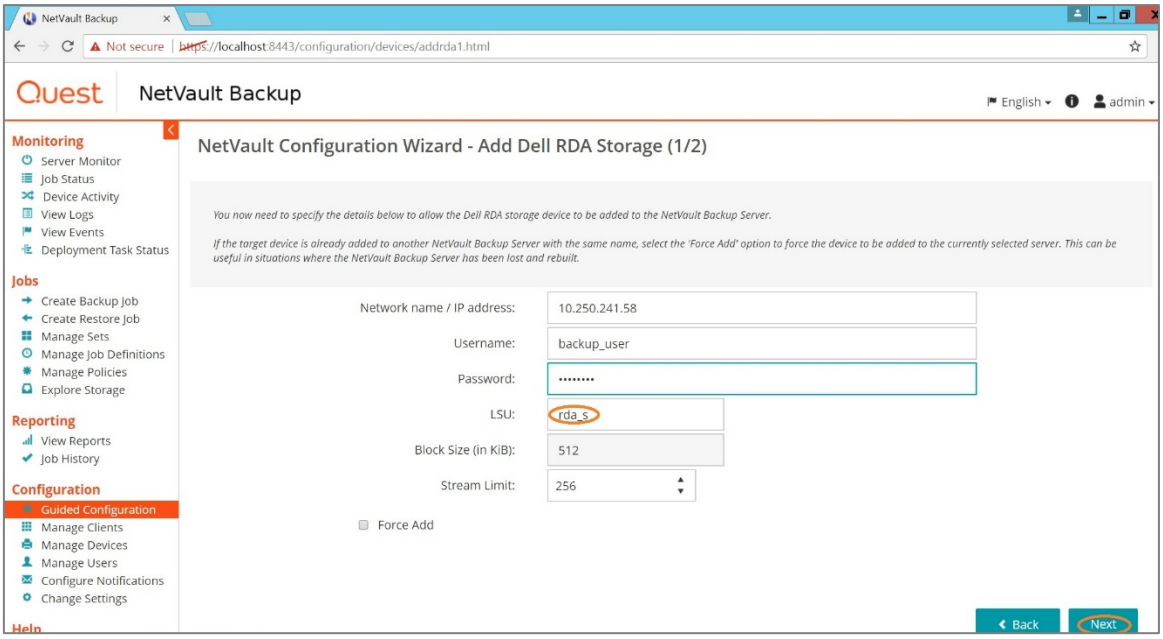
1 From the NetVault Backup web interface, go to **Manage Devices** and click **Add Device**.



2 Then, click **Add Dell RDA Device**.

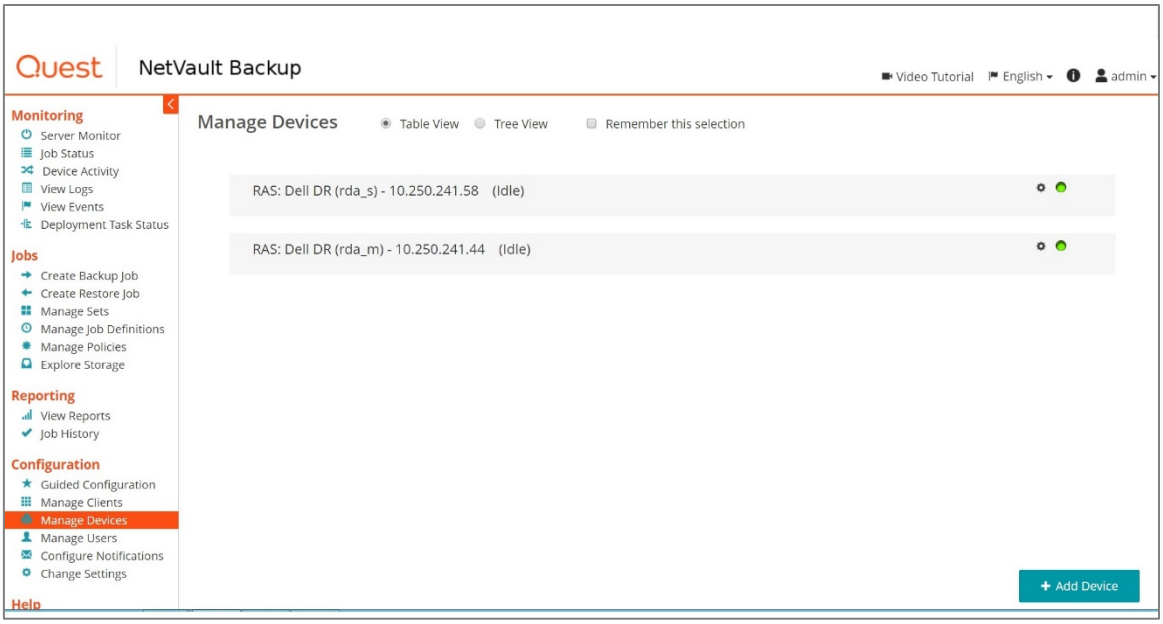


3 Enter the required information for the DR1 container rda_s and click **Next**.



4 Repeat the preceding steps for DR2 container rda_m.

5 Confirm that both containers are added to NetVault Backup.

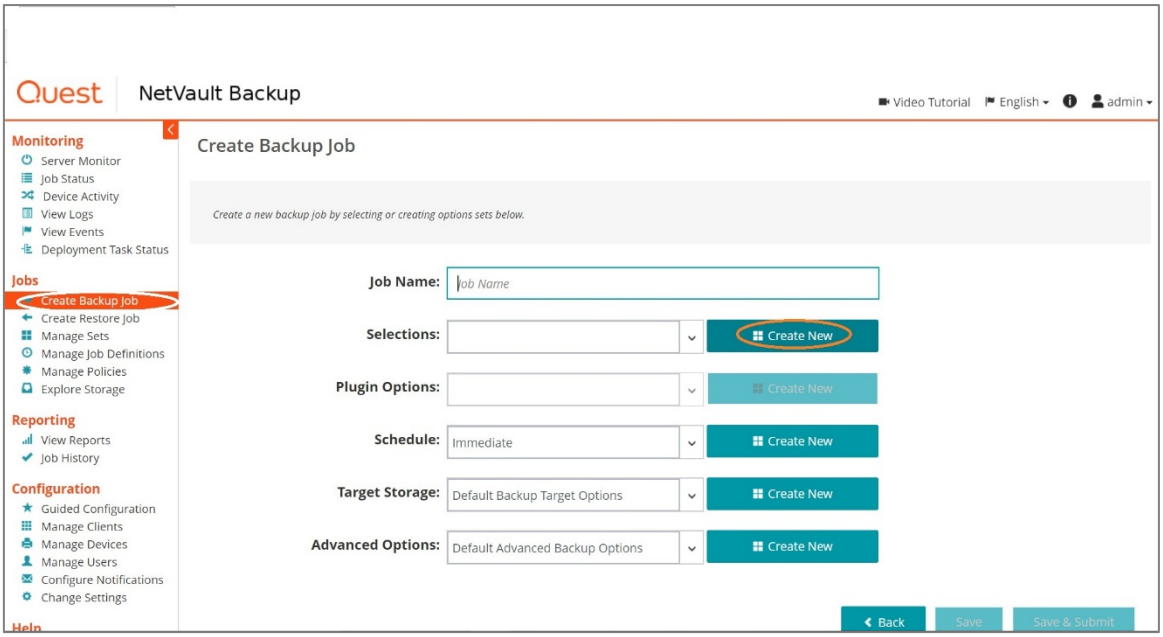


Configuring backup and op-dup

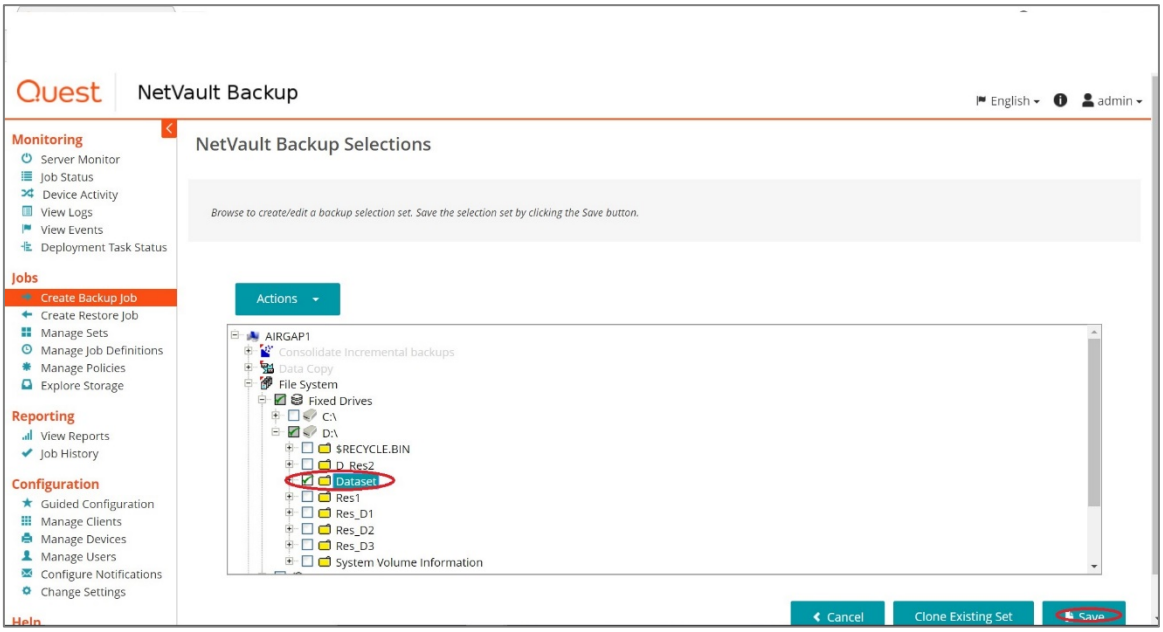
The instructions in this section describe how to set up backup and op-dop from NetVault Backup to DR1 and DR2 Containers

1 In the NetVault Backup UI, click **Create Backup Job**.

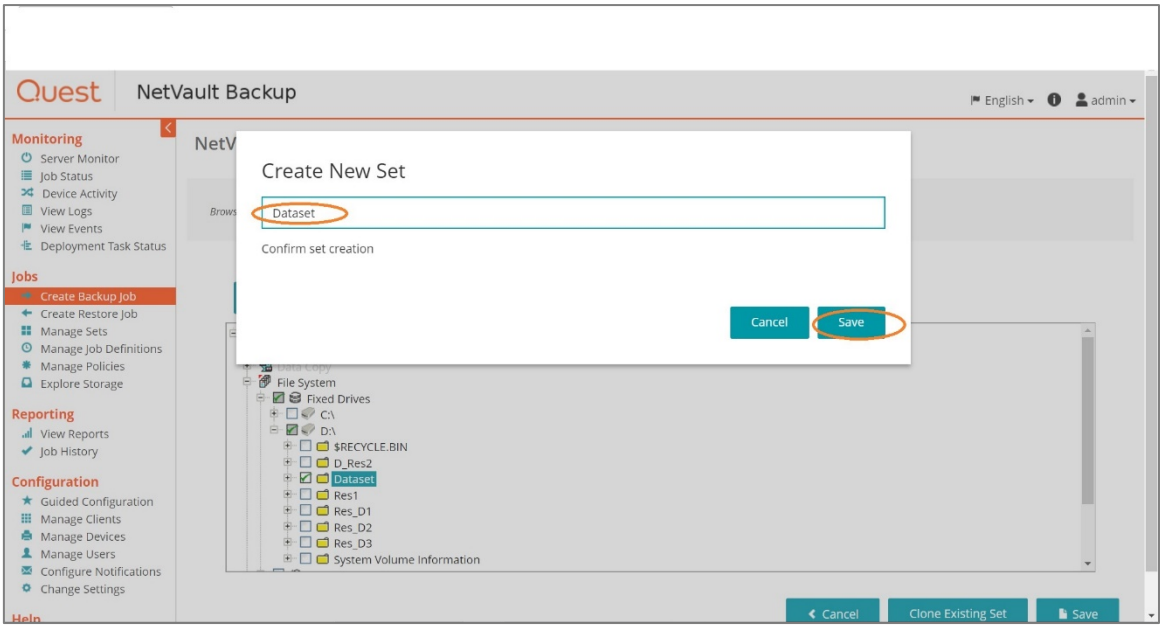
2 For Selections, click **Create New**.



