

EMC[®] Backup & Recovery Manager[®] Release 1.0

User Guide

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REV 02

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For the most up-to-date regulatory document for your product line, go to the technical documentation and advisories section on the EMC online support website.

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PREFACE

As part of an effort to improve its product lines, EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact your EMC representative if a product does not function properly or does not function as described in this document.

Note: This document was accurate at publication time. New versions of this document might be released on the EMC online support website. Check the EMC online support website to ensure that you are using the latest version of this document.

Purpose

This document describes how to configure and use EMC Backup & Recovery Manager.

Audience

This document is intended for the host system administrator, system programmer, or operator who will be involved in managing the EMC Backup & Recovery Manager.

Revision history

The following table presents the revision history of this document.

Table 1 Revision history

Revision	Date	Description
01	November, 2013	First draft of the guide.
02	February, 2013	Updated with Upgrade from DA to GA release of the Backup & Recovery Manager.

Related documentation

The following EMC publications provide additional information:

- ◆ *EMC Backup & Recovery Manager Release 1.0 Release Notes*
- ◆ *EMC Backup & Recovery Manager Release 1.0 Security Guide*
- ◆ *EMC Avamar Compatibility and Interoperability Matrix*
- ◆ *EMC NetWorker Software Compatibility Guide*
- ◆ EMC Avamar documentation
- ◆ EMC NetWorker documentation
- ◆ EMC Data Domain documentation

Conventions used in this document

EMC uses the following conventions for special notices:

NOTICE

NOTICE presents important information and addresses practices not related to personal injury or hazards.

Note: A note presents information that is important, but not hazard-related.

IMPORTANT

An important notice contains information essential to software or hardware operation.

Typographical conventions

EMC uses the following type style conventions in this document:

Normal	Used in running (nonprocedural) text for: <ul style="list-style-type: none">Names of interface elements, such as names of windows, dialog boxes, buttons, fields, and menusNames of resources, attributes, pools, Boolean expressions, buttons, DQL statements, keywords, clauses, environment variables, functions, and utilitiesURLs, pathnames, filenames, directory names, computer names, links, groups, service keys, file systems, and notifications
Bold	Used in running (nonprocedural) text for names of commands, daemons, options, programs, processes, services, applications, utilities, kernels, notifications, system calls, and man pages Used in procedures for: <ul style="list-style-type: none">Names of interface elements, such as names of windows, dialog boxes, buttons, fields, and menusWhat the user specifically selects, clicks, presses, or types
<i>Italic</i>	Used in all text (including procedures) for: <ul style="list-style-type: none">Full titles of publications referenced in textEmphasis, for example, a new termVariables
Courier	Used for: <ul style="list-style-type: none">System output, such as an error message or scriptURLs, complete paths, filenames, prompts, and syntax when shown outside of running text
Courier bold	Used for specific user input, such as commands
<i>Courier italic</i>	Used in procedures for: <ul style="list-style-type: none">Variables on the command lineUser input variables
< >	Angle brackets enclose parameter or variable values supplied by the user
[]	Square brackets enclose optional values
	Vertical bar indicates alternate selections — the bar means “or”
{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate nonessential information omitted from the example

Where to get help

EMC support, product, and licensing information can be obtained as follows:

Product information — For documentation, release notes, software updates, or information about EMC products, licensing, and service, go to the EMC online support website (registration required) at:

<https://support.emc.com/>

Technical support — For technical support resources that may enable you to resolve a product issue before you contact EMC Customer Service, go to:

- ◆ The Avamar Support page at, https://support.emc.com/products/759_Avamar-Server/Documentation/
- ◆ The NetWorker Support page at, https://support.emc.com/products/1095_NetWorker/Documentation/
- ◆ The Data Domain Support page at, <https://my.datadomain.com/US/en/search.jsp>

The Avamar and NetWorker and Data Domain Support pages provide access to:

- ◆ Product documentation
- ◆ How-to and troubleshooting information in the Support Topics section
- ◆ Hardware and software compatibility information
- ◆ Knowledge Base articles

If none of these resources resolve the issue, you can engage EMC Customer Service using live interactive chat by selecting **Additional Resources** > **Live Chat** on the (Avamar and NetWorker only) Support pages.

If more in-depth help is required or you have an existing open Service Request (SR), you can submit or review an SR through the EMC online support website at <https://support.emc.com/>:

- ◆ To open a new SR, select **Support** > **Request Support** > **Create Service Request**.

Note: To open an SR, you must have a valid support agreement. Contact your EMC sales representative for details about obtaining a valid support agreement or with questions about your account.

- ◆ To review an existing SR, select **Support** > **Request Support** > **View Service Requests**.

Your comments

Your suggestions will help us continue to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to:

BSGdocumentation@emc.com

Please include the following information:

- ◆ Product name and version
- ◆ Document name, part number, and revision (for example, A01)
- ◆ Page numbers
- ◆ Other details that will help us address the documentation issue

Getting Started

The Backup & Recovery Manager runs in a server, supporting Avamar® systems, NetWorker® servers, and Data Domain® backup targets. The Backup & Recovery Manager runs on a virtual server. This section provides information on the following:

- ◆ [Product architecture](#)
- ◆ [Backup & Recovery Manager user interface](#)
- ◆ [Using online help](#)
- ◆ [Search](#)
- ◆ [Installation Roadmap](#)
- ◆ [Requirements](#)
- ◆ [Errors and Warnings pop ups](#)

Product architecture

Figure 1 on page 12 illustrates the components of the Backup & Recovery Manager and its data flow.

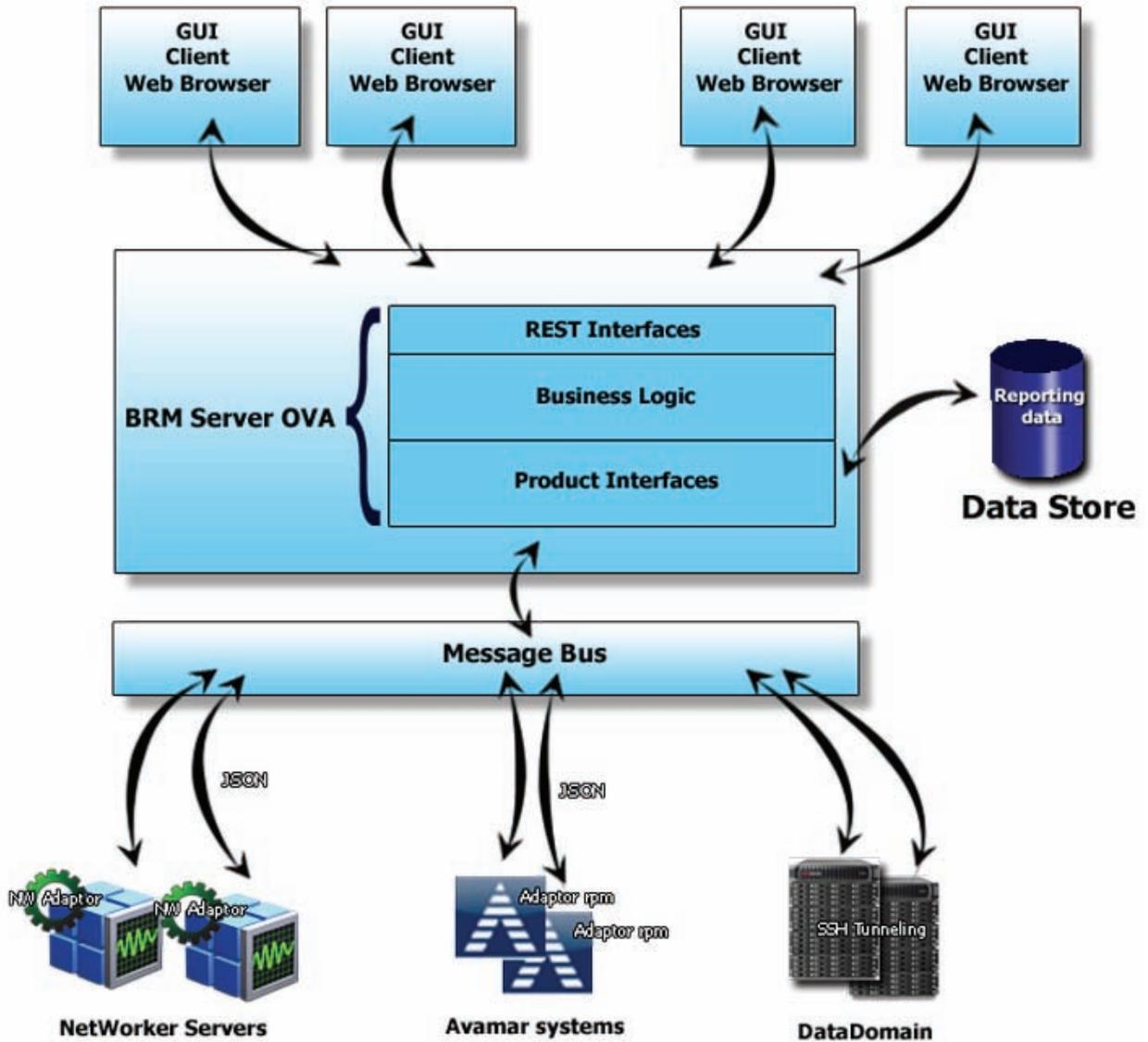


Figure 1 Backup & Recovery Manager architecture

Table 2 on page 12 lists the components that make up the Backup & Recovery Manager architecture.

Table 2 Backup & Recovery Manager components (Sheet 1 of 2)

Component	Description
Client layer	Javascript, HTML

Table 2 Backup & Recovery Manager components (Sheet 2 of 2)

Component	Description
Application server	Deployed as a virtual application (OVA)
Storage layer	Used for storing reporting and monitoring data
Product layer	<ul style="list-style-type: none"> • NetWorker adaptor binary on Windows and Linux with a proxy option (NetWorker releases 7.6.x and later) • Avamar adaptor – Java on the Avamar grid (6.0 SP2, 6.1 and 6.1 SP1) • Data Domain – SSH tunneling

Complete details on the supported versions of the Avamar and NetWorker software are available in the respective compatibility guides:

- ◆ The Avamar Compatibility and Interoperability Matrix available at: <https://support.EMC.com/products/Avamar>
- ◆ The NetWorker Software Compatibility Guide available at: <https://support.emc.com/products/Networker>

Backup & Recovery Manager user interface

The Backup & Recovery Manager uses these sections to enable you to monitor Avamar, NetWorker, and Data Domain systems.

- ◆ Alerts:

View alerts from all monitored systems including backup failures, errors, warnings and media requests. Alerts often require user intervention.
- ◆ Activities:

View detailed information on jobs that are running, completed, or queued on all monitored systems.
- ◆ Events:

View all events generated by monitored systems in the enterprise. The ability to filter and acknowledge events is also provided.
- ◆ Systems:

View detailed information for all Avamar, NetWorker, and Data Domain systems in the enterprise.

- ◆ **Configuration:**
Configure basic Avamar replication.
- ◆ **Reports:**
Run backup summary, configuration report (lists policy objects) and system summary reports for all monitored systems in the enterprise.

Using online help

To view all online help topics for the Backup & Recovery Manager GUI:

1. Click the question mark  icon in the upper right corner of the window.
2. A menu opens with the available options.
3. Select an option from the menu:
 - **Help Index** — Opens the online help for the EMC Backup & Recovery Manager GUI.
 - **Getting Started** — Displays getting started topics in a new browser window.
 - **Alerts** — Links to the Alerts topic in the online help.
 - **Activities** — Links to the Activities topic in the online help.
 - **Events** — Links to the Events topic in the online help.
 - **Configuration** — Links to the Configuration topic in the online help.
 - **Systems** — Links to the Systems topic in the online help.
 - **Reports** — Links to the Reports topic in the online help.
 - **Avamar Support** — Links to the Avamar technical support landing page.
 - **Avamar Online Community** — Links to the Avamar online community page.
 - **NetWorker Support** — Links to the NetWorker technical support landing page.
 - **NetWorker Online Community** — Links to the NetWorker online community page.
 - **Data Domain Support** — Links to the Data Domain technical support landing page.
 - **About the Backup & Recovery Manager** — Displays a dialog box that shows the current version of the application.

View online help

To view online help:

1. Click the question mark  icon in the upper right corner of the window. [Figure 2 on page 15](#) illustrates the help menu.

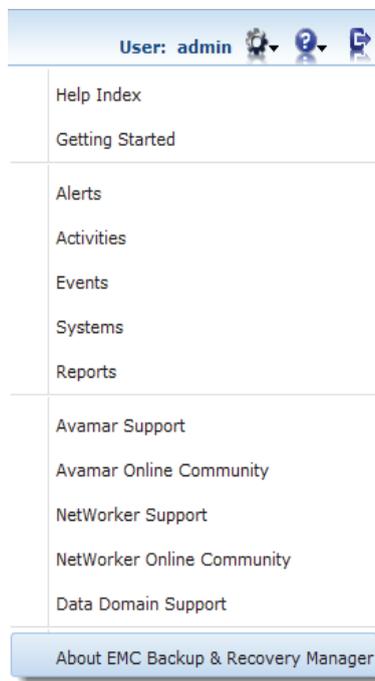


Figure 2 Help menu

2. Select an option from the menu:

Getting Started — Displays getting started topics in a new browser window.

Help Index — Opens the online help for the EMC Backup & Recovery Manager GUI.

About the Backup & Recovery Manager — Displays a dialog box that shows the current version of the application.

3. Online help for the dialog opens in a new browser window.
4. Close the browser window to exit the online help.

Note: Closing the browser window that contains online help does not terminate the EMC Backup & Recovery Manager session.

View context sensitive help

To view context-sensitive online help:

1. Click the question mark  icon in the upper right corner of the dialog.
2. Online help for the dialog opens in a new browser window.
3. Close the browser window to exit online help.

Note: Closing the browser window that contains online help does not terminate the EMC Backup & Recovery Manager session.

Search

To perform a search in the Backup & Recovery Manager UI:

1. In the Backup & Recovery Manager, type the string for which to search in the **Search** box.
2. If applicable, click beside the search box to display a drop down list of previous searches.

Note: A history of recent searches is saved.

3. Click the search icon to begin the search.
4. Click the triangle to display the previous search results.

Figure 3 on page 16 illustrates the search features.

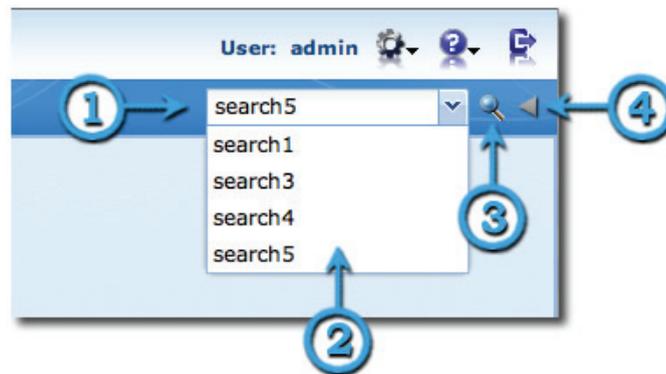


Figure 3 Search

Search results

When the search completes, a window opens with the search results. [Figure 4 on page 17](#) is an example of a search summary report indicating the number of occurrences in the following categories:

- ◆ Events
- ◆ Alerts
- ◆ Servers
- ◆ Activities

If there are results in a category, click **view results...** to display the specific results of the search.

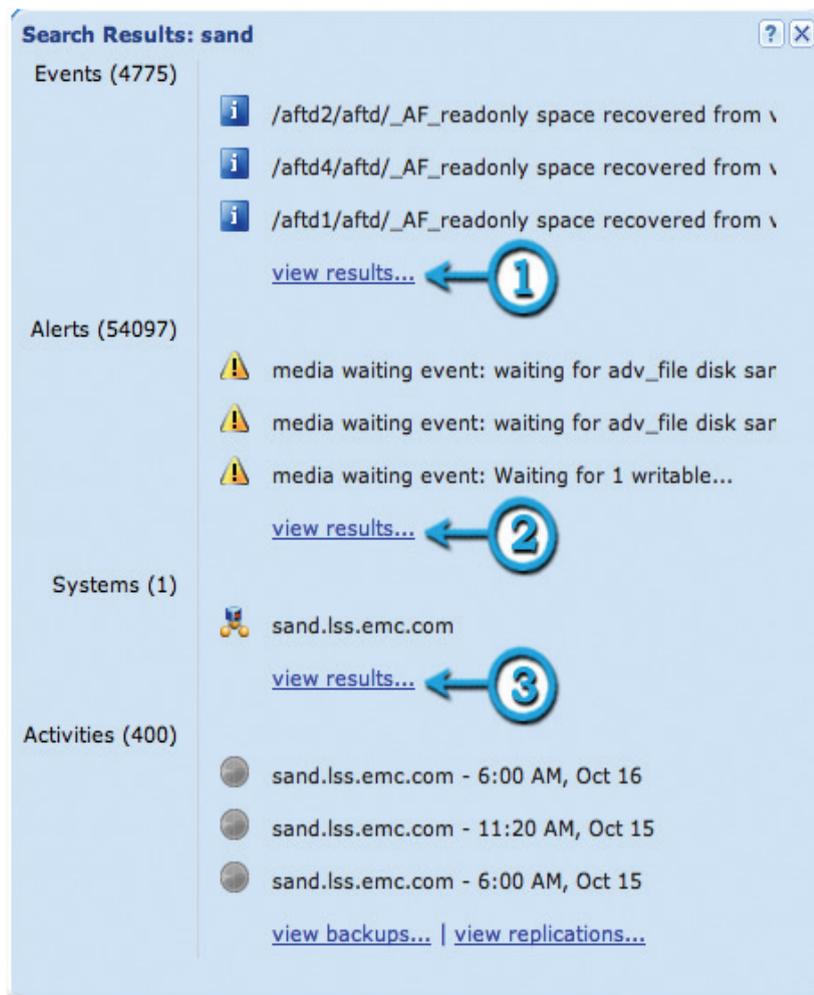


Figure 4 View results

Installation Roadmap

Use this roadmap to install the Backup & Recovery Manager server and the Avamar and NetWorker adaptors:

1. [“Requirements” on page 18](#) provides complete details of minimum requirements that must be met before installing the Backup & Recovery Manager server and adaptors for Avamar, and NetWorker.
2. [“Install the Backup & Recovery Manager server” on page 23](#) provides details on how to install the Backup & Recovery manager server.
3. [“Upgrade the Backup & Recovery Manager server” on page 25](#) provides details on how to upgrade the Backup & Recovery manager server 1.0 from DA to GA.
4. [“Install the Backup & Recovery Manager adaptor” on page 25](#) provides details on installing the Backup & Recovery Manager Adaptor on Avamar and NetWorker.
5. [“Log in to the Backup & Recovery Manager” on page 41](#) provides details for logging in to the Backup & Recovery Manager user interface.
6. [“Uninstall the Backup & Recovery Manager adaptor” on page 43](#) provides details on how to uninstall the Backup & Recovery manager adaptor for Avamar and NetWorker.

Requirements

These minimum hardware and software requirements must be met to successfully deploy and install the Backup & Recovery Manager software.

General requirements

Ensure that all current operating system patches or updates are installed.

Backup & Recovery Manager server software requirements

- ◆ Minimum required versions for the Virtual Application (vApp):
 - ESXi
 - ESX 4.0
 - VCenter Server 5.0
 - VSphere Client 5.0

Operating system software requirements for the Avamar and NetWorker adaptors

The following are the minimum required operating system software versions to run the Backup & Recovery Manager software:

NetWorker 7.6.3 and later

- ◆ Microsoft Windows 2003, 2008, 2008 R2 and Windows 7
- ◆ SLES Linux 11

Avamar 6.0 SP2, 6.1, and 6.1 SP1

- ◆ SLES Linux 11
- ◆ RHEL 4

System requirements

Table 3 on page 19 lists the recommended and minimum required memory, CPU and disk for the Backup & Recovery Manager server components.

Table 3 Non-clustered memory, CPU and disk

	Memory	CPU	Disk
Recommended	8 GB	4 core, 2 GHz	1 TB
Minimum required	4 GB	2 core, 2 GHz	500 GB

Data storage requirements

The Backup & Recovery Manager server (OVA) raw database is a temporary buffer for storing messages until they are processed. Table 4 on page 19 provides a summary of storage requirements.

Table 4 Data storage requirements

Recommended raw storage for 24 hours of messages	Memory per server (disk space)
Avamar	50 Mb
NetWorker	2000 Mb

Note: This requirement is for both live message display and reports.

Browser requirements

Note: If you are using Internet Explorer 8+, in the **Tools** menu, click **Compatibility Views** to enable the login window for the Backup & Recovery Manager.

A list of browsers currently supported by the Backup & Recovery Manager is provided in:

- ◆ The Avamar Compatibility and Interoperability Matrix available at: <https://support.emc.com/products/Avamar>
- ◆ The NetWorker Software Compatibility Guide available at: <https://support.emc.com/products/Networker>
- ◆ *The Backup & Recovery Manager Release 1.0 Release Notes*

Note: Be sure that the pop-up blocker is turned off to allow UI and online help pop-ups.

Display requirements

The minimum recommended screen resolution is 1280 x 1024 for running the Backup & Recovery Manager in a web browser.

Errors and Warnings pop ups

In the bottom left corner of the Backup & Recovery Manager (all sections), the total number of errors and warnings for all monitored systems is displayed.

This section describes the details and functionality of errors and warnings pop ups:

- ◆ Clicking **Errors (number)** or **Warnings (number)** opens a popup window with the 10 most recent errors and warnings.
- ◆ When the Backup & Recovery Manager encounters a new warning or critical alert message that has *not* been previously viewed, a pop up is triggered automatically. The automatic pop up displays the 5 most current warnings or critical alerts that might require user intervention. The Backup & Recovery Manager polls for new messages once every minute.

Note: If more than 5 new critical alerts or warnings are found at one time since the last time polled, only the 5 most current messages are displayed.

- ◆ The pop ups provide an indication that an operation might need attention and provides the opportunity to determine if the alert or warning requires user intervention or if it can be ignored.
- ◆ Clicking on the status bar link displays the 10 most current messages for that type of alert. The messages are sorted from most recent descending to the least recent of the 10.
- ◆ All critical alerts or warning message pop ups display for 10 seconds. Move the cursor over the window to extend the display time.
- ◆ Click on any message to navigate to the Alerts section. The selected message is highlighted in the alerts grid.
- ◆ Highlight the message you originally selected to display the message in the context of other messages of a similar type.

Figure 5 on page 21 lists the 10 most recent error messages.

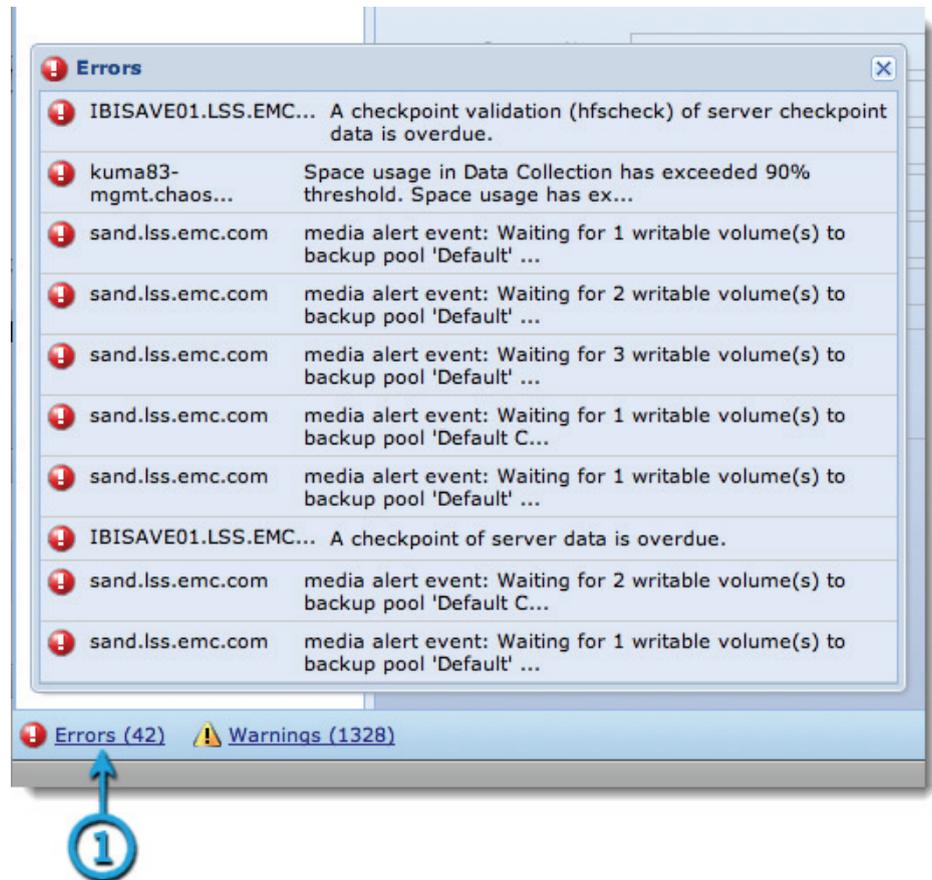


Figure 5 Total errors

Figure 6 on page 22 lists the 10 most recent warnings.

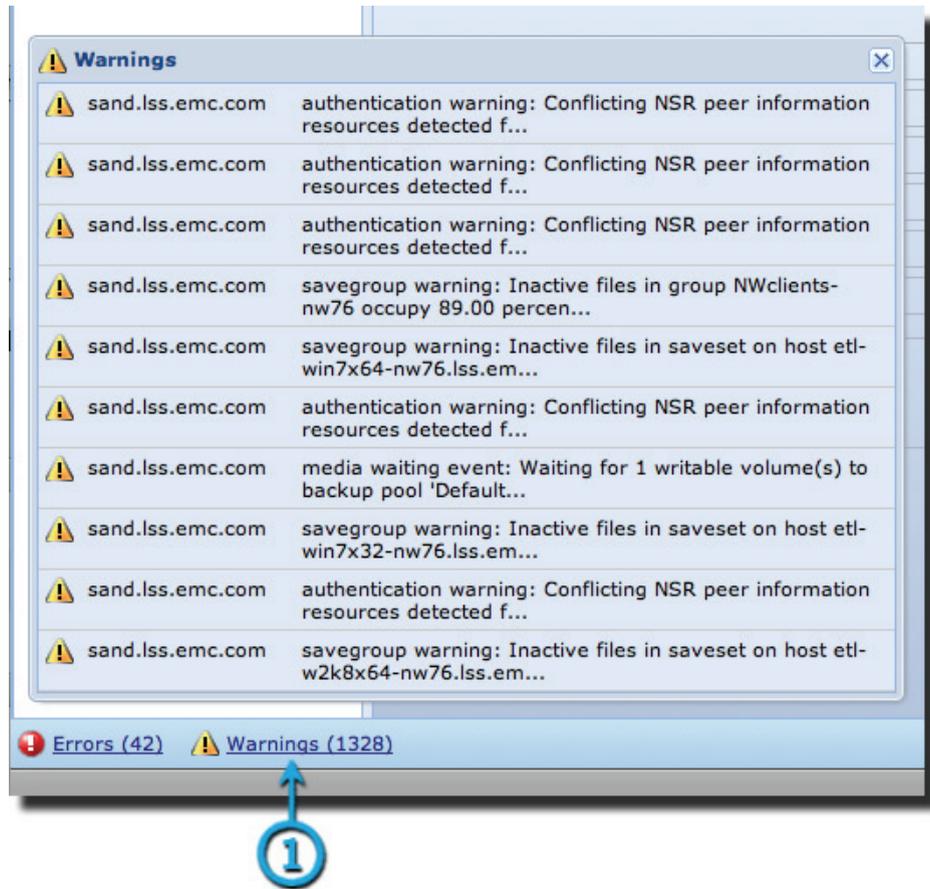


Figure 6 Total warnings

Installation

Install the EMC Backup & Recovery Manager to monitor Avamar, NetWorker and Data Domain systems. Review “[Requirements](#)” on page 18 before beginning the installation of the Backup & Recovery Manager software.

This section provides information on the following:

- ◆ [Install the Backup & Recovery Manager server](#)
- ◆ [Upgrade the Backup & Recovery Manager server](#)
- ◆ [Install the Backup & Recovery Manager adaptor](#)
- ◆ [Log in to the Backup & Recovery Manager](#)
- ◆ [Uninstall the Backup & Recovery Manager adaptor](#)

Install the Backup & Recovery Manager server

The Backup & Recovery Manager server is deployed on virtual machines (vApp).

