EMC® Avamar® 7.2 Plug-in for vSphere Web Client

Administration Guide

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REV 02

EMC²

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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 technical support professional if a product does not function properly or does not function as described in this document.

Note

This document was accurate at publication time. Go to EMC Online Support (https://support.EMC.com) to ensure that you are using the latest version of this document.

Purpose

This guide describes how to install and use the EMC Avamar Plug-in for vSphere Web Client to back up and restore VMware image backups on an Avamar server.

Audience

This document is intended for the system administrators who manage VMware environments and are responsible for backing up and restoring VMware images.

Revision history

The following table presents the revision history of this document.

Revision	Date	Description
01	June 2015	Initial release of Avamar 7.2.
02	August 2015	General availability release of Avamar 7.2.

Related documentation

The following EMC publications provide additional information:

- *EMC Avamar for VMware User Guide*

- *EMC Avamar Compatibility and Interoperability Matrix*

- *EMC Avamar Release Notes*

- *EMC Avamar Administration Guide*

- *EMC Avamar Operational Best Practices*

Special notice conventions used in this document

EMC uses the following conventions for special notices:

NOTICE

Addresses practices not related to personal injury.

Note

Presents information that is important, but not hazard-related.

Typographical conventions

EMC uses the following type style conventions in this document:

Bold	Use for names of interface elements, such as names of windows, dialog boxes, buttons, fields, tab names, key names, and menu paths (what the user specifically selects or clicks)
Italic	Use for full titles of publications referenced in text
`Monospace`	Use for:
	• System code
	• System output, such as an error message or script
	• Pathnames, file names, prompts, and syntax
	• Commands and options
Monospace italic	Use for variables
`Monospace bold`	Use for user input
[ ]	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

The Avamar support page provides access to licensing information, product documentation, advisories, and downloads, as well as how-to and troubleshooting information. This information may enable you to resolve a product issue before you contact EMC Customer Support.

To access the Avamar support page:

1. Go to https://support.EMC.com/products.
2. Type a product name in the **Find a Product** box.
3. Select the product from the list that appears.
4. Click the arrow next to the **Find a Product** box.
5. (Optional) Add the product to the **My Products** list by clicking **Add to my products** in the top right corner of the **Support by Product** page.

Documentation

The Avamar product documentation provides a comprehensive set of feature overview, operational task, and technical reference information. Review the following documents in addition to product administration and user guides:

- Release notes provide an overview of new features and known limitations for a release.
- Technical notes provide technical details about specific product features, including step-by-step tasks, where necessary.
- White papers provide an in-depth technical perspective of a product or products as applied to critical business issues or requirements.

Knowledgebase

The EMC Knowledgebase contains applicable solutions that you can search for either by solution number (for example, esgxxxxxx) or by keyword.

To search the EMC Knowledgebase:

1. Click the **Search** link at the top of the page.

2. Type either the solution number or keywords in the search box.

3. (Optional) Limit the search to specific products by typing a product name in the **Scope by product** box and then selecting the product from the list that appears.

4. Select **Knowledgebase** from the **Scope by resource** list.

5. (Optional) Specify advanced options by clicking **Advanced options** and specifying values in the available fields.

6. Click the search button.

Online communities

Visit EMC Community Network at http://community.EMC.com for peer contacts, conversations, and content on product support and solutions. Interactively engage online with customers, partners and certified professionals for all EMC products.

Live chat

To engage EMC Customer Support by using live interactive chat, click **Join Live Chat** on the **Service Center** panel of the Avamar support page.

Service Requests

For in-depth help from EMC Customer Support, submit a service request by clicking **Create Service Requests** on the **Service Center** panel of the Avamar support page.

Note

To open a service request, 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 open service request, click the **Service Center** link on the **Service Center** panel, and then click **View and manage service requests**.

Facilitating support

EMC recommends that you enable ConnectEMC and Email Home on all Avamar systems:

- ConnectEMC automatically generates service requests for high priority events.

- Email Home emails configuration, capacity, and general system information to EMC Customer Support.

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 DPAD.Doc.Feedback@emc.com.

Please include the following information:

- Product name and version

- Document name, part number, and revision (for example, 01)

- Page numbers

- Other details that will help us address the documentation issue

CHAPTER 1

Introduction

This chapter includes the following topics:

Avamar Plug-in for vSphere Web Client

The EMC Avamar Plug-in for vSphere Web Client (called the EMC backup and recovery plug-in through the vSphere Web Client) is an Avamar-integrated VMware plug-in that provides an easy to use interface for backing up and restoring VMware image-level backups through a vSphere Web Client. The EMC Data Protection Restore Client provides support for file-level recoveries. For full Avamar backup and restore functionality, use Avamar Administrator.

