Veritas NetBackup™ Plug-in for VMware vSphere Client (HTML5) Guide

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VERITAS™

Veritas NetBackup™ Plug-in for VMware vSphere Client (HTML5) Guide

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

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Chapter 1

Introduction and notes

This chapter includes the following topics:

- About the NetBackup plug-in for VMware vSphere Client (HTML5)
- Notes on the NetBackup plug-in for vSphere Client (HTML5)
- How to access the features of the NetBackup plug-in for vSphere Client (HTML5)
- Updates to this guide for NetBackup 9.1

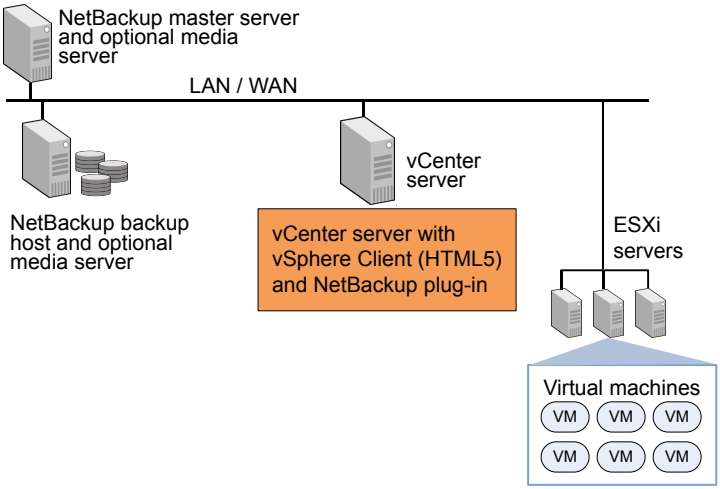
About the NetBackup plug-in for VMware vSphere Client (HTML5)

With the NetBackup vSphere Client (HTML5) plug-in, you can use vSphere 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 Client (HTML5)

Note the following about the NetBackup 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 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 64.
- The NetBackup master 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 Client (HTML5)

The following table describes the location of the NetBackup plug-in features in vSphere Client (HTML5).

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

Feature	How to access the NetBackup plug-in
Monitor the status of virtual machine backups	In vSphere Client, click **Hosts and Clusters** or **VMs and Templates**, then click **Monitor**. Select the vSphere object to monitor, such as vCenter, ESXi server, VM, or other object. See "Backup monitoring displays in the NetBackup plug-in for vSphere Client (HTML5)" on page 52.
Configure a custom attribute to exclude disks from backups	In vSphere Client, click **Veritas NetBackup**, then click **Virtual Disk Exclusion**. **Note:** The disk exclusion wizard is optional. It is not required for monitoring virtual machine backups.

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

Feature	How to access the NetBackup plug-in
Restore a virtual machine	In vSphere Client, click **Veritas NetBackup**, then click **Recovery** or **Instant Recovery and Cleanup**. You can access the Recovery options in several other ways: See "How to access the NetBackup Recovery Wizards" on page 65. **Note:** The recovery wizards are optional. They are not required for monitoring virtual machine backups.

Updates to this guide for NetBackup 9.1

- Added topics on configuring the plug-in to communicate with a NetBackup master server that uses an external certificate.
  See "Configuring the plug-in for an external certificate" on page 36.
  See "Reconfiguring the plug-in for a NetBackup CA-signed certificate" on page 38.

Chapter 2

Installing the NetBackup plug-in for vSphere Client (HTML5)

This chapter includes the following topics:

- Requirements for the NetBackup plug-in for vSphere Client (HTML5)
- Using consistent vCenter naming with the NetBackup plug-in for vSphere Client (HTML5)
- vCenter privileges for managing NetBackup plug-in installation
- Notes on using the vSphere Client (HTML5) plug-in in a VMware Platform Services Controller (PSC) environment
- Installing the NetBackup plug-in for vSphere Client (HTML5)
- Upgrading the NetBackup plug-in for vSphere Client (HTML5)
- Uninstalling the NetBackup plug-in for vSphere Client (HTML5)
- Configuration overview for the NetBackup Recovery and Instant Recovery Wizards

Requirements for the NetBackup plug-in for vSphere Client (HTML5)

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

Table 2-1 NetBackup plug-in installation requirements

Requirement	Notes
NetBackup master server	The NetBackup master server must be installed before you can install the plug-in. By default, the master server operates as the plug-in package host web server. During plug-in installation, the vCenter downloads the plug-in installation file from the master 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 Client (HTML5)" on page 17. 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 vSphere Client (HTML5) plug-in in a VMware Platform Services Controller (PSC) environment" on page 16. **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 15.
Consistent vCenter naming	See "Using consistent vCenter naming with the NetBackup plug-in for vSphere Client (HTML5)" on page 14.
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 51.

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

Requirement	Notes
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 46.
NetBackup Recovery Wizards	See "How to access the NetBackup Recovery Wizards" on page 65.