Task 1: Deploy and configure the Virtual Application

To deploy the Virtual Application (vApp), perform the following:

1. From a vSphere client that connects to a VMware vCenter server with ESX hosts, click **File > Deploy OVF Template**.

Note: A vCenter server is required to deploy the OVA.

2. Browse to the BRS_EM_OVF.ova file and click **Next**.
3. In the .ova **Template Details** window, specify a **Name** and **Location** for the deployed template and click **Next**.
4. Select a destination storage for the VMFiles from the list and click **Next**.
5. Select the format in which to store the virtual disk:
 - Thick Provision Lazy Zeroed (recommended)
 - Thick Provision Eager Zeroed
 - Thin Provision

Note: Eager Zero yields the best performance, but also takes the most time to initialize. Thick provisioning doesn't fill the drive unless eager zeroed is selected. The storage capacity for the entire virtual disk is allocated on the datastore at virtual disk create time if thick provisioning is selected. Thin provisioning means that the capacity on the datastore is allocated to the virtual disk as required, up to the full size of the virtual disk.

6. Choose the networks for the deployed template to use:
 - a. Select the appropriate subnet from the **Destination Networks** drop down list.
 - b. Click **Next**.
7. Complete the fields in the Networking Properties section of the window to customize the software for the deployment and click **Next**. The fields include the following:
 - DNS
 - Network1 IP address
 - Network1 Netmask
8. In the **Ready to Complete** window, verify that the options are correct and click **Finish**, or click **Back** to change options.
9. When the deployment completes successfully, click the deployed server in the vCenter and click **Power on the virtual machine**.
10. Use a secure shell client such as PuTTY or SSH to connect to the Backup & Recovery Manager server.
11. Type the **Hostname or IP address** to specify the destination in which to connect.

Note: Port 1315 must be available for SSH connections.

12. Login as **root** and type **changeme** for the password.

Note: If the IP address must be manually configured in the network environment, use the VMware console, rather than the ssh session to the Backup & Recovery Manager server. The VMware console is able to maintain a connection during the process, while the SSH might lose the connection during the IP change.

Task 2: Verify the deployment

When the installation is complete, perform the following steps to ensure the Backup & Recovery Manager server was installed correctly on the vApp:

1. Open a browser and type the following in the **Address** field, and press **Enter**:

```
https://10.5.141.133/brm
```

The IP address might be different depending on the DNS setup in the environment.

Note: It is recommended to bookmark the server location in order to easily navigate to it when required.

2. Type the default user name **admin** in the **User** field.

3. Type the default password **changeme** in the **Password** field.
 4. Change the password when prompted. The Backup & Recovery Manager opens in the browser window.
- [“Log in to the Backup & Recovery Manager” on page 41](#) provides detailed instructions on logging in to the Backup & Recovery Manager.

Upgrade the Backup & Recovery Manager server

To upgrade the Backup & Recovery Manager server:

1. Copy the .run installer binary to the BRM server:

```
scp -P1315 THE-INSTALLER-FILE ucas@BRM-SERVER:/tmp
```

2. Connect to the BRM server as the ucas user:

```
ssh ucas@SERVER -p1315
```

3. Change to root user:

```
su -
```

4. Change to the /tmp directory:

```
cd /tmp
```

5. Make sure the installer binary is executable:

```
chmod 755 THE-INSTALLER-FILE
```

6. Run the installer.

Install the Backup & Recovery Manager adaptor

This section provides instructions for installing the Backup & Recovery Manager adaptors for Avamar and NetWorker:

- ◆ [“Install the Backup & Recovery Manager adaptors for Avamar” on page 25](#)
- ◆ [“Upgrade the Backup & Recovery Manager adaptor for Avamar” on page 31](#)
- ◆ [“Install or upgrade the Backup & Recovery Manager adaptor for NetWorker” on page 32](#)
- ◆ [“Add a Data Domain system” on page 41](#)

Install the Backup & Recovery Manager adaptors for Avamar

IMPORTANT

Before proceeding with the Backup & Recovery Manager adaptor installation, you must contact EMC Support to obtain the most current MC hotfix.

This section provides instructions on installing the Backup & Recovery Manager adaptor for the following versions of the Avamar software:

- ◆ “Install the adaptor for Avamar 6.0.2 and Avamar 6.1.0” on page 26
- ◆ “Install the adaptor for Avamar 6.1 SP 1 and later” on page 28

Install the adaptor for Avamar 6.0.2 and Avamar 6.1.0

To install the Backup & Recovery Manager adaptor for Avamar 6.0.2 and Avamar 6.1 by using the Avamar Enterprise Manager:

IMPORTANT

Before proceeding with the Backup & Recovery Manager adaptor installation, you must contact EMC Support to obtain the most current MC hotfix.

If the MC hotfix is not installed, the installation will fail and this error is reported in the Information Log:

ERROR: The required MC hotfix has not been installed. You must abort and install the hotfix first. operation failed.

1. Copy the Avamar MC patch package and the Backup & Recovery Manager adaptor for Avamar on the Avamar utility node or single node server:

```
/data01/avamar/repo/packages
```

2. Log in to the Enterprise Manager. An example URL for the Avamar Enterprise Manager is:

```
http://avamar.example.com/em
```

3. Navigate to the **System Maintenance** window in the Avamar Enterprise Manager as illustrated in [Figure 7](#) on page 26.

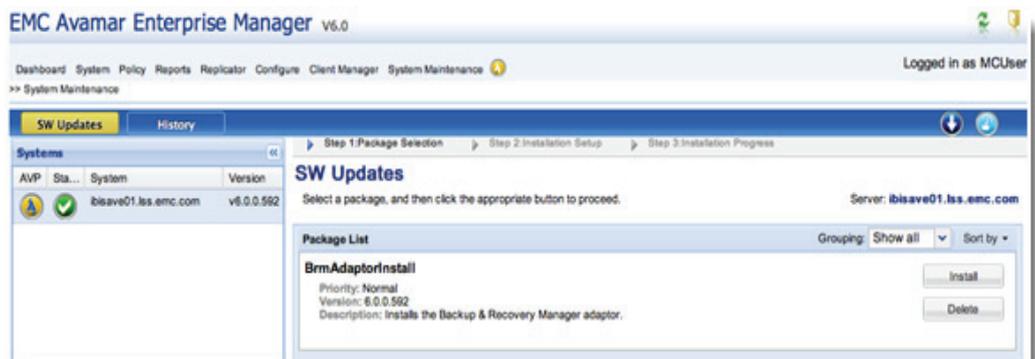


Figure 7 Avamar Enterprise Manager

4. Click **Continue**.
5. When the installation completes, click **Go to Package Page**, and then click **Install** on the **BrmAdaptorInstall** package. Perform the following to complete the adaptor installation:
 - a. Enter the Backup & Recovery Manager server hostname and click **Save**.

Note: If you do not specify a hostname, the adaptor is installed but not configured to report to a Backup & Recovery Manager server. Configure the adaptor later if you do not complete the configuration at installation. [“Reconfigure the server hostname for the Avamar adaptor” on page 30](#) provides instructions on entering a Backup & Recovery Manager server hostname for the Avamar adaptor.

- b. Click **Continue**.

Figure 8 on page 27 illustrates the status of the package installation and the **Go to Package Page** button.

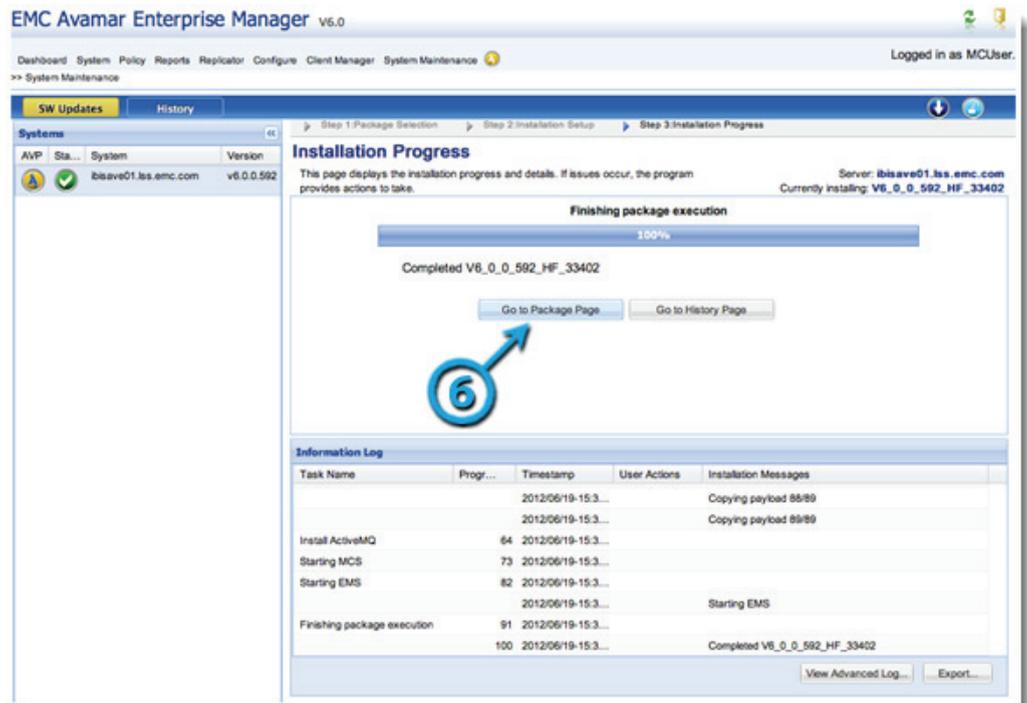


Figure 8 Go to Package Page

6. Verify that the Avamar server is listed in the Backup & Recovery Manager server:
 - a. Log in to the Backup & Recovery Manager server.
 - b. Navigate to the Systems window and verify that the Avamar server is displayed in the list of systems.

Note: Allow enough time (approximately 5 minutes) for the installation to complete and populate the Backup & Recovery Manager server’s system list.

The Installation Progress window displays a progress bar, status messages, and the Information Log table. [Table 5 on page 28](#) describes these items.

Table 5 Installation Progress details

Item	Description
Progress bar (1)	Displays the installation's progress as a percentage. The percentage represents the amount of tasks completed. Some tasks require more time than others.
Status messages	The installation displays the current task name above the progress bar and the associated status message below the progress bar.
Action buttons	When a problem occurs, the installation: <ul style="list-style-type: none"> Stops and displays a status message about the failure below the progress bar. Displays action buttons relevant to the problem. For example: Skip this task, Undo this task, Undo All Changes, or Call EMC support. <p>Note: Undo All Changes returns the system to the kickstart state. The installation displays a confirmation dialog box, which requires a response before the undo operation can take place.</p>
Details button	Opens the error log file that is specific to the failure. <p>Note: This button only appears if you are logged in to the EMC Customer Support account.</p>
Information Log table (2)	Provides details about each installation task.
View Advanced Log... (3)	Click View Advanced Log to open the workflow log file for this package installation. <p>Note: The View Advanced Log button is only available if you are logged in to the EMC Customer Support account.</p>
Export (4)	Click Export to save log information to a file. The Export as dialog box appears. <ol style="list-style-type: none"> Choose one of command buttons: Excel or PDF. Follow the prompts to save the log information to a file.

Install the adaptor for Avamar 6.1 SP 1 and later

IMPORTANT

Before proceeding with the Backup & Recovery Manager adaptor installation, you must contact EMC Support to obtain the most current MC hotfix.

If the MC hotfix is not installed, the installation will fail and this error is reported in the Information Log:

```
ERROR: The required MC hotfix has not been installed. You must abort and install the hotfix first. operation failed.
```

In Avamar 6.1 SP 1 and later, the Backup & Recovery Manager adaptor for Avamar is packaged with the Avamar software.

To install or update the Backup & Recovery Manager adaptor for Avamar:

1. In the Avamar Installation Manager, select the Backup & Recovery Manager tab.
2. Enter the Backup & Recovery Manager server hostname or IP address in the **Value** field as illustrated in [Figure 9](#) on page 29.

Note: If you do not specify a hostname, the Avamar adaptor is installed but not configured to report to a Backup & Recovery Manager server. The adaptor must be configured later if it was not configured at installation.

[“Reconfigure the server hostname for the Avamar adaptor”](#) on page 30 provides instructions on entering a Backup & Recovery Manager server hostname.

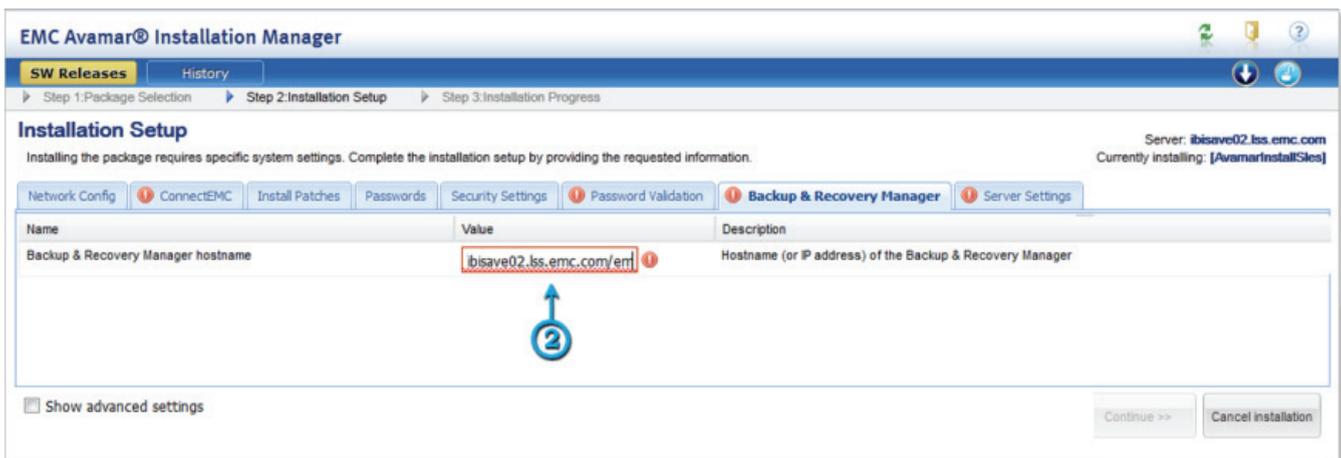


Figure 9 Backup & Recovery Manager hostname value

- A dialog opens while the hostname is validated as illustrated in [Figure 10](#) on page 29.



Figure 10 Validating the hostname

- If the hostname does not resolve, an error is displayed as illustrated in [Figure 11](#) on page 30.

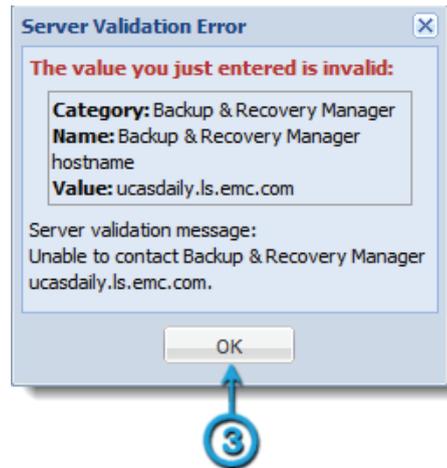


Figure 11 Invalid hostname value message

3. Click **OK** in the **Server Validation Error** dialog, and re-enter a valid hostname in the **Value** field.
4. Click **Save**.

Note: It can take up to 24 hours after a system is added to the Backup & Recovery Manager server before there is any data to report on.

Reconfigure the server hostname for the Avamar adaptor

If the Avamar server does not appear in the list of systems, reconfigure the Backup & Recovery Manager adaptor for Avamar. This often occurs as a result of the following:

- ◆ The hostname of the Backup & Recovery Manager was changed
- ◆ A new Virtual Appliance (OVA) was deployed for the BRM (despite having used the same hostname as before)
- ◆ The hostname was not provided at the time of installation or upgrade.
- ◆ Avamar 6.1 SP1 was installed without providing the hostname or IP address of the Backup & Recovery Manager server.

1. To reconfigure the Backup & Recovery Manager adaptor for Avamar:
 - a. Log into the Avamar server utility node or single node server as admin.
 - b. Run the following commands in sequence:

```
$ adaptorctl.pl --stop
$ adaptorctl.pl --setup --jmsaddr=<BRM hostname>
$ adaptorctl.pl --start
```

Note: Ensure that the script is in the path environment, or navigate to the path in which it is located and precede the command with `./`.

2. Edit mcserver.xml file:

- a. Stop the Avamar Management Console Server (mcs) database:

```
dpnctl stop mcs
```

- b. Change the
- enableBrmService**
- value to true:

```
/usr/local/avamar/var/mc/server_data/prefs/mcserver.xml
  <entry key="enableBrmService" value="true" />
```

- c. Restart mcs:

```
dpnctl start mcs
```

Upgrade the Backup & Recovery Manager adaptor for Avamar

IMPORTANT

Before proceeding with the Backup & Recovery Manager adaptor for Avamar 6.0.2 or 6.1.x installation, you must contact EMC Support to obtain the most current MC hotfix.

If the MC hotfix is not installed, the installation will fail and this error will be reported in the Information Log:

```
ERROR: The required MC hotfix has not been installed. You must
abort and install the hotfix first. operation failed.
```

When this occurs, click **Abort Workflow**, and ensure that you have installed the MC hotfix for your version of Avamar.

The adaptor upgrade approach varies depending on the version of the Avamar server on which the adaptor is installed. For the integrated versions, only the MC hotfix is required. For earlier versions, install the new MC hotfix, and then the new Backup & Recovery Manager adaptor. [Table 6 on page 31](#) lists the specific Avamar server versions and their respective upgrade requirements.

Table 6 Adaptor download requirementsMC hotfix requirements for the Avamar adaptor

Avamar release	MC hotfix adaptor	Avamar adaptor required for upgrade
6.0.2-153 GA	46907 or later	BrmAdaptorInstall-6.0.2- <i>build_number</i> .avp
6.0.2-156 GA1	45813 or later	BrmAdaptorInstall-6.0.2- <i>build_number</i> .avp
6.1.0-402 GA	46906 or later	BrmAdaptorInstall-6.1.0- <i>build_number</i> .avp
6.1.1-81 DA	46913 or later	No
6.1.1-87 GA	46904 or later	No
<p>Note: <i>build_number</i> is the build number at the time of the Backup & Recovery Manager release.</p>		

The *EMC Backup & Recovery Manager Release 1.0 Release Notes* provides the current build number.

Note: The MC hotfix numbers are cumulative and can change. You must install the appropriate hotfix listed in [Table 6](#), or a later hotfix to ensure the Backup & Recovery Manager adaptor upgrades, and operates as expected. Obtain the most current hotfix from EMC Customer Service.

1. Download the GA adaptor package appropriate for the Avamar server release. [Table 6 on page 31](#) lists the download requirements for the upgrade.
2. In the Avamar Installation Manager, click **Install** to upgrade the DA adaptor to the GA adaptor.

The installer notifies you that there are no configurable settings as illustrated in [Figure 12 on page 32](#).

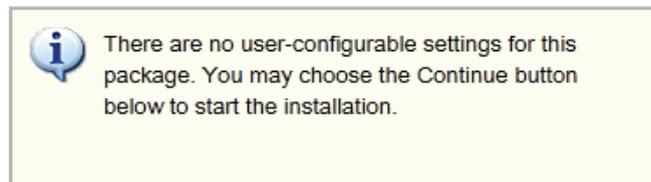


Figure 12 No user-configurable settings

3. Click **Continue** to start the installation.
4. Click **Go to Package Page** when the upgrade completes and click **Finish** to exit the Installation Manager.

All previously configured settings are maintained in the upgrade process.

Install or upgrade the Backup & Recovery Manager adaptor for NetWorker

The NetWorker server adaptor can be installed on both Windows and Linux by using the native installers.

Note: If at any time during the installation you click **Cancel**, a dialog prompts you to confirm the cancellation.

The NetWorker adaptor can also be installed as a proxy to enable a separate system to act as a communication proxy between a NetWorker server and Backup & Recovery Manager. This option provides support for NetWorker server operating systems that do not have a native adaptor install (Solaris, AIX, HP-UX and so on).

Note: It is required that the proxy host computer has network access to the NetWorker server.

To install the NetWorker server adaptor on Windows or Linux:

1. Download the NetWorker adaptor binary and copy it to the NetWorker server.
2. Double click the NetWorker adaptor installer to begin the installation and launch the **Backup & Recovery Manager Setup Wizard**. If there is a current installation of the adaptor installed, perform the following:
 - a. Click **Yes** to when prompted to overwrite the current installation as illustrated in [Figure 13 on page 33](#).

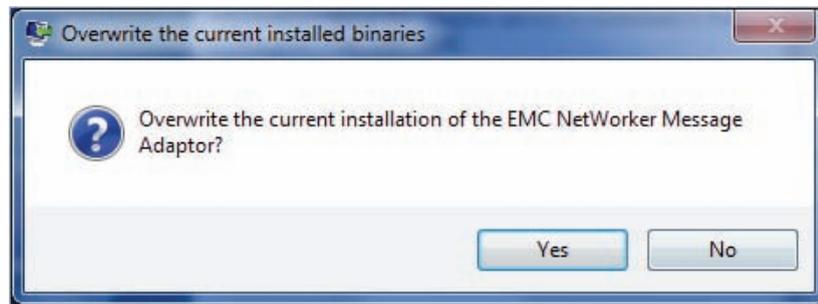


Figure 13 Overwrite the current installation

- b. Click **OK** to continue the installation and upgrade the Backup & Recovery Manager as illustrated in [Figure 14 on page 33](#).

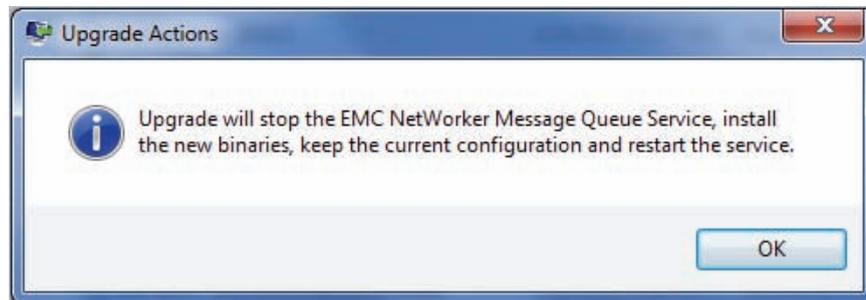


Figure 14 Upgrade Actions

3. Click **Next** to begin the installation as illustrated in Figure 15 on page 34.



Figure 15 Setup the EMC Backup & Recovery Manager Adaptor window

4. Click **I accept the agreement** to accept the License Agreement and click **Next** as illustrated in Figure 16 on page 34.

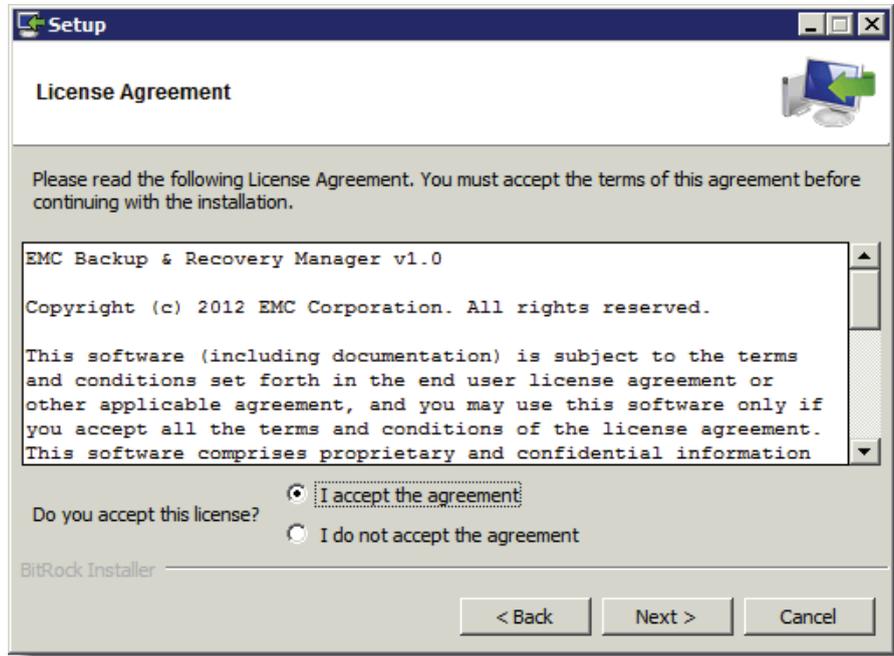


Figure 16 License Agreement window

5. Accept the default installation location or enter another location for the installation in the Installation Directory field. The Windows default installation directory is illustrated in [Figure 17 on page 35](#).

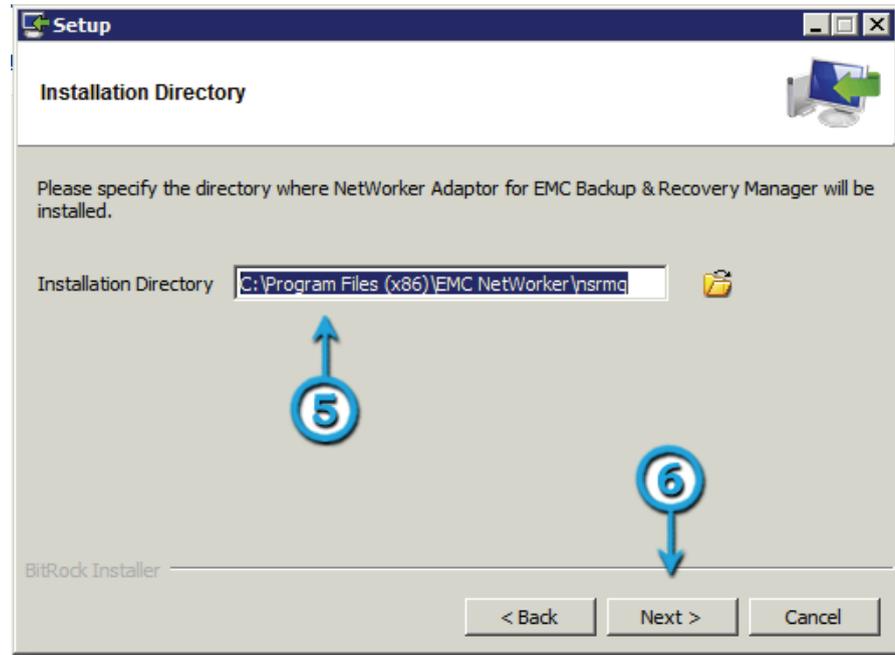


Figure 17 Windows Installation Directory

The default Linux directory is /nsr/nsrmq.

6. Click **Next**.
7. Type the hostname or IP address of the Backup & Recovery Manager server to receive data from the adaptor in the **Hostname or IP address** field as illustrated in [Figure 18 on page 36](#).

8. Click **Next**.

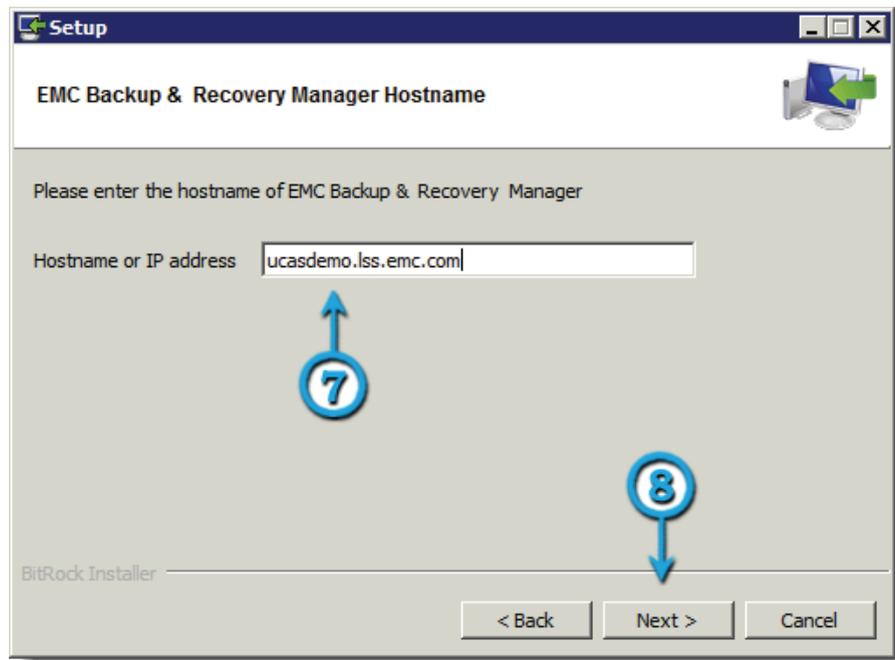


Figure 18 Hostname or IP Address window

Note: The hostname shown is an example, the hostname will be different depending on the environment.