3 Select data for the backup, and click **Save**.

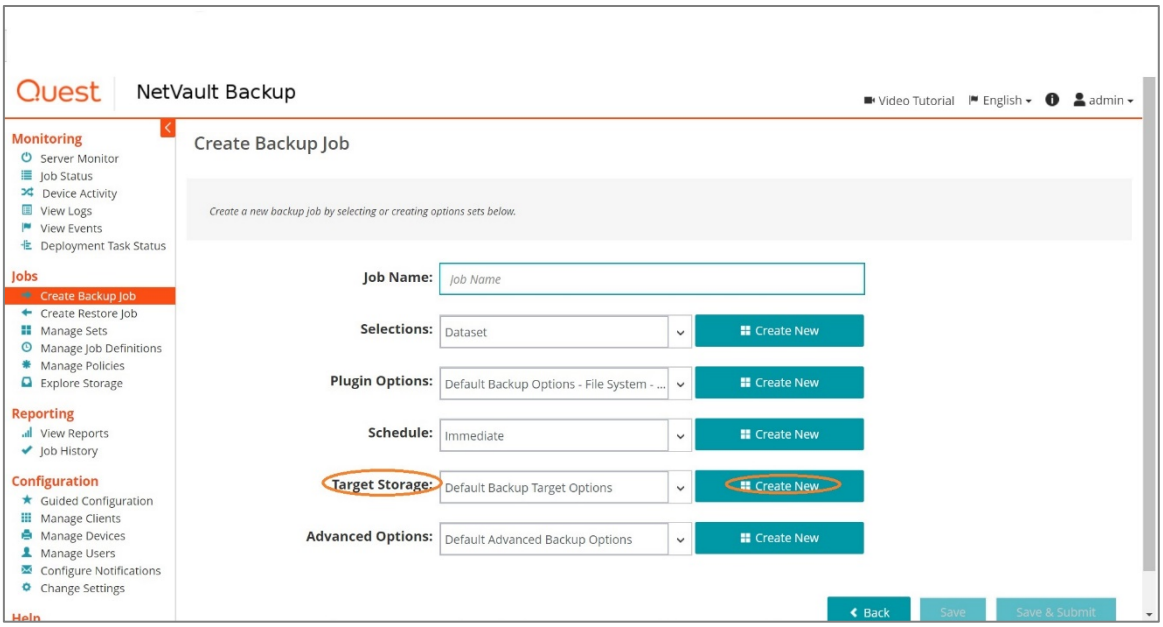


4 Provide a name for the dataset and click **Save**.

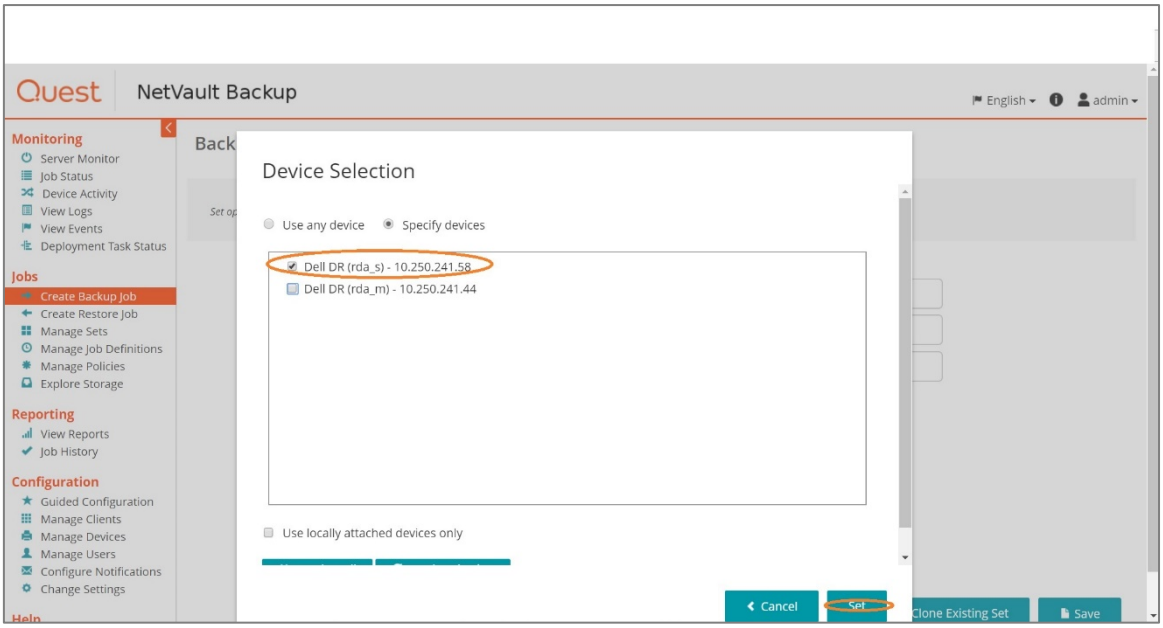


5 Select the required plugin options and job scheduling.

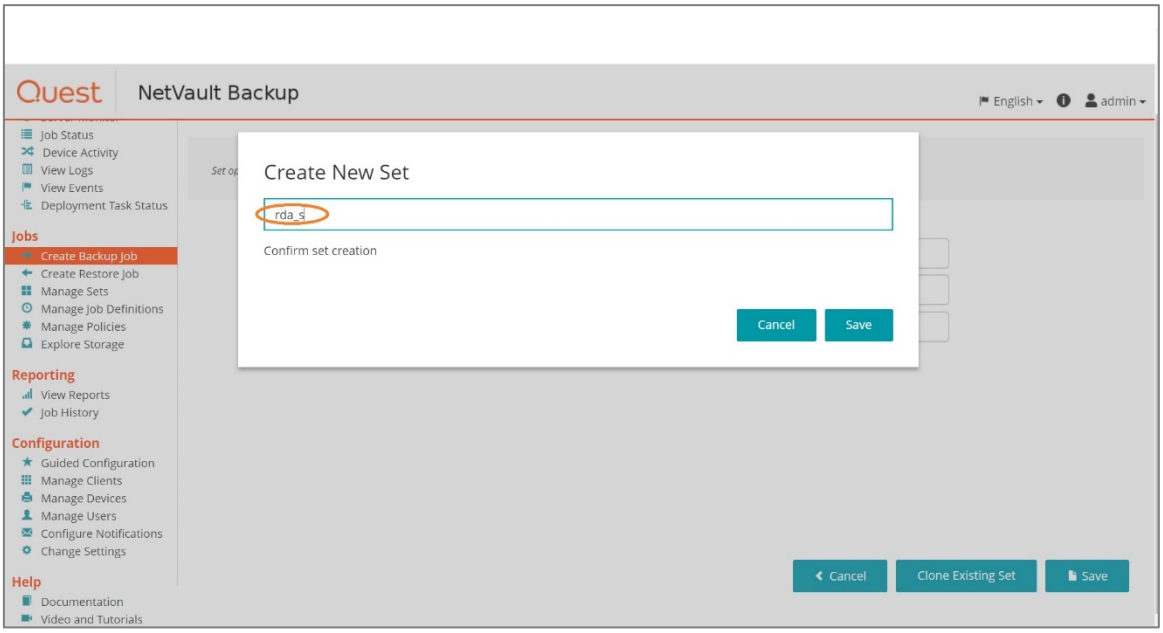
6 Select the Target device for backup, that is, ‘rda_s’ as follows: For Target Storage, click **Create New**.



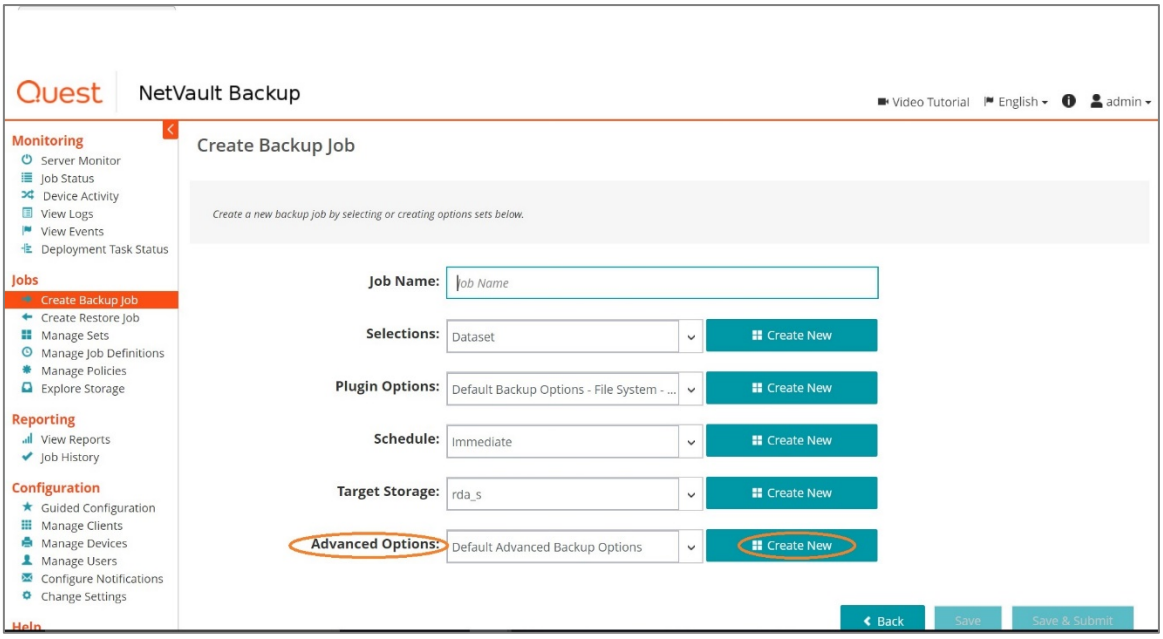
7 Select the device as rda_s, and click **Set**.



