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

Dell Engineering
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A Dell Technical White Paper

Revisions

Date	Description
January 2014	Initial release
April 2015	Updated for DR Series system software release 3.2.

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Executive summary

This paper provides information about how to set up the Dell 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://www.dell.com/powervaultmanuals

> **Note:** The DR Series system/BridgeHead HDM build version and screenshots used for this whitepaper may vary slightly, depending on the version of the DR Series system/BridgeHead HDM software version you are using.

1 Installing and configuring the DR Series system

1. Rack and cable the DR Series system, and power it on.

2. Initialize the DR Series system.

    > **NOTE**: For instructions on initializing the systm, see the *Dell DR Series System Administrator Guide* topics: "iDRAC Connection", "Logging in and Initializing the DR Series System", and "Accessing IDRAC6/Idrac7 Using RACADM."

3. Log on to iDRAC using the default address **192.168.0.120**, or the IP address that is assigned to the iDRAC interface (with the username: **root** and password: **calvin**).
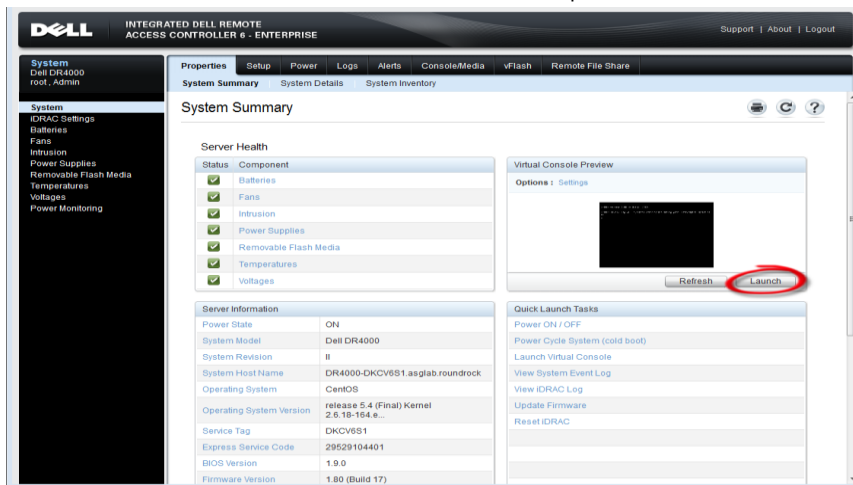
4. Launch the virtual console.
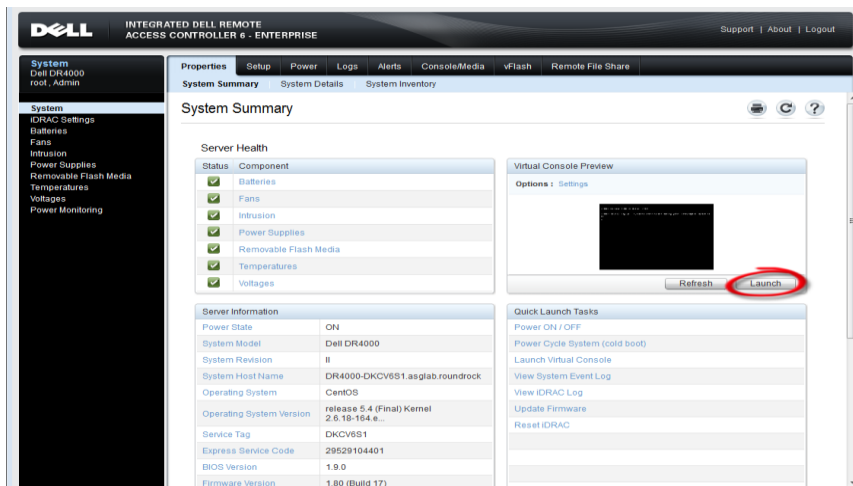
5. After the virtual console is open, log on to the system (with the username: **administrator** and password: **St0r@ge!** where the "0" in the password is the numeral zero).

```
Ocarina release 1 (EAR-1.00.00) Build: 32050
Kernel 2.6.18-164.el5 on an x86_64

localhost login: administrator
Password:        St0r@ge!
_
```

6. Set the user-defined networking preferences as needed.

```
Would you like to use DHCP (yes/no) ?

Please enter an IP address:

Please enter a subnet mask:

Please enter a default gateway address:

Please enter a DNS Suffix (example: abc.com):

Please enter primary DNS server IP address:

Would you like to define a secondary DNS server (yes/no) ?

Please enter secondary DNS server IP address:
```

