NetBackup™ Plug-in for VMware vSphere Web Client Guide

Release 10.0

VERITAS™

NetBackup™ Plug-in for VMware vSphere Web Client Guide

Last updated: 2022-02-27

Legal Notice

Technical Support

Technical Support maintains support centers globally. All support services will be delivered in accordance with your support agreement and the then-current enterprise technical support policies. For information about our support offerings and how to contact Technical Support, visit our website:

https://www.veritas.com/support

You can manage your Veritas account information at the following URL:

https://my.veritas.com

If you have questions regarding an existing support agreement, please email the support agreement administration team for your region as follows:

Worldwide (except Japan)	CustomerCare@veritas.com
Japan	CustomerCare_Japan@veritas.com

Documentation

Make sure that you have the current version of the documentation. Each document displays the date of the last update on page 2. The latest documentation is available on the Veritas website:

https://sort.veritas.com/documents

Documentation feedback

Your feedback is important to us. Suggest improvements or report errors or omissions to the documentation. Include the document title, document version, chapter title, and section title of the text on which you are reporting. Send feedback to:

NB.docs@veritas.com

You can also see documentation information or ask a question on the Veritas community site:

http://www.veritas.com/community/

Veritas Services and Operations Readiness Tools (SORT)

Veritas Services and Operations Readiness Tools (SORT) is a website that provides information and tools to automate and simplify certain time-consuming administrative tasks. Depending on the product, SORT helps you prepare for installations and upgrades, identify risks in your datacenters, and improve operational efficiency. To see what services and tools SORT provides for your product, see the data sheet:

https://sort.veritas.com/data/support/SORT_Data_Sheet.pdf

Contents

Introduction and notes

This chapter includes the following topics:

- About the NetBackup plug-in for VMware vSphere Web Client

- Notes on the NetBackup plug-in for vSphere Web Client

- How to access the features of the NetBackup plug-in for vSphere Web Client

About the NetBackup plug-in for VMware vSphere Web Client

With the NetBackup plug-in, you can use vSphere Web Client to monitor the backups of virtual machines that vCenter servers manage. You can also recover a virtual machine from a backup.

You can use the plug-in to do the following:

- View the backup status of virtual machines at various vSphere levels. For example: Datacenter, resource pool, ESXi host.

- View messages that are related to backups, such as snapshot deletion failure.

- Sort and filter the backup information and export the information for analysis.

- Recover virtual machines. (The recovery feature and the instant recovery feature are optional and are not required for monitoring virtual machine backups.)

- Instantly recover and power on a virtual machine.

- Configure a custom attribute to exclude virtual disks from backups.

Figure 1-1
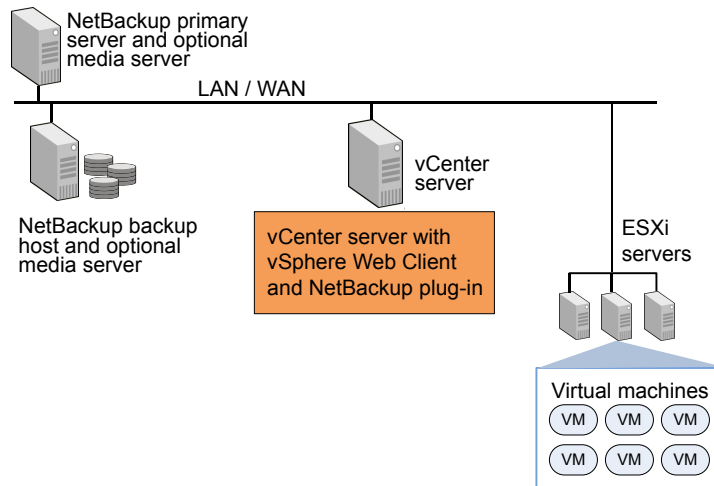
Support for ESX and ESXi

NetBackup for VMware supports both ESX and ESXi servers. In this document, any reference to ESXi also refers to ESX.

Note that VMware no longer supports ESX in the latest versions of vSphere.

For the VMware versions that the NetBackup plug-in supports, see the following document:

Support for NetBackup in virtual environments

Notes on the NetBackup plug-in for vSphere Web Client

Note the following about the NetBackup vSphere Web Client plug-in:

- The best screen resolution for the plug-in is 1280 x 1024 or greater.

- The plug-in does not support auto-refresh. To refresh the display, click the vSphere Web Client refresh icon:

- In vCenter, the default retention period for vCenter events is 180 days. This value is the recommended setting.

- If an ESXi server is removed from vCenter and is later re-added, the events for the VMs managed by that ESXi are lost. For VM status, the plug-in shows "No Backup Information." The status changes as new backup events occur for each VM.

- See "Notes on the NetBackup recovery wizards" on page 67.

- The NetBackup primary server must be configured with backup policies of type **VMware**, with the **Post events to vCenter** option set to **All Events**.

   The plug-in monitors backups that a NetBackup **VMware** policy made. The plug-in does not monitor backups from other policy types.

   Note the following exceptions:

   - The plug-in does not monitor backups from a VMware policy that had **Use Replication Director** enabled and **Application Consistent Snapshot** disabled (under **Options**).

   - The plug-in does not monitor all the copies that a storage lifecycle policy (SLP) makes; it monitors the first image only.

- Search for virtual machines does not support non-ASCII characters. However, the search results show the VM names that contain non-ASCII characters. Therefore, you can search for ASCII characters only and still see the VMs that contain non-ASCII characters in their names.

How to access the features of the NetBackup plug-in for vSphere Web Client

Table 1-1 describes the location of the NetBackup plug-in features in vSphere Web Client.

Table 1-1   Accessing basic functions of the NetBackup plug-in for vSphere Web Client

Feature	How to access the NetBackup plug-in
Monitor the status of virtual machine backups	In the vSphere Web Client object navigator, click the **Home > Hosts and Clusters > Monitor > Veritas NetBackup** tab. In the object navigator, select the vSphere object to monitor, such as vCenter, ESXi server, VM, or other object. See "Veritas NetBackup tab in vSphere Web Client" on page 55.

Table 1-1   Accessing basic functions of the NetBackup plug-in for vSphere
                     Web Client *(continued)*

Feature	How to access the NetBackup plug-in
Configure a Custom Attribute to exclude disks from backups	In the vSphere Web Client object navigator, click **Veritas NetBackup**, then click **Virtual Disk Exclusion Wizard**. **Note:** The disk exclusion wizard is optional. It is not required for monitoring virtual machine backups.
Restore a virtual machine	In the vSphere Web Client object navigator, click **Veritas NetBackup**, then click **Recovery Wizard**. You can access the Recovery Wizard in several other ways: See "How to access the NetBackup Recovery Wizards" on page 68. **Note:** The recovery wizards are optional. They are not required for monitoring virtual machine backups.
Restore a virtual machine instantly	In the vSphere Web Client object navigator, click **Veritas NetBackup**, then click **Instant Recovery Wizard**. **Note:** With this wizard, you can instantly recover the virtual machines and power them on.

Installing the NetBackup plug-in for vSphere Web Client

This chapter includes the following topics:

Requirements for the NetBackup plug-in for vSphere Web Client

This topic describes the overall requirements for installing and using the plug-in for vSphere Web Client.

Table 2-1 NetBackup plug-in installation requirements

Requirement	Notes
NetBackup primary server	The NetBackup primary server must be installed before you can install the plug-in. By default, the primary server operates as the plug-in package host web server. During plug-in installation, the vCenter downloads the plug-in installation file from the primary server.
	Note: Before using the plug-in, make sure NetBackup is configured to back up the virtual machines. The following for example are required:
	■ The VMware backup host (proxy, or access host).
	■ The NetBackup credentials for the vCenter server.
	Note: Enter the vCenter server name in the same format in which it is registered in DNS and in the vCenter server (whether short or fully-qualified).
	Note: Veritas recommends the use of fully qualified names. The entire name must be properly formed without empty or null elements. For example, a fully-qualified name must include the domain name and not end in a period (.).
	■ A VMware policy to back up the VMs.
	■ In the policy's **Advanced Attributes**, the **Post vCenter events** option must be set to **All Events**.
	See "Installing the NetBackup plug-in for vSphere Web Client" on page 16.
	The *NetBackup for VMware Administrator's Guide* explains how to configure NetBackup for VMware:
	http://www.veritas.com/docs/DOC5332
vCenter server credentials (user name and password)	NetBackup must have credentials for the vCenter server(s) where virtual machines are to be restored.
	For information on VMware Platform Services Controller (PSC) environments:
	See "Notes on using the plug-in in a VMware Platform Services Controller (PSC) environment" on page 15.
	Note: To install the plug-in, the **Extension** privileges are required on the vCenter.
	See "vCenter privileges for managing NetBackup plug-in installation" on page 14.
Consistent vCenter naming	See "Using consistent vCenter naming with the NetBackup plug-in for vSphere Web Client" on page 13.

Table 2-1   NetBackup plug-in installation requirements *(continued)*

Requirement	Notes
vCenter privileges for backup monitoring	To use the plug-in to monitor virtual machine backups, the vCenter **Global** credentials **Manage custom attributes** and **Set custom attribute** are required.
	See "vCenter privileges for backup monitoring" on page 54.
vCenter privileges for configuring a Custom Attribute to exclude disks from backups	To use the plug-in to configure a Custom Attribute to exclude disks from backups, the vCenter **Global** credentials **Manage custom attributes** and **Set custom attribute** are required.
	See "About excluding virtual disks from the backup" on page 49.
NetBackup Recovery Wizards	See "Configuration overview for the NetBackup Recovery and Instant Recovery Wizards" on page 32.

For a list of NetBackup versions and VMware versions that are supported for the plug-in, see the following document:

- Support for NetBackup in virtual environments:

Using consistent vCenter naming with the NetBackup plug-in for vSphere Web Client

The name of the vCenter server must be identical in the following locations:

- In the vCenter server installation.

- In the NetBackup credentials.

- In the NetBackup plug-in installation.

- In the `VimApiUrl` name.
  See To set the `VimApiUrl` name

- In the `Runtime` name.
  See To set the `Runtime` name

Note: If the vCenter server name is not entered correctly, the plug-in may not be able to access one or more of the virtual machine images. Renaming the vCenter server is currently not supported for vCenter version 6.0 or 6.5.

To set the `VimApiUrl` **name**

1   In vSphere Web Client, click **vCenter Inventory Lists > Resources > vCenter Servers** and select the vCenter server that you want to update.

2   Click **Manage > Settings > Advanced Settings**.

3   Set the `VirtualCenter.VimApiUrl` key to the following:

`https://`*correct hostname of the vCenter machine*`/sdk`

Where *hostname* is the current host name of the vCenter.

For example: `https://vCenter1.example.com/sdk`

To set the `Runtime` **name**

◆   Use the following procedure in the VMware vSphere 6.5 documentation:

Configure Runtime Settings for vCenter Server

Note: For vSphere 6.0, the step "Select the **Configure** tab" should read "Select the **Manage** tab."

---

vCenter privileges for managing NetBackup plug-in installation

To install the NetBackup vSphere Web Client plug-in, use the vSphere Web Client to make sure that the **Extension** privileges are set in vCenter. The **Extension** privileges must be set on each vCenter where the plug-in is to be installed.

Note: The **Extension** privileges are also required for updating or uninstalling the plug-in.

For assistance setting privileges, refer to the appropriate VMware vSphere Documentation Center.

In the vSphere Web Client interface, the **Extension** privileges may look similar to the following:
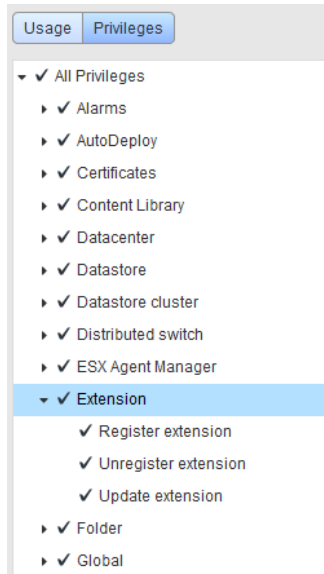
See "The message `NoPermission` appears during plug-in installation" on page 97.

Notes on using the plug-in in a VMware Platform Services Controller (PSC) environment

For the vCenter servers that a VMware Platform Services Controller (PSC) manages, note the following about the NetBackup vSphere Web Client plug-in:

- The plug-in only needs to be installed on one of the vCenter servers. The installed plug-in is accessible to all the vCenter servers under the PSC.

- You must register the NetBackup primary server on each vCenter server where virtual machines are to be restored.
  See " Authorizing the NetBackup plug-in to restore virtual machines" on page 37.

- Backups of the virtual machines that reside on vCenter servers under the PSC can be restored to any vCenter under the PSC. Backups of the virtual machines that reside on vCenter servers outside of the PSC cannot be restored to vCenter servers under the PSC.
  For example: A VM was backed up on vCenter 1. To restore that VM to vCenter 2, both vCenters need to be under the same PSC. In this case, the NetBackup primary server needs credentials at least for vCenter 2.

Installing the NetBackup plug-in for vSphere Web Client

This topic describes how to install the NetBackup plug-in for vSphere Web Client from either of the following:

- The NetBackup primary server
  See "To install the NetBackup plug-in for vSphere Web Client from the NetBackup primary server" on page 16.

- The NetBackup appliance as primary server
  See "To install the NetBackup plug-in for vSphere Web Client from the NetBackup appliance as primary server" on page 23.

Note: To use a custom web server instead of the NetBackup primary server:

See "Installing the plug-in from a NetBackup media server and plug-in package host (web server)" on page 112.

To install the NetBackup plug-in for vSphere Web Client from the NetBackup primary server

1 On the NetBackup primary server, locate the following command:

   Windows: `install_path\NetBackup\bin\goodies\vwcp_manage.exe`

   UNIX, Linux: `/usr/openv/netbackup/bin/goodies/vwcp_manage`

2 On the primary server, start `vwcp_manage` to begin plug-in installation.

   Note the following:

   - `vwcp_manage` is a Java GUI application. Make sure that your UNIX or Linux environment supports Java GUI applications.

   - If you run the command with administrator or root privileges, the command discovers the available vCenters and presents them in a list. Otherwise, you must provide the vCenter names.

   - The `vwcp_manage` command detects any existing version of the vSphere Web Client plug-in and lets you either upgrade it or uninstall it.
     See "Uninstalling the NetBackup plug-in for vSphere Web Client" on page 30.

   - The `vwcp_manage` command does not uninstall the older NetBackup plug-in for vCenter (C# plug-in). The older plug-in continues to exist separately from the new one. You can uninstall the older plug-in as explained in the *NetBackup Plug-in for VMware vCenter Guide* for NetBackup 8.0:
     http://www.veritas.com/docs/DOC5332

Note: Support for the older NetBackup plug-in for vCenter has been discontinued.

---

3 Registration begins with the End User License Agreement (click **Accept**):
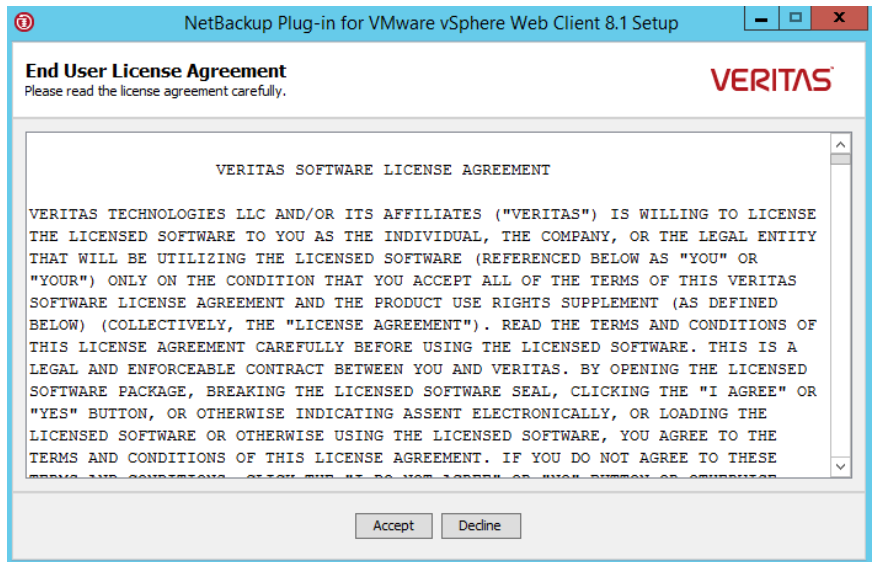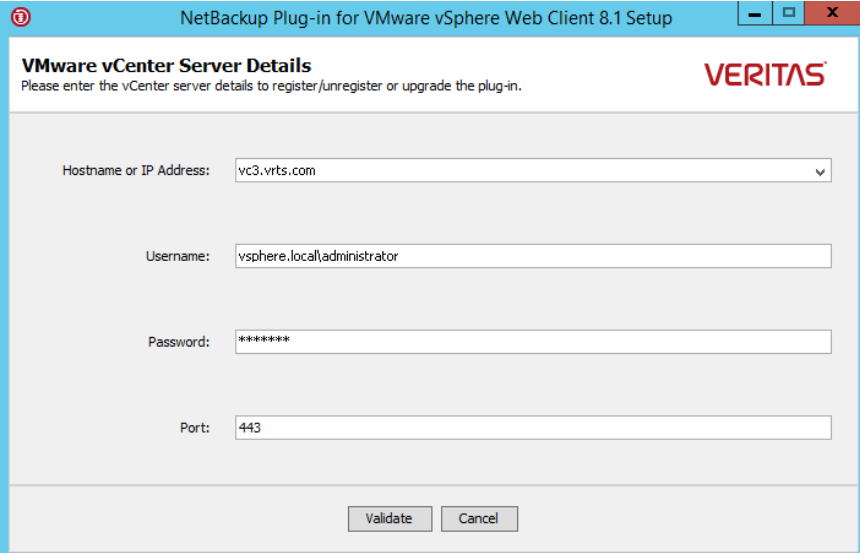
4 On the following dialog, select the vCenter server from the **Hostname or IP Address** pull-down list, enter its credentials, then click **Validate**.

Note: The vCenter credentials require the **Extension** privileges.

See "vCenter privileges for managing NetBackup plug-in installation" on page 14.

If the `vwcp_manage` command was not run with administrator or root privileges, you must enter the vCenter name (or IP address) manually.

5 If the `VIRTUALIZATION_HOSTS_SECURE_CONNECT_ENABLED` configuration option is enabled, the following security alert appears:
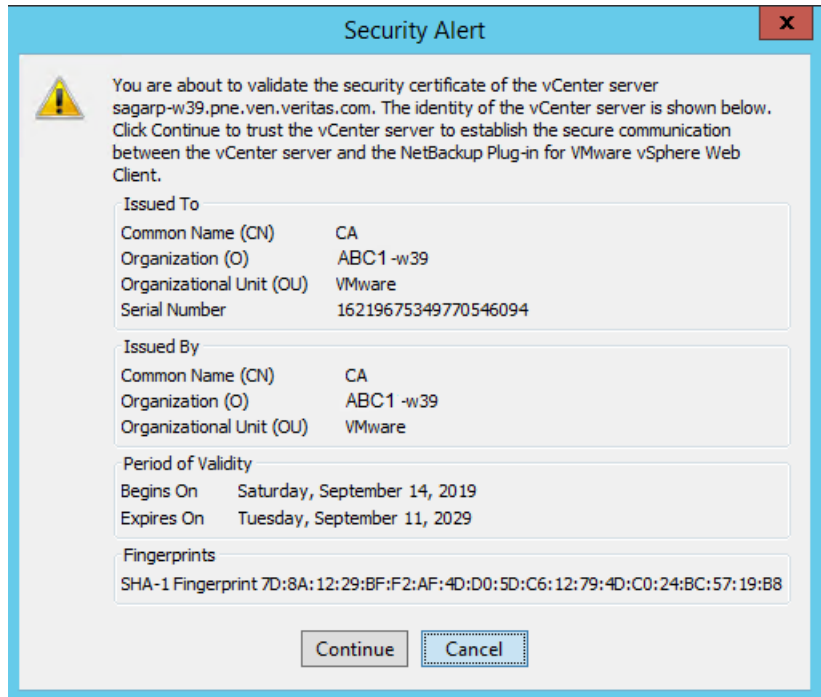
See "VIRTUALIZATION_HOSTS_SECURE_CONNECT_ENABLED for servers and clients" on page 24.

If there are multiple vCenter server root certificates, the same screen appears for each of the certificates. Click **Continue** if you trust the certificate, else click **Cancel**. If you trust one or more certificates and the certificates are successfully validated, the wizard proceeds with the plug-in registration process. If you do not trust any of the certificates or the certificate validation fails, the plug-in installation does not proceed further.