The Avamar Plug-in for vSphere Web Client supports one vCenter Server per Avamar server. If you need to manage multiple vCenter Servers, use Avamar Administrator.

The Avamar Plug-in for vSphere Web Client requires EMC Avamar Proxies to be installed and configured. See the *EMC Avamar for VMware User Guide* for additional details on Avamar Proxy installation and configuration.

In order for the Avamar plug-in to be displayed in the vSphere Web Client homepage, the web client user must log has same or greater VC permission as the "dedicated vCenter user account" defined in the *EMC Avamar for VMware User Guide*.

In order to use the Avamar Plug-in for vSphere Web Client, Avamar Administrator must have backup policies configured through Avamar Administrator in the VirtualMachines domain (subdomains are not supported). See the *EMC Avamar Administration Guide* for additional details on Avamar policy configuration.

Note

vSphere Data Protection (VDP) and the Avamar Plug-in for vSphere Web Client cannot be installed on the same vCenter Server.

Note

NAT network connections between the Avamar utility node and the vCenter are not supported.

How Avamar works with VMware

There are two ways to back up and restore VMware data with Avamar software:

- Guest backup and restore
- Image-level backup and restore

The following sections describe the differences between image-level backups and guest-level backups. The Avamar plug-in for vSphere Web Client only supports image-level backups. Avamar Administrator supports guest backup and restores and image-level backup and restores.

Guest backup and restore

With guest backup and restore, you install an Avamar file system client on each virtual machine. Avamar considers each virtual machine to be a separate client, and you can perform individual backups of each virtual machine.

If databases or specific applications, such as Microsoft Exchange or Microsoft SharePoint, are running on the virtual machine, then you can use an Avamar plug-in to protect the application data.

Image-level backup and restore

Avamar for VMware image-level backups and restores use VMware vStorage API for Data Protection (VADP).

Backups and restores require the use of proxy virtual machine clients. Each proxy virtual machine client provides all of the following capabilities:

- Backup of Microsoft Windows and Linux virtual machines (entire images or specific drives)
- Restore of Microsoft Windows and Linux virtual machines (entire images or specific drives)
- Selective restore of individual folders and files to Microsoft Windows and Linux virtual machines

Proxies run Avamar software inside a Linux virtual machine, and are deployed using an appliance template (.ova) file.

Supported configurations

The following storage architectures are supported:

- Fibre Channel Storage Area Network (SAN) storage hosting VMware File System (VMFS) or Raw Device Mapping (RDM)
- iSCSI SAN storage
- Network File System (NFS)

The image backup process requires temporary creation of a VMware virtual machine snapshot. If the virtual machine is running at the time of backup, this snapshot can impact disk I/O and consume space on the VMware vmfs datastore. Snapshot creation and deletion can take a long time if the virtual machine runs a heavy disk I/O workload during backup. This requirement also limits the types of virtual disks that are supported to the following:

- Flat (version 1 and 2)
- RDM in virtual mode only (version 1 and 2)
- Sparse (version 1 and 2)

Guest and image-level backup and restore comparison

The following table provides a comparison of guest and image-level backup and restore of VMware data.

Table 1 Comparison of guest and image-level backup and restore

Criterion	Guest backup and restore	Image-level backup and restore
Supported guest OS	All guest operating systems that VMware supports, through the use of Avamar file system clients	All guest operating systems that VMware supports
Avamar software installation	Avamar file system client and optional application plug-in on each virtual machine	Avamar proxy virtual machines on the ESXi host

Table 1 Comparison of guest and image-level backup and restore (continued)

Criterion	Guest backup and restore	Image-level backup and restore
Avamar server network connection	Required for each virtual machine	Required only for the ESXi host
Deduplication	Data within each virtual machine	Data at image-level
OS consistent	Yes	Yes
Application consistent	Yes	Yes if the guest OS has VMware Tools installed
Application-aware backup and restore	Yes, through Avamar plug-ins for applications	No
Virtual machine status for backup	Virtual machine must be running	Virtual machine does not need to be running
Backup consumption of CPU, RAM, and disk resources	On the virtual machine	On the ESXi host
Backup customization, including exclusion of certain files or file types	Yes	No
Backup of unused file system space	No	Yes
Restore of individual files and folders	Yes	Yes, through EMC Data Protection Restore Client
Disaster recovery requiremens	Two-step recovery: 1. Load a known good operating system image on the virtual machine. 2. Restore backup data from Avamar.	One-step restore of backup data from Avamar. However, backups may be a "crash-consistent" snapshot of the full virtual machine image, which might not reliably support a full system restore without data loss.