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

- *Support for NetBackup 7.x and 8.x in virtual environments*: http://www.veritas.com/docs/000006177

Using consistent vCenter naming with the NetBackup plug-in for vSphere Client (HTML5)

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 Client, click **Global Inventory Lists**. Under **Resources**, click **vCenter Servers** and select the vCenter. Then click **Configure > Advanced Settings**.
2. Scroll down to locate the `VirtualCenter.VimApiUrl` key.
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

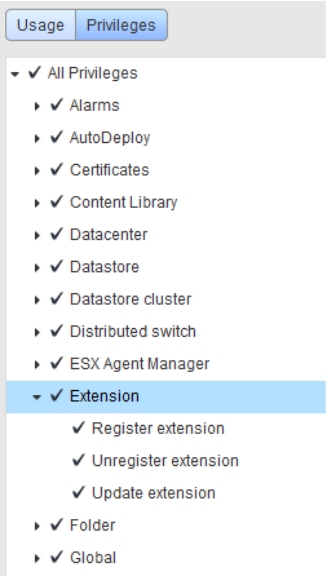
vCenter privileges for managing NetBackup plug-in installation

To install the NetBackup vSphere Client (HTML5) plug-in, use the vSphere 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 Client interface, the **Extension** privileges may look similar to the following:



Notes on using the vSphere Client (HTML5) 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 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 master server on each vCenter server where virtual machines are to be restored.
  See "Authorizing the NetBackup vSphere Client (HTML5) plug-in to restore virtual machines" on page 34.
- 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 master server needs credentials at least for vCenter 2.

Installing the NetBackup plug-in for vSphere Client (HTML5)

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

- The NetBackup master server
  To install the NetBackup plug-in from the NetBackup master server
- The NetBackup appliance as master server
  To install the NetBackup plug-in from the NetBackup appliance as master server

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

See "Installing the vSphere Client (HTML5) plug-in from a NetBackup media server and plug-in package host (web server)" on page 110.

To install the NetBackup plug-in from the NetBackup master server

1. On the NetBackup master server, locate the following command:

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

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

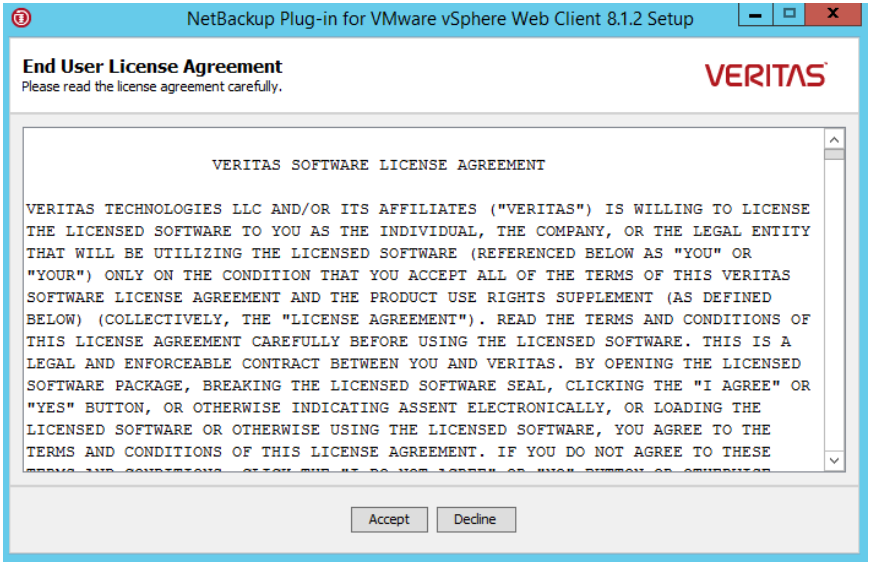
2. On the master server, start `vwcp_manage` to begin plug-in installation.

   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 plug-in and lets you either upgrade it or uninstall it.
     See "Uninstalling the NetBackup plug-in for vSphere Client (HTML5)" on page 27.
   - 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**):