6 The registration utility determines whether the plug-in is registered on the vCenter. If the plug-in is not registered, the following dialog appears and shows the plug-in URL.
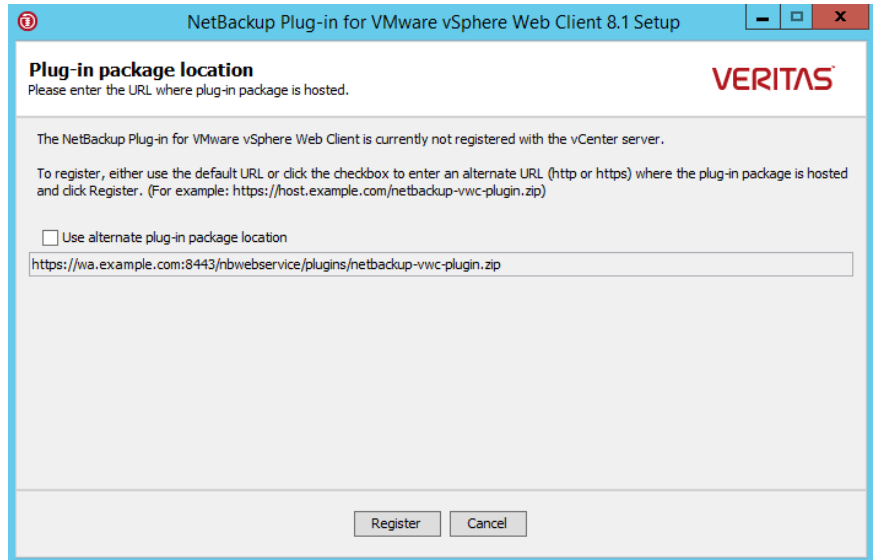
The URL field is pre-populated with the plug-in package URL as hosted on the primary server.

To use a custom web server instead of the primary server, select **Use alternate plug-in package location** and enter the full URL for the plug-in package.

7 Click **Register**. A security alert appears:
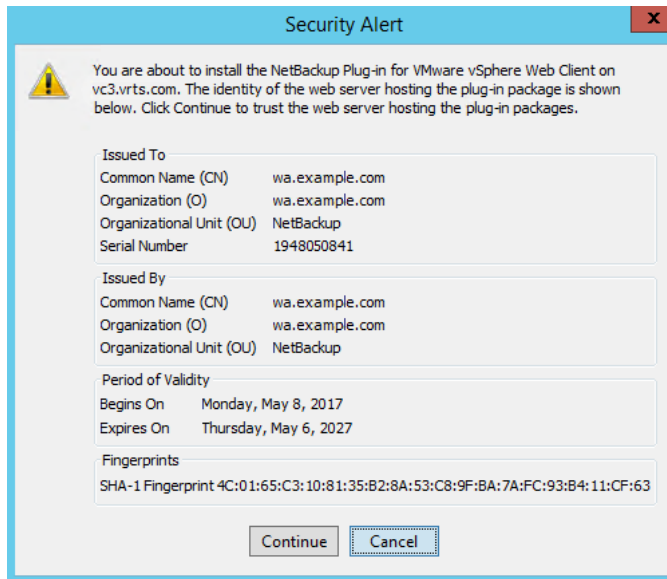
This security alert shows the identity of the web server that hosts the plug-in package. By default this web server is the NetBackup primary server. The vCenter later downloads the plug-in from this server (the plug-in package host). Use this dialog to verify the identity of that server.

8 To allow the installation to proceed, click **Continue**.

The following appears:
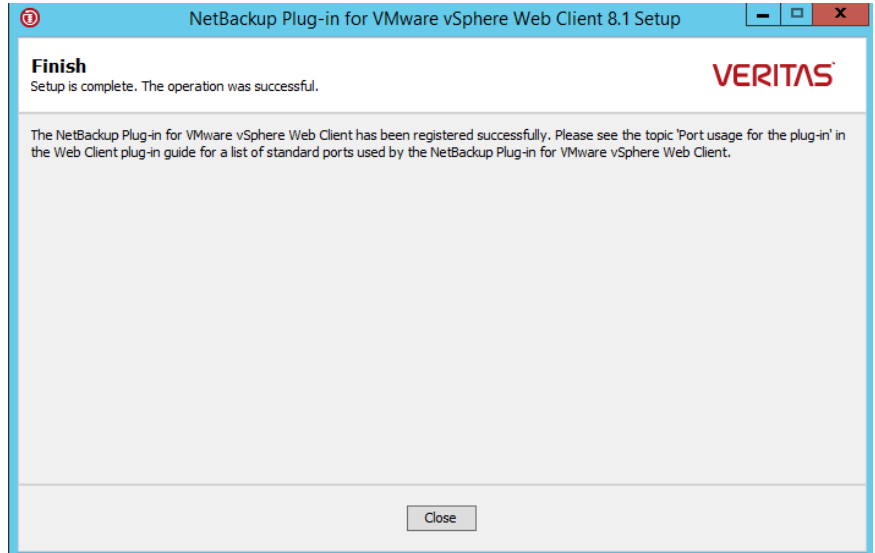
9 Click **Close**.

10 Log on to the vSphere Web Client. If you are currently logged on, log out first.

11 To verify that the plug-in installed correctly, go to the vSphere Web Client object navigator.

For example, under **Home > Hosts and Clusters > Monitor**, look for the **Veritas NetBackup** tab.

See "How to access the features of the NetBackup plug-in for vSphere Web Client" on page 9.

If the **Veritas NetBackup** tab does not appear:

See "The NetBackup plug-in is not shown in the vSphere Web Client interface even after registration" on page 103.

12 To register the plug-in with another vCenter server, repeat this procedure starting at step 2.

Note: For the vCenter servers that a VMware Platform Services Controller (PSC) manages, you only need to install the plug-in on one of the vCenter servers. The plug-in is then accessible to all the vCenters under the PSC.

---

13 If the NetBackup primary server uses an external certificate, see the following topic:

See "Configuring the plug-in for an external certificate" on page 25.

To install the NetBackup plug-in for vSphere Web Client from the NetBackup appliance as primary server

1 Log on to the appliance as a NetBackupCLI user and run the `vwcp_manage` command to install the plug-in.

The `vwcp_manage` command is located here:

`/usr/openv/netbackup/bin/goodies/vwcp_manage`

For example:

`vwcp_manage --register -v vCenter.example.com -u vCenter_username -p password_file`

Where *password_file* is the path to a text file that contains only the password.

Note: As a NetBackupCLI user, you can create text files in your home directory only: `/home/nbusers`

For more information on the `vwcp_manage` command, see the *NetBackup Commands Reference Guide*:

http://www.veritas.com/docs/000003214

2 Log on to the vSphere Web Client. If you are currently logged on, log out first.

3   To verify that the plug-in installed correctly, go to the vSphere Web Client object navigator.

For example, under **Home > Hosts and Clusters > Monitor**, look for the **Veritas NetBackup** tab.

See "How to access the features of the NetBackup plug-in for vSphere Web Client" on page 9.

If the **Veritas NetBackup** tab does not appear:

See "The NetBackup plug-in is not shown in the vSphere Web Client interface even after registration" on page 103.

4   To register the plug-in with another vCenter server, repeat this procedure.

5   If the NetBackup appliance uses an external certificate, see the following topic:

See "Configuring the plug-in for an external certificate" on page 25.

VIRTUALIZATION_HOSTS_SECURE_CONNECT_ENABLED for servers and clients

The `VIRTUALIZATION_HOSTS_SECURE_CONNECT_ENABLED` option enables the validation of virtualization server certificates using its root or intermediate certificate authority (CA) certificates.

Before you enable the option, review the steps from the 'Validating VMware virtualization server certificates in NetBackup ' section in the NetBackup for VMware Administrator's Guide.

By default, the `VIRTUALIZATION_HOSTS_SECURE_CONNECT_ENABLED` option is set to `UNDEFINED`.

The security certificate validation is enabled for RHV and Nutanix AHV servers, but is disabled for VMware servers.

Note: In a scenario where an external CA can be configured for one virtualization server, but not for the other, two separate backup hosts must be used. The VIRTUALIZATION_HOSTS_SECURE_CONNECT_ENABLED option must be set to YES for the backup host where the external CA can be configured. The VIRTUALIZATION_HOSTS_SECURE_CONNECT_ENABLED must be set to YESfor the backup host where the external CA can be configured. The option must be set to NO for the other backup host.

Table 2-2   VIRTUALIZATION_HOSTS_SECURE_CONNECT_ENABLED information

Usage	Description
Where to use	On NetBackup primary server or all access hosts.
How to use	Use the nbgetconfig and the nbsetconfig commands to view, add, or change the option. For information about these commands, see the NetBackup Commands Reference Guide. Use the following format to enable certificate validation for the RHV, VMware, or Nutanix AHV servers: VIRTUALIZATION_HOSTS_SECURE_CONNECT_ENABLED = YES
Equivalent Administration Console property	No equivalent exists in the **NetBackup Administration Console** host properties.

Configuring the plug-in for an external certificate

The plug-in communicates with the NetBackup primary server securely by means of certificate-based authentication. By default, the primary server uses NetBackup CA-signed certificates. As an alternative, the primary server can be configured to use an externally issued certificate. In that case, use the following procedure to configure the plug-in for the external certificate.

Configure the plug-in for an external certificate

1   Enter the following command on the primary server:

Windows

```
install_path\NetBackup\wmc\bin\install\configureCertsForPlugins.bat
-registerExternalCert -certPath "path_to_external_certificate_file"
```

```
-privateKeyPath "path_to_certificate_key_file"
-trustStorePath "path_to_ca_certificate_file"
```

UNIX, Linux

```
/usr/openv/wmc/bin/install/configureCertsForPlugins
-registerExternalCert -certPath "path_to_external_certificate_file"
-privateKeyPath "path_to_certificate_key_file"
-trustStorePath "path_to_ca_certificate_file"
```

For example:

```
configureCertsForPlugins -registerExternalCert -certPath
"c:\server.pem" -privateKeyPath "c:\key.pem" -trustStorePath
"c:\intermediateOrRootCA.pem"
```

This command configures the plug-in to use the external certificate by importing the certificate into the keystore on the primary server. The command options are as follows:

- `-certPath`: Specifies the path to the certificate for the web server. This file should have a single certificate in PEM format.

- `-privateKeyPath`: Specifies the path to the private key for the web server certificate.

- `-trustStorePath`: Specifies the path to the certificate of the intermediate or root certification authority that has issued the web server certificate. This file should have a single certificate in PEM format. The subject of this certificate should match the issuer of the web server certificate.
  For further information on external certificates, see the NetBackup Security and Encryption Guide.

2 Restart the `NetBackup Web Management Console` service on the primary server.

In the Activity Monitor of the NetBackup Administration Console: Click the **Daemons** tab, right-click the service, and click **Stop Daemon**. When the service has stopped, click **Start Daemon**.

3 Renew the authentication token on the primary server:

See "Renewing an authorization token" on page 45.

Note: Perform this step for each plug-in that needs to communicate with the primary server.

---

4 On the plug-in, remove the existing primary server and then add the primary server that now has the renewed token:

See " Authorizing the NetBackup plug-in to restore virtual machines" on page 37.

Adding a new vCenter server with the VMware vSphere plug-in

If you use external-CA signed certificates and want to add a new vCenter server along with the VMware vSphere plug-in, use the `manageClientCerts -create` option on the primary server to generate a new certificate for the client. You can then use the newly generated certificate when you add the NetBackup primary server to the VMware vSphere plug-in.

Reconfiguring the plug-in for a NetBackup CA-signed certificate

If the primary server is reconfigured to use a NetBackup CA-signed certificate, use the following procedure to configure the plug-in for that certificate.

Reconfigure the plug-in for a NetBackup CA-signed certificate

1   Enter the following command on the primary server:

Windows

install_path\NetBackup\wmc\bin\install\configureCertsForPlugins.bat
-registerNBCAcert

UNIX/Linux:

/usr/openv/wmc/bin/install/configureCertsForPlugins
-registerNBCAcert

This command reconfigures the plug-in to use the NetBackup CA-signed
certificate.

2   Restart the NetBackup Web Management Console service on the primary
server.

In the Activity Monitor of the NetBackup Administration Console: Click the
Daemons tab, right-click the service, and click **Stop Daemon**. When the service
has stopped, click **Start Daemon**.

3   Renew the authentication token on the primary server:

See "Renewing an authorization token" on page 45.

Note: Perform this step for each plug-in that needs to communicate with the
primary server.

---

4   On the plug-in, remove the existing primary server and then add the primary
server that now has the renewed token:

See " Authorizing the NetBackup plug-in to restore virtual machines"
on page 37.

Upgrading the NetBackup plug-in for vSphere Web Client

You can upgrade the NetBackup vSphere Web Client plug-in from an earlier version.

Note: To upgrade the plug-in, the vCenter credentials require the **Extension**
privileges.

See "vCenter privileges for managing NetBackup plug-in installation" on page 14.

To upgrade the NetBackup plug-in from an earlier version

1   On the primary server, run the `vwcp_manage` command:

Windows: *install_path*`\NetBackup\bin\goodies\vwcp_manage.exe`

UNIX, Linux: `/usr/openv/netbackup/bin/goodies/vwcp_manage`

The `vwcp_manage` command detects any existing version of the vSphere Web Client plug-in.

2   On the **End User License Agreement** dialog, click **Accept**.

3   On the **VMware vCenter Server Details** dialog, select the vCenter from the pull-down list and enter the vCenter credentials. Click **Validate**.

On the **Plug-in package location** dialog:

The URL field is pre-populated with the plug-in package URL as hosted on the primary server.

To use a custom web server instead of the primary server, select **Use alternate plug-in package location** and enter the full URL for the plug-in package.

See "Installing the plug-in from a NetBackup media server and plug-in package host (web server)" on page 112.

4   On the **Unregister or Upgrade** dialog, click **Upgrade** and confirm it.

5   On the **Finish** dialog, click **Close**.

6   Log on to the vSphere Web Client. If you are currently logged on, log out first.

7   To verify that the plug-in upgraded correctly, go to the vSphere Web Client object navigator.

For example, under **Home > Hosts and Clusters > Monitor**, look for the **Veritas NetBackup** tab.

If the **Veritas NetBackup** tab does not appear:

See "The NetBackup plug-in is not shown in the vSphere Web Client interface even after registration" on page 103.

Disabling the NetBackup plug-in for vSphere Web Client

You can disable the NetBackup plug-in without uninstalling it.

To disable the NetBackup plug-in for vSphere Web Client

1 Log on to the vSphere Web Client console with the Single Sign On administrator user name.

The default user name is `vsphere.local\administrator`.

For the password, contact the vSphere administrator.

2 Click **Administration** and then click **Solutions > Client Plug-Ins**.

The installed plug-ins appear as shown in the following image.
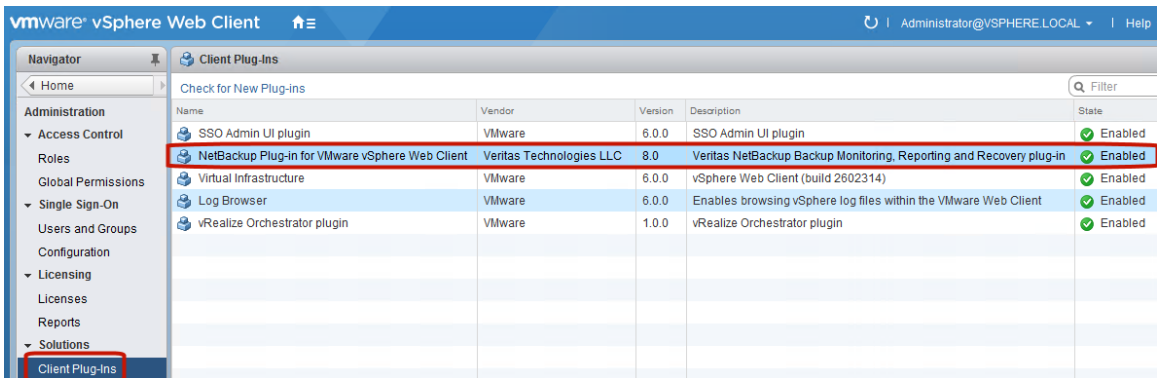
3 Right-click on the NetBackup plug-in and disable it.

Uninstalling the NetBackup plug-in for vSphere Web Client

You can unregister and uninstall the NetBackup vSphere Web Client plug-in.

Note: To unregister and uninstall the plug-in, the vCenter credentials require the **Extension** privileges.

See "vCenter privileges for managing NetBackup plug-in installation" on page 14.

To unregister and uninstall the NetBackup plug-in by means of the NetBackup primary server

1   On the NetBackup primary server, run the `vwcp_manage` command:

Windows: *install_path*`\NetBackup\bin\goodies\vwcp_manage.exe`

UNIX, Linux: `/usr/openv/netbackup/bin/goodies/vwcp_manage`

2   On the **End User License Agreement** screen, click **Accept**.

3   On the **VMware vCenter Server Details** dialog, select the vCenter from the pull-down list and enter the vCenter credentials. Click **Validate**.

4   On the **Unregister** dialog, click **Unregister** and confirm it.

5   On the **Finish** dialog, click **Close**.

6   Log on to the vSphere Web Client. If you are currently logged on, log out first.

To unregister and uninstall the NetBackup plug-in for vSphere Web Client by means of the NetBackup appliance as primary server

1   Log on to the appliance as a NetBackupCLI user and run the `vwcp_manage` command to uninstall the plug-in.

The `vwcp_manage` command is located here:

`/usr/openv/netbackup/bin/goodies/vwcp_manage`

For example:

`vwcp_manage --unregister -v vCenter.example.com -u` *vCenter_username* `-p` *password_file*

Where *password_file* is the path to a text file that contains only the password.

Note: As a NetBackupCLI user, you can create text files in your home directory only: `/home/nbusers`

For more information on the `vwcp_manage` command, see the *NetBackup Commands Reference Guide*:

http://www.veritas.co m/docs/000003214

2   Log on to the vSphere Web Client. If you are currently logged on, log out first.

Configuration overview for the NetBackup Recovery and Instant Recovery Wizards

Note: The NetBackup Recovery and Instant Recovery Wizards are optional features of the NetBackup plug-in for vSphere Web Client. The wizards provide a means of recovering virtual machines. They are not required for monitoring virtual machine backups.

To use the NetBackup Recovery and Instant Recovery Wizards to restore virtual machines, configure the following:

Table 2-3   Configuring the NetBackup Recovery Wizard

Step	Description	Reference topic
1	Configure ports for the NetBackup Web Services.	See "Configuring ports for the NetBackup legacy Web Services" on page 32.
2	Create an authentication token file.*	See "Creating an authentication token for the NetBackup plug-in for vSphere Web Client" on page 35.
3	Authorize the plug-in to restore virtual machines.	See " Authorizing the NetBackup plug-in to restore virtual machines" on page 37.
4	Set the required vCenter privileges.	See "Setting vCenter privileges for recovering virtual machines" on page 39.

*For certain networks, it may be necessary to associate an authentication token with more than one host name or IP address.

See "Adding or deleting an additional host name or IP address for an authentication token" on page 41.

Configuring ports for the NetBackup legacy Web Services

The NetBackup Recovery Wizard requires the proper configuration of web ports for the NetBackup Web Services on the primary server. Otherwise, you cannot authorize the NetBackup plug-in to restore the virtual machines that were backed up by that primary server.

The NetBackup installation process automatically runs the `configurePorts` script to configure NetBackup legacy Web Services to run on any of the following sets of ports.

Table 2-4   Port sets for NetBackup legacy Web Services

Port set	HTTPS port	Shutdown port
First set	8443	8205
Second set	8553	8305
Third set	8663	8405

Note: The shutdown ports are honored only for local intra-host connections. Therefore, they do not need to be open externally.

The HTTPS port (whichever is in use) should be open inbound to the primary server.

If the `configurePorts` script does not find one of the sets free (for example 8443 and 8205), it logs an error to the following file:

Windows:

`install_path\NetBackup\wmc\webserver\logs\nbwmc_configurePorts.log`

UNIX and Linux:

`/usr/openv/wmc/webserver/logs/nbwmc_configurePorts.log`

On UNIX and Linux, the following appears on the NetBackup system console:

`configurePorts: WmcPortsUpdater failed with exit status <status_code>`

When this error occurs, use the following procedure on the primary server to manually configure the ports. The `configurePorts` command is in the following location:

Windows:

`install_path\NetBackup\wmc\bin\install\configurePorts`

UNIX or Linux:

`/usr/openv/wmc/bin/install/configurePorts`

Note: NetBackup Web Services on the primary server require port 1024 or higher. Do not use a port number that is less than 1024. Ports that are less than 1024 are privileged and cannot be used with the NetBackup Web Services.

To configure ports for the NetBackup Web Services

1   On the primary server, enter the following to list the currently configured ports:

```
configurePorts -status
```

Example output:

```
Current Https Port: 8443
Current Shutdown Port: 8205
```

2   Use the `configurePorts` command in the following format to re-configure a port:

```
configurePorts -httpsPort https_port | -shutdownPort shutdown_port
```

You can configure one or two ports at a time. For example, to configure the HTTPS port to 8553:

```
configurePorts -httpsPort 8553
```

Output:

```
Old Https Port: 8443
New Https Port: 8553
```

Use this command as needed to configure a set of ports for HTTPS and shutdown.

See Table 2-4 for a list of the port sets.

3   If the primary server is in a clustered environment, do the following:

- Make sure that the same set of ports are free on all the cluster nodes: Do step 1 on each node.

- Reconfigure the ports on each node as required: Do step 2.