Changed block tracking

Changed block tracking is a VMware feature that tracks which specific file system blocks on a virtual machine have changed between backups.

Changed block tracking identifies unused space on a virtual disk during the initial backup of the virtual machine, and also empty space that has not changed since the previous backup. Avamar data deduplication performs a similar function. However, using this feature provides valuable I/O reduction earlier in the backup process. Changed block tracking dramatically improves performance if SAN connectivity is not available.

If changed block tracking is not enabled, each virtual machine file system image must be fully processed for each backup, possibly resulting in unacceptably long backup windows, and excessive back-end storage read/write activity.

Changed block tracking can also reduce the time required to restore ("roll back") a virtual machine to a recent backup image by automatically eliminating unnecessary writes during the restore process.

Changed block tracking is only available with the following types of virtual machines that use the following types of virtual disk formats:

- Virtual machine versions 7 and later

- RDM disks are only supported in virtual compatibility mode. Physical compatibility mode is not supported.

- The same disk cannot be mounted by multiple virtual machines.

- Virtual machines must be configured to support snapshots.

Enabling changed block tracking will not take effect until any of the following actions occur on the virtual machine: power on, resume after suspend, migrate, snapshot create, delete, or revert.

CHAPTER 2

Configuring the Avamar Plug-in for vSphere Web Client

This chapter includes the folllowing topics:

Avamar server configuration

The Avamar server must be installed and configured to support VMware image-level backups before the Avamar Plug-in for vSphere Web Client can be used.

The *EMC Avamar for VMware User Guide* contains detailed instructions for configuring an Avamar server to support VMware image-level backups.

VMware supported software

The Avamar Plug-in for vSphere Web Client can be used with the VMware 5.5, 5.5u2, and 6.0.

vCenter configuration file settings

The `vcenter-sso-info.cfg` file is used to configure vCenter external SSO (if used) and to select the vCenter to be associated with the Avamar Plug-in for vSphere Web Client if there is more than one vCenter Server registered with the Avamar server.

The `vcenter-sso-info.cfg` file is located in the following directory:

`/usr/local/avamar/lib/ebr/vcenter-sso-info.cfg`

The options in the `vcenter-sso-info.cfg` file associated with the Avamar Plug-in for vSphere Web Client are defined in the following table.

Table 2 vcenter-sso-info.cfg entries for the Avamar Plug-in for vSphere Web Client

vcenter-sso-info.cfg entry	Description
vcenter-sso-hostname=	Required if using external SSO, specifies external SSO hostname.
vcenter-sso-port=	Required if using external SSO, specifies external SSO port.
vcenter-hostname =	Required to select the vCenter Server for the Avamar Plug-in for vSphere Web Client if there is more than one vCenter Server on the Avamar server.

Managing the Avamar Plug-in for vSphere Web Client services

The following sections describe how to manage the Avamar Plug-in for vSphere Web Client services.

Enabling services on a physical Avamar server

After Avamar is installed and the Avamar VMware configuration is complete, the Avamar Plug-in for vSphere Web Client services must be enabled on the Avamar server.

Procedure

1. Launch **PuTTY** to open an SSH session with the Avamar server.

2. Log in to Avamar with the **admin** user account.

3. Change to root with the following command:

   admin@avamar_server:~/>:su -

4. Provide the root password and press **Enter.**

5. Initiate the Avamar Plug-in for vSphere Web Client services by typing the following command:

   root@*avamar_server*:~/#:ebrserver.p1 --init

   An information message appears specifying that initializing the Avamar Plug-in for vSphere Web Client requires a restart of the Tomcat server.

6. Type **Y** to restart the Tomcat server and start the Avamar Plug-in for vSphere Web Client services.

Enabling services on AVE

After Avamar is installed and the Avamar VMware configuration is complete, the Avamar Plug-in for vSphere Web Client services must be enabled on the AVE virtual machine.

Procedure

1. To initialize the Avamar Plug-in for vSphere Web Client services, issue the following command from the Avamar server console in the vSphere Client as a root user:

   ebrserver.p1 --init

   An information message appears specifying that initializing the Avamar Plug-in for vSphere Web Client requires a restart of the Tomcat server.