9. Type the hostname or IP address of the NetWorker server to receive data from the adaptor in the **Hostname or IP of NetWorker Server** field as illustrated in [Figure 19](#) on page 37.

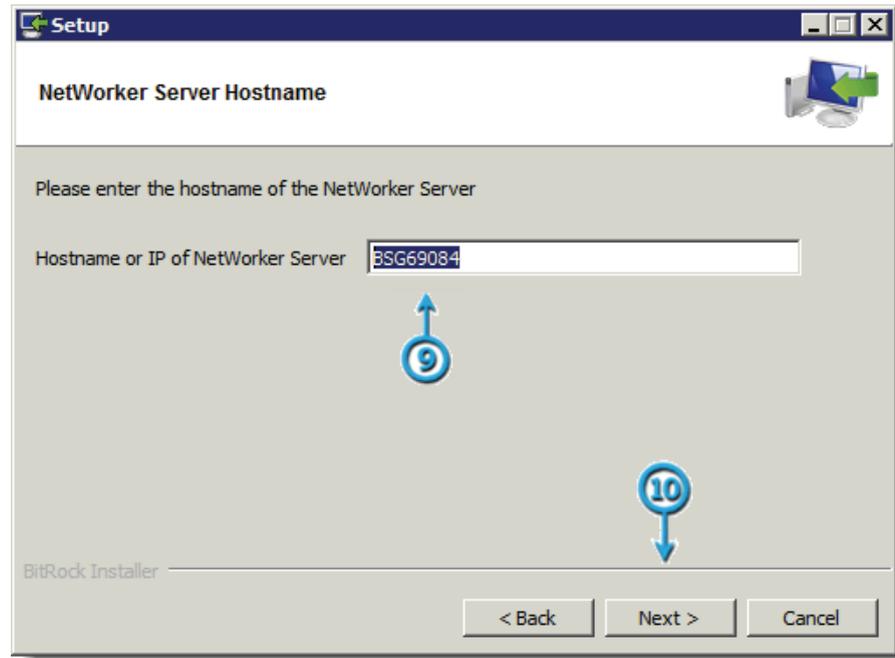


Figure 19 NetWorker server

Note: The hostname is an example, the hostname will be different depending on the environment.

10. Click **Next**.
11. If required, follow the instructions provided in [Figure 20](#) on page 38 on how to grant access to the proxy system, and click **Next**.

The NetWorker Adaptor can be installed on a proxy server to monitor a system with an operating system that is not supported by the Backup & Recovery Manager. For example, Solaris, AIX or HP-UX.

Note: For proxy setups, the proxy host must have network access to the NetWorker server it is supporting.

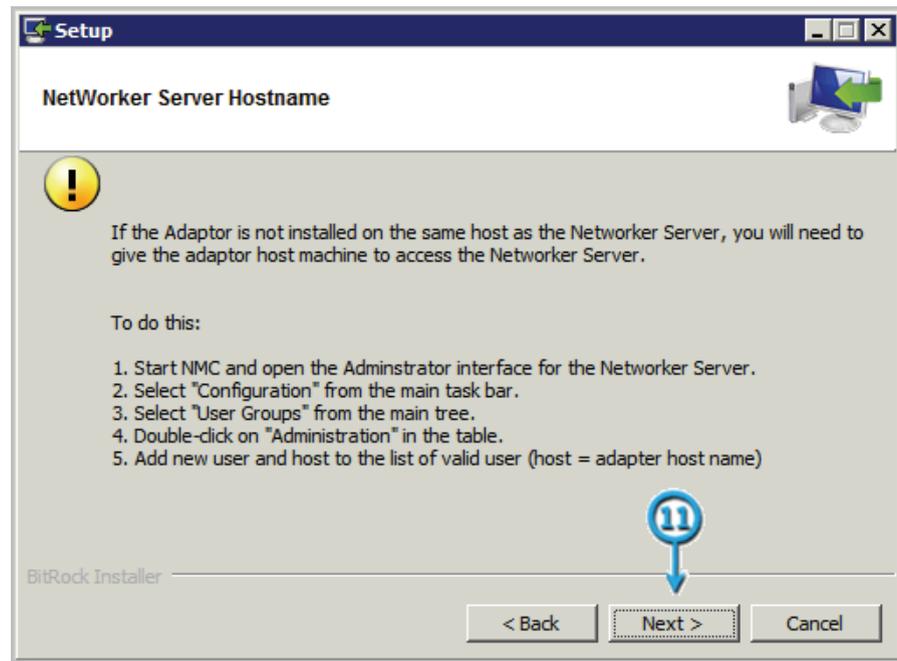


Figure 20 NetWorker adaptor proxy

Note: It is recommended that the proxy server is installed on a secure, protected NetWorker server to avoid losing data if a disaster occurs. Do not install the server on a desktop or laptop computer.

12. Click **Next** to begin the installation as illustrated in [Figure 21](#) on page 39.

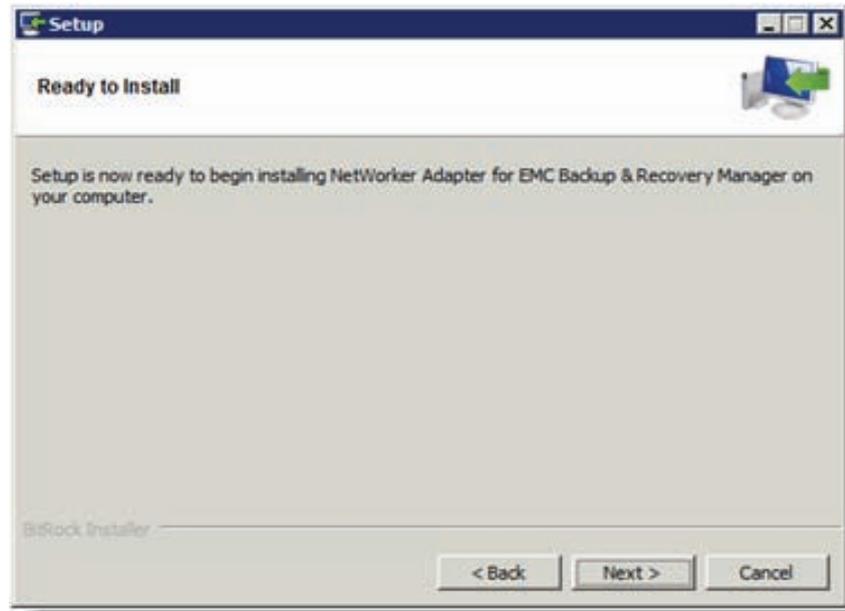


Figure 21 Ready to install

The installation proceeds as illustrated in [Figure 22](#) on page 39.

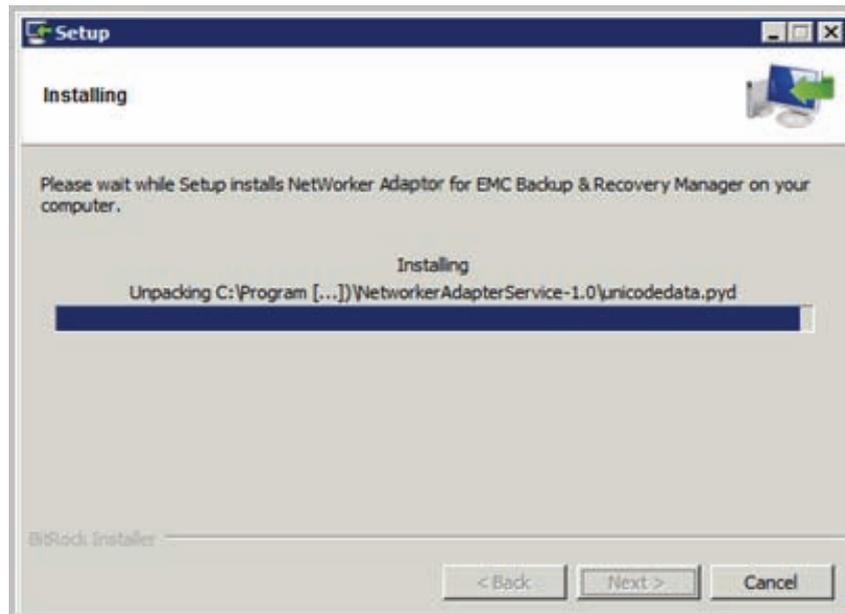


Figure 22 Installation progress

13. Click **Finish** when the installation is complete, as illustrated in Figure 23 on page 40.

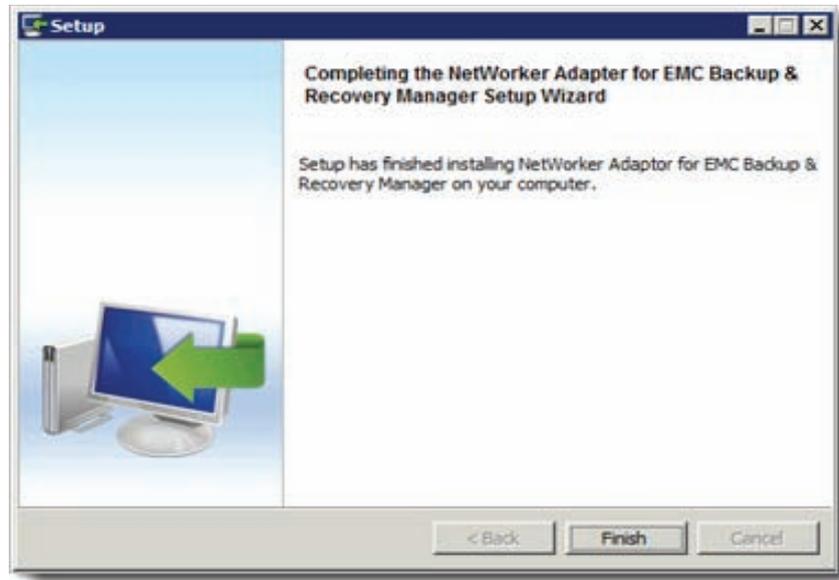


Figure 23 Completed

The installation will verify the connection to both the Backup & Recovery Manager server and the NetWorker server.

After the installation completes a new Windows service called NetWorker ActiveMQ Adaptor starts on the host system. The adaptor will automatically begin sending information to the Backup & Recovery Manager.

Reconfigure the server hostname for the NetWorker adaptor

If the NetWorker server does not appear in the list of systems, reconfigure the Backup & Recovery Manager adaptor for NetWorker. This often occurs as a result of the following:

- ◆ The hostname of the Backup & Recovery Manager was changed
- ◆ A new Virtual Appliance (OVA) was deployed for the BRM (despite having used the same hostname as before)
- ◆ The hostname was not provided at the time of installation or upgrade.

Perform the following on the system running the NetWorker adaptor:

1. Stop the NetWorker adaptor:
 - On Windows, stop the adaptor service (nsrmqd)
 - On Linux, type the following command:

```
/etc/init.d/nsrmqd stop
```

2. Edit the nsrmq.cfg file:
 - Change the nsrmq.cfg file to update the mq-host entry to the new server
 - Change the nsrmq.cfg file to update the cert-file entry to:

```
http://<new BRM hostname>/ucasCert
```

3. Start the NetWorker adaptor:
 - On Windows, start the adaptor service (nsrmqd).
 - On Linux:

```
/etc/init.d/nsrmqd start
```

Add a Data Domain system

“[Manage Data Domain systems](#)” on [page 79](#) provides instructions on how to add, remove and modify Data Domain systems in the Backup & Recovery Manager.

Log in to the Backup & Recovery Manager

Note: If you are using Internet Explorer 8+, in the **Tools** menu, click **Compatibility Views** to enable the login window for the Backup & Recovery Manager.

To login to the EMC Backup & Recovery Manager:

1. Type the user name in the **User** field.
2. Type the password in the **Password** field.
3. Click **Login**. The EMC Backup & Recovery Manager **Home** page opens as illustrated in [Figure 24 on page 41](#).

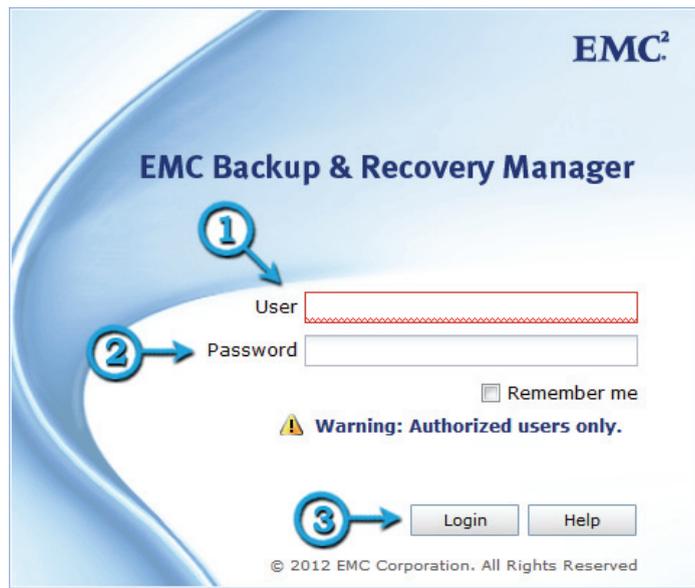


Figure 24 EMC Backup & Recovery Manager login window

- The **User** and **Password** fields are required fields. After 3 failed attempts you are locked out for 15 minutes as illustrated in [Figure 25 on page 42](#).

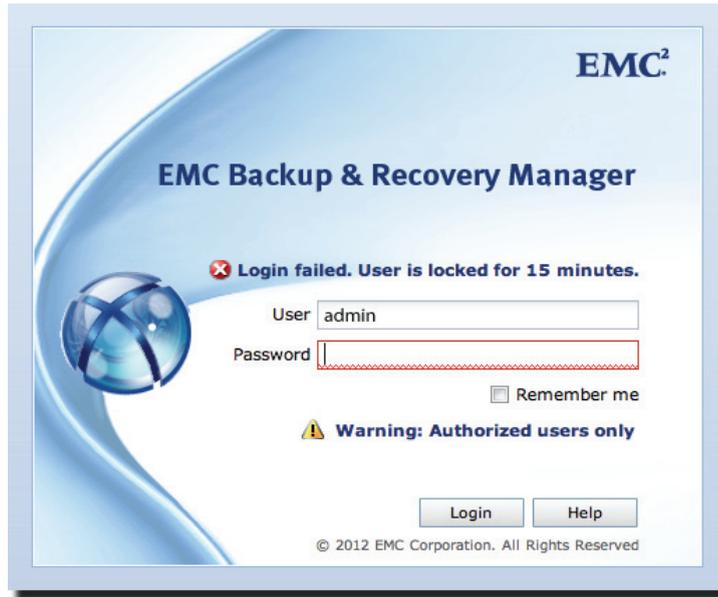


Figure 25 Failed login

Note: The Backup & Recovery Manager automatically logs out of sessions if for any reason the connection between the client and server is lost.

- Common reasons for a login session to expire are:
 - The Backup & Recovery Manager server is restarted
 - The browser is closed completely while you are still logged in to the Backup & Recovery Manager
 - All browser windows (or tabs) that are logged into the Backup & Recovery Manager are closed, and not re-opened for 30 minutes or more
 - Internet access is lost for more than 30 minutes.

[Figure 26 on page 42](#) is the dialog that displays if your login session expires.

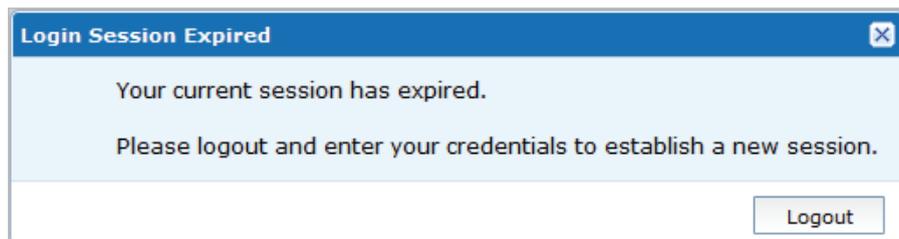


Figure 26 Session expired

- At first login, you are prompted to change the password:
 - a. Type a new password in the **Password** field, and then type the new password in the **Confirm Password** field as illustrated in [Figure 27 on page 43](#). The password requirements are the following:
 - Minimum of 9 characters
 - Minimum of 1 lower case letter
 - Minimum of 1 upper case letter
 - Minimum of 1 number
 - Minimum of 1 special character: !@#\$%^&*()-_
 - b. Click **Change Password** to save the password.

Figure 27 Change Password dialog

Uninstall the Backup & Recovery Manager adaptor

If required, uninstall the following adaptors:

- ◆ “Uninstall the Avamar adaptor” on page 43
- ◆ “Uninstall the Avamar adaptor” on page 43

Uninstall the Avamar adaptor

1. Stop the Avamar Management Console Server (mcs) database:

```
dpnctl stop mcs
```

2. Stop the adaptor:

```
adaptorctl.pl --stop
```

3. Stop the activemq:

```
/usr/local/avamar-activemq/bin/activemq stop
```

4. Disable the BrmService:

```
vi /usr/local/avamar/var/mc/server_data/prefs/mcserver.xml  
- change value for enableBrmService to false
```

5. Remove the brm files:

```
rm -rf /usr/local/avamar/var/brm
```

6. Remove the Avamar adaptor:

```
sudo rpm -e avamar-adaptor
```

7. Start the Avamar mcs database:

```
dpnctl start mcs
```

Uninstall the NetWorker adaptor

To uninstall the NetWorker server adaptor on Windows, from the command prompt, run the uninstall program located at:

```
C:\Program Files (x86)\NetWorker Adaptor Service-1.0\Uninstall NetWorker Adapter for  
EMC Backup & Recovery Manager
```

To uninstall the NetWorker server adaptor on Linux, use the **rpm -e** command to remove the Backup & Recovery Manager adaptor software package:

```
rpm -e Uninstall NetWorkerAdaptor-1.0-linux-x64-installer.run
```

Alerts

Clicking **Alerts** allows you to view alerts (Errors and Warnings) from all monitored systems relating to backup failures, media requests, errors, and warnings that require immediate attention by the user. Errors and warnings for the Backup & Recovery Manager are also reported in **Alerts**. This section provides information on the following:

- ◆ [System Summary](#)
- ◆ [Alerts views](#)
- ◆ [Alerts columns](#)
- ◆ [Hide Alerts](#)
- ◆ [Unhide Alerts](#)
- ◆ [View Hidden Alerts](#)
- ◆ [Acknowledge Alerts](#)

The icons used in **Alerts** are listed in [Table 7 on page 45](#).

Table 7 Alerts icons

Icon	Description
	Error
	Warning
	Hide Selected
	Dismiss Selected
	View Hidden
	Select All

System Summary

The Alerts System Summary provides information on Avamar, NetWorker and Data Domain system errors and warnings. [Figure 28 on page 46](#) illustrates the total number of errors and warnings for each system type in a pie chart with a legend.

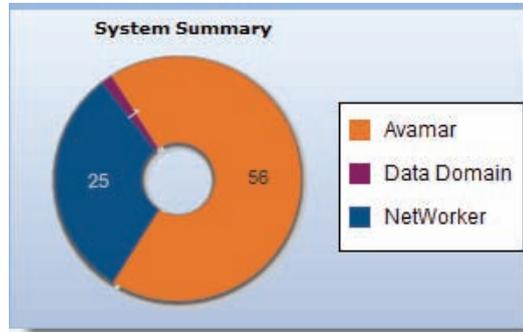


Figure 28 System Summary chart

[Figure 29 on page 46](#) and [Figure 30 on page 46](#) illustrate the **Total Errors** and **Total Warnings** charts with the total number of errors and warnings for all monitored systems. Individual bar charts depict which systems contain the most errors and warnings for the **Worst Systems**.



Figure 29 total Errors



Figure 30 total Warnings

Perform the following to obtain information on the **Total Errors**, or **Total Warnings Worst Systems** charts:

- ◆ Hover the cursor over any bar in the chart to display the worst system. In the worst system pop up, click **Launch** to open the native management console for the system as illustrated in [Figure 31 on page 47](#).



Figure 31 Worst system pop up

- ◆ Click on any bar in the chart to display the list of errors or warnings for the worst monitored systems.

[“Alerts columns” on page 48](#) provides complete details on the columns displayed in the worst systems list.

Alerts views

The **Views** menu located in the top left corner of the **Alerts** section provides a list of available filters. [Figure 32 on page 47](#) illustrates the **Views** menu.

Note: Only a single item can be selected. For example, there is no way to view only NetWorker errors. If **Error** is selected while viewing **NetWorker**, all errors for Avamar, NetWorker and Data Domain are displayed.



Figure 32 Alerts views

Table 8 on page 48 lists and describes the filters available in the **Alerts Views** panel:

Table 8 Alerts views filters

View filter	Description
Enterprise	Clicking Enterprise filters the view to only display objects associated with Avamar, NetWorker and Data Domain jobs and/or systems.
Avamar	Clicking Avamar filters the view to only display objects associated with Avamar jobs and/or systems.
NetWorker	Clicking NetWorker filters the view to only display objects associated with NetWorker jobs and/or systems.
Data Domain	Clicking Data Domain filters the view to only display objects associated with Data Domain jobs and/or systems.
Error	Systems that have an error are included in the Error filter list.
Warning	Systems that have an alert that requires immediate user intervention to avoid system component failure or data loss are included in the Warning filter.

Alerts columns

Table 9 on page 48 lists the columns in **Alerts** and their function.

Table 9 Alerts section columns

Column	Description
Date/Time	Lists the date and time the alert occurred.
System	Lists the system on which the alert occurred. Clicking on the system opens “Systems Details” in “Systems” .
Type	Lists the type of system on which the alert occurred: <ul style="list-style-type: none"> • Avamar • NetWorker • Data Domain • Backup & Recovery Manager
Category	Lists the category of the alert, such as Warning, Error or Media.
Message	Lists the specific Error or Warning message that describes the alert. Multiple occurrences of the same message are combined. The number of occurrences is displayed as a link in brackets at the end of the message. “Repeated alerts” on page 50 provides details on viewing the combined alerts.

Alert categories

Table 10 on page 49 lists the categories for system alerts.

Table 10 Alert categories

Item	Description
Warning	An alert that might be informational or require user intervention.
Error	An alert that requires immediate user intervention to avoid system component failure or data loss.
Media	An alert generated by media (volume, pool or device). For example: deleting savesets from a particular volume. (NetWorker only).
System Alert	An alert generated by the Backup & Recovery Manager.
Filesystem	An alert related to Data Domain system usage thresholds.
Replication	An alert generated by Data Domain replication job. For example: Problems with replication: <ul style="list-style-type: none"> • Pair status • Job progress • Process • Context performance

Exclude columns from the Alerts display

To exclude and include columns from displaying in the tabular view:

1. Click the arrow beside any column.
2. Click **Columns**.
3. Click the check box beside a column name to un check and exclude, or to check and include a previously excluded column.

Note: All columns are included (checked) by default.

Figure 33 on page 50 illustrates how to exclude or include columns.

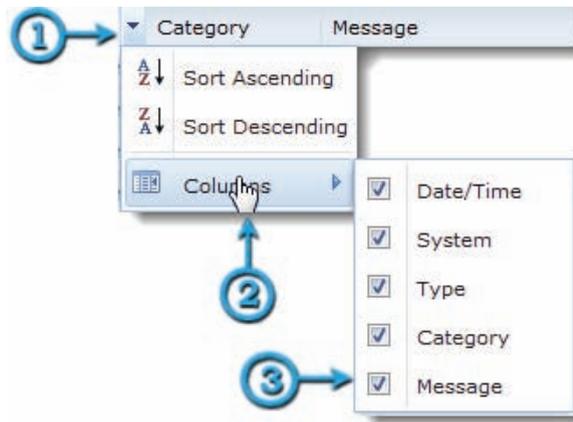


Figure 33 Exclude columns

Repeated alerts

If an alert is repeated more than one time, a link is included in square brackets at the end of the message. For example [repeated: 3] indicates that there are 3 occurrences of the alert. Figure 34 on page 50 illustrates alerts that are repeated.

Date/Time	System	Type	Category	Message	
11:05 PM, Oct ...	IBISAVE08.LSS.EMC.COM	Avamar	Warning	perfbeat::outoftolerance mask=[] average=235.42 limit=23.5425 mbpersec=4.60 [repeated: 3]	✓
2:02 PM, Oct 24	IBISAVE08.LSS.EMC.COM	Avamar	Error	hfscheck of cp.20121024180120 failed on error: MSG_ERR_NOLICENSE	✓
2:59 AM, Oct 24	BRM Server	BRM	System Alert	/ has 16.3% space remaining 3	✓
12:41 AM, Oct...	IBISAVE08.LSS.EMC.COM	Avamar	Warning	Address from reverse lookup failed to match client address. [repeated: 4]	✓
2:03 PM, Oct 23	IBISAVE08.LSS.EMC.COM	Avamar	Error	hfscheck of cp.20121023180111 failed on error: MSG_ERR_NOLICENSE	✓

Figure 34 Message with repeated alerts

Click **repeated:** to list all repeated alerts in a separate window as illustrated in Figure 35 on page 50.

Date/Time	System	Type	Category	Message
6:25 PM, Oct 24	IBISAVE08.LSS.EMC.COM	Avamar	Warning	perfbeat::outoftolerance mask=[] average=237.23 limit=23.7234 mbpersec=13.59
2:35 PM, Oct 24	IBISAVE08.LSS.EMC.COM	Avamar	Warning	perfbeat::outoftolerance mask=[] average=144.44 limit=14.4442 mbpersec=11.15
5:39 AM, Oct 24	IBISAVE08.LSS.EMC.COM	Avamar	Warning	perfbeat::outoftolerance mask=[] average=146.74 limit=14.6741 mbpersec=13.99

Figure 35 Repeated alerts

Hide Alerts

To hide alerts, you can do any of the following as illustrated in [Figure 36 on page 51](#).

- ◆ Select individual line items
- ◆ Use multi-select **Ctrl** or **Shift** click
- ◆ Use multi-select **Ctrl** or **Shift** with the arrow keys, and then click **Hide**

“[View Hidden Alerts](#)” on [page 51](#) provides details on how to view the previously hidden alerts.

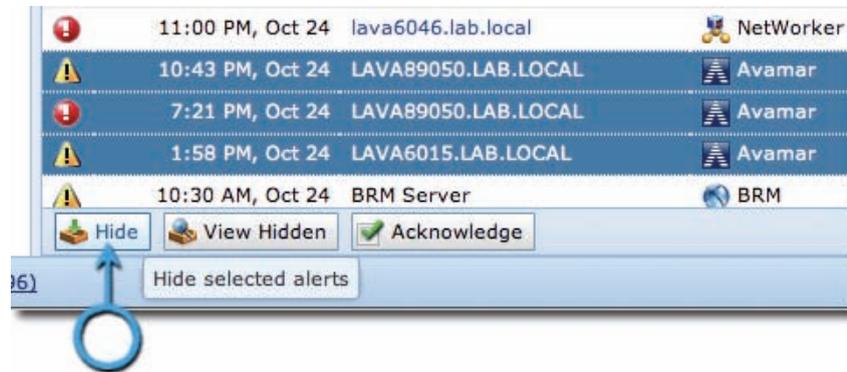


Figure 36 Hide Selected

Note: If an alert is hidden and another alert of same type is encountered on any monitored system, it will not appear in the system. Hidden alerts are not removed from the system.

View Hidden Alerts

To view alerts that were previously hidden, click **View Hidden**. The **Hidden Alerts** window opens with a complete list of all hidden Errors and Warnings as illustrated in [Figure 37 on page 51](#).

