Setting up the DR Series System on BridgeHead® Healthcare Data Management

Technical White Paper

Quest Engineering

October 2017

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■ **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.**

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

Setting Up the DR Series System on BridgeHead® Healthcare Data Management

Updated – December 22, 2017

Contents

Revisions

Date	Description
January 2014	Initial release
November 2016	Updated the guide with new DR-4.0 GUI screens
October 2017	Updated with new Quest-branded GUI screens (v4.0.3)

Executive Summary

This paper provides information about how to set up the DR Series system as a backup to disk target for BridgeHead Healthcare Data Management (HDM) 12B.

For additional information, see the DR Series system documentation and other data management application best practices whitepapers for your specific DR Series system at:

http://support.quest.com/DR-Series

ℹ **NOTE:** The DR Series system/ BridgeHead HDM build version and screenshots used in this document might vary slightly, depending on the version of the DR Series system/ BridgeHead HDM Software version you are using.

Installing and configuring the DR Series system

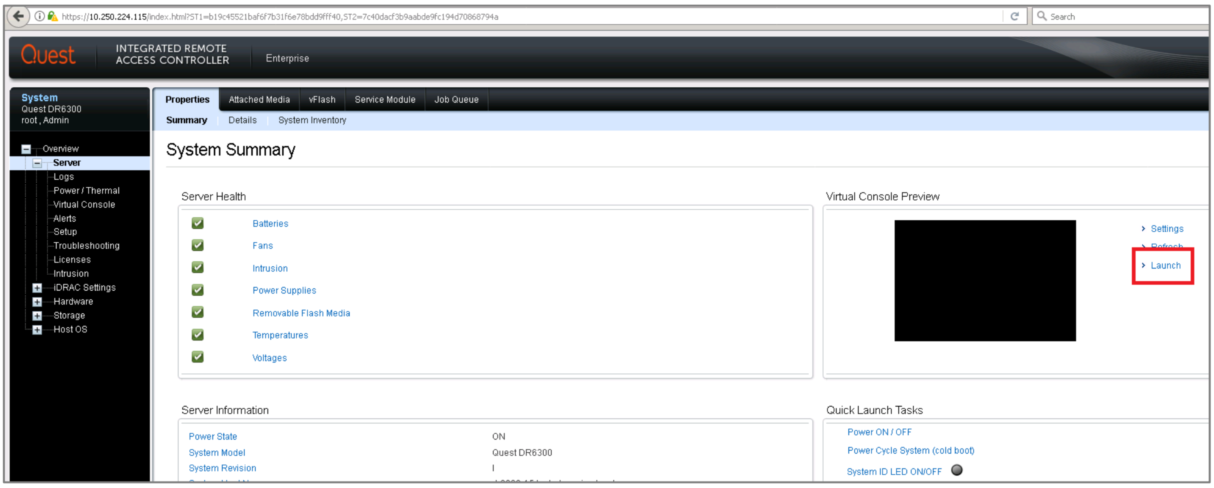
1 Rack and cable the DR Series system, and power it on. In the *Quest DR Series System Administrator Guide*, see the following sections for information about using the iDRAC connection and initializing the appliance.

- "iDRAC Connection",
- "Logging in and Initializing the DR Series system"
- "Accessing IDRAC6/Idrac7 Using RACADM"

2 Log on to iDRAC using the default credentials (username: **root** and password: **calvin**) and either:

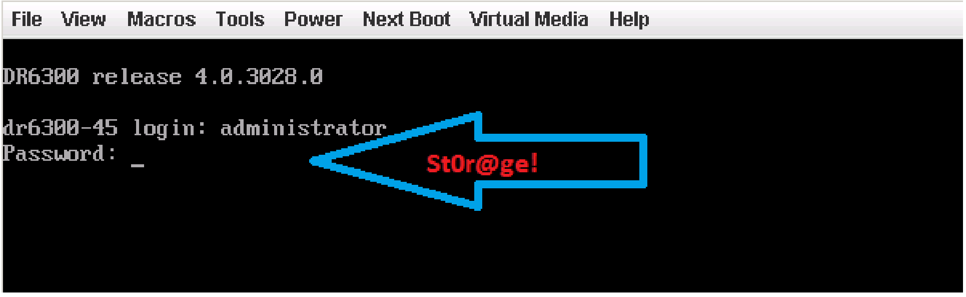
- the default address **192.168.0.120**,
- or the IP address that is assigned to the iDRAC interface

3 Launch the virtual console.



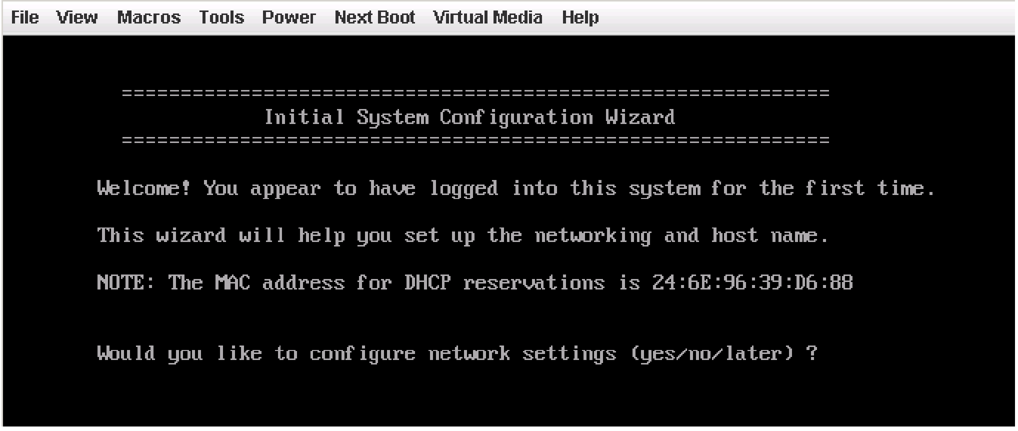
Power State ON
System Model Quest DR6300
System Revision I

4 After the virtual console opens, log on to the system (with the username: **administrator** and password: **St0r@ge!** where the "0" in the password is the numeral zero).



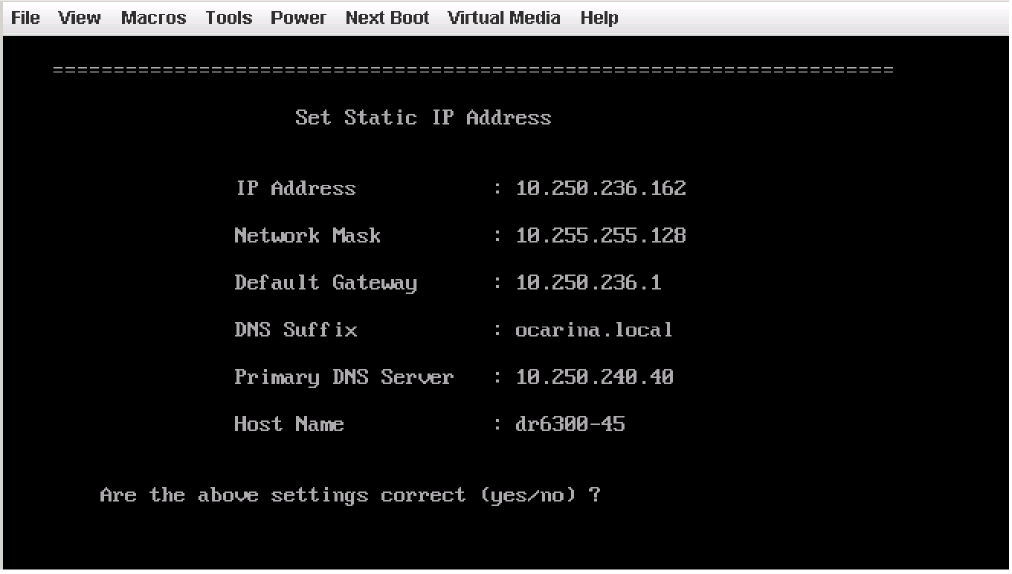
```
DR6300 release 4.0.3028.0

dr6300-45 login: administrator
Password: _
```

5 Set the user-defined networking preferences.



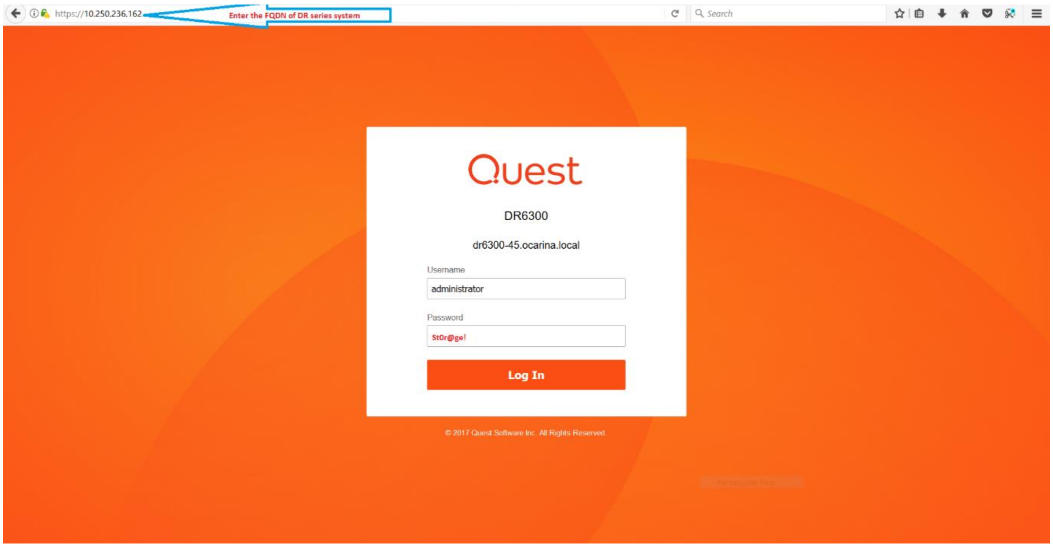
```
    ============================================================
                Initial System Configuration Wizard
    ============================================================

  Welcome! You appear to have logged into this system for the first time.

  This wizard will help you set up the networking and host name.

  NOTE: The MAC address for DHCP reservations is 24:6E:96:39:D6:88


  Would you like to configure network settings (yes/no/later) ?
```

6 View the summary of preferences and confirm that it is correct.



```
========================================================================

                    Set Static IP Address


               IP Address             : 10.250.236.162

               Network Mask           : 10.255.255.128

               Default Gateway        : 10.250.236.1

               DNS Suffix             : ocarina.local

               Primary DNS Server     : 10.250.240.40

               Host Name              : dr6300-45


    Are the above settings correct (yes/no) ?
```

7 Log on to the DR Series system administrator console, using the IP address with username **administrator** and password **St0r@ge!** (The “0” in the password is the numeral zero.).



Enter the FQDN of DR series system

DR6300

dr6300-45.ocarina.local

Username: administrator

Password: St0r@ge!

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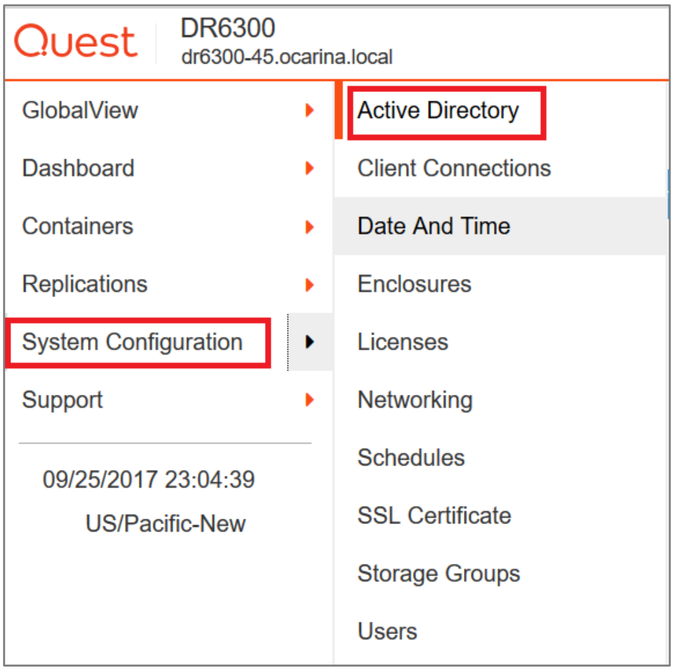
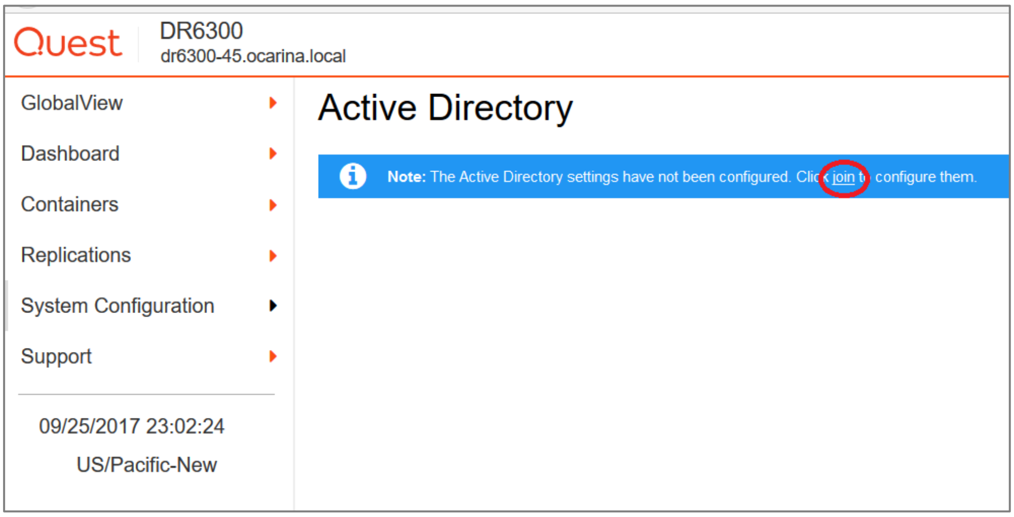
8 Join the DR Series system to Active Directory.

> **NOTE:** if you do not want to add the DR Series system to Active Directory, see *the DR Series System Owner's Manual* for guest logon instructions.

a In the left navigation area of the DR Series system GUI, click **System Configuration** and then select **Active Directory**.

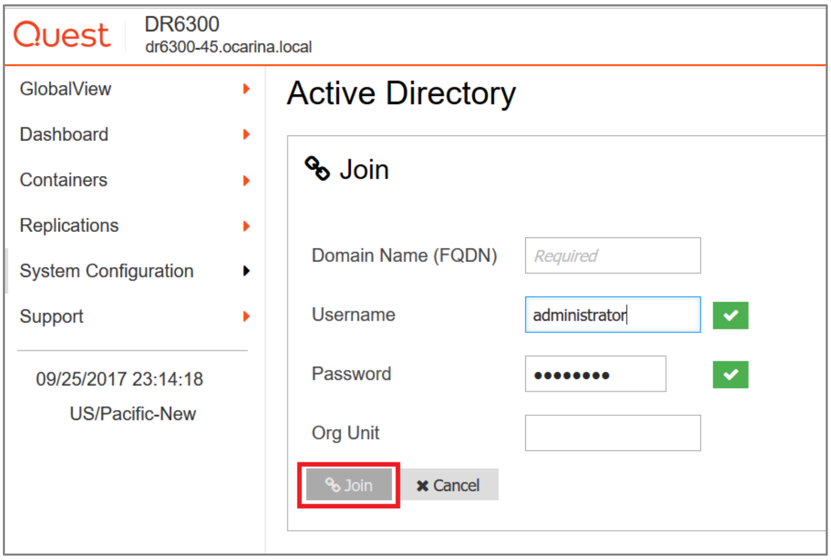


b Click **Join**.



Note: The Active Directory settings have not been configured. Click join to configure them.

c Enter valid credentials and click **Join**.



Active Directory

Join

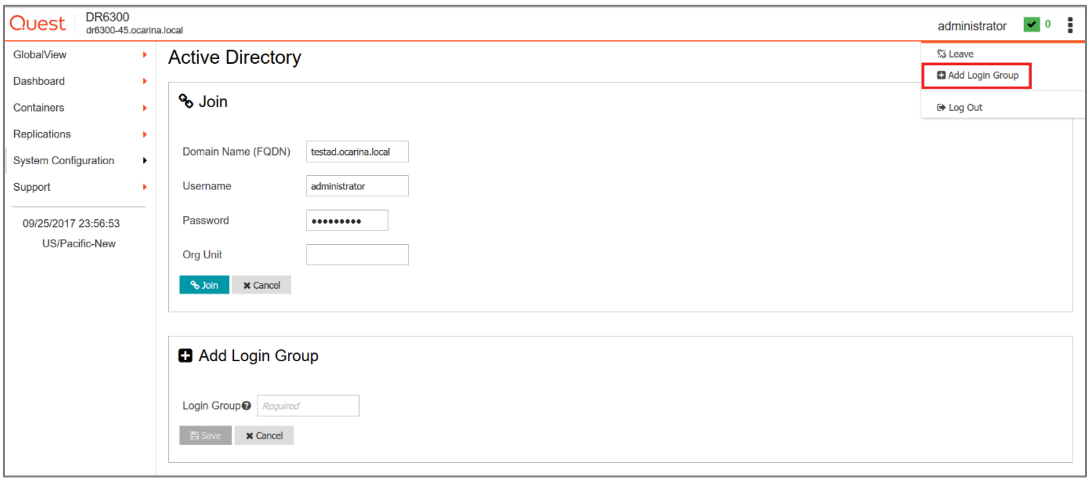
Domain Name (FQDN): Required

Username: administrator ✓

Password: •••••••• ✓

Org Unit:

d On the Action menu in the upper right corner of the page, click **Add Login Group**.