2. Type **Y** to restart the Tomcat server and start the Avamar Plug-in for vSphere Web Client services.

Disabling services

If you decide you no longer want to use the Avamar Plug-in for vSphere Web Client (for example, you want to administer the vCenter Server through Avamar Administrator), type the following command as a root user:

ebrserver.p1 --disable

Viewing the Avamar Plug-in for vSphere Web Client activity

Type the following command to view the status of the Avamar Plug-in for vSphere Web Client as a root user:

ebrserver.p1 --status

Restarting services

After any vCenter configuration (for example, changing the vCenter Server you want to manage by editing the `vcenter-sso-info.cfg` file), you must restart the Avamar Plug-in for vSphere Web Client services with the following command:

ebrserver.p1 --restart

CHAPTER 3

Using the Avamar Plug-in for vSphere Web Client

This chapter includes the following topics:

Avamar setup

Prior to using the Avamar Plug-in for vSphere Web Client, Avamar Administrator must be configured with the following:

- Under Policies, create a group in the VirtualMachines domain and select proxies to protect virtual machines in the group

- The Data Set for each group must be configured to the VMware Image Dataset (or All Virtual Disks).

See the *EMC Avamar Administration Guide* for additional details on Avamar policy configuration.

The best practice is to name the Avamar group with a descriptive name (for example, Backup everyday 2 week retention) which provides the VMware administrator with information about the Avamar policy configuration.

After changes are made in Avamar Administrator, use the **Refresh** icon to update changes in the Avamar Plug-in for vSphere Web Client.

Accessing the Avamar Plug-in for vSphere Web Client

The Avamar Plug-in for vSphere Web Client is accessed through a web browser and the vSphere Web Client.

Note

Web browsers must be enabled with Adobe Flash Player 11.3 or higher to access the vSphere Web Client and Avamar Plug-in for vSphere Web Client functionality.

Procedure

1. Open a web browser and type the following URL to access the vSphere Web Client:

   `https://IP_address_vCenter_Server:9443/vsphere-client/`

2. Log in with administrative rights.

3. From the home page, select **EMC Backup and Recovery**.

   The **Welcome to the EMC Backup and Recovery** page appears.

4. Select the Avamar device to connect to:

   - **Avamar Virtual Edition** (if you are using AVE, this is automatically configured from the vCenter Server and a drop-down menu is available).

   - **Avamar Data Store** (if you are using physical Avamar, specify the IP address or FQDN of the Avamar server).

5. Click **Connect**.

EMC backup and recovery plug-in user interface

The EMC backup and recovery plug-in user interface is used to manage virtual machine image backups and restores.

EMC backup and recovery plug-in tabs

The following table describes the tabs in the EMC backup and recovery plug-in user interface.

Table 3 User interface tabs

Tab	Description
Getting Started	Provides an overview of the EMC backup and recovery plug-in functionality and quick links to the **Create Backup Job** wizard, the **Restore** wizard, and the **Reports** tab.
Backup	Provides a list of Avamar groups configured under the VirtualMachines domain in Avamar Administrator and is used to select virtual machines for backup.
Restore	Provides a list of successful backups that can be restored.
Reports	Provides backup status reports on the virtual machines on the vCenter Server.
Configuration	Displays information about how the EMC backup and recovery plug-in is configured and allows you to edit some of these settings.

Backup tab

The **Backup** tab displays a list of the backup groups that have been created through Avamar Administrator and is used to select virtual machines for backup. Using the Backup tab, you can select virtual machines for backup jobs.

The **Backup** tab displays information on the backup jobs as shown in the following table.

Table 4 Backup tab column descriptions

Column	Description
Name	The name of the backup group created through Avamar Administrator.
State	The state of the backup group policy, which is enabled or disabled (managed through Avamar Administrator). Disabled backup jobs do not run.
Last Start Time	The start time of the last job.
Duration	The time duration of the most recent job.
Next Runtime	The schedule of the next scheduled job.
Success Count	The number of virtual machines that backed up successfully during the last job, updated after each backup job. The job must run again to reflect changes to a job between backups. For example, if a job reports that 10 virtual machines successfully backed up, the system edits the job so only one virtual machine remains. This number continues to be 10 until the job runs again. If successful, the number changes to one.
Failure Count	The number of virtual machines that did not backup successfully the last time the backup job ran, updated after each backup job. The job must run again to reflect changes to a job between backups. For example, if a job reports that 10 virtual machines failed to back up, the system edits the job so only one virtual

Table 4 Backup tab column descriptions (continued)

Column	Description
	machine remains. This number continues to be 10 until the job runs again. If the job fails, the number changes to one.