- To override the ports that are used across all nodes, enter the following:
  ```
  configurePorts –overrideCluster true
  ```
  This command updates the following file on shared disk:
  Windows:
  install_path/NetBackup/var/global/wsl/portfile
  UNIX or Linux:
  /usr/openv/netbackup/var/global/wsl/portfile
  The NetBackup installer for `Web Services` uses this file during installation in a clustered mode.

Port usage for the NetBackup vSphere Web Client Plug-in

Table 2-5 shows the standard ports to be used in a NetBackup vSphere Web Client Plug-in environment.

Table 2-5   Ports used in NetBackup and the vSphere Web Client Plug-in environment

Source	Port number	Destination
Browser	9443	vSphere Web Client
For VM recovery: vCenter server (or vSphere Web Client server if deployed independently)	`RESTful` interface at port 8443 (https) or as configured on the primary server	primary server
primary server	443	vCenter server
Backup host	443	vCenter server
Backup host	902 (for `nbd` or `nbdssl`)	ESXi

Creating an authentication token for the NetBackup plug-in for vSphere Web Client

To allow the plug-in to restore VMs, you must generate an authentication token on the NetBackup primary server (or on the NetBackup appliance as primary server). When an authentication token is created on a primary server and deployed on the vCenter with the plug-in, it allows that vCenter to restore any VMware backup from that primary server.

To create an authentication token (certificate) on the NetBackup primary server

1 Enter the following on the primary server:

Windows

```
install_path\NetBackup\wmc\bin\install\manageClientCerts.bat
-create clientName
```

UNIX, Linux

```
/usr/openv/wmc/bin/install/manageClientCerts -create clientName
```

Where *clientName* is the DNS name of the vCenter where the plug-in is installed.

The manageClientCerts command returns the location of a compressed file that contains the authentication token.

Additional information is available on manageClientCerts:

See "Adding or deleting an additional host name or IP address for an authentication token" on page 41.

2 Provide the compressed file to the vCenter administrator.

Caution: Be sure to share or send the compressed file in a secure manner.

With the primary server token, the plug-in can be authorized to restore virtual machines.

See " Authorizing the NetBackup plug-in to restore virtual machines" on page 37.

See "Troubleshooting primary server communication failures in the plug-in's Recovery Portal" on page 106.

To create an authentication token (certificate) on the NetBackup appliance as primary server

1   To generate the token, see the "Manage > Certificates" topic in the *NetBackup Appliance Administrator's Guide*, available from this location:

http://www.veritas.com/docs/000002217

See "Adding or deleting an additional host name or IP address for an authentication token" on page 41.

2   Provide the compressed token file to the vCenter administrator.

Caution: Be sure to share or send the compressed file in a secure manner.

With the primary server token, the plug-in can be authorized to restore virtual machines.

See " Authorizing the NetBackup plug-in to restore virtual machines" on page 37.

See "Troubleshooting primary server communication failures in the plug-in's Recovery Portal" on page 106.

Authorizing the NetBackup plug-in to restore virtual machines

The NetBackup primary server initiates and controls the backup of virtual machines. To use the plug-in to restore virtual machines, you must obtain an authentication token from the NetBackup administrator. You can then authorize the plug-in to restore the virtual machines that were backed up by that primary server.

To authorize the plug-in to restore virtual machines

1   Ask the NetBackup administrator to provide an authentication token file.

See "Creating an authentication token for the NetBackup plug-in for vSphere Web Client" on page 35.

2   Copy the authentication token file to the computer or laptop where the vSphere Web Client is launched.

Make a note of the location.

3   In the top level of the vSphere Web Client object navigator, click **Veritas NetBackup**.

4 Click **Register Master Servers**.
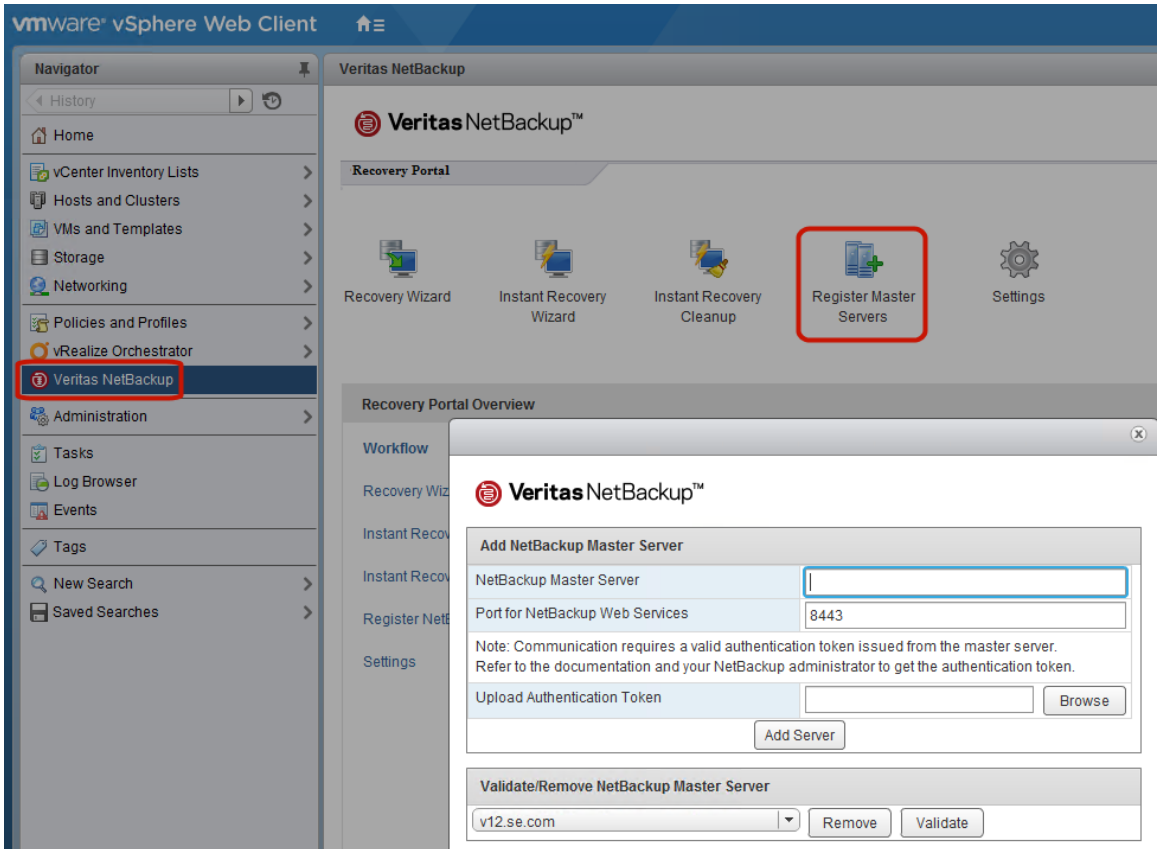
5 Enter the following to specify a NetBackup primary server and its authentication token.

Add NetBackup Master Server	■ **NetBackup Master Server** Enter the fully qualified domain name of the primary server. **Note:** NetBackup does not support adding the server by its IP address. ■ **Port for NetBackup Web Services** If the NetBackup administrator has not changed the port, accept the default (8443). Otherwise, ask the administrator for the correct port number. ■ **Upload Authentication Token** Click **Browse** to select the authentication token file that the NetBackup administrator provided. Click **Add Server**. The server is added to the list of primary servers that the plug-in can communicate with.

6 Add other primary servers and their authentication tokens as needed.

7 To be able to restore to an alternate vCenter server, log on to that vCenter server and register the primary server.

See "Notes on using the plug-in in a VMware Platform Services Controller (PSC) environment" on page 15.

8 You can also remove a primary server from the list of servers, or validate the connection from the plug-in to a primary server.

Validate/Remove NetBackup Master Server	After the primary server is added to the list, you can validate the connection. Type or select the primary server and click **Validate**. Click **Remove** to remove the server from the list. The plug-in is no longer able to monitor or restore the backups that the primary server performed.

Setting vCenter privileges for recovering virtual machines

Use the following procedure to set the user privileges in vCenter for the NetBackup Recovery Wizard. Set the privileges on each vCenter where virtual machines may need to be restored.

If the user account to access the plug-in cannot be assigned administrator privileges, you must set the following permissions at the vCenter level.

To set vCenter privileges for recovering virtual machines

1 In vSphere Web Client, click **Home > Roles**.

2 Under **Roles**, click **Administrator**.

3   Click **Privileges**.

4   Drill into **Global** and make sure **Log Event** is selected.
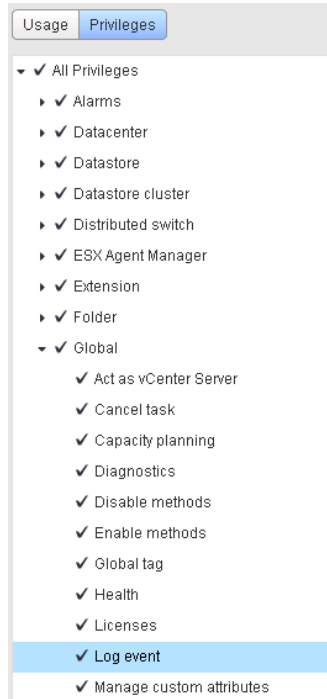
5 Drill into **NetBackup Recovery** and make sure the following are selected:

Add or Remove NetBackup Servers

Virtual Machine Recovery
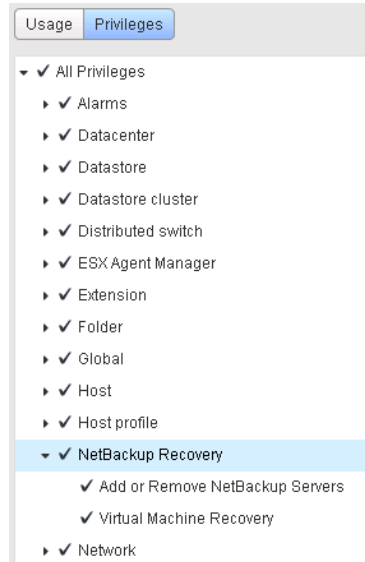
6 Set the privileges on each vCenter where virtual machines may need to be restored.

Caution: The NetBackup **Virtual Machine Recovery** privilege grants global recovery authorization. It allows users with that role to recover any virtual machine that resides on that vCenter. Use caution when granting this privilege to users.

Adding or deleting an additional host name or IP address for an authentication token

The `manageClientCerts` command generates an authentication token for a specific vCenter. The token gives the vCenter access to the NetBackup primary server where the token was generated. The token works if the vCenter's host name or DNS name is identical to the name that was entered on the `manageClientCerts` command.

For some environments, it may be necessary to allow the token to work with additional host names or IP addresses. An example is a multi-homed vCenter on multiple networks. Another example is a vCenter that uses Network Address

Translation (NAT). In these cases, the request for access to the NetBackup primary may come from a host name or IP address that was not specified when the token was generated.

To allow access to NetBackup from such environments, you can use the `manageClientCerts` command to do the following:

- Add another host name (or IP address) of the vCenter server for the existing token. The added host name or IP address is referred to as an *alias*. You can add multiple aliases for a token.

  IPv4 and IPv6 addresses are supported.

- Delete a host name or IP address from a token.

- Allow the token to be used on any vCenter server.

- List existing aliases for a token.

The `manageClientCerts` command is in the following location:

Windows

install_path\NetBackup\wmc\bin\install\manageClientCerts.bat

UNIX, Linux

/usr/openv/wmc/bin/install/manageClientCerts

Table 2-6   Add a host name or IP address for an existing authentication token

Task	Enter the following on the NetBackup primary server:
Add a host name	`manageClientCerts -addAlias` *host_name_used_to_generate_token* `-HOST` *additional_host_name_for_token*
	Where *host_name_used_to_generate_token* is the host name that was specified when the token was generated, and *additional_host_name_for_token* is the additional host name of the vCenter server.
	For example:
	`manageClientCerts -addAlias vCenter1 -HOST vCenter1.example.com`
	Command output:
	`Successful -addAlias, for client: vCenter1, type: HOST,` `alias: vCenter1.example.com`
	In this example, the added host name is `vCenter1.example.com`.
	Note: You can add multiple host names for a token. Add one host name for each instance of `manageClientCerts`.

Table 2-6   Add a host name or IP address for an existing authentication token *(continued)*

Task	Enter the following on the NetBackup primary server:

Add an IP address or range of IP addresses	`manageClientCerts -addAlias` *`host_name_used_to_generate_token`* `-IP` *`IP_address_for_token`* `|` *`IP_address_with_netmask_for_token`*
	
	Where *host_name_used_to_generate_token* is the host name that was specified when the token was generated. The IP address to add can be a single address (*IP_address_for_token*) or a range of addresses (*IP_address_with_netmask_for_token*).
	
	For example:
	
	To add a single IP address:
	
	`manageClientCerts -addAlias vCenter1 -IP 10.80.154.1`
	
	To add a range of IP addresses using a netmask:
	
	`manageClientCerts -addAlias vCenter1 -IP 10.80.154.0/29`
	
	In this example, 10.80.154.0/29 allows 6 hosts with IP addresses from 10.80.154.1 to 10.80.154.7 to use the same token.
	
	Note: For a range of IP addresses, `manageClientCerts` supports IP net masking, sometimes called Classless Inter-Domain Routing notation (CIDR).
	
	Note: You can add multiple IP addresses for a token. If not adding a range of addresses, add one IP address for each instance of `manageClientCerts`.
	
	Note: IPv4 and IPv6 addresses are supported.

Allow the token to operate with any host	`manageClientCerts -addAlias` *`host_name_used_to_generate_token`* `-ANY` Where *host_name_used_to_generate_token* is the host name that was specified when the token was generated. `-ANY` allows any host or any IP address to communicate with the NetBackup server by means of this token. **Caution:** Use the `-ANY` option with care. Allowing any host to use the token may introduce a security risk.

Table 2-7   Remove a host name or IP address from an existing authentication token

Task	Enter the following on the NetBackup primary server:
Delete a host name	`manageClientCerts -deleteAlias` *`host_name_used_to_generate_token`* `-HOST` *`host_name_to_delete`* Where *host_name_used_to_generate_token* is the host name that was specified when the token was generated, and *host_name_to_delete* is the name to be removed.

Table 2-7   Remove a host name or IP address from an existing authentication token *(continued)*

Task	Enter the following on the NetBackup primary server:
Delete an IP address	`manageClientCerts -deleteAlias` *host_name_used_to_generate_token* `-IP` *IP_address_to_delete* Where *host_name_used_to_generate_token* is the host name that was specified when the token was generated, and *IP_address_to_delete* is the IP address to be removed.
Delete the -ANY option	`manageClientCerts -deleteAlias` *host_name_used_to_generate_token* `-ANY` Where *host_name_used_to_generate_token* is the host name that was specified when the token was generated. The `-ANY` option is removed from the token. If particular aliases (host names or IP addresses) had been added for the token, those aliases remain in force.

Table 2-8   List the host names or IP addresses (aliases) that have been defined for a token

Task	Enter the following on the NetBackup primary server:

List host names or IP addresses (aliases)	`manageClientCerts -listAliases` *host_name_used_to_generate_token*
	
	Where *host_name_used_to_generate_token* is the host name that was specified when the token was generated.
	
	For example:
	
	`manageClientCerts -listAliases vCenter1`
	
	Command output:
	
	`Aliases for vCenter1:`
	`HOST = vCenter1.example.com`
	
	In this example, the alias is `vCenter1.example.com`. If the token was set with the `-ANY` option (to accept connections from any host or any IP address), the `-listAliases` output is the following:
	
	`Aliases for vCenter1:`
	`HOST = *`

Further assistance is available:

See

Revoking an authorization token

You can revoke an authentication token on a primary server to prevent the plug-in from performing restores from that primary server.

Note: To retain the token's aliases, you can renew the token rather than deleting it.

See "Renewing an authorization token" on page 45.

To revoke the authentication token

◆ Enter the following on the primary server:

Windows

install_path\NetBackup\wmc\bin\install\manageClientCerts.bat
-delete *clientName*

UNIX, Linux

/usr/openv/wmc/bin/install/manageClientCerts -delete *clientName*

Where *clientName* is the DNS name of the vCenter in which the plug-in is installed.

The -delete option removes the authentication token and its compressed file from the primary server. The plug-in is no longer authorized to restore virtual machines from the backups that this primary server made.

Renewing an authorization token

You can renew an authorization token that has expired, as follows.

Note: Authorization tokens expire after one year.

To renew an authorization token

1 Run the following command on the primary server.

Windows

```
install_path\NetBackup\wmc\bin\install\configureCertsForPlugins
-renewNBCAcert
```

UNIX, Linux

```
/usr/openv/wmc/bin/install/configureCertsForPlugins.bat
-renewNBCAcert
```

The `-renewNBCAcert` option regenerates NetBackup CA (NBCA) certificate and key-value pair.

2 Restart the NetBackup Web Management Console (`nbwmc`) service.

3 Enter the following on the primary server:

Windows

```
install_path\NetBackup\wmc\bin\install\manageClientCerts.bat
-renew clientName
```

UNIX, Linux

```
/usr/openv/wmc/bin/install/manageClientCerts -renew clientName
```

Where *clientName* is the DNS name of the vCenter where the plug-in is installed.

The `-renew` option deletes the token and creates a new one. Any aliases that existed for the token are retained.

See "Listing all current authentication tokens" on page 46.

See "Adding or deleting an additional host name or IP address for an authentication token" on page 41.

4 Use the plug-in's **Register Master Servers** option to re-register the primary server using the renewed authorization token.

See " Authorizing the NetBackup plug-in to restore virtual machines" on page 37.

Listing all current authentication tokens

You can list all the current authentication tokens that were generated on the current primary server.

To list all current authentication tokens

◆ Enter the following on the primary server:

Windows

install_path\NetBackup\wmc\bin\install\manageClientCerts.bat -list

UNIX, Linux

/usr/openv/wmc/bin/install/manageClientCerts -list

Sample output:

```
Client              Expiry Date

vCenter-server-1    Thu Feb 06 16:16:51 GMT+05:30 2014
vCenter-server-2    Fri Feb 07 11:22:53 GMT+05:30 2014
```

The command lists the vCenter servers for which the tokens were created as well as their expiration dates. It can help diagnose communication problems between the vCenter and the primary server when a token has expired.

- For well-formatted output, set the command prompt or shell screen size to more than 100 units.

- Server names that are longer than 40 characters are truncated. Characters beyond the first 40 are replaced with "...".

Permissions on the NetBackup plug-in authentication token file may need to be changed

To allow the NetBackup plug-in to restore VMs, the NetBackup administrator must generate an authentication token on the NetBackup primary server. NetBackup creates the token in a compressed file; the file must be sent to the administrator of the vCenter server where the plug-in is installed.

When the virtualization administrator uses the compressed file to authorize the plug-in to restore VMs, the token file is opened and left uncompressed. In either of the following cases, the uncompressed file may not have the same permissions that it had when the NetBackup administrator created the token:

- On the Linux vCenter Server Appliance, the umask is set to 0.

- VMware vSphere on Windows is installed in a location other than C:\Program Files.

In either case, you may need to adjust the token file's permissions to conform to your NetBackup security settings.

The uncompressed token file is in the following location on the vCenter server:

On a Linux vCenter Server Appliance: `/storage/vsphere-client/netbackup`

On a Windows vCenter server: `C:\ProgramData\VMware\vSphere Web Client\netbackup`

Excluding virtual disks from the backup

This chapter includes the following topics:

■ About excluding virtual disks from the backup

■ Setting the exclude disks Custom Attribute

About excluding virtual disks from the backup

NetBackup provides several methods to exclude virtual machine disks from backups. One method lets you exclude the virtual disks that are defined in a virtual machine's Custom Attribute. NetBackup then excludes those disks if you specify the Custom Attribute name in the backup policy.

Veritas provides a **Virtual Disk Exclusion Wizard** in the NetBackup plug-in for VMware vSphere Web Client. You can use the wizard to configure and apply a Custom Attribute to a virtual machine or multiple virtual machines.

To use the plug-in to configure a Custom Attribute to exclude disks from backups, the vCenter **Global** credentials **Manage custom attributes** and **Set custom attribute** are required.

See "Setting the exclude disks Custom Attribute" on page 49.

Setting the exclude disks Custom Attribute

Use the **Virtual Disk Exclusion Wizard** to create a VMware Custom Attribute of the virtual disks to exclude from backups. The NetBackup plug-in for VMware vSphere Web Client includes the wizard.

You can select up to and including 50 virtual machines to which you can apply a Custom Attribute.

See "About excluding virtual disks from the backup" on page 49.