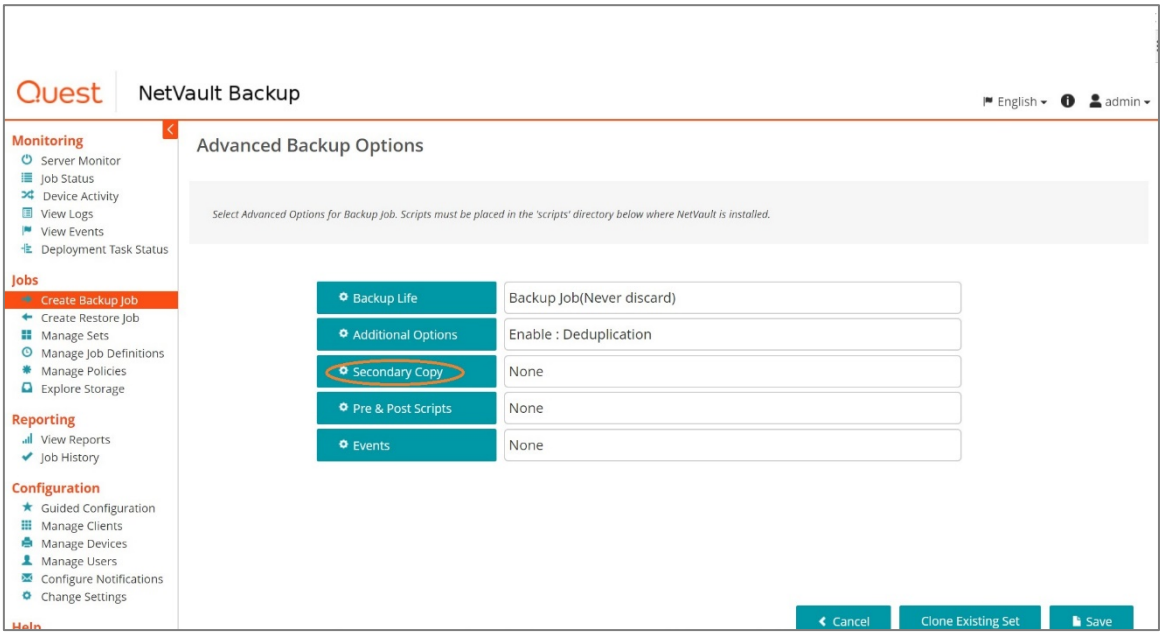
8 Enter a name for the new set and click **Save**.



9 In Advanced Options, select the source ‘rda_s’ and target ‘rda_m’ for op-dup as follows. For Advanced Options, click **Create New**.



10 Select **Secondary Copy**.



11 In the Secondary Copy dialog box, do the following:

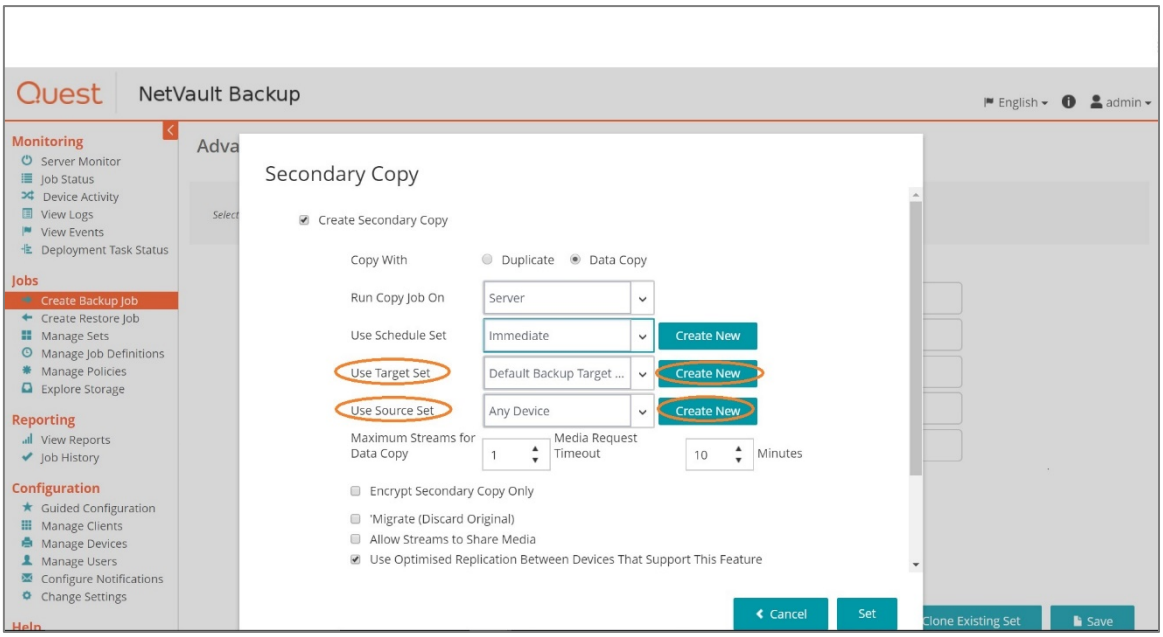
a Select **Create Secondary Copy**.

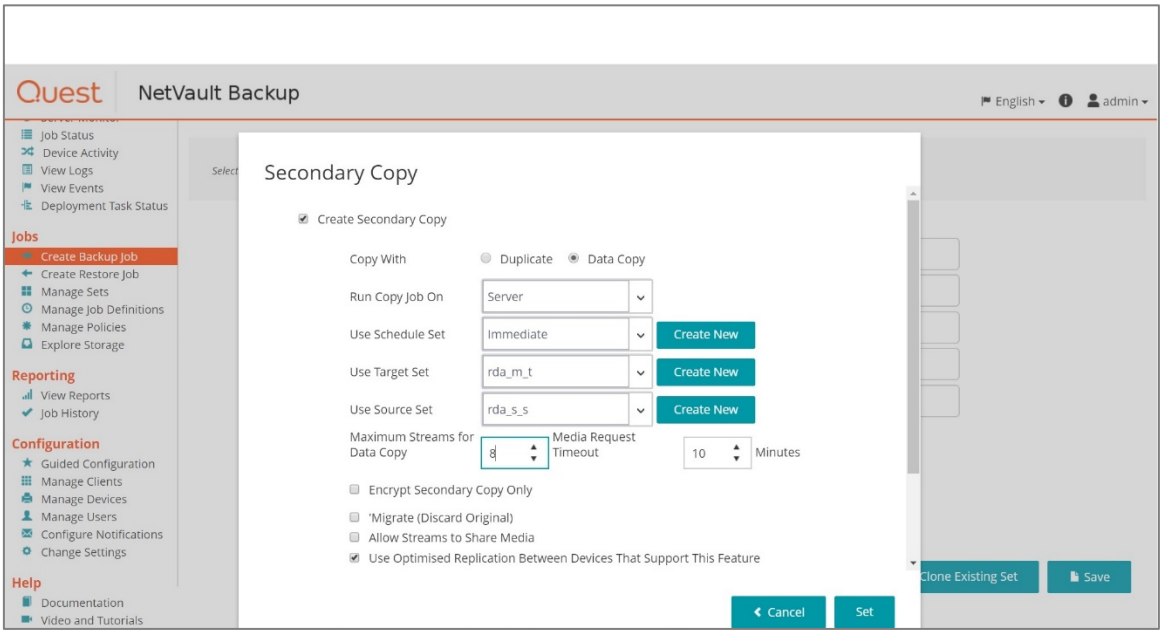
b Select **Data Copy**.

c For Use Target Set, create a new saveset using ‘rda_m’.

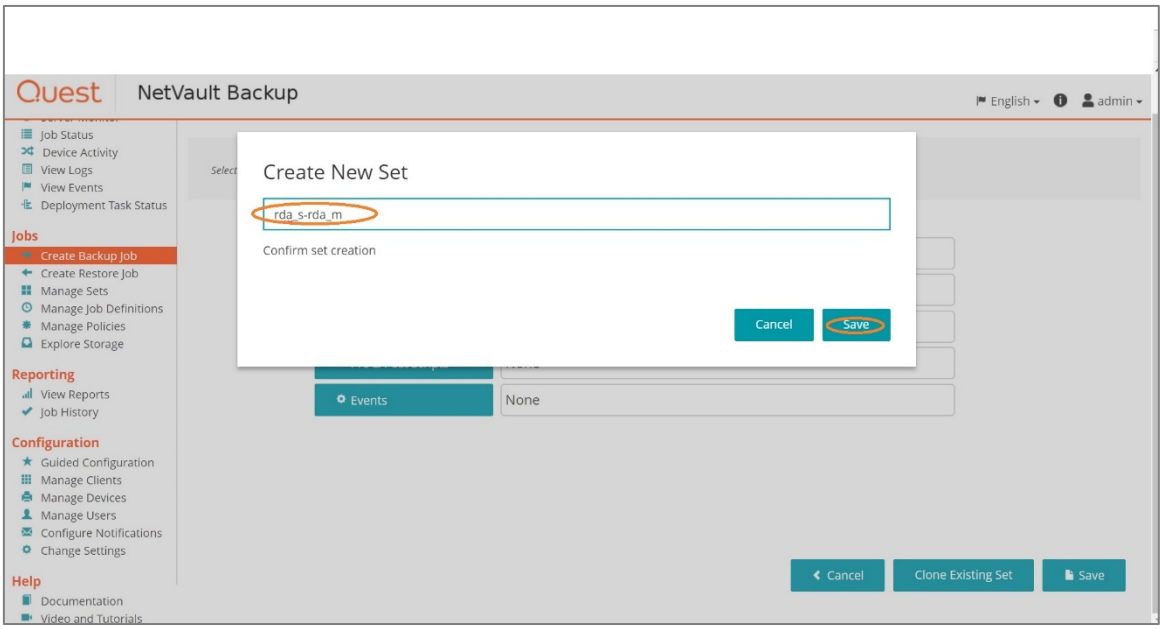
d For Use Source Set, create a new saveset using ‘rda_s’.

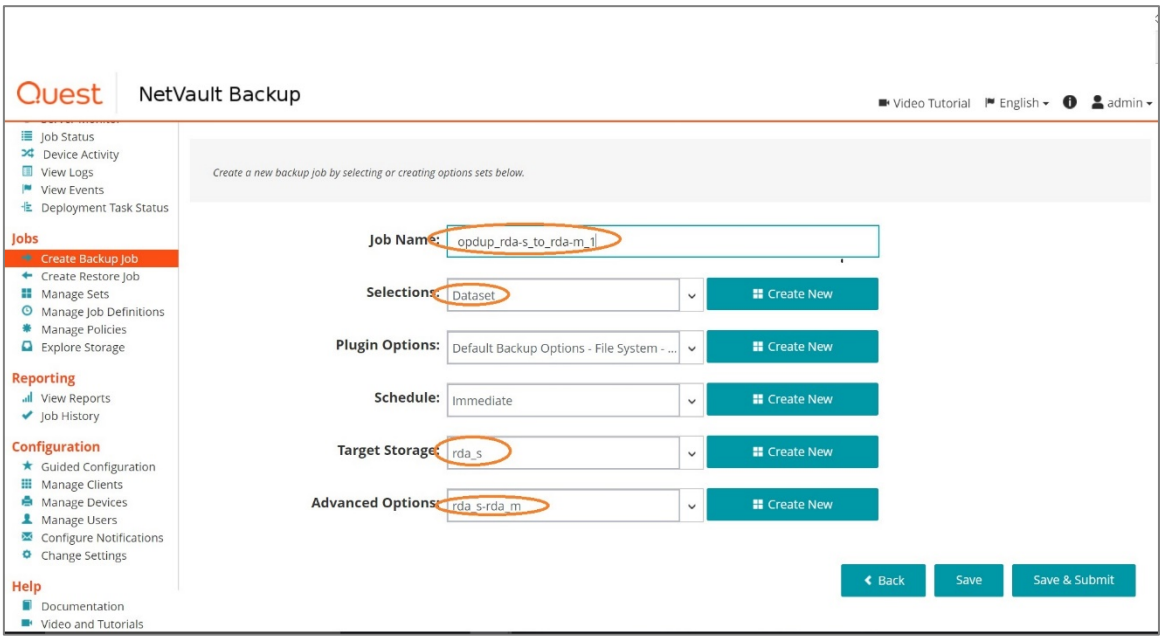
e After selecting other required options, click **Set**.