7. View the summary of preferences and confirm that the settings are correct.

```
================================================================================
                    Set Static IP Address

          IP Address           : 10.10.86.108

          Network Mask         : 255.255.255.128

          Default Gateway      : 10.10.86.126

          DNS Suffix           : idmdemo.local

          Primary DNS Server   : 10.10.86.101

          Secondary DNS Server : 143.166.216.237

          Host Name            : DR4000-5

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

8. Log on to the DR Series system administrator console using the IP address you just provided for the DR Series system (with the username **administrator** and password **St0r@ge!** where the "0" in the password is the numeral zero).
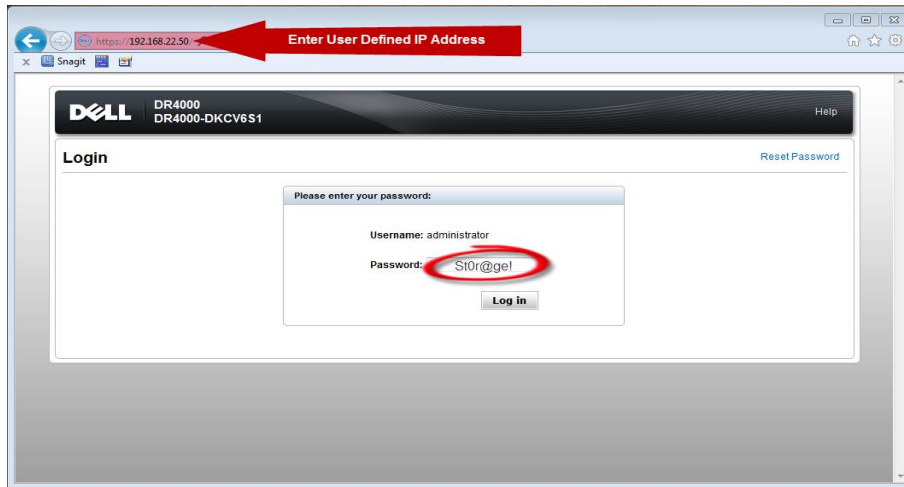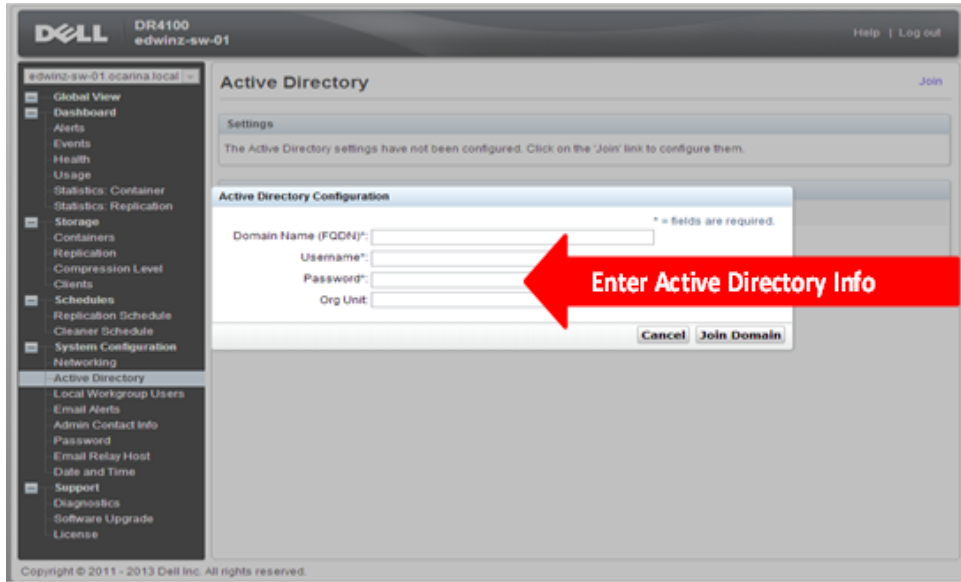

9. Join the DR Series system to Active Directory by completing the following steps.

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

   a. On the left side of the GUI, click **System Configuration** > **Active Directory**.
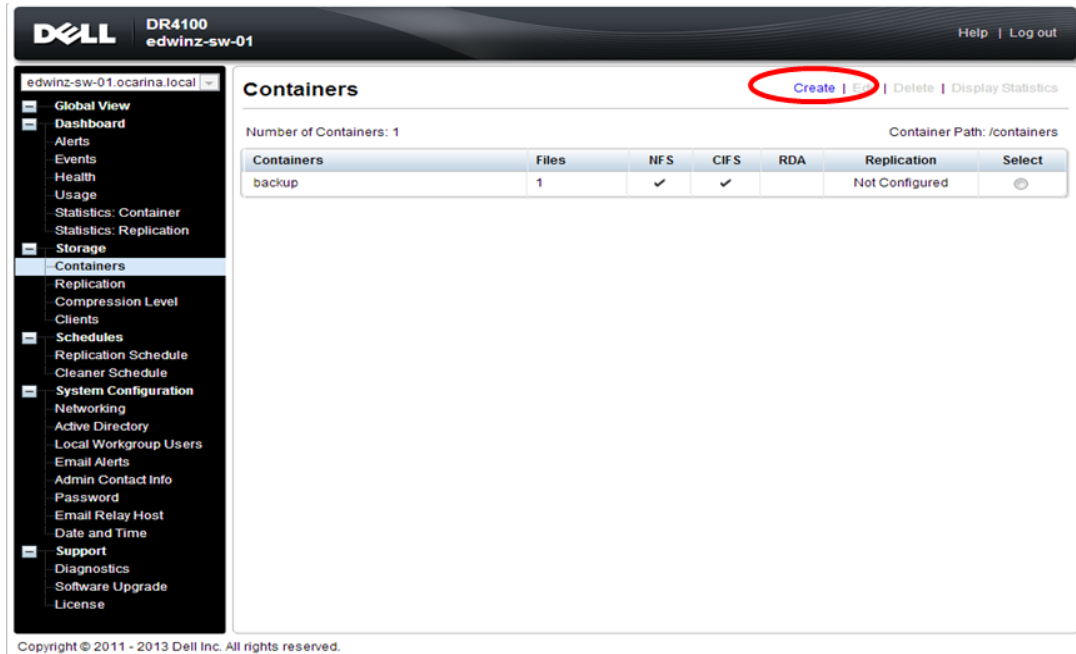
b. Enter your Active Directory credentials.

10. Create and mount the container by completing the following steps:
    a. In the left navigation area of the GUI, click **Storage** > **Containers**, and then click **Create** at the top of the page.

b. In the first page of the Container wizard, enter a Container Name, and click **Next**.

c. Select the Storage access protocol, and then click **Next**.
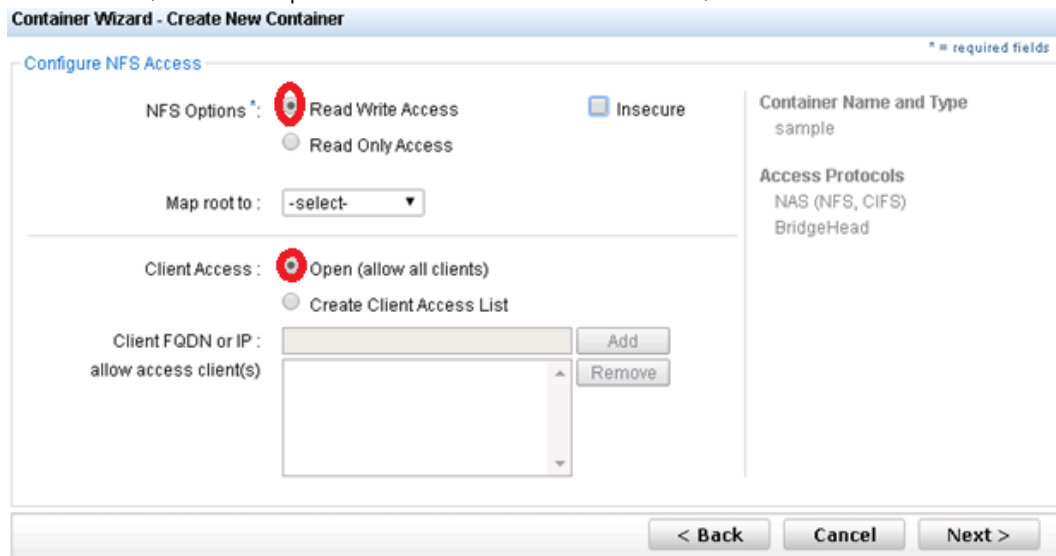

d. Select the CIFS or NFS check box to enable the appropriate access protocol (BridgeHead HDM supports both CIFS and NFS protocols.)
e. Select the Marker type, and then click **Next**.
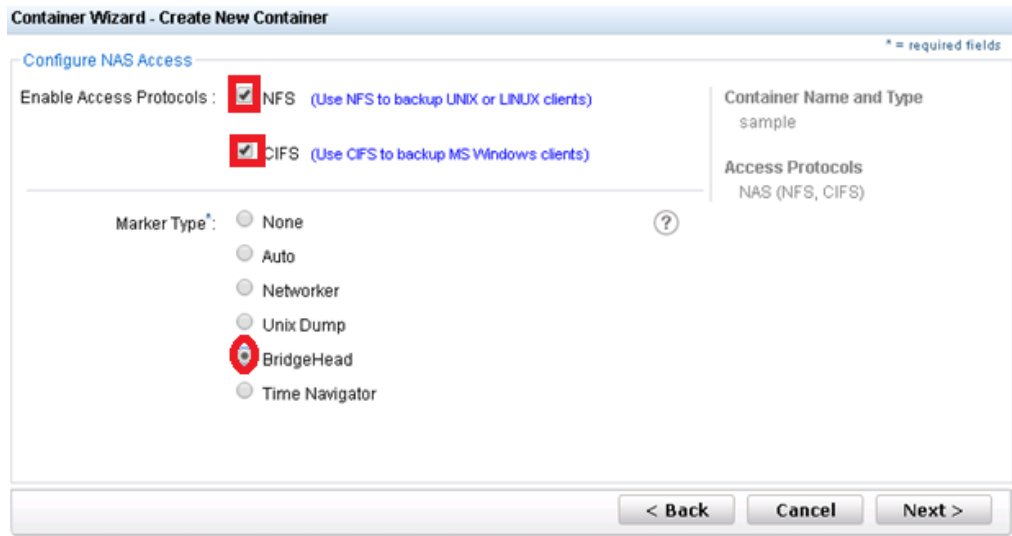
f. For NFS, select the preferred client access credentials, and click **Next**.

g. For CIFS, select the preferred client access credentials, and click **Next**.

> **Note**: For improved security, Dell recommends adding IP addresses for the backup console (BridgeHead Healthcare Data Management Server, BridgeHead Healthcare Data Management Clients). Not all environments will have all components.

h.   Check the configuration summary, and then click **Create a New Container**.

11. Confirm that the container is successfully added

2 Setting up BridgeHead Healthcare Data Management

2.1 For Windows environments

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).
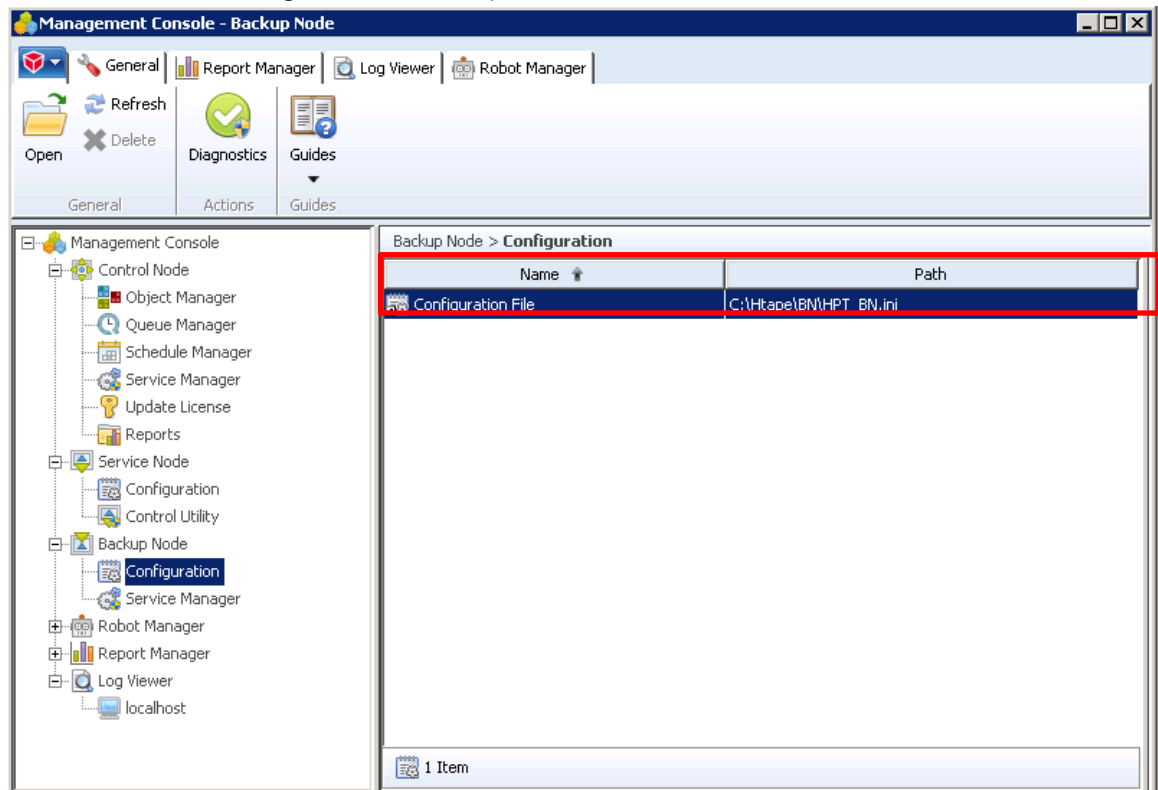
2. In the configuration file, search for "**Staging_Area**," and then enter the following information for the staging area entries:
   - **Staging Area Path** - Enter the DR container share UNC path.
   - **Staging Area Name** - Enter a name for the staging area.

```
HPT_BN - Notepad
File  Edit  Format  View  Help
; 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.

2.2 For Unix/Linux environments

The procedure for setting up the Unix/Linux environment is 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, please refer to the preceding section that describes the procedure for the Windows Environment.
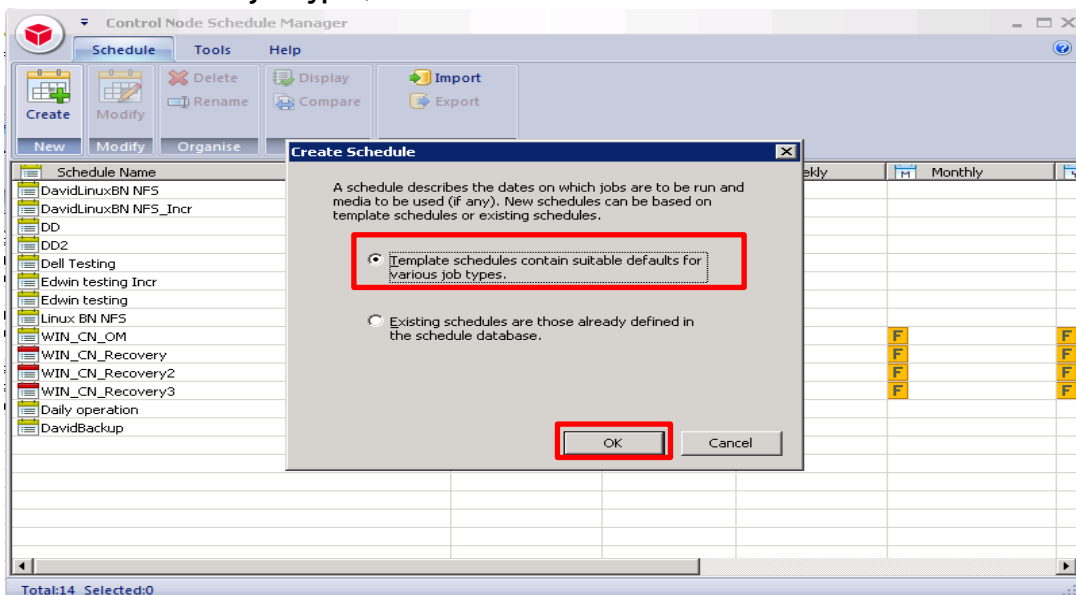
# 3 Creating a new backup job with a DR Series system as the target