To set the exclude disks Custom Attribute

1   In the top level of the vSphere Web Client object navigator, click **Veritas NetBackup**.

2   Click **Virtual Disk Exclusion Wizard**.
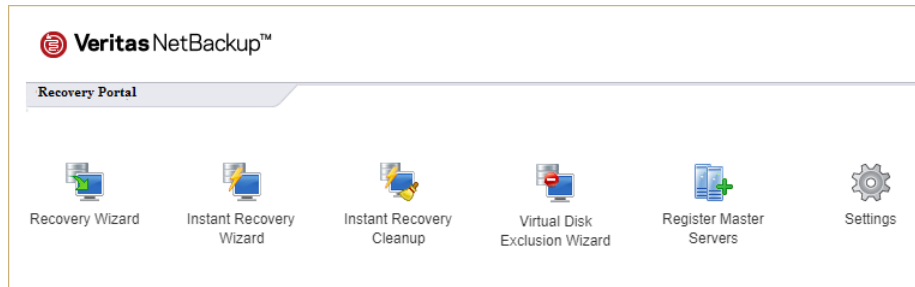
3 On the **Virtual Machine Selection** screen, select the virtual machine or virtual machines to which you want to apply the Custom Attribute, as follows:

a. In the **vCenter Server** drop-down list, select the vCenter Server that hosts the wanted virtual machines.

By default, the wizard selects the server that you selected in the vSphere Web Client.

b. In the **Custom Attribute** field, enter the name for the attribute.

By default, Veritas suggests **NB_DISK_EXCLUDE_LIST** for the name.

c. In the **Search** field, enter a value to search for. The wizard displays the VMs that match that value.

d. In the **Search Results** list, select the VMs to which you want to add the Custom Attribute and then click **Add Virtual Machines**. You can change the **Search Results** order by clicking on the column headers.

The counter in the **Virtual Machines Added** block at the top of the screen shows how many VMs that you added. **View Details** also appears in the block after you add virtual machines.

To remove VMs, click **View Details**, click the **X** next to each VM that you want to remove, then click **Close**.

e. To continue to the next wizard screen, click **Next**.

4 On the **Select Virtual Disks to Exclude** screen, select the virtual disk or virtual disks to which you want to apply the Custom Attribute, as follows:

Select Virtual Disks to Exclude

🗗 **3**   Virtual Disks Excluded

Display Name	Custom Attribute	
vm4 - rhel7	NB_DISK_EXCLUDE_LIST	✕
vm3 - rh5u6	NB_DISK_EXCLUDE_LIST	✕
vm10_rhel6.4	NB_DISK_EXCLUDE_LIST	✕

Available Disks: Showing 4 results

☐ Exclude disk	Label	Location	Path	Capacity	
☐	Hard disk 1	scsi0-0	[datastore]:vm4 - rhel7/vm4 - rhel7_3.v	165,675,008 KB	
☑	Hard disk 2	scsi0-1	[datastore] vm4 - rhel7/vm4 - rhel7_5.v	1,024 KB	
☑	Hard disk 3	scsi0-2	[datastore] vm4 - rhel7/vm4 - rhel7_2.v	25,600 KB	
☑	Hard disk 4	scsi0-3	[datastore] vm4 - rhel7/vm4 - rhel7_4.v	262,144 KB	

    a.   Select a virtual machine in the list of virtual machines.

          You can remove VMs by clicking the **X** next to each VM that you want to remove.

    b.   In the **Available Disks** list, select the disk or disks to add to the Custom Attribute. You can select all disks in the list by selecting the check box in the **Exclude disk** column header. If a disk is excluded already, a warning icon appears in the **Exclude disk** column.

          You can change the **Search Results** order by clicking on the column headers.

    c.   Repeat steps a and b for each virtual machine.

    d.   When you finish selecting disks, click **Next** to continue to the next wizard screen.

5 On the **Review Selections** screen, review and set the Custom Attribute, as follows:

Review Selections:

Virtual Machines and Excluded Disks

Display Name	Custom Attribute	Excluded Disks
vm4 - rhel7	NB_DISK_EXCLUDE_LIST	scsi0-1,scsi0-2,scsi0-3
vm3 - rh5u6	NB_DISK_EXCLUDE_LIST	scsi0-1
vm10_rhel6.4	NB_DISK_EXCLUDE_LIST	scsi0-1,scsi0-2,scsi0-3,scsi0-4

Set Exclusions   Apply virtual disk exclusions

✓ Successfully set virtual disk exclusions

Show More Details >>

a. Review the selections for the disks to exclude.

b. Click **Set Exclusions** to add the Custom Attribute to all of the selected VMs. The list box shows the results of the operation.

   Click **Show More Details** to see more.

c. Click **Finish**.

Monitoring backup status

This chapter includes the following topics:

vCenter privileges for backup monitoring

Before you can use the NetBackup plug-in for vSphere Web Client to monitor virtual machine backups, you must set vCenter privileges. Use the vSphere Web Client to make sure that the following **Global** privileges are set in vCenter: **Manage custom attributes** and **Set custom attribute**.

If the user account to access the plug-in cannot be assigned administrator privileges, you must set these permissions at the vCenter level. For assistance setting privileges, refer to the appropriate VMware vSphere Documentation Center.

In the vSphere Web Client interface, the **Global** privileges may look similar to the following:
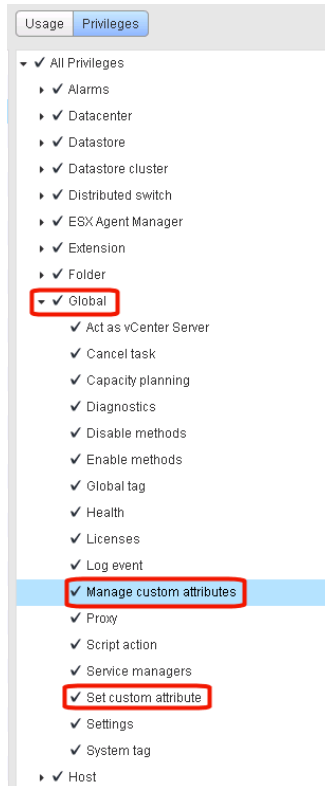
Veritas NetBackup tab in vSphere Web Client

The NetBackup plug-in for vSphere Web Client displays backup information on the **Veritas NetBackup** tab.

In the vSphere Web Client, click **Hosts and Clusters > Monitor**. Then select a vSphere object and click **Veritas NetBackup**.

Figure 4-1   Summary, Virtual Machines, and Events displays (NetBackup plug-in for vSphere Web Client)
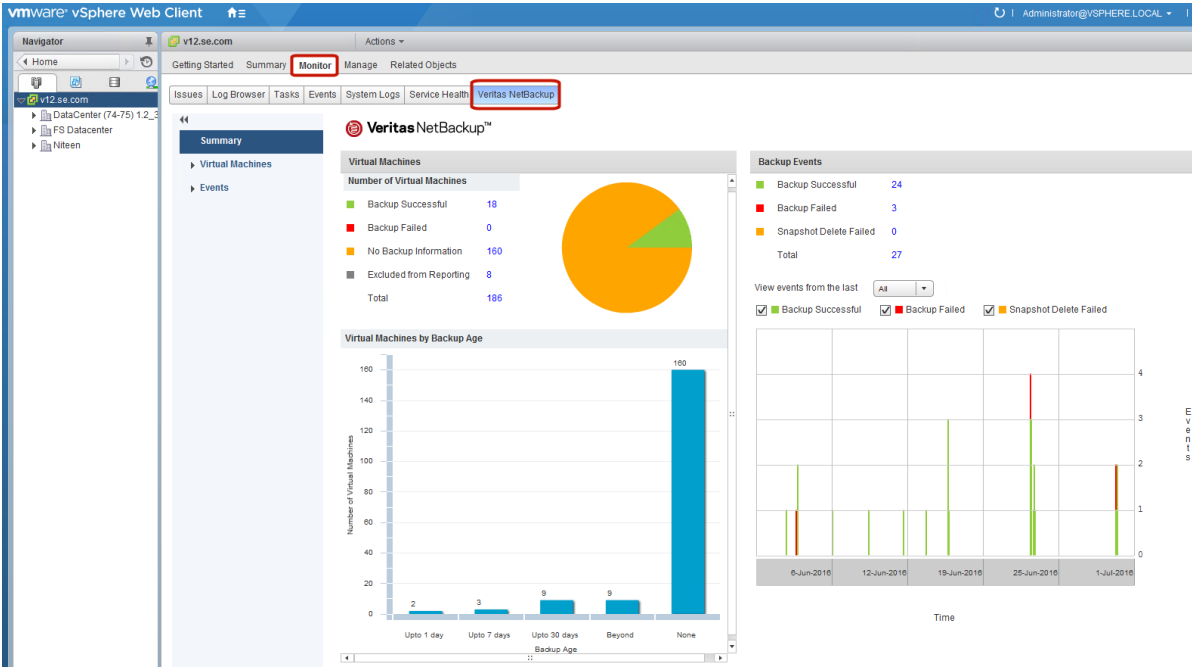
Note: Select an object, such as a vCenter, folder, datacenter, or ESXi host. The information that appears in the **Veritas NetBackup** tab applies to the VMs within the object that you select.

Table 4-1 describes the displays that appear on the **Veritas NetBackup** tab.

Table 4-1   Summary, Virtual Machines, and Events displays (NetBackup plug-in for vSphere Web Client)

Display	Information shown
Summary	A summary and graphical view of backup success and backup events for a specified time period. Can show the current backup status for a selected VM.
	See "Summary display" on page 57.

| Table 4-1 | Summary, Virtual Machines, and Events displays (NetBackup plug-in for vSphere Web Client) *(continued)* |

Display	Information shown
Virtual Machines	Tabular view of backup information for a group of VMs.
	Note: This display is available when you click on a vSphere object that is higher than the level of a VM.
	You can filter the information with a range of criteria. Includes an option for customized sorting in multiple columns.
	See "Virtual Machines display" on page 59.
Backup Events	More detailed tabular view of backup information based on events. Can show backup events for a VM or its parent object.
	You can filter the information with a range of criteria. Includes an option for customized sorting in multiple columns.
	See "Events display" on page 60.

Summary display

The Summary display summarizes backup status, backup events, and backup age for the VMs in the vSphere object that you select. If you select an individual VM, the Summary display shows backup status and events for that VM.

Figure 4-2 shows an example of the Summary display for multiple VMs.

Figure 4-2   Summary display with backup data for multiple VMs
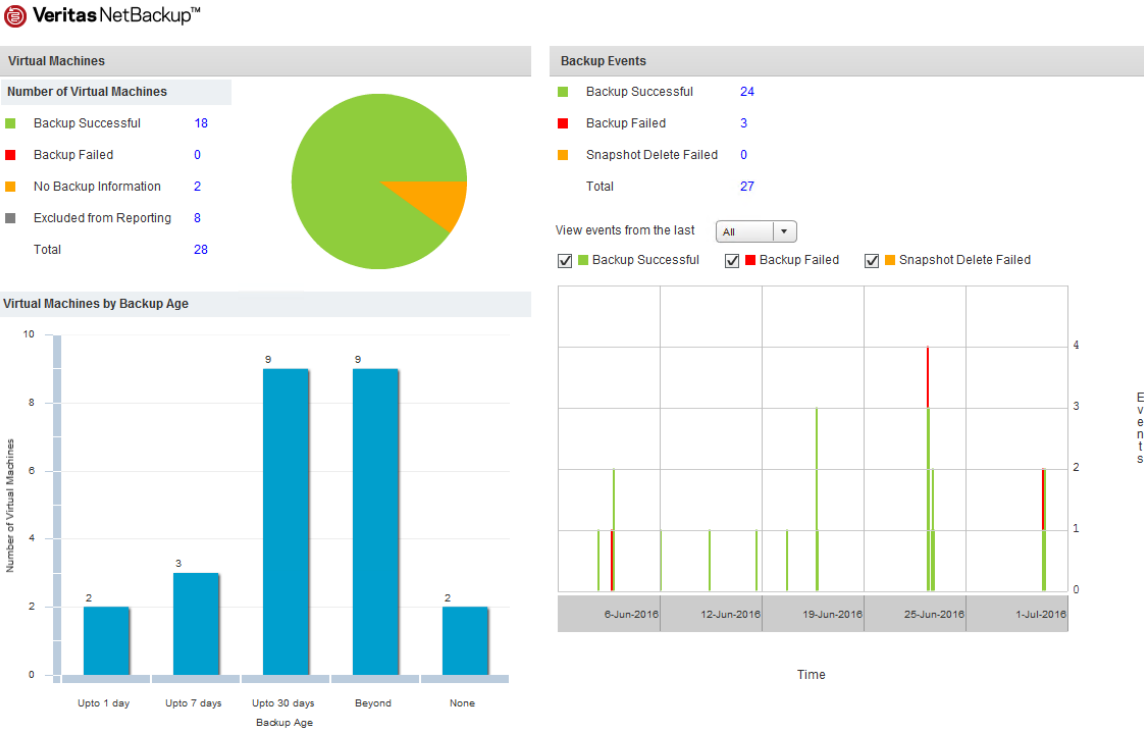
The Summary display presents the following backup information.

Table 4-2   NetBackup Summary display for vSphere Web Client

Panel	Description
Virtual Machine(s)	Shows the current backup status for a particular VM or for all the VMs that belong to the selected vSphere object.
	If the vSphere object is higher than the level of a VM, the backup status appears in a color-coded pie chart.
	Note: If the panel applies to more than one VM: click on the linked values (such as for **Backup Successful** or **Total**) to see the details in the **Virtual Machines** display.
Virtual Machines By Backup Age	Shows the backup age of the VMs in a bar chart. This panel is available only for a vSphere object that is higher than the level of a VM.

| | Table 4-2 | NetBackup Summary display for vSphere Web Client *(continued)* |

Panel	Description
Backup Events	Lists the total number of backup events and a breakdown of the events by **Backup Successful**, **Backup Failed**, and **Snapshot Delete Failed**.
	Note: Click on the linked values for **Backup Successful**, **Backup Failed**, **Snapshot Delete Failed**, or **Total** to see the details in the **Events** display.
	Includes a color-coded bar chart that represents the type and number of backup events that occurred within a specified period. Each bar represents the events that occurred on a particular day.
	You can configure the chart as follows:
	■ Select the types of events that appear in the chart by clicking on the color-coded check boxes. ■ Select a different time period from **View events from the last**.

Virtual Machines display

The Virtual Machines display is available when you click on a vSphere object that is higher than the level of a VM. For each VM it lists the following: the VM name, the host or cluster, backup status, last successful backup, backup age, backup policy, primary server, and the number of consecutive failures.
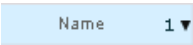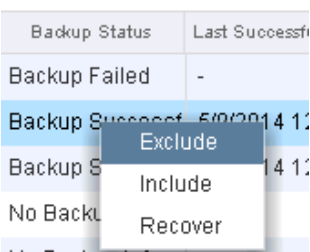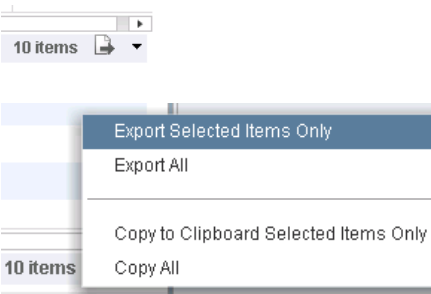
The following is an example of the Virtual Machines display.

Figure 4-3   Virtual Machines display

Table 4-3 describes the options for using the Virtual Machines display.

| | Table 4-3 | Display options in the NetBackup Virtual Machines display for vSphere Web Client |

Option	Description
Name 1▼	Click in a column header to list the column entries in ascending or descending order. You can also adjust the width of each column.
Name ▽	Click and hold a column header to drag the column to the left or right in the display.
Backup Status / Last Successf... Backup Failed - Backup Success 5/9/2014 12 Exclude Backup S Include 4 12 No Backu Recover	Right-click on a row to exclude or include a VM in the display, or to recover a VM. **Exclude**: Marks a selected VM so that its backup status and other information are not displayed. **Include**: Reverses the **Exclude** option: Adds a VM's backup status and other information to the display. **Recover**: Brings up the **Recovery Wizard**, to recover the VM.
10 items ▣ ▾ Export Selected Items Only Export All Copy to Clipboard Selected Items Only 10 items Copy All	Click the drop-down icon in the lower right, to export or copy the rows to a file. To export or copy information on a particular VM, first click on the row of the VM. To save the information to an HTML or comma-separated text (CSV) file, click **Export**. To save to the Clipboard, click **Copy**.

Events display

The Events display shows backup information based on events, such as backup successful, backup failed, and snapshot delete failed. It can show backup events for a single VM or for all VMs in the selected object.

The following is an example of the Events display.

Figure 4-4   Events display

Table 4-4   Events display

Option	Description
	Click in a column header to list the column entries in ascending or descending order. You can also adjust the width of each column.
	Click and hold a column header to drag the column to the left or right in the display.
Backup Successful	For the selected vSphere object, shows only the VMs that were successfully backed up.
Backup Failed	For the selected vSphere object, shows only the VMs that were not successfully backed up.
Snapshot Delete Failed	For the selected vSphere object, shows only the VMs for which NetBackup failed to delete the snapshot after the backup completed. **Note:** After it creates a snapshot, NetBackup deletes the snapshot when the backup completes. If NetBackup fails to delete snapshots, the performance of the VM may eventually decline. In that case, you may need to delete the snapshots manually.
Recover	To recover a VM, right-click on its row and click **Recover**. The **Recovery Wizard** appears.

Table 4-4   Events display *(continued)*

Option	Description
Export Selected Items Only Export All Copy to Clipboard Selected Items Only Copy All	Click the drop-down icon in the lower right, to export or copy the rows to a file. To export or copy information on a particular VM, first click on the row of the VM. To save the information to an HTML or comma-separated text (CSV) file, click **Export**. To save to the Clipboard, click **Copy**.

Using the Veritas NetBackup tab for backup reporting

The following procedures explain how to find VM backup status in the **Hosts and Clusters > Monitor > Veritas NetBackup** tab.

The information that appears in the **Veritas NetBackup** tab applies only to the vSphere object that you select.

To find backup status for a single VM

1 Select the VM in vSphere Web Client.

2 On the **Monitor** tab, click **Veritas NetBackup**.

3 Use the **Summary** or **Events** displays to see the backup status.

To find backup status for multiple VMs

1 Select the appropriate object in vSphere Web Client (such as datacenter or ESXi host).

2 On the **Monitor** tab, click **Veritas NetBackup**.

The **Summary** display shows the backup success rate for the VMs overall.

See "Summary display" on page 57.

3 For the backup status of particular VMs, click **Virtual Machines** and find the VMs in the **Name** column. Or click **Events** to list all the backup attempts.

You can click on a column header to reorder the entries in that column, or to move or widen the column.

You can use **Filter** to limit the type of information that appears.

Under **Events**, click **Backup Successful**, **Backup Failed**, or **Snapshot Delete Failed** to filter the events by backup status.

See "Virtual Machines display" on page 59.

See "Events display" on page 60.

To determine which VMs are not backed up

1 Select the appropriate object in vSphere Web Client (such as datacenter or ESXi host).

2 On the **Monitor** tab, click **Veritas NetBackup**.

3 Click **Events**, then click **Backup Failed**.

4 To save the report, click on the save-file icon in the lower right and select an output type.

To determine the age of existing backups

1 Select the appropriate object in vSphere Web Client (such as datacenter or ESXi host).

2 On the **Monitor** tab, click **Veritas NetBackup**.

3 Click **Summary**.

Virtual Machines By Backup Age shows the age of the backups (up to one day, 7 days, 30 days, and so forth).

4 For information on backup age per VM, click **Virtual Machines** and look at the **Backup Age (days)** column.

5 To save the report, click on the save-file icon in the lower right and select an output type.

How to respond to backup status

For the backup status that is reported in the NetBackup plug-in for vSphere Web Client, try the following suggested actions. You may need to confer with the NetBackup administrator.

Table 4-5 Tips for responding to backup status in the NetBackup plug-in for vSphere Web Client

Status	Action
Backup failures	■ Look at the number of consecutive failures on the **Virtual Machines** display.
	■ If too many failures have occurred, export the display results (use the save-file icon in the lower right). Send the file to the NetBackup administrator.
No backup information	■ The VM may not be included in a NetBackup policy, or the **Post events to vCenter** policy option may not be correctly configured. Contact the NetBackup administrator.
	■ The VM may be intentionally excluded from scheduled backups (contact the NetBackup administrator). In that case, you can right-click on the VM's row in the **Virtual Machines** display and click **Exclude**. The **Exclude** option removes the VM's status from the display.
	■ The ESXi server may have been removed from the vCenter server. See "Notes on the NetBackup plug-in for vSphere Web Client" on page 8.
Snapshot delete failed	NetBackup attempts to delete old snapshots at the start of each backup. If snapshots are not deleted, you can manually delete them in vSphere Web Client.

Restoring virtual machines

This chapter includes the following topics:

- Configuring settings for the virtual machine recovery

- Notes on the NetBackup recovery wizards

- How to access the NetBackup Recovery Wizards

- NetBackup Recovery Wizard screens

- NetBackup Instant Recovery Wizard screens

- Cleaning the recovery environment and releasing the NetBackup resources

Configuring settings for the virtual machine recovery

Use the **Settings** option to configure the settings for virtual machine recovery.