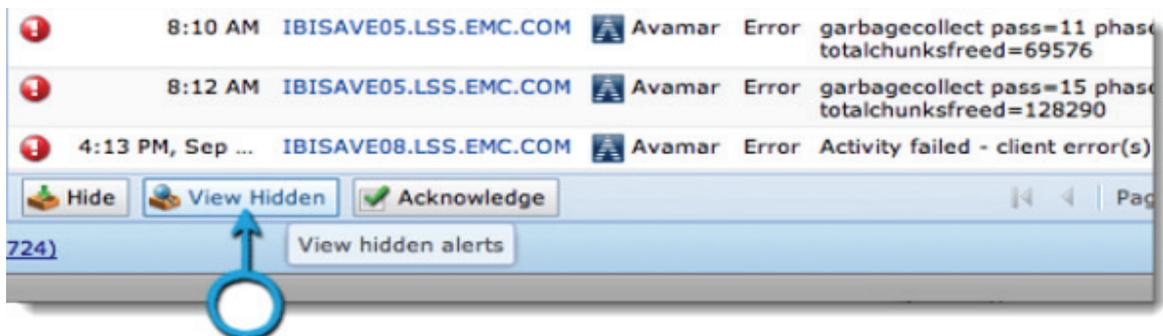


Figure 37 View Hidden

Unhide Alerts

To Unhide hidden alerts, do any of the following as illustrated in [Figure 38 on page 52](#):

- ◆ Select individual line items
- ◆ Use multi-select **Ctrl** or **Shift** click
- ◆ Click **Select All** and then click **Unhide Selected**

The previously hidden alerts will again be listed in **Alerts**.

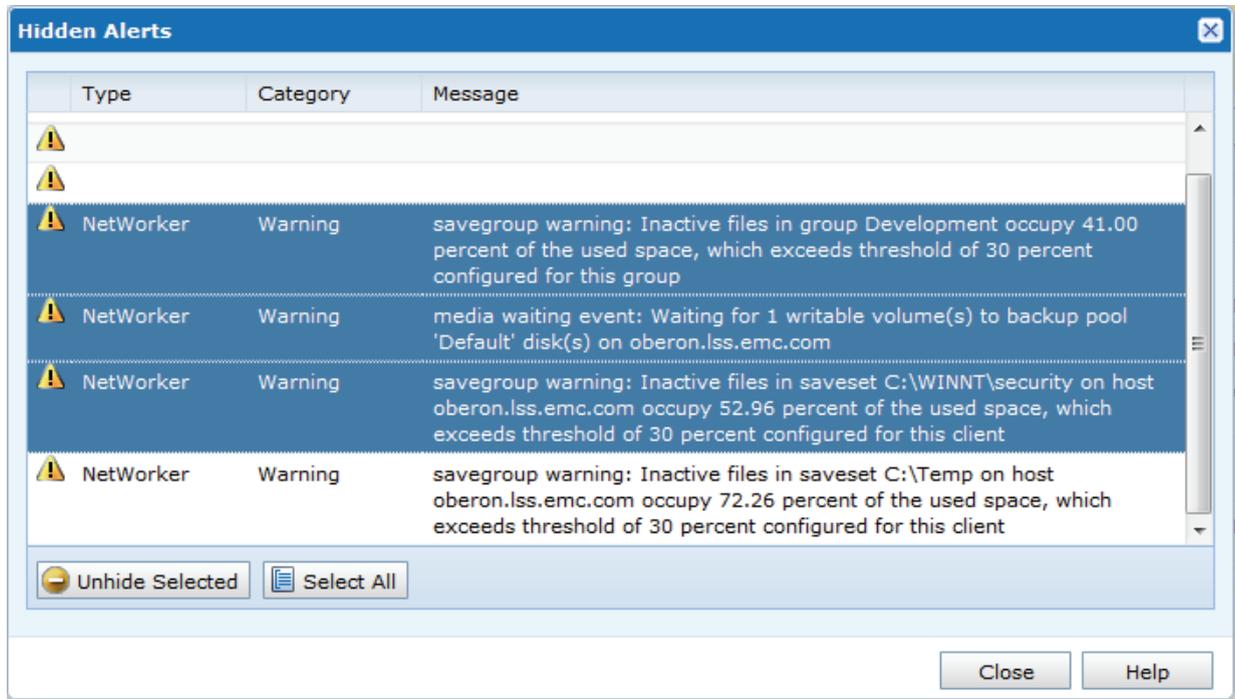


Figure 38 Unhide Selected

Acknowledge Alerts

To remove alerts from the list:

1. Click the alerts to dismiss as illustrated in [Figure 39 on page 53](#):
 - Select individual line items
 - Use multi-select **Ctrl** or **Shift** click
 - Use multi-select **Ctrl** or **Shift** with the arrow keys
2. Click **Acknowledge**.

Note: Acknowledging alerts permanently removes the alerts from the Backup & Recovery Manager.

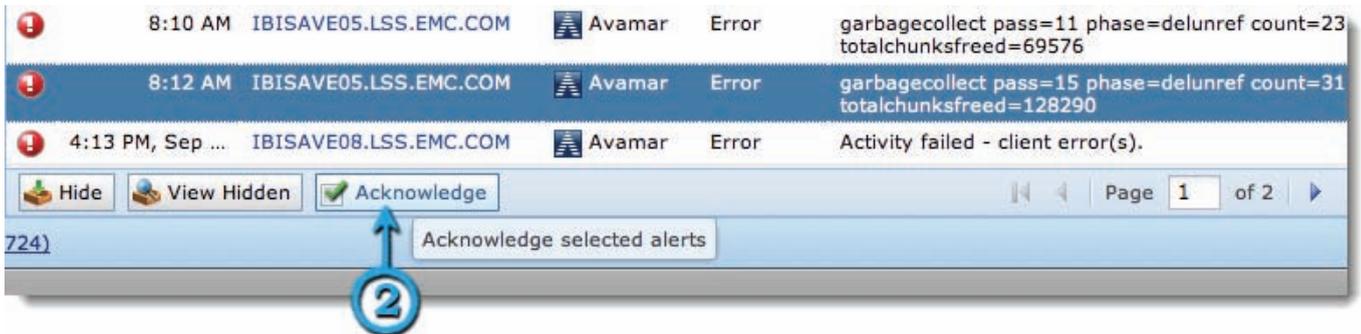


Figure 39 Acknowledge Alerts

3. Click **Yes** to confirm the permanent removal of the selected alerts as illustrated in Figure 40 on page 53.

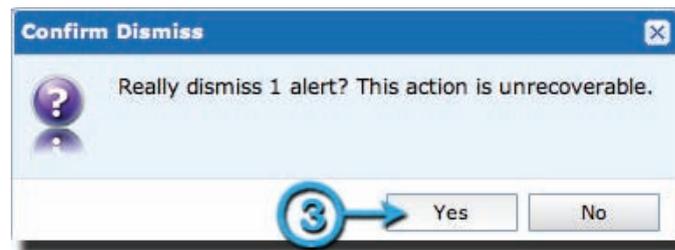


Figure 40 Confirm Dismiss dialog

Activities

Click **Activities** to view detailed information on jobs that are running or completed on all monitored systems. This includes information on running backup operations, and replication jobs. This section provides information on the following:

- ◆ [Activities views](#)
- ◆ [Activities columns](#)
- ◆ [Activities details](#)
- ◆ [Avamar replication](#)

Activities views

The **Views** menu located in the top left pane of the **Activities** window provides a list of available filters. [Figure 41 on page 55](#) illustrates the **Views** menu.

Note: Only a single item can be selected. For example, there is no way to view only failed Avamar jobs. If **Failed** is selected while viewing **Avamar**, all failed jobs for Avamar, NetWorker and Data Domain are displayed.



Figure 41 Activities views

[Table 11 on page 55](#) lists and describes the filters available in the **Activities Views** panel.

Table 11 Activities Views filters (Sheet 1 of 2)

Filter	Description
Enterprise	Clicking Enterprise filters the view to only display objects associated with Avamar, NetWorker and Data Domain jobs and/or systems.
Avamar	Clicking Avamar filters the view to only display objects associated with Avamar jobs and/or systems.
NetWorker	Clicking NetWorker filters the view to only display objects associated with NetWorker jobs and/or systems.

Table 11 Activities Views filters (Sheet 2 of 2)

Filter	Description
Data Domain	Clicking Data Domain filters the view to only display objects associated with Data Domain jobs and/or systems.
Failed	Clicking Failed in the Views menu allows you to view all jobs that have encountered failures during an operation.
Running	Clicking Running in the Views menu allows you to view jobs that are currently running an operation.
Completed	Clicking Completed in the Views menu allows you to view jobs that have completed all operations.

Activities columns

Backup and **Replication Activities** provides details on Avamar, and NetWorker system backups and replications (Avamar).

[Table 12 on page 56](#) lists and describes the columns displayed in the Activities window.

Table 12 Backup details systems columns

Field	Description
Status	Lists the status of the backup operation. The status of operations that have failed, are running, completed, pending, cancelled or aborted.
System	Lists the name of the Avamar or NetWorker system.
Group/Client	Lists the group or client belonging to the system.
Start	Lists the time the backup began.
Duration	Lists the duration of the backup.
End	Lists the time the backup completed.
Running	Indicates the number of group/client backups in progress for the specific backup operations.
Failed	Indicates the number of group/client failed backups for the specific backup operations.
Completed	Indicates the number of group/client completed backups for specific backup operations.
Pending	Indicates the number of group/client backups pending for the specific backup operations.
Storage Target	The server to which the data is backed up or replicated.

Note: NetWorker client initiated backups (manual backups) are listed as ad hoc <system name> in the Group/Client column.

Exclude columns from the Activities display

To exclude and include columns from displaying in the tabular view:

1. Click the arrow beside any column.
2. Click **Columns**.
3. Click the check box beside a column name to un check and exclude, or to check and include a previously excluded column.

Figure 42 on page 57 illustrates the available columns.

Note: All columns are included (checked) by default.

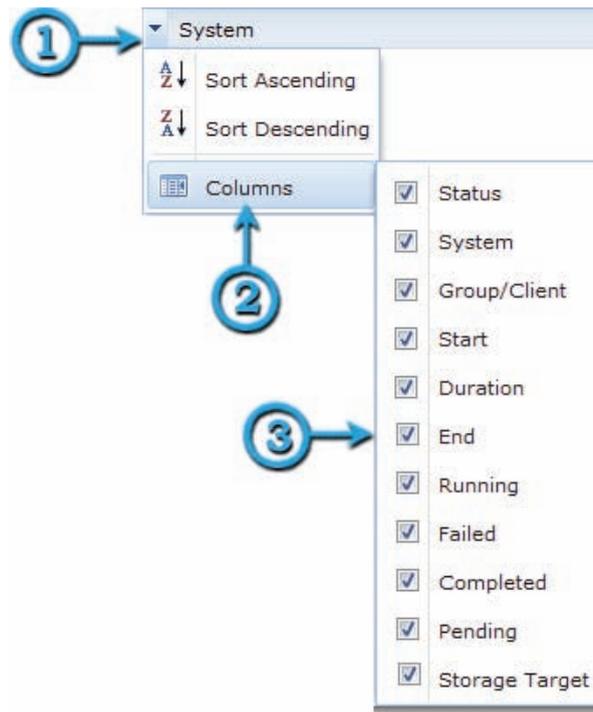


Figure 42 Exclude/include columns

Activities details

The **Backup Activities Details** panel displays all configured systems with backup, replication (Avamar) jobs that failed, are pending, running or completed. Click on an individual server to display the **Details** panel with summary information.

Avamar backup activity details summary

The **Details Summary** grid displays additional details on specific Avamar backup groups and clients as illustrated in [Figure 43 on page 58](#).

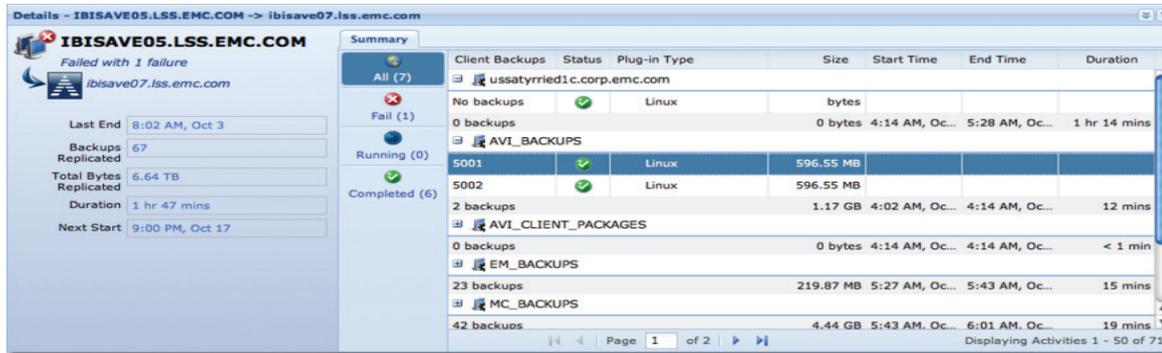


Figure 43 Details Summary

[Table 13 on page 58](#) lists the Activities backup details fields.

Table 13 Avamar backup details systems fields

Field	Description
Status	Lists the specified group, or clients belonging to the group failed, are running, completed or pending.
Name	Lists the name of the Avamar clients belonging to the selected group.
Data Set	Lists the Data Set to which the client backup data is saved. An icon representing the backup type is included in the column.
Start Time	Lists the time the backup began.
Duration	Lists the duration of the backup.
Data	Lists the amount of data that was processed during the backup. This includes: <ul style="list-style-type: none"> • Processed • Changed • Sent
Files	Lists the number of files that were processed during the job and how many of those files were changed. <ul style="list-style-type: none"> • Processed • Changed
Messages	Lists any Alerts or Warnings that occurred during the backup.

NetWorker backup activity details summary

The **Details Summary** grid displays additional details on specific NetWorker backup groups and clients as illustrated in [Figure 44 on page 59](#).

Client Name	Saveset	Status	Level	Start Time	Duration	Size	Messages
	CONSOLE_BACKUP_FILES	✓	unknownLevel	01/16/13 07:3...	< 1 min	0 bytes	0
	CONSOLE_BACKUP_FILES	✓	unknownLevel	01/16/13 07:3...	< 1 min	0 bytes	0
	CONSOLE_BACKUP_FILES	✓	unknownLevel	01/16/13 07:3...	< 1 min	0 bytes	0
dev-nwserver	dev-nwserver:index	✓	9	01/16/13 07:3...	< 1 min	659 KB	0
dev-nwserver	NMCASA:/gst_on_dev-nwserver/lqto_gst	✓	incr	01/16/13 07:3...	< 1 min	1.12 MB	6
etl-nw80-server	etl-nw80-server:index	✓	9	01/16/13 07:3...	< 1 min	335 KB	0
etl-nw80-server	NMCASA:/gst_on_etl-nw80-server/lqto_gst	✓	incr	01/16/13 07:3...	< 1 min	1.56 MB	6
sand.lss.emc.com	sand.lss.emc.com:index	✓	9	01/16/13 07:3...	< 1 min	1.97 MB	0
sand.lss.emc.com	sand.lss.emc.com:bootstrap	✓	unknownLevel	01/16/13 07:3...	< 1 min	81.78 MB	0
sand.lss.emc.com	NMCASA:/gst_on_sand/lqto_gst	✓	incr	01/16/13 07:3...	< 1 min	0 bytes	4

Figure 44 Activities Summary

[Table 14 on page 59](#) lists the fields in the Activities backup details fields.

Table 14 NetWorker backup details systems fields

Field	Description
Save set	Lists the number of save sets in the backup operation. An icon representing the backup type is included in the column.
Status	Lists the current state of the backup job. For example, if it is currently running, complete, or if it failed.
Level	Lists the backup level used for the backup.
Start Time	Lists the time the backup began.
Duration	Lists the duration of the backup.
Size	Lists the total size of the data that was backed up.
Total Files	Lists the number of files that were written during the backup.
Device	The device to which the backup was written.
Messages	Lists the number of messages (Alerts or Warnings) that occurred during the backup. Note: Click on the number of messages to display the list of messages with their message text in a pop-up window.

Figure 45 on page 60 is an example of message text.

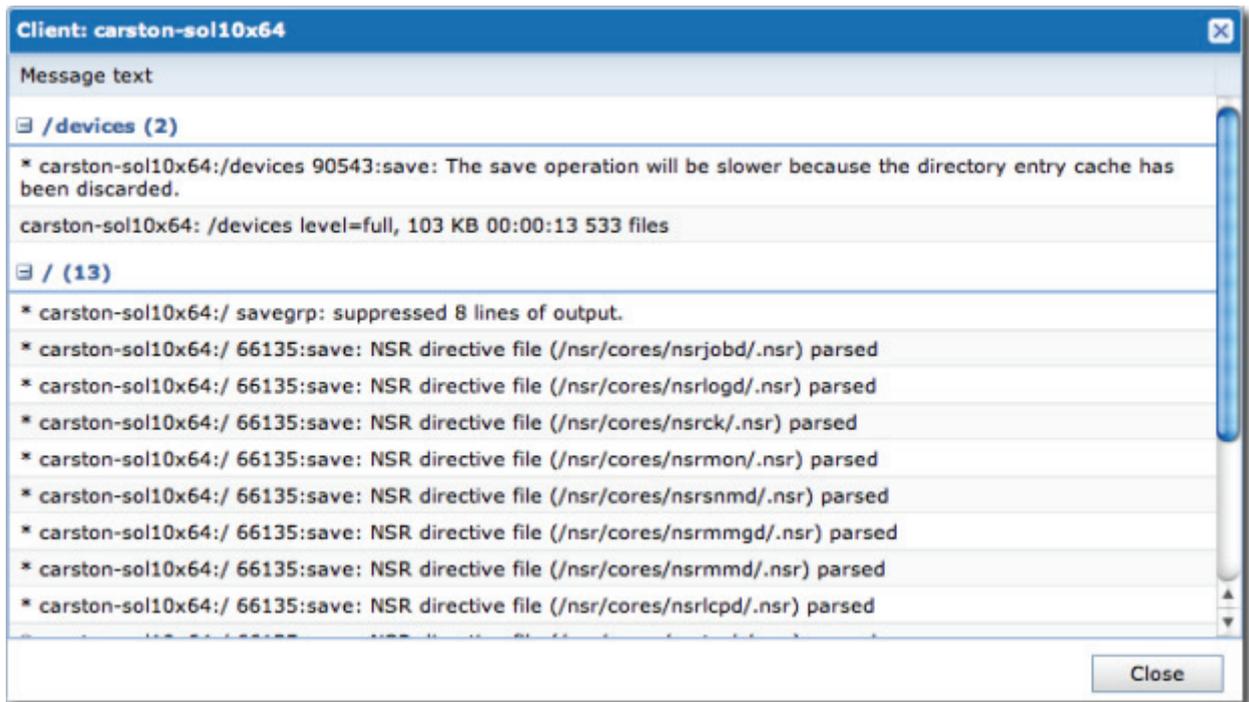


Figure 45 Message text

The following provides information on the columns in the details summary:

- ◆ The status column enables filtering of specific activity types and includes the count for each type:
 - Failed
 - Running
 - Completed
 - Pending
 - Halted
- ◆ Click **Show backups since:** to view backup status for a different time period than **Today** (default). This option is available for:
 - Yesterday
 - 1 week ago
 - 2 weeks ago
 - 1 month ago
 - 2 months ago

Figure 46 on page 61 illustrates the **Show backups since** selections.

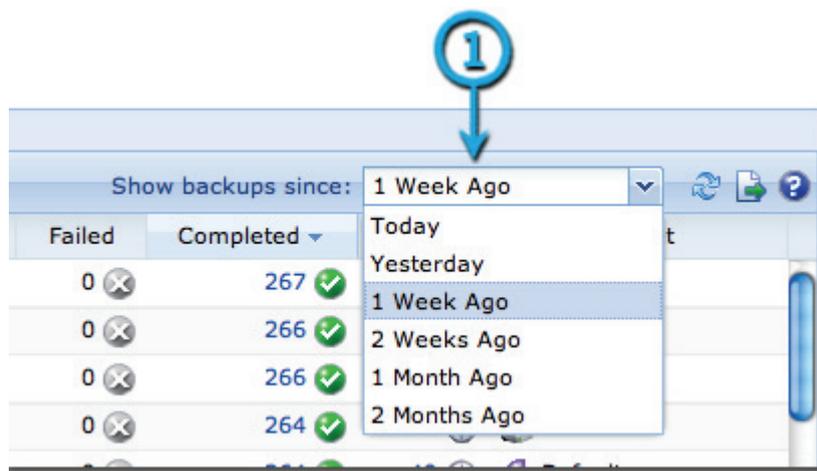


Figure 46 Show backups since selections

“[Configuration](#)” on page 85 provides detailed information on setting up and monitoring Avamar system replication.

Avamar replication

Avamar replication transfers data from a source Avamar server to a destination Avamar server. You can restore all data from the destination server back to primary storage without having to stage the data through the source Avamar server.

To stop a configured replication operation from the Activities Replication section, click the row containing the running replication job and then click **Stop**.

Avamar replication details fields

[Table 15](#) on page 61 lists the **Activities Replication** fields.

Table 15 Avamar backup details Systems fields (Sheet 1 of 2)

Field	Description
Status	<p>Current replication status. One of the following:</p> <ul style="list-style-type: none"> Running Not Running Not Running, Suspended Running, Suspended <p>Note: The Avamar Administration Guide provides complete details on these replication operation states.</p>
Source	The primary storage Avamar server from which the data is replicated to the destination/target Avamar server.
Target	The destination to which the Avamar server replicated data is saved.
Size	The size of the data replicated.

Table 15 Avamar backup details Systems fields (Sheet 2 of 2)

Field	Description
Schedule	Date and time the replication operation is scheduled to start.
Start Time	The time the replication operation started.
Duration	The length of time the replication operation ran from start to end.
End Time	The time the replication operation ended.
Next Run	The next scheduled replication operation.

Figure 47 on page 62 illustrates the replication details summary.

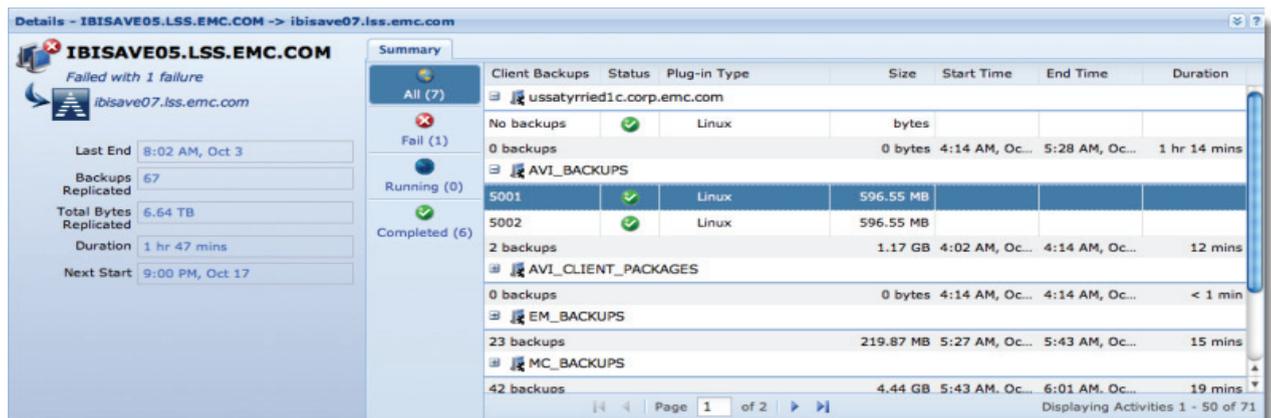


Figure 47 Replication Details Summary

Events

Clicking **Events** allows you to view all events such as configuration changes, and user logins generated by monitored systems in the enterprise. The ability to filter and acknowledge events is also available. This section provides information on the following:

- ◆ [Events columns](#)
- ◆ [Events views](#)
- ◆ [Hide events](#)
- ◆ [View hidden events](#)
- ◆ [Unhide Events](#)

Events columns

[Table 16 on page 63](#) lists the Events columns and their function.

Table 16 Events section columns

Column	Description
Date/Time	Lists the date and time the event occurred.
System	Lists the system on which the event occurred. Clicking on the system opens the system details.
Type	Lists the type of system on which the event occurred: <ul style="list-style-type: none">• Avamar• NetWorker• Data Domain
Category	Lists the type of event, Error or Warning. “Events categories” on page 63 describes the categories used in the Events section.
Message	Lists the specific Error or Warning message that describes the event. “Repeated events” on page 64 provides information on viewing repeated events.

Events categories

[Table 17 on page 63](#) lists the categories for system events.

Table 17 Event categories

Category	Description
Audit	An Avamar system record of actions initiated by users.
Index	System index related events.
Information	Informational event messages.
Media	NetWorker device and storage related events.
Savegroup	NetWorker savegroup related events.
Write complete	Indicates that the write operation completed.

Exclude columns from the display

To exclude and include columns from displaying in the tabular view:

1. Click the arrow beside any column.
2. Click Columns.
3. Click the check box beside a column to un check and exclude, or to check and include a previously excluded column.

Note: All columns are included (checked) by default.

Figure 48 on page 64 illustrates how to exclude or include columns.

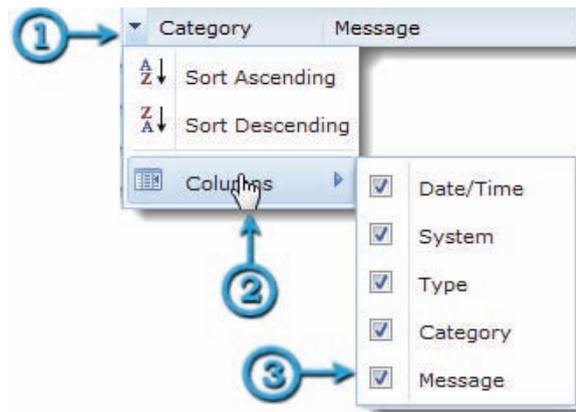
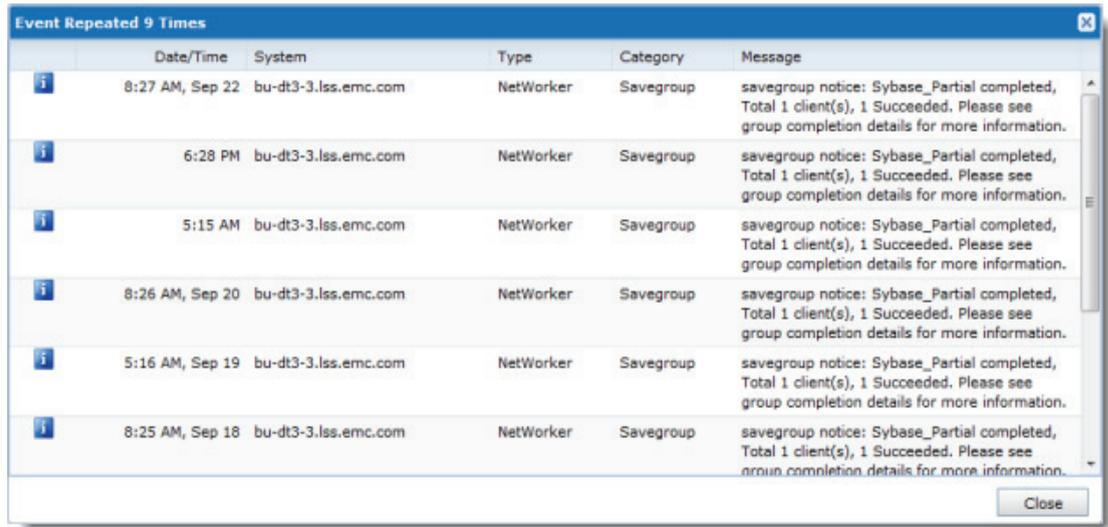


Figure 48 Exclude columns

Repeated events

If an event is repeated more than one time, a link is included in square brackets at the end of the message. For example [repeated: 9] indicates that there are 9 occurrences of the event.

Click **repeated:** to list all repeated events in a separate window as illustrated in [Figure 49](#) on page 65.