Active Directory

Join

Domain Name (FQDN): testad.ocarina.local

Username: administrator

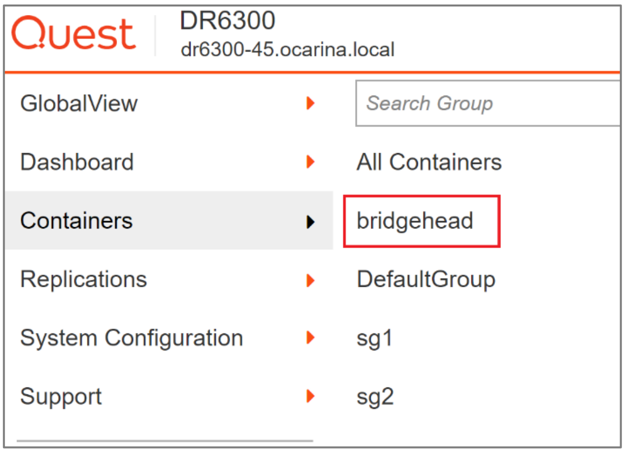
Password: •••••••••

Org Unit:

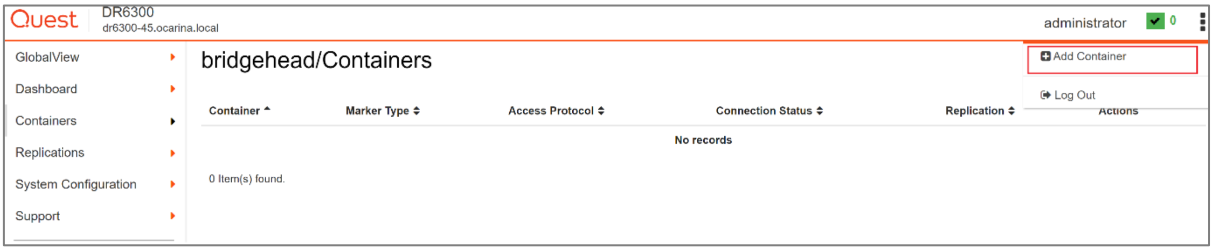
Add Login Group

Login Group: Required

9 You now need to create and mount the container. In the left navigation menu, click **Containers -> <Storage Group>.**



10 On the Action menu in the upper right corner of the page, **Add Container**.



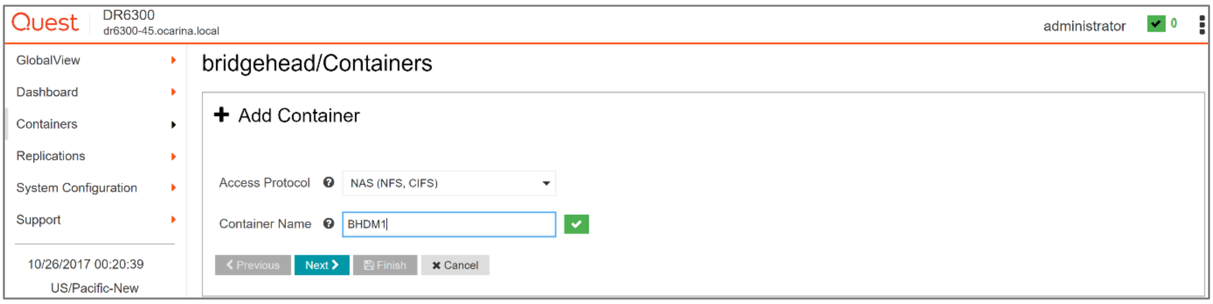
bridgehead/Containers

Container	Marker Type	Access Protocol	Connection Status	Replication	Actions
No records					

0 Item(s) found.

11 Enter a container name.

12 For the Access Protocol, select **NAS (NFS, CIFS)** and then click **Next**.



bridgehead/Containers

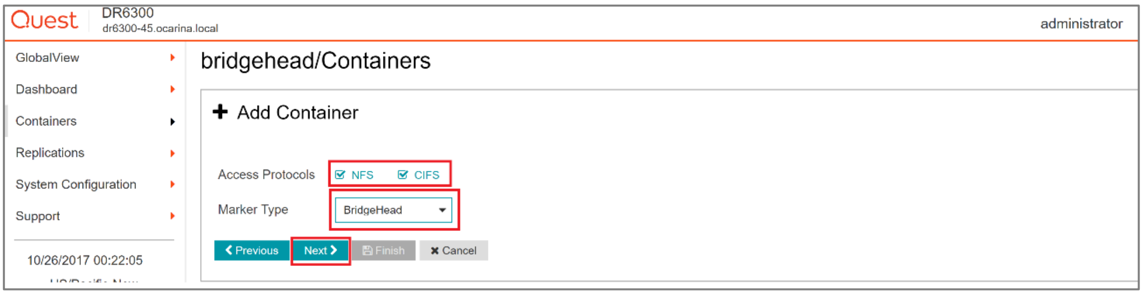
Add Container

Access Protocol: NAS (NFS, CIFS)

Container Name: BHDM1

10/26/2017 00:20:39
US/Pacific-New

13 Select **NFS, CIFS** as the access protocol and the Marker Type as **BridgeHead**, and then click **Next**.



bridgehead/Containers

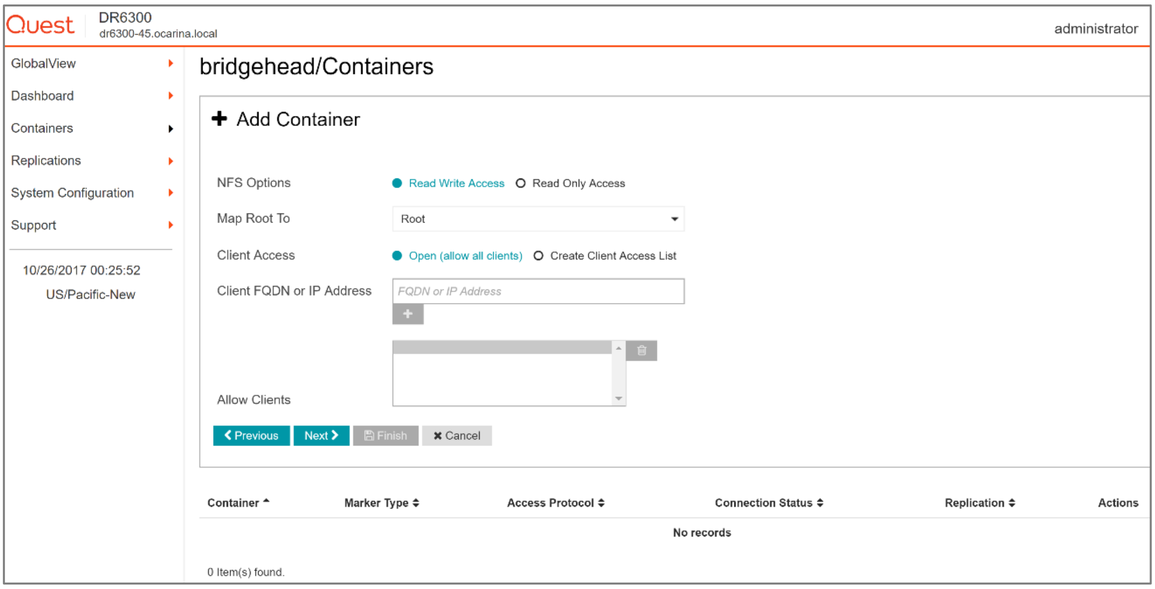
Add Container

Access Protocols: ☑ NFS ☑ CIFS

Marker Type: BridgeHead

10/26/2017 00:22:05

14 Configure the NFS and CIFS client access settings and click **Next**.



bridgehead/Containers

Add Container

NFS Options: ● Read Write Access ○ Read Only Access

Map Root To: Root

Client Access: ● Open (allow all clients) ○ Create Client Access List

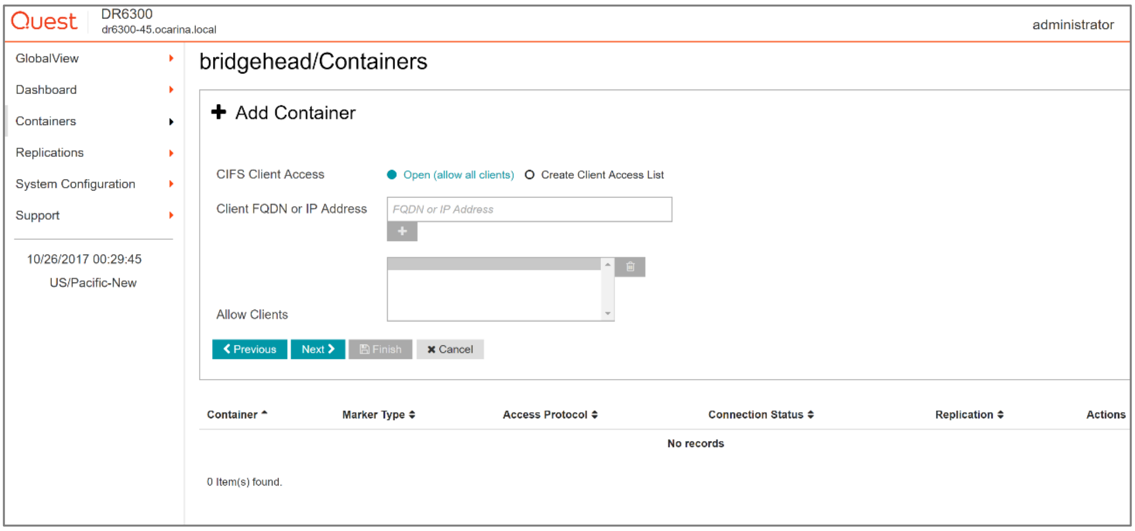
Client FQDN or IP Address: FQDN or IP Address

Allow Clients

10/26/2017 00:25:52
US/Pacific-New

Container	Marker Type	Access Protocol	Connection Status	Replication	Actions
No records					

0 Item(s) found.

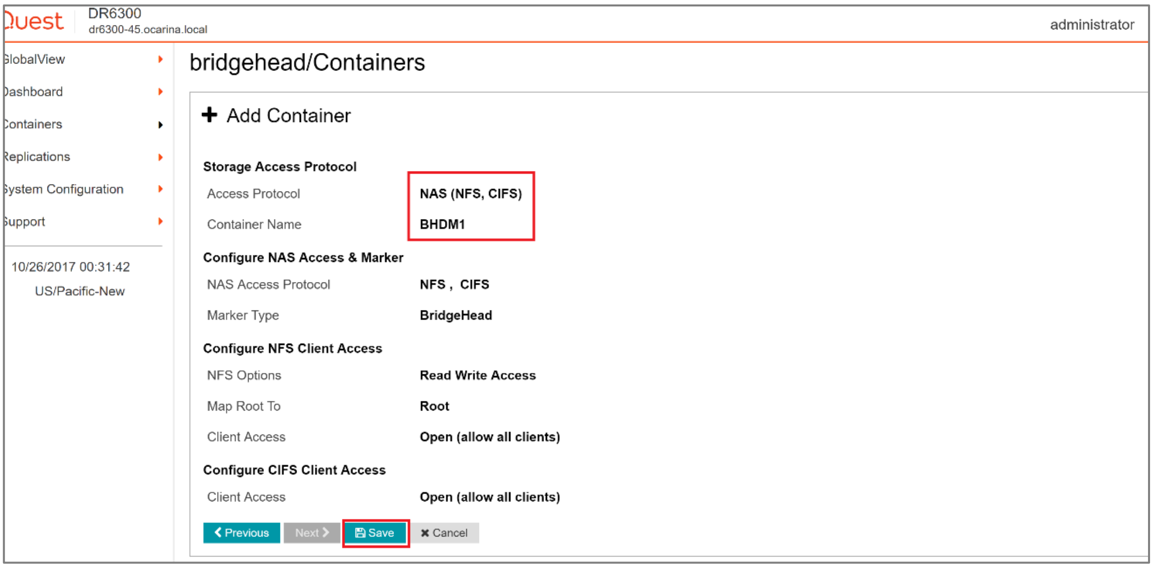


CIFS Client Access	● Open (allow all clients) ○ Create Client Access List
Client FQDN or IP Address	
Allow Clients	

Container	Marker Type	Access Protocol	Connection Status	Replication	Actions
No records					

0 Item(s) found.

15 Review the summary and then click **Save** to add the container.



Storage Access Protocol

Access Protocol	**NAS (NFS, CIFS)**
Container Name	**BHDM1**

Configure NAS Access & Marker

NAS Access Protocol	**NFS , CIFS**
Marker Type	**BridgeHead**

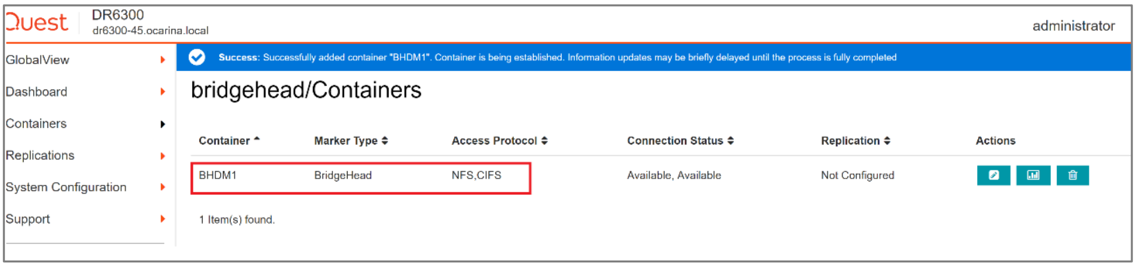
Configure NFS Client Access

NFS Options	**Read Write Access**
Map Root To	**Root**
Client Access	**Open (allow all clients)**

Configure CIFS Client Access

Client Access	**Open (allow all clients)**

16 Confirm that the container is added.



Success: Successfully added container "BHDM1". Container is being established. Information updates may be briefly delayed until the process is fully completed

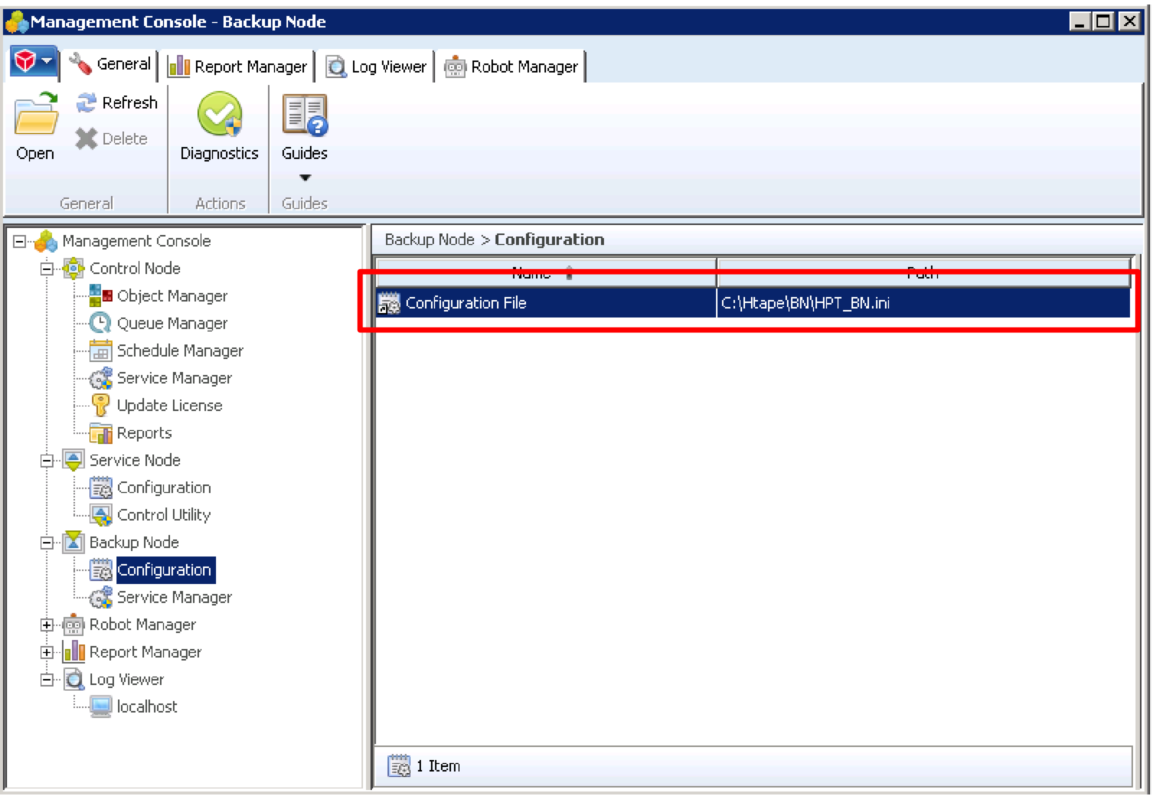
Container	Marker Type	Access Protocol	Connection Status	Replication	Actions
BHDM1	BridgeHead	NFS,CIFS	Available, Available	Not Configured	

1 Item(s) found.

Setting up BridgeHead Healthcare Data Management

For a Windows Environment

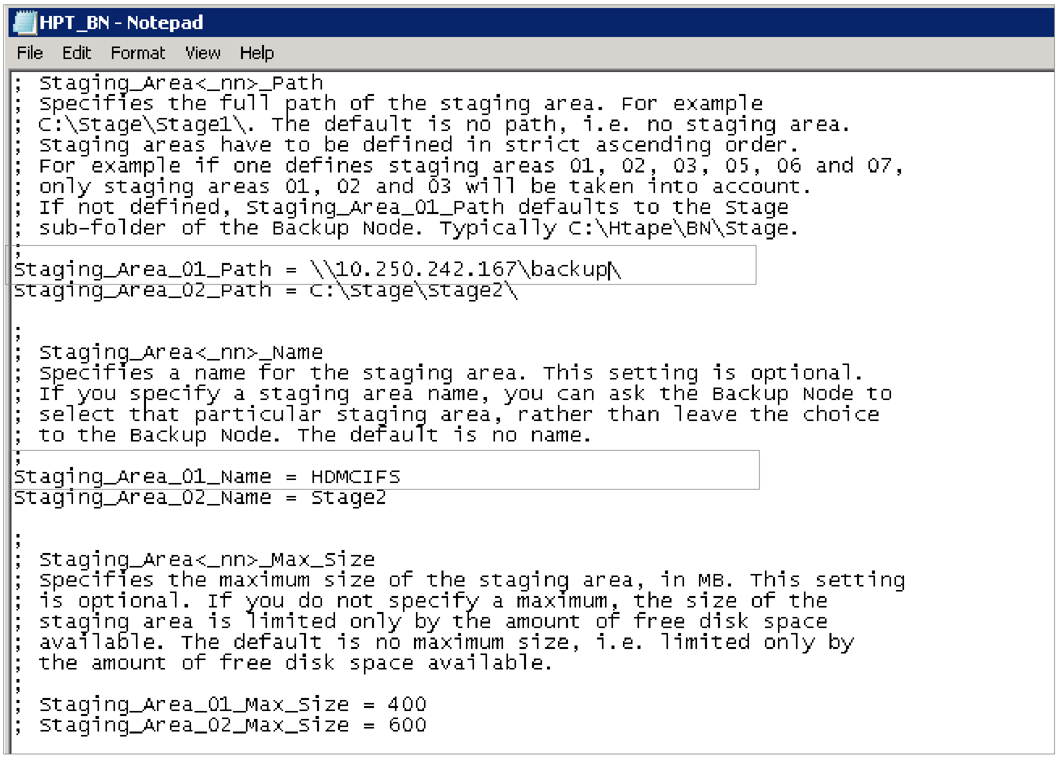
1 Open the BridgeHead HDM Management Console, click **Backup Node** > **Configuration**, and then double-click the Configuration File to open it (in a text editor).



Name	Path
Configuration File	C:\Htape\BN\HPT_BN.ini

2 In the configuration file, search for “**Staging_Area**,” and then enter the following information for the staging area entries:

- **Staging Area Path** - Enter the DR container share UNC path.
- **Staging Area Name** - Enter a name for the staging area.



```
; Staging_Area<_nn>_Path
; Specifies the full path of the staging area. For example
; C:\Stage\Stage1\. The default is no path, i.e. no staging area.
; Staging areas have to be defined in strict ascending order.
; For example if one defines staging areas 01, 02, 03, 05, 06 and 07,
; only staging areas 01, 02 and 03 will be taken into account.
; If not defined, Staging_Area_01_Path defaults to the Stage
; sub-folder of the Backup Node. Typically C:\Htape\BN\Stage.
;
Staging_Area_01_Path = \\10.250.242.167\backup\
Staging_Area_02_Path = C:\Stage\Stage2\

;
; Staging_Area<_nn>_Name
; Specifies a name for the staging area. This setting is optional.
; If you specify a staging area name, you can ask the Backup Node to
; select that particular staging area, rather than leave the choice
; to the Backup Node. The default is no name.
;
Staging_Area_01_Name = HDMCIFS
Staging_Area_02_Name = Stage2

;
; Staging_Area<_nn>_Max_Size
; Specifies the maximum size of the staging area, in MB. This setting
; is optional. If you do not specify a maximum, the size of the
; staging area is limited only by the amount of free disk space
; available. The default is no maximum size, i.e. limited only by
; the amount of free disk space available.
;
; Staging_Area_01_Max_Size = 400
; Staging_Area_02_Max_Size = 600
```

3 Save the configuration file.

NOTE: The Backup Node for BridgeHead Healthcare Data Management requires appropriate permissions to the DR Series system CIFS Share for the remaining steps to complete successfully. See **Appendix A** for setting up the BridgeHead Healthcare Data Management Backup Node account correctly. This should be done before proceeding to the next step.