Restore tab

The **Restore** tab displays a list of virtual machines that the EMC backup and recovery plug-in has backed up. By navigating through the list of backups, you can select and restore specific backups.

Using the **Restore** tab, you can perform the following operations:

- Restoring backups
- Locking and unlocking a backup
- Deleting a backup

Reports tab

The **Reports** tab provides overview information about the EMC backup and recovery plug-in and about the virtual machines within the vCenter Server.

Configuration tab

The **Configuration** tab enables you to view details about the Avamar server and event log details. You can configure email settings and run an integrity check from the **Configuration** tab.

Selecting virtual machines for backup jobs

Procedure

1. From **EMC Backup and Recovery,** select the **Backup** tab.

   The **Backup** tab is populated with groups configured through Avamar Administrator in the VirtualMachines domain.

2. Select a group and click **Edit.**

   The **Editing backup job** page displays all virtual machines associated with the vCenter Server associated with the Avamar Plug-in for vSphere Web Client.

3. Select the virtual machines for backup and click **Finish.**

   #### Note

   The EMC backup and recovery plug-in does not back up the following specialized virtual machines: VMware Data Recovery (VDR) Appliances, templates, Secondary fault tolerant nodes, proxies, or Avamar Virtual Edition (AVE) virtual machines. You can select these virtual machines from the wizard. However, when you click **Finish,** a warning informs you that the backup job excluded these special virtual machines.

Viewing status and backup job details

The **Backup** tab displays a list of groups configured through Avamar Administrator in the VirtualMachines domain. By clicking on a backup group, you can see the details of the backup jobs associated with the backup group in the **Backup Job Details** pane.

The following table lists the details that appear for each backup jobs.

Table 5 Backup job details

Field	Description
Name	The name of the backup group.
Status	Enabled or disabled.
Sources	A list of the virtual machines in the backup job. If more than six virtual machines are in the backup job, a **more** link appears. The **more** link displays the **Protected Item List** dialog box, which displays a list of all the virtual machines in the backup job.
Out of Date	A list of all the virtual machines that failed to back up the last time the job ran. If more than six virtual machines are out of date, a **more** link appears. The **more** link displays the **Protected Item List** dialog box, which displays a list of all the virtual machines in the backup job.

Restoring backups

Procedure

1. From **EMC Backup and Recovery,** select one of the following options to start the **Restore** wizard:

   - Click **Restore a VM** on the **Getting Started** tab.
   - Click **Restore** on the **Restore** tab.
   - Select a protected virtual machine in the **EMC Backup and Recovery Reports** tab, and then click the **All Actions** icon and click **Restore From Last Backup.**
   - Right-click a protected virtual machine in a vCenter inventory list and then select **All EBR Actions › Restore from Last Backup.**

   The **Select Backup** page displays a list of backups.

2. Select the correct restore point (all restore points for the backup display by date and time). Typically, you only select one restore point at a time.

3. Click **Next.**

4. On the **Set Restore Options** page, confirm that the client and restore point are correct.

5. Select **Restore to Original Location** or clear the **Restore to Original Location** checkbox and specify an alternate location (**New Name, Destination,** and **Datastore**).

   Optionally, you can set the virtual machine to **Power On** and **Reconnect NIC** after the restore process completes.

6. Click **Next.**

7. On the **Ready to complete** page, verify the selections and click **Finish.**

   A message indicates that the restore successfully initiated.

8. Click **OK.**

9. Monitor the restore progress through the **Recent Tasks** pane.

After you finish

If you selected **Reconnect NIC** during the restore process, confirm the network configuration for the newly created virtual machine. It is possible that the new virtual machine NIC is using the same IP address as the original virtual machine, which will cause conflicts.

Locking and unlocking a backup

During maintenance periods, the EMC backup and recovery plug-in examines the backups and evaluates whether their retention period has expired. If the retention period has expired, the EMC backup and recovery plug-in removes the expired backup. However, if you want to prevent the EMC backup and recovery plug-in from deleting a backup, you can lock it. The EMC backup and recovery plug-in will not evaluate the retention period on locked backups.

Procedure

1. From **EMC Backup and Recovery,** click the **Restore** tab and navigate to the backup you want to lock.

2. Click the checkbox next to the backup you want to lock.

3. Click the **Lock/Unlock** icon.

   Locking a backup overlays a lock icon on the backup icon.