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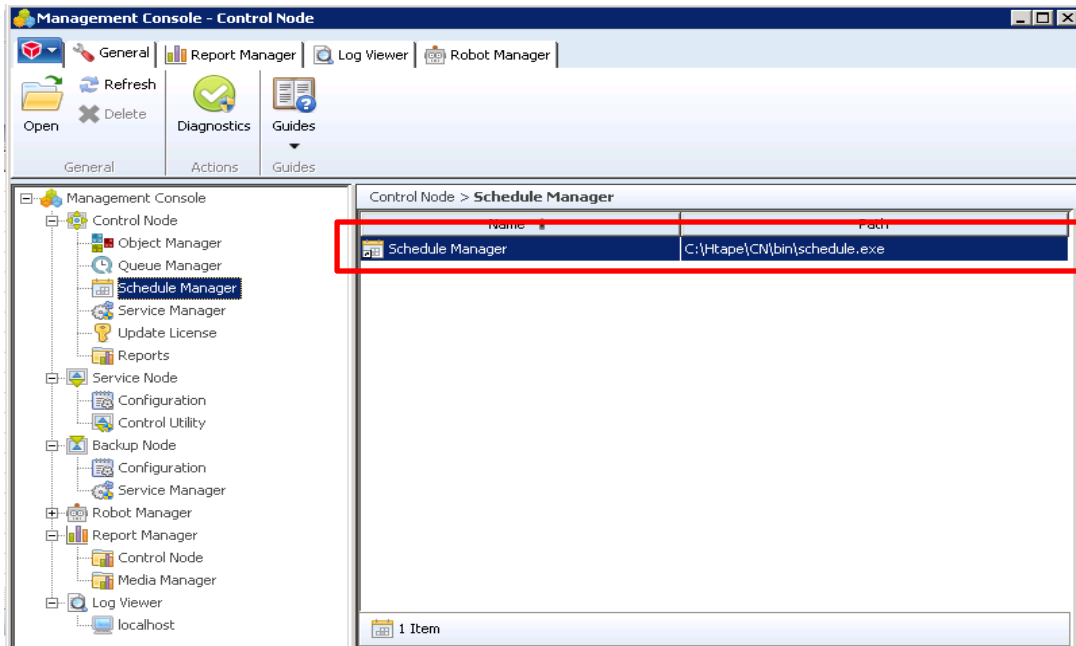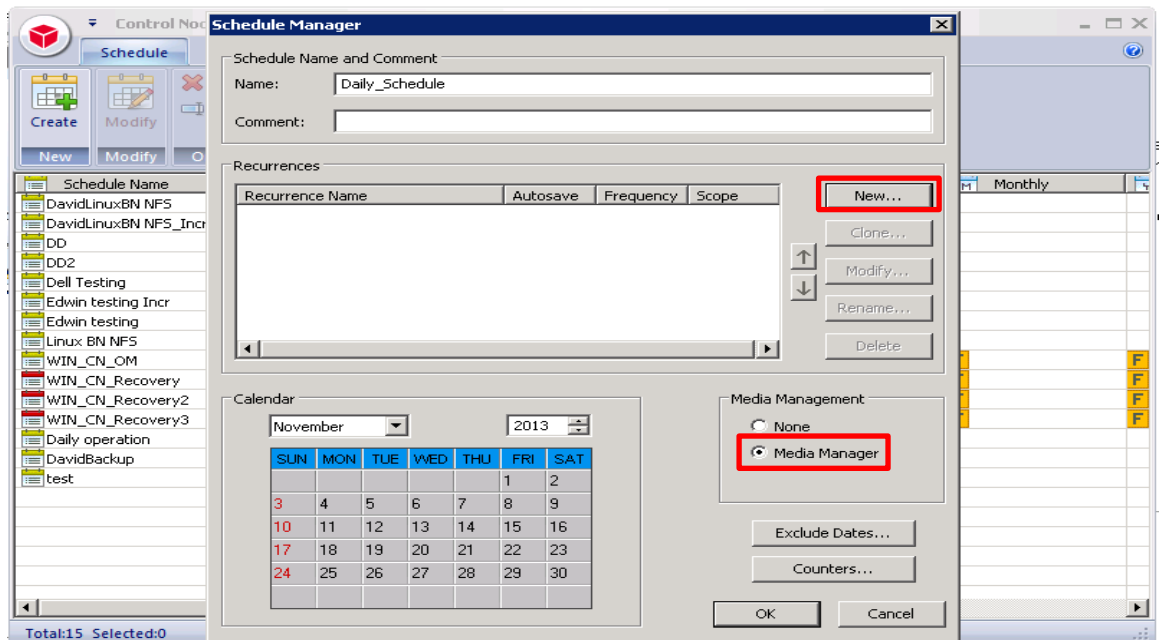

2. In the Create Schedule dialog box, select the option, **Template schedules contain suitable defaults for various job types**, and then click **OK**.
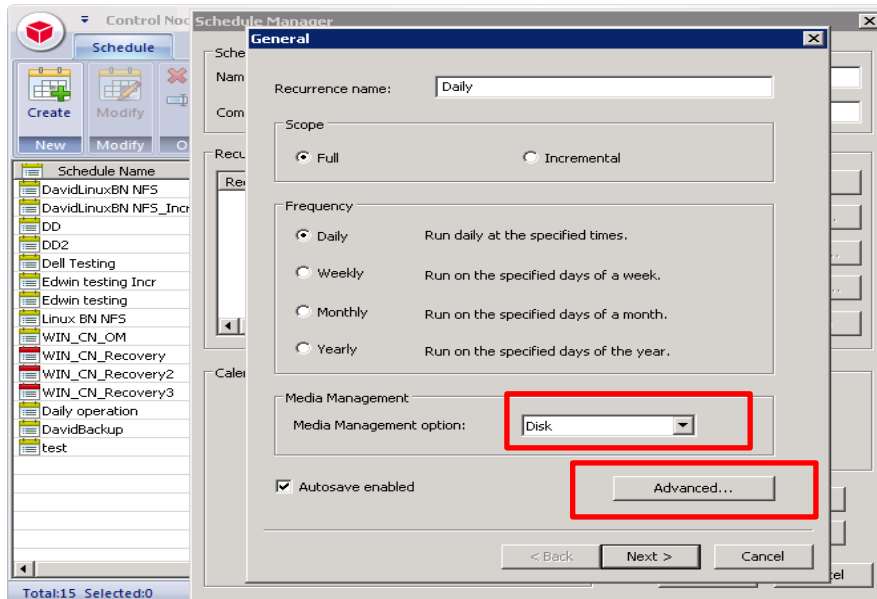
3. In the Template Schedules dialog box, click **None**, and then click **OK**.
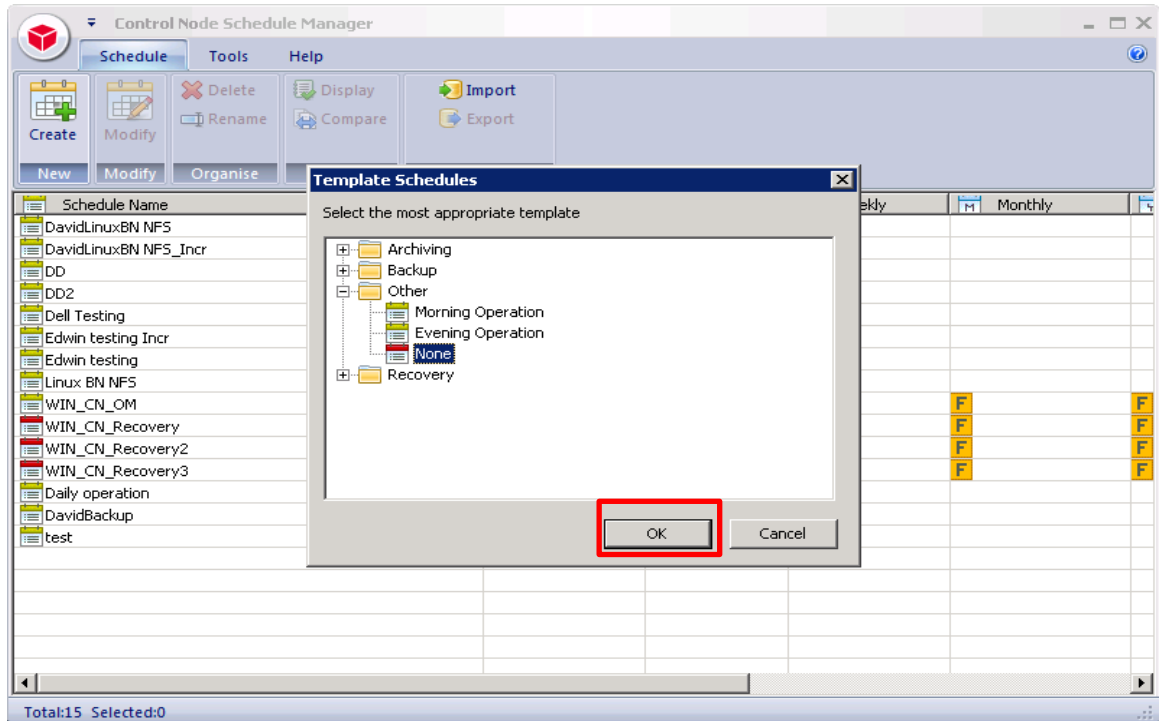
4. In the Schedule Manager dialog box, enter information for the required fields, and, then under **Media Management**, select **Media Manager**, and click **New**.