For the Unix/Linux Environment

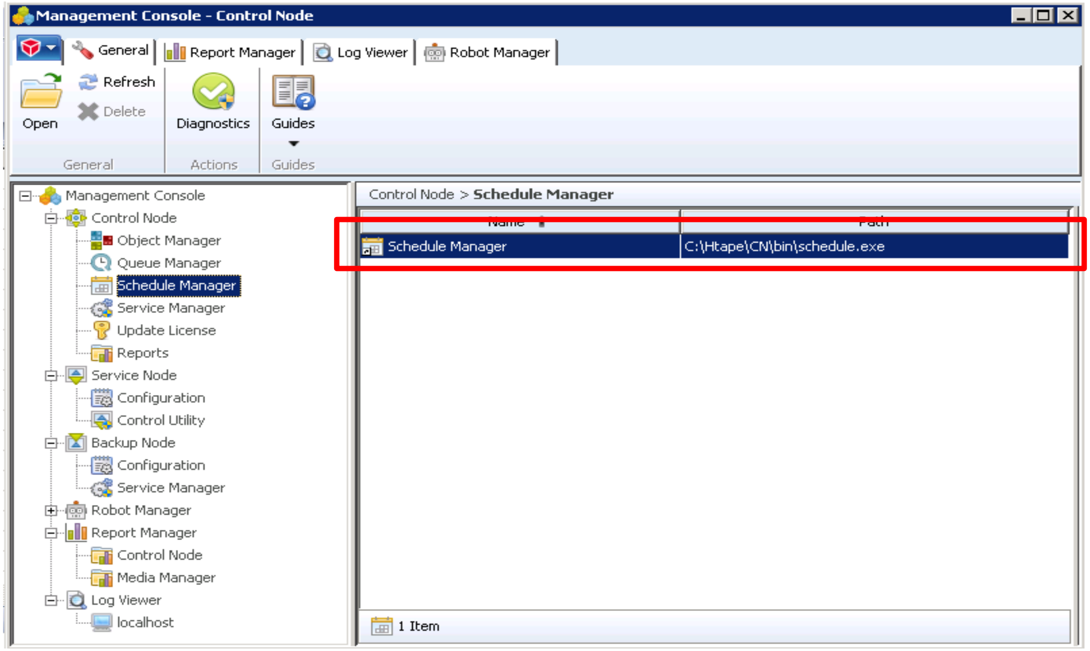
The procedure for setting up the Unix/Linux environment is very similar to the procedure for the Windows environment. One difference is that the configuration file for the Backup Node is named, ht_media.def; and the default location for the file is /etc/ht_media.def.

Make sure that you can mount/verify the NFS share from the UNIX/Linux backup node. Refer to Appendix B for information on how to mount/verify the NFS share.

For other details, refer to the preceding section that describes the procedure for the Windows Environment.

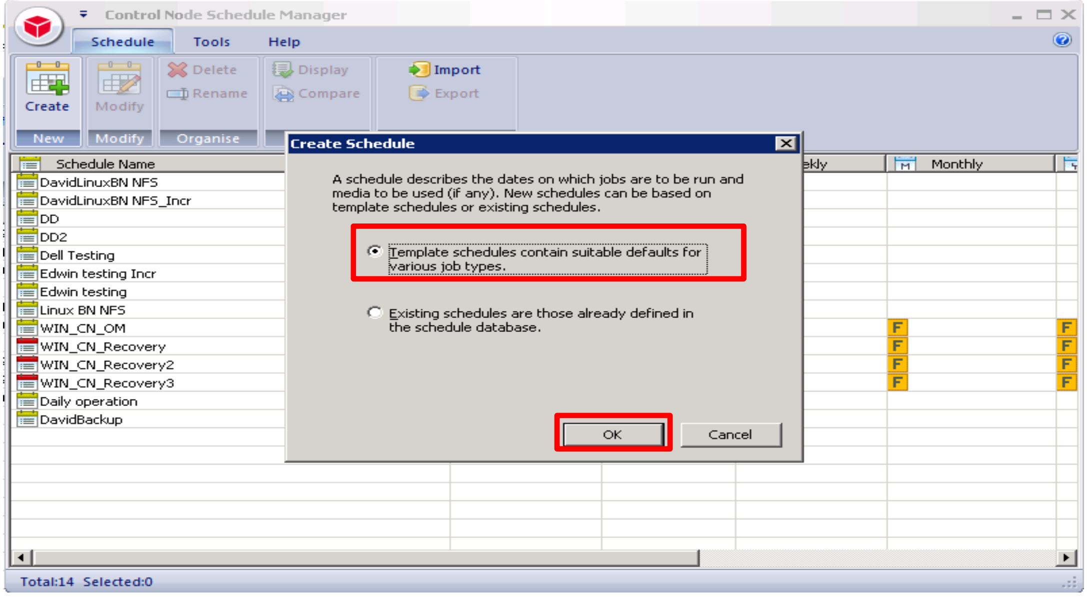
Creating a new backup job with a DR Series system as the target

1 In the BridgeHead HDM Management Console, click **Control Node** > **Schedule Manager**, and then double-click the **Schedule Manager** to open it.



Name	Path
Schedule Manager	C:\Htape\CN\bin\schedule.exe

2 In the Create Schedule dialog box, select the option, **Template schedules contain suitable defaults for various job types**, and then click **OK**.



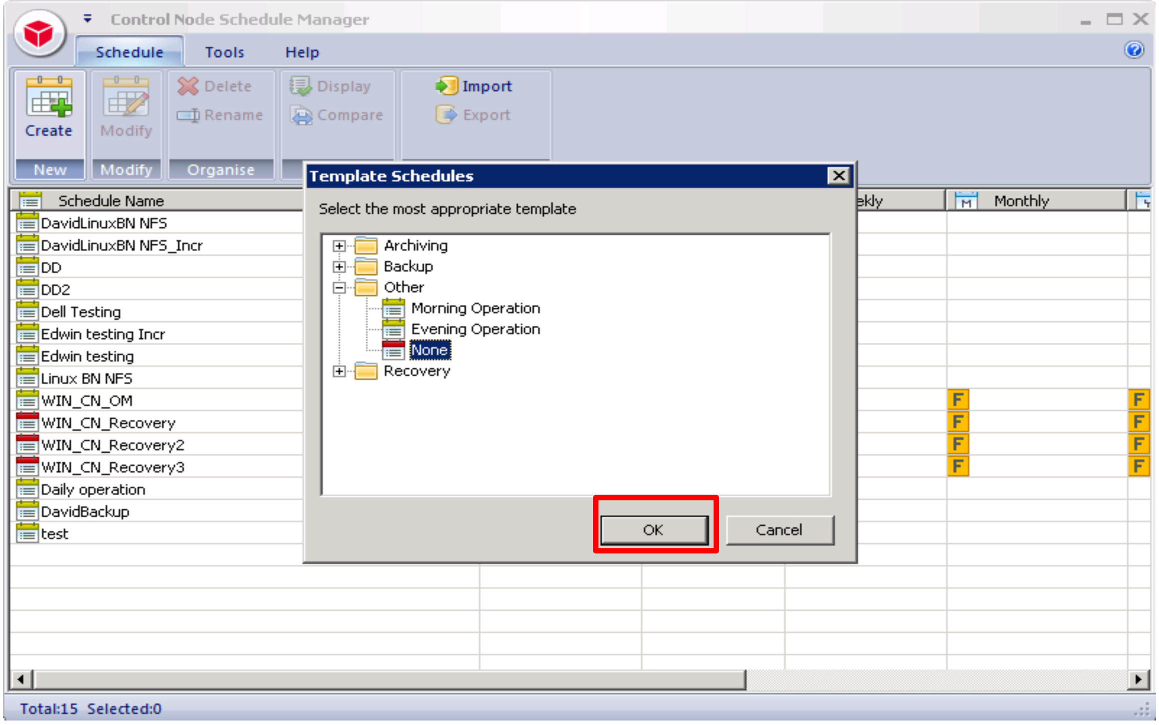
Create Schedule

A schedule describes the dates on which jobs are to be run and media to be used (if any). New schedules can be based on template schedules or existing schedules.

● Template schedules contain suitable defaults for various job types.

○ Existing schedules are those already defined in the schedule database.

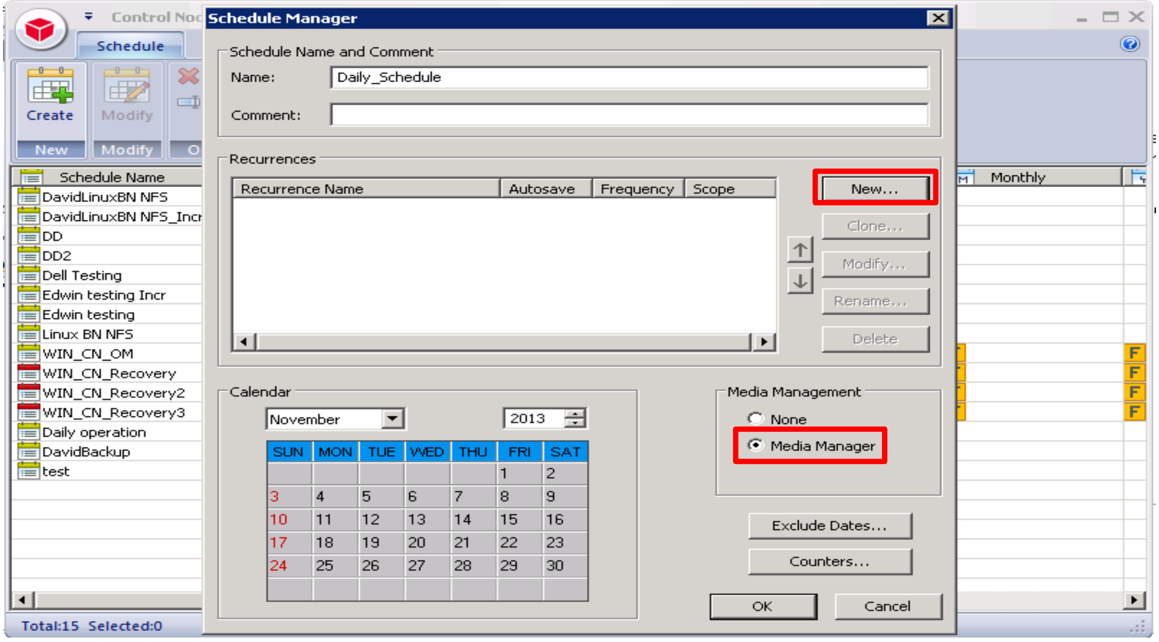
3 In the Template Schedules dialog box, click **None**, and then click **OK**.



Template Schedules

Select the most appropriate template

4 In the Schedule Manager dialog box, enter information for the required fields, and, then under **Media Management**, select **Media Manager**, and click **New**.



Schedule Manager

Schedule Name and Comment

Name: Daily_Schedule

Comment:

Recurrences

Recurrence Name	Autosave	Frequency	Scope

New... Clone... Modify... Rename... Delete

Calendar

November 2013

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Media Management

○ None

● Media Manager

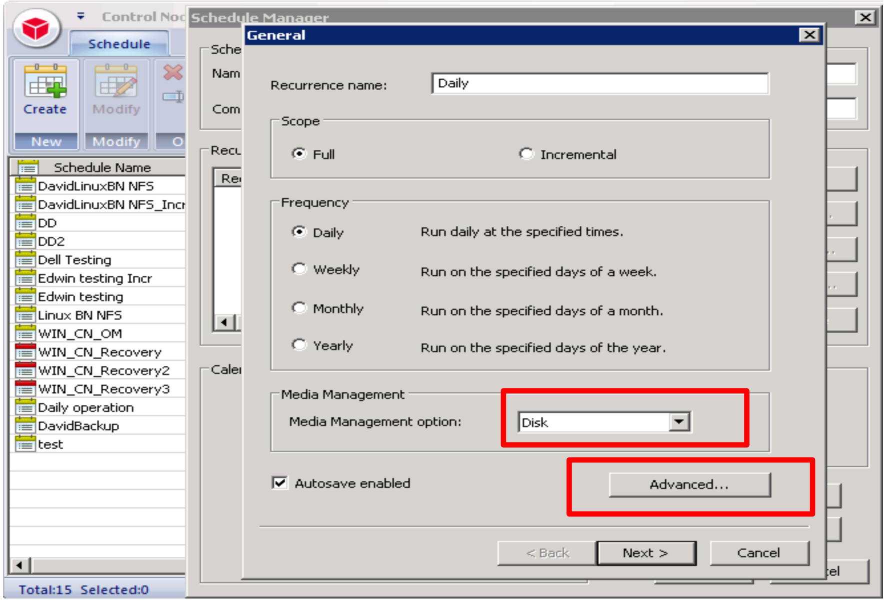
Exclude Dates... Counters...

OK Cancel

Schedule Name

- DavidLinuxBN NFS
- DavidLinuxBN NFS_Incr
- DD
- DD2
- Dell Testing
- Edwin testing Incr
- Edwin testing
- Linux BN NFS
- WIN_CN_OM
- WIN_CN_Recovery
- WIN_CN_Recovery2
- WIN_CN_Recovery3
- Daily operation
- DavidBackup
- test

5 In the General dialog box, in the Media Management drop-down list, select **Disk**, and then click **Advanced.**



General

Recurrence name: Daily

Scope

● Full ○ Incremental

Frequency

● Daily Run daily at the specified times.

○ Weekly Run on the specified days of a week.

○ Monthly Run on the specified days of a month.

○ Yearly Run on the specified days of the year.

Media Management

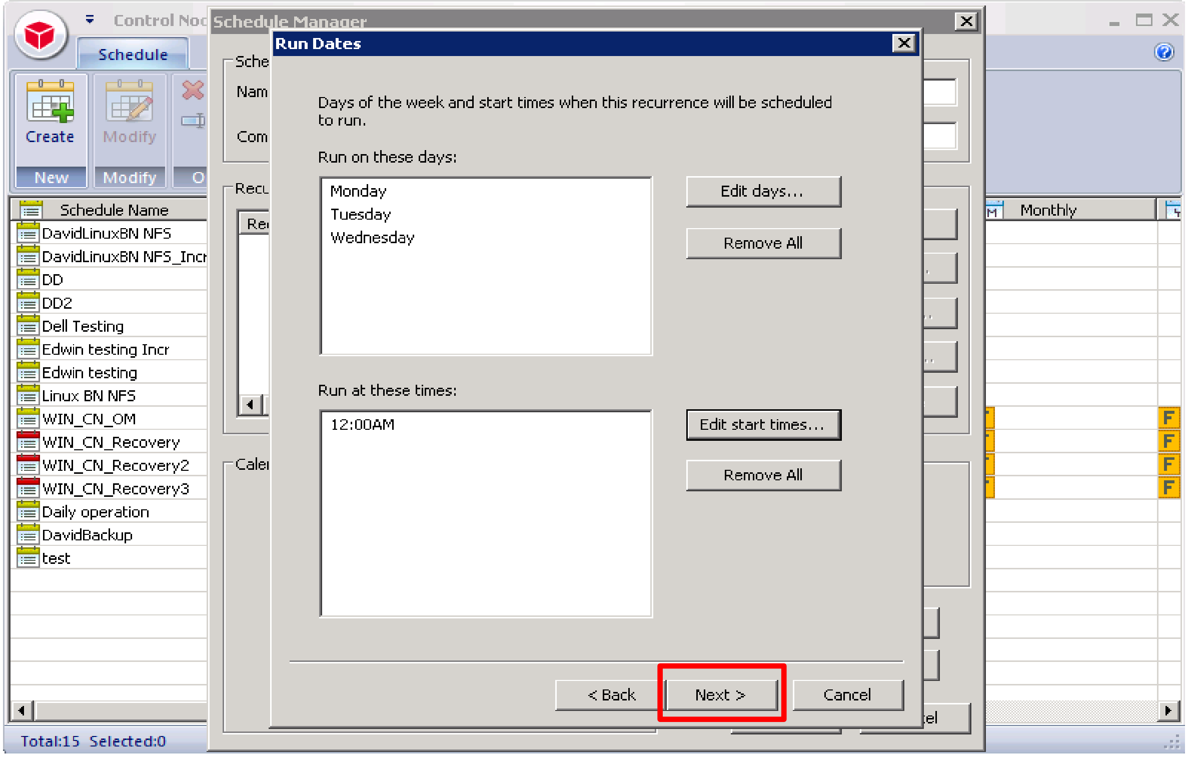
Media Management option: Disk

☑ Autosave enabled

Advanced...

< Back Next > Cancel

6 In the Run Dates dialog box, specify the required schedule options, and then click **Next**.



Run Dates

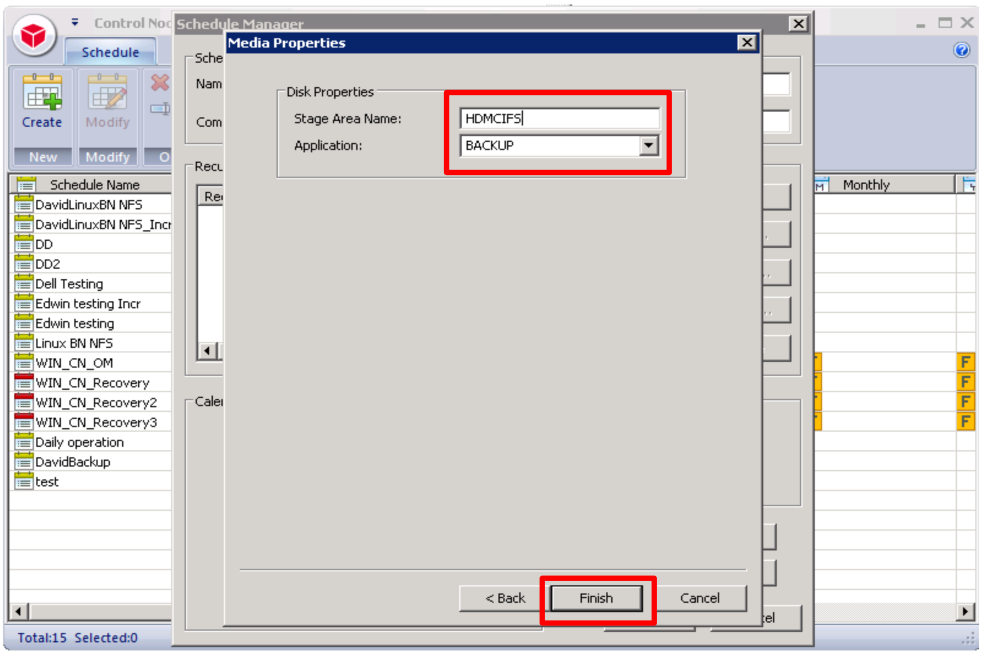
Days of the week and start times when this recurrence will be scheduled to run.

Run on these days:
Monday
Tuesday
Wednesday

Run at these times:
12:00AM

7 In the Media Properties dialog box, enter the following information, and then click **Finish**:

- **Stage Area Name** – Enter the stage area name.
- **Application** - Enter **BACKUP**.