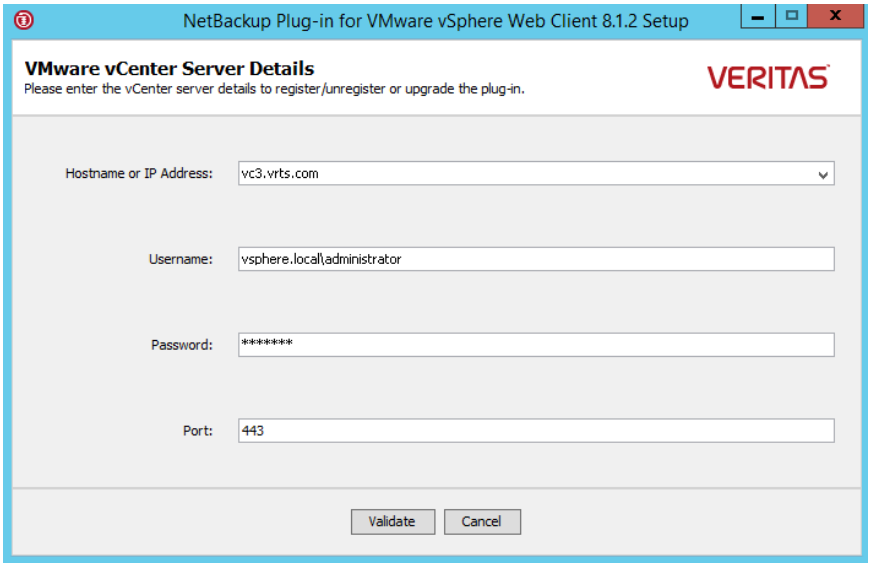


4 On the following dialog, select the vCenter server from the **Hostname or IP Address** pull-down list, enter its credentials, then click **Validate**.

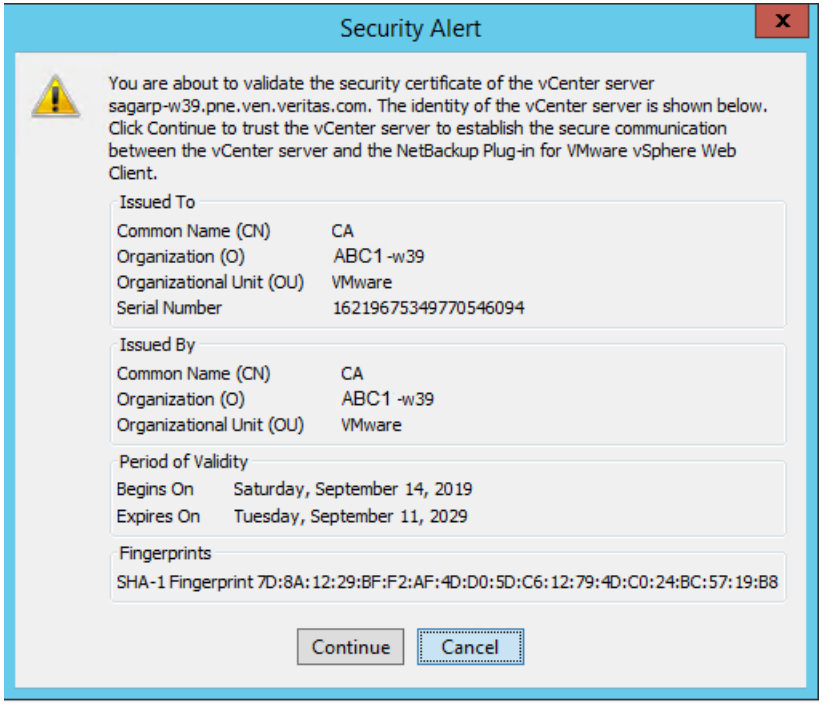
Note: The vCenter credentials require the **Extension** privileges.

See "vCenter privileges for managing NetBackup plug-in installation" on page 15.

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 25.

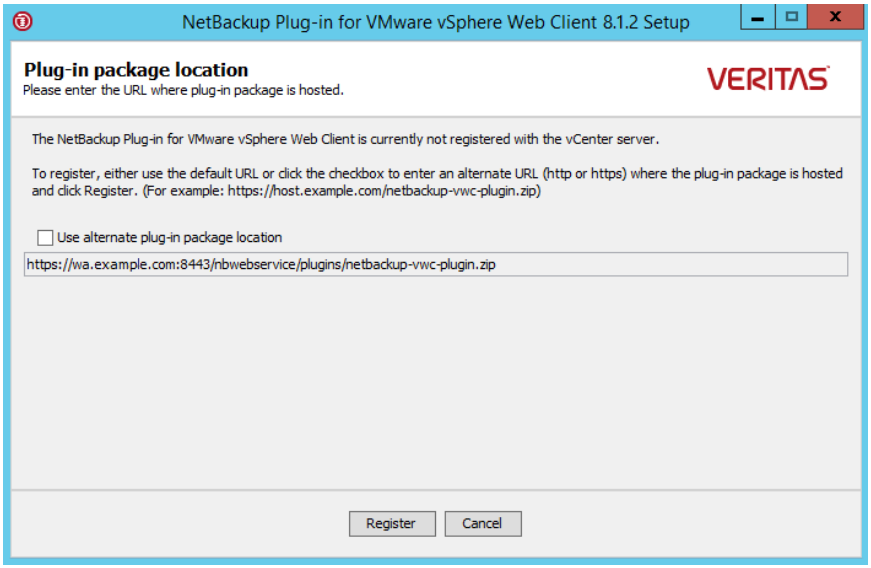
If there are multiple vCenter server root certificates, the same screen appears for each of the certificates.