To configure the settings for the NetBackup plug-in for vSphere Web Client

1   In the top level of the vSphere Web Client object navigator, click **Veritas NetBackup**.
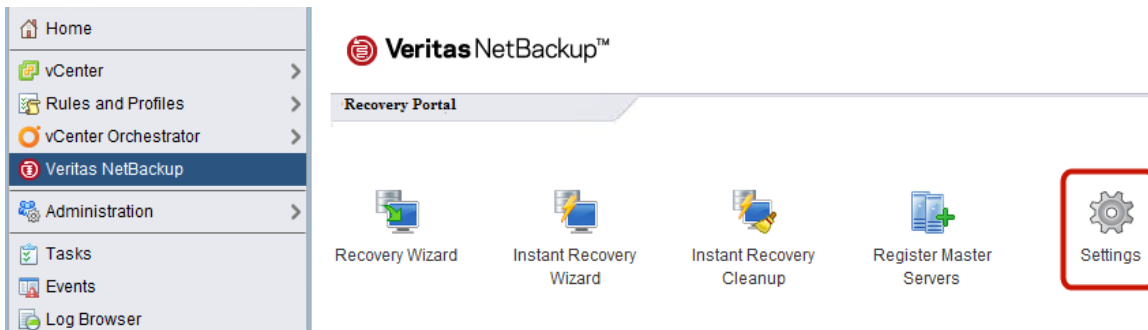
2   Click **Settings**.

3   In the **Settings** dialog, enter the settings as described in Table 5-1.
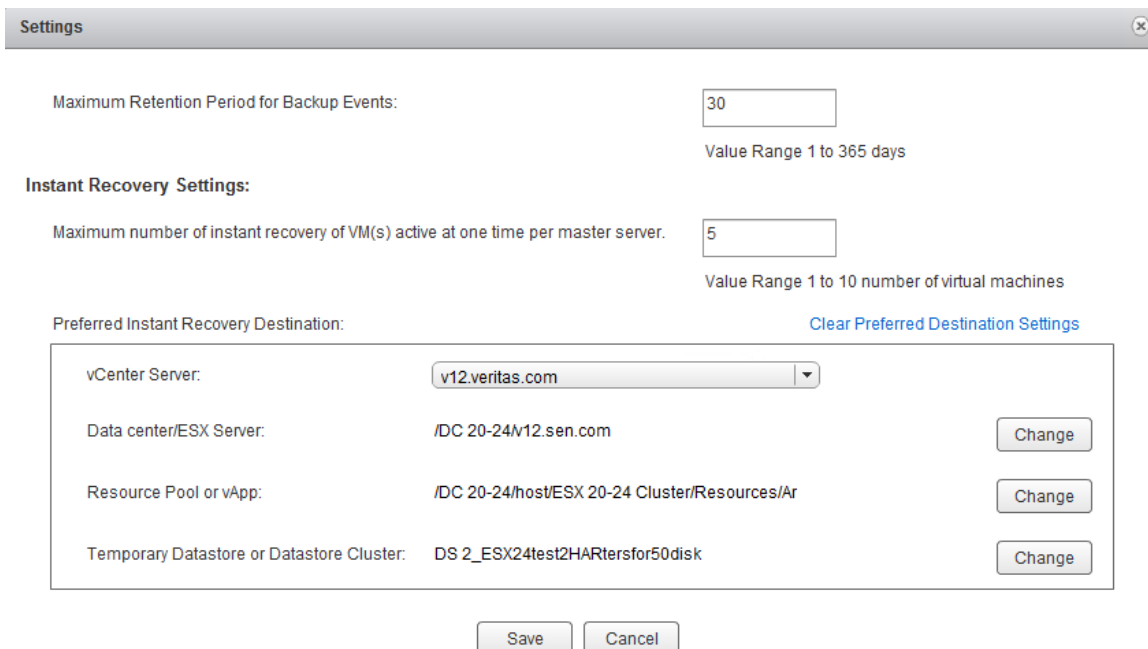
4   For each **Preferred Instant Recovery Destination** setting, click **Change** or **Select**.

5   Click **Save** to save the settings.

The **Preferred Instant Recovery Destination** settings are populated during the IR wizard screen **Destination Selection** when you select the **Reset to Preferred Destination** option.

Table 5-1   Fields in the **Settings** dialog for recovery

Settings	Description
Maximum Retention Period for Backup Events	Set the retention period of the vCenter event viz. recovered virtual machines.
Maximum number of instant recovery of VM(s) active at one time per master server	Enter the maximum number of IR jobs that can be run simultaneously for a single NetBackup primary server.
Preferred Instant Recovery Destination	Select the destination settings for instant recovery.
vCenter Server	The destination vCenter server.
Data center/ESX Server	The data center or the ESX server that is registered with the vCenter server. Click **Select** (or **Change**) for a pop-up in which to locate the data center or server.
Resource Pool or vApp	The virtual machine pool or the vApp to be used for the recovery.
Temporary Datastore or Datastore Cluster	The temporary datastore to be used during the recovery process.
Clear Preferred Destination Settings	Click to remove the current settings.

Notes on the NetBackup recovery wizards

Use the Veritas NetBackup **Recovery Wizard** to restore a virtual machine from its NetBackup image. You can restore the virtual machine to its original location or to a different location.

Use the Veritas NetBackup **Instant Recovery Wizard** to instantly restore virtual machine backup images. With instant recovery, you can immediately restore a virtual machine into your production environment. Instant virtual machine recovery helps improve recovery time objectives (RTO) and minimizes disruption and downtime of the production VMs.

Note the following about the NetBackup plug-in's recovery wizards:

- For the pre-requisites for using the recovery wizards:
  See "Configuration overview for the NetBackup Recovery and Instant Recovery Wizards" on page 32.

- The recovery wizards are an optional feature of the plug-in. They are not required for monitoring virtual machine backups.

- The NetBackup **Recovery Wizard** is for recovery of an entire virtual machine, not for recovery of individual files. To recover individual files from the virtual machine backup, use the **NetBackup Backup, Archive, and Restore** interface. Or use the plug-in's **Instant Recovery Wizard** to boot the virtual machine instantly and access the files.
  See also: "About restore of individual files" and "Restoring individual files" in the *NetBackup for VMware Administrator's Guide*.

- The recovery wizards do not support recovery of vCloud Director backup images. To recover virtual machines into vCloud Director, use the **NetBackup Backup, Archive, and Restore** interface.
  See the "Use NetBackup for vCloud Director" chapter in the *NetBackup for VMware Administrator's Guide*.

- You can also perform VM recovery and instant recovery using the `nbrestorevm` command. For more information, refer to the *NetBackup for VMware Administrator's Guide* and the *NetBackup Commands Reference Guide*.

How to access the NetBackup Recovery Wizards

In vSphere Web Client, you can launch the NetBackup Recovery Wizards as shown in Table 5-2.

Table 5-2   How to start the NetBackup Recovery Wizards in vSphere Web Client
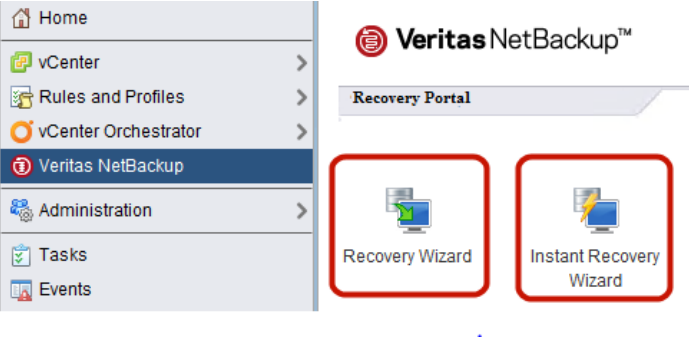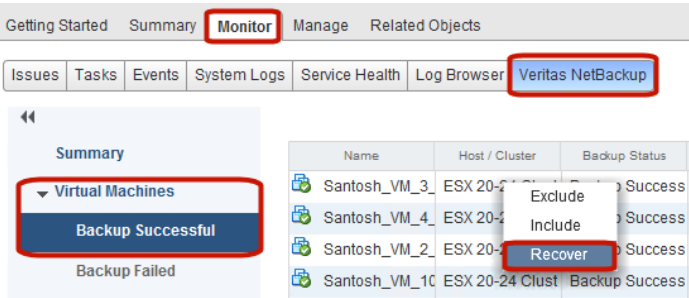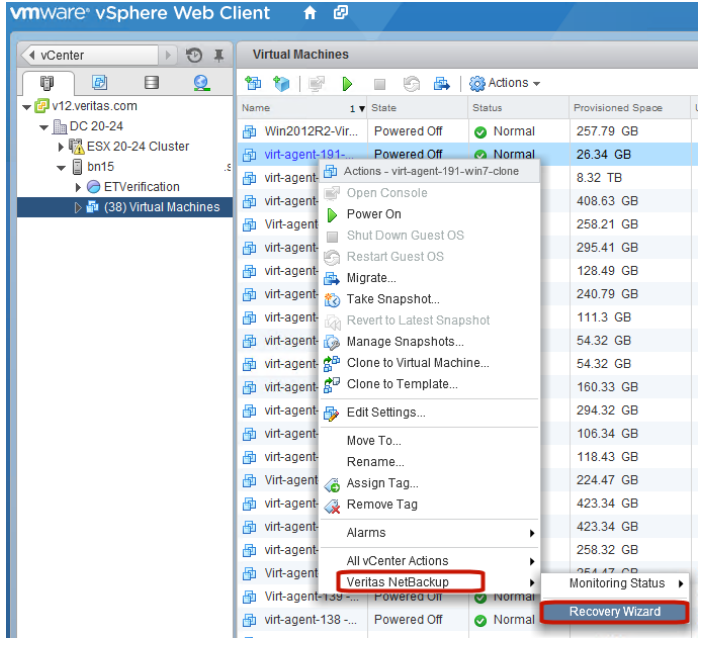
Action		Description
		In the vSphere Web Client object navigator, click **Veritas NetBackup**, then click **Recovery Wizard** or **Instant Recovery Wizard**.
		In **Hosts and Clusters**, click the **Monitor** tab. In the **Veritas NetBackup** tab, click **Virtual Machines** or **Events**, right-click on a successful backup for the virtual machine, and click **Recover**.

| **Table 5-2** | How to start the NetBackup Recovery Wizards in vSphere Web Client *(continued)* |

Action	Description
	In the **Virtual Machines** pane (or in the left pane), right-click on the VM to restore and click **Veritas NetBackup > Recovery Wizard**.

NetBackup Recovery Wizard screens

Use the following screens to restore a virtual machine with the VMware vSphere Web Client interface.

Virtual Machine Selection screen

Select the virtual machine to restore.

Figure 5-1   Virtual Machine Selection screen in the NetBackup Recovery Wizard for vSphere Web Client

Table 5-3   Fields in the Virtual Machine Selection screen

Field	Description
Select the vCenter Server	Shows the vCenter server where the plug-in is installed. **Note:** Use the drop-down list to select the vCenter server where the VM resided when it was backed up. **Note:** If the plug-in is not authorized to restore VMs, this field is empty. See " Authorizing the NetBackup plug-in to restore virtual machines" on page 37.
Select NetBackup Master Server	Use the drop-down list to select the primary server that made the backup. If the primary server does not have any VM backups, the error message `no entity was found EC:227` appears. If the primary server is not in the drop-down, you must register the primary server with the vCenter. See " Authorizing the NetBackup plug-in to restore virtual machines" on page 37.

Table 5-3   Fields in the Virtual Machine Selection screen *(continued)*

Field	Description
Enter Display Name or UUID or DNS Name or Host Name	Enter the name (or portion of the name) of the virtual machine that you want to restore, and click **Search**. **Note:** This field is case-sensitive.
Search Results	The results of the search appear in this list. Click the virtual machine to restore and then click **Next**. The NetBackup primary server identifies each VM in the backup policy as a "client." In the search results, the **NetBackup Client Name** column displays that name.

Image Selection screen

Select the backup image from which to restore the virtual machine.

Figure 5-2   Image Selection screen in the NetBackup Recovery Wizard for vSphere Web Client

Table 5-4 Fields in the Image Selection screen

Field	Description

Select Backup Image to view details	Use the drop-down to select the backup, as follows:
	
	■ **Latest Backup**
	  Selects the latest available backup image.
	■ **Manually Specify**
	  Click this option to select a different backup image. The **Browse Backups** option appears. Click that option and enter a date range within which to search for images. For more information, see Table 5-5.

Details for Backup Image	Lists the information about the VM backup image.
Virtual Machine Attributes	Lists the attributes of the virtual machine at the time it was backed up.
VMDKs	Lists the vmdk file(s) of the selected VM.
Next	Click **Next** for the next recovery screen.

Figure 5-3   Manual Backup Selection screen in the NetBackup Recovery
Wizard for vSphere Web Client

	Table 5-5	Fields in the Manual Backup Selection screen

Field	Description
Search backup images between start and end time	To search for backup images, click in the left calendar to select the start time. Click in the right calendar to select the end time. You can use the **Hour, Minutes, Seconds** fields to set more precise times. Then click **Search Images**. Click on an image. Further information about the image appears under **Virtual Machine Attributes** and **VMDKs**.
Images	Lists the images that fall within the search dates.
Virtual Machine Attributes	For the selected image, lists the attributes of the virtual machine at the time it was backed up.
Selected Backup	Click to select the image.

Destination Selection screen

Specify the destination for the restored virtual machine.

The default values are from the original location of the virtual machine.

Figure 5-4   Destination Selection screen in the NetBackup Recovery Wizard
for vSphere Web Client
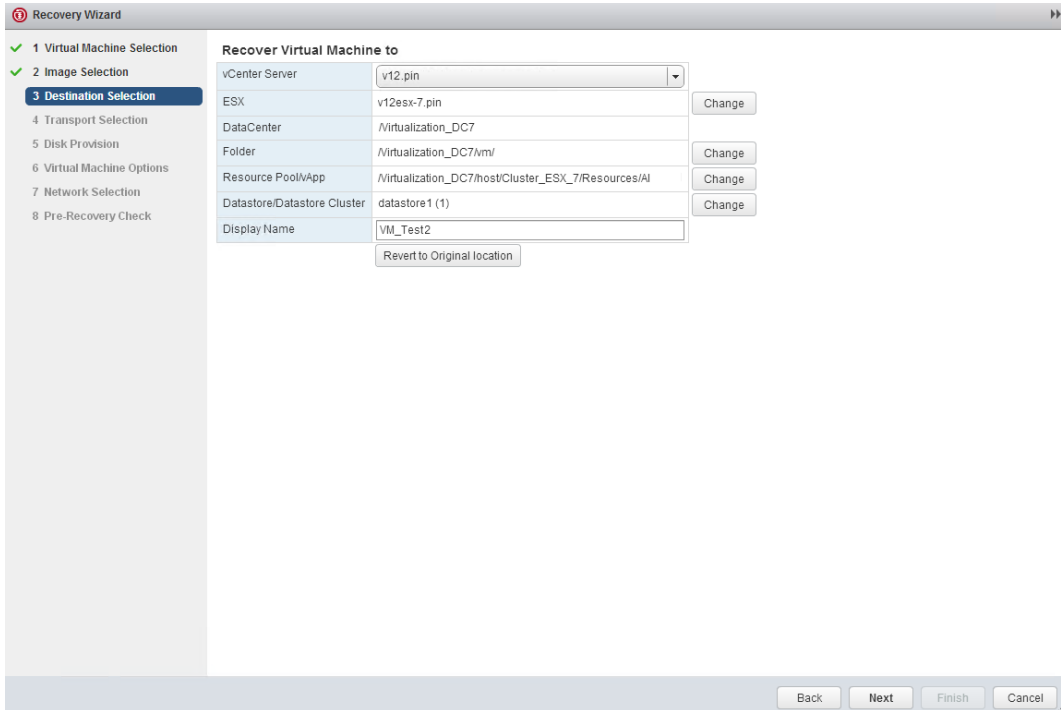
Table 5-6   Fields in the Destination Selection screen

Field	Description
vCenter Server	The vCenter server for the restored virtual machine. Use the drop-down to select the vCenter server.
ESX	The ESXi server for the restored virtual machine. Click **Change** to browse for an ESX server.
DataCenter	The datacenter for the restored virtual machine.
Folder	The folder for the restored virtual machine. Click **Change** to browse for a folder.
Resource Pool/vApp	The resource pool for the restored virtual machine. Click **Change** to browse for a resource pool or vApp.

Table 5-6   Fields in the Destination Selection screen *(continued)*

Field	Description
Datastore/Datastore Cluster	The datastore or datastore cluster for the restored virtual machine. Click **Change** to browse for a datastore or datastore cluster.
Display Name	The display name for the restored virtual machine. You can enter the name.
Revert to Original location	Selects the original location (vCenter and ESXi server, datacenter, folder, resource pool, vApp, datastore, or cluster) as the restore location. This setting is the default.
Next	Click **Next** for the next recovery screen.

Transport Selection screen

Select the recovery host and data transport mode(s) for the virtual machine restore.

Figure 5-5   Transport Selection screen in the NetBackup Recovery Wizard for vSphere Web Client
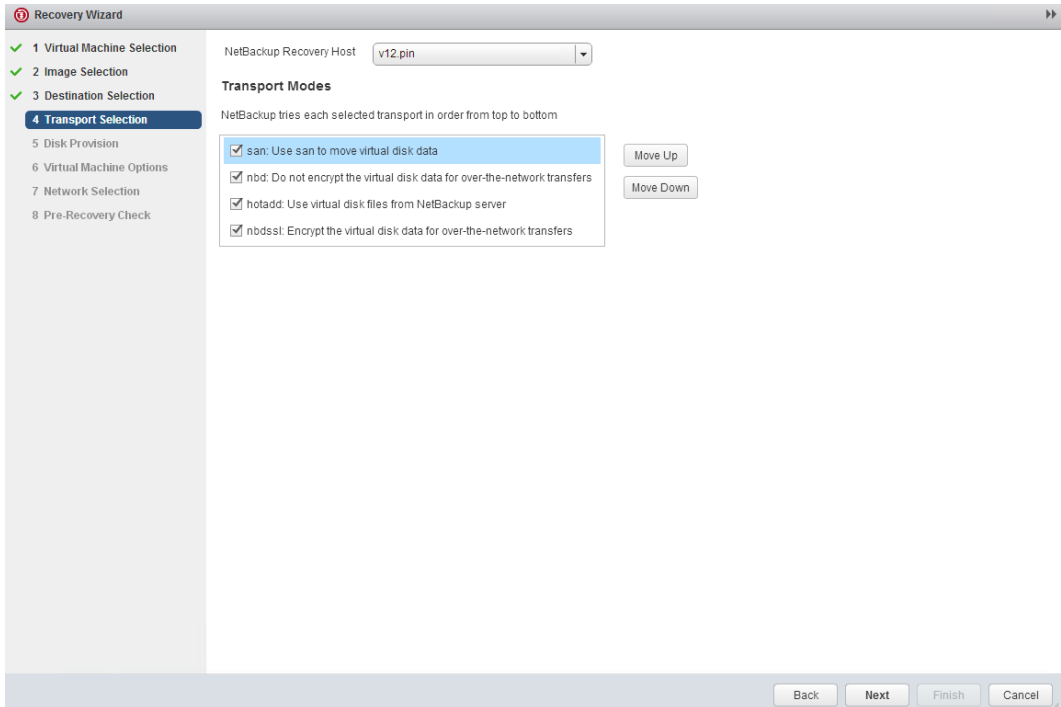
Table 5-7	Fields in the Transport Selection screen

Field	Description
NetBackup recovery host	The host that performs the recovery. The default is the host that performed the backup (the backup host).
	In most cases, use the host that performed the backup. Selecting a different host as the recovery host can result in a slow restore or a failed restore, depending on the transport mode.
	For example, the restore may fail if you select the SAN transport mode in the following case:
	■ The host that performed the backup used a SAN connection to access the datastore.
	■ The host you select as recovery host does not have SAN access to the datastore.
Transport Modes	Determines how NetBackup sends the restore data from the recovery host to the VMware datastore. The appropriate option depends in part on the type of network that connects the VMware datastore to the recovery host.
	Click the check boxes to select or unselect transport modes. For the restore, NetBackup tries the selected modes in the order listed. To change the order, click on a transport mode and click **Move Up** or **Move Down**.
san	For unencrypted transfer over Fibre Channel (SAN) or iSCSI.
nbd	For unencrypted transfer over a local network with the Network Block Device (NBD) driver protocol. This mode of transfer is usually slower than Fibre Channel.
nbdssl	For encrypted transfer (SSL) over a local network with the Network Block Device (NBD) driver protocol. This mode of transfer is usually slower than Fibre Channel.
hotadd	Requires that the recovery host is in a virtual machine.
	For instructions on this transport mode and on installing the recovery host in a virtual machine, refer to your VMware documentation.

Disk Provision screen

Select the provisioning (format) for the restored virtual disks.