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


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

Setting Up the Dell™ DR Series System on BridgeHead® Healthcare Data Management | April 2015
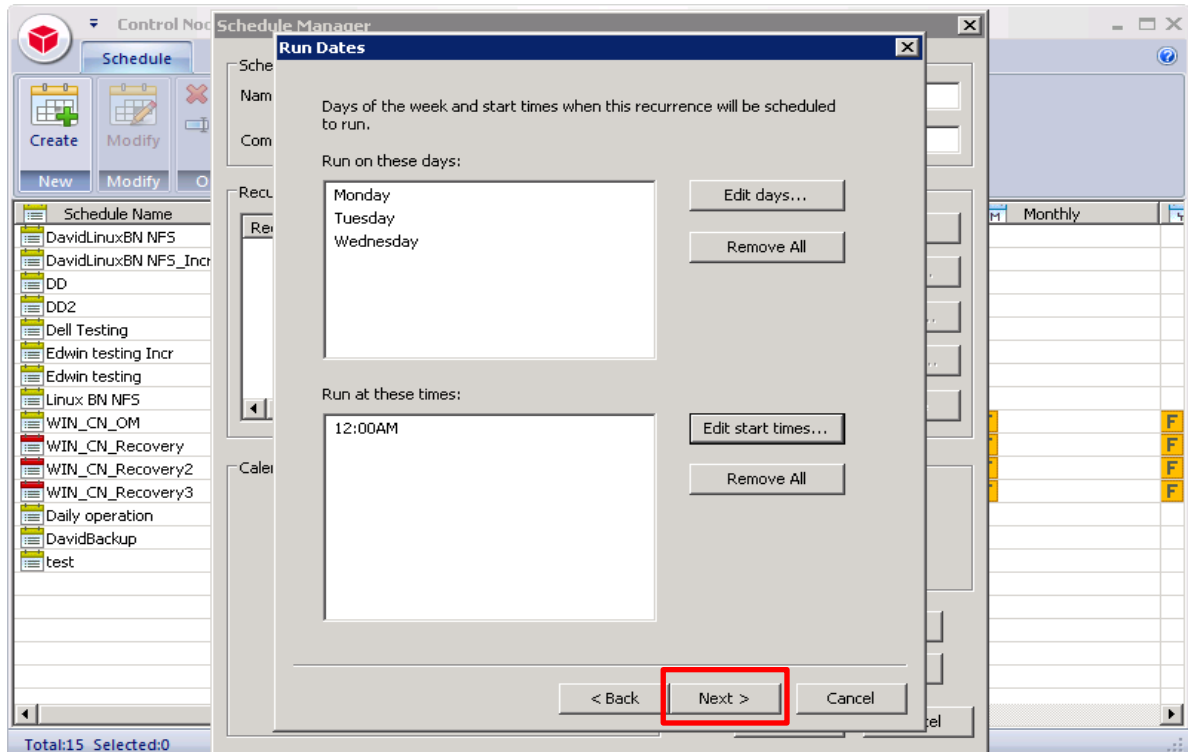
7. In the Media Properties dialog box, enter the following information, and then click **Finish**:
   - **Stage Area Name** – Enter the stage area name.
   - **Application** - Enter **BACKUP**.
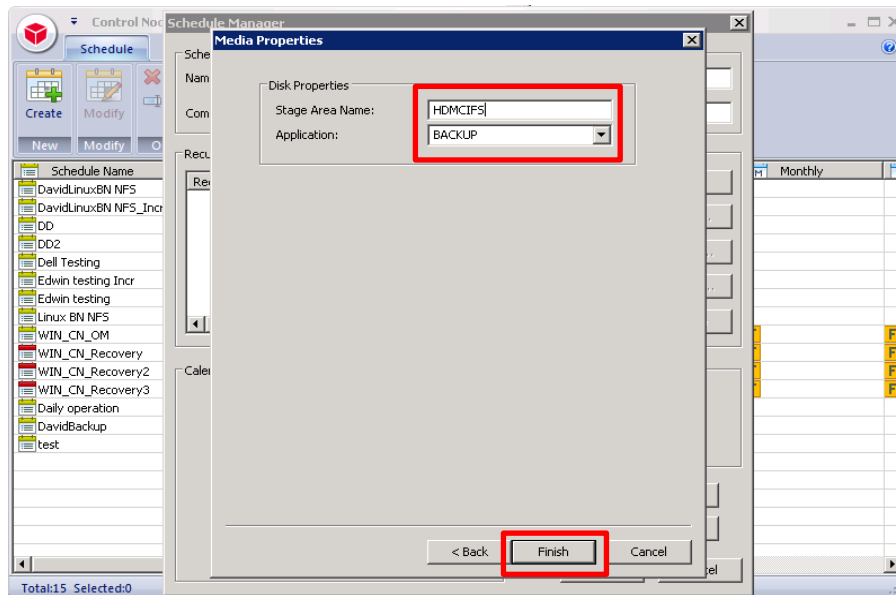
8. In the Schedule Manager dialog box, click **OK**.
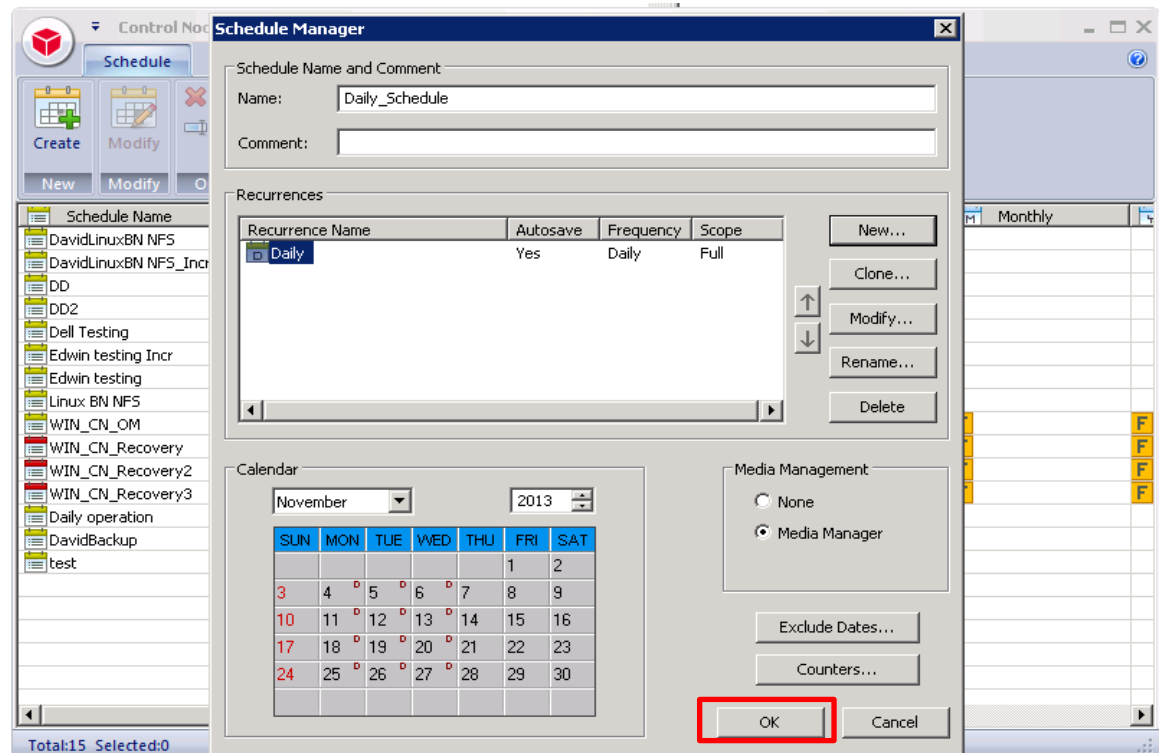
9. In the BridgeHead HDM Management Console, click **Control Node** > **Object Manager**, and then double-click the **Object Manager** to open it.
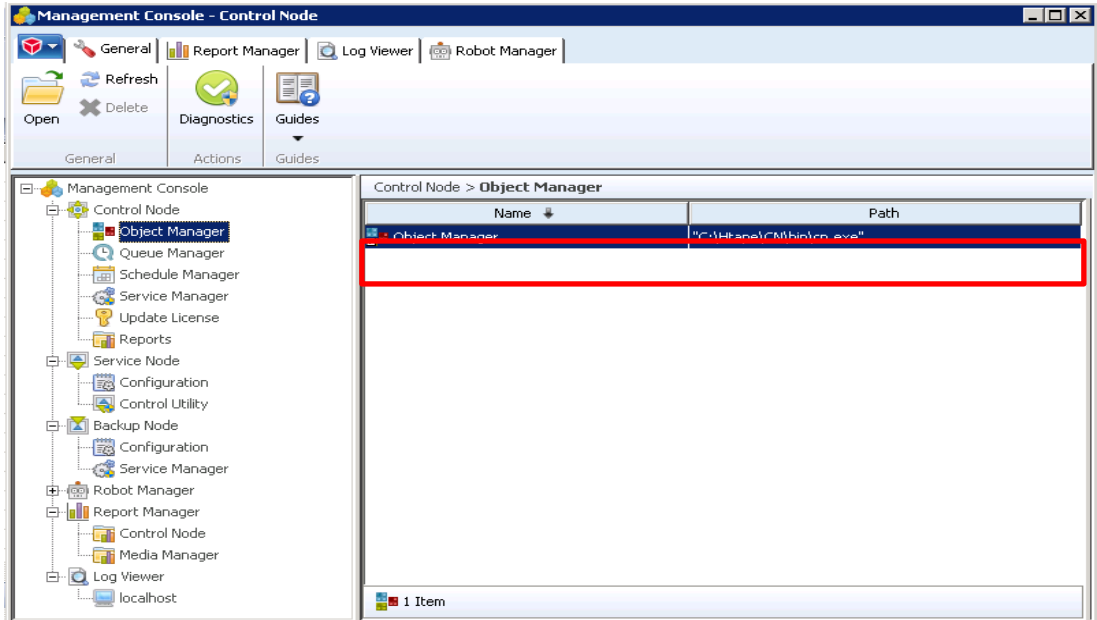