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.

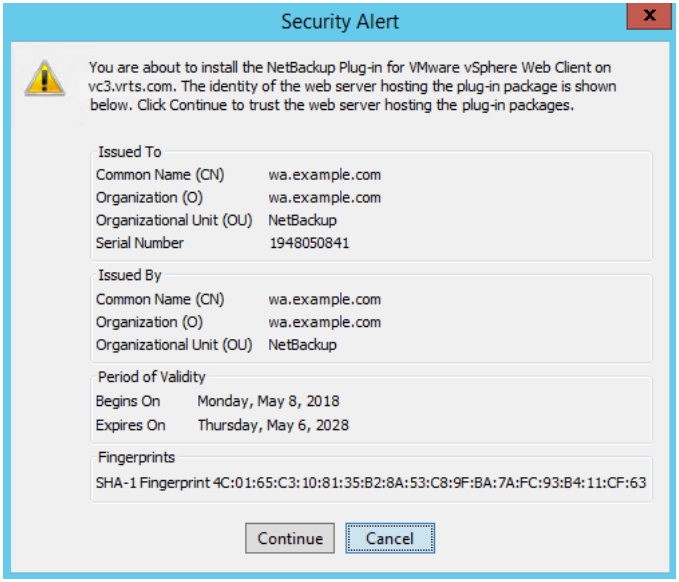


The URL field is pre-populated with the plug-in package URL as hosted on the master server.

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

See "Installing the vSphere Client (HTML5) plug-in from a NetBackup media server and plug-in package host (web server)" on page 110.

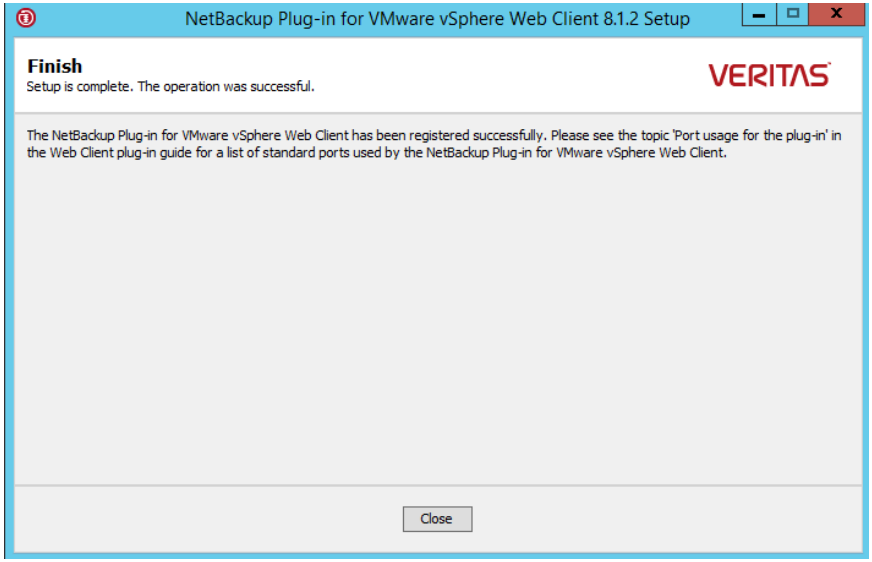
7 Click **Register**. A security alert appears:



This security alert shows the identity of the web server that hosts the plug-in package. By default this web server is the NetBackup master 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.

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

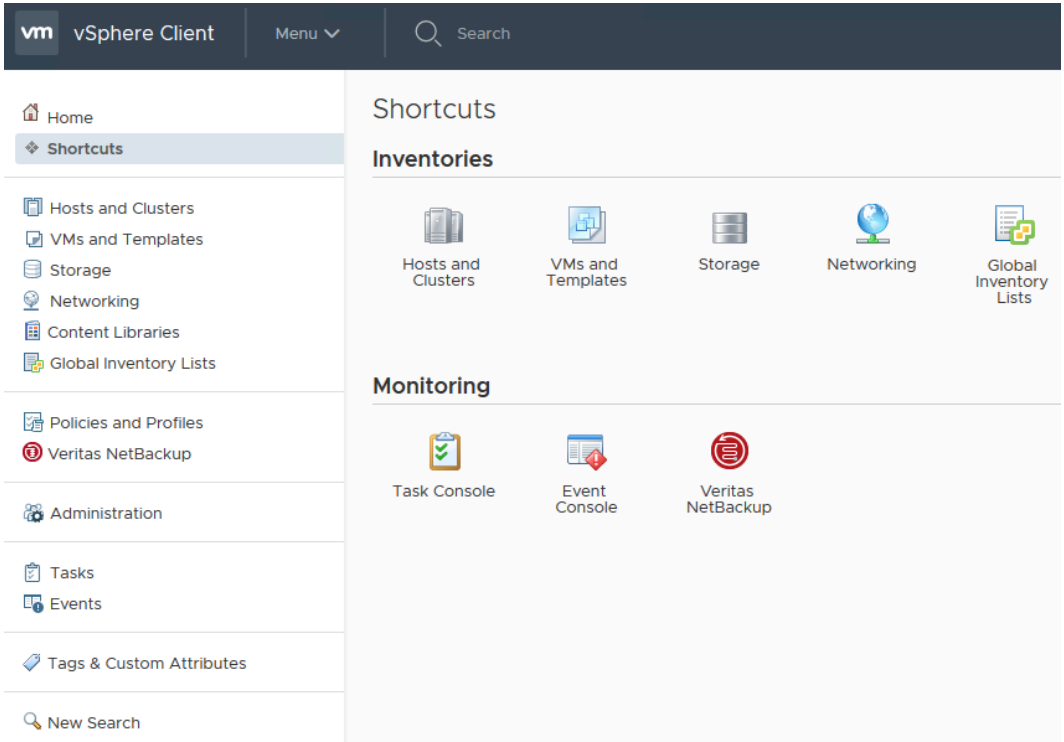
8 The following appears:



9 Click **Close**.

10 Log on to vSphere Client (HTML5). If you are currently logged on, log out first.

The **Veritas NetBackup** option should appear in the left pane and in **Shortcuts**.



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

See "The NetBackup plug-in is not shown in the vSphere Client (HTML5) interface even after registration" on page 102.

11 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.

---

12 If the NetBackup master server uses an external certificate, see the following topic:

See "Configuring the plug-in for an external certificate" on page 36.

To install the NetBackup plug-in from the NetBackup appliance as master 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 vSphere Client (HTML5). If you are currently logged on, log out first.

   The **Veritas NetBackup** option should appear in the left pane and in **Shortcuts**.

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

   See "The NetBackup plug-in is not shown in the vSphere Client (HTML5) interface even after registration" on page 102.

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

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

   See "Configuring the plug-in for an external certificate" on page 36.

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 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.

Upgrading the NetBackup plug-in for vSphere Client (HTML5)

You can upgrade the NetBackup 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 15.

To upgrade the NetBackup plug-in from an earlier version

1. On the master 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 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 master server.

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

   See "Installing the vSphere Client (HTML5) plug-in from a NetBackup media server and plug-in package host (web server)" on page 110.

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

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

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

   The **Veritas NetBackup** option should appear in the left pane and in **Shortcuts**.

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

   See "The NetBackup plug-in is not shown in the vSphere Client (HTML5) interface even after registration" on page 102.

Uninstalling the NetBackup plug-in for vSphere Client (HTML5)

You can unregister and uninstall the 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 15.

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

1. On the NetBackup master 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 Client. If you are currently logged on, log out first.

To unregister and uninstall the NetBackup plug-in for vSphere Client (HTML5) by means of the NetBackup appliance as master 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 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 Client (HTML5). 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 Web Services" on page 30.
2	Create an authentication token file.*	See "Creating an authentication token for the NetBackup plug-in for vSphere Client (HTML5)" on page 32.
3	Authorize the plug-in to restore virtual machines.	See "Authorizing the NetBackup vSphere Client (HTML5) plug-in to restore virtual machines" on page 34.
4	Configure the plug-in for external or NetBackup CA certificates	See "Configuring the plug-in for an external certificate" on page 36. See "Reconfiguring the plug-in for a NetBackup CA-signed certificate" on page 38.
4	Set the required vCenter privileges.	See "Setting vCenter privileges for recovering virtual machines" on page 38.

*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 39.

Configuring ports for the NetBackup Web Services

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

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

Table 2-4 Port sets for NetBackup Web Services

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

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 master 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 master 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 master 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 master 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.

See “Port usage for the NetBackup vSphere Client (HTML5) plug-in” on page 32.

Port usage for the NetBackup vSphere Client (HTML5) plug-in

The following table shows the standard ports to be used in a NetBackup plug-in environment.

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

Source	Port number	Destination
Browser	9443	vSphere Client
For VM recovery: vCenter server (or vSphere Client server if deployed independently)	`RESTful` interface at port 8443 (https) or as configured on the master server	Master server
Master 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 Client (HTML5)

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

To create an authentication token on the NetBackup master server

1. Enter the following on the master 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 39.

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

   See "Troubleshooting master server communication failures in the plug-in's Recovery Portal" on page 104.

To create an authentication token (certificate) on the NetBackup appliance as master 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 39.

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

Authorizing the NetBackup vSphere Client (HTML5) plug-in to restore virtual machines

The NetBackup master 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 master server.