	Date/Time	System	Type	Category	Message
i	8:27 AM, Sep 22	bu-dt3-3.lss.emc.com	NetWorker	Savegroup	savegroup notice: Sybase_Partial completed, Total 1 client(s), 1 Succeeded. Please see group completion details for more information.
i	6:28 PM	bu-dt3-3.lss.emc.com	NetWorker	Savegroup	savegroup notice: Sybase_Partial completed, Total 1 client(s), 1 Succeeded. Please see group completion details for more information.
i	5:15 AM	bu-dt3-3.lss.emc.com	NetWorker	Savegroup	savegroup notice: Sybase_Partial completed, Total 1 client(s), 1 Succeeded. Please see group completion details for more information.
i	8:26 AM, Sep 20	bu-dt3-3.lss.emc.com	NetWorker	Savegroup	savegroup notice: Sybase_Partial completed, Total 1 client(s), 1 Succeeded. Please see group completion details for more information.
i	5:16 AM, Sep 19	bu-dt3-3.lss.emc.com	NetWorker	Savegroup	savegroup notice: Sybase_Partial completed, Total 1 client(s), 1 Succeeded. Please see group completion details for more information.
i	8:25 AM, Sep 18	bu-dt3-3.lss.emc.com	NetWorker	Savegroup	savegroup notice: Sybase_Partial completed, Total 1 client(s), 1 Succeeded. Please see group completion details for more information.

Figure 49 Repeated events

Events views

The Views menu located in the top left pane of the **Events** section provides a list of available filters. [Figure 50](#) on page 65 illustrates the **Views** menu.

Note: Only a single item can be selected. For example, there is no way to view only failed Avamar jobs. If **Failed** is selected in **Events**, all failed jobs for Avamar, NetWorker and Data Domain are displayed.



Figure 50 Events Views

Table 18 on page 66 lists the filters available in the **Events Views** panel:

Table 18 Events Views filters

Filters	Description
Enterprise	Clicking Enterprise is the no filter option and resets the display to all systems Avamar, NetWorker and Data Domain events.
Avamar	Clicking Avamar filters the view to only display events associated with Avamar jobs and/or systems.
NetWorker	Clicking NetWorker filters the view to only display events associated with NetWorker jobs and/or systems.
Data Domain	Clicking Data Domain filters the view to only display events associated with Data Domain jobs and/or systems.
Audit	The Audit type event starts the Avamar audit logging feature which keeps a permanent log of system actions initiated by users.
Media	Lists events in the Media category generated by all systems in the enterprise.
Saveroups	Lists events in the Savegroup category generated by all systems in the enterprise.

Hide events

You can hide listed events by selecting the **Events** to hide and clicking **Hide** as illustrated in Figure 51 on page 66. To hide events do any of the following:

- ◆ Select individual line items
- ◆ Use multi-select **Ctrl** or **Shift** click
- ◆ Use multi-select **Ctrl** or **Shift** with the arrow keys

The selected events will no longer be listed in **Events**.

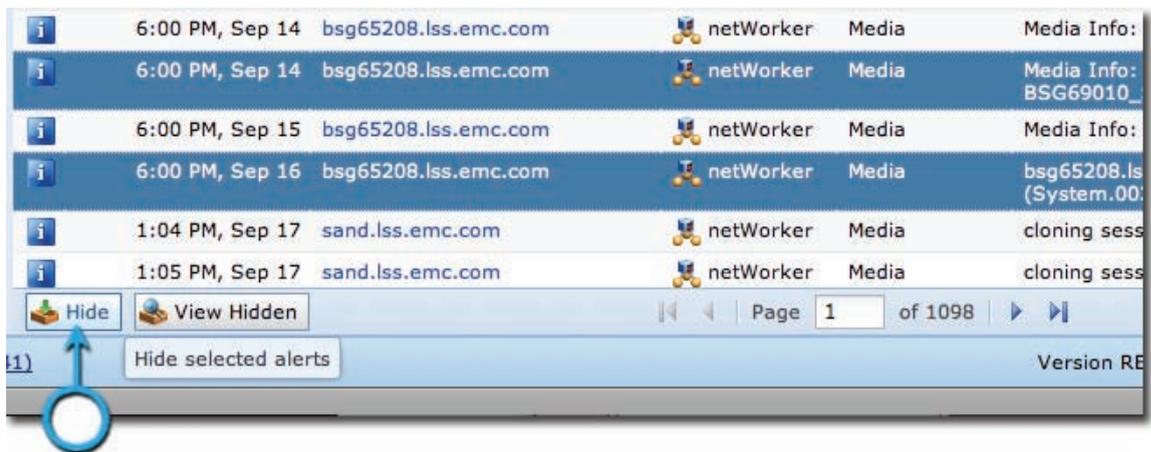


Figure 51 Hide events

View hidden events

To view events that were previously hidden, click **View Hidden**. The **Hidden Events** window opens with a complete list of all hidden errors and warnings as illustrated in [Figure 52](#) on [page 67](#).

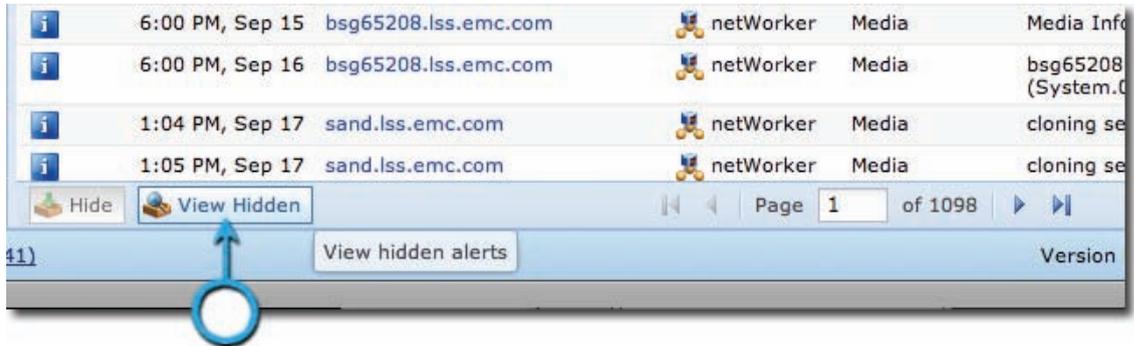


Figure 52 View Hidden

[Figure 53](#) on [page 67](#) illustrates the **Hidden Events** window.

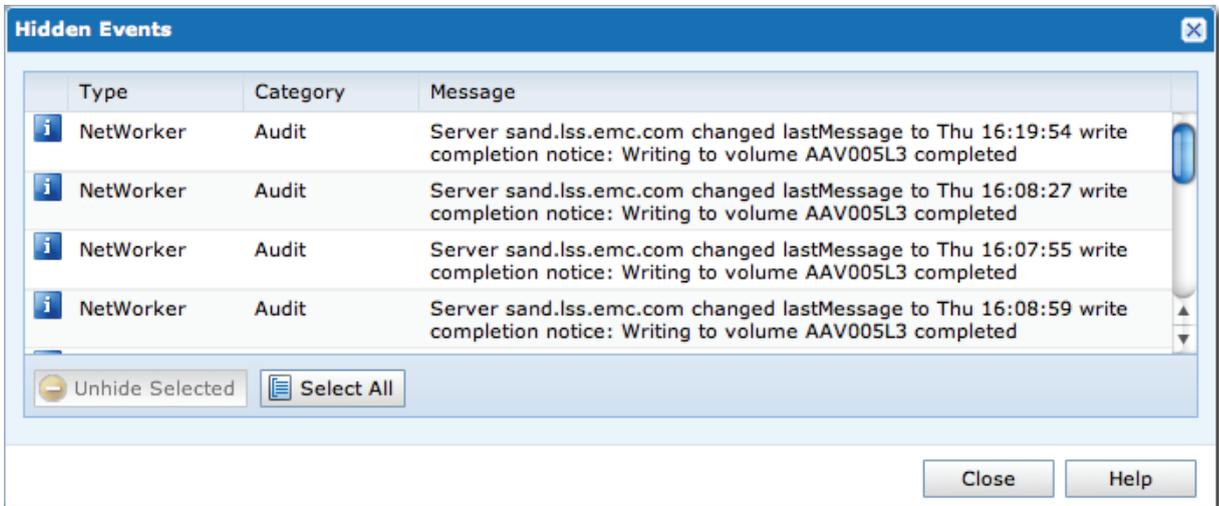


Figure 53 Hidden Events window

Unhide Events

To Unhide hidden events, you can do any of the following as illustrated in [Figure 54 on page 68](#):

- ◆ Select individual line items
- ◆ Use multi-select **Ctrl** or **Shift** click
- ◆ Click **Select All** and then click **Unhide Selected**

Previously hidden events will again be listed in **Events**.

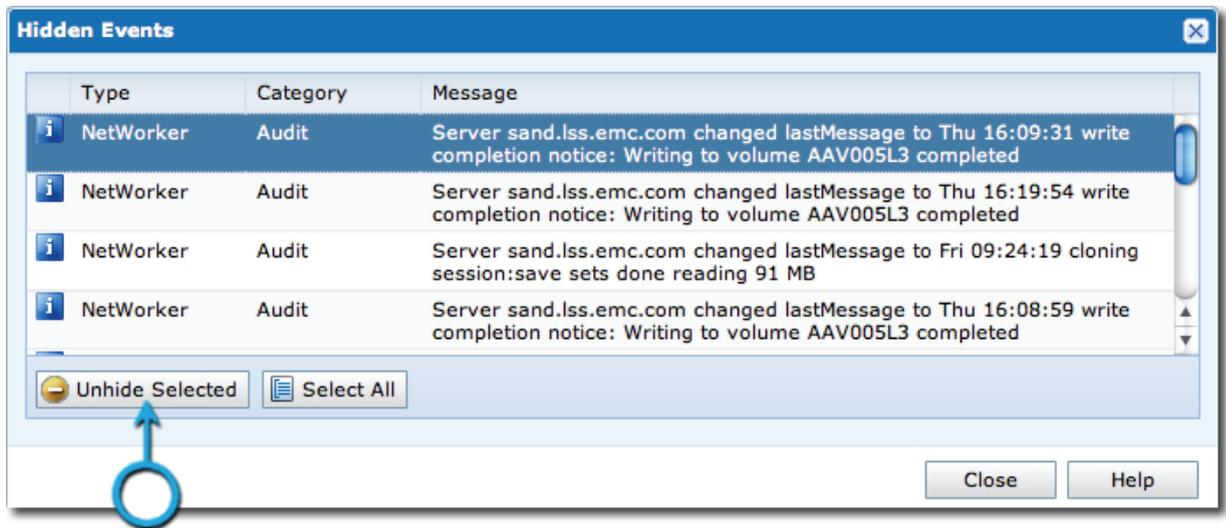


Figure 54 Unhide Selected

Systems

Click **Systems** to view detailed information for all systems in the enterprise. This section provides information on the following:

- ◆ [Systems Display](#)
- ◆ [Systems views](#)
- ◆ [Systems Details](#)
- ◆ [Launch the native system consoles](#)
- ◆ [Manage Data Domain systems](#)
- ◆ [Remove a system](#)
- ◆ [Customer Information](#)

Systems usage graph

The system usage graph uses a color scale to represent the level of system usage.

- ◆ Green represents a system with a safe level of available space.
- ◆ Yellow to orange indicates that the system is approaching a less acceptable amount of available space (80% warning threshold).
- ◆ Red indicates that the system has reached an unacceptable level of available space and requires intervention (95% warning threshold).
- ◆ Blue represents the amount of available space on the system.

[Figure 55 on page 69](#) is an example of a System usage graph.

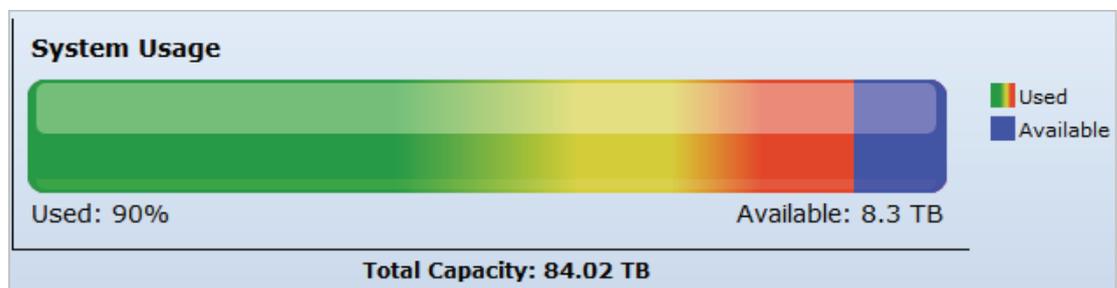


Figure 55 System usage graph

Systems Display

The primary portion of this page is the systems list that is displayed in a tabular view. Clicking on a system in the list will display **System Details** on the lower half of the window as illustrated in [Figure 56 on page 70](#).

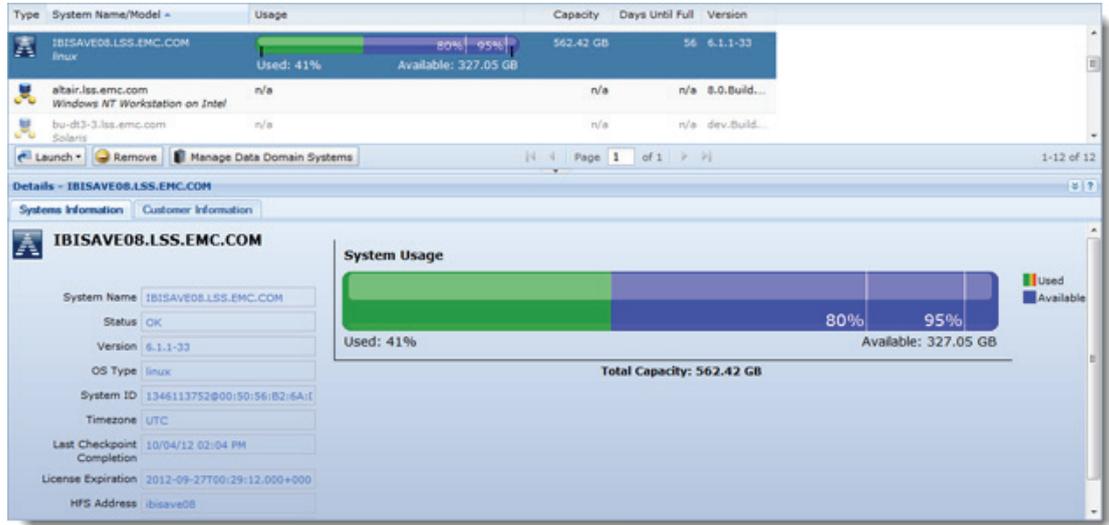


Figure 56 Systems list

[Table 19 on page 70](#) displays information about managed systems.

Table 19 System types and states

Type	Description
	Avamar server
	NetWorker server
	Data Domain server
	System critical notification
	System warning notification

Exclude columns from the Systems display

To exclude and include columns from displaying in the tabular view:

1. Click the arrow beside any column.
2. Click **Columns**.
3. Click the check box beside a column to un check and exclude, or to check and include a previously excluded column.

Figure 57 on page 71 illustrates the available columns.

Note: All columns are included (checked) by default.

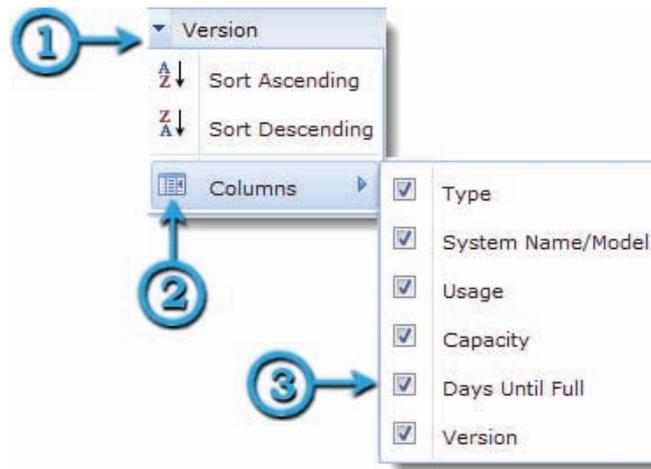


Figure 57 Exclude/include columns

Systems views

The **Views** menu, located in the top left pane of the **Systems** window provides a list of available filters. Figure 58 on page 71 illustrates the **Views** menu.



Figure 58 Systems views

Table 20 on page 72 lists and describes the filters specific to the **Systems Views** panel:

Table 20 Systems Views filters

Filter	Description
Enterprise	Clicking Enterprise is the no filter option and resets the display to all systems, Avamar, NetWorker and Data Domain systems.
Avamar	Clicking Avamar filters the view to only display objects associated with Avamar jobs and/or systems.
NetWorker	Clicking NetWorker filters the view to only display objects associated with NetWorker jobs and/or systems.
Data Domain	Clicking Data Domain filters the view to only display objects associated with Data Domain jobs and/or systems.
Critical	Lists all systems with critical errors that require immediate attention.
Warning	Lists all systems with warnings for backup or replication operations.

Systems Details

Server Information in the **Systems Details** window displays textual and graphical information about the system that was clicked in the systems list. The information displayed varies by server type.

Avamar system information

Table 21 on page 72 lists the Avamar server information.

Table 21 Avamar server information

Field	Description
System Name	The name of the Avamar system.
Status	The state of the Avamar server. If there are errors or warnings associated with the system, they will be included here.
Version	The version of the Avamar system version.
OS Type	The operating system on which the Avamar system is running.
System ID	Unique identifier for the Avamar server.
Last checkpoint completion	The last completed checkpoint for the selected system.
License expiration	Calendar date on which this server's licensing expires, or never if licensing is perpetual.
HFS Address	The hostname or IP address that backup clients use to connect to this Avamar server.
HFS Port	This is the data port that backup clients use to connect to this Avamar server.
Timezone	Displays the timezone where the Avamar system is located.

NetWorker system information

[Table 22 on page 73](#) lists the NetWorker server information.

Table 22 NetWorker server information

Field	Description
System Name	The name of the selected NetWorker system.
Status	The state of the NetWorker server. If there are errors or warnings associated with the system, they will be included here.
Version	The version of the NetWorker server.
OS Type	The operating system on which the NetWorker server is installed.
Serial Number	The unique serial number which identifies the NetWorker server.
Timezone	The timezone for which the NetWorker server is configured.
Site ID	The unique identifier for site at which the NetWorker server is located.
Comment	Comments added by the administrator.
NMC Server	The IP address or URL for the NMC server.

Data Domain system information

[Table 23 on page 73](#) lists the Data Domain server information:

Table 23 Data Domain system information

Field	Description
Filesystem Status	The state of the Data Domain system. If there are errors or warnings associated with the system, they will be included here.
Model	The specific model of the Data Domain system.
OS Version	The operating system version of the Data Domain system (DDOS).
Serial Number	The unique serial number that identifies the Data Domain system.
Data Written: Uncompressed	The amount of uncompressed data written during the last 24 hours.
Data Written: Compressed	The amount of compressed data written during the last 24 hours.

Launch the native system consoles

You can launch the Avamar Administrator, NetWorker Management Console and the Data Domain Enterprise Manager from the **System Details** window.

Launch the Avamar System Maintenance

To launch the Avamar Administrator:

1. In the **Systems** window, click the server for which to launch the Avamar Administrator, and then click **Launch** and select **Management Console** or **Avamar System Maintenance** to download the Avamar Administrator as illustrated in [Figure 59](#) on page 74.



Figure 59 Launch the Avamar Administrator

2. Type the **User** and **Password** in the respective fields to start the **Avamar Installation Manager** as illustrated in [Figure 60](#) on page 74.

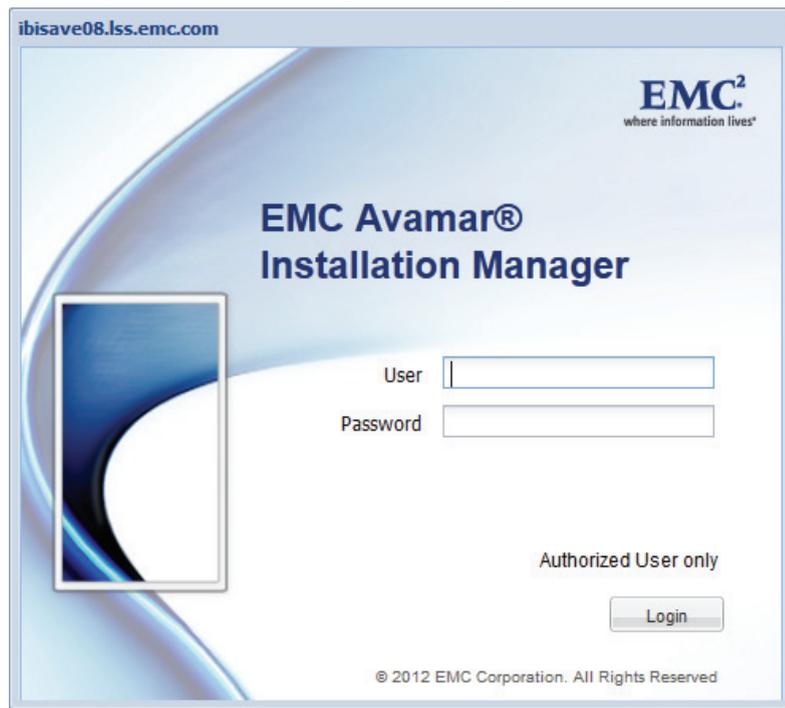


Figure 60 Avamar Installation Manager

Note: The Avamar Installation Manager is part of the Avamar System Maintenance.

Launch the NetWorker Management Console

To launch the NetWorker Management Console:

1. In the **Systems** window, click the server for which to launch the NetWorker Management Console.
2. In the **System Details** panel, click **Launch Management Console** to download the NetWorker Management Console as illustrated in [Figure 61 on page 75](#).

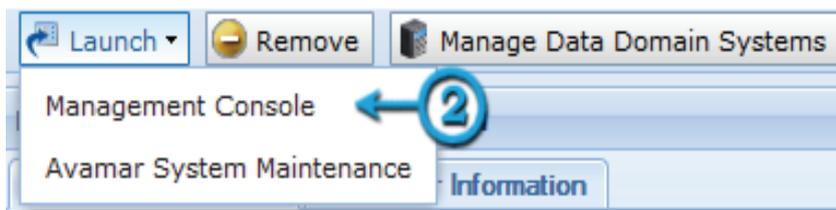


Figure 61 Launch the NetWorker Management Console

The Java Web Start window displays with the status of the NetWorker Management Console download as illustrated in [Figure 62 on page 75](#).

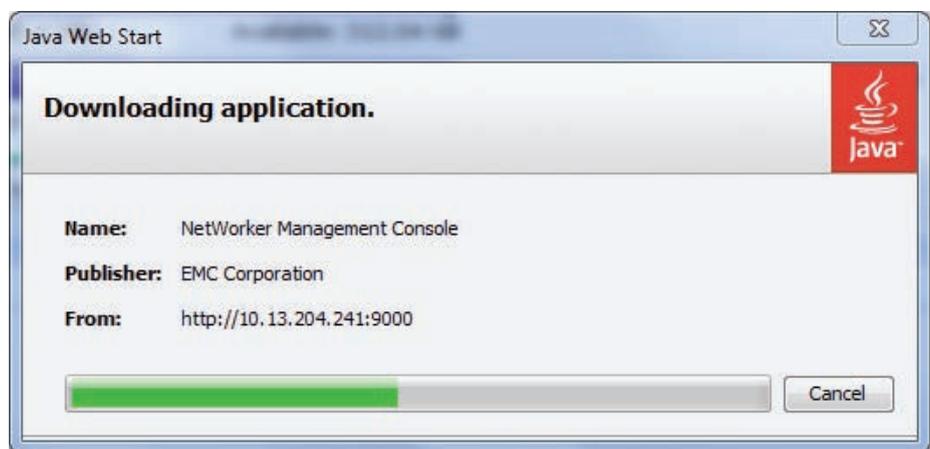


Figure 62 Downloading application status

3. Click **Run** to run the NetWorker Management Console as illustrated in [Figure 63](#) on [page 76](#).



Figure 63 Run NetWorker Management Console

4. Log in to the NetWorker Management Console as illustrated in [Figure 64 on page 77](#).

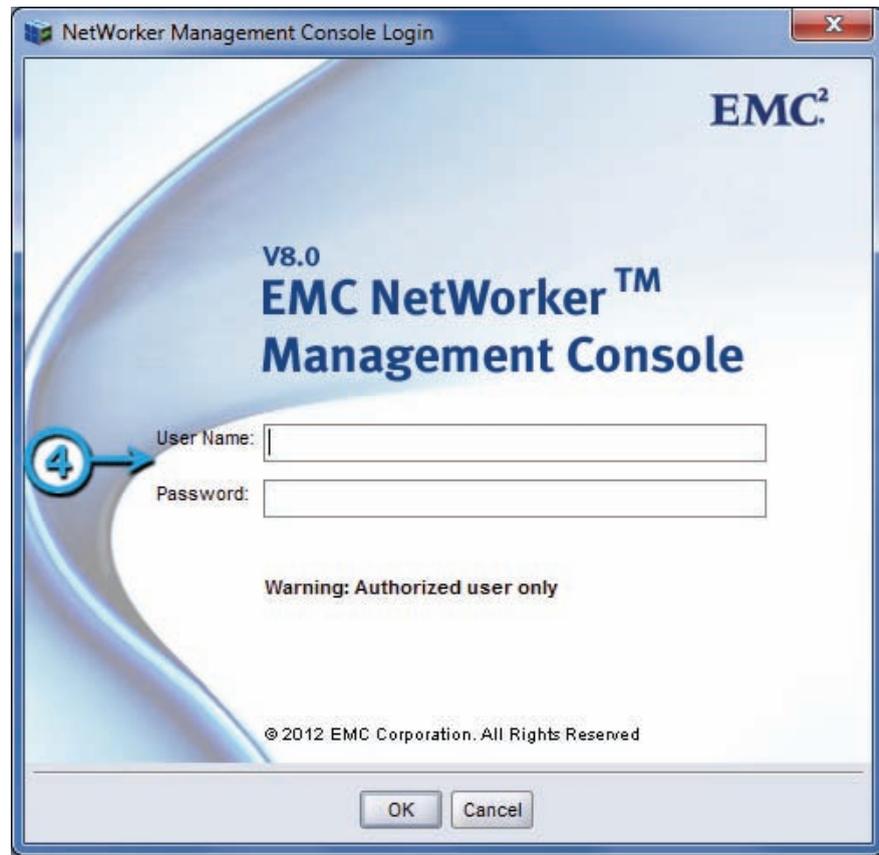


Figure 64 NetWorker Management Console login window

Launch the Data Domain Management Console

To launch the Avamar Administrator:

1. In the **Systems** section, click the system for which to launch the Data Domain Enterprise Manager and click **Launch**.
2. Click Management Console as illustrated in [Figure 65 on page 77](#).

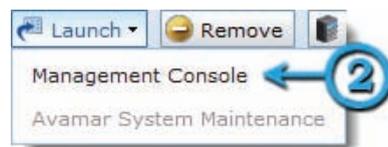


Figure 65 Launch the Data Domain Enterprise Manager

3. Type the **Username** and **Password** for the Data Domain system, and click **Login**.
Figure 66 on page 78 illustrates the Data Domain Enterprise Manager login page.

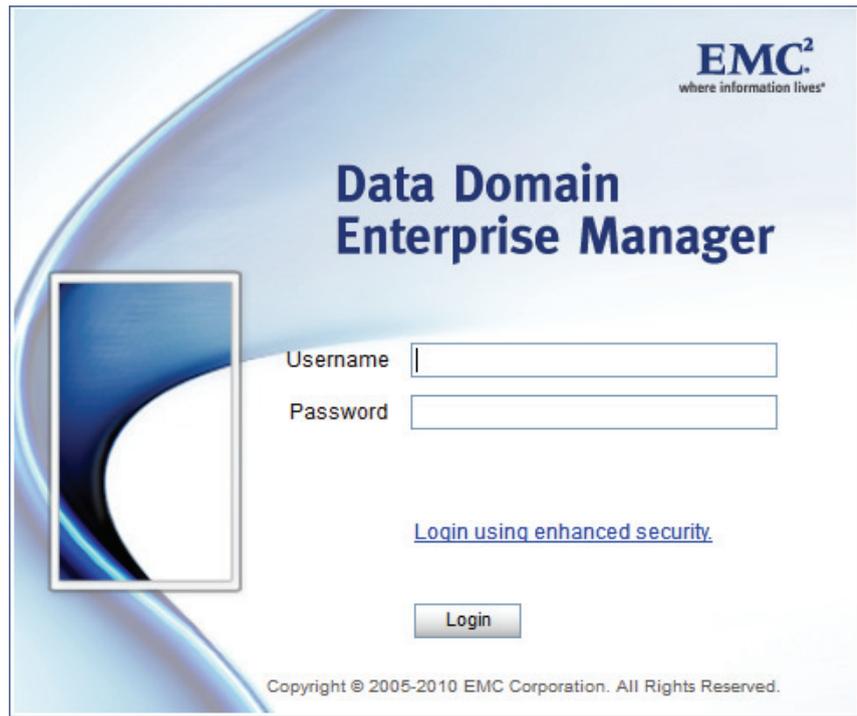


Figure 66 Enterprise Manager Login

Manage Data Domain systems

In the Systems window, you can add, update or delete Data Domain systems to be monitored in the Backup & Recovery Manager. To add, update or delete Data Domain systems:

1. In the **Systems Details** window, click the **Manage Data Domain Systems** to add, change credentials, remove or test a Data Domain system as illustrated in [Figure 67 on page 79](#).