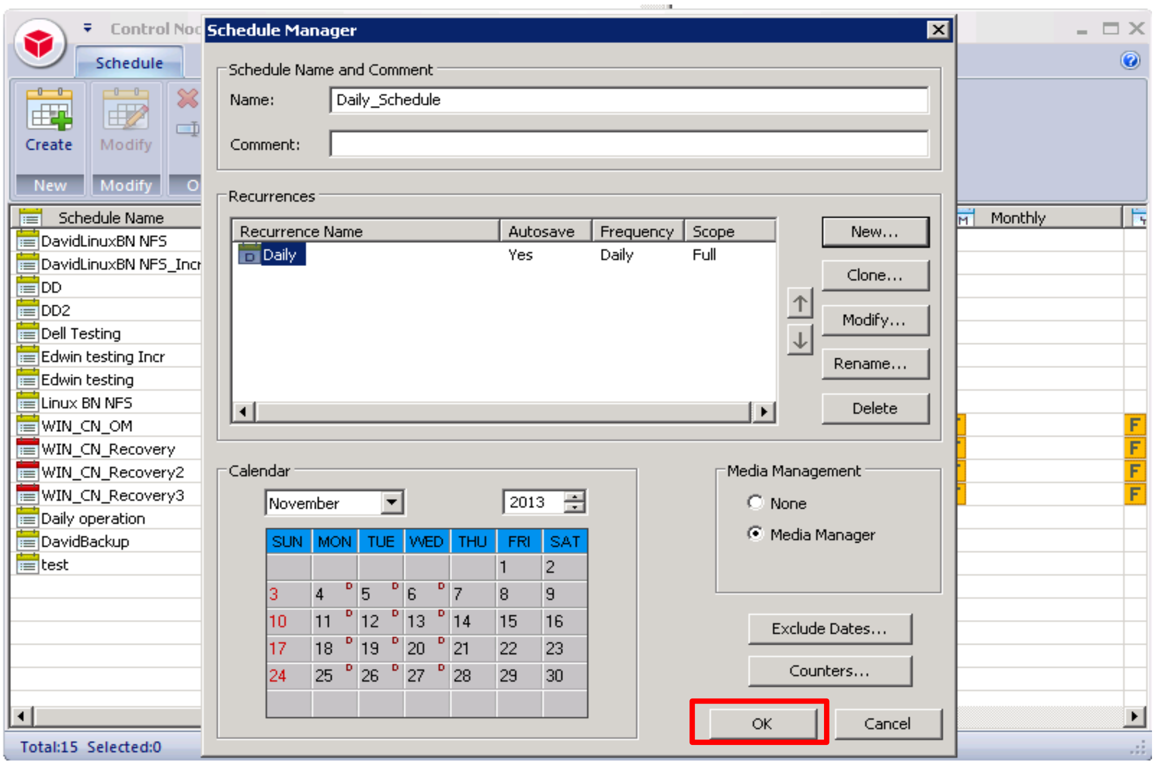
Media Properties

Disk Properties

Stage Area Name: HDMCIFS

Application: BACKUP

8 In the Schedule Manager dialog box, click **OK**.



Name: Daily_Schedule

Comment:

Recurrence Name	Autosave	Frequency	Scope
Daily	Yes	Daily	Full

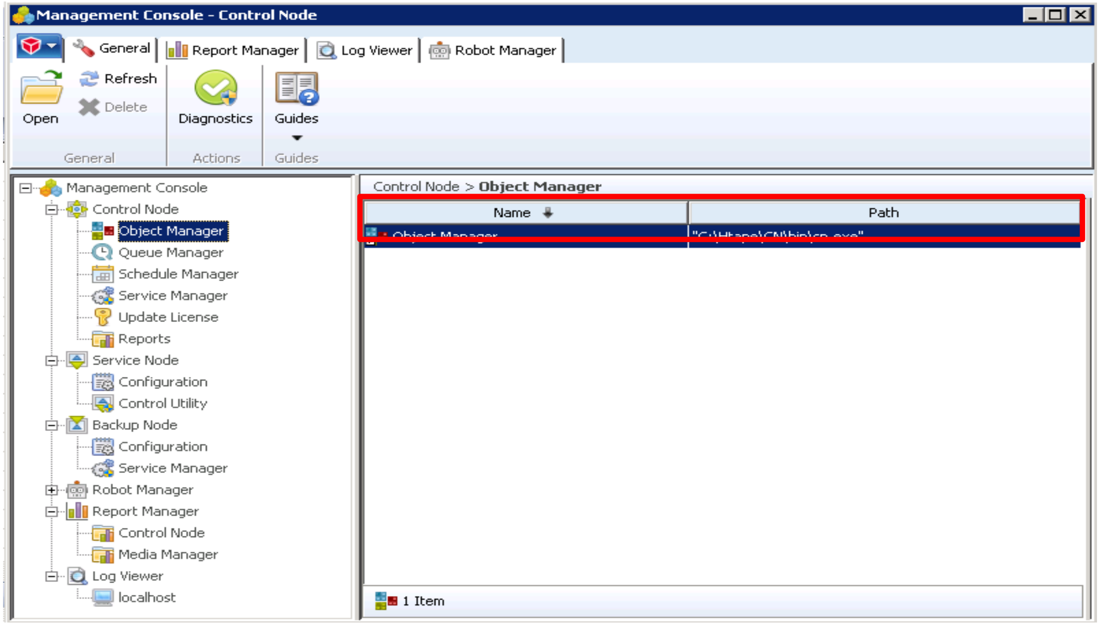
Calendar: November 2013

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4 D	5 D	6 D	7	8	9
10	11 D	12 D	13 D	14	15	16
17	18 D	19 D	20 D	21	22	23
24	25 D	26 D	27 D	28	29	30

Media Management: ○ None ● Media Manager

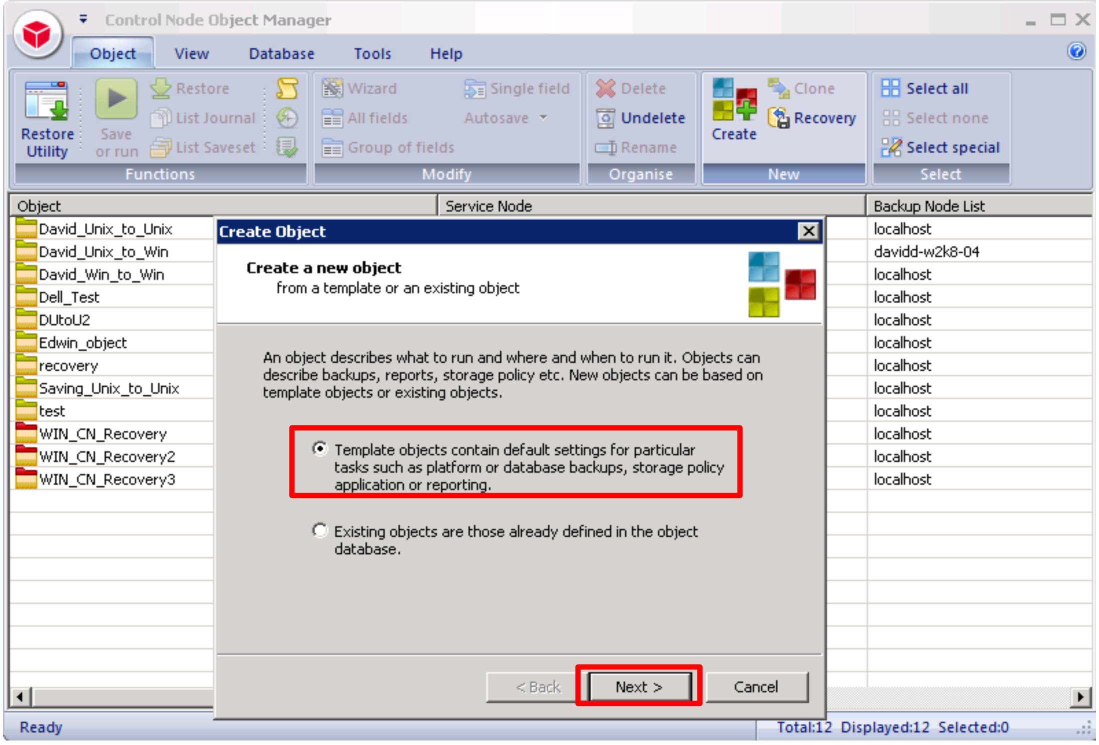
Schedule Name:
DavidLinuxBN NFS
DavidLinuxBN NFS_Incr
DD
DD2
Dell Testing
Edwin testing Incr
Edwin testing
Linux BN NFS
WIN_CN_OM
WIN_CN_Recovery
WIN_CN_Recovery2
WIN_CN_Recovery3
Daily operation
DavidBackup
test

9 In the BridgeHead HDM Management Console, click **Control Node** > **Object Manager**, and then double-click the **Object Manager** to open it.



Name	Path
Object Manager	"C:\Htape\CN\bin\cn.exe"

10 In the Create Object dialog box, select the option, **Template objects contain default settings for particular tasks such as platform or database backups, storage policy application or reporting,** and then click **Next.**



Create Object

Create a new object
from a template or an existing object

An object describes what to run and where and when to run it. Objects can describe backups, reports, storage policy etc. New objects can be based on template objects or existing objects.

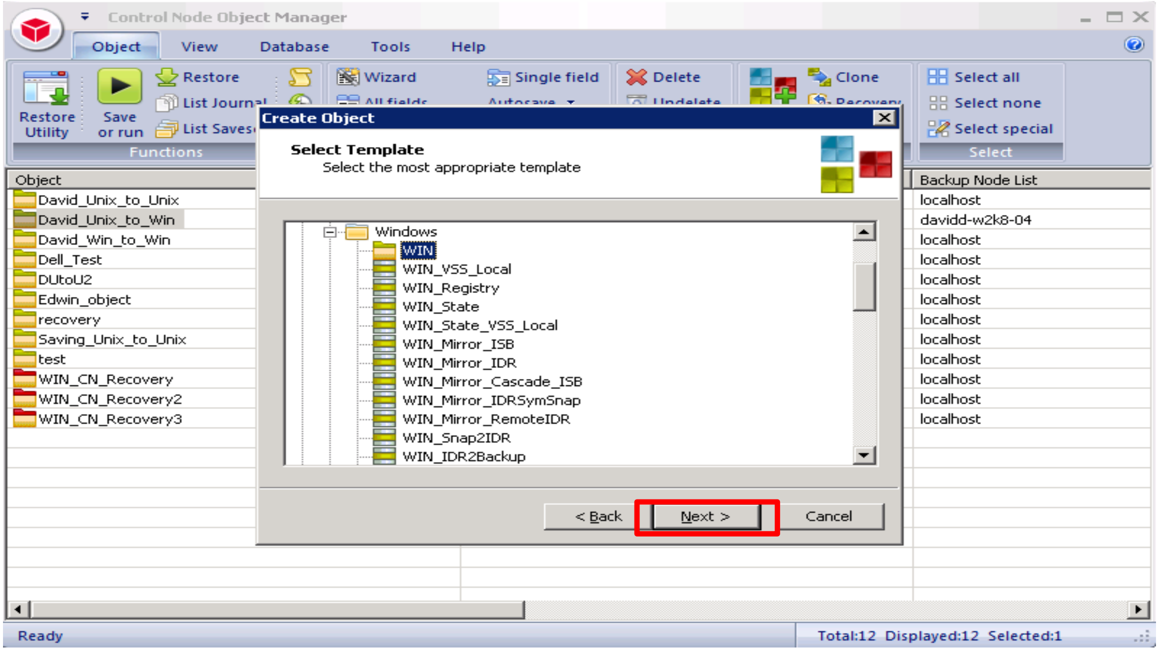
● Template objects contain default settings for particular tasks such as platform or database backups, storage policy application or reporting.

○ Existing objects are those already defined in the object database.

Object	Service Node	Backup Node List
David_Unix_to_Unix		localhost
David_Unix_to_Win		davidd-w2k8-04
David_Win_to_Win		localhost
Dell_Test		localhost
DUtoU2		localhost
Edwin_object		localhost
recovery		localhost
Saving_Unix_to_Unix		localhost
test		localhost
WIN_CN_Recovery		localhost
WIN_CN_Recovery2		localhost
WIN_CN_Recovery3		localhost

Ready   Total:12 Displayed:12 Selected:0

11 In the template list, click **WIN** and then click **Next.**



Create Object

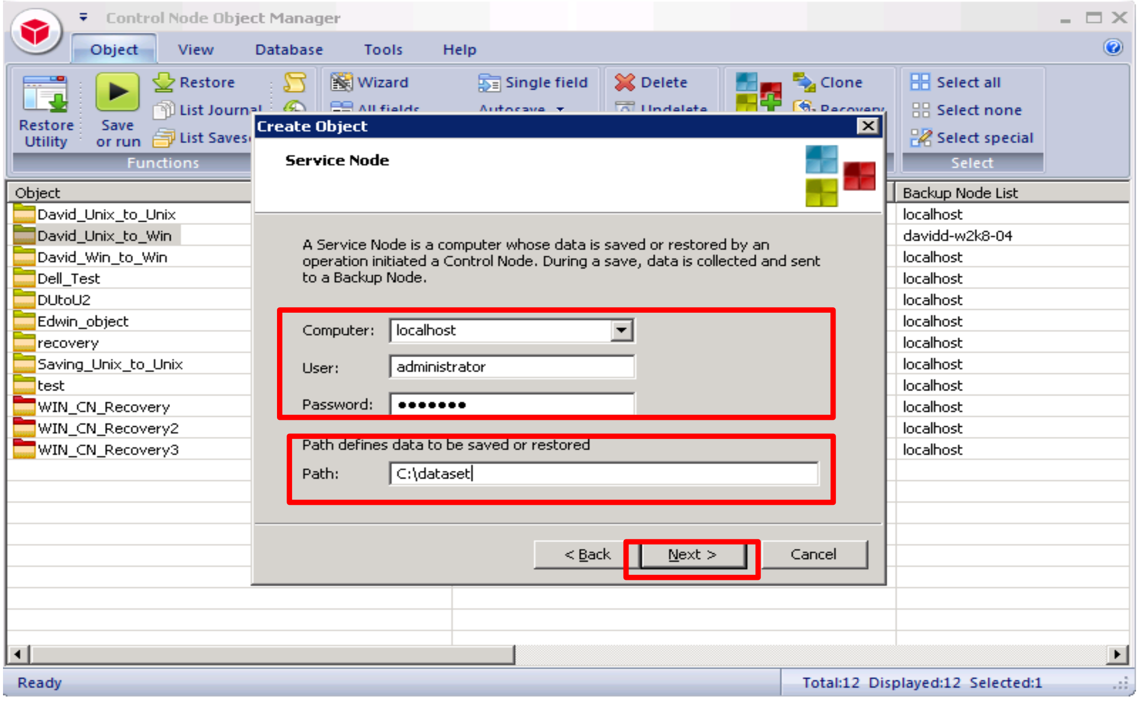
Select Template
Select the most appropriate template

```
Windows
  WIN
  WIN_VSS_Local
  WIN_Registry
  WIN_State
  WIN_State_VSS_Local
  WIN_Mirror_ISB
  WIN_Mirror_IDR
  WIN_Mirror_Cascade_ISB
  WIN_Mirror_IDRSymSnap
  WIN_Mirror_RemoteIDR
  WIN_Snap2IDR
  WIN_IDR2Backup
```

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

Ready   Total:12 Displayed:12 Selected:1

12 Enter the required credentials information for the service node, including the valid file path of the backup data source, and then click **Next**.



Service Node

A Service Node is a computer whose data is saved or restored by an operation initiated a Control Node. During a save, data is collected and sent to a Backup Node.

Computer: localhost

User: administrator

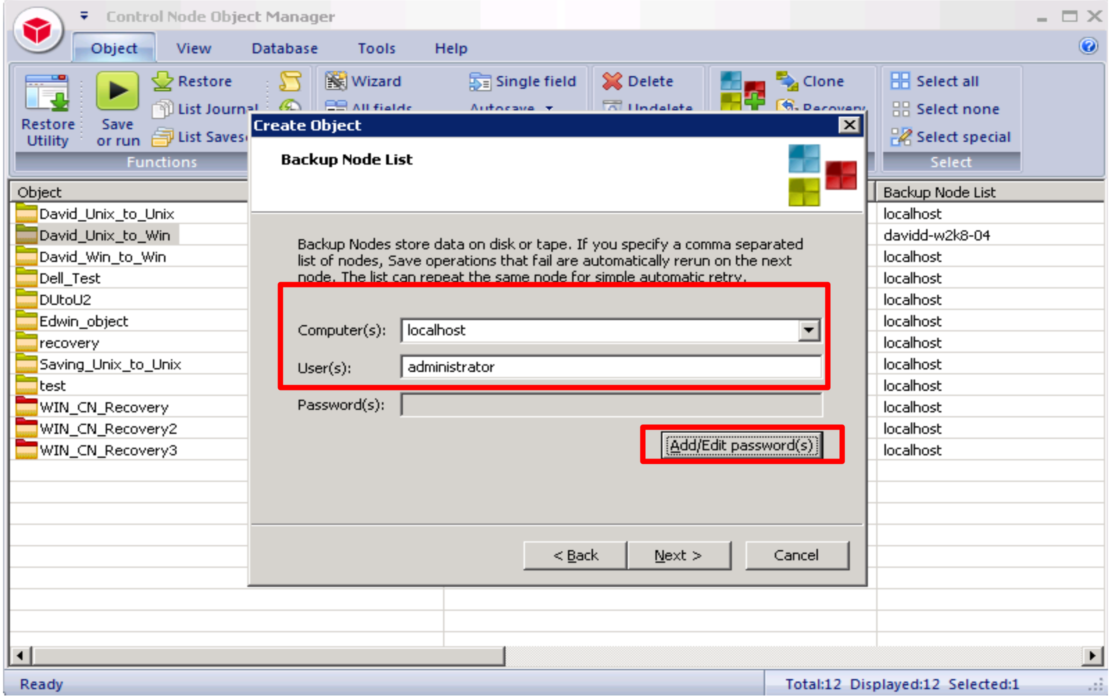
Password: •••••••

Path defines data to be saved or restored

Path: C:\dataset

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

13 Enter the required user information for the Backup Node, and then click **Add/Edit password(s)**.



Backup Node List

Backup Nodes store data on disk or tape. If you specify a comma separated list of nodes, Save operations that fail are automatically rerun on the next node. The list can repeat the same node for simple automatic retry.

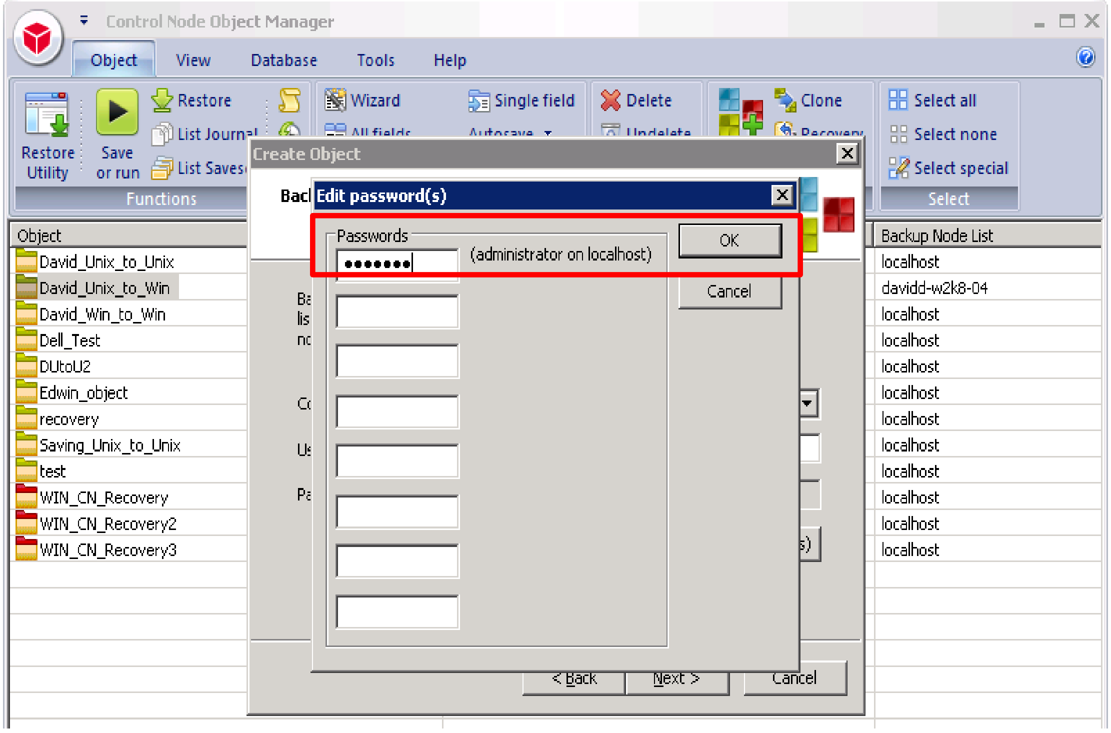
Computer(s): localhost

User(s): administrator

Password(s):

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

14 Enter the password information for the Backup Node, and then click **OK**.



Edit password(s)

Passwords

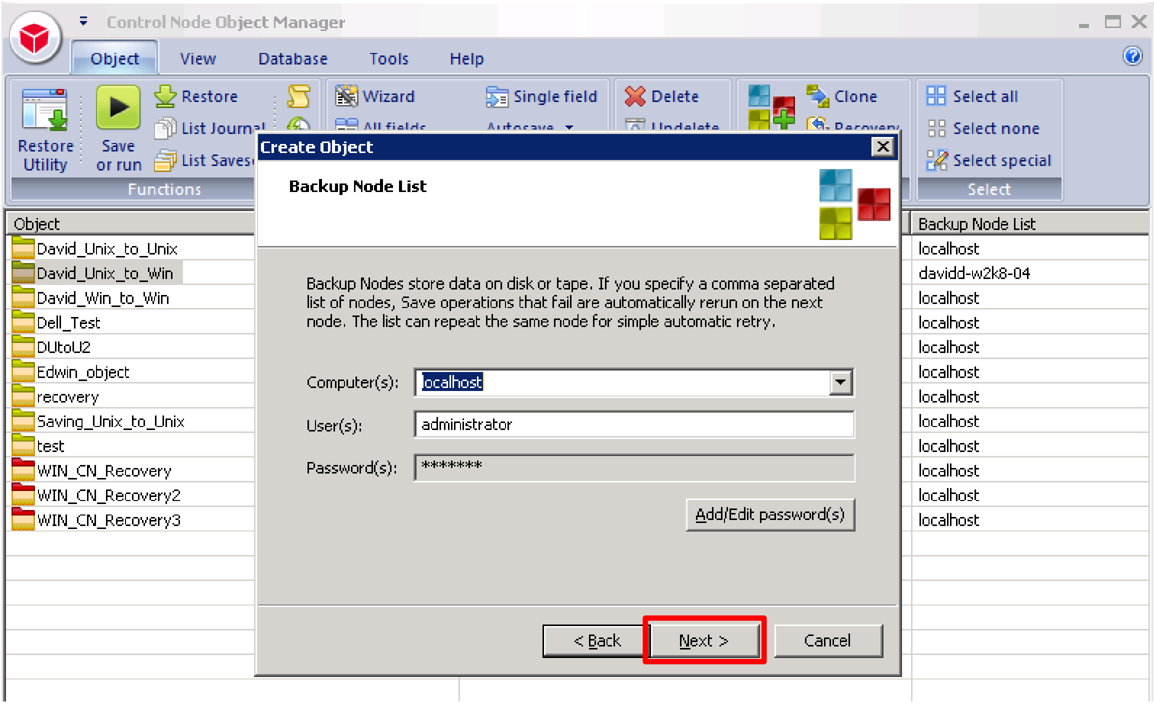
••••••• (administrator on localhost)

OK

Cancel

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

15 Click **Next.** (See Appendix A for information about the user and password information.)



Create Object

Backup Node List

Backup Nodes store data on disk or tape. If you specify a comma separated list of nodes, Save operations that fail are automatically rerun on the next node. The list can repeat the same node for simple automatic retry.