To authorize the plug-in to restore virtual machines

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

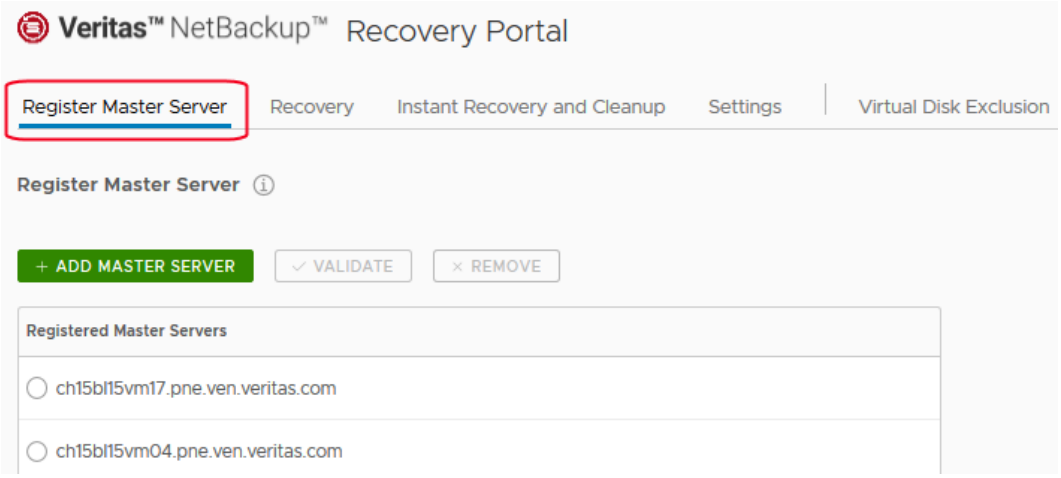
   See "Creating an authentication token for the NetBackup plug-in for vSphere Client (HTML5)" on page 32.

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

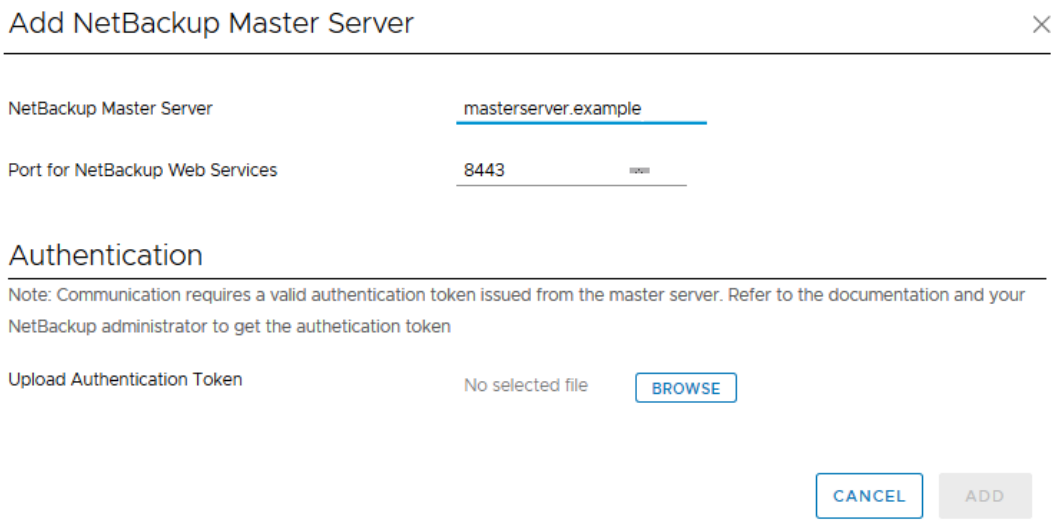
   Make a note of the location.

3. In vSphere Client, click **Veritas NetBackup**.

4. Click **Register Master Server**.



5 Click **ADD MASTER SERVER**.



6 Enter the following to specify a NetBackup master server and its authentication token.

NetBackup Master Server	Enter the fully qualified domain name of the master 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.
ADD	Click to add the server to the list of master servers that the plug-in can communicate with.

7 Add other master servers and their authentication tokens as needed.

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

See "Notes on using the vSphere Client (HTML5) plug-in in a VMware Platform Services Controller (PSC) environment" on page 16.

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

In the **Master Server** list, select the server to validate or remove.

VALIDATE	Validates the connection to the server.
REMOVE	Removes the server from the list. The plug-in is no longer able to monitor or restore the backups that the master server performed.

Configuring the plug-in for an external certificate

The plug-in communicates with the NetBackup master server securely by means of certificate-based authentication. By default, the master server uses NetBackup CA-signed certificates. As an alternative, the master 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 master 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.bat -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 master 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 master 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 master server:

   See "Renewing an authorization token" on page 43.

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

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

   See "Authorizing the NetBackup vSphere Client (HTML5) plug-in to restore virtual machines" on page 34.

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 master server to generate a new certificate for the client. You can then use the newly generated certificate when you add the NetBackup master server to the VMware vSphere plug-in.

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

If the master 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 to use a NetBackup CA-signed certificate

1. Enter the following command on the master 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 master 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 master server:

   See "Renewing an authorization token" on page 43.