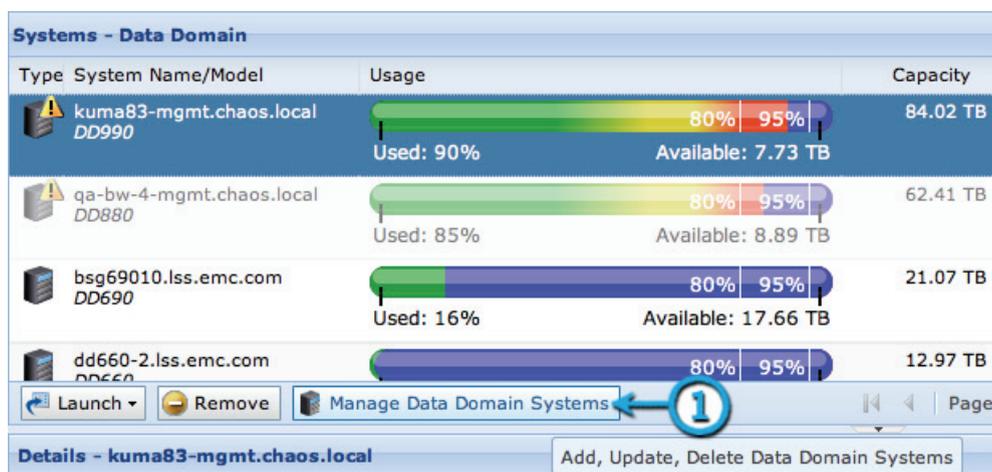


Figure 67 Manage Data Domain Systems

2. In the **Manage Data Domain Systems** window, perform one of the following:
 - Click **Add** to add a new system and complete the fields in the Add Data Domain System dialog as illustrated in [Figure 68 on page 79](#) and [Figure 69 on page 80](#):

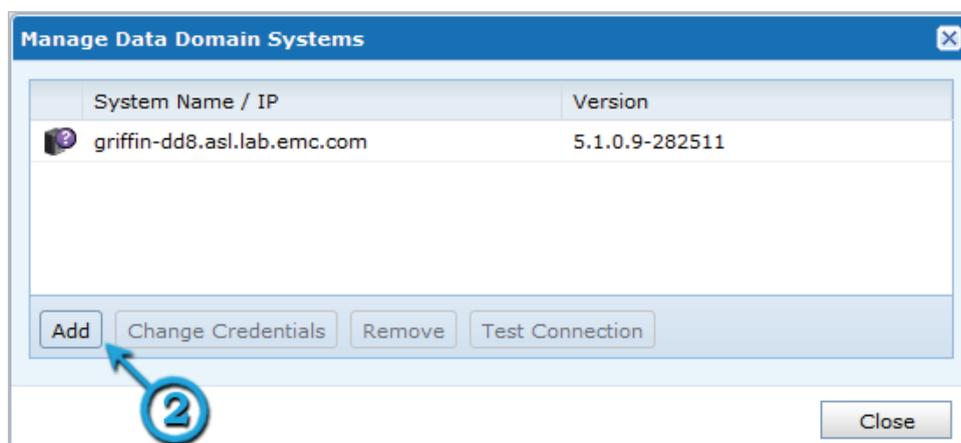


Figure 68 Add Data Domain system

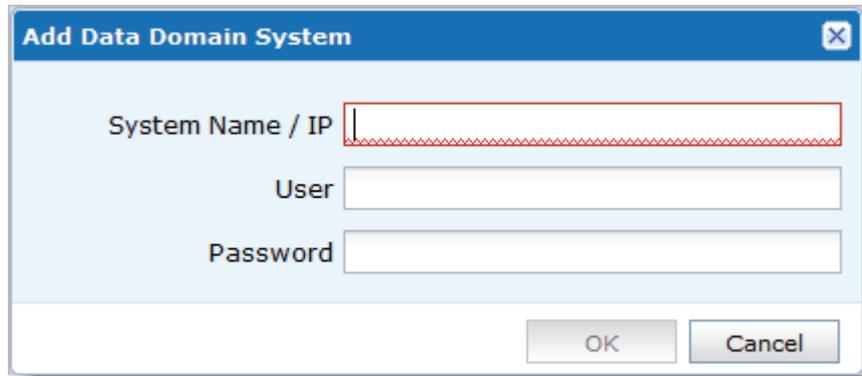


Figure 69 Add Data Domain System dialog

A connection status window opens to verify the connection. If the connection fails, a message displays as illustrated in [Figure 71 on page 80](#) and [Figure 71 on page 80](#):

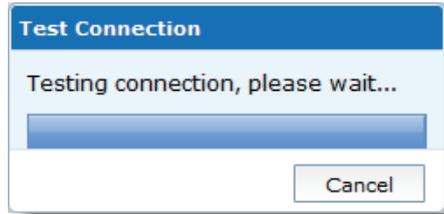


Figure 70 Test Connection status

A system for which the initial connection attempt fails can still be added.

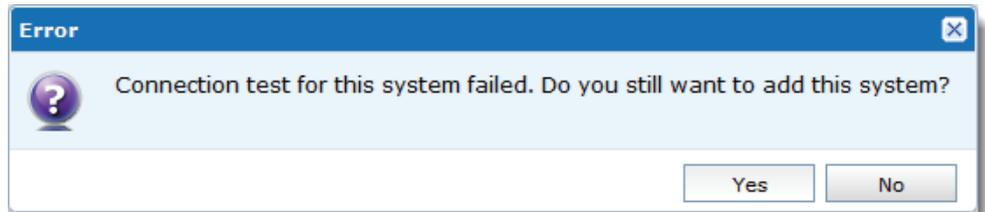


Figure 71 Failed test connection error

[Figure 72 on page 80](#) illustrates a successful connection test:

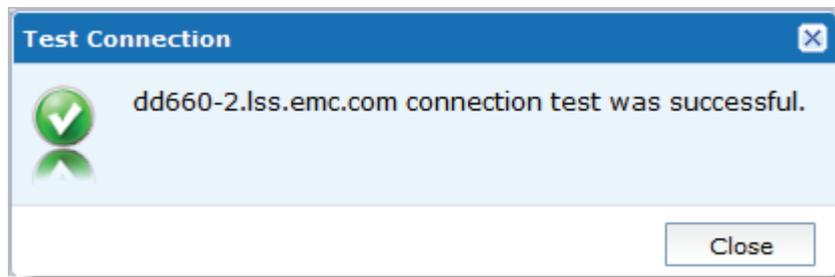
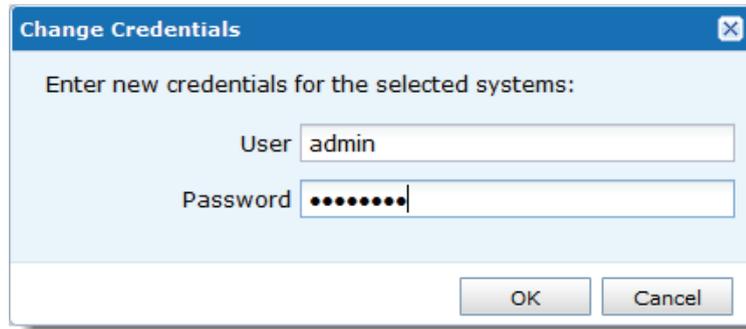


Figure 72 Successful connection test

- Click **Change Credentials** to change the access credentials for a selected system. Type the **User** and **Password** in the respective fields as illustrated in [Figure 73](#) on page 81.



The image shows a dialog box titled "Change Credentials" with a close button (X) in the top right corner. The main text reads "Enter new credentials for the selected systems:". Below this, there are two input fields: "User" with the text "admin" and "Password" with a masked password of ten dots. At the bottom right, there are two buttons: "OK" and "Cancel".

Figure 73 Change Credentials

- Select a Data Domain system from the list and click **Test Connection** to verify that the system is connected as illustrated in [Figure 74](#) on page 81.

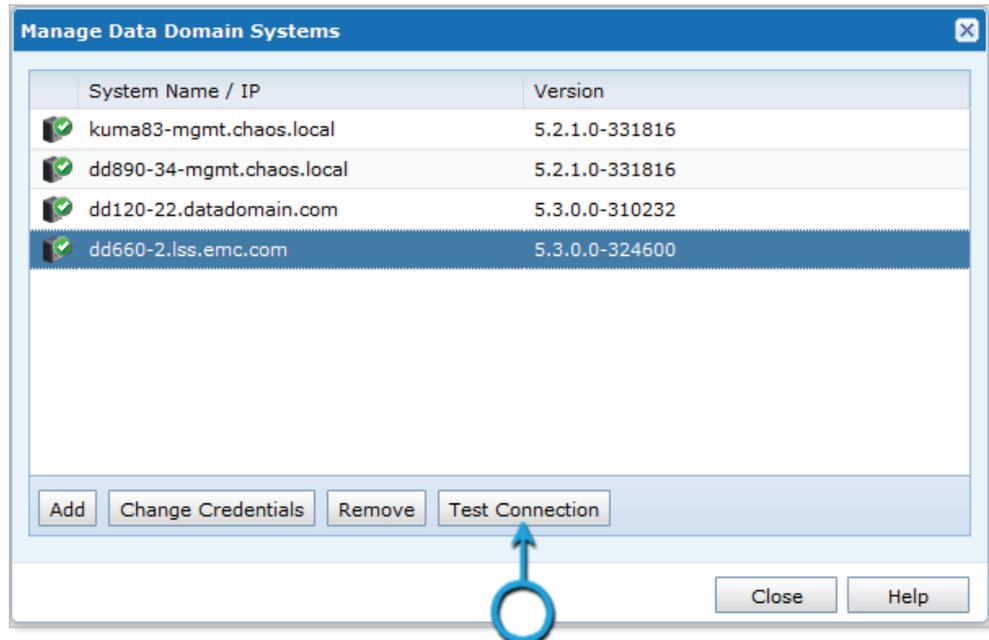


Figure 74 Test Data Domain system connection

- Select a system to remove from the list and click **Remove** as illustrated in Figure 75 on page 82.

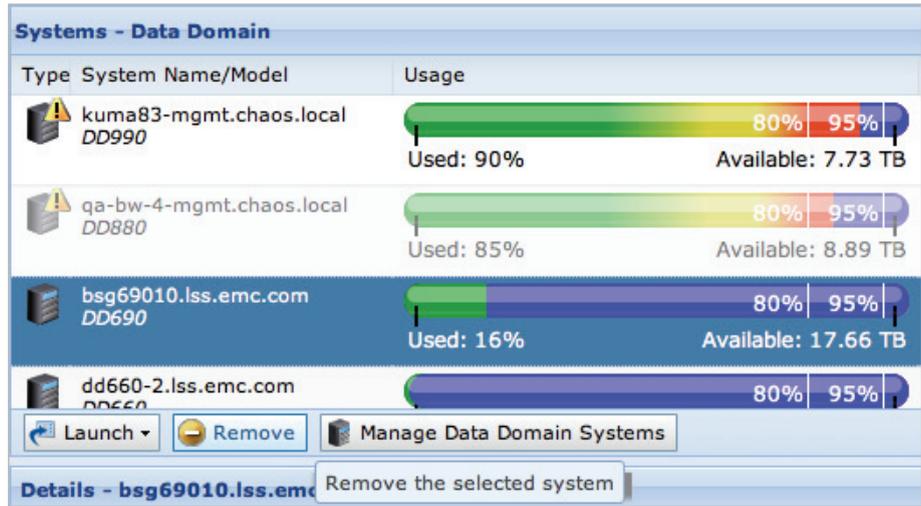


Figure 75 Remove Data Domain system

Remove a system

To remove an Avamar, NetWorker or Data Domain system:

1. Click to select a system and then click **Remove**.
2. Click **Yes** when prompted to verify the removal as illustrated in Figure 76 on page 82.

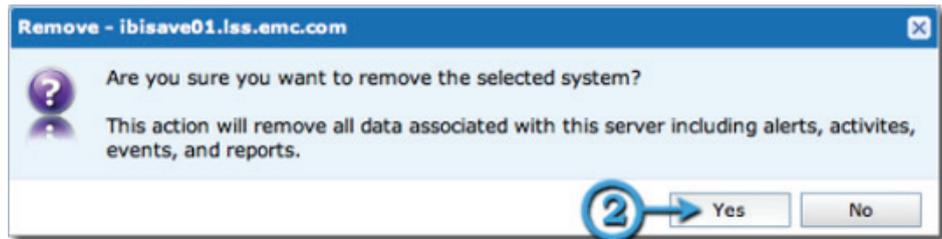


Figure 76 Verify delete

The system is no longer displayed in the systems list.

Customer Information

Complete the fields in the Customer Information window as illustrated in [Figure 77 on page 83](#). For geographically distributed environments, this section provides a location to keep information for specific system details.

Details - bsg65208.lss.emc.com			
Systems Information	Customer Information		
Company	EMC Corp	Site ID	1234567891
Street Address	2441 Mission College Blvd.	Phone	888-888-8888
City/Town	Santa Clara	Fax	888-888-8888
State/Province	Ca	Contact	Mr. EMC
ZIP/Postal code	12345	Email Address	Mr.EMC@emc.com
Country	USA	EMC Support Email Address	support@emc.com
		Save	Reset

Figure 77 Customer Information

Configuration

Avamar replication transfers data from a source Avamar server to a destination Avamar server. All data can be restored from the destination server back to primary storage without having to stage the data through the source Avamar server.

Click **Configuration** to add, remove or modify Avamar replication jobs. Avamar replication transfers data from a source Avamar system to a target Avamar system. All data from the destination server can be restored back to primary storage without having to stage the data. This section provides information on the following:

- ◆ [Add or modify Avamar replication jobs](#)
- ◆ [Remove Avamar replication jobs](#)
- ◆ [Start and stop Avamar replication jobs](#)
- ◆ [Disable and enable replication jobs](#)

The details included for replicated Avamar servers are listed in [Table 24 on page 85](#).

Table 24 Avamar replication configuration columns

Field	Description
Source System	The server from which the original data is copied.
Target System	The server to which the copied data is replicated.
Current State	Describes the state of the replication activity. The states are Idle, Queued, Running, Succeeded/Failed.
Last Run	The most recent replication that completed. The Last Run column links directly to the replication activity details.
Next Run	The next scheduled replication operation.

Include or exclude columns from the Configuration display

To exclude and include columns from displaying in the tabular view:

1. Click the arrow beside any column.
2. Click **Columns**.
3. Click the check box beside a column to un check and exclude, or to check and include a previously excluded column.

Figure 78 on page 86 illustrates the available columns.

Note: All columns are included (checked) by default.

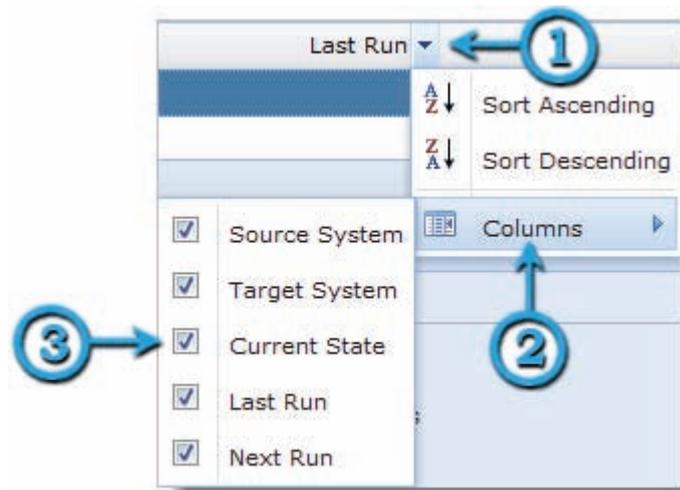


Figure 78 Include or exclude columns

Add or modify Avamar replication jobs

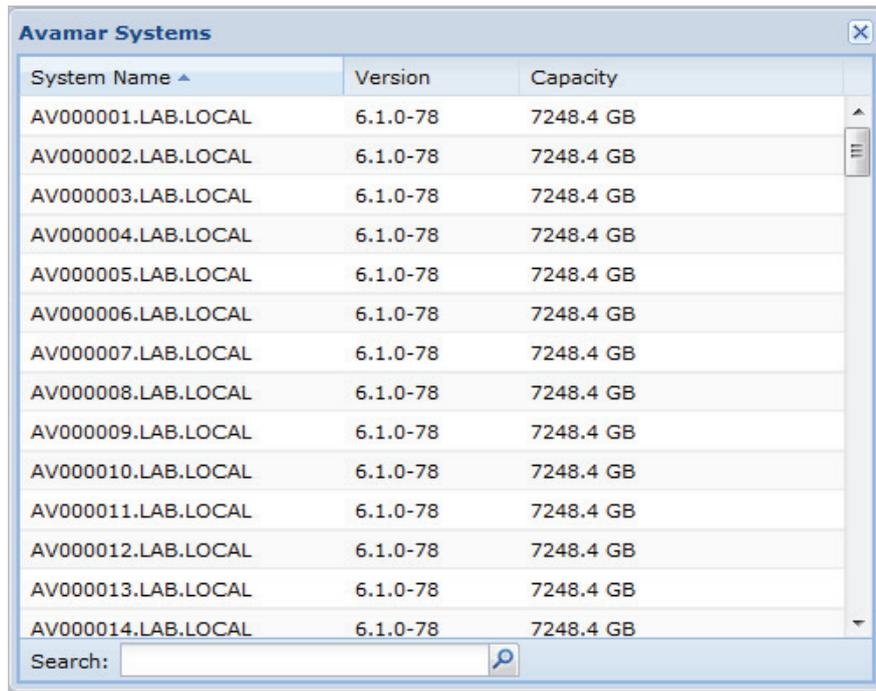
To add Avamar replication, perform the following steps:

1. Select the source system for which to configure replication.
2. In the **Target** section, type the name of the destination system in the **System** field or click the Avamar icon, as illustrated in Figure 79 on page 86 to select an Avamar system from a list.



Figure 79 Destination system

When you click the Avamar icon, a list of available Avamar systems opens as illustrated in [Figure 80 on page 87](#).



System Name ▲	Version	Capacity
AV000001.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000002.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000003.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000004.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000005.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000006.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000007.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000008.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000009.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000010.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000011.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000012.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000013.LAB.LOCAL	6.1.0-78	7248.4 GB
AV000014.LAB.LOCAL	6.1.0-78	7248.4 GB

Search:

Figure 80 Avamar system list

3. In the **Schedule** section, specify the **Start Time** for the daily replication (default) from the drop down list as illustrated in [Figure 81 on page 87](#).



Schedule

Schedule

Start Time

Figure 81 Schedule daily start time

4. In the Advanced section:
 - a. Click the arrows to include a value (in hours) in the **Timeout** field.
 - b. Type a value in the **Mbps** field.

The **Limit network bandwidth** field sets the network utilization throttling that is used to specify the maximum average network utilization allowed in Mega Bits Per Second (Mbps). If the replication operation exceeds this setting, it is throttled back

by introducing delays until the average network utilization falls below the specified threshold. [Figure 82 on page 88](#) illustrates the **Timeout** and **Limit network bandwidth** fields.

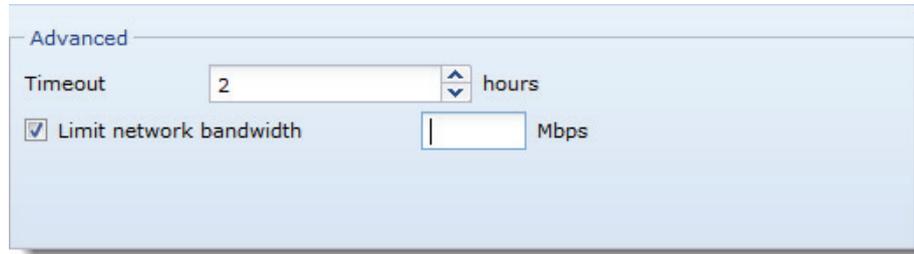


Figure 82 Advanced settings

5. In the Backup Retention section, select the appropriate value as listed in [Table 25 on page 88](#).

Table 25 Backup Retention options

Option	Description
All Options	All Options checks all selections to replicate all backups.
Daily	Filters daily backups by retention level to replicate them.
Weekly	Filters weekly backups by retention level to replicate them.
Monthly	Filters monthly backups by retention level to replicate them.
Yearly	Filters yearly backups by retention level to replicate them.
Not Tagged	The Not Tagged option replicates backups without any retention level.

6. In the **Backup Clients** section:
 - a. Use the arrows to move clients between **Included Clients** and **Excluded Clients**.
 - b. Use the **Ctrl** and **Shift** keys with the arrow keys to select more than one client to move.
 - c. Click the check box to enable **Automatically include new clients to this configuration?** if required.
7. Click **Reset** to discard changes or **Create** to save changes to the replication settings. You are notified when the settings are reset to the last saved configuration.

8. Click **OK** to close either of the following dialogs as illustrated in [Figure 83 on page 89](#) and [Figure 84 on page 89](#).

- The reset **Complete** dialog.

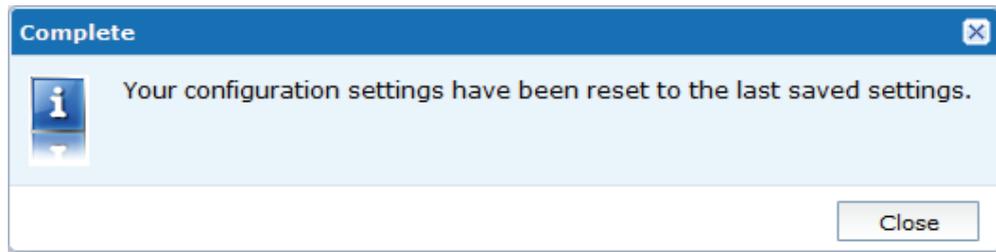


Figure 83 Reset complete

- The update **Complete** dialog.

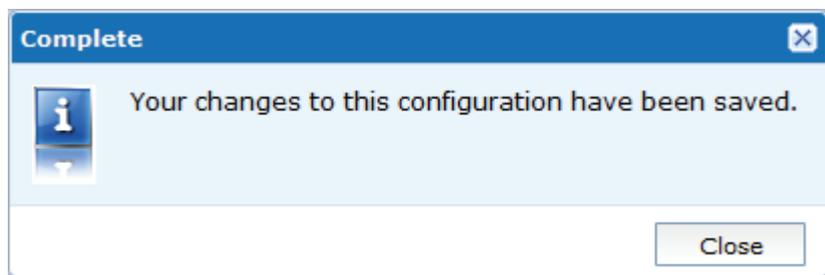


Figure 84 Update complete

If the configuration is not successfully saved, the following error is displayed as illustrated in [Figure 85 on page 89](#).

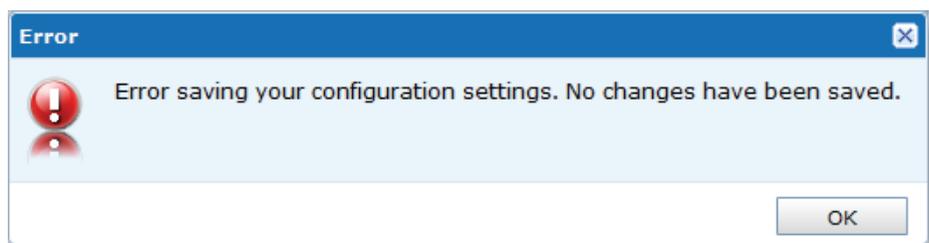


Figure 85 Update error

IMPORTANT

If you select another configuration, or leave the configuration section without clicking **Create** or **Update**, the configuration is reset to its previous state and not saved.

Remove Avamar replication jobs

To remove Avamar replication jobs:

1. Select an established configuration from the main grid to enable the **Remove** configuration button.
2. Click **Remove** and confirm the action when prompted.

Start and stop Avamar replication jobs

The following occurs when starting or stopping replication jobs:

- ◆ Clicking **Start** sends a start request to the Avamar system. The status column will change to **Queued** until the Avamar system reports back that the replication operation has started, at which time the status will change to **Running**.
- ◆ Clicking **Stop** sends a stop request to the Avamar system. The status column will change to **Queued** until the Avamar system reports back that the replication operation has stopped, at which time the status will change to **Idle**.

Figure 86 on page 90 and Figure 87 on page 90 illustrates how to start a replication.

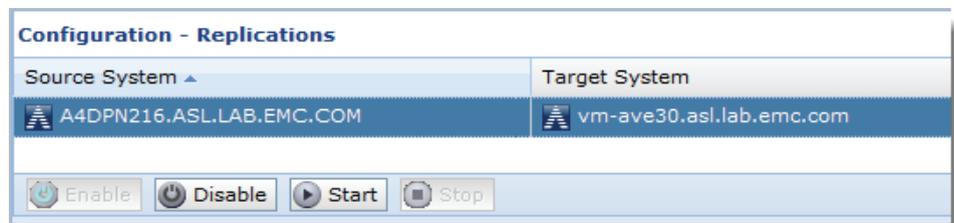


Figure 86 Start replication operation

Note: Queued icons specific for a job queued to start and to stop differentiate between the two operations.

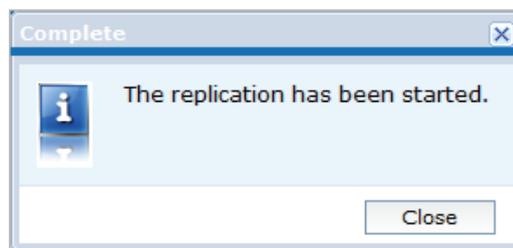


Figure 87 Replication started

Disable and enable replication jobs

The following occurs when disabling or enabling replication jobs:

- ◆ Clicking **Disable** will stop future replication operations from running while preserving all current replication settings. Use this rather than **Remove** to stop replication jobs without losing configured settings.
- ◆ Clicking **Enable** begins running configured replication jobs again as previously scheduled.

Settings

Clicking the **Settings** icon allows you to configure settings in the Backup & Recovery Manager for the environment, users and preferences. This section provides information on the following:

- ◆ [User Administration](#)
- ◆ [Preferences](#)
- ◆ [Change the password](#)

The settings menu is illustrated in [Figure 88 on page 93](#).



Figure 88 Settings icon

User Administration

Choose **User Administration** to configure the following as illustrated in [Figure 89 on page 93](#) and [Figure 90 on page 94](#).