4. To unlock the backup, click the checkbox next to the backup and click the **Lock/Unlock** icon again.

   The lock overlay clears and the EMC backup and recovery plug-in evaluates the retention date of the backup during the next maintenance period.

Deleting a backup

The EMC backup and recovery plug-in deletes backups according to the retention policies set in the backup jobs (configured through Avamar Admininstrator). However, you can manually delete backups.

Procedure

1. On the **Restore** tab, select the backup job to delete.

2. Click the **Delete** icon.

Viewing information from the Reports tab

The **Reports** tab provides system status and virtual machine information.

Top section of the Reports tab
The top half of the **Reports** tab displays the system status information in the following table.

Table 6 Reports tab — top section details

Field	Description
Backup Server Status	The status of Avamar.

Table 6 Reports tab — top section details (continued)

Field	Description
Used Capacity	A percentage of the total capacity occupied by all backups.
Integrity Check Status	This value is either `Normal` or `Out of Date`. `Normal` indicates that a successful integrity check completed in the past two days. `Out of Date` indicates that an integrity check has not run or has not completed successfully in the past two days.
Recent Successful Backups	The number of virtual machines that successfully backed up in the most recently completed backup job.
Recent Failed Backups	The number of virtual machines that failed to back up in the most recently completed backup job.

Middle section of the Reports tab

The middle of the **Reports** tab lists all the virtual machines associated with the vCenter Server. The following information appears for each virtual machine:

- Virtual machine name
- State (the EMC backup and recovery plug-in uses standard VMware state information)
- Backup Policies
- Last Successful Backup
- Status
- Date
- Backup Job Name

Bottom section of the Reports tab

The bottom section of the **Reports** tab displays detailed information about the virtual machine selected in the middle section of the **Reports** tab. The following information appears for the selected virtual machine:

- Virtual Machine Information
  - Name
  - Guest OS
  - Host
  - IP address
  - Virtual Machine State
  - Last Successful Backup
  - Backup Policies (associated with the selected virtual machine)
- Last Backup Job
  - Status
  - Date
  - Backup Job

EMC Backup and Recovery plug-in Configuration tab

Use the **Configuration** tab for the following tasks:

- Viewing backup server details
- Configuring email
- Viewing the user interface log
- Running an integrity check

Backup server details

The **Backup Server** tab displays backup server and storage details.

The following table describes the backup server details that appear on the **Backup Server** tab.

Table 7 Backup server details

Field	Description
Display name	The name of the Avamar Virtual Edition (AVE) or Avamar server
IP address	The IP address of the AVE or Avamar server
Version	The version of Avamar software
Status	The AVE or Avamar server status
vCenter server	The FQDN or IP address of the vCenter Server
Current user	The login name of the user
Local time	The current local time
Time zone	The time zone setting

The following table describes the storage details that appear on the **Backup Server** tab.

Table 8 Storage details

Field	Description
Capacity	The used capacity in GiB
Space free	The amount of unused space in GiB
Deduplicated size	The amount of deduplicated storage in GiB
Non-Deduplicated size	The amount of used non-deduplicated storage in GiB

Configuring email

The **Email** tab enables you to configure the EMC backup and recovery plug-in to send SMTP email reports to specified recipients.

Procedure

1. From **EMC Backup and Recovery,** select the **Configuration** tab.
2. Select **Email.**
3. Click the **Edit** button (in the lower-right corner of the page).
4. Select **Enable email reports** to enable email reports.
5. In **Outgoing mail server,** specify the IP address, hostname, of FQDN of the SMTP server to use to send the email.

The default port for non-authenticated email servers is 25. The default port of the authenticated mail servers is 587. You can specify a different port by appending a port number to the server name. For example, to specify the use of port 8025 on server "emailserver," type `emailserver:8025`.

6. (Optional) Select **My server requires me to log in** if the SMTP server requires authentication, and then specify the username and password for authentication.

   The EMC backup and recovery plug-in passes the username and password directly to the mail server without any validation.

7. In **To address(es),** type a comma-separated list of as many as 10 email addresses to which to send the reports.

8. From the **Send time** list, select the time at which to email the reports.

9. In **Send day(s),** select the checkbox next to the days on which to send the reports.

10. From the **Report Locale** list, select the locale for the email reports.

11. Click **Save.**

   Note

   The EMC backup and recovery plug-in email notification does not support carbon copies (CCs) or blind carbon copies (BCCs), nor does it support SSL certificates.