12 Enter a name for the new set and click **Save**.





13 To run the saved job manually any time: Go to Manage job definitions > select saved job > Run Now.

Configuring Replication

Hybrid Replication from DR2 RDA container to DR3 container

For replication from the DR2 RDS container, you need to enable hybrid replication on DR2. You also need to ensure that Air Gap is enabled on DR3. Replication progresses only when the Air Gap is in “closed” mode. When in open mode, replication pauses and only resumes when the Air Gap is closed again.

By default, the data on DR3 is retained for 180 days after it is deleted from DR2, you can change this retention period though. Retention period when set to zero will not retain data on DR3 after it is deleted on DR2.

Starting replication from DR2 to DR3

You can start replication by using the following command from DR2:

```
replication --add --name rda_s --role source --peer <DR3 IP/Hostname> --peer_name
rda_m
```

If you do not specify `--peer_name`, a container with the same name as the source container will be created on the target DR Series system. After replication is in sync (INSYNC), the container-used spaces of DR2 and DR3 should be the same. You can verify this by using the `stats --container` command.

```
administrator@swsys-49 > replication --add --name rda_m --role source --peer 10.250.240.195 --p
eer_name rda_t
Enter password for administrator@10.250.240.195:
Replication entry created successfully.
Replication Container           : rda_m
Replication Role                : Source
Replication Target              : 10.250.240.195
Replication Target IP           : 10.250.240.195
Replication Target Mgmt Name    : 10.250.240.195
Replication Target Mgmt IP      : 10.250.240.195
Replication Local Data Name     : swsys-49.ocarina.local
Replication Local Data IP       : 10.250.243.119
Replication Target Container    : rda_t
Replication Enabled             : Yes
Replication Compression Enabled : Yes
Replication Encryption          : Not Enabled

administrator@swsys-49 >
administrator@swsys-49 >
administrator@swsys-49 > replication --show
Container Name                   Replication Role        Status
backup                           None                    None
rda_m                            Source                  Enabled
administrator@swsys-49 > stats --replication

Replication Source Container    : rda_m
Replication Source System       : 10.250.243.119
Replication Target Container    : rda_t
Replication Target System       : 10.250.240.195
Peer Status                     : Online
Replication State               : REPLICATING
Schedule Status                 : In window
Replication Average Throughput  : 46234 KiB/s
Replication Maximum Throughput  : 146228 KiB/s
Network Average Throughput      : 35056 KiB/s
Network Maximum Throughput      : 114725 KiB/s
Network Bytes Sent              : 1.37 GiB
Pending Bytes                   : 12.87 GiB
Dedupe Network Savings          : 56.24%
Compression Network Savings     : 10.42%
Last INSYNC Time                : Unavailable
Estimated Time to Sync          : 0 days 0 hours 4 minutes 51 seconds

administrator@swsys-49 >
```

Use the `replication --show` command on DR2 and DR3 to confirm that replication is set. For example:

```
administrator@dr6300-35 > replication --show
Container Name                  Replication Role        Status
backup                          None                    None
rda_t                           Target                  Enabled
administrator@dr6300-35 > stats --replication

Replication Source Container    : rda_m
Replication Source System       : 10.250.243.119
Replication Target Container    : rda_t
Replication Target System       : 10.250.240.195
Peer Status                     : Online
Replication State               : REPLICATING
Schedule Status                 : In window
Replication Average Throughput  : 0 KiB/s
Replication Maximum Throughput  : 0 KiB/s
Network Average Throughput      : 0 KiB/s
Network Maximum Throughput      : 0 KiB/s
Network Bytes Sent              : 280.00 B
Pending Bytes                   : Unavailable
Dedupe Network Savings          : 0.00%
Compression Network Savings     : 0.00%
Last INSYNC Time                : Unavailable
Estimated Time to Sync          : Calculating...
```

You can use the `stats --replication` command to view the the replication statistics on the DR. By using this command, you can see that replication progresses on DR3 with container-used space increasing.

```
administrator@dr6300-35 > stats --container --name rda_t
Container Name                : rda_t
Container ID                  : 3
Total Inodes                  : 14
Read Throughput               : 0.00 MiB/s
Write Throughput              : 536.66 MiB/s
Current Files                 : 6
Current Bytes                 : 6469386449
Cleaner Status                : Done
administrator@dr6300-35 > stats --container --name rda_t
Container Name                : rda_t
Container ID                  : 3
Total Inodes                  : 14
Read Throughput               : 0.00 MiB/s
Write Throughput              : 215.03 MiB/s
Current Files                 : 6
Current Bytes                 : 6766985425
Cleaner Status                : Done
administrator@dr6300-35 > stats --container --name rda_t
Container Name                : rda_t
Container ID                  : 3
Total Inodes                  : 14
Read Throughput               : 0.00 MiB/s
Write Throughput              : 242.76 MiB/s
Current Files                 : 6
Current Bytes                 : 7891058897
Cleaner Status                : Done
```

When Air Gap is open you can see that replication will not progress. You can confirm this by seeing that used space remains space on DR3.

```
administrator@dr6300-35 > system --rdairgap --open
Password required to proceed.
Please enter the administrator password:
Airgap open successfully.

administrator@dr6300-35 >
administrator@dr6300-35 > stats --container --name rda_t
Container Name                : rda_t
Container ID                  : 3
Total Inodes                  : 14
Read Throughput               : 0.00 MiB/s
Write Throughput              : 0.00 MiB/s
Current Files                 : 6
Current Bytes                 : 10021765329
Cleaner Status                : Done
administrator@dr6300-35 > stats --container --name rda_t
Container Name                : rda_t
Container ID                  : 3
Total Inodes                  : 14
Read Throughput               : 0.00 MiB/s
Write Throughput              : 0.00 MiB/s
Current Files                 : 6
Current Bytes                 : 10021765329
Cleaner Status                : Done
administrator@dr6300-35 > stats --container --name rda_t
Container Name                : rda_t
Container ID                  : 3
Total Inodes                  : 14
Read Throughput               : 0.00 MiB/s
Write Throughput              : 0.00 MiB/s
Current Files                 : 6
Current Bytes                 : 10021765329
Cleaner Status                : Done
```

If DR3 is in an open state, replication will go to a disconnected state.

```
administrator@swsys-49 > stats --replication

Replication Source Container    : rda_m
Replication Source System       : 10.250.243.119
Replication Target Container    : rda_t
Replication Target System       : 10.250.240.195
Peer Status                     : Disconnected
Replication State               : REPLICATING
Schedule Status                 : In window
Replication Average Throughput  : 0 KiB/s
Replication Maximum Throughput  : 375194 KiB/s
Network Average Throughput      : 0 KiB/s
Network Maximum Throughput      : 115445 KiB/s
Network Bytes Sent              : 5.25 GiB
Pending Bytes                   : 12.87 GiB
Dedupe Network Savings          : 56.24%
Compression Network Savings     : 10.42%
Last INSYNC Time                : Unavailable
Estimated Time to Sync          : 0 days 0 hours 0 minutes 1 seconds

administrator@swsys-49 >
```

When the Air Gap is closed, replication should progress. After replication is INSYNC, the container spaces on DR2 and DR3 should be the same. You can confirm this by using the `stats --container` command.

```
administrator@swsys-49 > stats --replication

Replication Source Container    : rda_m
Replication Source System       : 10.250.243.119
Replication Target Container    : rda_t
Replication Target System       : 10.250.240.195
Peer Status                     : Online
Replication State               : INSYNC
Schedule Status                 : In window
Replication Average Throughput  : 186770 KiB/s
Replication Maximum Throughput  : 734823 KiB/s
Network Average Throughput      : 64561 KiB/s
Network Maximum Throughput      : 115445 KiB/s
Network Bytes Sent              : 8.56 GiB
Pending Bytes                   : 0.00 B
Dedupe Network Savings          : 72.78%
Compression Network Savings     : 6.28%
Last INSYNC Time                : 2017-08-21 23:18:56
Estimated Time to Sync          : 0 days 0 hours 0 minutes 0 seconds

administrator@swsys-49 >
```

```
administrator@dr6300-35 > system --rdairgap --close
Password required to proceed.
Please enter the administrator password:
Airgap close successfully.

administrator@dr6300-35 >
administrator@dr6300-35 > stats --container --name rda_t
Container Name                  : rda_t
Container ID                    : 3
Total Inodes                    : 14
Read Throughput                 : 0.00 MiB/s
Write Throughput                : 123.06 MiB/s
Current Files                   : 6
Current Bytes                   : 11493966033
Cleaner Status                  : Done
administrator@dr6300-35 > stats --container --name rda_t
Container Name                  : rda_t
Container ID                    : 3
Total Inodes                    : 14
Read Throughput                 : 0.00 MiB/s
Write Throughput                : 112.96 MiB/s
Current Files                   : 6
Current Bytes                   : 11766595793
Cleaner Status                  : Done
administrator@dr6300-35 > stats --container --name rda_t
Container Name                  : rda_t
Container ID                    : 3
Total Inodes                    : 15
Read Throughput                 : 0.00 MiB/s
Write Throughput                : 0.00 MiB/s
Current Files                   : 7
Current Bytes                   : 13823901905
Cleaner Status                  : Done
```

```
administrator@dr6300-35 > stats --container --name rda_t
Container Name                  : rda_t
Container ID                    : 3
Total Inodes                    : 15
Read Throughput                 : 0.00 MiB/s
Write Throughput                : 0.00 MiB/s
Current Files                   : 7
Current Bytes                   : 13823901905
Cleaner Status                  : Done
administrator@dr6300-35 >
```

```
administrator@swsys-49 > stats --container --name rda_m
Container Name                    : rda_m
Container ID                      : 17
Total Inodes                      : 15
Read Throughput                   : 0.00 MiB/s
Write Throughput                  : 0.00 MiB/s
Current Files                     : 7
Current Bytes                     : 13823901905
Cleaner Status                    : Done
RDS connection Used Capacity      : 12.0 GiB
RDS Inbound Images Duplicated     : 2
RDS Inbound Bytes Processed       : 13822853120 (12.87 GiB)
RDS Inbound Bytes Duplicated      : 13822853120 (12.87 GiB)
RDS Inbound Bytes Transferred     : 8879268832 (8.27 GiB)
RDS Inbound Bytes Decrypted       : 0 (0.00 GiB)
RDS Inbound Bytes Synthesized     : 0 (0.00 GiB)
RDS Inbound Network Savings       : 35.76 %
RDS Inbound Extent Errors         : 0
RDS Inbound Duplication Errors    : 0
RDS Outbound Images Duplicated    : 0
RDS Outbound Bytes Processed      : 0 (0.00 GiB)
RDS Outbound Bytes Duplicated     : 0 (0.00 GiB)
RDS Outbound Bytes Transferred    : 0 (0.00 GiB)
RDS Outbound Bytes Encrypted      : 0 (0.00 GiB)
RDS Outbound Network Savings      : 0.00 %
RDS Outbound Extent Errors        : 0
RDS Outbound Duplication Errors   : 0
RDS Outbound Timeout Errors       : 0
RDS Outbound Network Errors       : 0
RDS Bytes Synthesized             : 0
RDS Images Synthesized            : 0
RDS Images Included From          : 0
RDS Synthesized Errors            : 0
RDS Images Ingested               : 7
RDS Images Aborted                : 0
RDS Used Capacity                 : 13823901905 (12.87 GiB)
RDS Image Ingest Errors           : 0
RDS Bytes Ingested                : 1049033 (0.00 GiB)
RDS Images Read                   : 7926
RDS Image Read Errors             : 0
RDS Bytes Restored                : 582515 (0.00 GiB)
RDS Bytes Transferred             : 1049033 (0.00 GiB)
RDS Network Savings               : 0.00 %
administrator@swsys-49 >
```

NOTE: Do not disable hybrid replication while active replications are in progress between DR2 and DR3.