- ◆ [“Users” on page 94](#)
- ◆ [“Roles” on page 97](#)



Figure 89 User Administration

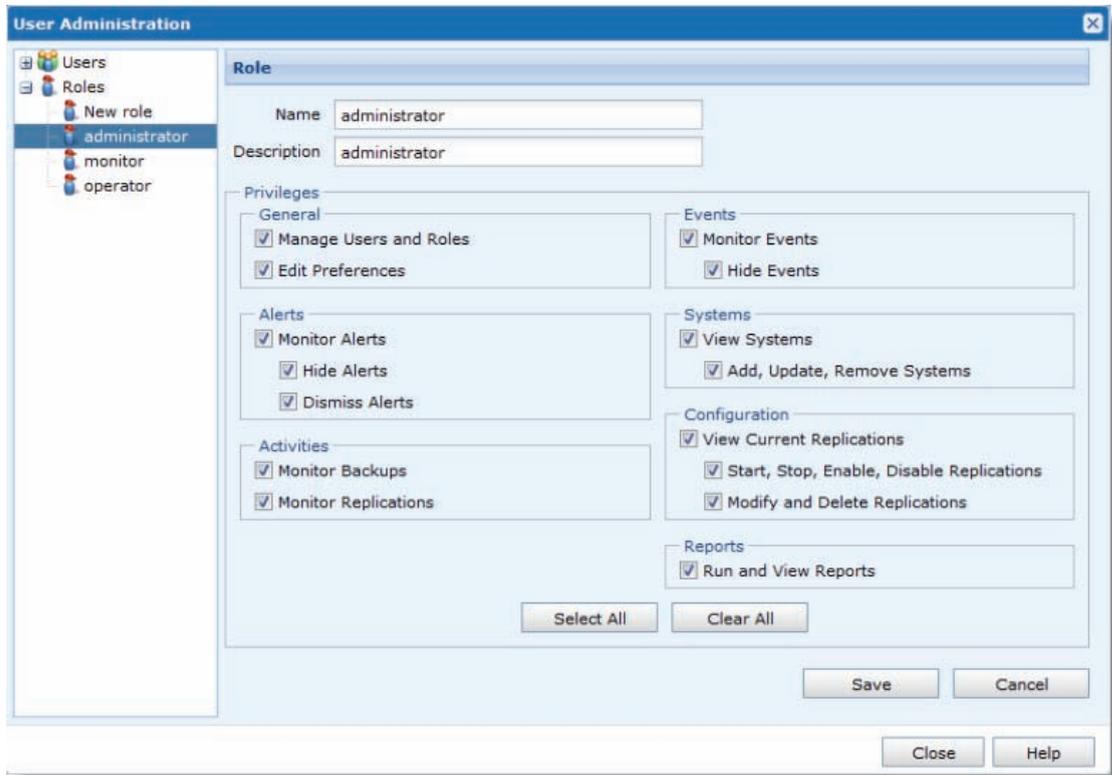


Figure 90 User roles

Users

In **Users**, the following actions are available:

- ◆ “Add a user” on page 94
- ◆ “Edit an existing user” on page 95
- ◆ “Remove a user” on page 96
- ◆ “Lock and Unlock users” on page 96

Add a user

Note: Administrator privileges are required to add new users.

To add a user:

1. Click **Add** in the **User Administration** window as illustrated in [Figure 91](#) on page 95.
2. Complete the fields in the **Profile** section of the **User** window.
3. In the **Authentication** section, type a **Password** and **Confirm** the password for Local (default) authentication. The password requirements are the following:
 - Minimum of 9 characters
 - Minimum of 1 lower case letter

- Minimum of 1 upper case letter
 - Minimum of 1 number
4. Minimum of 1 special character.
 5. Click **Save**.
 6. Click **Close** to exit the **User** window.

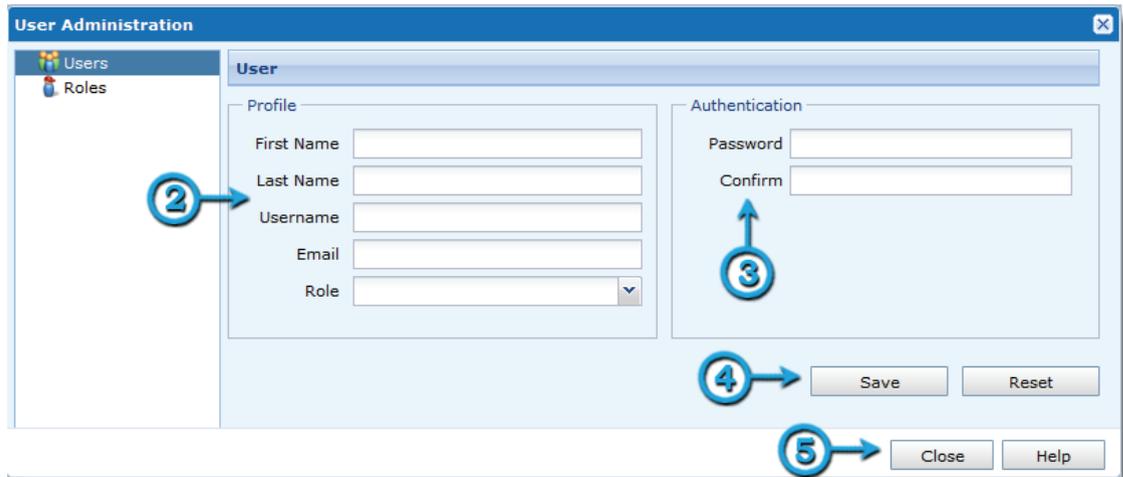


Figure 91 New user

Edit an existing user

To edit a user:

1. Select the user from the list.
2. Click **Edit** as illustrated in Figure 92 on page 95.

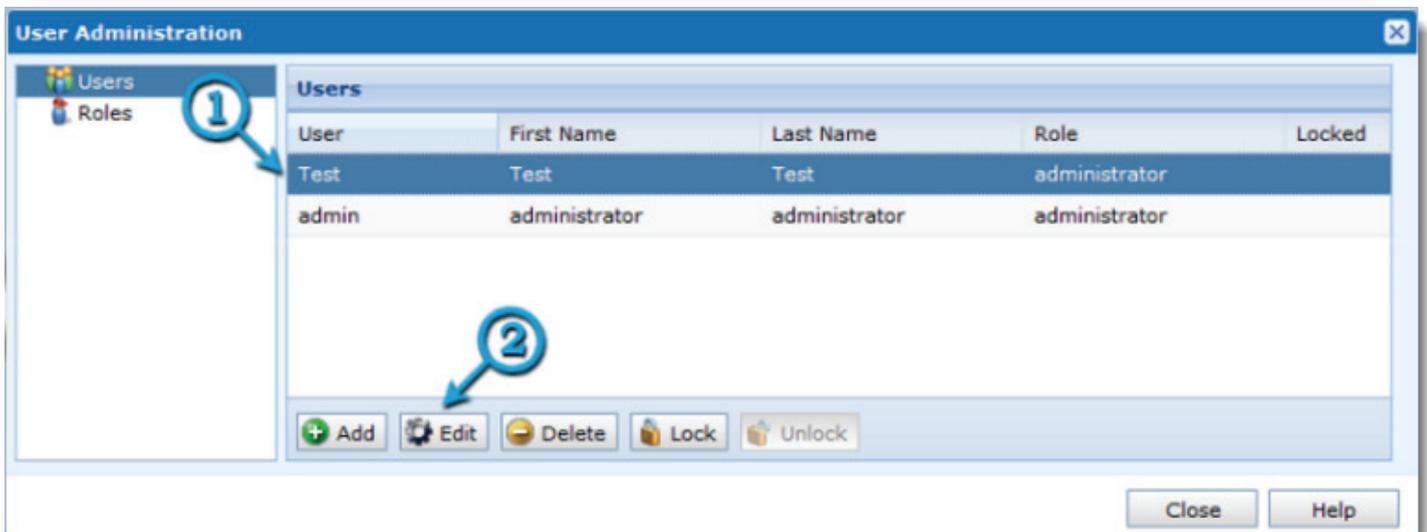


Figure 92 Edit a user

3. Make the required changes and click **Save**.

Note: Administrator privileges are required to edit existing users.

Remove a user

Note: There must be at least one user with administrative privileges.

To remove a user:

1. Select the user from the list.
2. Click **Remove**.
3. Click **Yes** when prompted **Are you sure you want to remove the selected users?**

Note: Administrator privileges are required to delete existing users.

Lock and Unlock users

Manually lock a user by selecting the user and clicking **Lock** in the **User Administration** window.

Note: This option provides the ability to inhibit user logins during critical times while avoiding the need to delete users.

Figure 93 on page 96 displays the message for a user manually locked by the administrator.



Figure 93 User lock message

Also, after 4 unsuccessful Backup & Recovery Manager login attempts a 15 minute lock out is applied. A message similar to the following is displayed:

Login failed. User is locked for 15 minutes.

Contact your Administrator to remove the lock and reset the user name and password if required.

Roles

Specific roles can be applied to users providing them rights to specific operations in the Backup & Recovery Manager.

Note: Customize user access without modifying the default settings in administrator, monitor or operator by creating a new role. [“Add a new role” on page 98](#) provides instructions on creating a new role.

[Table 26 on page 97](#) lists and provides a description of the specific user roles.

Table 26 User roles

Role	Description
Administrator	The administrator manages users and roles and can manually lock and unlock users, including those that exceed the allotted number of login attempts. Note: The default admin cannot modify the administrator role.
Monitor	The monitor role provides the ability for Events, Alerts and Activities (Backup, and Replication) to be monitored.
Operator	The operator can manage Systems, Reports and is able to perform all monitor functions as well.

Customize the monitor and operator user roles by adding or removing access by using the available attribute check boxes.

If you attempt to modify or remove the administrator role, an error is displayed as illustrated in [Figure 94 on page 97](#).

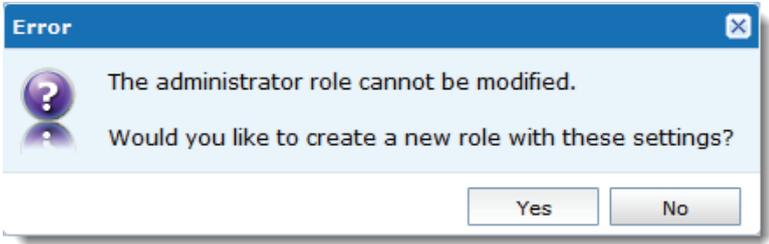


Figure 94 Modify administrator role error

Add a new role

You can add a new role to customize user access without changing the administrator, monitor or operator role defaults as illustrated in [Figure 95 on page 98](#) and [Figure 96 on page 98](#).

To add a new role:

1. Click **Add**.
2. Select the attributes for the new role, and click **Save**.

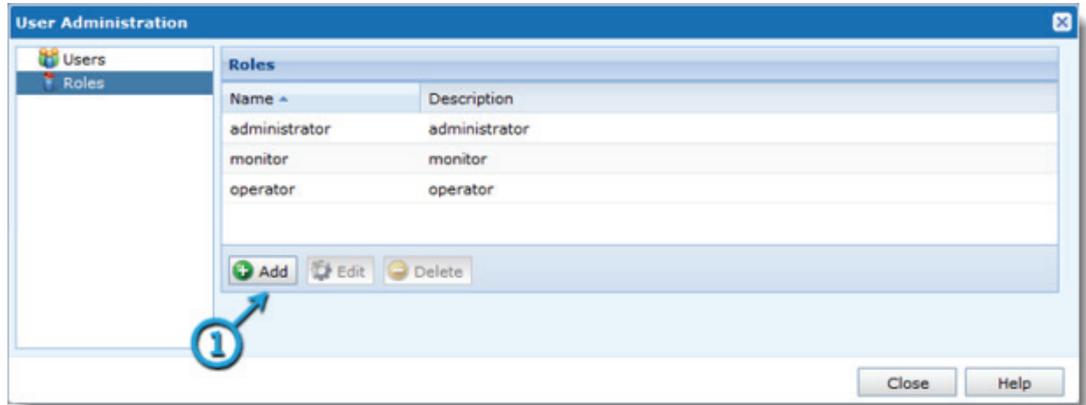


Figure 95 Add a new role

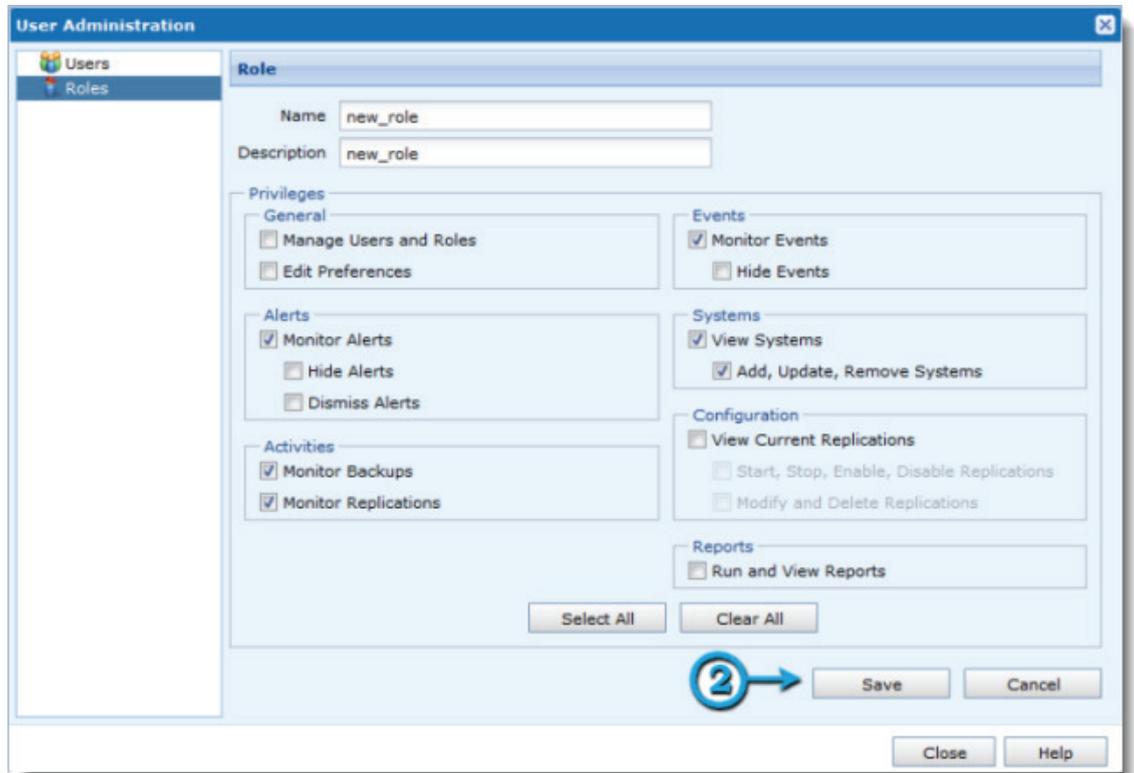


Figure 96 Role functions

Preferences

Choose **Preferences** to configure the following as illustrated in [Figure 97 on page 99](#).

- ◆ “Database” on page 99
- ◆ “Product launch links” on page 101
- ◆ “Security” on page 103



Figure 97 Preferences

Database

The **Database** menu option provides the ability to specify the following:

- ◆ “Percentage Used Thresholds” on page 99
- ◆ “Data Retention” on page 100

Percentage Used Thresholds

Percentage Used Thresholds provides the ability to set the period of time that Alert and Reporting data remain until they are automatically removed from the system.

To set the Percentage Used Thresholds:

1. Use the error and warning icons on the slider to set the percentage for which to receive notification that the system has reached its threshold.
2. Click **OK** to save the settings and close the window.

Figure 98 on page 100 illustrates the Percentage Used Thresholds slider.

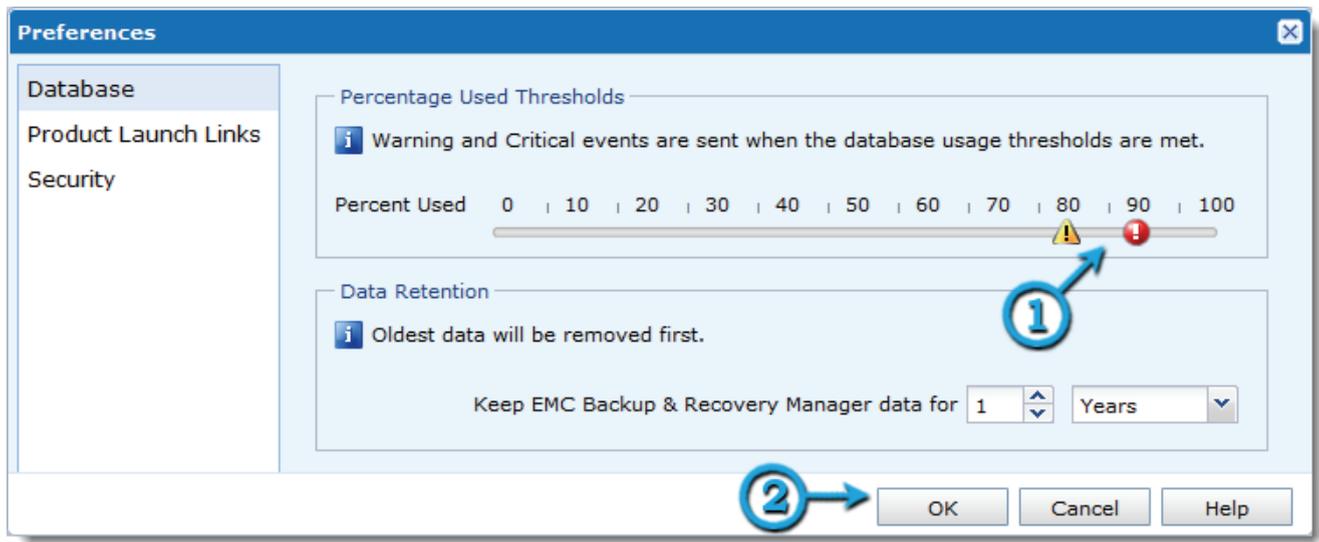


Figure 98 Database options

Data Retention

Data retention is the period of time for which the Backup & Recovery Manager data will be kept.

To set the Backup & Recovery Manager data retention:

1. Use the counter and the drop down list respectively to select the number of Years, Months, Weeks or Days to keep the Backup & Recovery Manager data.
2. Click **OK** to save the settings and close the window.

Figure 99 on page 101 illustrates the data retention settings.

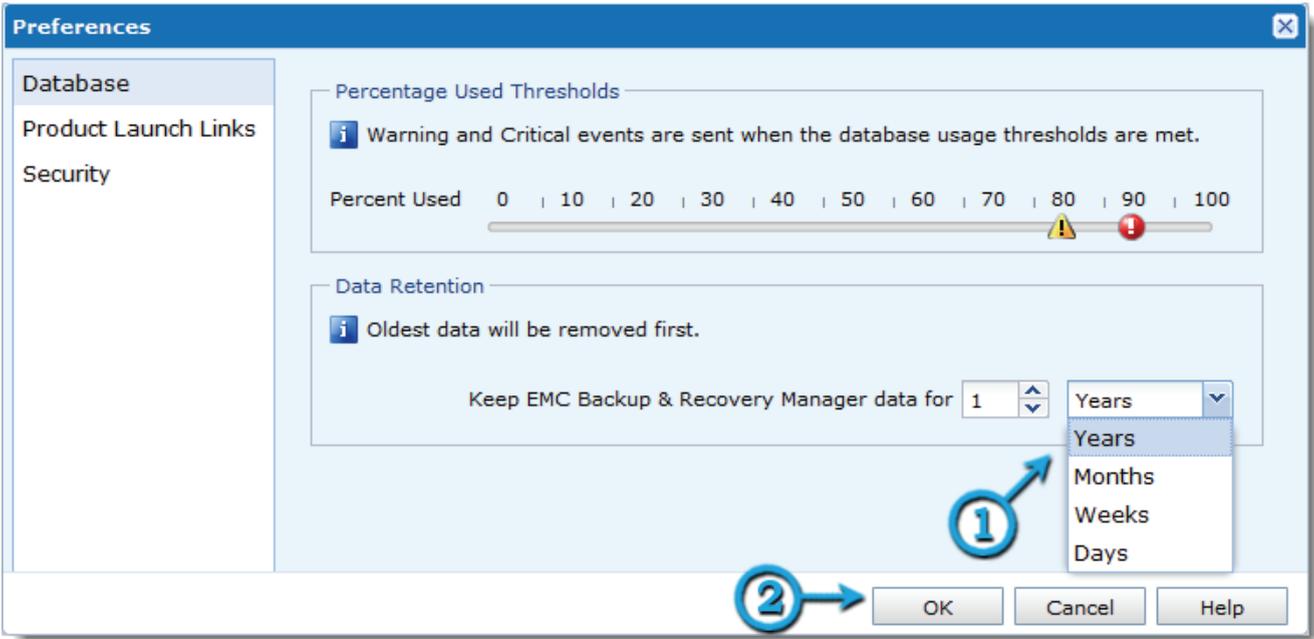


Figure 99 Data Retention options

Product launch links

The **Product launch links** menu option is the location at which to specify the URL to access the EMC® Data Protection Advisor (DPA). The **Data Protection Advisor** field must be complete here in order to launch DPA from **Reports**.

Note: If the URL is not provided, when you click **DPA** in **Reports**, you will be prompted to provide the URL.

Figure 100 on page 102 illustrates the EMC Data Protection Advisor option of the Product Launch Links.

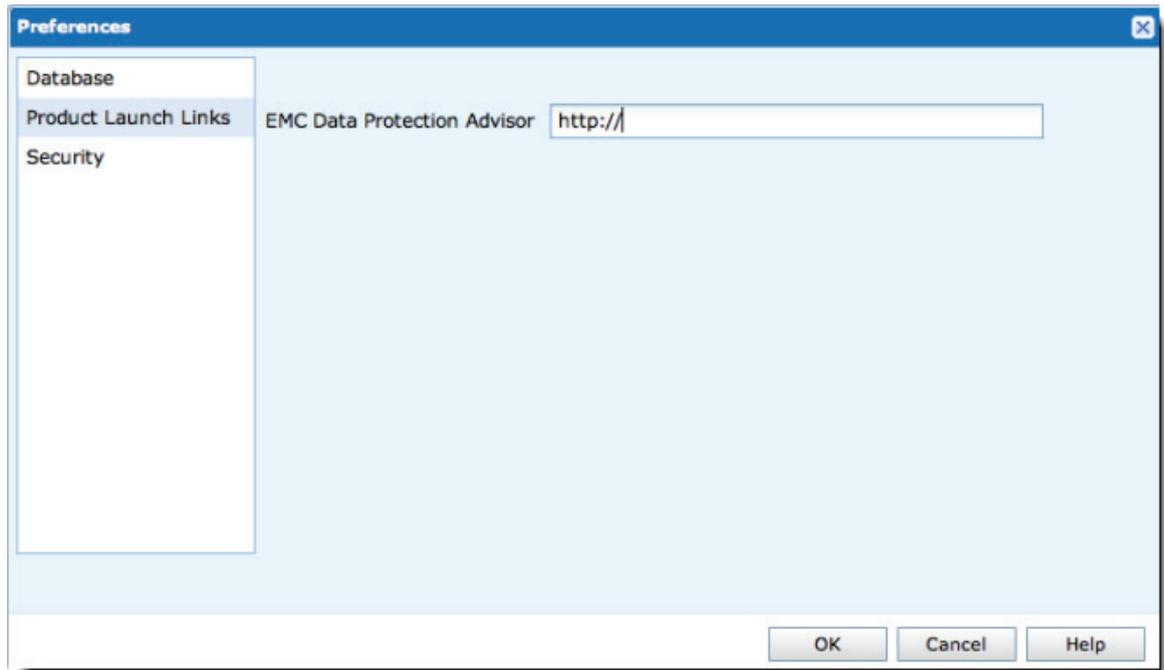


Figure 100 Product Launch Links

Table 27 on page 102 provides a description of the Product Launch Links option.

Table 27 Product Launch Links option

Option	Description
EMC Data Protection Advisor (DPA)	DPA is used to monitor a data protection environment. DPA also provides advanced administrative functions including analysis jobs, and troubleshooting data collection.

Security

Type a message in the **Login authorization warning message:** dialog to display the text in the Backup & Recovery Manager login window as illustrated in [Figure 101 on page 103](#) and [Figure 102 on page 103](#):

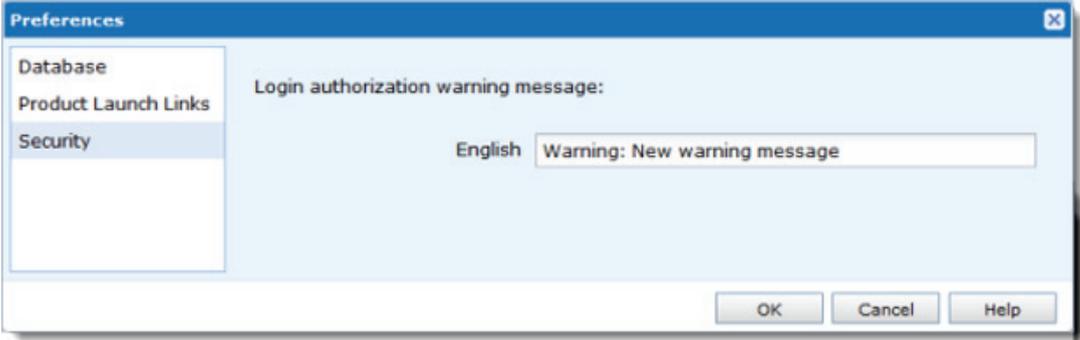


Figure 101 Login authorization warning message dialog



Figure 102 Login warning message

Change the password

To change the password:

1. Click **Change Password** in the **Settings** menu as illustrated in [Figure 103 on page 104](#).



Figure 103 Change Password

2. Type a new password in the **Password** field, and then type the new password in the **Confirm Password** field as illustrated in [Figure 104 on page 104](#). The password requirements are the following:
 - Minimum of 9 characters
 - Minimum of 1 lower case letter
 - Minimum of 1 upper case letter
 - Minimum of 1 number
 - Minimum of 1 special character: !@#\$\$%^&*()-_
3. Click **Change Password** to save the password.

Figure 104 Change Password dialog

Reports

Clicking **Reports** provides the ability to run preconfigured reports for activities on all monitored systems in the enterprise. This section provides information on the following:

- ◆ [Run reports](#)
- ◆ [Report Options](#)
- ◆ [Export reports](#)
- ◆ [Launch Data Protection Advisor](#)

Run reports

The following report types are available in the Backup & Recovery Manager:

- ◆ Backup Reports: Backup Summary
- ◆ System Reports:
 - Systems Summary
 - Capacity & Usage
 - System Avg Daily Change Rate
 - Client Avg Daily Change Rate
- ◆ Configuration Reports: Configuration

Some reports are not available for all system types. [Table 28 on page 105](#) lists the reports available for the system types.

Table 28 Available reports by system type (Sheet 1 of 2)

Report type	Report	Avamar	NetWorker	Data Domain
Backup report	Backup Summary	✓	✓	

Table 28 Available reports by system type (Sheet 2 of 2)

Report type	Report	Avamar	NetWorker	Data Domain
System reports	System Summary	✓	✓	✓
	Capacity & Usage	✓		✓
	System Avg Daily Change Rate	✓		
	Client Avg Daily Change Rate	✓		
Configuration report	Configuration	✓	✓	

To run a report:

1. Click to select a report type from the list of reports as illustrated in [Figure 105 on page 106](#).

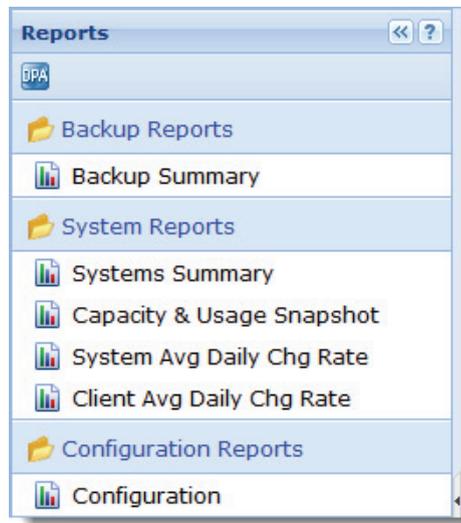


Figure 105 Report types

2. Click to select the system type, **Avamar**, **NetWorker** or **Data Domain**.
3. If required, select the systems and use the arrows to move from **Selected Systems** to **Available Systems** to exclude them from the report as illustrated in [Figure 106](#) on page 107.