Figure 5-6   Disk Provision screen in the NetBackup Recovery Wizard for
vSphere Web Client
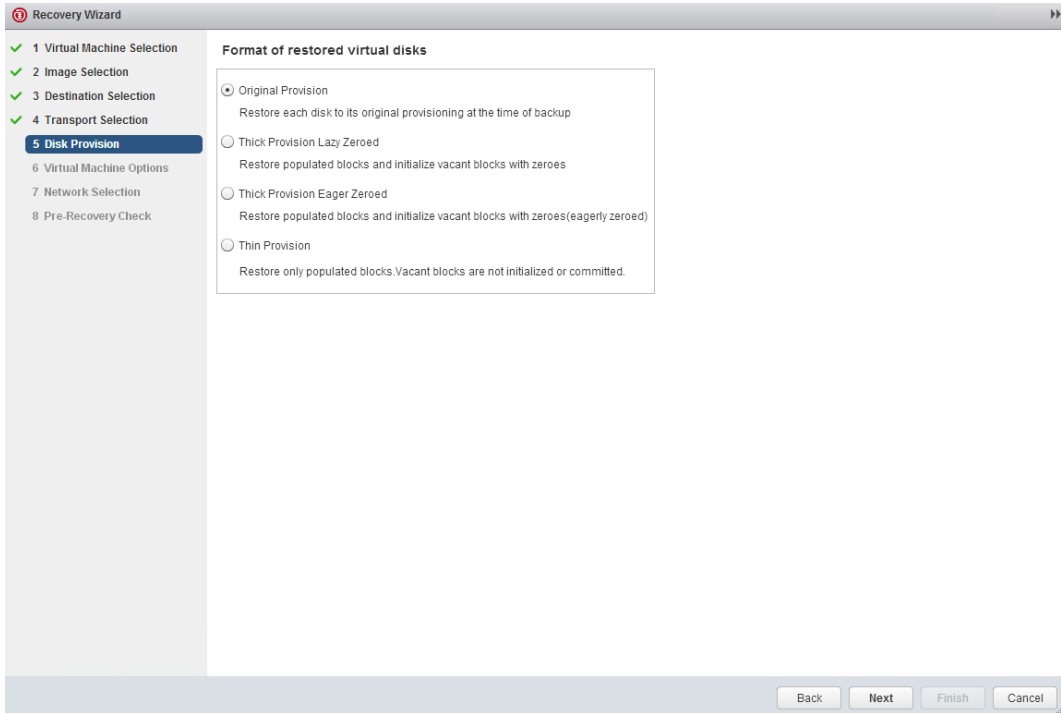
Table 5-8   Fields in the Disk Provision screen

Field	Description
Original Provision	Restores the virtual machine's virtual disks with their original provisioning.
Thick Provision Lazy Zeroed	Configures the restored virtual disks in the thick format. The virtual disk space is allocated when the disk is created. This option restores the populated blocks, but initializes vacant blocks with zeros later, on demand.
Thick Provision Eager Zeroed	Configures the restored virtual disks in the thick format. Restores the populated blocks and immediately initializes vacant blocks with zeros (eagerly zeroed). Creation of the virtual disks may take more time with this option. However, if the restore occurs over a SAN, the eagerly zeroed feature may speed up the restore by reducing network communication with the vCenter server.
Thin Provision	Configures the restored virtual disks in the thin format. Restores the populated blocks but does not initialize vacant blocks or commit them.

Virtual Machine Options screen

Click the check boxes to select the recovery options for the virtual machine.

Figure 5-7   Virtual Machine Options screen in the NetBackup Recovery
Wizard for vSphere Web Client

Table 5-9   Fields in the Virtual Machine Options screen

Field	Description
Restore BIOS UUID xxx instead of creating a new UUID	Retains the UUID of the original virtual machine (note that the UUID is a globally unique identifier). The virtual machine is restored with the same UUID that it had before the restore. Note the following: ■ If a virtual machine with the same display name but with a different UUID exists at the target restore location, the restore fails. You must either delete the existing virtual machine and run the restore, or keep the existing virtual machine and abandon the restore. ■ If you do not want to keep the existing virtual machine, you can do one of the following: Remove the existing virtual machine, or log into the ESXi server and remove the directory where the virtual machine resides.

| | Table 5-9 | Fields in the Virtual Machine Options screen *(continued)* |

Field	Description
Restore Instance UUID xxx instead of creating a new UUID	Retains the Instance UUID of the original virtual machine (note that the Instance UUID is a vCenter specific unique identifier of a virtual machine). The virtual machine is restored with the same Instance UUID that it had when it was backed up.
	If the restore of the virtual machine is to a standalone ESXi host, this option is disabled.
	If a virtual machine with the same Instance UUID exists at the target restore location, a message appears that the UUID is used already. In this case, the original instance UUID is not restored and a new UUID is assigned for the virtual machine.
Overwrite existing virtual machine	If a virtual machine with the same display name exists at the destination, that virtual machine must be deleted before the restore begins. Otherwise, the restore fails. Select this option to have the virtual machine deleted.
Remove backing information for devices like DVD/CD-ROM drives, serial or parallel ports	If a virtual machine had an ISO file that was mounted on a CD when the virtual machine was backed up, note: The ISO file must be available on the target ESX server when you restore the virtual machine. If the ISO file is not available on the ESX server, the restore fails.
	This option restores the virtual machine without restoring an ISO file that was mounted when the virtual machine was backed up.
Remove tag associations	When this option is selected, NetBackup does not restore tag associations when it restores the virtual machine. If this option is not selected, NetBackup attempts to restore all tag associations from the backup.
	If NetBackup cannot restore one or more of the tag associations, the restore exits with a NetBackup status code 1.
Power on virtual machine after recovery	The recovered virtual machine is automatically turned on when the recovery is complete.
Retain original hardware version	This option restores the virtual machine with its original hardware version (such as 4). It retains the original version even if the target ESXi server by default uses a later hardware version (such as 7 or 8).
	If this option is disabled, the restored virtual machine is converted to the default hardware version that the ESXi server uses.

Network Selection screen

Click the check boxes to select the networks for the recovered virtual machine.

Figure 5-8   Network Selection screen in the NetBackup Recovery Wizard for
                        vSphere Web Client
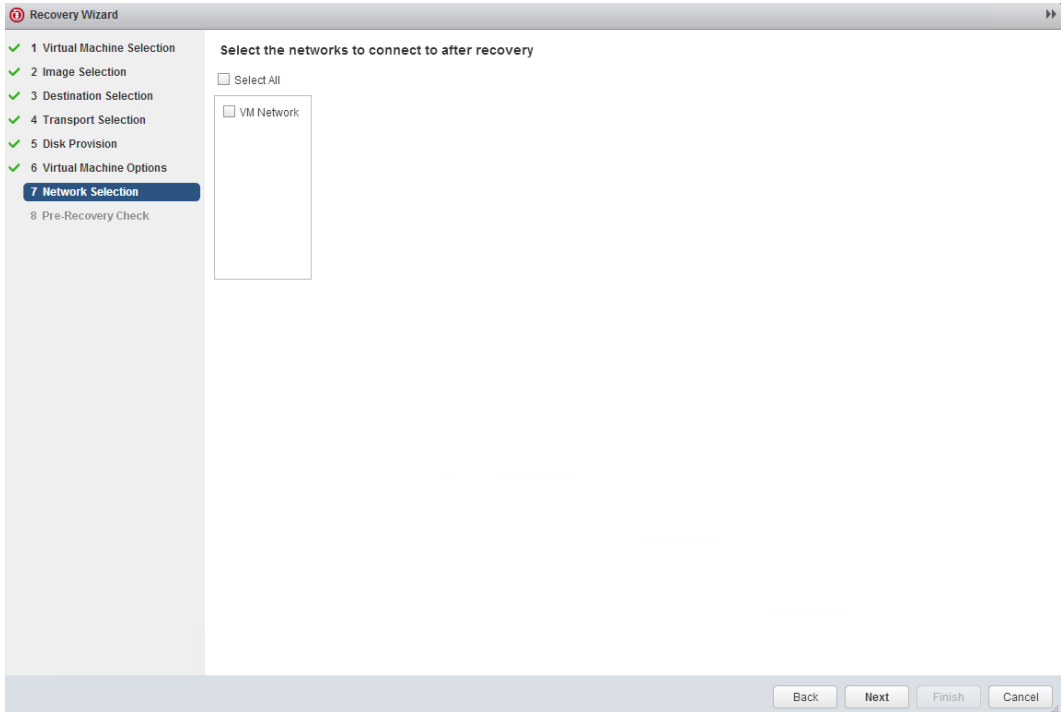
Table 5-10   Fields in the Network Selection screen

Field	Description
Select All	Selects or unselects all the networks that are available. If a network is selected, the restored virtual machine is automatically connected to that network.
VM Network	You can select individual networks for the restored virtual machine.

Pre-Recovery Check screen

Preview the recovery details, run a pre-recovery check, and start the recovery.

Figure 5-9   Pre-Recovery Check screen in the NetBackup Recovery Wizard for vSphere Web Client
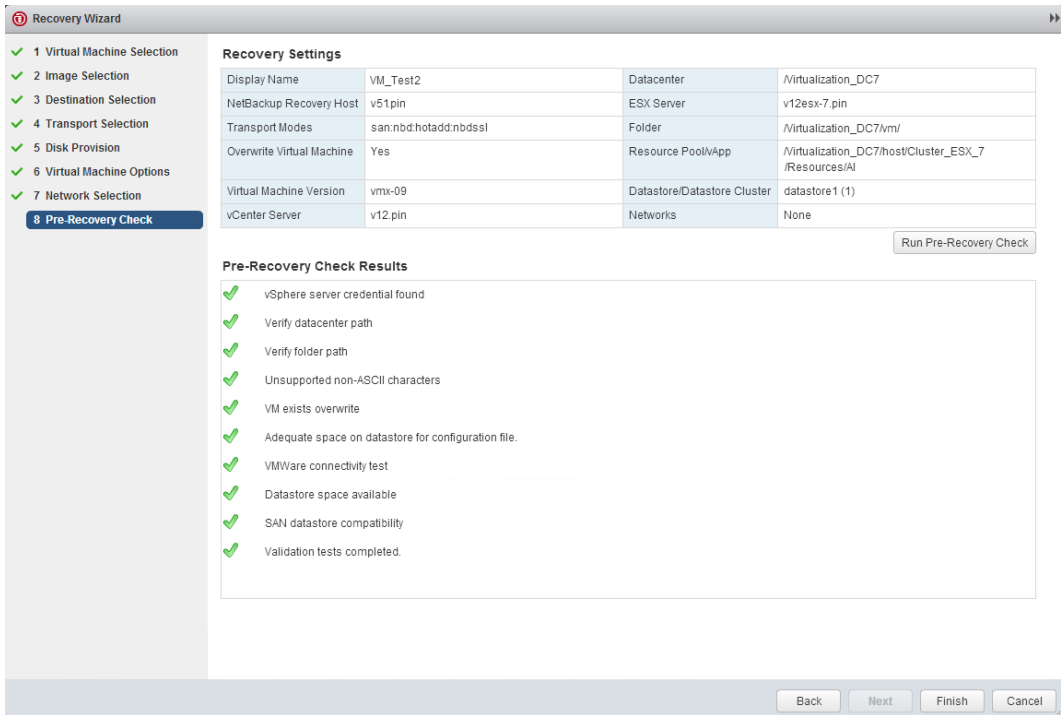
Table 5-11   Fields in the Pre-Recovery Check screen

Field	Description
Recovery Settings	Lists the settings that are used for the recovery.
Run Pre-Recovery Check	Verifies the credentials and appropriate paths and connectivity, determines whether the datastore or datastore cluster has available space, and reviews other requirements.
Pre-Recovery Check Results	Lists the results of the pre-recovery check.
	You can proceed with the restore even if the check fails.
	Note: A mismatch in the vCenter server name in NetBackup (uppercase vs. lowercase letters) may cause the "VMware connectivity test" to fail.
	See "Mismatch in vCenter server name (uppercase vs. lowercase letters) causes the VMware connectivity test to fail" on page 99.
Finish	Starts the recovery of the virtual machine.

NetBackup Instant Recovery Wizard screens

The NetBackup Instant Recovery (IR) Wizard provides an option to recover and power on the virtual machines instantly. The administrator can use the IR wizard to simultaneously restore multiple virtual machines, instantly.

To access the Instant Recovery Wizard in the vSphere Web Client interface, navigate to **Home** > **Veritas NetBackup** > **Instant Recovery Wizard**.
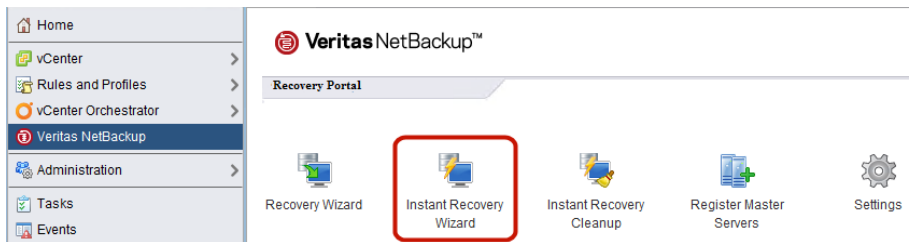
The Instant Recovery Wizard includes five steps:

- Selecting virtual machines
- Selecting the backup image (on VM)
- Selecting the target destination for instant recovery
- Selecting virtual machine options
- Performing a pre-recovery check and initiating the IR operation

Selecting virtual machines for instant recovery

Perform the search operation on this screen to get a list of virtual machines that have IR-compatible backup images.

The first screen of the Instant Recovery Wizard displays **0 Virtual Machines Added**. You must start the wizard operations by searching for and adding the virtual machines.

See "Instant recovery-ready backup images are not available for selection" on page 100.

Table 5-12   Fields in the Virtual Machine Selection screen
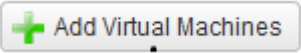
Operations	Description
vCenter Server	Shows the vCenter server where the plug-in is installed.
	Note: Use the drop-down list to select the vCenter server where the VM resided when it was backed up.
	Note: If the plug-in is not authorized to restore VMs, this field is empty.
	See " Authorizing the NetBackup plug-in to restore virtual machines" on page 37.
NetBackup Master Server	Use the drop-down list to select the primary server that made the backup.
	In certain cases, the primary server may not appear in the drop-down list:
	See "A NetBackup primary server is not available in the primary server list when searching for VMs for instant recovery" on page 98.
	Note: This drop-down only lists the primary servers that are registered with the vCenter server selected in the vCenter drop-down. If the primary server is not listed after adding it again, make sure that it is not listed in the top error message. Contact the NetBackup administrator to register the vCenter to the NetBackup primary server.
Type display name, UUID, DNS, host name	For the virtual machine to restore, enter the full or partial text of the following: VM display name, instance ID, DNS name, or host name. Then click **Search**.
	Enter an asterisk * to search the complete list.
	Note: This field is case-sensitive.

Note: Once the vCenter server and the NetBackup primary server are selected (after you select the virtual machines), the pairing of the two servers is locked. If a server selection is changed, the earlier operations do not remain valid. You can reset the search parameters at any time.

The results of the search appear in this list. Select the virtual machines and add them to restore and then click **Next**.

Note: Selecting the NetBackup primary server and vCenter server is mandatory. Select multiple virtual machines with **Ctrl+Click** or select a range of virtual machines with **Shift+Click**.

Table 5-13   Additional fields in the Virtual Machine Selection screen

Operations	Description
Search Results	Select the virtual machines for which you want to select backup images for instant recovery.
Add Virtual Machines	Click to add the selected virtual machines. After you select and add the virtual machines, the **Virtual Machines Added** bar shows the total number of virtual machines that are selected and added. The maximum number of virtual machines that you can add can be set in the **Settings** option on the **Veritas NetBackup** landing page. See "Configuring settings for the virtual machine recovery " on page 65. **Note:** The maximum number of instant recovery jobs includes active instant recoveries plus the number of virtual machines being added for the recovery operations.
View Details	Click to see a pop-up screen with the list of selected virtual machines in a tabular form with more details. The added virtual machines can be deleted from this screen, if necessary.
Reset Search parameters	You can reset the search parameters to cancel earlier selections.

Click **Next** to select the backup images for instant recovery.

Selecting backup images for instant recovery

On the Image Selection screen, in the upper pane, you can view the instant recovery (IR) ready backup images. The screen only lists the images that are IR-ready and that are not more than 7 days old.

Images Available for Instant Recovery (IR)   During last 7 days

Display Name	Date and Time of Backup (UTC)		Age	vCenter Server	Policy Name	
win2k34	Monday, July 4, 2016 9:03:46 PM	Change	1 Day(s)	v12n	vip_diff_disks	✖

The following table describes the fields on the Image Selection screen.

Table 5-14   Fields in the Image Selection screen

Field	Description
Display Name	Name of the virtual machine that was selected and added in the previous screen.
Date and Time of Backup	Date and timestamp of the IR-ready backup image.
Age	Age of the backup image in days or hours.
vCenter Server	Name of the vCenter server.
Policy Name	Name of the NetBackup backup policy.

If the IR-ready image is not available in the last 7 days, or you want to change the displayed backup image for the VM: Click on the **Change** option to search for a different backup image. You can search for the backup images that were made in the last 7 days, etc., by selecting a specific date range. For the **Select Date Range** option, click **Search Images** in the pop-up to view the results. For other options, select the image from the displayed results to view the image details. The following screen shows a list of IR ready images that were backed up during the last 30 days. Click **Select Image** to proceed.

Last 7 days | **Last 30 days** | Last 90 days | Select Date Range

Images Available for Instant Recovery (IR)   during last 30 days

Date and Time of Backup (UTC)	Age	Size (GB)	Policy
Monday, July 4, 2016 9:03:46 PM	1 Day(s)	17.10	vip_diff_disks

The **Image Selection** screen at the lower pane shows the backup image details and attributes of the virtual machine that is selected in the upper plane.

Backup Details For Virtual Machine: armor4

Image Details

Storage Type	BasicDisk	Master Server	rdd
Backup ID	42369efb-af03-7706-886c-8260e8f303bf_1430236161	Schedule Type	Full

Virtual Machine Attributes

Display Name	armor4	Host Name	None
DNS Name	cdpr08v2.veritas.com	vCenter Server	gryf
ESX Server	arm.symantec.com	Data Center	/testdc_test
Instance UUID	50320d1e-b250-5126-efe0-ee81ee527b08	BIOS UUID	42369efb-af03-7706-886c-8260e8f303bf
Virtual Machine Version	vmx-10	vCloud Enabled	None
Resource Pool	/testdc_test/host/arm.symantec.com/Resources	vApp	None

VMDKs

File Name	Size (GB)	Last Modified (UTC)
/DTS_GREATER_1TB/swapn	2.00	Monday, July 4, 2016 9:05:18 PM
/DTS_GREATER_1TB/swapn	2.00	Monday, July 4, 2016 9:05:18 PM
/DTS_GREATER_1TB/swapn	4.00	Monday, July 4, 2016 9:05:18 PM
/DTS_GREATER_1TB/swapn	2.00	Monday, July 4, 2016 9:05:18 PM

Table 5-15 Fields in the backup image selection screen

Field	Description
Backup Image details	The name of the NetBackup primary server and the storage type used.
	Note: The time that is required to restore the image may depend on the storage type. This dependency is especially likely for a recovery that uses an **AdvancedDisk** storage type or a deduplication storage type.
	The backup ID and the type of the backup schedule are also listed in the image details.
Virtual Machine Attributes	The attributes of the virtual machine at the time it was backed up.
Display Name	The display name of the specified VM.
Host name	The host name of the VM.
ESX server	The ESX server name.
vCenter server	The vCenter server name.

Table 5-15   Fields in the backup image selection screen *(continued)*

Field	Description
BIOS UUID	The ID assigned to the virtual machine when the virtual machine is created. This ID may or may not be unique, depending on whether the virtual machine has been duplicated. This option is included for compatibility with the policies that use the older VM UUID identifier.
Instance UUID	The globally unique ID assigned to the virtual machine when the virtual machine is created. This ID uniquely identifies the virtual machine within a vCenter server. Even if the virtual machine has been duplicated (such as within a vCloud), only the original virtual machine retains this instance ID. (The virtual machine duplicates are assigned different instance UUIDs.)
Data center	Displays the name of the data center.
Virtual Machine Version	Displays the original hardware version of the VM.
VMDKs	Displays the vmdk files of the selected virtual machine.

Click **Next** to proceed to the **Destination Selection** screen. Click **Back** to revisit the earlier screen in case you need to make changes.

Note: To proceed to the destination selection, you need to select at least one IR-ready image.

Selecting the destination for instant recovery

Specify the destination parameters for restoring all the selected virtual machine images.

Note: If you have specified the preferred destination settings in the **Settings** option, those settings are populated on the destination screen. The following topic explains how to set preferred destination parameters:

See "Configuring settings for the virtual machine recovery " on page 65..

Table 5-16   Fields in the Destination Selection screen

Field	Description
vCenter Server	Use the drop-down to select the vCenter server. It lists only those vCenter servers that are associated with the primary server that was selected in the first screen of the wizard.
Data center/ESX Server	The ESX server for the virtual machine to be restored. Click **Select** or **Change** to browse for a data center or an ESX server. **Note:** Only ESX servers at version 5.0 or later are supported for instant recovery.
Resource Pool/vApp	The resource pool for the virtual machine. Click **Change** to browse for a resource pool or vApp. This parameter is optional.
Temporary Datastore/Datastore Cluster	The temporary datastore is used to store all the write requests in the recovered virtual machine. Click **Change** to browse for a datastore or datastore cluster. **Note:** While selecting a temporary datastore, do not select any inactive or read-only datastores as it can cause instant recovery failure.
Reset to Preferred Destination	Click the option to reset all the parameters for destination selection to the preferred parameters that are specified in the **Settings**. The following topic explains how to set preferred destination parameters: See "Configuring settings for the virtual machine recovery " on page 65.