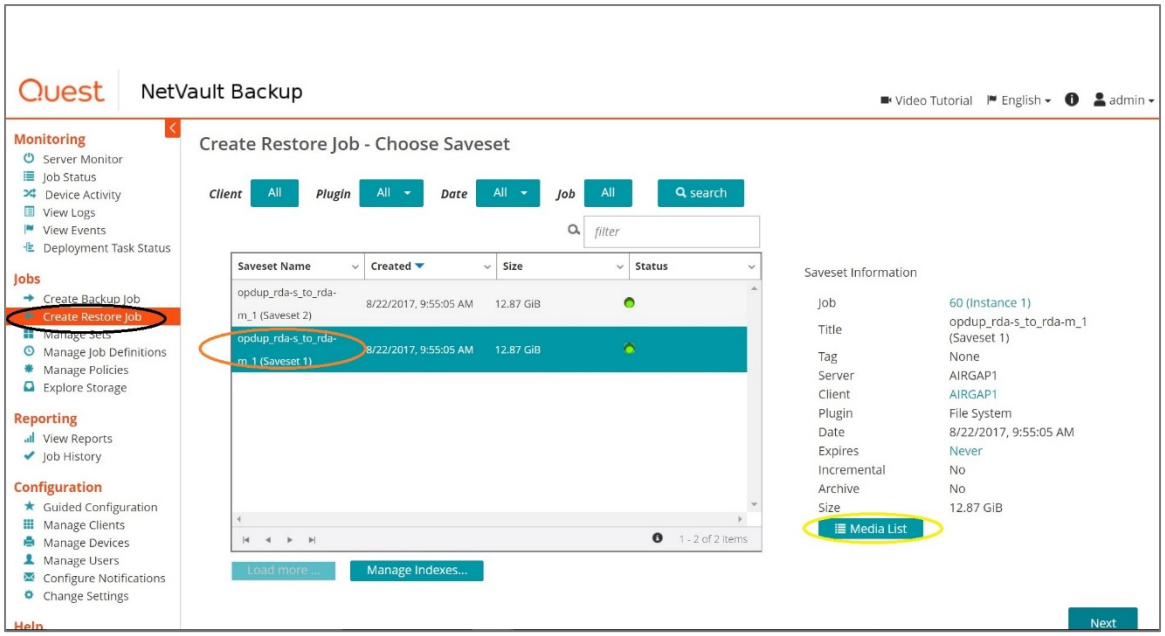
Restoring data

Restoring from DR1 and DR2 containers using NetVault Backup

There are two ways to restore data from a saveset:

- One way is to navigate as follows in NetVault Backup:
  Explore Storage > Select disk or tape device > Select your device > Explore savesets > Select your saveset > Restore
- You can also do the following:
  Create Restore Job > Select the saveset for restore > Next > Select what to restore > Rename/relocate if needed > Select other options like scheduling > Save

You select from which device (container) to restore by checking the Media list option in the saveset selection page.


Quest
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Create Backup Job
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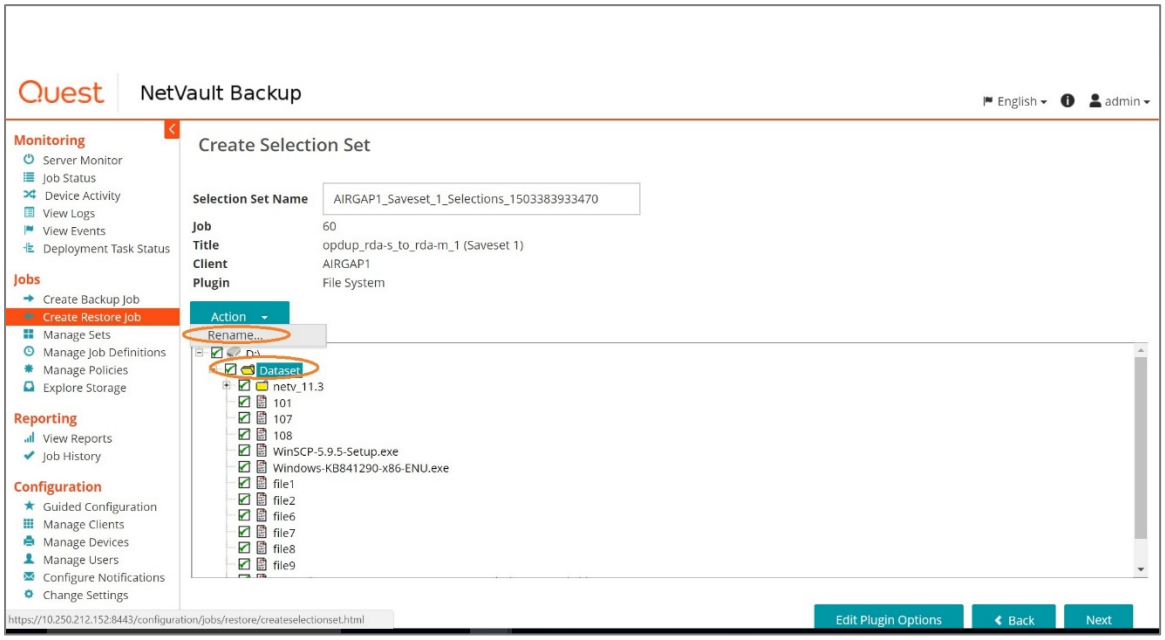
Create Restore Job - Choose Saveset
Client
All
Plugin
All
Date
All
Job
All
search
filter
Saveset Name
Created
Size
Status
opdup_rda-s_to_rda-m_1 (Saveset 2)
8/22/2017, 9:55:05 AM
12.87 GiB
opdup_rda-s_to_rda-m_1 (Saveset 1)
8/22/2017, 9:55:05 AM
12.87 GiB
1 - 2 of 2 items
Load more ...
Manage Indexes...
Saveset Information
Job
60 (Instance 1)
Title
opdup_rda-s_to_rda-m_1 (Saveset 1)
Tag
None
Server
AIRGAP1
Client
AIRGAP1
Plugin
File System
Date
8/22/2017, 9:55:05 AM
Expires
Never
Incremental
No
Archive
No
Size
12.87 GiB
Media List
Next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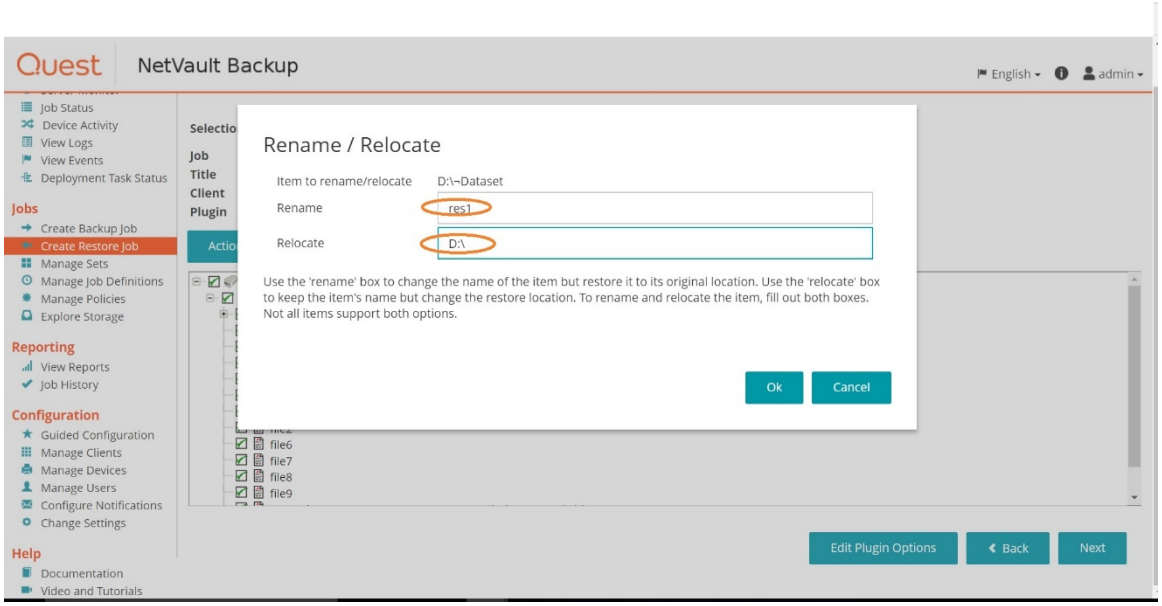
Guided Configuration
Manage Clients
Manage Devices
Manage Users
Configure Notifications
Change Settings
Create Selection Set
Selection Set Name
AIRGAP1_Saveset_1_Selections_1503383933470
Job
60
Title
opdup_rda-s_to_rda-m_1 (Saveset 1)
Client
AIRGAP1
Plugin
File System
Action
Rename...
Dataset
netv_11.3
101
107
108
WinSCP-5.9.5-Setup.exe
Windows-KB841290-x86-ENU.exe
file1
file2
file6
file7
file8
file9
https://10.250.212.152:8443/configuration/jobs/restore/createselectionset.html
Edit Plugin Options
Back
Next