10. In the Create Object dialog box, select the option, **Template objects contain default settings for particular tasks such as platform or database backups, storage policy application or reporting,** and then click **Next.**
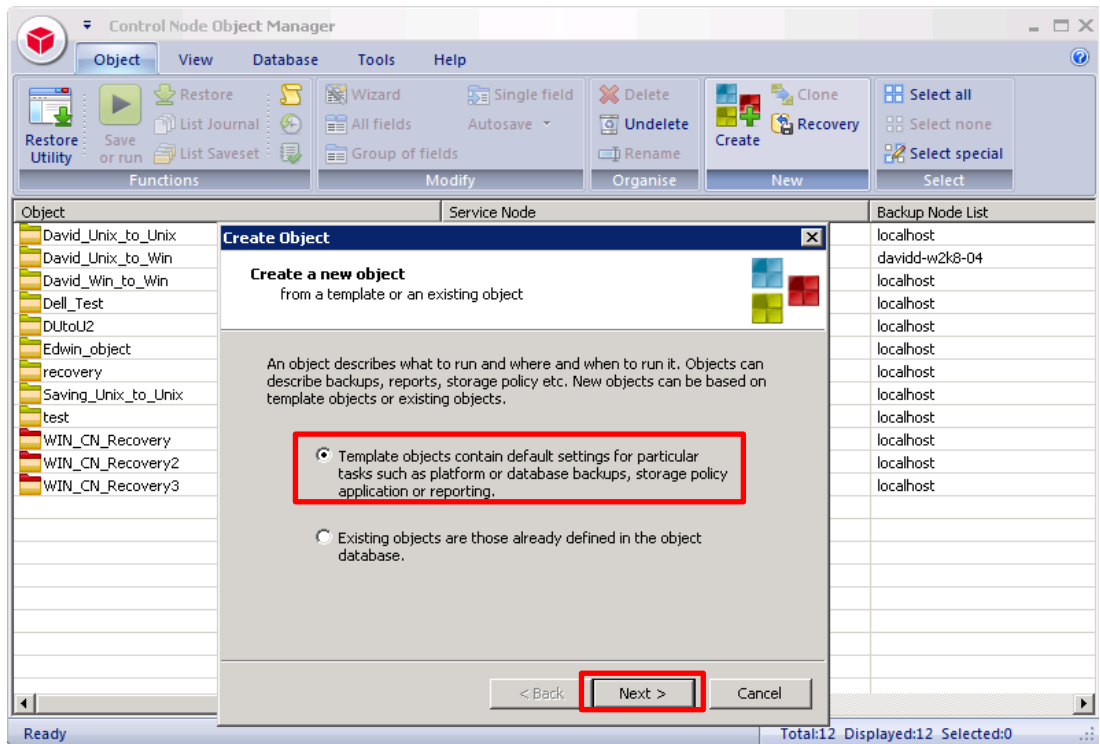
11. In the template list, click **WIN** and then click **Next.**
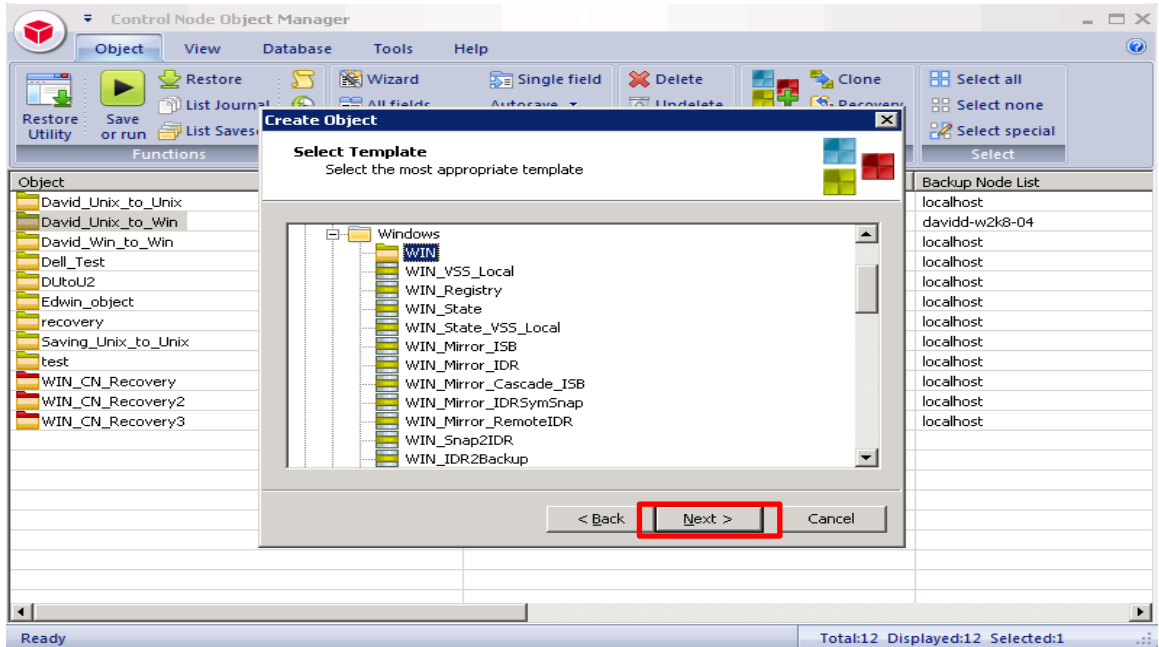

12. Enter the required credentials information for the service node, including the valid file path of the backup data source, and then click **Next.**

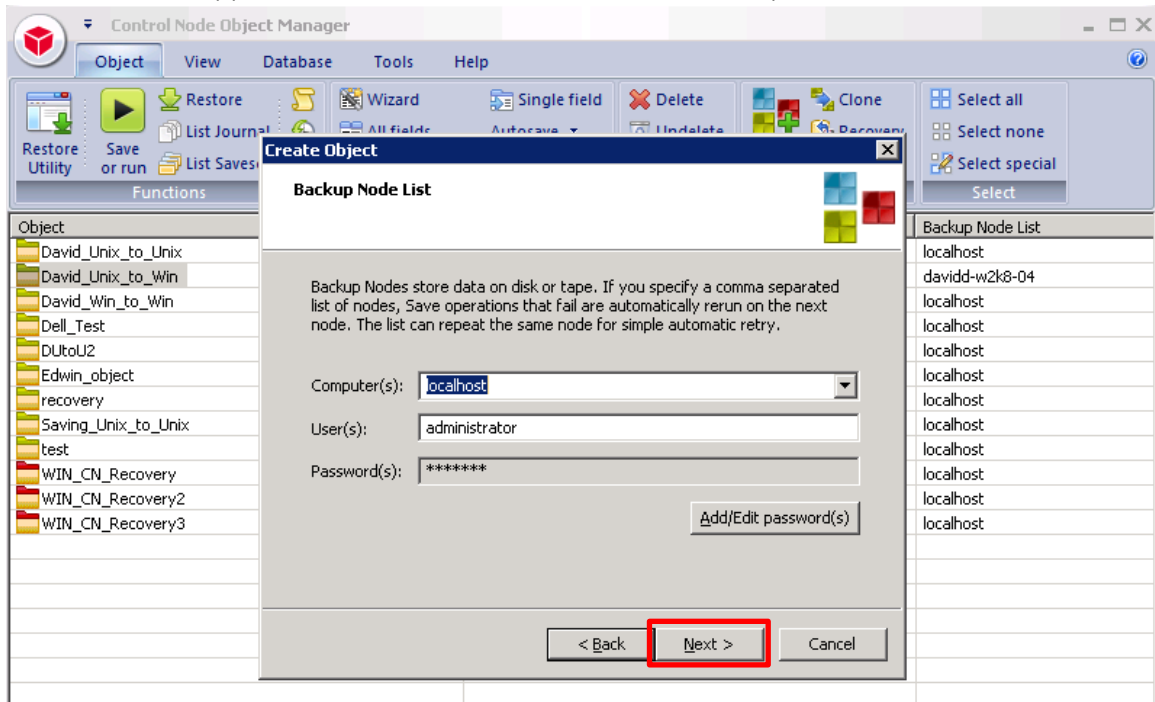Setting Up the Dell™ DR Series System on BridgeHead® Healthcare Data Management | April 2015
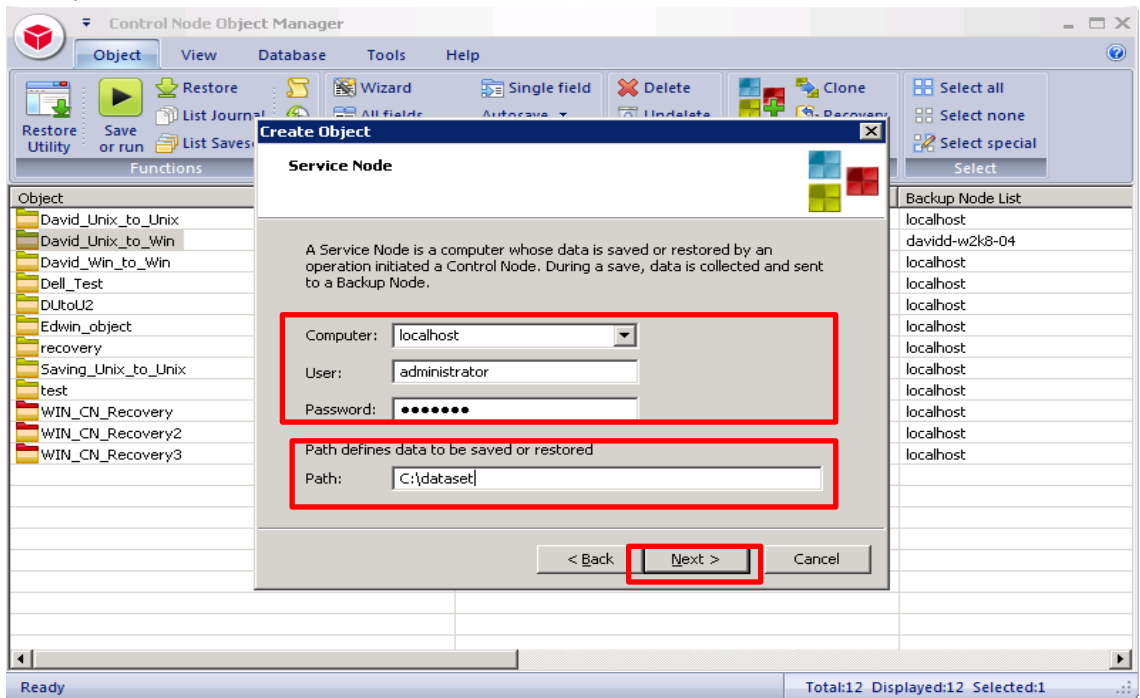
13. Enter the required user information for the Backup Node, and then click **Add/Edit password(s)**.
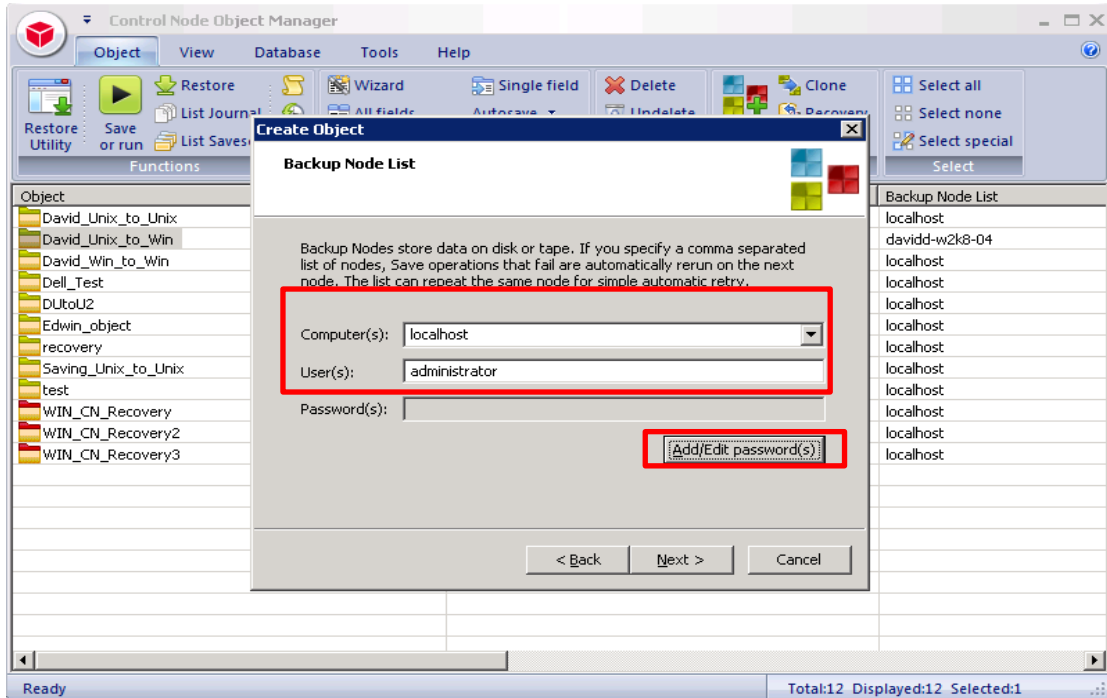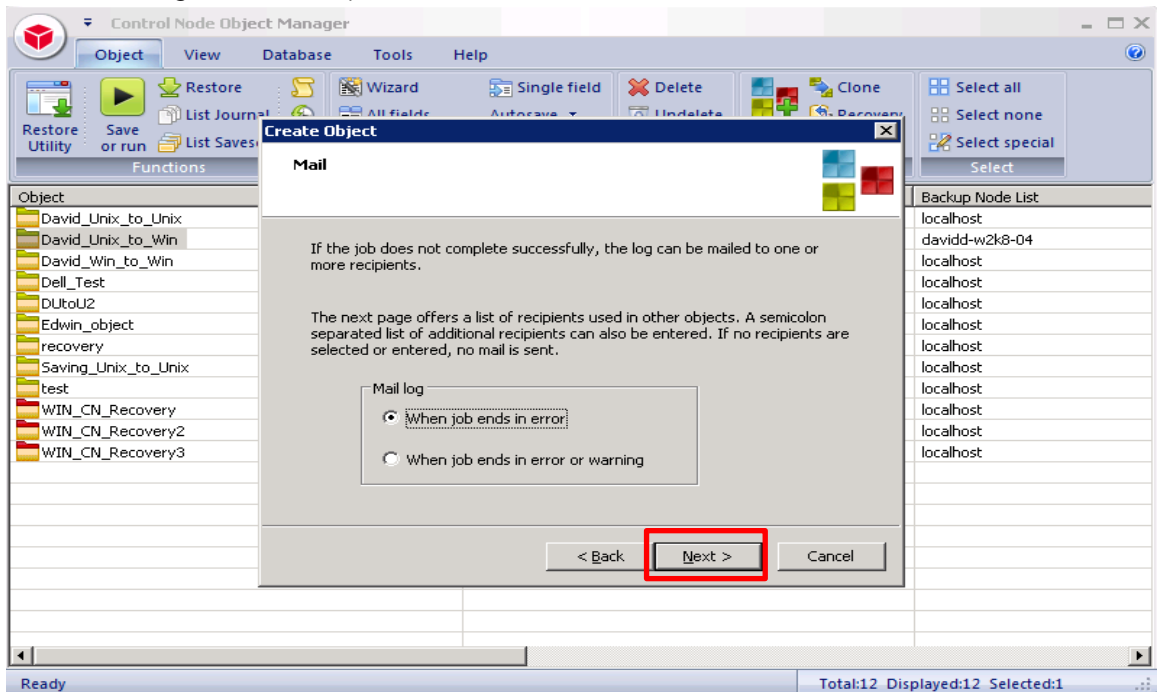