Table 5-16   Fields in the Destination Selection screen *(continued)*

Field	Description
Save as Preferred Destination	Check this box to set the currently filled-in parameters as the preferred destination parameters to be used in future instant recovery operations. Selecting the check box saves the parameters in the **Settings** option.
Change NetBackup Alternate Recovery Host	Check the box to set the NetBackup client or media server as the alternate host for the instant recovery. In case the primary host is not available, the alternate host is used to complete the recovery operation. This setting is optional.

Click **Next** to set the virtual machine options.

Setting virtual machine options for instant recovery

Use this screen to set the post-recovery options for the selected virtual machines.

Figure 5-10   Virtual Machine Options for Instant Recovery

Table 5-17   Fields in the Virtual Machine Options screen

Field	Description
Display Name	A list of all the selected VMs is displayed. A conflict of display name is highlighted in case the display name that has been provided already exists on the destination. Look for the following symbol.
	For more information about the hosts with name conflicts, click **View Details** in the message bar at the top of the screen. Information about all conflicts appears in the resulting pop-up box.
	Note: In case of duplicate display name, change the highlighted display name to proceed.

Table 5-17   Fields in the Virtual Machine Options screen *(continued)*

Field	Description
Retain networks	Retains the existing network settings of all the selected VMs after the recovery.
	Note: You can select individual VMs to retain the networks after the recovery is complete and to power on the VM.
Power on	Powers on all the selected VMs after the recovery.
	Note: You can select individual VMs to be powered on.
Retain tag associations	When this option is selected, NetBackup restores tag associations when it restores the virtual machine. If NetBackup cannot restore one or more of the tag associations, the restore exits with NetBackup status code 1.
	If this option is not selected, NetBackup does not restore any tag associations from the backup.
Retain hardware version	When this option is selected, NetBackup restores the virtual machine with its original hardware version (such as 4). It retains the original version even if the target ESXi server by default uses a later hardware version (such as 7 or 8).
	If this option is not selected, the restored virtual machine is converted to the default hardware version that the ESXi server uses.
Add common suffix to all display names	You can add a common suffix to the display names of all the selected VMs. For example, if you add **Network1** to the display name **VM_Storage_1** and click **Add**, the display name changes to **Network1_VM_Storage_1.**

Reviewing instant recovery settings

Preview the recovery details, run a pre-recovery check, and start the recovery.

Figure 5-11   Review settings and pre-recovery check screen
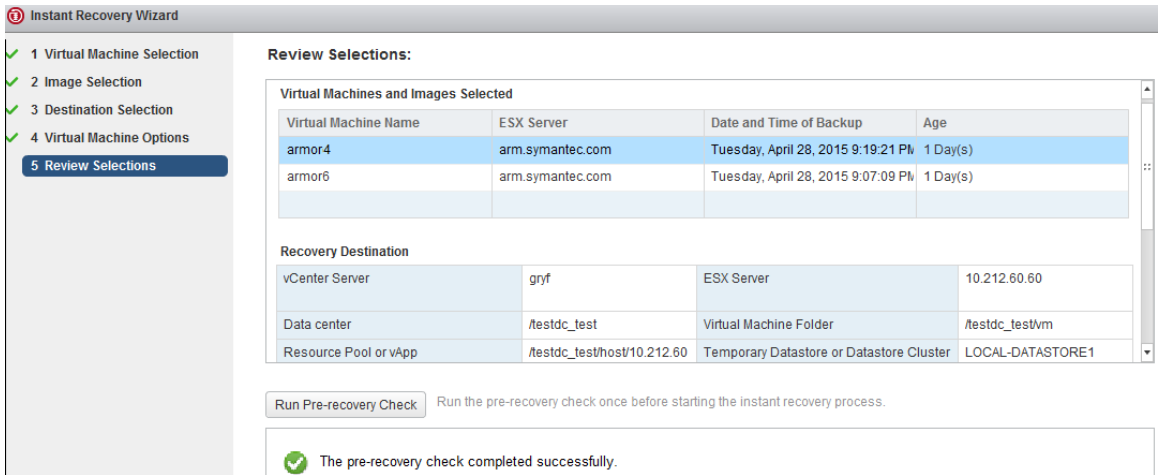
Table 5-18   Fields in the pre-recovery check screen

Field	Description
Virtual machines and images selected	Lists the virtual machine names along with the selected backup images for the instant recovery.
Recovery Destination	Details of the destination that is selected in the **Destination Selection** screen.
Run Pre-Recovery Check	Verifies the credentials and appropriate paths and connectivity, determines whether the datastore or datastore cluster has available space, and reviews other requirements. Pre-recovery check is mandatory for the first time to check all the requirements and is also recommended for each recovery operation.
Pre-Recovery Check Results	Lists the results of the pre-recovery check. You can proceed with the instant recovery even if the check fails.
Finish	Concludes the wizard operations and starts the instant recovery of the virtual machine(s).

When you click **Finish**, the instant recovery operation starts. You can view the **Instant Recovery Cleanup Page** for the recovery progress. You can initiate a new IR operation by using the IR wizard again.

The pop-up window shows the status of the instant recovery operation.

Cleaning the recovery environment and releasing the NetBackup resources

Use this screen to complete the instant recovery process by cleaning the recovery setup and releasing the NetBackup resources. The instant recovery workflow is completed only when the recovery is completed and the NetBackup resources are released.

Instant Recovery Cleanup					
Active Instantly Recovered Virtual Machine(s) (2)		Initiate Instant Recovery Done	Deactivate		Reactivate
		To permanently retain the restored virtual machine.	To permanently delete the restored virtual machine.		To reconnect to the restored virtual machine
Last refreshed at: Thursday, April 30, 2015 10:30:32 AM		Refresh to see the latest details.			

Virtual Machine Name	vCenter Server	ESX Server	Master Server	Elapsed time since recovery	Storage Migration Completed
armor4VM	gryf	10.210.60.68	rdd	< 1 Hour	No
armor6VM	gryf	10.210.60.68	rdd	< 1 Hour	No

Close

Use the following utilities to complete the instant recovery functional workflow.

Table 5-19   Fields in the Instant Recovery Cleanup screen

Field	Description
Reactivate	Use this option when the connection to the virtual machine was interrupted. The interruption may occur due to a network disconnect between the NetBackup media and the ESX server. This option reactivates a restored virtual machine by remounting the NetBackup datastore. It also registers the restored virtual machines on the ESX host.
Deactivate	Use this option when you are done with the restore and do not intend to retain the restored virtual machine. This action removes the virtual machine from the ESX host. If no other virtual machine uses the NetBackup datastore, this option removes that datastore and releases its resources on the NetBackup media server.

Table 5-19   Fields in the Instant Recovery Cleanup screen *(continued)*

Field	Description
Initiate Instant Recovery Done	Use this option to complete the instant recovery operation after you have performed the Storage vMotion of the virtual machines to a different datastore. This option completes the virtual machine instant recovery operation after the vMotion migration of the virtual machine is completed. When the datastore is removed, its resources are released on the NetBackup media server.

Troubleshooting

This chapter includes the following topics:

- The message NoPermission appears during plug-in installation

- Reducing the load time for the NetBackup plug-in for vSphere Web Client

- A NetBackup primary server is not available in the primary server list when searching for VMs for instant recovery

- The NetBackup plug-in for vSphere Web Client does not find any backup images in the listed events

- The NetBackup Recovery Wizard for vSphere Web Client does not find a particular backup image

- Mismatch in vCenter server name (uppercase vs. lowercase letters) causes the VMware connectivity test to fail

- IR operation is not complete due to NFS mount limit exceed

- Instant recovery-ready backup images are not available for selection

- The vCenter server and NetBackup primary server names are not available for search

- Preferred IR-destination options are not saved

- Virtual machine display name conflicts are not shown before the pre-recovery check

- Reasons for failure of pre-recovery checks

- Too much time taken to populate the list of NetBackup primary servers

- The NetBackup plug-in is not shown in the vSphere Web Client interface even after registration

- Correct NetBackup primary server does not show up for selection for a given vCenter server on the IR wizard

- Error stack displayed in the NetBackup plug-in for vSphere Web Client

- Troubleshooting primary server communication failures in the plug-in's Recovery Portal

The message `NoPermission` **appears during plug-in installation**

To install, uninstall, or upgrade the NetBackup Web Client plug-in, the vCenter credentials require the **Extension** privileges. If your credentials do not have those privileges, the following message appears:
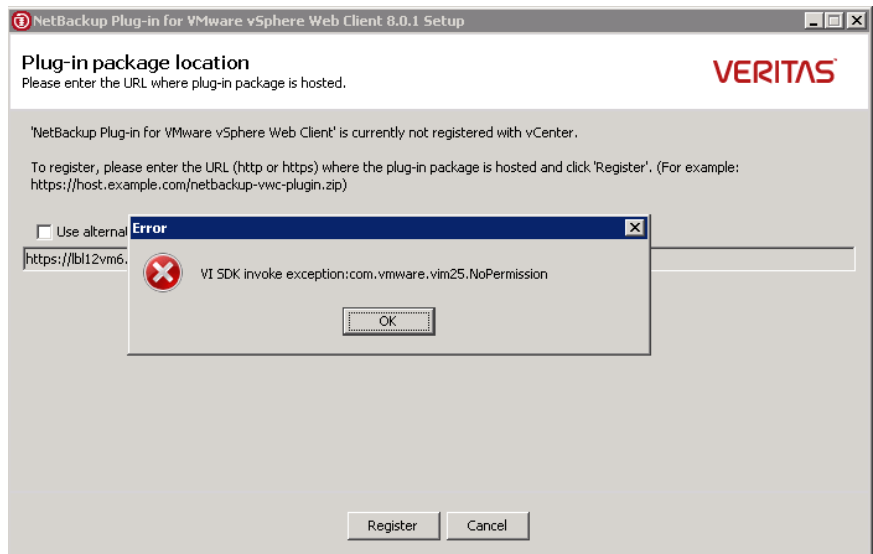
When you have set the **Extension** privileges for the credentials, click **OK** on the message and then click **Register**.

For instructions on setting the **Extension** privileges:

See "vCenter privileges for managing NetBackup plug-in installation" on page 14.

Reducing the load time for the NetBackup plug-in for vSphere Web Client

If the NetBackup plug-in for vSphere Web Client takes a long time to load, many backups may have occurred in your environment. By default, the plug-in retrieves backup events for the last 365 days.

To reduce the load time for the NetBackup vSphere Web Client plug-in

1   In the top level of the vSphere Web Client object navigator, click **Veritas NetBackup**.

2   Click **Settings**.

3   In the **Settings** dialog, enter a smaller value for **Maximum Retention Period for Backup Events**.

    For example, enter 7.

    This change limits the number of backup events that the plug-in retrieves. As a result, it reduces the plug-in's initial load time.

    By default, the plug-in retrieves backup events for the last 365 days.

A NetBackup primary server is not available in the primary server list when searching for VMs for instant recovery

On the **Virtual Machine Selection** screen of the vSphere Web Client plug-in, the primary server does not appear in the **NetBackup Master Server** drop-down list.

The primary server may not be in the drop-down list for any of the following reasons:

■   The NetBackup primary server is not registered with the NetBackup vSphere Plug-in.

■   The selected vCenter server is not added in the NetBackup primary server.

■   Invalid token (certificate).

■   Unable to connect to the NetBackup primary server.

■   A mismatch of the vCenter Server name as registered with the NetBackup primary server and as registered with the vSphere Web Client. The vCenter server names should be the same (host name or FQDN or IP).

■   The NetBackup Web Management Console service is down in the NetBackup primary server.

The NetBackup plug-in for vSphere Web Client does not find any backup images in the listed events

To allow the plug-in to monitor backups, the NetBackup primary server's **VMware** policies must have **Post events to vCenter** set to **All Events**.

The **Post events to vCenter** option is available from the **Advanced** option of the NetBackup policy's **VMware** tab.

See "Requirements for the NetBackup plug-in for vSphere Web Client" on page 12.

The NetBackup Recovery Wizard for vSphere Web Client does not find a particular backup image

The NetBackup Recovery Wizard may not find the backup image for a particular VM if the VM display name contains special characters.

To locate the backup image and start the recovery

1   In the top level of the vSphere Web Client object navigator, click **Veritas NetBackup > Recovery Wizard**.

2   In the wizard's **Virtual Machine Selection** screen, enter the VM name (full or partial), and click **Search**.

    The VM should appear in the search results.

3   Click **Next** and continue with the Recovery Wizard.

Mismatch in vCenter server name (uppercase vs. lowercase letters) causes the VMware connectivity test to fail

The **Pre-Recovery Check** screen of the NetBackup Recovery Wizards runs a number of checks on the vSphere environment that you selected for the restore. The "VMware connectivity test" fails if the case of the vCenter name in NetBackup credentials differs from the case of the vCenter name in vSphere. For example: the name that was entered for NetBackup credentials is uppercase, but the name in vSphere is lowercase.

Note: When the "VMware connectivity test" fails because of a vCenter name mismatch regarding its case, the failure can be ignored. Click **Finish** and the VM recovery should succeed.

To prevent the "VMware connectivity test" from failing, delete the NetBackup credential for the vCenter and re-enter the credential with the correct case. For instructions on how to add credentials, see "Adding NetBackup credentials for VMware" in the *NetBackup for VMware Administrator's Guide*. Alternatively, you can edit the name of the vCenter server in vSphere Web Client to match with the credentials entered in the NetBackup primary server.

See "Pre-Recovery Check screen" on page 82.

IR operation is not complete due to NFS mount limit exceed

An instant recovery (IR) operation creates at least one NFS mount. If the number of NFS mounts exceeds the default limit, the next IR operation cannot succeed. Make sure mount points are available for IR, or clean the mount points before the next IR operation.

Instant recovery-ready backup images are not available for selection

If no backup images appear on the **Images Available for Instant Recovery (IR)** screen, the images may not be available on the primary server for the selected period.

Note the following about instant recovery of VMware virtual machines:

- Supports the following storage unit types (disk only):
  BasicDisk, AdvancedDisk, Media Server Deduplication Pool (MSDP).

  Note: Snapshot-only backups are not supported.

- Does not support a virtual machine that had disks that were excluded from the backup. The policy **Virtual disk selection** option must be set to include all disks.

- Does not support a virtual machine that has a disk in raw device mapping mode (RDM) or that has a disk in Persistent mode.

- Supports the following policy schedule types: Full backups, and the incremental backups that include the **Use Accelerator** option with a disk-based storage unit. Incremental backups without the **Use Accelerator** policy option are not supported.

- Does not support virtual machine templates.

Contact a NetBackup administrator to check the backup details.

The vCenter server and NetBackup primary server names are not available for search

On the **Virtual Machine Selection** screen, during the vCenter and the NetBackup primary server selection, the drop-down list may not display any items.

Make sure that the following are configured:

- The NetBackup vSphere Web Client plug-in is registered with the vCenter server.

- The NetBackup authentication token for the client (vCenter) was generated and imported in the vSphere plug-in.

Note: The authentication token must be generated with the correct DNS name of the vCenter where the plug-in is installed (or a correct token alias was added).

See "Creating an authentication token for the NetBackup plug-in for vSphere Web Client" on page 35.

See "Adding or deleting an additional host name or IP address for an authentication token" on page 41.

- The NetBackup Web Services are enabled in the NetBackup primary server. Web services are automatically enabled when the NetBackup primary server (8.0 or later) is installed. See the following tech note for the web server tasks that are required before installation of the primary server: http://www.veritas.com/docs/000081350

- The following services are up in the NetBackup primary server:
  - NetBackup Service Layer
  - NetBackup Web Management Console

- The vCenter server is registered with the NetBackup primary server.

Preferred IR-destination options are not saved

In some cases, the preferred destination options on the **Settings** tab are not applied when you select the options. The vCenter server may not be available, or another Administrative account changed the saved settings. Take appropriate action to resolve these issues.

Virtual machine display name conflicts are not shown before the pre-recovery check

During IR operation, the conflicts in the virtual machine display name are not shown in the wizard screen. These conflicts are later populated in the pre-recovery check failure. The conflict in the display name is shown only when it is present in the same VM folder. The conflict across the ESX server is only captured during the pre-recovery check.

Reasons for failure of pre-recovery checks

The following are the reasons for failures in the pre-recovery checks during the instant recovery operation:

- vSphere server credentials changed.

- Incorrect data center path or folder path.

- Non-ASCII characters are used in the specified parameters.
  See "NetBackup character restrictions for the Primary VM identifier" in the *NetBackup for VMware Administrator's Guide* available through the following URL:
  http://www.veritas.com/docs/DOC5332

- Virtual machine display name conflict.
  The virtual machine name already exists on the ESX server.

- Connectivity and space availability.
  Indicates issues that are related to connectivity to various recovery artifacts and the available storage space for recovery.

- VMware connectivity-related issue.

- The NFS volume mount limit was exceeded on the ESX host.
  The NFS volume mount limit (eight mounts) was exceeded.

- Backup image not available.
  The selected backup image is not available for recovery.

The pre-recovery check is a one-time action for the instant recovery wizard operation. Even after failure checks are displayed in the pre-recovery check list, you can perform IR operations.

Too much time taken to populate the list of NetBackup primary servers

If it takes too long to display the NetBackup primary server list, validate the primary server using the **Register Master Servers** option on the plug-in's **Veritas NetBackup** page. If the validation reveals an error, contact the NetBackup administrator and check the vSphere Web Client Virgo logs at the following location:

- **Linux**:

  `/storage/log/vmware/vsphere-client/logs/vsphere_client_virgo.log`

- **Windows**: `C:\Programdata\VMware\vSphere Web Client\serviceability\logs\vsphere_client_virgo.log`

The NetBackup plug-in is not shown in the vSphere Web Client interface even after registration

This issue may occur for any of the following reasons:

Table 6-1   Reasons for the NetBackup plug-in not appearing in the vSphere Web Client

Reason	Description and recommended action
The NetBackup plug-in does not support the vCenter version.	Messages similar to the following may appear in the `vsphere_client_virgo .log` file: `javax.net.ssl.SSLHandshakeException: Received fatal alert: handshake_failure` For a list of supported vCenter versions for the plug-in for vSphere Web Client, see the following document: *Support for NetBackup 7.x and 8.x in virtual environments*: http://www.veritas.com/docs/000006177

Table 6-1	Reasons for the NetBackup plug-in not appearing in the vSphere Web Client *(continued)*

Reason	Description and recommended action
■ You have not used the default URL for the plug-in ZIP-file download (securely hosted by the NetBackup primary server). ■ Instead, your plug-in download URL uses the HTTP protocol (http://) rather than the secure HTTPS protocol (https://).	In this case, the default vCenter configuration does not allow the plug-in to be downloaded and deployed. Messages similar to the following may appear in the VMware `vsphere_client_virgo.log` file: ```The plugin package download was blocked because the URL is not secure. To allow http URLs add allowHttp=true to webclient.properties``` See the procedure To allow installation of the plug-in over an HTTP URL.