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

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

   See "Authorizing the NetBackup vSphere Client (HTML5) plug-in to restore virtual machines" on page 34.

Setting vCenter privileges for recovering virtual machines

Use the following procedure to set the user privileges in vCenter for the NetBackup Recovery wizards. 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 Client, click **Administration > Roles**.
2. Under **Roles**, click **Administrator**.
3. Click **Privileges**.
4. Scroll down to **Global** and make sure **Log Event** is listed.
5. Scroll down to **NetBackup Recovery** and make sure the following are listed:

   Add or Remove NetBackup Servers

   Virtual Machine Recovery
6. Set these 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 master 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 master 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 master 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 master 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 master 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 master 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 master 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 "Troubleshooting master server communication failures in the plug-in's Recovery Portal" on page 104.

Revoking an authorization token

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

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

See "Renewing an authorization token" on page 43.

To revoke the authentication token

- Enter the following on the master 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 master server. The plug-in is no longer authorized to restore virtual machines from the backups that this master server made.

Renewing an authorization token

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

Note: Authentication tokens expire after one year.

To renew an authentication token

1. Enter the following on the master 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 44.

   See "Adding or deleting an additional host name or IP address for an authentication token" on page 39.

2. Use the plug-in's **Register Master Servers** option to re-register the master server using the renewed authentication token.

   See "Authorizing the NetBackup vSphere Client (HTML5) plug-in to restore virtual machines" on page 34.

Listing all current authentication tokens

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

To list all current authentication tokens

◆ Enter the following on the master 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 master 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 master 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-ui/netbackup`

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

Chapter 3

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 Attributes**. NetBackup then excludes those disks if you specify the custom attribute name in the backup policy.

Veritas provides a **Virtual Disk Exclusion** option in the NetBackup plug-in for vSphere Client (HTML5). You can use that option 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.

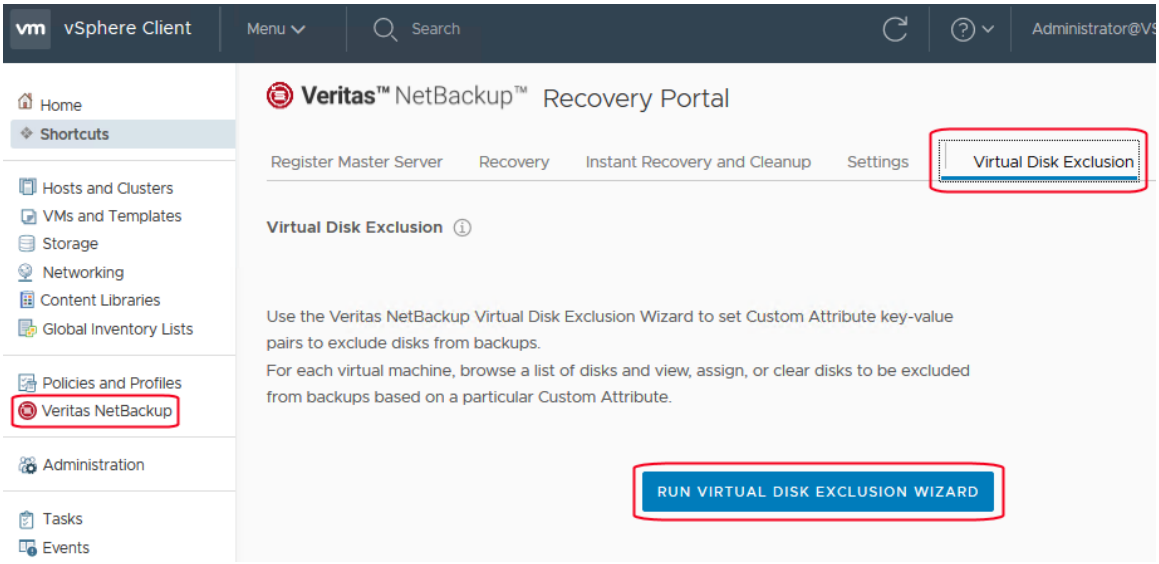
Setting the exclude disks Custom Attribute

The NetBackup plug-in for vSphere Client (HTML5) includes a **Virtual Disk Exclusion** option. Use that option to create a VMware custom attribute of the virtual disks to exclude from backups.