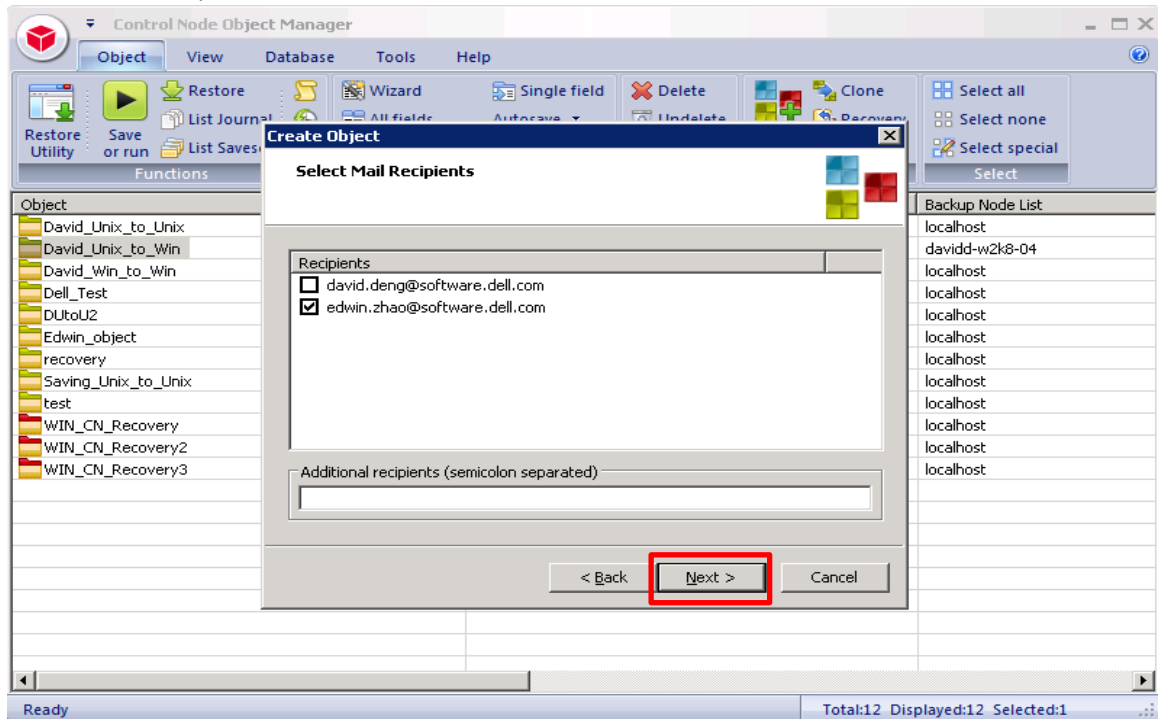14. Enter the password information for the Backup Node, and then click **OK**.
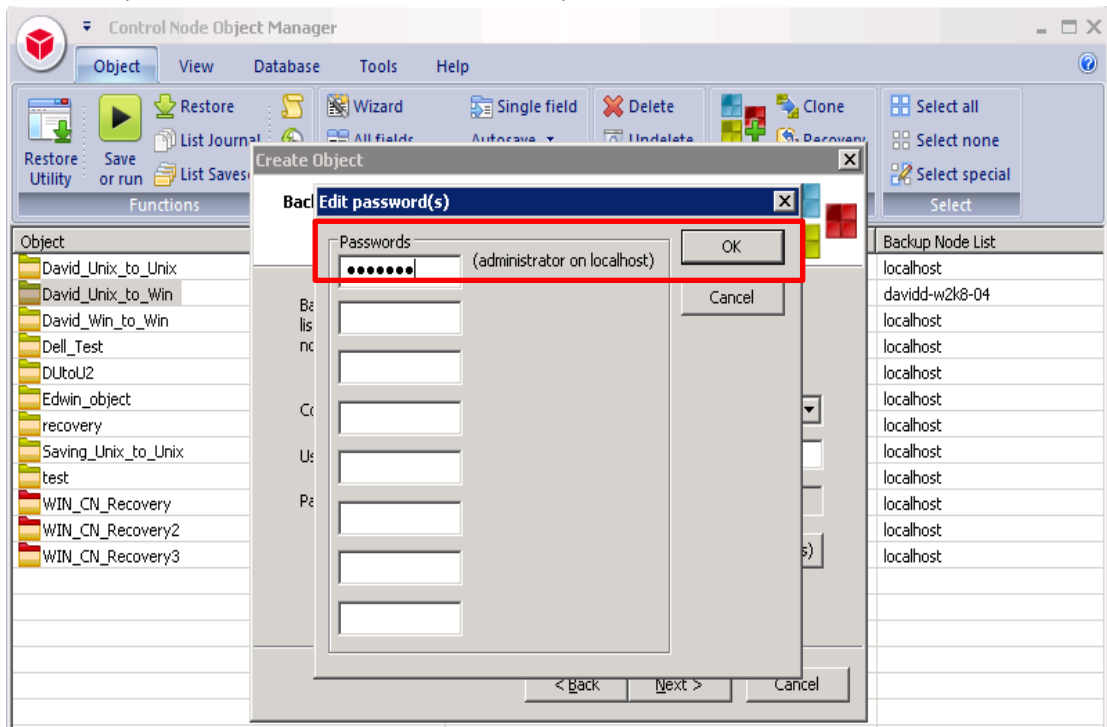
15. Click **Next. (**See Appendix A for information about the user and password information.)
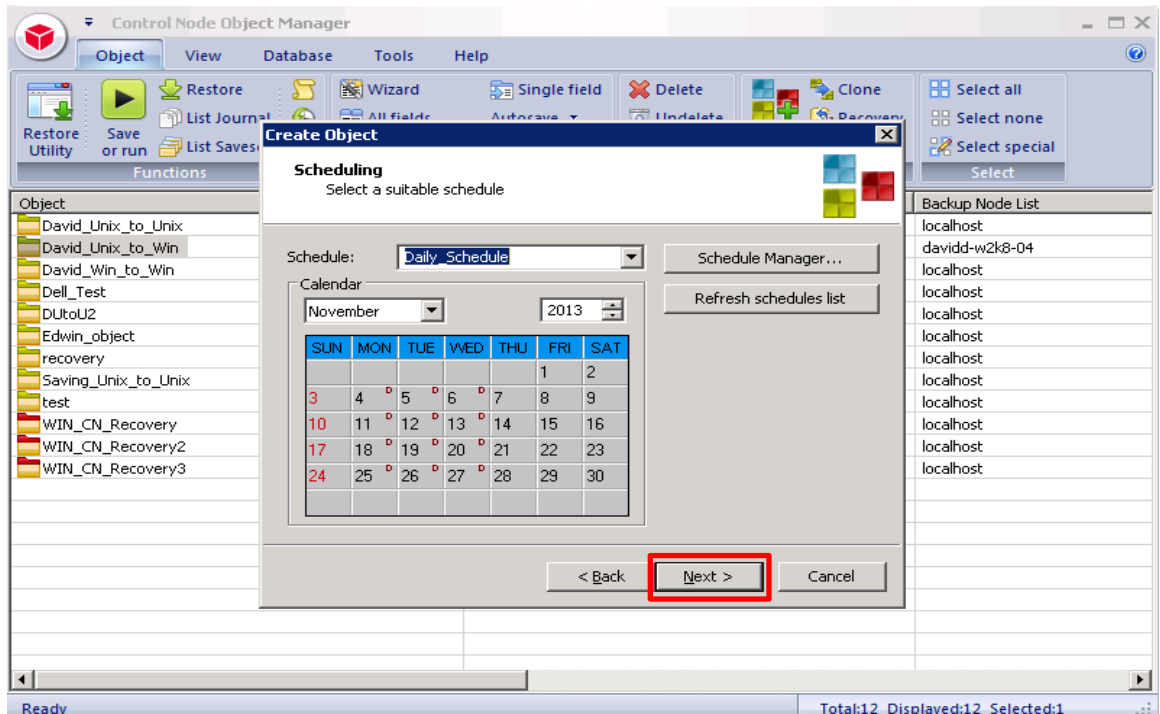