Computer(s): localhost

User(s): administrator

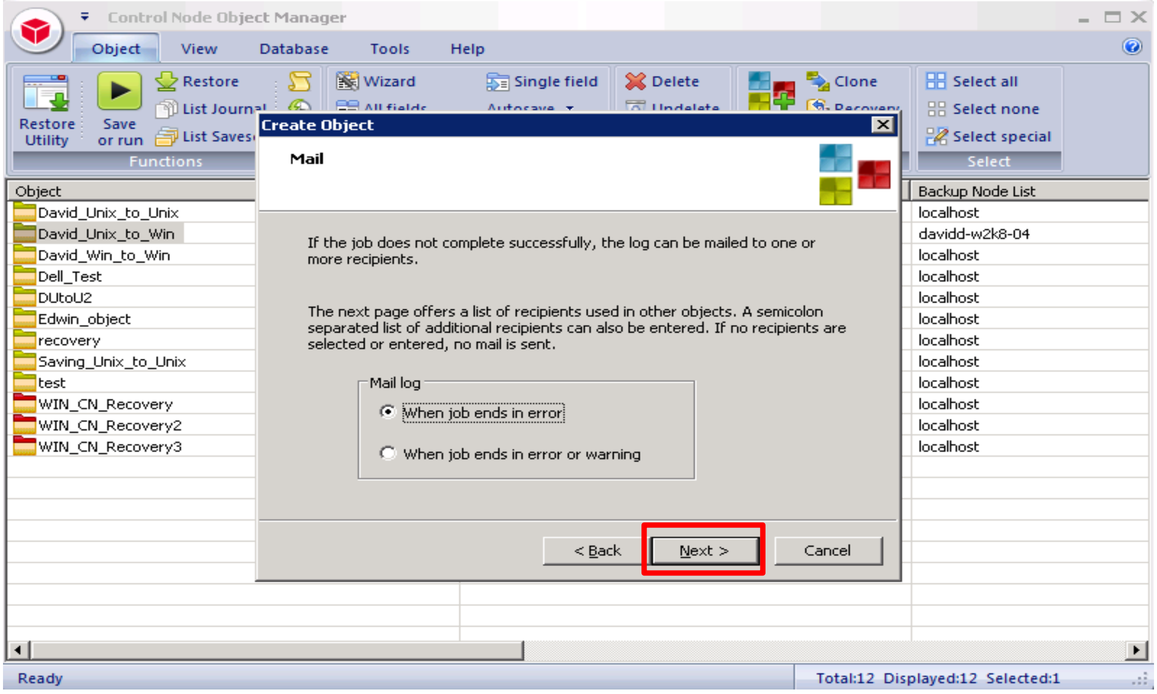
Password(s): ********

Add/Edit password(s)

< Back | Next > | Cancel

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

16 For mail configuration, accept the default, and then click **Next**.



Create Object

Mail

If the job does not complete successfully, the log can be mailed to one or more recipients.

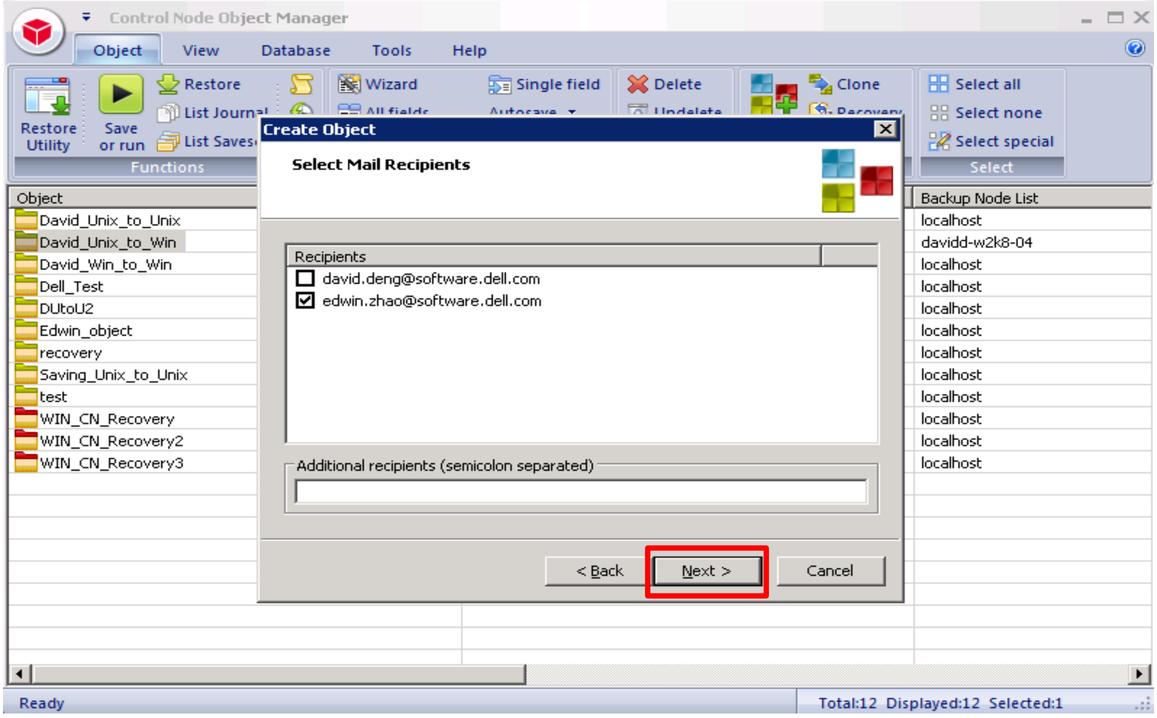
The next page offers a list of recipients used in other objects. A semicolon separated list of additional recipients can also be entered. If no recipients are selected or entered, no mail is sent.

Mail log

- ● When job ends in error
- ○ When job ends in error or warning

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

17 Select Mail Recipients, and then click **Next.**



Create Object

Select Mail Recipients

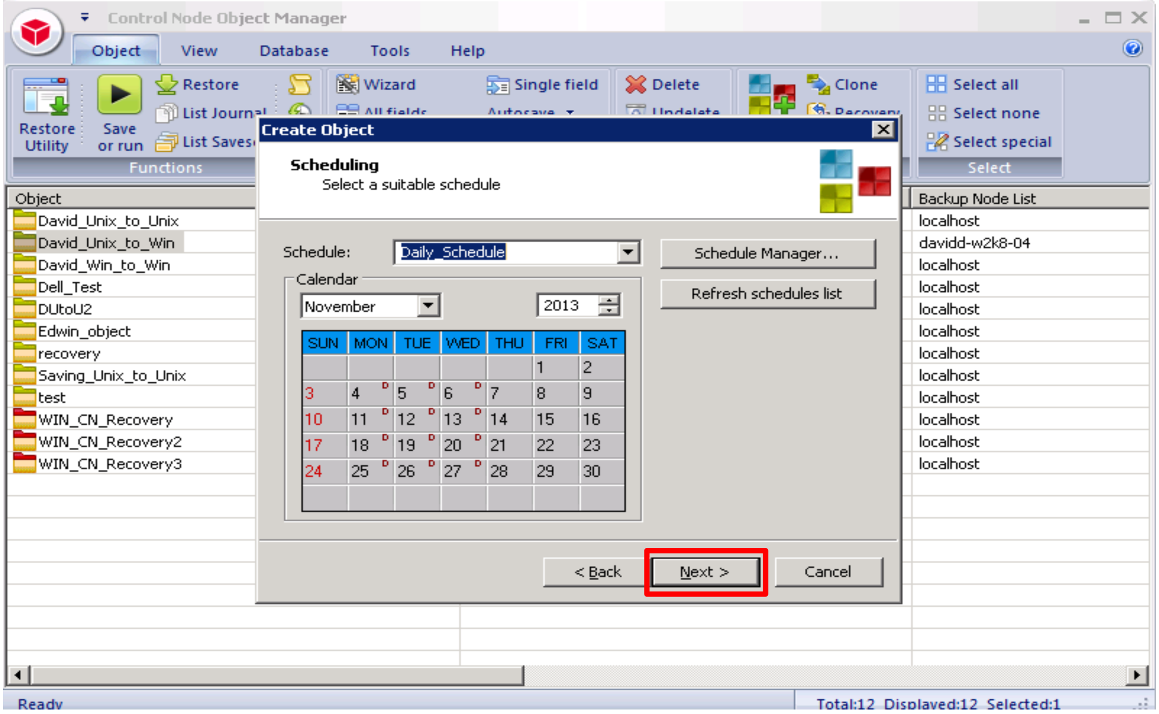
Recipients

- ☐ david.deng@software.dell.com
- ☑ edwin.zhao@software.dell.com

Additional recipients (semicolon separated)

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

18 Select the Schedule, and then click **Next.**



Create Object

Scheduling

Select a suitable schedule

Schedule: Daily_Schedule

Schedule Manager…

Refresh schedules list

Calendar

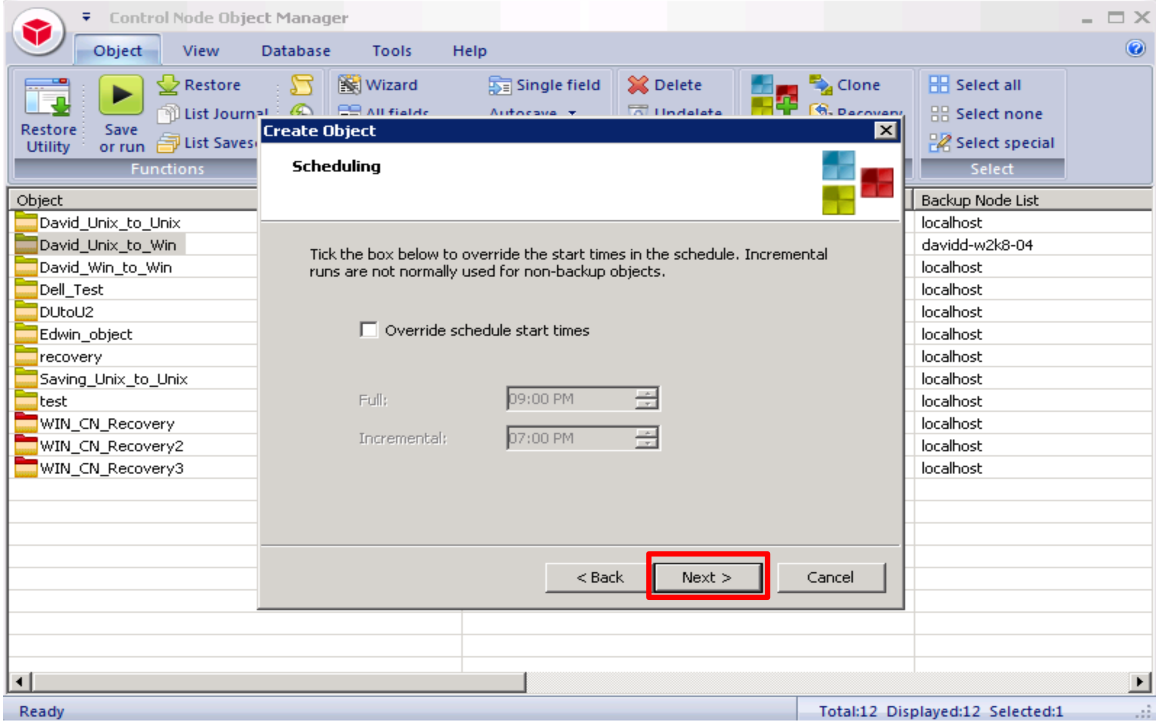
November 2013

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4 D	5 D	6 D	7	8	9
10	11 D	12 D	13 D	14	15	16
17	18 D	19 D	20 D	21	22	23
24	25 D	26 D	27 D	28	29	30

< Back | Next > | Cancel

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

19 For start times, accept the defaults, and click **Next**.



Create Object

Scheduling

Tick the box below to override the start times in the schedule. Incremental runs are not normally used for non-backup objects.

□ Override schedule start times

Full: 09:00 PM

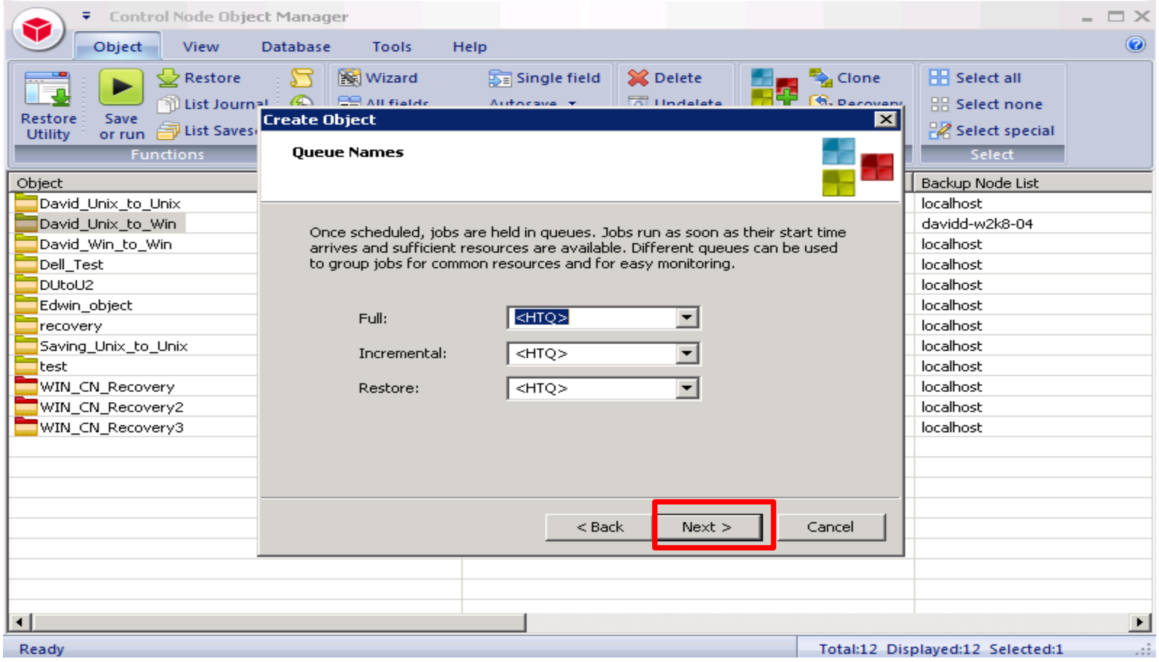
Incremental: 07:00 PM

< Back | Next > | Cancel

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

.

20 For queue names, accept the defaults, and click **Next**.



Create Object

Queue Names

Once scheduled, jobs are held in queues. Jobs run as soon as their start time arrives and sufficient resources are available. Different queues can be used to group jobs for common resources and for easy monitoring.

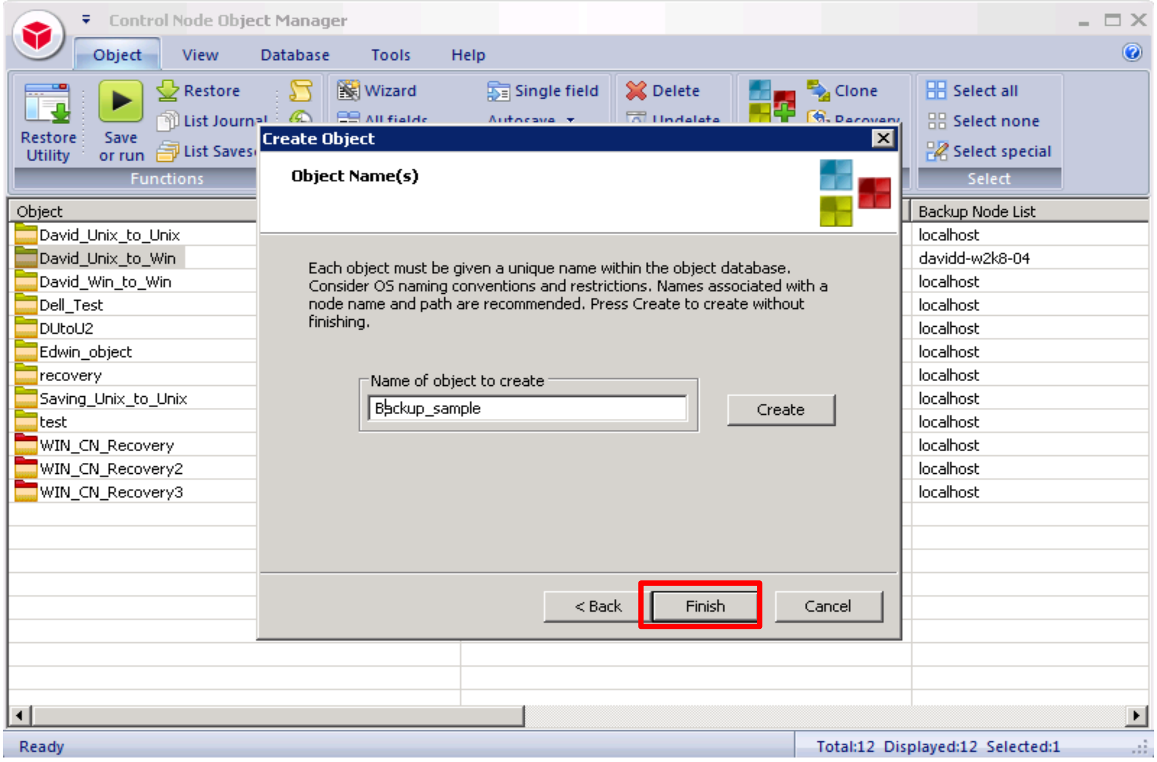
Full: <HTQ>

Incremental: <HTQ>

Restore: <HTQ>

Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

21 Enter the name of the object to create, and then click **Finish**.



Create Object

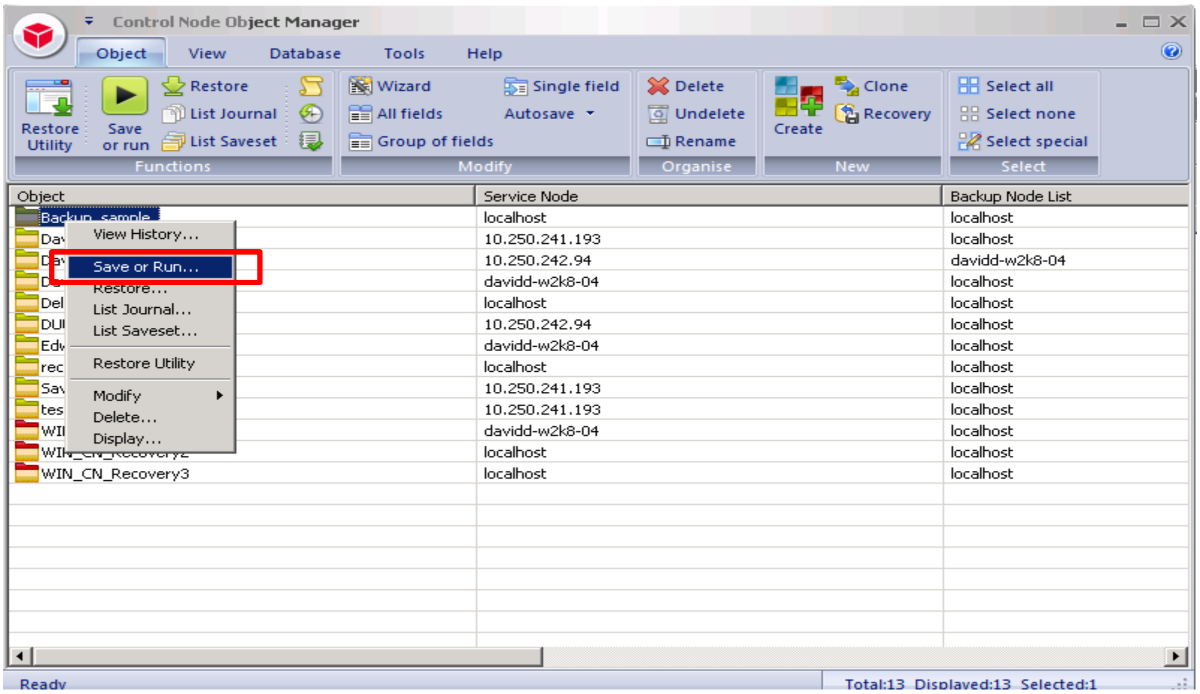
Object Name(s)

Each object must be given a unique name within the object database. Consider OS naming conventions and restrictions. Names associated with a node name and path are recommended. Press Create to create without finishing.