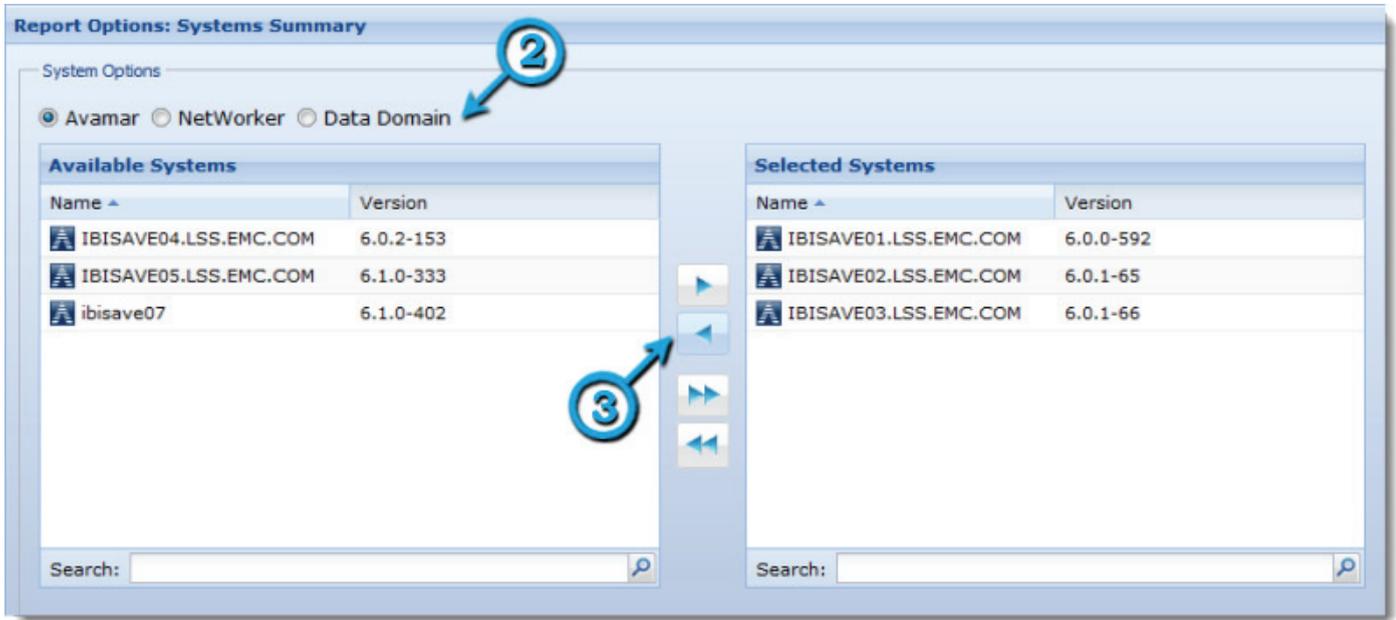


Figure 106 Systems summary options

4. Select the options to configure the report. “Report Options” on page 109 provides details on the options available for the report types.
5. Click **Run Report**. Figure 107 on page 108 illustrates the available **Backup Summary** report options.



Figure 107 Backup Summary report options

6. When the report completes, click the arrows to collapse the **Report Options** panel to increase the report result viewable area.
7. Click the appropriate icon to change the report view or export the report. Table 29 on page 108 lists the icons and their functions.

Table 29 Report option icons

Icon	Description
	Click this icon to view the report as a table (default).
	Click this icon to view the report in a graphical format. Depending on the location of the chart icon, the results displayed vary: <ul style="list-style-type: none"> • A chart icon at the top of the report charts the results in the grid. • A chart icon in the row of results, charts a daily detailed breakdown for that system or client only.
	Click to export the report. “Export reports” on page 110 provides details on exporting Backup & Recovery Manager reports.

Report Options

The report options provide the capability to configure the information contained in the reports.

Timeframe Options

Timeframe Options runs reports for a specified timeframe, and are available in the Backup Summary and all System Reports.

- ◆ Show backups for the last:
 - Set the counter to the number of days, weeks or months.
 - Any date range within the past year, up to 1 year of backups.
 - Specify the date range for the report.
 - Enter 0 in the days back and a value in forecast to run a report with no historical data.
 - Show backups for last always ends with the most current day of data up to current date. The timeframe will be back <n> days back from today. The report may only have data up to the previous day of the current date (yesterday).
- ◆ And forecast for the next (Capacity & Usage system report only):
 - Set the counter to the number of days, weeks or months.
 - Enter 0 in the forecast counter to exclude the forecast data from the report.
 - Forecast any date range back 1 year to forward 1 year.

Display Options

Display Options is available for the Backup Summary report, and allow you to configure the report for the following options:

- ◆ Display by Group
- ◆ Display by Client
- ◆ Display by Backup (Avamar)
- ◆ Display by saveset (NetWorker)

Status Options

Status Options allow you to specify which backups are included in the report. Status Options is available for the Backup Summary report. You can select the following:

- ◆ All
- ◆ Failed
- ◆ Succeeded

Report Content Options

Configuration reports list the configuration items for the given systems. The configuration items make up the backup and replication configurations for the system.

Report Content Options is available for the Configuration report only and provides the following options:

- ◆ Avamar:
 - Groups
 - Clients
 - Schedules
 - Datasets
 - Retention Policies
- ◆ NetWorker:
 - Groups
 - Clients
 - Schedules
 - Pools
 - Devices
 - Storage Nodes
 - Clones

Export reports

Reports can be exported for use and contain all rows and columns in the grid (all data in the report) in csv format.

Click **Export**.

Depending on the browser, one of the following will occur:

- ◆ The csv file is downloaded to the configured download folder
- ◆ A dialog displays prompting for the location in which to download the report

Launch Data Protection Advisor

To launch the Data Protection Advisor (DPA), click the DPA icon  in the **Reports** menu.

If the DPA URL is not defined in “[Launch the native system consoles](#)” on page 73 in the Settings menu, you are prompted to complete it when you click **DPA** in the **Reports** menu.

Sizing, Performance, and Best Practices

This section topic provides information on the following:

- ◆ [Expand the Mongo database space](#)

Expand the Mongo database space

This example demonstrates how to add a 50 GB volume to the appliance. The size of the volume added by this method can be changed as required.

As root, expand the Backup & Recovery Manager database (MongoDB) space by using the Logical Volume Manager (LVM):

1. Allocate an additional LUN for Backup & Recovery Manager appliance virtual machine, select **Edit Settings > Hardware > Add within VMware vsphere management wizard** and perform the following:
 - a. Allocate a new disk.
 - b. Create new virtual disk.
 - c. Set a capacity of 50GB/Thin/Store with the virtual machine.
 - d. Continue the rest of the wizard by accepting the defaults.
 - e. Click **Finish** to view the new hard disk. The new disk will be bolded.
 - f. Either reboot or rescan to make the new disk visible.

2. Add the additional disk online:

- a. Type the following command:

```
ucas:/opt/emc/ucas # echo "- - -" >
/sys/class/scsi_host/host0/scan
```

- b. Reboot to view the new 50 GB LUN.
- c. Type the following command to confirm the disk is added:

```
ucas:/opt/emc/ucas # fdisk -l
```

3. Partition the new disk:

- a. Create a new partition table with a single partition using all the space on the new disk /dev/sdc.

Note: For this example, the new disk is device /dev/sdc.

- b. Set its type to be 8E (LVM):

Note: 8E (LVM) is a code on the disk partition area that indicates that the partition is managed by a Linux LVM.

```
# fdisk /dev/sdc
```

Device contains neither a valid DOS partition table, nor Sun, SGI or OSF disklabel
 Building a new DOS disklabel with disk identifier 0x89574522.
 Changes will remain in memory only, until you decide to write them.
 After that, of course, the previous content won't be recoverable.

The number of cylinders for this disk is set to 6527.
 There is nothing wrong with that, but this is larger than 1024, and could in certain setups cause problems with:

- 1) software that runs at boot time (e.g., old versions of LILO)
- 2) booting and partitioning software from other OSs (e.g., DOS FDISK, OS/2 FDISK)

Warning: invalid flag 0x0000 of partition table 4 will be corrected by w(rite)

```
Command (m for help): p
Disk /dev/sdc: 53.7 GB, 53687091200 bytes
255 heads, 63 sectors/track, 6527 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Disk identifier: 0x89574522
```

Device	Boot	Start	End	Blocks	Id	System
--------	------	-------	-----	--------	----	--------

```
Command (m for help): n
Command action
  e   extended
  p   primary partition (1-4)
p Partition number (1-4): 1
First cylinder (1-6527, default 1):
Using default value 1
Last cylinder, +cylinders or +size{K,M,G} (1-6527, default 6527):
Using default value 6527
```

```
Command (m for help): t
Selected partition 1
Hex code (type L to list codes): 8e
Changed system type of partition 1 to 8e (Linux LVM)
```

```
Command (m for help): w
The partition table has been altered!
```

```
Calling ioctl() to re-read partition table.
Syncing disks.
```

4. Make the new partition and LUN available to LVM by using the following command:

```
# pvcreate /dev/sdc1

No physical volume label read from /dev/sdc1
Physical volume "/dev/sdc1" successfully created
```

5. Determine the logical volume name to be expanded and its current size by using the following commands:

Note: The LV Name displayed below contains the name of the logical volume that is provided as part of the expanded appliance.

```
# lvdisplay -a
--- Logical volume ---
LV Name                /dev/datavg/data
VG Name                datavg
LV UUID                umR818-0Qos-qcQn-PepC-mguj-1Fo8-Oq2bav
LV Write Access        read/write
```

```

LV Status          available
# open            1
LV Size           69.91 GB
Current LE        2237
Segments         1
Allocation        inherit
Read ahead sectors auto
- currently set to 1024
Block device      253:0

```

```

# vgdisplay -s
"datavg" 69.97 GB [69.91 GB used / 64.00 MB free]

```

6. Add the new LUN to the datavg volume group by using the following command:

```

# vgextend datavg /dev/sdc1
Volume group "datavg" successfully extended

```

7. Extend the logical volume containing the filesystem to include the new LUN by using the following command:

```

# lvextend /dev/datavg/data /dev/sdc1
Extending logical volume data to 119.88 GB
Logical volume data successfully resized

```

8. Grow the XFS filesystem containing the database by using the following command:

```

/usr/sbin/xfs_growfs /data01

meta-data=/dev/mapper/datavg-data isize=256 agcount=4,
agsize=4581376 blks = sectsz=512 attr=2
data = bsize =4096 blocks=18325504,
imaxpct=25 = sunit=0 swidth=0 blks
naming = version 2 bsize=4096 ascii-ci=0
log =internal bsize=4096 blocks=8948,
version=2 = sectsz=512 sunit=0 blks, lazy-count=1
realtime = none extsz=4096 blocks=0, rtextents=0
data blocks changed from 18325504 to 31424512

```

9. Verify that 50GB is added to the existing 70 GB filesystem by using the following command:

```

ucas:/opt/emc/ucas # df -h /data01
Filesystem Size Used Avail Use% Mounted on
/dev/mapper/datavg-data
120G 1.5G 119G 2% /data01

```

10. Repeat this procedure as necessary, to add additional data retention.

Troubleshooting

Troubleshooting provides information on the log files available for the various components of the Backup & Recovery Manager for debugging and troubleshooting purposes. This section provides details on the following:

- ◆ [Manage the Backup & Recovery Manager server](#)
- ◆ [Adaptor log file location](#)
- ◆ [View log files](#)
- ◆ [The bundlelogs utility](#)
- ◆ [NetWorker adaptor options](#)
- ◆ [Avamar adaptor control script](#)
- ◆ [Backup & Recovery Manager error messages](#)

Manage the Backup & Recovery Manager server

When the networking is configured, restart all the Backup & Recovery Manager server daemons if required:

1. Restart the mongod and apache2 daemons:

```
sudo service mongod restart
sudo service apache2 restart
```

2. Stop the tomcat-ucas daemon:

```
cd /opt/emc/ucas/tomcat/bin
sudo service tomcat-ucas stop
```

3. Verify that the tomcat-ucas daemon is shutdown:

```
ps -ef | /bin/grep tomcat\bin\bootstrap | grep ucas | grep -v grep
| grep ucas
```

If the tomcat-ucas process did not stop, type **kill process id** to stop the daemon.

If **kill process id** also does not stop the daemon, type **kill -9 process id**.

4. Restart the tomcat-ucas daemon:

```
sudo service tomcat-ucas start
```

the daemon options are start, restart and stop.

Adaptor log file location

The Backup & Recovery Manager adaptor log files are located at:

- ◆ Avamar:
/usr/local/avamar/var/brm/log
- ◆ NetWorker on Windows:
C:\Program Files (x86)\EMC NetWorker\nsrmq
- ◆ NetWorker on Linux:
/opt/NetWorkerAdapter-1.0/bin/nsrmq.log

The file name is changed when the log rolls over and the next number is appended to the file, creating a new file. For example, nsrmq.log.<1>, nsrmq.log.<2> and so on.

View log files

[Table 30 on page 116](#) lists the log file locations:

Table 30 Log file locations

Log file	Log file location
Backup & Recovery Manager server	/opt/emc/ucas/ucas-logs*
Apache	/opt/emc/ucas/apache-logs/*
Tomcat	/opt/emc/ucas/tomcat/logs/*
Mongo	/var/log/mongo/*

Log files are available for the following:

- ◆ “[Apache web server log files](#)” on page 116
- ◆ “[Tomcat log files](#)” on page 117
- ◆ “[Mongo database log file](#)” on page 117
- ◆ “[Backup & Recovery Manager application log files](#)” on page 117

Apache web server log files

[Table 31 on page 116](#) lists the log files available for the Apache web server.

Table 31 Apache log files

Log file	Contents
ucas-apache-error.log	Errors from the Apache web server
ucas-apache-rewrite.log	Details of URL rewriting from the Apache web server
ucas-apache-access.log	Timestamped access information for all resources served by Apache

Tomcat log files

[Table 32 on page 117](#) describes the tomcat log file.

Table 32 Tomcat log files

Log file	Contents
catalina.out	Tomcat startup and war deployment activities

Mongo database log file

[Table 33 on page 117](#) describes the log file available for the Mongo database.

Table 33 Mongo logs

Log file	Content
mongod.log	Mongo database activities

Backup & Recovery Manager application log files

[Table 34 on page 117](#) lists log files available for the Backup & Recovery Manager applications.

Table 34 Backup & Recovery Manager logs

Log file	Content
ucas.log	All processing (debug, info, error, and warning) of the Backup & Recovery Manager server
activemq-messages.log	Debug messages specific to activemq
avamar-messages.log	Raw JSON messages received from the Avamar adaptor
networker-messages.log	Raw JSON messages received from the NetWorker adaptor

The bundlelogs utility

The bundlelogs utility is built into the Backup & Recovery Manager server (OVA). The utility provides the ability to gather the following information:

- ◆ /opt/emc/ucas/ucas-logs*
- ◆ /opt/emc/ucas/apache-logs/*
- ◆ /opt/emc/ucas/tomcat/logs/*
- ◆ ps -ef
- ◆ free memory
- ◆ uptime
- ◆ server kernel and architecture
- ◆ mount

- ◆ df -h
- ◆ /var/log/mongo/*
- ◆ mongodump (enabled by default)

Run the bundlelogs utility

Use the bundlelogs utility command to gather diagnostic information from Backup & Recovery Manager server for troubleshooting:

```
ucas@localhost:~ $ ./bundlelogs -h -d2 -x
```

[Table 35 on page 118](#) lists the options available for the bundlelogs utility.

Table 35 Bundlelogs utility usage

Option	Description
-h	Display the bundlelogs utility help.
-d	-d <number>, specify the number of days of Mongo database data to dump (default is 1 day)
-x	Exclude the Mongo database dump.

The following is an example of the bundlelogs utility output:

```
$ which bundlelogs
/opt/emc/ucas/tools/bundlelogs
ucas@idhcp247:~ $ bundlelogs

Starting log collection....
preparing temp area to gather logs from BRM....
sending signal to dump thread states....
copying UCAS logs...
copying apache logs...
copying tomcat logs...
copying mongo logs
gathering kernel info, memory, process lists, uptimes, & mounted
  filesystems...
dumping mongo database...
dumping mongo from 20:57 08/29/12

connected to: 127.0.0.1
Generating Log Bundle for 08-30-12-20.57 Completed.
=====
Logfile bundle in
  /opt/emc/ucas/mongo-data/bundlelogs-09-05-12-18.06.tgz
Please upload this logbundle to your EMC counterpart working this
  issue.
```

NetWorker adaptor options

The NetWorker adaptor options are provided to adjust the performance and debugging capabilities of the NetWorker adaptor.

To use the adaptor options, perform the following to edit the configuration file:

On Windows

1. Shut down the NetWorker ActiveMQ Adaptor service.
2. Edit the configuration file:
`C:\Program Files (x86)\NetWorker Adaptor Service-1.0\nsrmq.cfg`
3. Save the file.
4. Restart the adaptor service.

On Linux

1. From a command terminal, shut down the adaptor process:
`/etc/init.d/nsrmqd stop -> stop`
2. Edit the configuration file:
`/etc/init.d/nsrmq.cfg`
3. Save the file.
4. Restart the adaptor process:
`/etc/init.d/nsrmqd start -> start`

Table 36 on page 119 lists the options, their description and use for the NetWorker adaptor from the Linux command line only:

```
/etc/init.d/nsrmqd <option>
```

Table 36 NetWorker adaptor options (Sheet 1 of 3)

Option	Option long	Default	/Description	Use
-n	no daemon	no daemon	Run in the foreground on UNIX when launched from a terminal	Used to run the application and control it from a shell (ie. be able to kill it with a Ctrl-C)
-m	-mq-host=	localhost	Active MQ server name or IP address to which to connect	Used to tell the adaptor which machine the Backup & Recovery Manager server is running
-p	--mq-port=	61610	Active MQ SSL connection port	Used when the Backup & Recovery Manager server is either using non-default ports or connecting without SSL
-s	--server=	localhost	NetWorker server name or IP address to which to connect	Used to run the adaptor against a NetWorker server on a remote machine
-t	--target=	Backup & Recovery Manager Main Queue	Destination queue for JSON messages	Used to change the queue the adaptor sends its messages to (generally not needed)
-u	--uid=	Run as the user launching the process	The userID to run as	Useful when starting the process as root but having it run as a more restricted user
-g	--gid=	Use the groups of the user launching the process	The group ID to run as	Useful when starting the process as root but having it run in a more restrictive group

Table 36 NetWorker adaptor options (Sheet 2 of 3)

Option	Option long	Default	/Description	Use
	--chroot=	Use the current root directory	Chroot to a specified directory before running	Used to help secure things as the directory is considered the root and the process will not read or write anything above that level
	--connect-interval=	60	Message bus reconnect interval in seconds	Used to define how long to wait between attempts to connect to the message bus/Backup & Recovery Manager server
	--events-interval=	30	Events polling interval in seconds	Used to change how often user configuration changes are sent to the Backup & Recovery Manager server in case either the server has been overloaded (set to a larger interval) or more timely updates are desired (set a smaller interval)
	--logfile=	nstrmq.log	Write log messages to the specified file (set to '-' to write to the console)	Used primarily for directing log output to the shell when running in the foreground
	--nwid=	Use the name of the NetWorker server host machine	Override the ID to which the NetWorker server is registered	Used primarily as a development tool for simulating multiple NetWorker servers from a single one
	--pidfile=	nstrmq.pid	Name of the pid file	Required when running multiple adapters from the same directory so they do not overwrite each others pid files
	--prefix=	nstrmq	Use the specified prefix when syslogging	Useful for organizations having a company specific logging format
	--reconnect-interval=	60	NetWorker server reconnect interval in seconds	Defines how long to wait between attempts to reconnect to the NetWorker server when the connection is lost
	--register-interval=	3600	NetWorker server registration interval in seconds	Used to change how often the adapter sends the "baseline" registration messages including all the group results (running or not) and configuration parameters
	--result-interval=	60	Group results polling interval in seconds	Used to change how often results are sent for running groups in case the querying is overloading the NetWorker server
	--rundir=	Run in the current directory	Change to the specified directory before running	Used for alternative way to start multiple adapters in the same directory but not have them overwrite each others pid and log files
	--status-interval=	10	Status polling interval in seconds	Used to change how often the dynamic attributes are queried from the NetWorker server and sent as activities messages if either the NetWorker server it has been overloaded (set to a larger interval) or more timely updates are desired (set a smaller interval)
	--timeout=	600	NetWorker query timeout interval in seconds	Used to define how long to wait for the NetWorker server to respond before considering it unavailable and attempting to reconnect

Table 36 NetWorker adaptor options (Sheet 3 of 3)

Option	Option long	Default	/Description	Use
	--umask=	077	The (octal) file creation mask to apply (non-world readable)	The default file creation mask is used to only enable access to the user for which the process is running (for example, root), this option is useful for allowing others to view the files such as the log file. --umask=022 is used to enable log files as world readable
	--debug	Do not run in the debugger	Run the reactor in the Python debugger	
	--euid	Use the current user ID	Run as the effective user id rather than the real user id	Similar to uid, enables the process to be started by root but with lesser privileges. Retains the ability to regain privileges as needed
	--syslog	Log to a file	Log to syslog, not a file	Useful for organizations desiring a central logging location
	--no-ssl	Connect using SSL	Do NOT connect to the ActiveMQ server using SSL (requires overriding the default port)	
	--verbose	Standard logging level	Run in verbose mode to provide information on the NetWorker adaptor	
	--trace	Do not dump stack traces	Dump stack traces to the log when errors occur to provide information on the NetWorker adaptor	
	--version	Run as normal	Print the version information to provide information on the NetWorker adaptor and exit	
	--help	Run as normal	Display the help text and exit	

Avamar adaptor control script

The Avamar control script, `adaptorctl.pl` enables you to perform Avamar tasks:

```
adaptorctl.pl <options>
```

[Table 37 on page 121](#) lists the available options for the Avamar control script:

Table 37 Avamar adaptor control script use

Avamar adaptor control script options	Description
--help	Opens the help file for these options.
--jmsaddr=<addresses>	Use only with --setup. Provide a comma separated list of one or more addresses, optionally with a colon and port number specified for each address.
--setup	Setup ActiveMQ and the Avamar adaptor.
--start	Start the Avamar adaptor.
--status	Display the status of the Avamar adaptor.
--stop	Stop the Avamar adaptor.

Backup & Recovery Manager error messages

For Backup & Recovery Manager activities that do not successfully complete:

- ◆ A numeric error code is listed.
- ◆ Backup & Recovery Manager errors are listed as **BRM** in the **Type** column.
- ◆ The ability to sort & hide the messages is available.

Double-click the error code to view a detailed explanation. [Table 38 on page 122](#) lists the error codes and their descriptions.

Table 38 Backup & Recovery Manager error codes

Numeric error code	Error code description
0001	Connection to server <system name> has failed for the last <##> minutes.
0002	Connection to server <system name> has returned to normal.
0003	/opt/mongo-data has <##.#>% space remaining.
0004	<##> records older than <date/time> were deleted. Current DB storage is <##.#> MB
0005	User authentication to Data Domain system <system name> has failed.
0006	Connection to Data Domain system <system name> has failed.

Disaster Recovery

This section provides the information on how to prevent a disaster by creating a duplicate of the Backup & Recovery Manager server for protection in the event of catastrophic data loss. This section provides information on the following:

- ◆ [Clone a Virtual Machine in the vSphere Client](#)

Clone a Virtual Machine in the vSphere Client

Cloning creates a duplicate of the virtual machine with the same configuration, installed software and application data as the original at the point-in-time of the clone.

Optionally, customize the guest operating system of the clone to change the virtual machine name, network settings, and other properties. This prevents conflicts that can occur if a virtual machine and a clone with identical guest operating system settings are deployed simultaneously.

Complete details on cloning a virtual machine is available in the ESXi and vCenter Server 5 documentation.

Prerequisites

The following prerequisites must be met before beginning the clone operation:

- ◆ Connect directly to the vCenter Server in order to clone a virtual machine. Virtual machines connected directly to an ESXi host cannot be cloned.
- ◆ To customize the guest operating system of the virtual machine, check that the guest operating system meets the requirements for customization.
- ◆ To use a customization specification, first create or import the customization specification.
- ◆ To use a custom script to generate the host name or IP address for the new virtual machine, configure the script.

Clone the Backup & Recovery Manager server

To clone the Backup & Recovery Manager OVA:

1. Right-click the virtual machine and select **Clone**.
2. Enter a virtual machine name, select a location, and click **Next**.
3. Select a host or cluster on which to run the new virtual machine.
4. Select a resource pool in which to run the virtual machine and click **Next**.
5. Select the datastore location to store the virtual machine files.
6. Select the format for the virtual machine's disks and click **Next**.
7. Select a guest operating system customization option.
8. Review your selections and select whether to power on the virtual machine or edit virtual machine settings.

The cloned virtual machine is deployed. The virtual machine cannot be used or edited until the cloning is complete. This might take several minutes if the cloning involves creating a virtual disk. If required, cancel the cloning at any point before the customization stage.

GLOSSARY

This glossary contains terms related to disk storage subsystems. Many of these terms are used in this manual.

A

adaptor A Backup & Recovery Manager adaptor is the appliance that is used to interface with the Backup & Recovery Manager server on Avamar, NetWorker and Data Domain.

Avinstaller A backend service that executes and reports package installations. The Avinstaller is used to install the Avamar Backup & Recovery Manager adaptor.

B

Backup & Recovery Manager server The Backup & Recovery Manager server is the appliance which must be deployed in order to run the Backup & Recovery Manager adaptors.

C

cache Random access electronic storage used to retain frequently used data for faster access by the channel.

checkpoint Checkpoints are system-wide backups taken for the express purpose of assisting with disaster recovery.

clone Duplicate copy of:

- ◆ Backed-up data, which is indexed and tracked by the NetWorker server. Single save sets or entire volumes can be cloned.
- ◆ Virtual machine with the same configuration, installed software and application data as the original at the point-in-time of the clone.

D

dataset A policy that defines a set of files, directories, and filesystems for each supported platform that are included or excluded in backups across a group of clients. A dataset is a persistent and reusable Avamar policy that can be named and attached to multiple groups.

E

enterprise Computers and folders organized into a tree-based visual representation.

Enterprise Manager Server (EMS) The Avamar Enterprise Manager Server (EMS) provides essential services required to display Avamar system information, and provides a mechanism for managing Avamar systems using a standard web browser. The EMS also communicates directly with Management Console Servers (MCS).

F

full replication A full “root-to-root” replication creates a complete logical copy of an entire source system on the destination system. The replicated data is not copied to the REPLICATE domain. Instead, it is added to the root domain just as if source clients had registered with the destination system. Also, source server data replicated in this manner is fully modifiable on the destination system. This replication method is typically used for system migration (from a smaller Avamar configuration to a larger, possibly multi-node configuration) or system replacement (for instance, in a case of disaster recovery).

G

gigabyte (GB) 10^9 bytes.

- group**
- ◆ A level of organization in Avamar Administrator for one or more Avamar clients. All clients in an Avamar group use the same group policies, which include the dataset, backup schedule, and retention policy.
 - ◆ Client computer or group of clients that are configured to back up files during a NetWorker scheduled backup, according to a single designated schedule or set of conditions.

H

HFS Hash Filesystem. The content addressed storage area inside the Avamar server used to store client backups.

I

ID Identifier, a sequence of bits or characters that identifies a program, device, controller, or system.

I/O device An addressable input/output unit, such as a disk or tape device.

J

Java Type of high-level programming language that enables the same, unmodified Java program to run on most computer operating systems.

Java archive (JAR) File that contains compressed components needed for a Java applet or application.

Java plug-in JVM that can be used by a web browser to run Java applets.

Java Virtual Machine (JVM) Execution environment for interpreting the Java programming language. Each operating system runs a unique JVM to interpret Java code.

K

K Kilobyte, 1024 bytes.

L

label Electronic header on a volume used for identification by NetWorker or other data mover application.

Logical Volume Manager (LVM) Software that controls disk resources by mapping data between a logical view of storage space and the actual physical disks.

M

MB Megabyte, 10^6 bytes.

N

NetWorker Management Console (NMC) Software program that is used to manage NetWorker servers and clients. The NMC server also provides reporting and monitoring capabilities for all NetWorker processes.

O

OVA Is the application server deployed as a virtual machine. The Backup & Recovery Manager server (OVA) raw database is a temporary buffer for storing messages until they are processed.

P

promotion The process of moving data from a track on the disk device to cache slot.

R

replication Replication is an optional feature that enables one Avamar server to store a read-only copy of its data on another Avamar server to support future disaster recovery of that server.

restore File or object restore. An operation that retrieves one or more filesystems, directories, files, or data objects from a backup and writes the data to a designated location.

roles A setting in the Backup & Recovery Manager that controls which operations each user can perform. Roles are assigned on a user-by-user basis.

S

save set Group of data from a single NetWorker client computer that is backed up on storage media.

U

- user**
1. A NetWorker user who can back up and recover files from a computer.
 2. A Console user who has standard access privileges to the Console server.

V

- volume**
1. Unit of physical storage medium, such as a magnetic tape, optical disk, or filesystem used to store data. Backup data must be stored on a backup volume and cannot be stored on an archive volume or a clone volume.
 2. Identifiable unit of data storage that may reside on one or more computer disks.