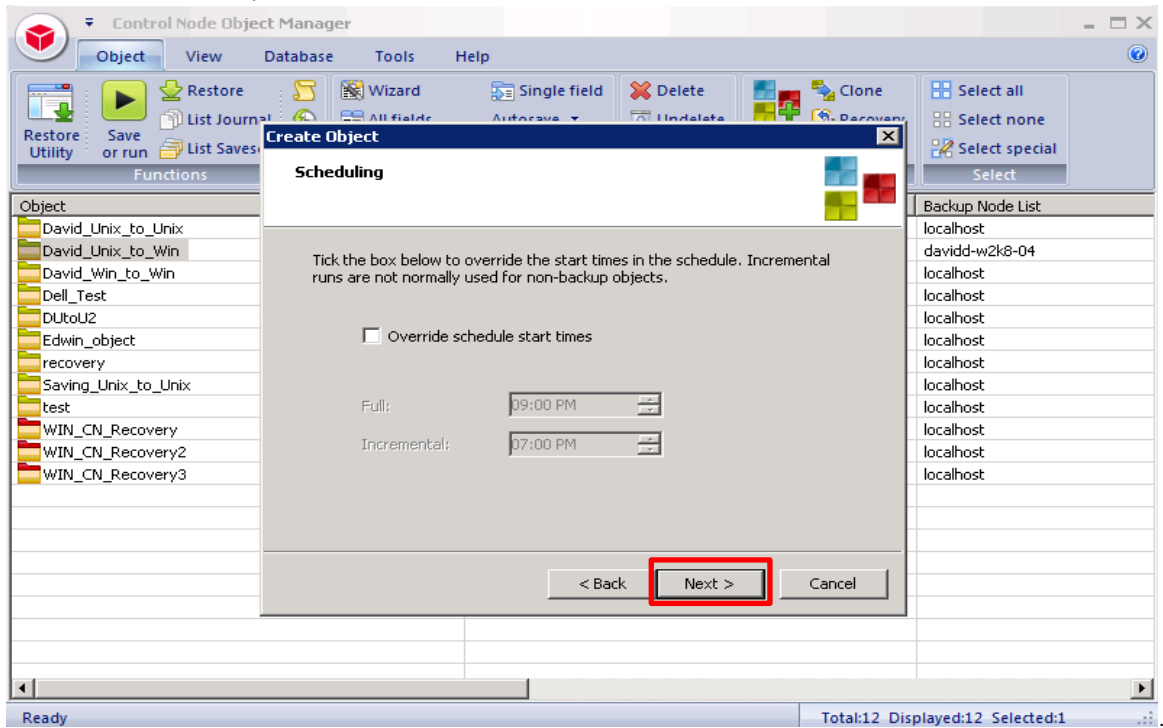16. For mail configuration, accept the default, and then click **Next**.

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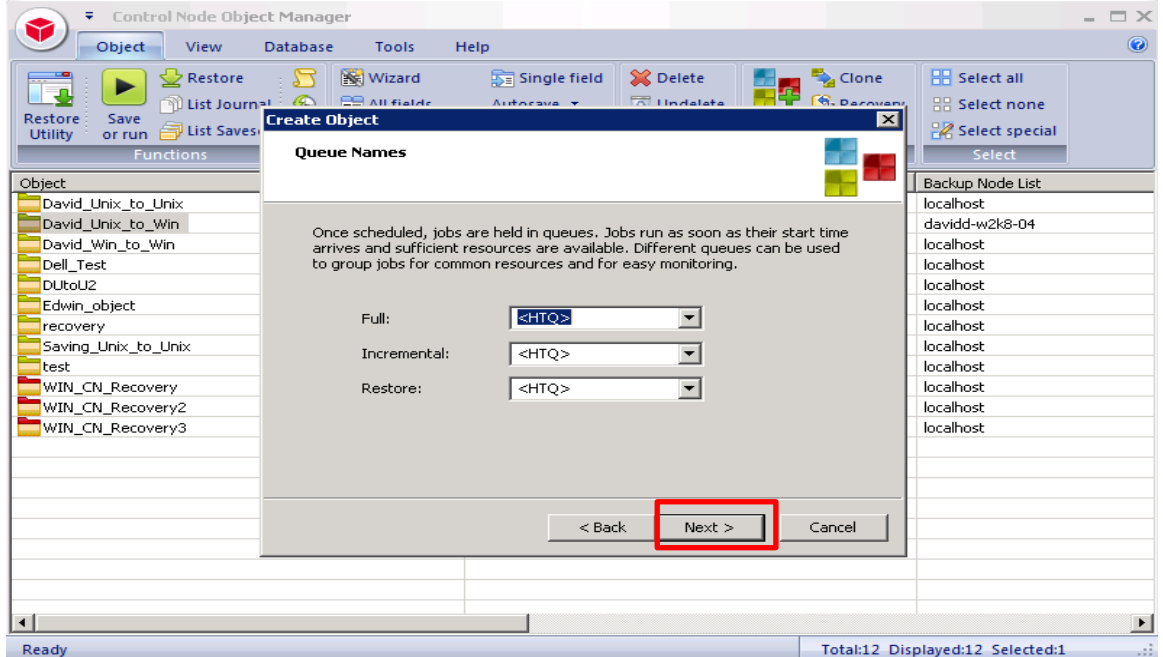

18. Select the Schedule, and then click **Next.**

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

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

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

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

23. In the **Save or Run Operation** dialog box, click **Start On-Line** to start the backup.
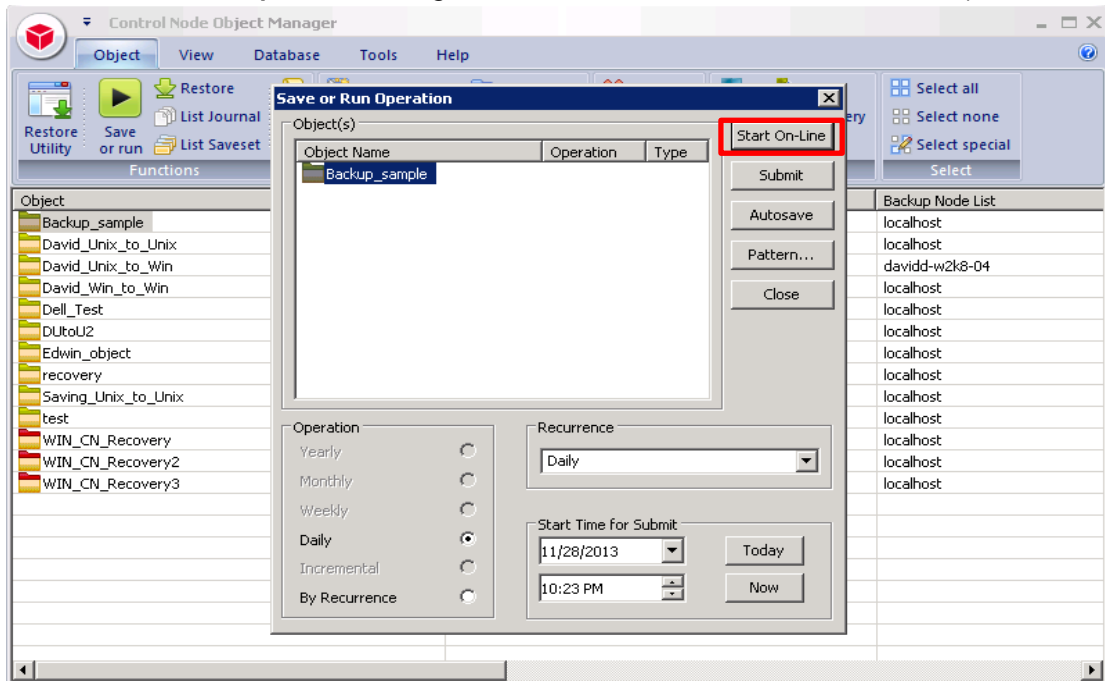
24. Ensure the backup is successful. The **Object Manager Operation Log** window displays the progress of the backup session. **Operation status** shows details of the backup job.
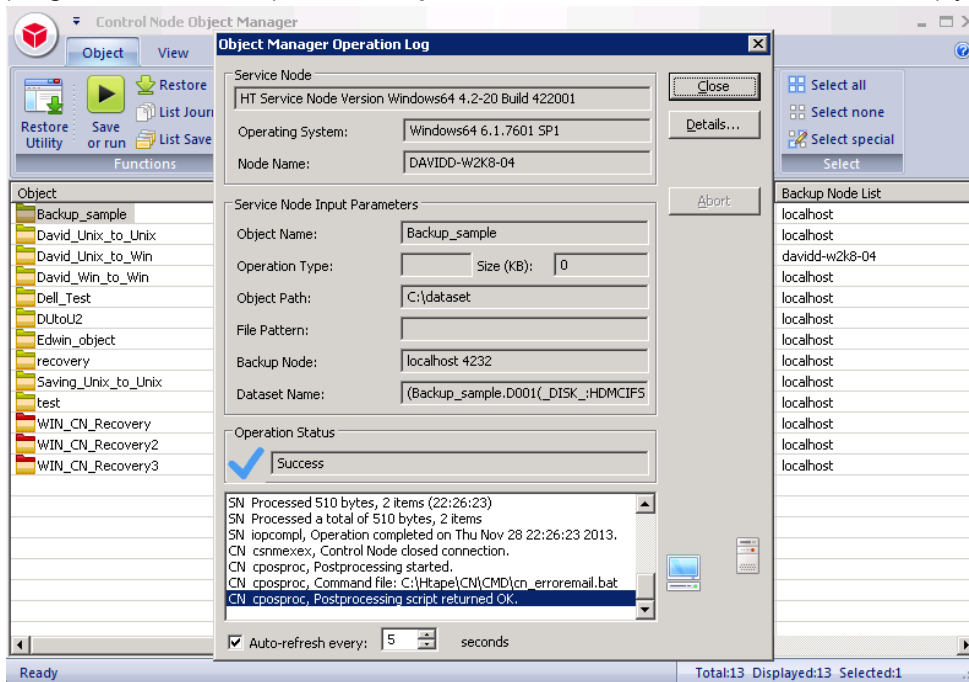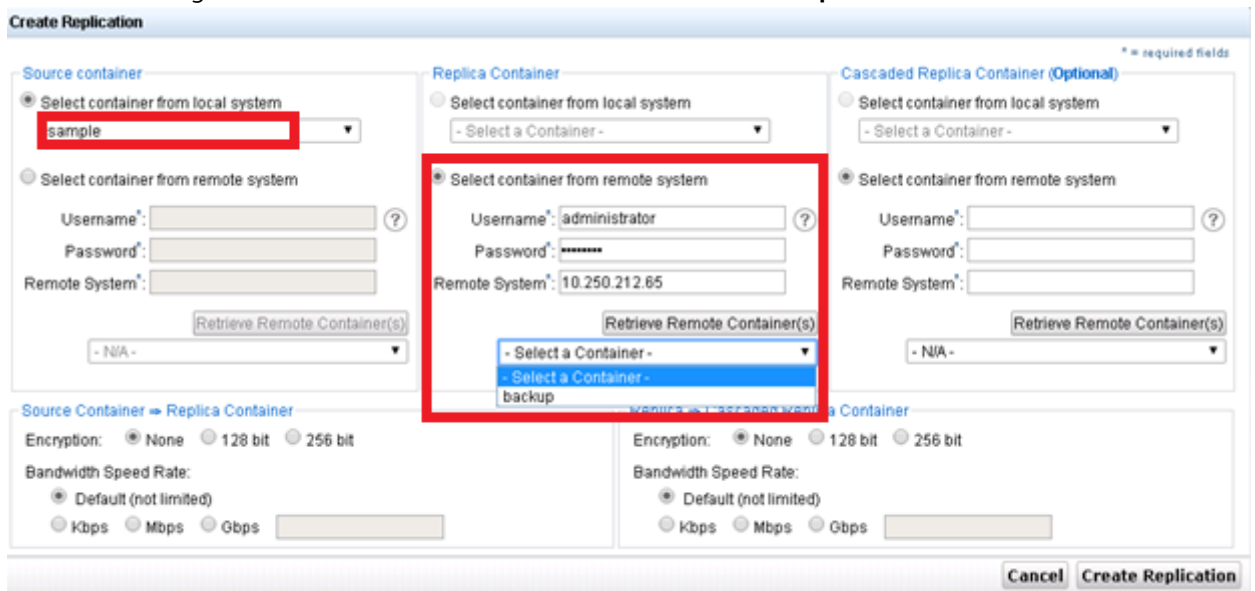
4   Setting up DR Series native replication and restore from the replication target container