12. To test the email configuration, click **Send test email.**

Viewing the user interface log

The user interface log details the activities that you have initiated with the user interface, including some key status items.

Procedure

1. From the **Configuration** tab, click **Log.**

2. Click **Export View** to export the data to a local file.

Running an integrity check

Integrity checks verify and maintain data integrity on the deduplication store. The output of an integrity check is a checkpoint. By default, the EMC backup and recovery plug-in automatically creates an integrity check every day during the maintenance window. You can also start the integrity check manually.

Procedure

1. From the EMC Backup and Recovery **Configuration** tab, click the **All Actions** icon and select **Run integrity check.**

   A confirmation message appears.

2. Click **Yes.**

3. Monitor the integrity check progress through the **Recent Tasks** dialog box.

CHAPTER 4

Using File Level Restore

This chapter includes the following topics:

Introduction to the EMC Data Protection Restore Client

EMC backup and recovery plug-in creates image backups of virtual machines. You can restore image backups with the EMC backup and recovery plug-in user interface through the vSphere Web Client. However, if you only want to restore specific files from these virtual machines, then use the EMC Data Protection Restore Client (Restore Client), which is accessed through a web browser.

The Restore Client service is only available to virtual machines backed up by the EMC backup and recovery plug-in. You must log in, either through the vCenter console or some other remote connection, to one of the virtual machines backed up by the EMC backup and recovery plug-in.

The Restore Client enables you to mount specific virtual machine backups as file systems and then browse the file system to find the files to restore. The ability to restore specific files is called file-level restore (FLR).

File-level restore supported configurations

You can perform file-level restores on backups of the following file systems:

- NTFS (Primary Partition with MBR)
- Ext2 (Primary Partition with MBR)
- Ext3 (Primary Partition with MBR)
- LVM with ext2 (Primary Partition with MBR and a Standalone [without MBR] LVM with ext2)
- LVM with ext3 (Primary Partition with MBR and a Standalone [without MBR] LVM with ext3)

File-level restore limitations

File-level restore has the following limitations:

- You cannot restore or browse symbolic links.
- Browsing either a specified directory contained within a backup or a restore destination is limited to 5,000 files or folders.
- You cannot restore more than 5,000 files or folders in the same restore operation.
- You can restore files from a Windows backup only to a Windows machine, and files from a Linux backup only to a Linux machine.

Unsupported virtual disk configurations
File-level restore does not support the following virtual disk configurations:

- Unformatted disks
- Dynamic disks
- GUID Partition Table (GPT) disks
- Ext4 filesystems
- FAT16 filesystems
- FAT32 filesystems
- Extended partitions
- Encrypted partitions

- Compressed partitions

Unsupported Windows 8 and Windows Server 2012 configurations
File-level restore does not support the following Windows 8 and Windows Server 2012 configurations:

- Deduplicated NTFS

- Resilient File System (ReFS)

- Extensible Firmware Interface (EFI) boot loader

Logical Volume Manager limitations
The following limitations apply to logical volumes managed by the Logical Volume Manager:

- You must map one Physical Volume (`.vmdk`) to exactly one logical volume.

- Formatting is limited to Ext2 and Ext3 filesystems.

Restore Client Login

The Restore Client operates in either user or admin modes.

User
With user login, you connect to the Restore Client from a virtual machine backed up by the EMC backup and recovery plug-in. You log in to the Restore Client with the same local administrative credentials of the virtual machine. The Restore Client only displays backups for the local virtual machine.

Admin
With admin login, you connect to the Restore Client from a virtual machine backed up by the EMC backup and recovery plug-in. You log in to the Restore Client with the local administrative credentials of the virtual machine and you also log in to the vCenter with the vCenter credentials used during registration to the Avamar server. After connecting to the Restore Client, you can mount, browse, and restore files from any virtual machine backed up by the EMC backup and recovery plug-in. All restore files restore to the current virtual machine.

Backup mounting

After you successfully log in, the **Manage mounted backups** dialog box appears. By default, this dialog box displays all the available backups.

The format of the **Manage mounted backups** dialog box varies depending on how you logged in.

- If you use user login, you will see a list of all the backups from the client you logged into that you can mount.

- If you used admin login, you will see a list of all clients that have backed up to the EMC backup and recovery plug-in. Under each client, there is a list of all available backups.