Quest
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Create Restore Job
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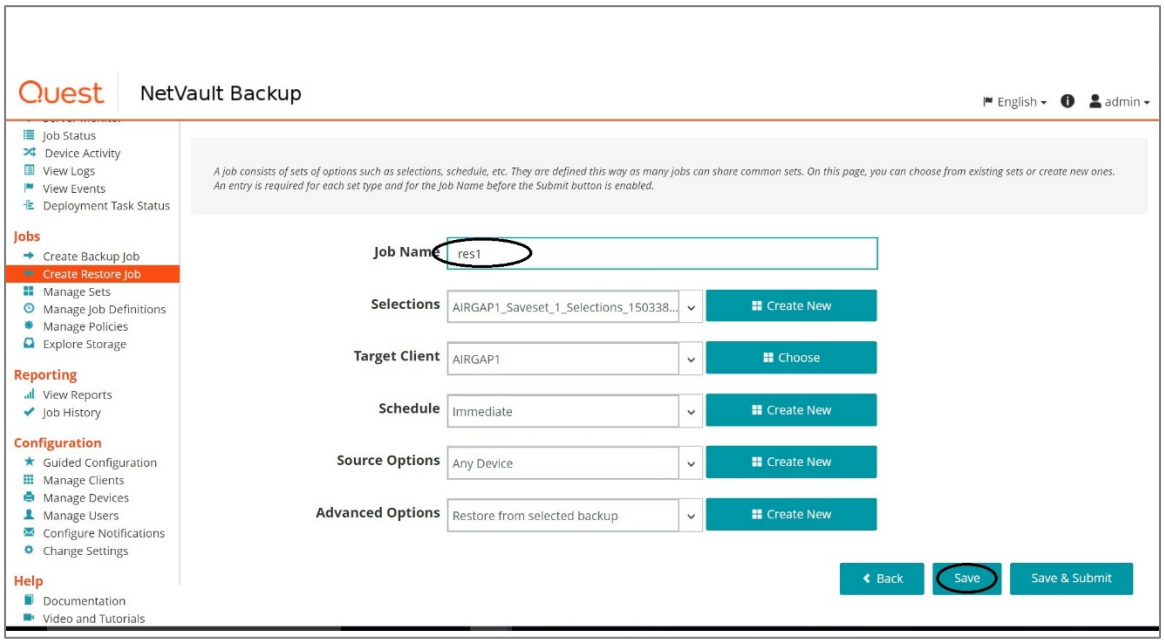
Rename / Relocate
Item to rename/relocate
D:\~Dataset
Rename
res1
Relocate
D:\
Use the 'rename' box to change the name of the item but restore it to its original location. Use the 'relocate' box to keep the item's name but change the restore location. To rename and relocate the item, fill out both boxes. Not all items support both options.
Ok
Cancel
file6
file7
file8
file9
Edit Plugin Options
Back
Next


Quest
NetVault Backup
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Create Backup Job
Create Restore Job
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A job consists of sets of options such as selections, schedule, etc. They are defined this way as many jobs can share common sets. On this page, you can choose from existing sets or create new ones. An entry is required for each set type and for the Job Name before the Submit button is enabled.
Job Name
res1
Selections
AIRGAP1_Saveset_1_Selections_150338...
Create New
Target Client
AIRGAP1
Choose
Schedule
Immediate
Create New
Source Options
Any Device
Create New
Advanced Options
Restore from selected backup
Create New
Back
Save
Save & Submit

Restoring from DR3 using Primary NetVault Backup

Before restoring from DR3, ensure the following prerequisites have been met.

- Replication between DR2 and DR3 containers should be stopped and deleted. The DR3 should be in closed mode as there should be communication between DR2 and DR3 for propagating replication stop/deletion to each other.
- After replication deletion is confirmed on DR3, the container on DR3 should be given an RDS connection as follows:

  ```
  connection –-add –-name rda_t –-type RDS
  ```

- DR2 device should be deleted on NetVault Backup. This is needed as during backup, NetVault Backup transfers the meta-data. After replication, NetVault Backup will see the container on DR3 as the container on DR2.
- The Restore procedure is the same as described previously in the topic, Restoring from DR1 and DR2 containers using NetVault Backup; however, you would need to select the saveset from the DR3.

Example on DR2:

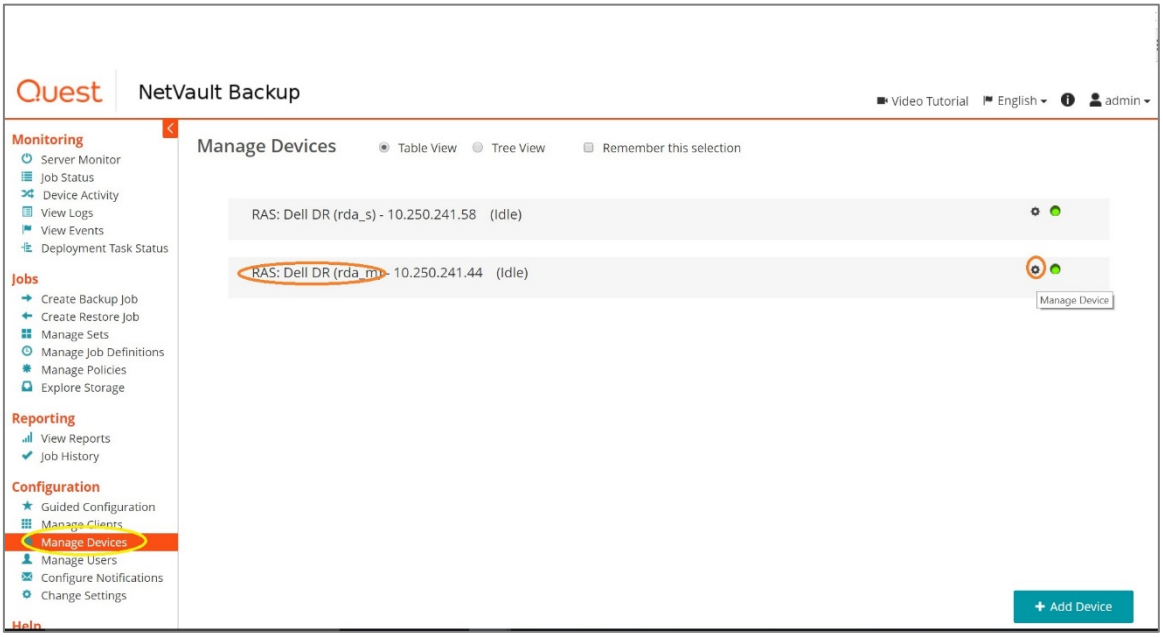
```
administrator@swsys-49 > replication --show
Container Name                  Replication Role        Status
backup                          None                    None
rda_m                           Source                  Enabled
administrator@swsys-49 >
administrator@swsys-49 >
administrator@swsys-49 > replication --stop --name rda_m --rolw source
--rolw is not a valid argument.
source is not a valid argument.
--role missing: Role of container.
administrator@swsys-49 > replication --show
Container Name                  Replication Role        Status
backup                          None                    None
rda_m                           Source                  Enabled
administrator@swsys-49 >
administrator@swsys-49 >
administrator@swsys-49 >
administrator@swsys-49 > replication --stop --name rda_m --role source
Replication configuration updated successfully.
Replication Container           : rda_m
Replication Role                : Source
Replication Target              : 10.250.240.195
Replication Target IP           : 10.250.240.195
Replication Target Mgmt Name    : 10.250.240.195
Replication Target Mgmt IP      : 10.250.240.195
Replication Local Data Name     : swsys-49.ocarina.local
Replication Local Data IP       : 10.250.243.119
Replication Target Container    : rda_t
Replication Enabled             : No
Replication Compression Enabled : Yes
Replication Encryption          : Not Enabled

administrator@swsys-49 > replication --show
Container Name                  Replication Role        Status
backup                          None                    None
rda_m                           Source                  Disabled
administrator@swsys-49 > replication --delete --name rda_m --role source
Successfully marked replication for deletion. Please run "container --show --verbose" to check
the status of replication.
administrator@swsys-49 > replication --show
Container Name                  Replication Role        Status
backup                          None                    None
rda_m                           None                    None
administrator@swsys-49 >
```

Example on DR3 :

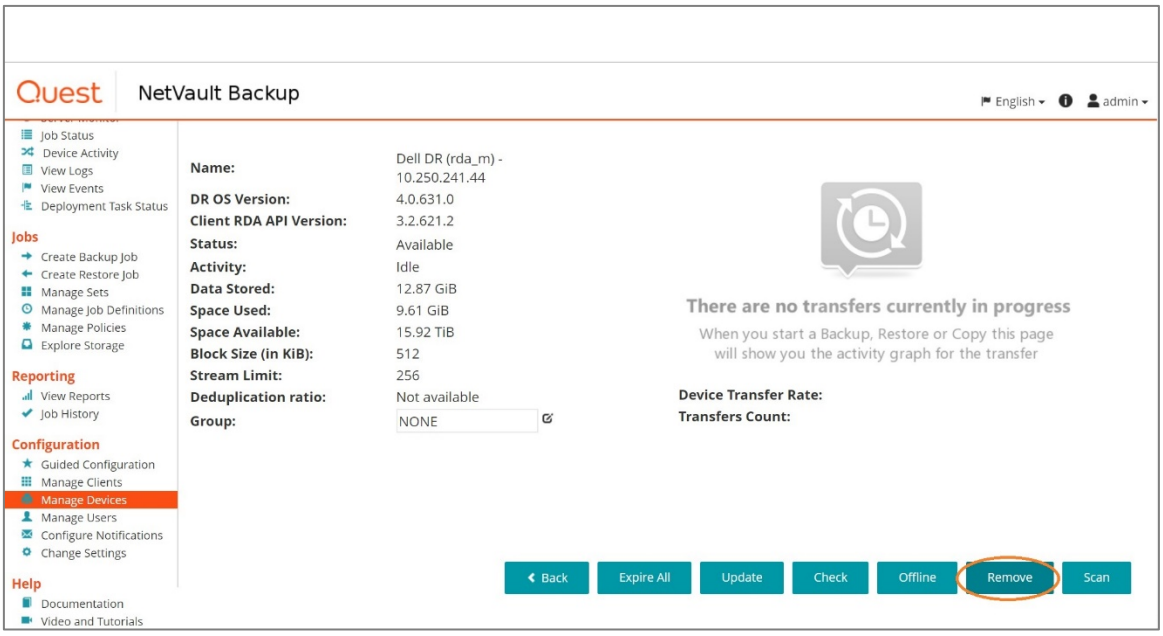
```
administrator@dr6300-35 > replication --show                    Before replication stop
Container Name                  Replication Role        Status
backup                          None                    None
rda_t                           Target                  Enabled
administrator@dr6300-35 > replication --show                    After Replication stop
Container Name                  Replication Role        Status
backup                          None                    None
rda_t                           Target                  Disabled
administrator@dr6300-35 >
administrator@dr6300-35 > replication --show                    After Replication delete
Container Name                  Replication Role        Status
backup                          None                    None
rda_t                           None                    None
administrator@dr6300-35 >
administrator@dr6300-35 > connection --add --name rda_t --type RDS
Successfully added connection entry.                            Connection add
RDS connection Quota            : Unlimited
RDS connection Enabled          : Yes
administrator@dr6300-35 >
administrator@dr6300-35 > container --show --name rda_t
Container's Group ID            : 0
Container's Group Name          : DefaultGroup
Container Name                  : rda_t
Container Path                  : /containers/rda_t
Container Marker                : None
RDS connection Quota            : Unlimited
RDS connection Used Capacity    : 0.0 GiB
RDS connection Enabled          : Yes
RDS connection status           : Available
administrator@dr6300-35 >
```

You need to delete the DR2 device on NetVault Backup as described below.