4.1   Build the replication relationship between DR Series systems

1. On the source DR, in the GUI, click **Storage** > **Replication**, and then click **Create.**

2. In the Create Replication dialog box, do the following:
   a. Select a local container as the source container.
   b. Click **Container from remote system**, enter the target DR Series system information, and then click **Retrieve Remote Containers**,
   c. Select a target container from the list, and then click **Create Replication.**

3. Verify that the replication is created successfully

4. Ensure that the **Status checkbox** is marked for the replication session.

4.2   Back up to the source DR Series system
         (Optional: When no backed up data exists on source container)

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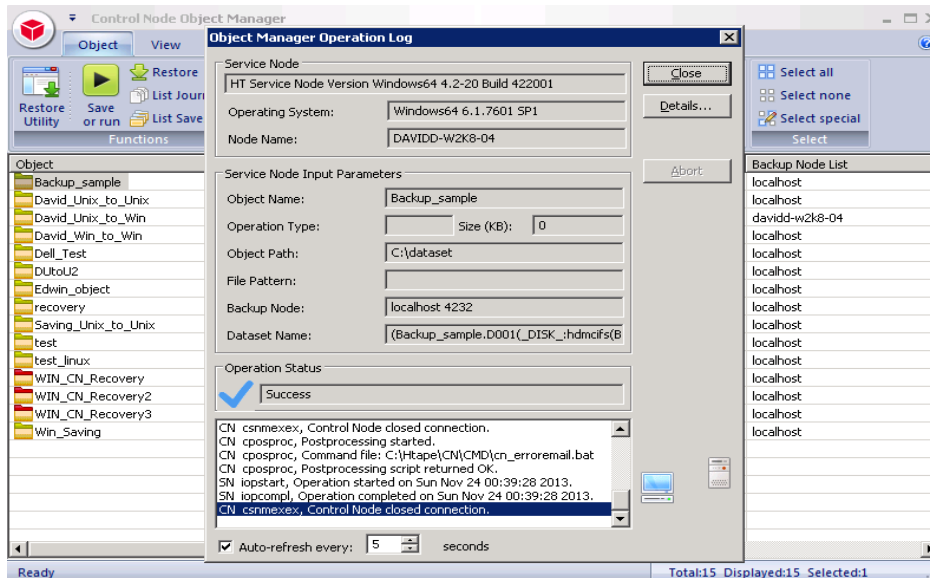   BridgeHead HDM, and then create a new backup job with the source DR Series system as the
     target.

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

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

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

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

4.3   Restore 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**.

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

3. Verify that the restore job completes successfully.
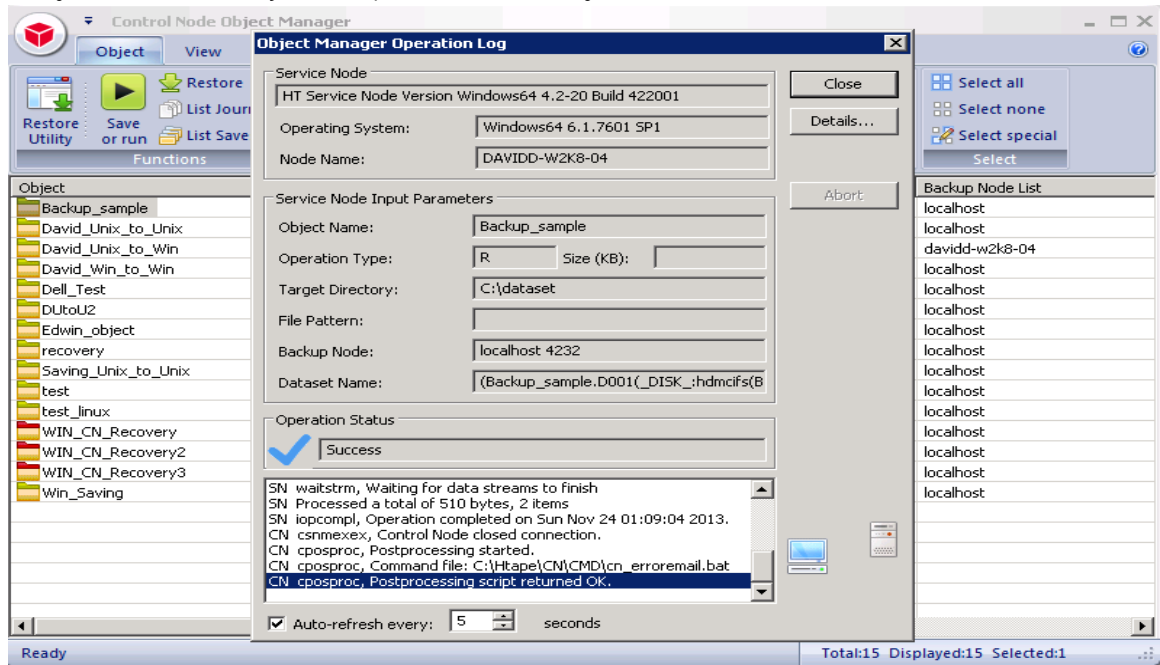
5 Setting up the DR Series system cleaner

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

The system cleaner runs 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 to force it to run during a scheduled time.

If necessary, you can perform the procedure shown in the following example screenshot to force the cleaner to run. After all of the backup jobs are set up, the DR Series system cleaner can be scheduled. The DR Series system cleaner should run at least 40 hours per week when backups are not taking place and generally after a backup job has completed.

6 Monitoring deduplication, compression, and performance

After backup jobs have run, the DR Series system tracks capacity, storage savings, and throughput on the DR Series system dashboard. This information is valuable in understanding the benefits of 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 are completed, the ratios will increase. Backup jobs with a 12-week retention will average a 15x ratio, in most cases.
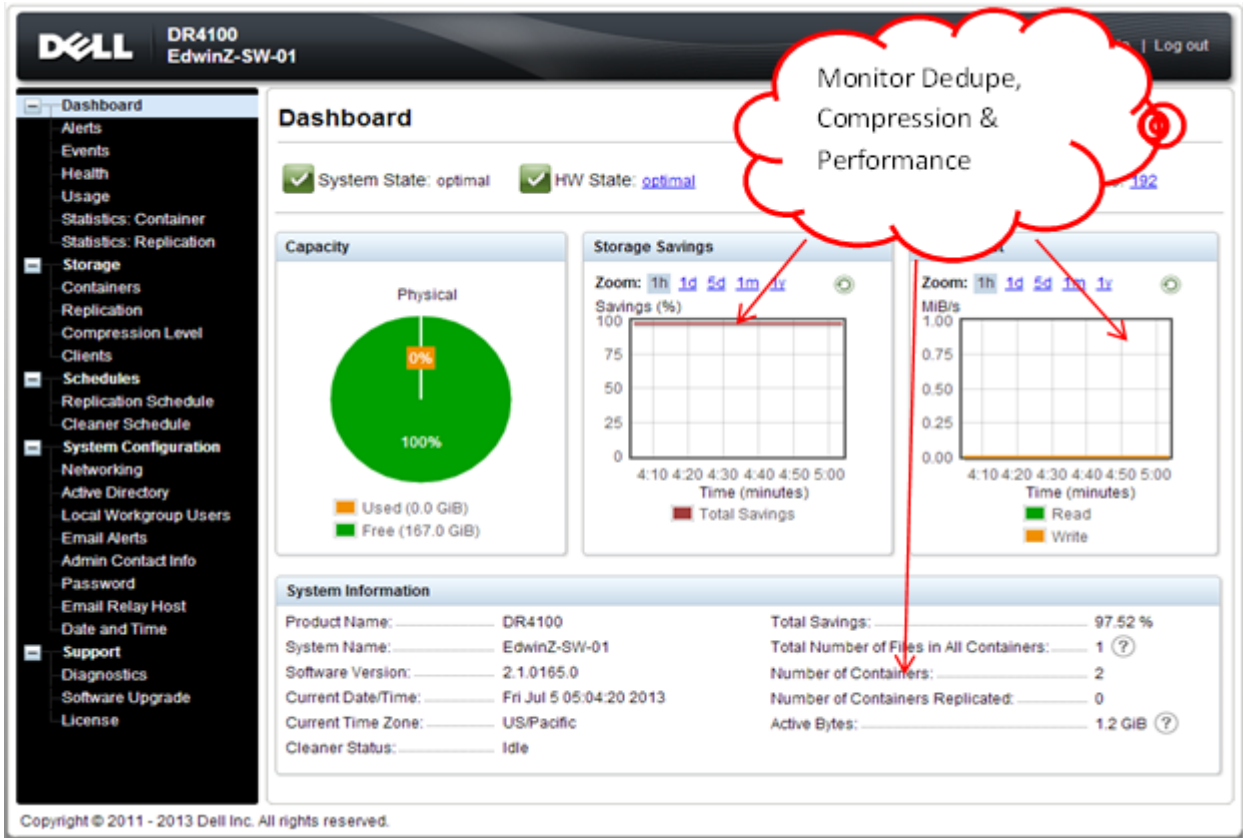
A   Creating a storage device for CIFS

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

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

2. <u>DR is standalone CIFS server</u>: 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

   ```
   administrator@EdwinZ-SW-01 > authenticate  --set --user administrator
   Enter new password for CIFS user administrator:
   Re-enter new password for CIFS user administrator:
   Changed administrator's password.
   administrator@EdwinZ-SW-01 >
   ```

> **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.)