Name of object to create: Backup_sample

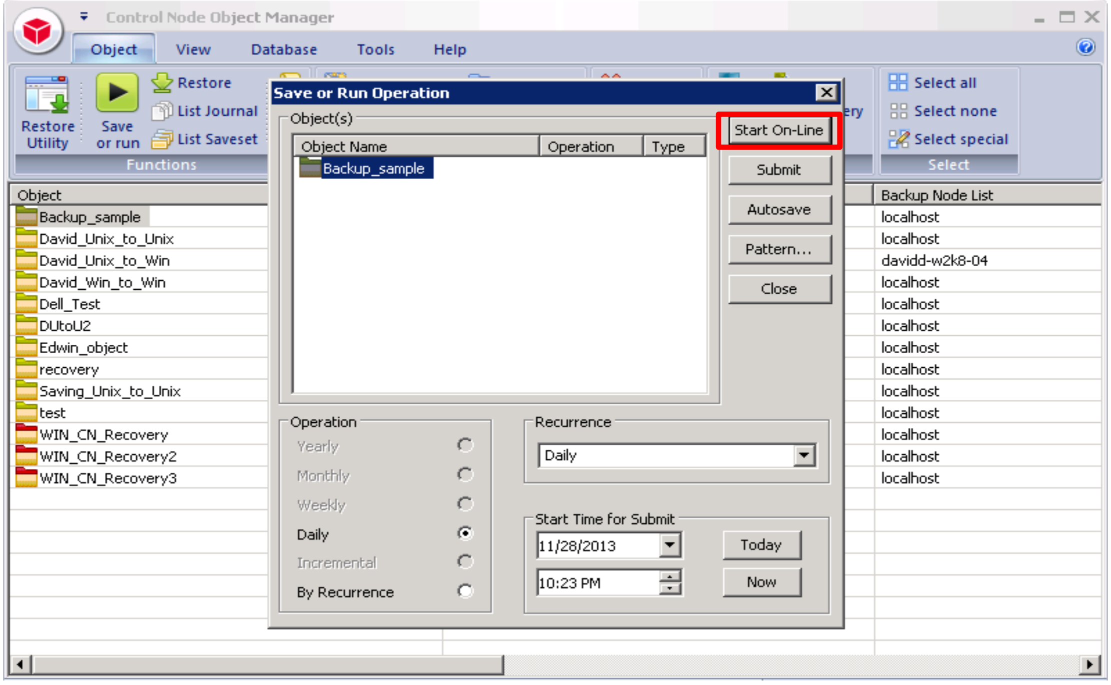
Object	Backup Node List
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

22 In the Object column, right-click the object and then click **Save or Run** to run the backup.



Object	Service Node	Backup Node List
Backup_sample	localhost	localhost
Dav	10.250.241.193	localhost
Da	10.250.242.94	davidd-w2k8-04
D	davidd-w2k8-04	localhost
Del	localhost	localhost
DUI	10.250.242.94	localhost
Edv	davidd-w2k8-04	localhost
rec	localhost	localhost
Sav	10.250.241.193	localhost
tes	10.250.241.193	localhost
WII	davidd-w2k8-04	localhost
WIN_CN_Recovery2	localhost	localhost
WIN_CN_Recovery3	localhost	localhost

23 In the **Save or Run Operation** dialog box, click **Start On-Line** to start the backup.



Object	Backup Node List
Backup_sample	localhost
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

Object(s)

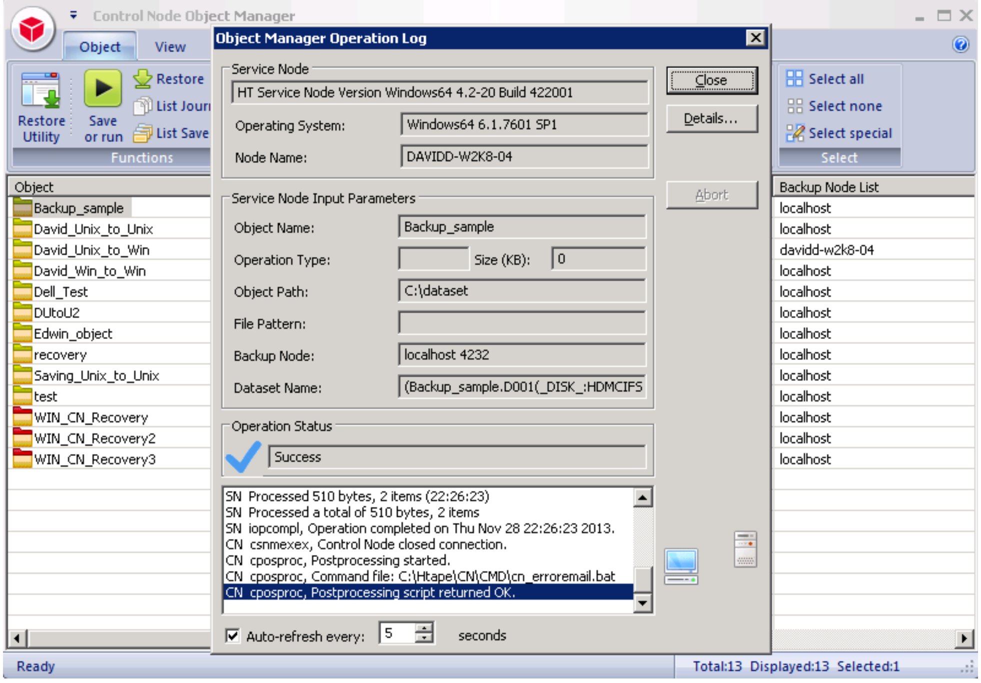
Object Name	Operation	Type
Backup_sample		

Operation
- Yearly ○
- Monthly ○
- Weekly ○
- Daily ●
- Incremental ○
- By Recurrence ○

Recurrence: Daily

Start Time for Submit: 11/28/2013 10:23 PM

24 Ensure the backup is successful. The **Object Manager Operation Log** window displays the progress of the backup session. **Operation status** shows details of the backup job.



Object Manager Operation Log

Service Node

HT Service Node Version Windows64 4.2-20 Build 422001

Operating System: Windows64 6.1.7601 SP1

Node Name: DAVIDD-W2K8-04

Service Node Input Parameters

Object Name: Backup_sample

Operation Type:

Size (KB): 0

Object Path: C:\dataset

File Pattern:

Backup Node: localhost 4232

Dataset Name: (Backup_sample.D001(_DISK_:HDMCIFS

Operation Status

✓ Success

```
SN  Processed 510 bytes, 2 items (22:26:23)
SN  Processed a total of 510 bytes, 2 items
SN  iopcompl, Operation completed on Thu Nov 28 22:26:23 2013.
CN  csnmexex, Control Node closed connection.
CN  cposproc, Postprocessing started.
CN  cposproc, Command file: C:\Htape\CN\CMD\cn_erroremail.bat
CN  cposproc, Postprocessing script returned OK.
```

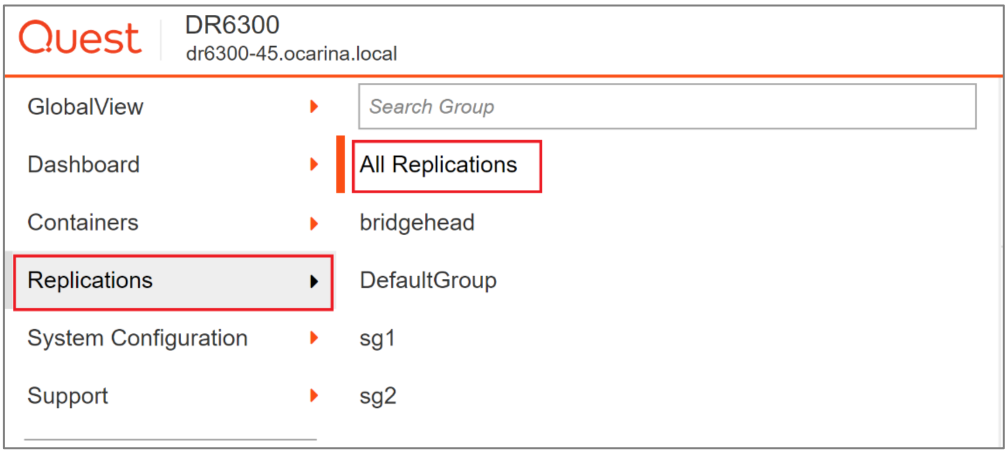
☑ Auto-refresh every: 5 seconds

Object	Backup Node List
Backup_sample	localhost
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost

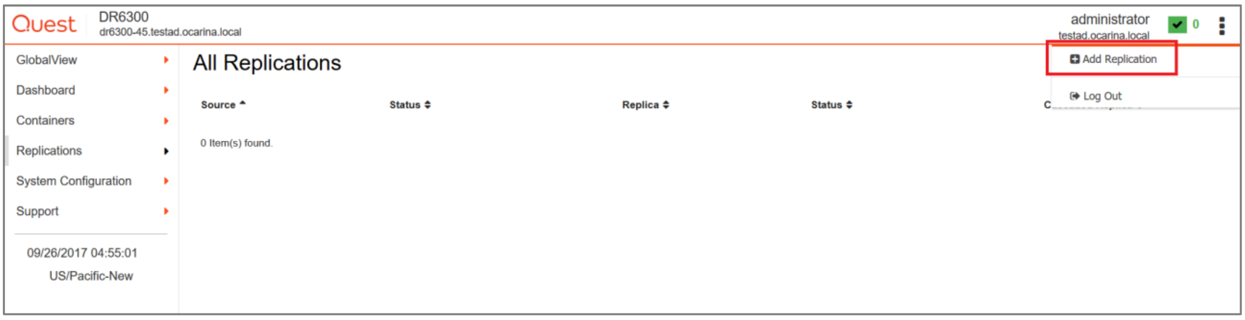
Setting up DR native replication and restore from a replication target

Building the replication relationship between DR series systems

1 On the source DR Series system, click **Replication** on the left navigation menu, and then click **All Replications**.

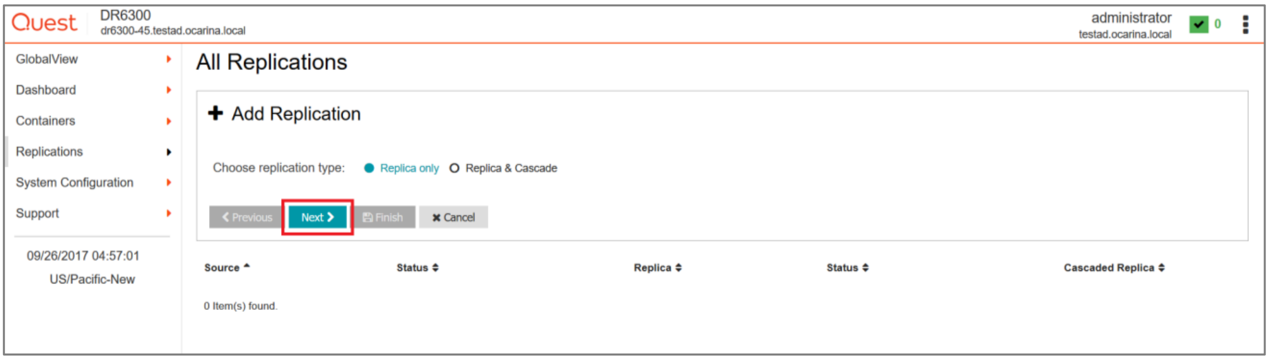


2 On the Action menu, select **Add Replication**.



0 Item(s) found.

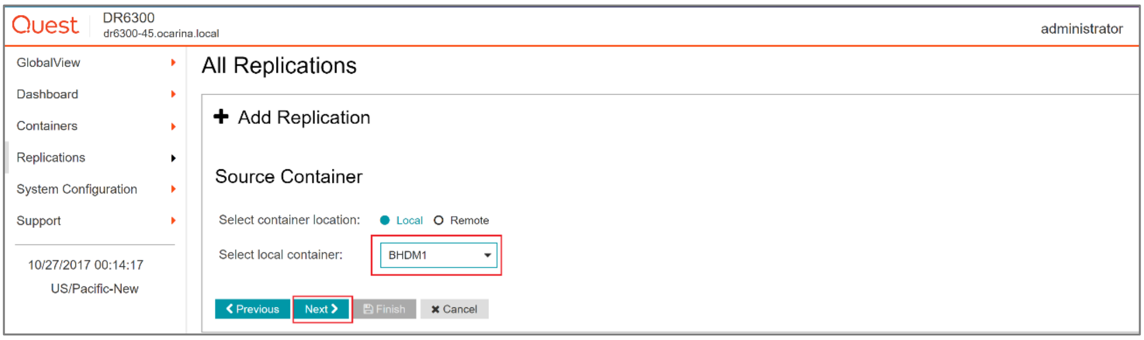
3 Select the required replication type and click **Next.**



Choose replication type: ● Replica only ○ Replica & Cascade

0 Item(s) found.

4 In the **Add Replication dialog** box, select a container from the Local System drop down menu, and select the **'BHDM1'** container.

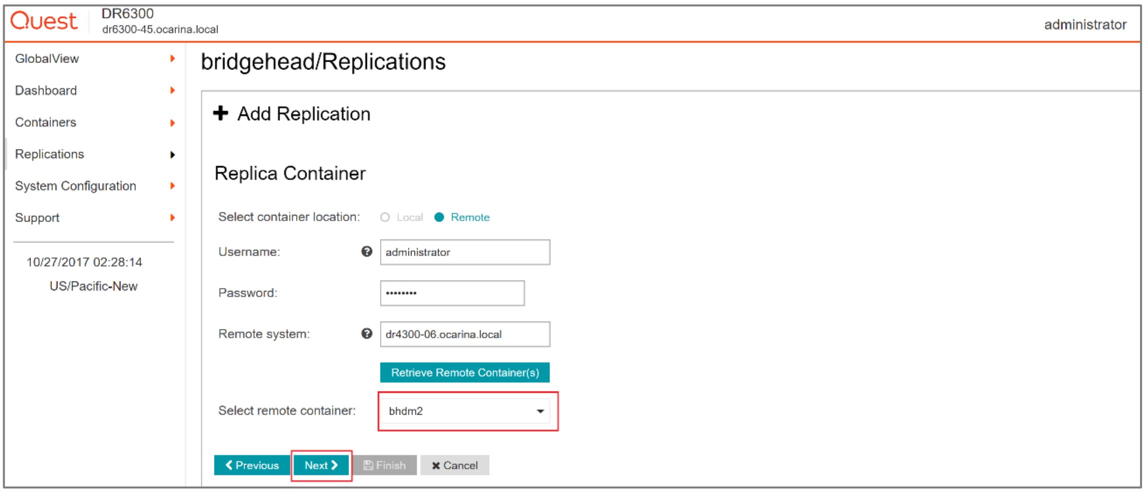


Source Container

Select container location: ● Local ○ Remote

Select local container: BHDM1

5 Configure the Replica Container as follows:



Replica Container

Select container location: ○ Local ● Remote

Username: administrator

Password: ••••••••

Remote system: dr4300-06.ocarina.local

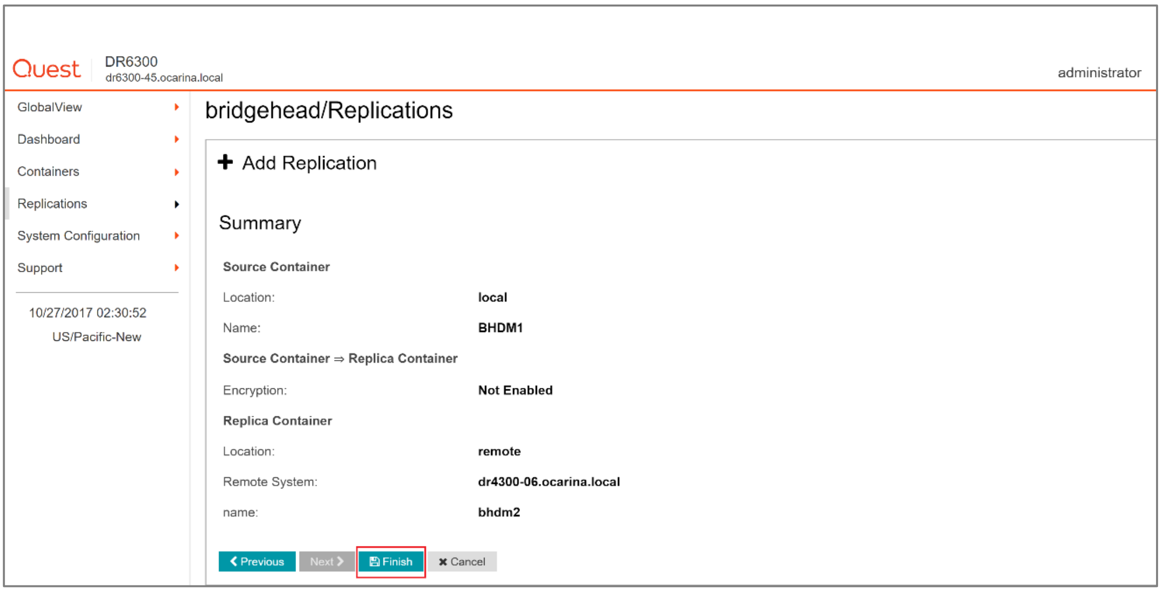
Select remote container: bhdm2

6 Select the option, Select container from **Remote** system.

7 Enter the target DR Series system login credentials.

8 Click **Retrieve Remote Containers**, and then select the **‘BHDM2’** container from the list.

9 Click **Next** and then **Finish**.



bridgehead/Replications

Add Replication

Summary

Source Container

Location:	**local**
Name:	**BHDM1**

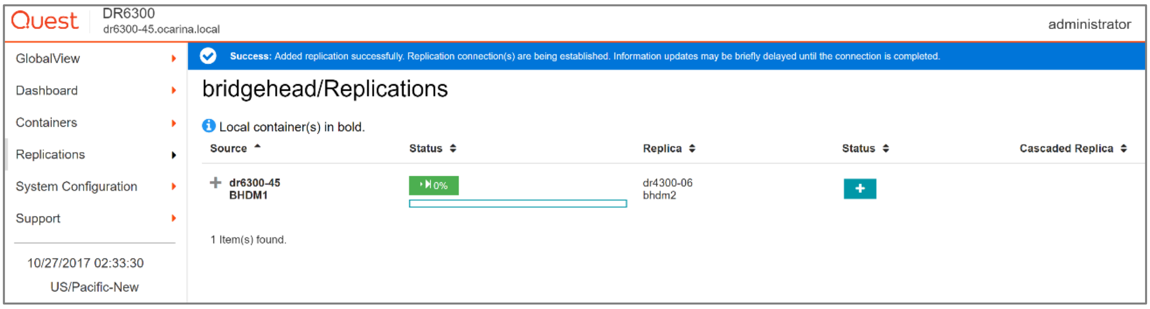
Source Container ⇒ Replica Container

Encryption:	**Not Enabled**

Replica Container

Location:	**remote**
Remote System:	**dr4300-06.ocarina.local**
name:	**bhdm2**

14 Verify that the replication is created successfully, and that the Status column shows a check box for the replication session.