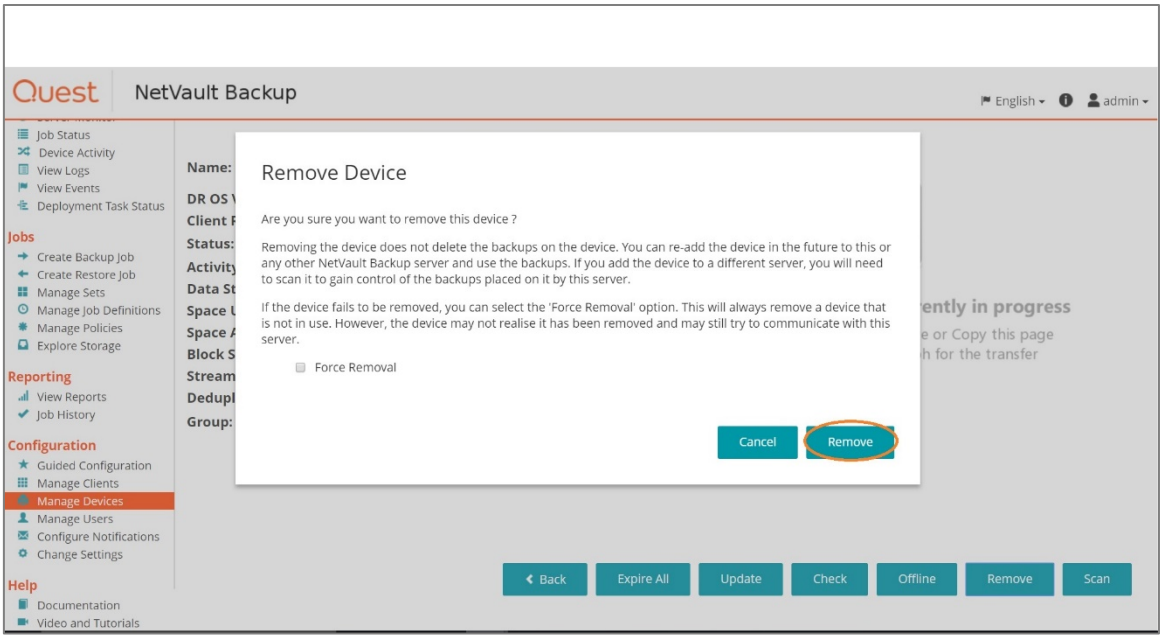
1 Click **Manage Devices** and select the device.



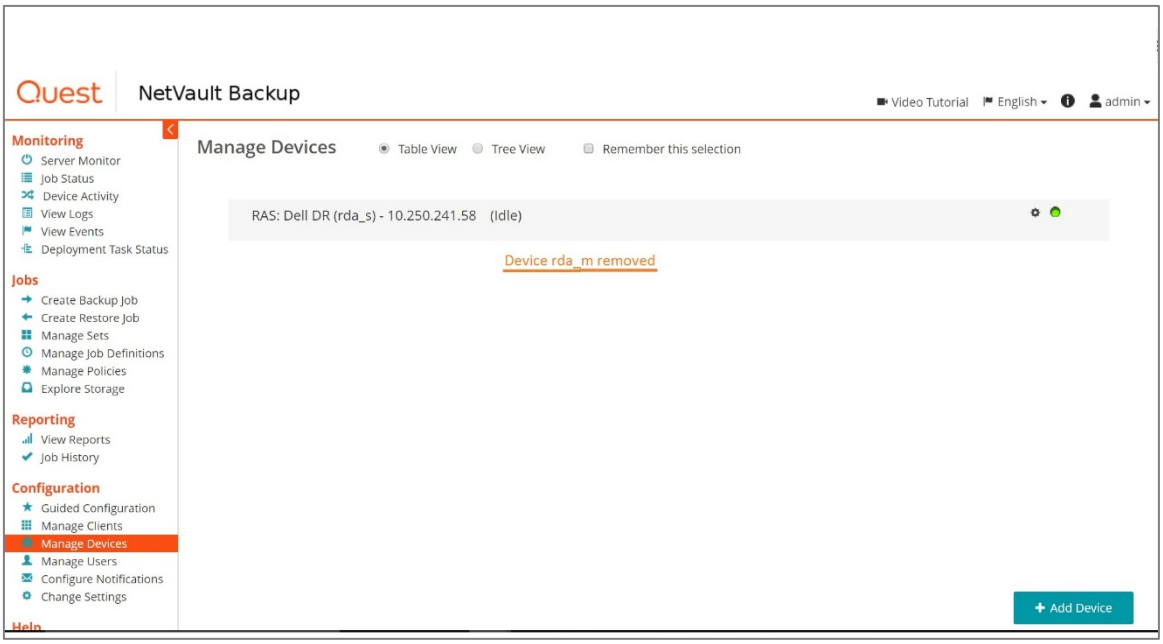
2 Click **Remove**.



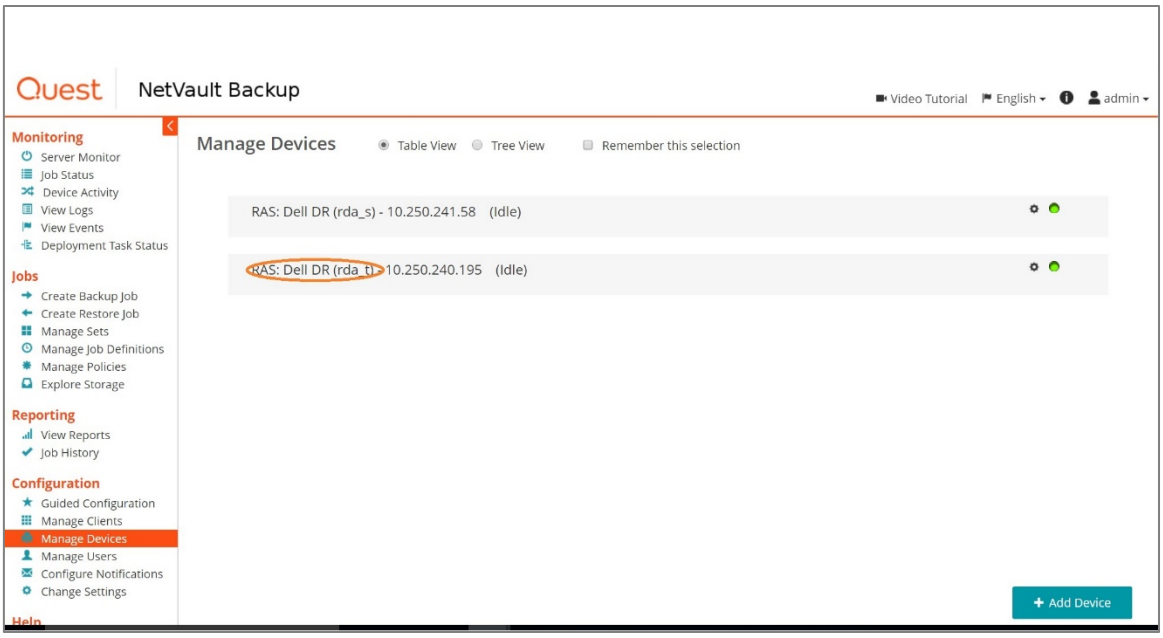
3 Click **Remove** to confirm deletion.



4 Verify the device has been removed.



5 Add the container rda_t to NetVault Backup.



6 Then restore the saveset from rda_t as described in the topic, Restoring from DR1 and DR2 containers using NetVault Backup.

Restoring from DR3 using a secondary NetVault Backup in isolated network

Ensure the following prerequisite has been met before creating a NetVault Backup server in the isolated network:

- The NetVault Backup server in the isolated network should have the same 'NetVault Backup Server name' as the Primary NetVault Backup Server. This is the NetVault Backup Server name and not the hostname/FQDN of the NetVault Backup Server. The NetVault Backup Server name will be, by default, the hostname during installation, but it is recommended to provide a name other than Hostname.

Ensure the following prerequisites have been met before adding the DR3 container to the NetVault Backup server in the isolated network:

- The NetVault Backup services on the Primary NetVault Backup Services should be stopped or the Device from DR2 on the Primary NetVault Backup server needs to be deleted. If you are not deleting or stopping the NetVault Backup services while adding the device to the isolated NetVault Backup Server, the device on the Primary NetVault Backup server can go offline. (This is because the NetVault Backup names are the same and the devices are considered as the same by both NetVault Backups).
- Replication between DR2 and DR3 containers should be stopped and then deleted. DR3 should in closed mode as there should be communication between DR2 and DR3 for propagating replication stop/deletion to each other.
- After replication deletion is confirmed on DR3, the container on DR3 should be given an RDS connection as follows:

  ```
  connection --add --name rda_t --type RDS
  ```

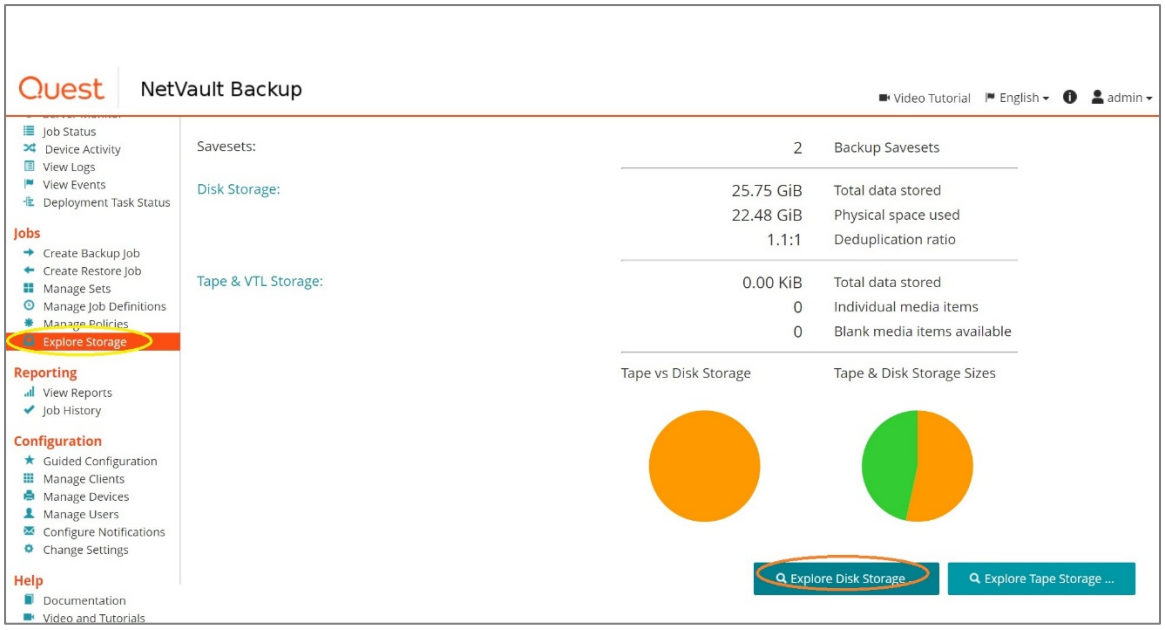
- Then, follow the restore procedure as described in the topic, Restoring from DR1 and DR2 containers using NetVault Backup.

Verifying the retention period on DR3

Depending on the retention period set, the DR3 container should retain data until the retention period ends from the time of deletion on the DR2 container.

To confirm that the data is retained even after it is deleted on DR2 container, you can manually delete the saveset on the DR2 container from NetVault Backup by using the following procedure.