A previous instance of the NetBackup plug-in did not properly clean up after uninstallation.	Do the following:
	1 On the vCenter server, stop the vSphere Web Client service:
	To use the command line, the name of the service is `vsphere-client`.
	To use the vSphere Web Client interface, the name of the service is `VMware vSphere Web Client`.
	For assistance with the command line or vSphere Web Client, see the VMware article "How to stop, start, or restart vCenter Server 6.x services (2109881)":
	https://kb.vmware.com/kb/2109881
	2 Remove references to the plug-in, as follows:
	a. On a vCenter appliance, remove the directories or files that the following `find` command returns:
	```# find / -iname "*netbackup*"```
	b. On a Windows vCenter, remove the directories or files that the following `dir` commands return:
	```dir "%programdata%*netbackup*" /s /a /b```
	```dir "%programfiles%*netbackup*" /s /a /b```
	Note: For a VMware Platform Services Controller (PSC) environment with multiple vCenters, you need only uninstall the plug-in on the vCenter where the plug-in was installed. However, you should remove references to the plug-in from all of the vCenters that are managed by the PSC.
	3 On the vCenter server, start the vSphere Web Client service.

To allow installation of the plug-in over an HTTP URL

1   Add the following directive to the vCenter's `webclient.properties` file:

`allowHttp=true`

The `webclient.properties` file may be located in the following directory:

Windows: `C:\ProgramData\VMware\vSphere Web Client\`

Linux:

■   In vCenter 5.5.x: `/var/lib/vmware/vsphere-client/`

■   In vCenter 6.0 and 6.5: `/etc/vmware/vsphere-client/`

2   Restart the vSphere Web Client service.

The following VMware articles contain further information on starting the vSphere Web Client service:

vCenter 5.x: https://kb.vmware.com/kb/2054085

vCenter 6.0 and 6.5: https://kb.vmware.com/kb/2109887

3   Log on again to the vSphere Web Client.

When you log on, the plug-in is then installed.

See "Installing the NetBackup plug-in for vSphere Web Client" on page 16.

Correct NetBackup primary server does not show up for selection for a given vCenter server on the IR wizard

The vCenter server host name (the FQDN or the short name) should be the same at the following locations:

■   The name that is registered with the NetBackup primary server.

■   The name that is registered with the vSphere Web Client.

■   The name that is registered with the plug-in during the plug-in installation.

Error stack displayed in the NetBackup plug-in for vSphere Web Client

In the NetBackup plug-in for VMware vSphere Web Client, an error stack may be displayed in the Instant Recovery wizard. This behavior is observed especially when you upgrade the plug-in.

To troubleshoot the issue, clear the browser cache and close the browser. Open the browser and logon to VMware vSphere Web Client again.

Troubleshooting primary server communication failures in the plug-in's Recovery Portal

To recover VMs, the plug-in must have a registered NetBackup primary server with a valid and correct authentication token. The NetBackup administrator generates the authentication token on a specific NetBackup primary server for a specific client (such as a vCenter server). The token gives the vCenter access to the NetBackup primary server where the token was generated. (Note: you can validate authentication tokens for currently registered primary servers by means of the **Register Master Servers** option in the plug-in's **Recovery Portal**.)

If the TCP/IP address or host name of the vCenter does not exactly match the information in the authentication token, the following operations fail: the Register Master Servers operation, and VM recovery. For VM recovery, the error message you receive depends on where in the plug-in interface you launched the restore attempt. Among the errors you can receive are:

`Failed to get master server version.` then
`java.security.cert.CertificateException`

`No mapping found between vCenter(s) and Master Server(s) Master Server "master_server_name" java.security.cert.CertificateException`

`Failed to communicate with NetBackup master server master_server_name on port 8443 with the supplied authentication token. Please verify that NetBackup master server name, port and authentication token are valid.`

To correctly determine the problem and the corrective action, you must review the VxUL log file. On the primary server, issue the command shown:

`vxlogview -i nbwebservice -p nb -L -E`

The authorization token becomes invalid if the NetBackup CA certificate or VCenter certificate expires. The primary server validation and VM recovery operations will fail.

The following error messages are displayed:

```
The master server master server cannot be validated on port 8443.
You should renew the authentication token.
```

```
Authentication token of the master server master server is expired.
You should renew the authentication token.
```

Error example 1

The log file includes messages similar to the following:

```
02/17/2017 10:03:37.831 [Error] Remote host name does not match the
name in the certificate, remote name:vcenter02.domain.com, name from
certificate:vcenter02
```

In the log snip shown, the name in the token is `vcenter02` and the required name is `vcenter02.domain.com`.

Veritas recommends that you revoke the existing token, generate a new token with the required name, and use the new token on the vCenter. If you cannot do that, add the vCenter's fully qualified domain name as an alias for the existing token, as follows:

```
manageClientCerts -addAlias vcenter02 -HOST vcenter02.domain.com
```

As an alternative, you can use the `-ANY` option:

```
manageClientCerts -addAlias vcenter02 -ANY
```

`-ANY` allows any host or any IP address to communicate with the NetBackup server by means of this token.

Caution: The `-ANY` option is not a secure method for restores. Please see the *NetBackup Commands Reference Guide* for more information on the `manageClientCerts` command.

Error example 2

The log file includes messages similar to the following:

```
02/17/2017 16:18:13.951 [Error] Remote host name does not match the
name in the certificate, remote name:10.10.10.11, name from
certificate:vcenter02
```

In the log snip shown, the name in the token is `vcenter02` and the required name is `10.10.10.11`.

Veritas recommends that you revoke the existing token, generate a new token with the required name, and use the new token on the vCenter. If you cannot do that, add the vCenter's TCP/IP address as an alias for the existing token, as follows:

```
manageClientCerts -addAlias vcenter02 -IP 10.10.10.11
```

As an alternative, you can use the `-ANY` option:

```
manageClientCerts -addAlias vcenter02 -ANY
```

`-ANY` allows any host or any IP address to communicate with the NetBackup server by means of this token.

Caution: The `-ANY` option is not a secure method for restores.

Additional information is available:

See "Adding or deleting an additional host name or IP address for an authentication token" on page 41.

See the `manageClientCerts` command in the *NetBackup Commands Reference Guide*.

Error Example 3

The log file includes messages similar to the following:

```
[2021-07-23T15:09:05.317+05:30] [ERROR] -0:0:0:0:0:0:0:1-5090-exec-1
com.symantec.nbu.NBUMonitorService.common.Logger [NetBackup]
[NetBackupManager.java] [validateMasterServer][334] - The master server
ms1-example.veritas.com cannot be validated on port 8443.
You should renew the authentication token. ErrorCode: 0-

[2021-07-23T15:13:04.098+05:30] [ERROR] -0:0:0:0:0:0:0:1-5090-exec-6
com.symantec.nbu.NBUMonitorService.common.Logger [NetBackup]
[NBUMonitorServiceImpl.java] [getClientInfo][1070] - Authentication token
of the master server ms1-example.veritas.com is expired.
You should renew the authentication token. ErrorCode: 0-

[2021-07-23T15:22:28.760+05:30] [ERROR] -0:0:0:0:0:0:0:1-5090-exec-5
com.symantec.nbu.NBUMonitorService.common.Logger [NetBackup]
[NetBackupManager.java] [validateMasterServer][328] - NetBackup CA
certificate of the master server ms1-example.veritas.com is expired.
The master server ms1-example.veritas.com cannot be validated on port 8443.
```

```
You should renew the authentication token.
java.security.cert.CertificateException

[2021-07-23T15:26:16.158+05:30] [ERROR] -0:0:0:0:0:0:0:1-5090-exec-1
com.symantec.nbu.NBUMonitorService.common.Logger [NetBackup]
[NBUMonitorServiceImpl.java] [getClientInfo][1060] - NetBackup CA
certificate of the master server ms1-example.veritas.com is expired.
Authentication token of the master server ms1-example.veritas.com is expired.
You should renew the authentication
token.java.security.cert.CertificateException
```

Instant recovery operations

This appendix includes the following topics:

- Instant recovery events for non-available virtual machines
- Best practices for instant recovery operations

Instant recovery events for non-available virtual machines

For instant recovery operations (activate, deactivate, reactivate), NetBackup posts success or failure events to the vCenter server. These events are posted for the virtual machine during its restore.

For the activate and reactivate operations, the virtual machine already exists in vCenter. Therefore, when you select that virtual machine and navigate to the **Monitor > Events** tab, you see the NetBackup events for these operations.

For the deactivate operation, the virtual machine is unregistered and deleted from vCenter server. That virtual machine is no longer visible in vSphere Web Client. To see its NetBackup events, select the ESX server or top-level vCenter object in vSphere Web Client and navigate to **Monitor > Events**. Usually only the event description appears in the **Events** tab. In rare cases, the event ID may appear instead of the event description.

The following are the IR event IDs and descriptions.

Event ID	Description
IR Activate Operation Events	

com.symantec.netbackup.instantrecovery.activate.success	NetBackup instant recovery **Activate** operation is successful.
com.symantec.netbackup.instantrecovery.activate.failure	NetBackup instant recovery **Activate** operation is failed.
IR Deactivate Operation Events	
com.symantec.netbackup.instantrecovery.deactivate.success	NetBackup instant recovery **Deactivate** operation is successful.
com.symantec.netbackup.instantrecovery.deactivate.failure	NetBackup instant recovery **Deactivate** operation is failed.
IR Reactivate Operation Events	
com.symantec.netbackup.instantrecovery.reactivate.success	NetBackup instant recovery **Reactivate** operation is successful.
com.symantec.netbackup.instantrecovery.reactivate.failure	NetBackup instant recovery **Reactivate** operation is failed.

Best practices for instant recovery operations

The following best practices are advised during the Instant Recovery Wizard operations.

- Instant recovery can be simultaneously performed for about ten virtual machines for a single NetBackup primary server. However, for performance reasons, it is recommended to limit the operation to 2 to 3 virtual machines if the NetBackup storage type is PureDisk. Consult your backup administrator for more details.

- If an instant recovery operation (activate/reactivate/deactivate/done) fails, check the NetBackup event logs using the vSphere Web Client interface (**Veritas NetBackup** > **Events**), for more details.

- Remove from the plug-in any NetBackup primary servers in an unused, unreachable, or shutdown state.

- On the Instant Recovery Wizard screens, wait for the ongoing IR operation to complete. While the cursor indicates a busy state, do not click on other options.

Installing the vSphere Web Client plug-in from a NetBackup media server and plug-in package host

This appendix includes the following topics:

■ Installing the plug-in from a NetBackup media server and plug-in package host (web server)

Installing the plug-in from a NetBackup media server and plug-in package host (web server)

This topic describes how to install the NetBackup plug-in for vSphere Web Client from a NetBackup media server.

By default, the vSphere Web Client plug-in is installed over an https connection by means of the NetBackup primary server. If the primary server does not have a network connection to the vCenter server, you can install the plug-in from a NetBackup media server and your own plug-in package host.

Table B-1 is a brief list of the installation requirements, followed by the installation procedure.

Table B-1   Requirements for installing the vSphere Web Client plug-in from a NetBackup media server

Requirement	Description
Plug-in package host (web server)	The plug-in package host must be a web server. It must be accessible as follows: ■ The vCenter server where you want to install the plug-in must have network access to this package host. ■ The NetBackup media server where you run the plug-in installation must have network access to this package host. **Note:** You must supply the URL of the plug-in package host during plug-in installation.
Plug-in installation media	The plug-in installation media is a zip file (`netbackup-vwc-plugin.zip`) that needs to be hosted on a web server. This file contains the plug-in software that the VMware vCenter downloads for plug-in deployment. **Note:** Do not rename the `netbackup-vwc-plugin.zip` file.
NetBackup media server	The media server from which you install the plug-in must have network access to the plug-in package host web server and to the vCenter server.
Additional configuration if the URL for the plug-in package host uses HTTP instead of HTTPS.	To configure the vCenter to allow an `http` URL, add `allowHttp=true` to the vCenter's `webclient.properties` file. Use the procedure in the following topic: See "The NetBackup plug-in is not shown in the vSphere Web Client interface even after registration" on page 103.

To install the vSphere Web Client plug-in from a NetBackup media server

1 Download the `netbackup-vwc-plugin.zip` file from the NetBackup primary
   server and copy it to the appropriate folder on the plug-in package host (web
   server). The vCenter later downloads the file from the web server.

   You can download the file from the primary server by means of a browser:

   ```
   https://primary_server_host_name:8443/nbwebservice/plugins
   /netbackup-vwc-plugin.zip
   ```

   Note: This example uses a port number of 8443. However, the port number
   on the primary server may be different.

2 A security pop-up may ask you to verify or confirm the primary server's
   certificate for the download. To proceed with the download, you must verify
   the certificate by confirming the security exception.

   If the certificate has already been trusted or added as an exception, the security
   pop-up does not appear.

3 From the media server that has network access to the vCenter and to the
   plug-in package host, start the `vwcp_manage` command:

   Windows: `install_path\NetBackup\bin\goodies\vwcp_manage.exe`

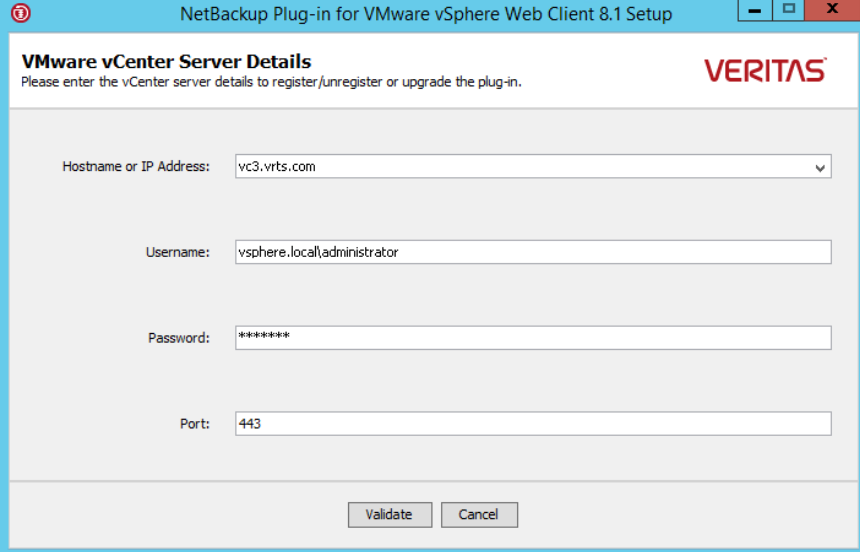   UNIX, Linux: `/usr/openv/netbackup/bin/goodies/vwcp_manage`

   Note: If you run `vwcp_manage` with administrator or root privileges, the command
   discovers the available vCenters and presents them in a list (in a following
   step). Otherwise, you must provide the vCenter name or IP address.

4   Registration begins with the End User License Agreement (click **Accept**):
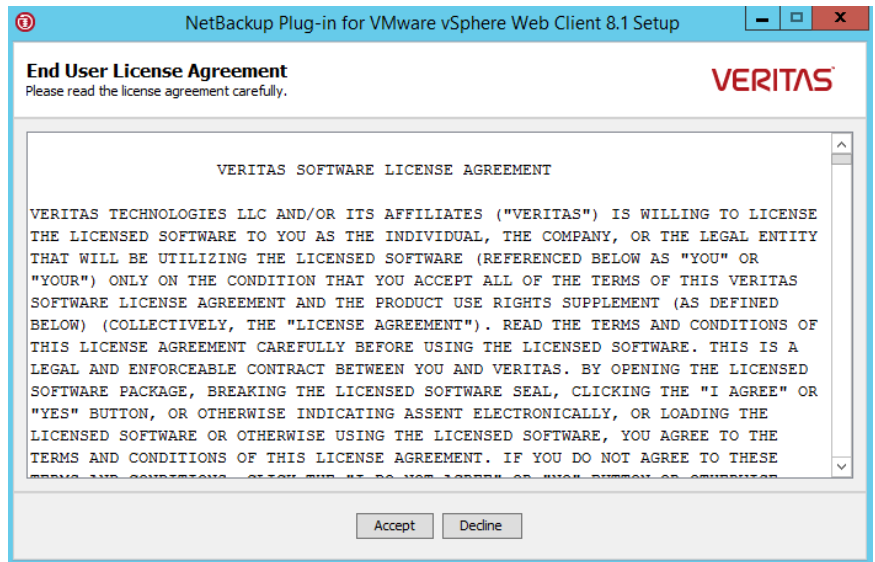
5 On the following dialog, use the pull-down list to select the vCenter server and enter the credentials, then click **Validate**.

If the `vwcp_manage` command was not run with administrator or root privileges, you must manually enter the vCenter name or IP address.


The registration utility connects to the vCenter server and determines whether the plug-in is registered. If the plug-in is not registered, the **Plug-in package location** dialog appears.

6 Select **Use alternate plug-in package location** and enter the full URL of the plug-in package host where the `netbackup-vwc-plugin.zip` file is hosted. This host is the web server where the plug-in zip file was copied in step 1. You can test the URL by downloading the plug-in zip file using a web browser.
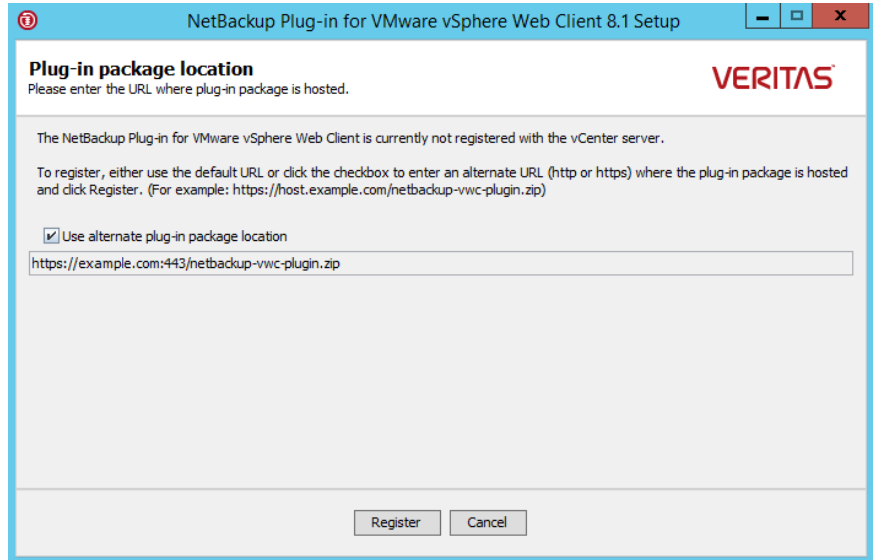
**Note:** The URL field is not pre-populated with the plug-in package host URL. You must enter the URL.

7 Click **Register**.

- If the URL entered in step 6 uses the secure `https` protocol, a security alert appears:
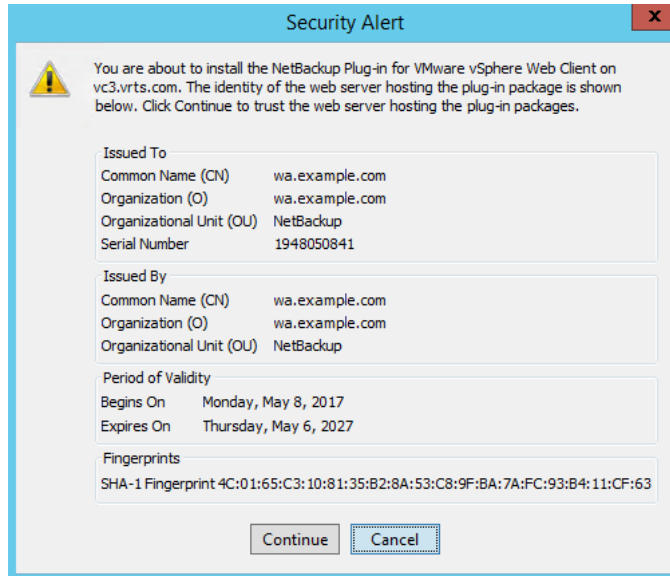
This security alert shows the identity of the web server that hosts the plug-in package. The vCenter later downloads the plug-in from this server. Use this dialog to verify the identity of the plug-in package web server.

To allow the installation to proceed, click **Continue**.

■ If the URL entered in step 6 uses `http` instead of `https`, you are prompted to configure the vCenter to allow an `http` URL:
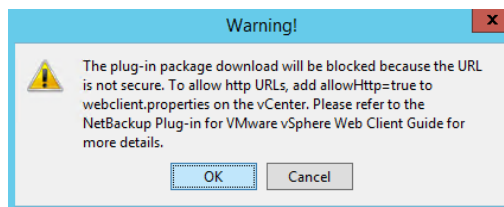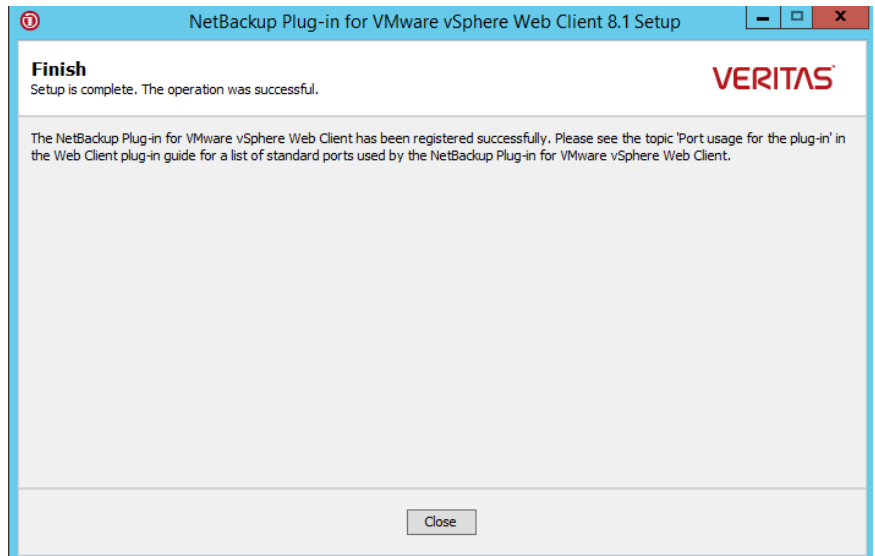

To configure the vCenter to allow an `http` URL, use the procedure in the following topic:

See "The NetBackup plug-in is not shown in the vSphere Web Client interface even after registration" on page 103.

When you have completed the procedure to allow installation of the plug-in over HTTP, click **OK** on the Warning.

> **Note:** If the vCenter's `webclient.properties` file already includes `allowHttp=true`, you can skip the HTTP procedure (click **OK** on the Warning).

8 The following appears:

9 Click **Close**.

10 To verify that the plug-in installed correctly, go to the vSphere Web Client object navigator.

For example, under **Home > Hosts and Clusters > Monitor**, look for the **Veritas NetBackup** tab.

See "How to access the features of the NetBackup plug-in for vSphere Web Client" on page 9.

If the **Veritas NetBackup** tab does not appear:

See "The NetBackup plug-in is not shown in the vSphere Web Client interface even after registration" on page 103.

11 To register the plug-in with another vCenter, repeat this procedure starting at step 3.