Success: Added replication successfully. Replication connection(s) are being established. Information updates may be briefly delayed until the connection is completed.

bridgehead/Replications

Local container(s) in bold.

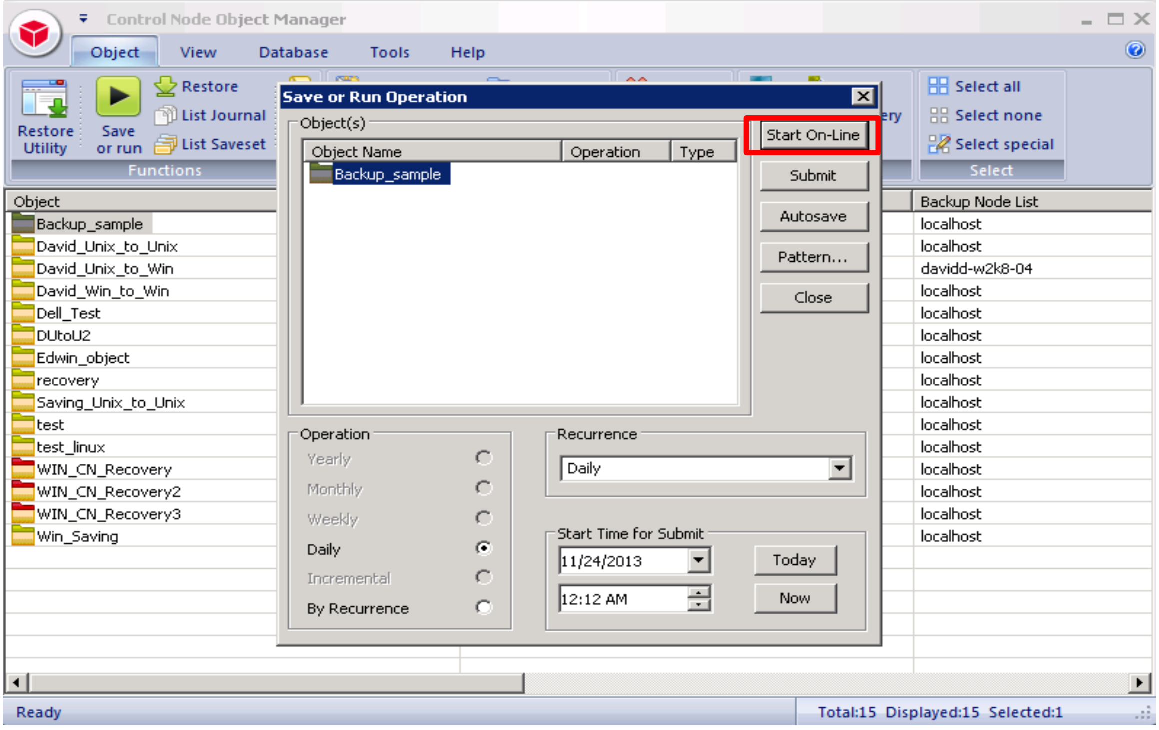
Source	Status	Replica	Status	Cascaded Replica
dr6300-45 **BHDM1**	0%	dr4300-06 bhdm2	+	

1 Item(s) found.

Backing up to the source DR Series system (optional)

This is for when no backed up data exists on the source container.

1 Add both the source DR Series system and target DR Series system as the Stage Area in BridgeHead HDM, and then create a new backup job with the source DR Series system as the target.



Save or Run Operation

Object(s)

Object Name	Operation	Type
Backup_sample		

Operation: ○ Yearly ○ Monthly ○ Weekly ● Daily ○ Incremental ○ By Recurrence

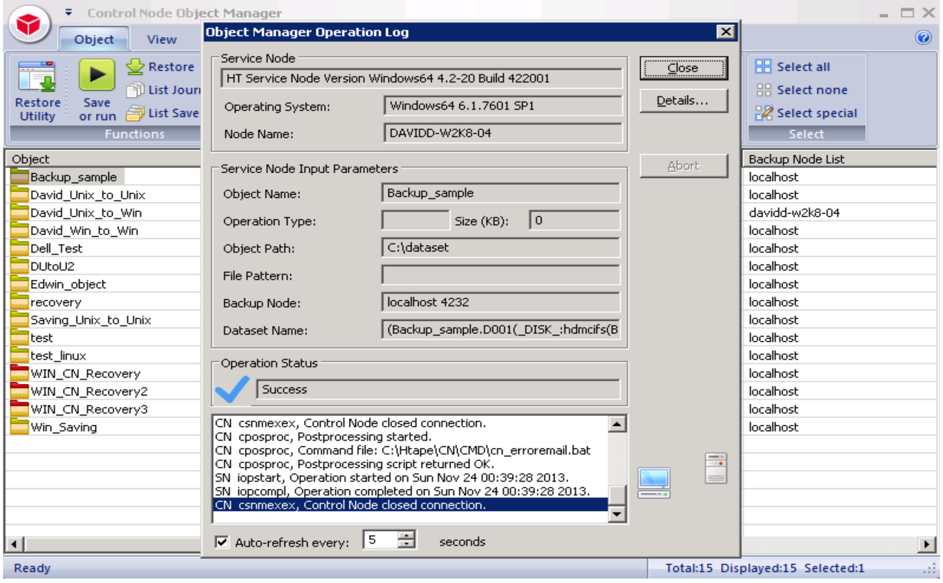
Recurrence: Daily

Start Time for Submit: 11/24/2013 12:12 AM

Object	Backup Node List
Backup_sample	localhost
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
test_linux	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost
Win_Saving	localhost

Total:15 Displayed:15 Selected:1

2 Ensure the backup is successful and close the Object Manager Operation Log dialog box.



Object Manager Operation Log

Service Node

HT Service Node Version Windows64 4.2-20 Build 422001

Operating System: Windows64 6.1.7601 SP1

Node Name: DAVIDD-W2K8-04

Service Node Input Parameters

Object Name: Backup_sample

Operation Type:

Size (KB): 0

Object Path: C:\dataset

File Pattern:

Backup Node: localhost 4232

Dataset Name: (Backup_sample.D001(_DISK_:hdmcifs(B

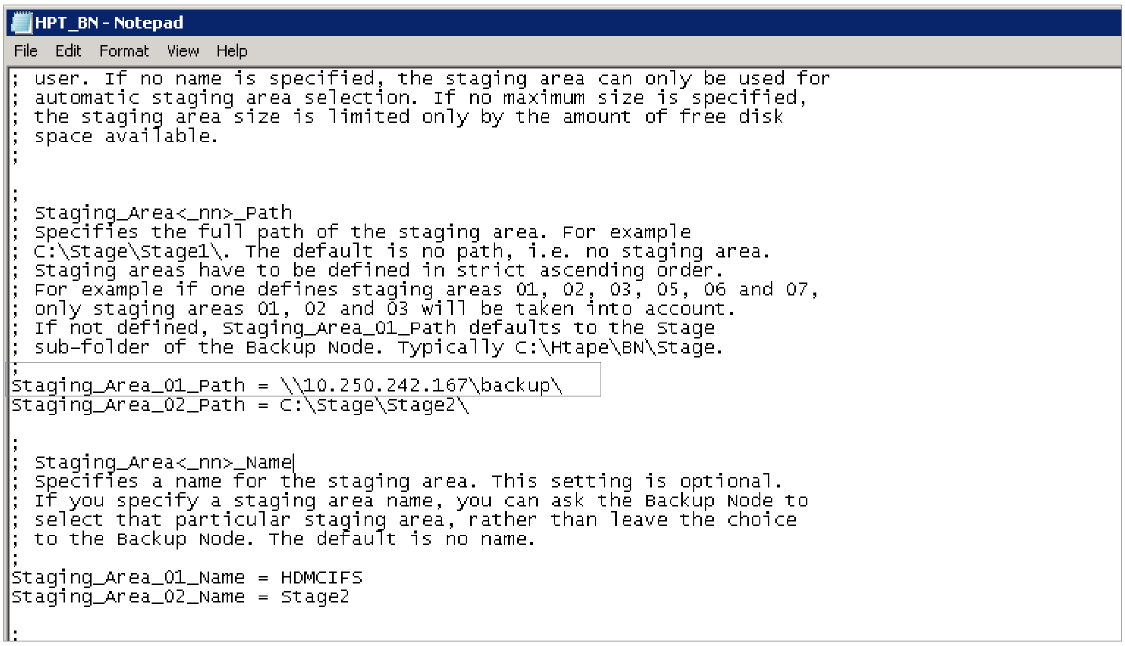
Operation Status: ✓ Success

```
CN  csnmexex, Control Node closed connection.
CN  cposproc, Postprocessing started.
CN  cposproc, Command file: C:\Htape\CN\CMD\cn_erroremail.bat
CN  cposproc, Postprocessing script returned OK.
SN  iopstart, Operation started on Sun Nov 24 00:39:28 2013.
SN  iopcompl, Operation completed on Sun Nov 24 00:39:28 2013.
CN  csnmexex, Control Node closed connection.
```

☑ Auto-refresh every: 5 seconds

Total:15 Displayed:15 Selected:1

3 Click **Configuration of Backup Node**, and then double-click the configuration file to open it.



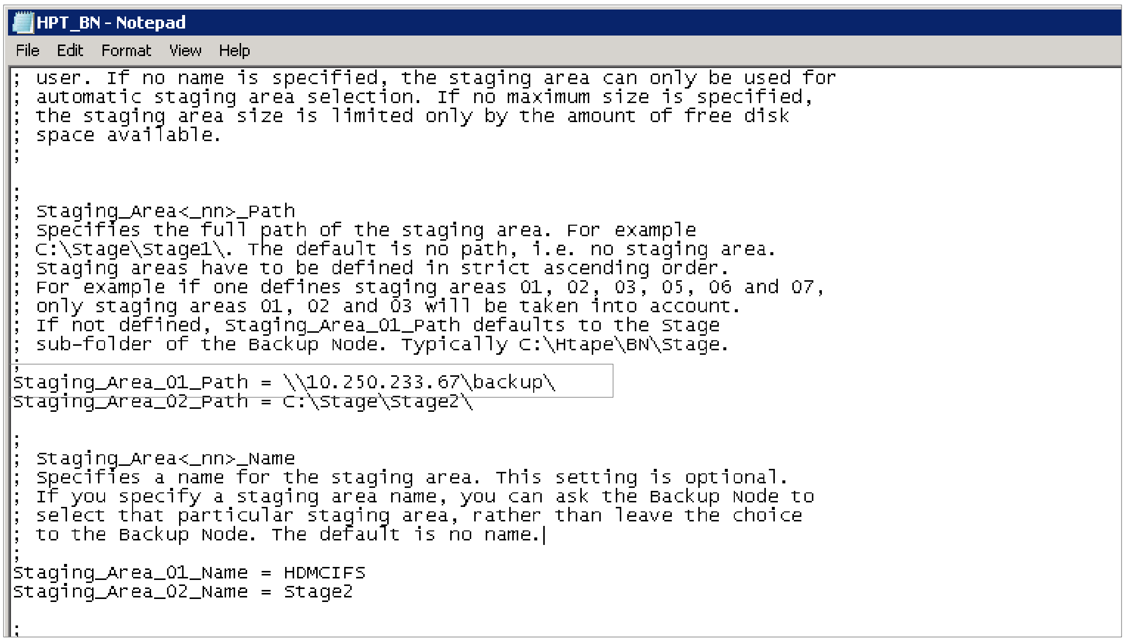
```
; user. If no name is specified, the staging area can only be used for
; automatic staging area selection. If no maximum size is specified,
; the staging area size is limited only by the amount of free disk
; space available.
;

;
; Staging_Area<_nn>_Path
; Specifies the full path of the staging area. For example
; C:\Stage\Stage1\. The default is no path, i.e. no staging area.
; Staging areas have to be defined in strict ascending order.
; For example if one defines staging areas 01, 02, 03, 05, 06 and 07,
; only staging areas 01, 02 and 03 will be taken into account.
; If not defined, Staging_Area_01_Path defaults to the Stage
; sub-folder of the Backup Node. Typically C:\Htape\BN\Stage.
;
Staging_Area_01_Path = \\10.250.242.167\backup\
Staging_Area_02_Path = C:\Stage\Stage2\

;
; Staging_Area<_nn>_Name
; Specifies a name for the staging area. This setting is optional.
; If you specify a staging area name, you can ask the Backup Node to
; select that particular staging area, rather than leave the choice
; to the Backup Node. The default is no name.
;
Staging_Area_01_Name = HDMCIFS
Staging_Area_02_Name = Stage2

;
```

4 Modify the Stage Path to point to the target DR Series system container path, and then save the changes.



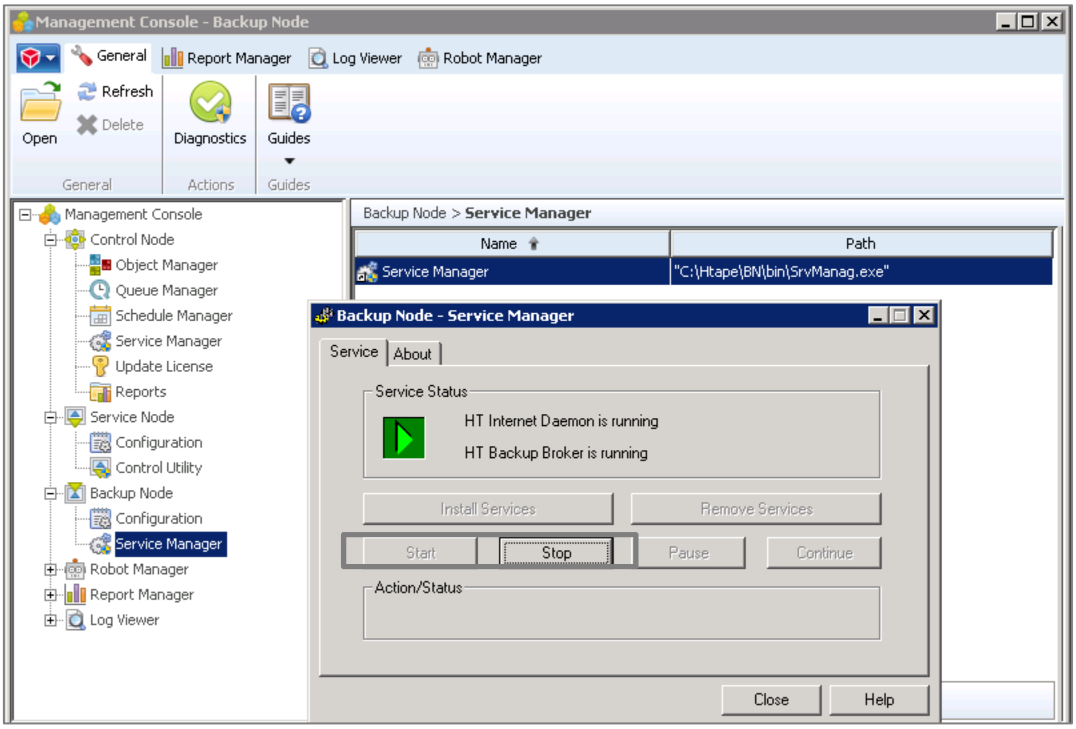
```
; user. If no name is specified, the staging area can only be used for
; automatic staging area selection. If no maximum size is specified,
; the staging area size is limited only by the amount of free disk
; space available.
;

;
; Staging_Area<_nn>_Path
; Specifies the full path of the staging area. For example
; C:\Stage\Stage1\. The default is no path, i.e. no staging area.
; Staging areas have to be defined in strict ascending order.
; For example if one defines staging areas 01, 02, 03, 05, 06 and 07,
; only staging areas 01, 02 and 03 will be taken into account.
; If not defined, Staging_Area_01_Path defaults to the Stage
; sub-folder of the Backup Node. Typically C:\Htape\BN\Stage.
;
Staging_Area_01_Path = \\10.250.233.67\backup\
Staging_Area_02_Path = C:\Stage\Stage2\

;
; Staging_Area<_nn>_Name
; Specifies a name for the staging area. This setting is optional.
; If you specify a staging area name, you can ask the Backup Node to
; select that particular staging area, rather than leave the choice
; to the Backup Node. The default is no name.
;
Staging_Area_01_Name = HDMCIFS
Staging_Area_02_Name = Stage2

;
```

5 Go to **Backup Node > Service Manager**, and then restart the Backup Node Service.



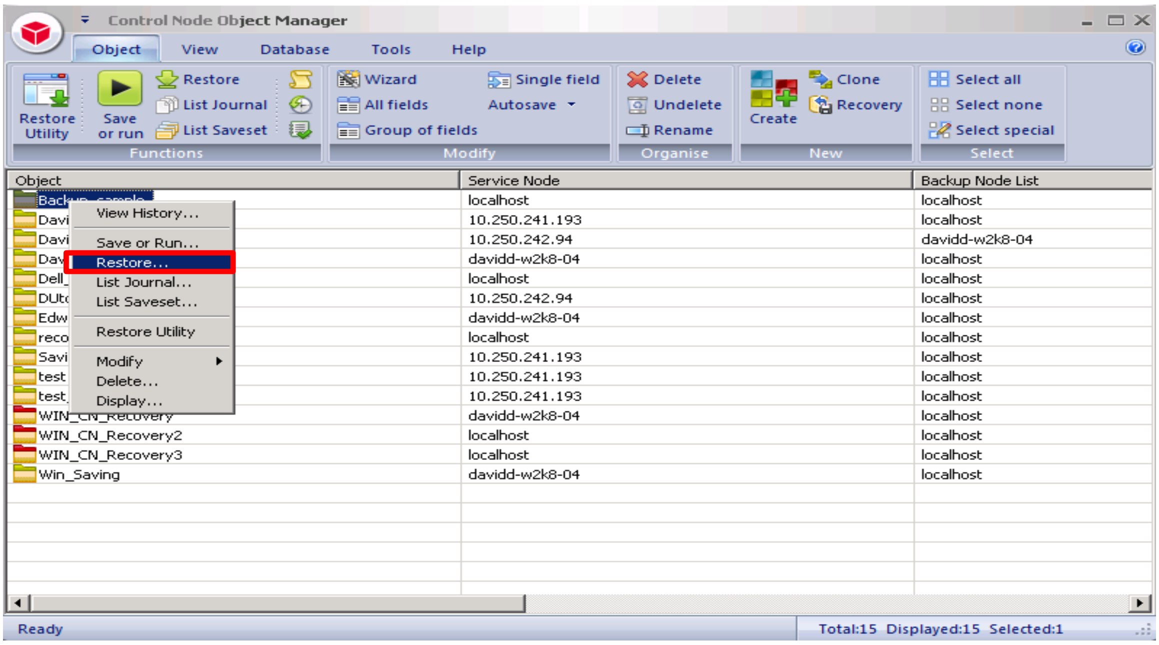
Name	Path
Service Manager	"C:\Htape\BN\bin\SrvManag.exe"

HT Internet Daemon is running

HT Backup Broker is running

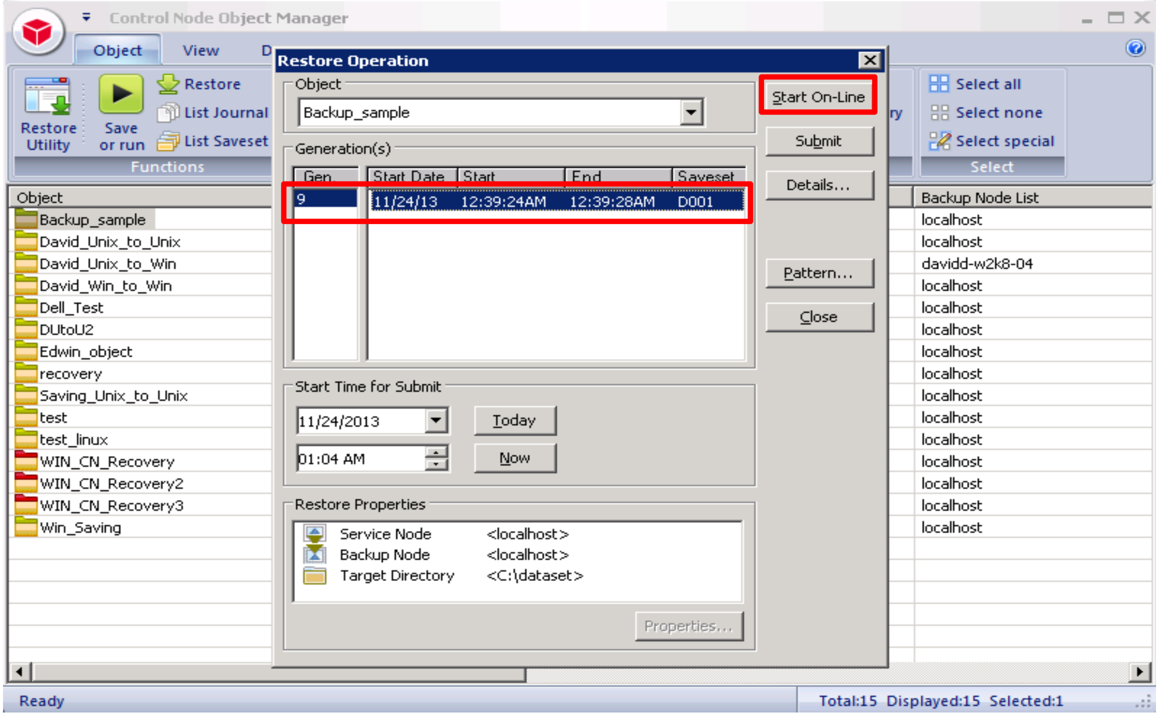
Restoring from the replication target

1 In the BridgeHead HDM Management Console, open the **Object Manager**, and in the list of objects, right-click the object, and click **Restore**.