- Explore storage > Select device > Explore saveset > Select saveset > Remove saveset.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Manage Devices
Manage Users
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Change Settings
Help
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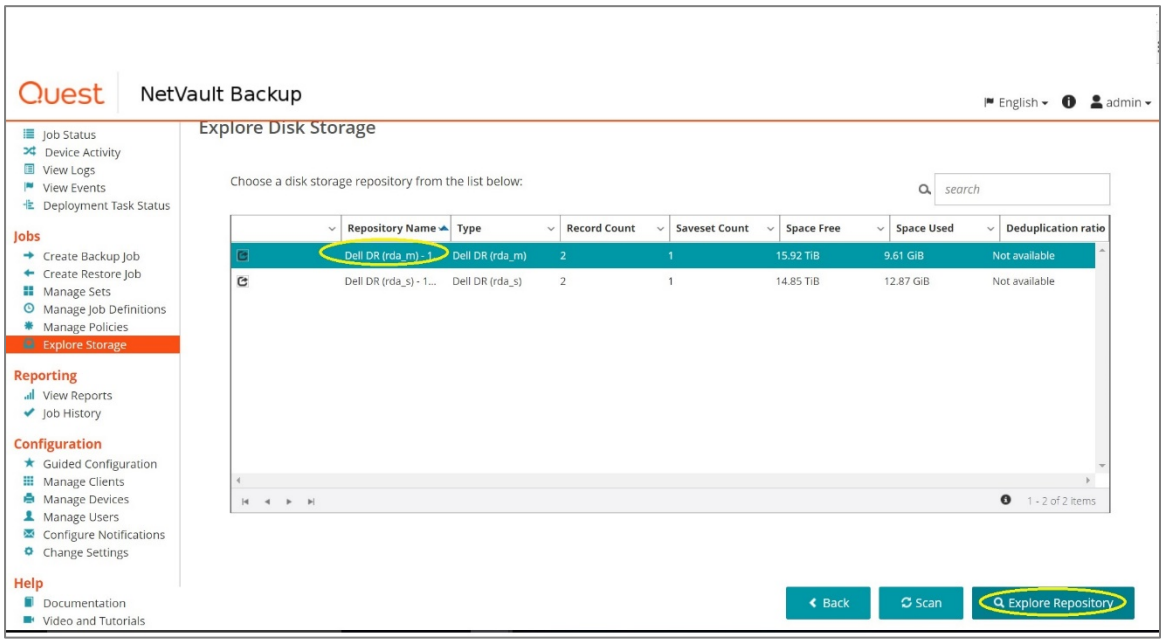
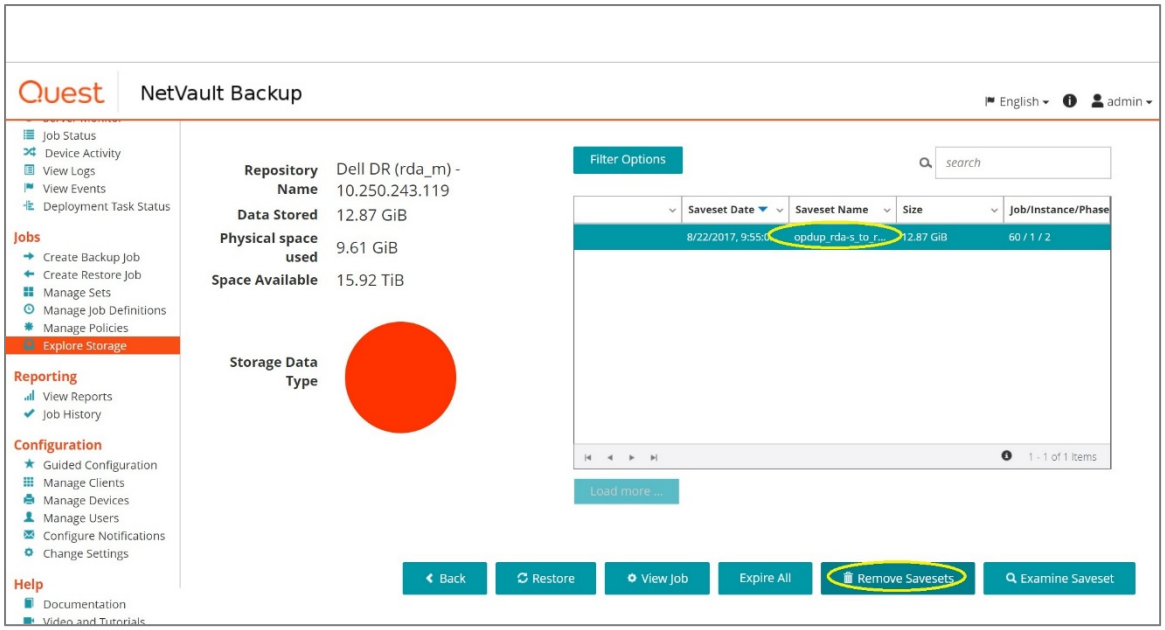
Savesets:
2
Backup Savesets
Disk Storage:
25.75 GiB
Total data stored
22.48 GiB
Physical space used
1.1:1
Deduplication ratio
Tape & VTL Storage:
0.00 KiB
Total data stored
0
Individual media items
0
Blank media items available
Tape vs Disk Storage
Tape & Disk Storage Sizes
Explore Disk Storage
Explore Tape Storage ...


Quest
NetVault Backup
English
admin
Explore Disk Storage
Choose a disk storage repository from the list below:
search
Repository Name
Type
Record Count
Saveset Count
Space Free
Space Used
Deduplication ratio
Dell DR (rda_m) - 1...
Dell DR (rda_m)
2
1
15.92 TiB
9.61 GiB
Not available
Dell DR (rda_s) - 1...
Dell DR (rda_s)
2
1
14.85 TiB
12.87 GiB
Not available
1 - 2 of 2 items
Back
Scan
Explore Repository


Quest
NetVault Backup
English
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Deployment Task Status
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Manage Sets
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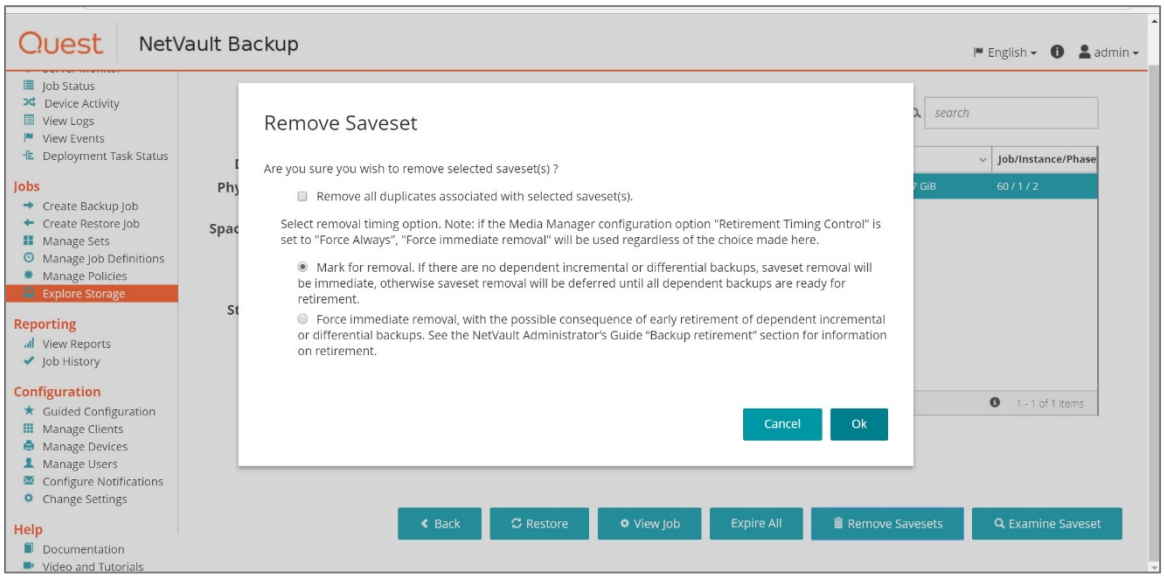
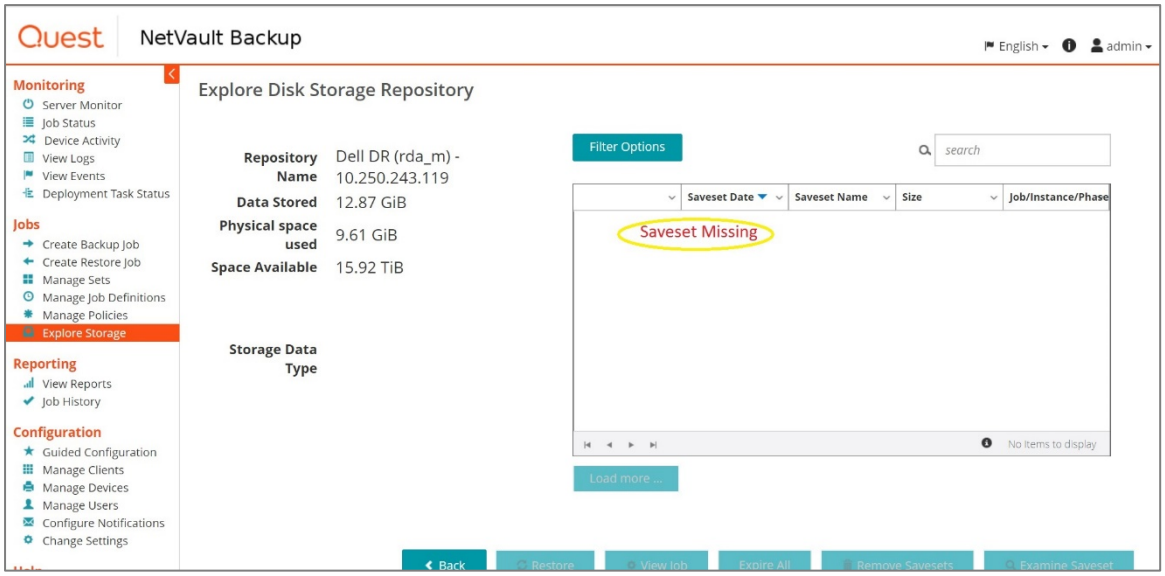
Manage Clients
Manage Devices
Manage Users
Configure Notifications
Change Settings
Help
Documentation
Video and Tutorials
Repository Name
Dell DR (rda_m) - 10.250.243.119
Data Stored
12.87 GiB
Physical space used
9.61 GiB
Space Available
15.92 TiB
Storage Data Type
Filter Options
search
Saveset Date
Saveset Name
Size
Job/Instance/Phase
8/22/2017, 9:55:0
opdup_rda-s_to_r...
12.87 GiB
60 / 1 / 2
1 - 1 of 1 Items
Load more ...
Back
Restore
View Job
Expire All
Remove Savesets
Examine Saveset


Quest
NetVault Backup
English
admin
Remove Saveset
Are you sure you wish to remove selected saveset(s) ?
Remove all duplicates associated with selected saveset(s).
Select removal timing option. Note: if the Media Manager configuration option "Retirement Timing Control" is set to "Force Always", "Force immediate removal" will be used regardless of the choice made here.
Mark for removal. If there are no dependent incremental or differential backups, saveset removal will be immediate, otherwise saveset removal will be deferred until all dependent backups are ready for retirement.
Force immediate removal, with the possible consequence of early retirement of dependent incremental or differential backups. See the NetVault Administrator's Guide "Backup retirement" section for information on retirement.
Cancel
Ok
Back
Restore
View Job
Expire All
Remove Savesets
Examine Saveset



After removing the saveset on DR2 container, either from the isolated NetVault Backup or the primary NetVault Backup, add the DR3 container and verify that the saveset is present on DR3. You should be able to restore.