You can mount as many as 254 VMDK images using the **Mount, Unmount,** or **Unmount all** buttons inn the lower-right corner of the dialog box.

Backup filtering

In the **Manage mounted backups** dialog box, you view all backups or filter the list of backups.

You can filter the list in the following ways:

- **All restore points** — Displays all backups.
- **Restore point date** — Displays only backups within the specified date range.
- **VM name** — Displays only backups of hosts whose display name contains the text entered in the filter field. This option is not available with user login because only the backups that belong to the virtual machine are displayed.

Navigating mounted backups

Procedure

- After you have mounted the backups, browse the contents of the backup using the tree display on the left side of the Restore Client user interface.

  The appearance of the tree varies depending on whether you used user login or admin login.

Performing file-level restores

The main screen of the Restore Client enables you to restore specific files by browsing the file system trees.

Note

File-level restore requires that all proxies in the vCenter environment be version 7.*x*.

Using the Restore Client with user login mode

Use the Restore Client on a Windows or Linux virtual machine with user login mode to access individual files from restore points for that machine, rather than restoring the entire virtual machine.

Before you begin

- Verify that the Avamar Plug-in for vSphere Web Client is configured.
- For user login, you can only log in to the Restore Client from a virtual machine backed up by the EMC backup and recovery plug-in.
- VMware Tools must be installed on the virtual machine in order to perform file-level restores from backups. The VMware website provides a list of operating systems that support VMware Tools.

Procedure

1. Log in remotely to the backed up virtual machine using Remote Desktop.

2. Access the EMC Data Protection Restore Client using the following URL:

   ```
   https://Avamar_IP_address:8543/flr
   ```

Note

You must have the necessary permissions to perform FLR.

3. From **EMC Data Protection Restore Client,** there are two tabs, **User** and **Admin,** which allows user to login with local and vCenter credentials respectively. Specify the username and the password and then click **Login**.

   The **Manage mounted backups** dialog box appears with a list of all restore points for the client.

4. Select the mount restore point, and click **Mount**.

   When the mount is complete, the drive icon appears as a green networked drive.

5. Click **Close**.

   The **Manage mounted backups** dialog box appears with a list of all restore points for the client.

6. In the **Mounted Backups** window, browse to and select the folders and files you want to recover.

7. Click **Restore selected files**.

8. In the **Select Destination** dialog box, browse to and select the drive and the destination folder for recovery.

9. Click **Restore**.

   An initiate restore confirmation message appears.

10. Click **Yes**.

    A successfully initiated message appears.

11. Click **OK**.

After you finish

Monitor the status of the restore by clicking the **Monitor Restores** tab.

Using the Restore Client with admin login mode

Use the Restore Client on a Windows or Linux virtual machine with admin login mode to access virtual machines on a vCenter Server that contain restore points to perform file-level restores.

Procedure

1. Log in remotely using remote desktop, or use the vSphere Web Client to access a virtual machine.

2. Access the Restore Client by using the following URL:

   `https://Avamar_IP_address:8543/flr`

3. In the **Credentials** page under **Admin Credentials,** specify the **Username** and **Password** for the local host.

4. Click **Admin Login**.

5. In the **vCenter Credentials** field, specify the vCenter administrator **Username** and **Password**.

6. Click **Login**.

   The **Manage mounted backups** dialog box appears with a list of the restore points for any virtual machine backed up by the EMC backup and recovery plug-in.

7. Select the restore mount point, and click **Mount**.

   When the mount is complete, the drive icon displays as a green networked drive.

8. Click **Close**.

9. In the **Mounted Backups** window, browse to and select the folders and files for recovery.

10. Click **Restore selected files**.

11. In the **Select Destination** dialog box, browse to and select the drive and destination folder for recovery.

12. Click **Restore**.

    A confirmation message appears.

13. Click **Yes**.

    A successfully initiated message appears.

14. Click **OK**.

After you finish

Monitor the status of the restore by clicking the **Monitor Restores** tab.

Monitoring restores

The **Monitor Restore** screen displays information about current and recently-completed restore operations.

To monitor current and past activity of the EMC Data Protection Restore Client, click the **Monitor Restores** button. You can sort the columns in the table by clicking the column heading. Click multiple times on a table heading to reverse the sort order. An up or down arrow reflects whether the sort order is ascending or descending.

By default, **Monitor Restores** shows all jobs that are in process or that have completed during the current session. To see jobs that completed or failed in a previous session, select the **Show Completed Activities** box. All past completed and failed jobs display, along with running and pending jobs.