Object	Service Node	Backup Node List
Backup_sample	localhost	localhost
Davi	10.250.241.193	localhost
Davi	10.250.242.94	davidd-w2k8-04
Dav	davidd-w2k8-04	localhost
Dell_	localhost	localhost
DUtc	10.250.242.94	localhost
Edw	davidd-w2k8-04	localhost
reco	localhost	localhost
Savi	10.250.241.193	localhost
test	10.250.241.193	localhost
test_	10.250.241.193	localhost
WIN_CN_Recovery	davidd-w2k8-04	localhost
WIN_CN_Recovery2	localhost	localhost
WIN_CN_Recovery3	localhost	localhost
Win_Saving	davidd-w2k8-04	localhost

2 Select the Saveset, and then click **Start On-Line**.



Object: Backup_sample

Generation(s)

Gen	Start Date	Start	End	Saveset
9	11/24/13	12:39:24AM	12:39:28AM	D001

Start Time for Submit: 11/24/2013 01:04 AM

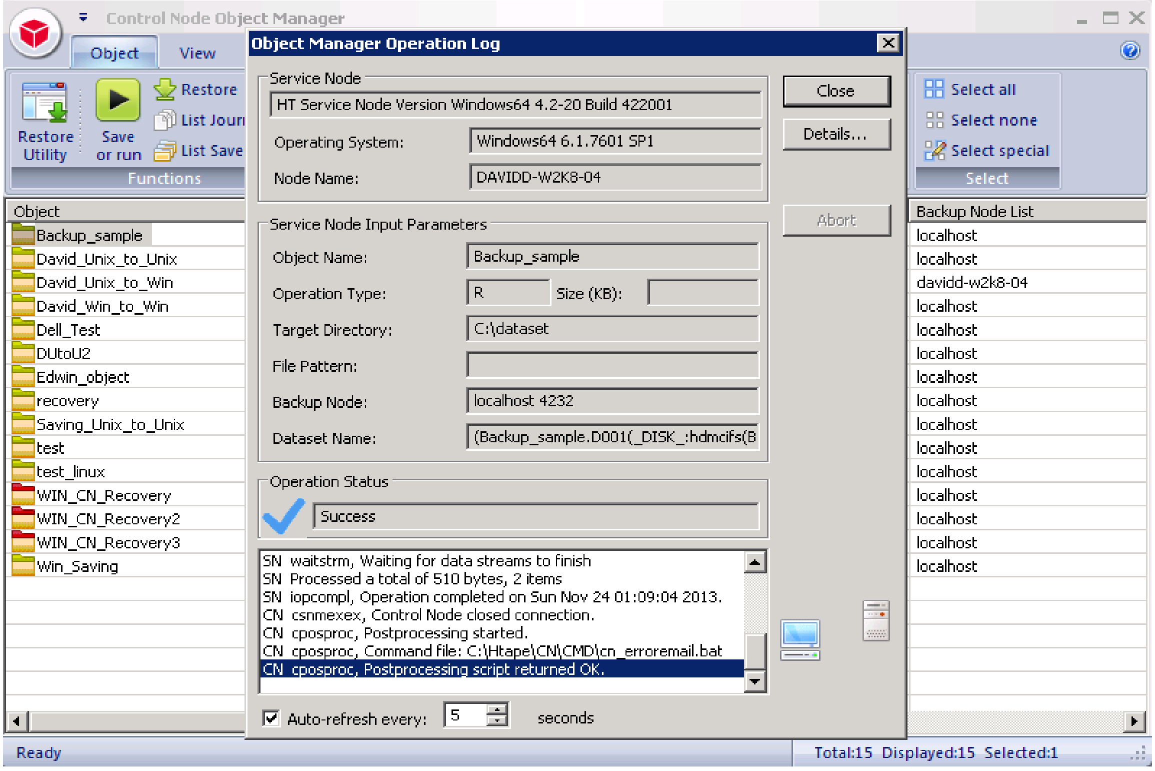
Restore Properties

Service Node	<localhost>
Backup Node	<localhost>
Target Directory	<C:\dataset>

Object	Backup Node List
Backup_sample	localhost
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
test_linux	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost
Win_Saving	localhost

Ready Total:15 Displayed:15 Selected:1

3 Verify that the restore job completes successfully.



Service Node: HT Service Node Version Windows64 4.2-20 Build 422001

Operating System: Windows64 6.1.7601 SP1

Node Name: DAVIDD-W2K8-04

Service Node Input Parameters

Object Name: Backup_sample

Operation Type: R Size (KB):

Target Directory: C:\dataset

File Pattern:

Backup Node: localhost 4232

Dataset Name: (Backup_sample.D001(_DISK_:hdmcifs(B

Operation Status: ✓ Success

```
SN  waitstrm, Waiting for data streams to finish
SN  Processed a total of 510 bytes, 2 items
SN  iopcompl, Operation completed on Sun Nov 24 01:09:04 2013.
CN  csnmexex, Control Node closed connection.
CN  cposproc, Postprocessing started.
CN  cposproc, Command file: C:\Htape\CN\CMD\cn_erroremail.bat
CN  cposproc, Postprocessing script returned OK.
```

☑ Auto-refresh every: 5 seconds

Object	Backup Node List
Backup_sample	localhost
David_Unix_to_Unix	localhost
David_Unix_to_Win	davidd-w2k8-04
David_Win_to_Win	localhost
Dell_Test	localhost
DUtoU2	localhost
Edwin_object	localhost
recovery	localhost
Saving_Unix_to_Unix	localhost
test	localhost
test_linux	localhost
WIN_CN_Recovery	localhost
WIN_CN_Recovery2	localhost
WIN_CN_Recovery3	localhost
Win_Saving	localhost

Ready Total:15 Displayed:15 Selected:1

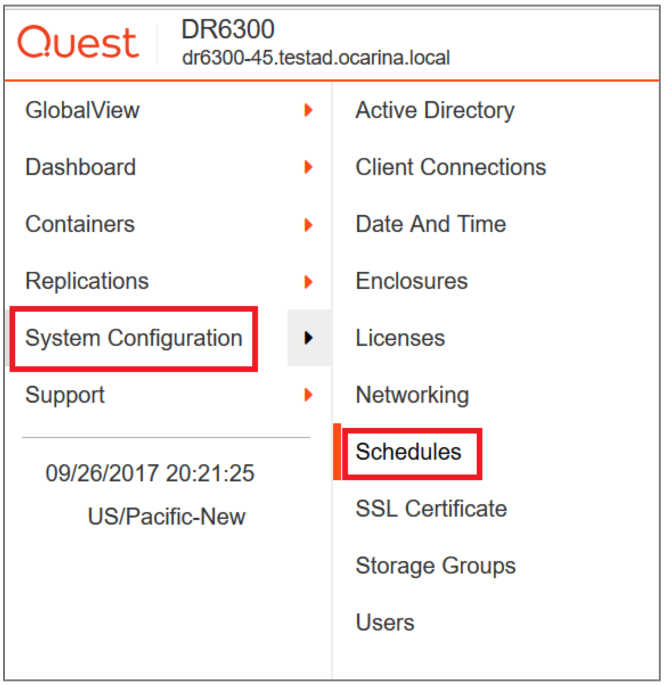
5

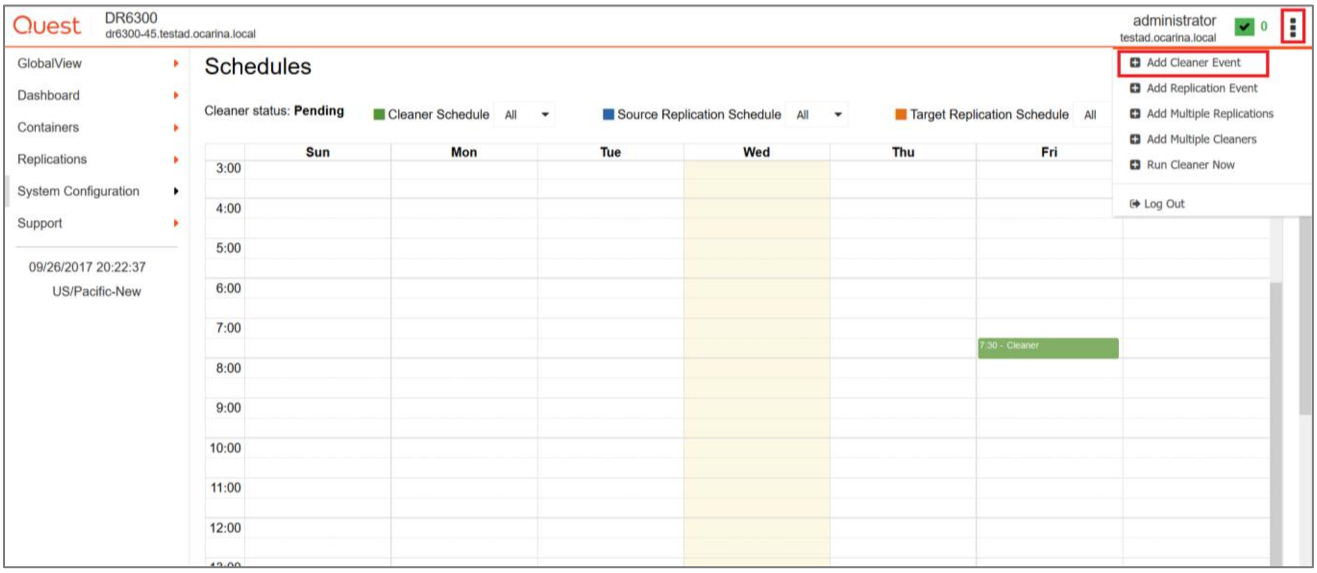
Setting up the DR Series system cleaner

The cleaner will run during idle time. If your workflow does not have a sufficient amount of idle time on a daily basis, then you should consider scheduling the cleaner which will force it to run during that scheduled time.

If necessary, you can do the following procedure as described in the screenshot to force the cleaner to run. Once all the backup jobs are setup the DR Series Deduplication Appliance cleaner can be scheduled. The DR Series Deduplication Appliance cleaner should run at least 40 hours per week when backups are not taking place, generally after a backup job has completed.

Performing scheduled disk space reclamation operations are recommended as a method for recovering disk space from system containers in which files were deleted as a result of deduplication.





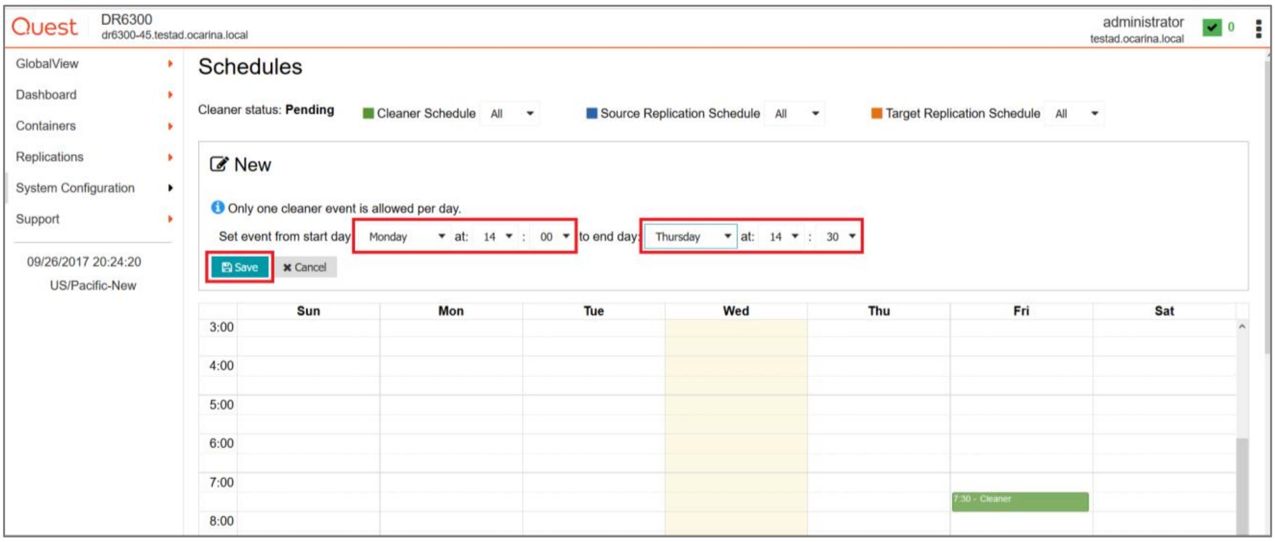
Cleaner status: **Pending**

🟩 Cleaner Schedule: All

🟦 Source Replication Schedule: All

🟧 Target Replication Schedule: All

You can create a cleaner schedule as shown below.



Cleaner status: **Pending**

🟩 Cleaner Schedule: All

🟦 Source Replication Schedule: All

🟧 Target Replication Schedule: All

Only one cleaner event is allowed per day.

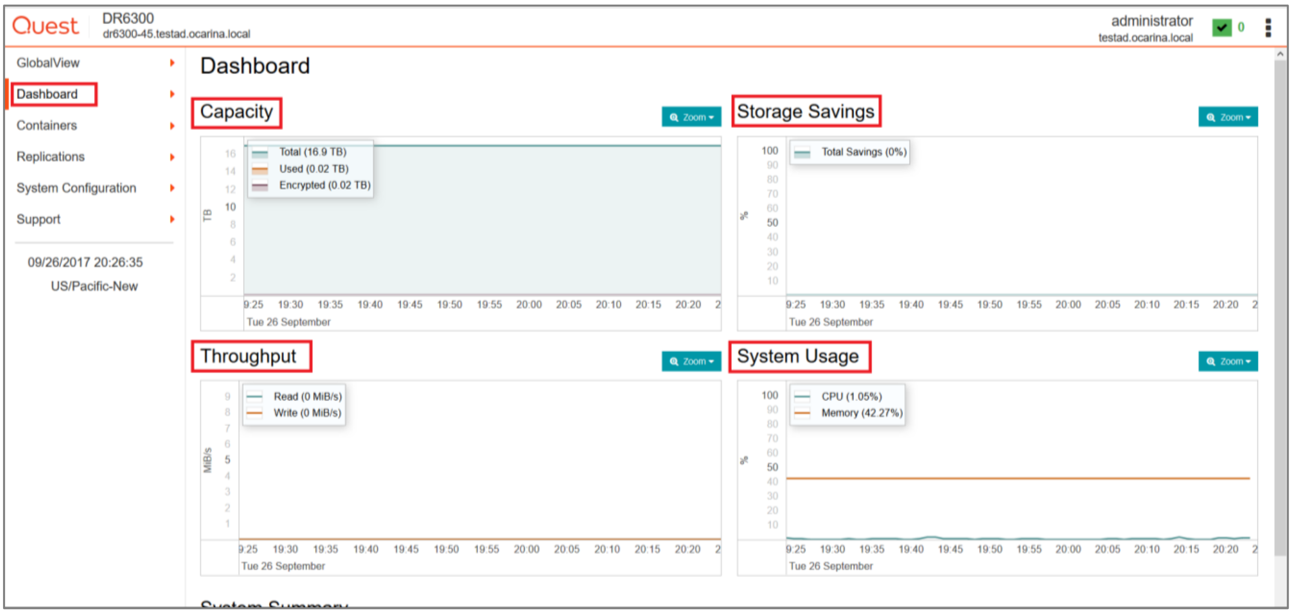
Set event from start day: Monday at: 14 : 00 to end day: Thursday at: 14 : 30

6

Monitoring deduplication, compression and performance

After backup jobs have completed, the DR Series system tracks capacity, storage savings and throughput on the DR Series system dashboard. This information is valuable in understanding the benefits the DR Series system.

> **NOTE:** Deduplication ratios increase over time; it is not uncommon to see a 2-4x reduction (25-50% total savings) on the initial backup. As additional full backup jobs complete, the ratios will increase. Backup jobs with a 12-week retention will average a 15x ratio in most cases.



Appendices

A - Creating a storage device for CIFS

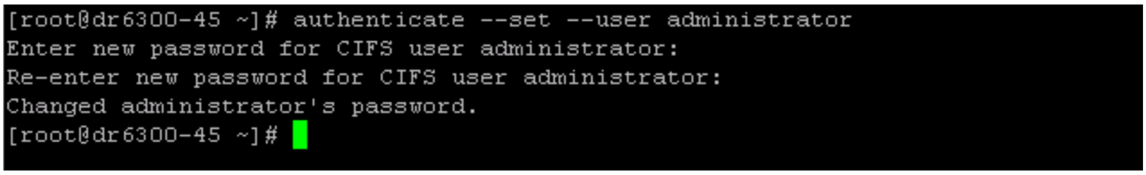
There are two scenarios for BridgeHead HDM to authenticate to a DR Series system through CIFS.

- DR is joined into an Active Directory Domain: Integrate BridgeHead HDM and DR Series system with Active Directory
  - Ensure the Active Directory user has appropriate ACLs to the DR Series system container share.
  - When creating an object, set the Backup Node of BridgeHead HDM to run with this AD user <Domain\User>.

- DR is standalone CIFS server: Make sure this CIFS user has appropriate access permission to the DR Series system container share. The BridgeHead HDM Backup Node will use this user to authenticate to the DR Series system share in Workgroup mode.

  - To set the password for the local CIFS administrator on the DR Series system, log on to the DR Series system using SSH.
    a. Log on with username: Administrator and password: St0r@ge!
    b. Run the following command:

```
authenticate --set --user administrator
```



```
[root@dr6300-45 ~]# authenticate --set --user administrator
Enter new password for CIFS user administrator:
Re-enter new password for CIFS user administrator:
Changed administrator's password.
[root@dr6300-45 ~]#
```

NOTE: The CIFS administrator account is a separate account from the administrator account used to administer the appliance. After an authentication method is chosen, set the BridgeHead Healthcare Data Management service account to use the CIFS administrator account.

B - Creating a storage device for NFS

For NFS backup using the BridgeHead Healthcare Data Management platform, a target folder needs to be created as an NFS share directory. This is the location to which backup objects will be written. (This is not required when adding a CIFS share.)

1. Mount the DR Series system NFS share on the NFS share directory to which backup objects will be written in the BridgeHead Healthcare Data Management environment.
2. Verify the NFS share. (For example, you can use the Linux command “cat /proc/mounts”. The rsize and wsize of the connects in the command output should be 512K.)