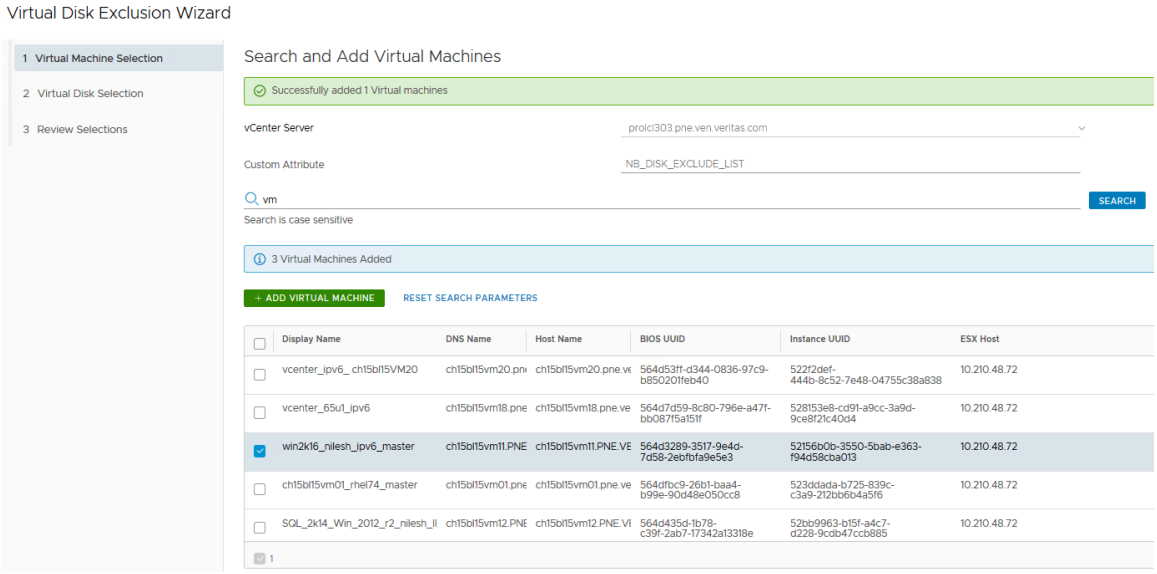
You can select up to and including 50 virtual machines to which you can apply a custom attribute.

To set the exclude disks Custom Attribute

1. In vSphere Client, click **Veritas NetBackup**.
2. Click **Virtual Disk Exclusion**, then click **RUN VIRTUAL DISK EXCLUSION WIZARD**.



3 On the **Virtual Machine Selection** screen, select the VMs 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 virtual machines.

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

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

   By default, Veritas suggests **NB_DISK_EXCLUDE_LIST**.

c. Click in the **Search** field to enter a value to search for, then click **Search**.

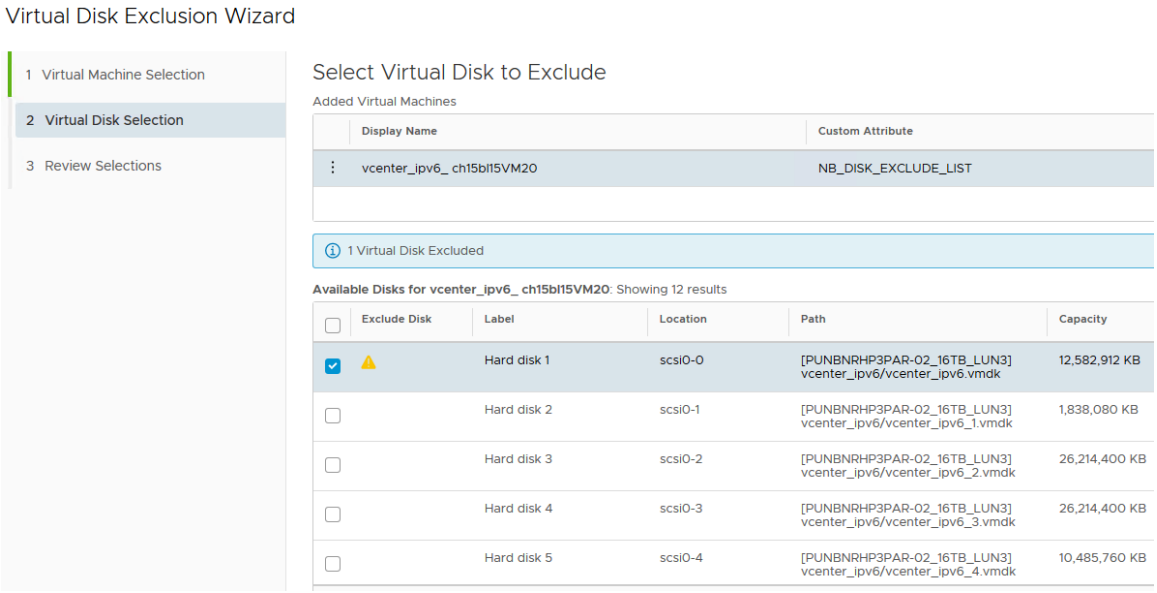
   The wizard displays the VMs that match that value.

d. In the search results list, select the VMs to which you want to add the Custom Attribute and then click **ADD VIRTUAL MACHINE**. You can change the **Search Results** order by clicking on the column headers.

   At the top of the screen, a message shows how many VMs that you successfully added.

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

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



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

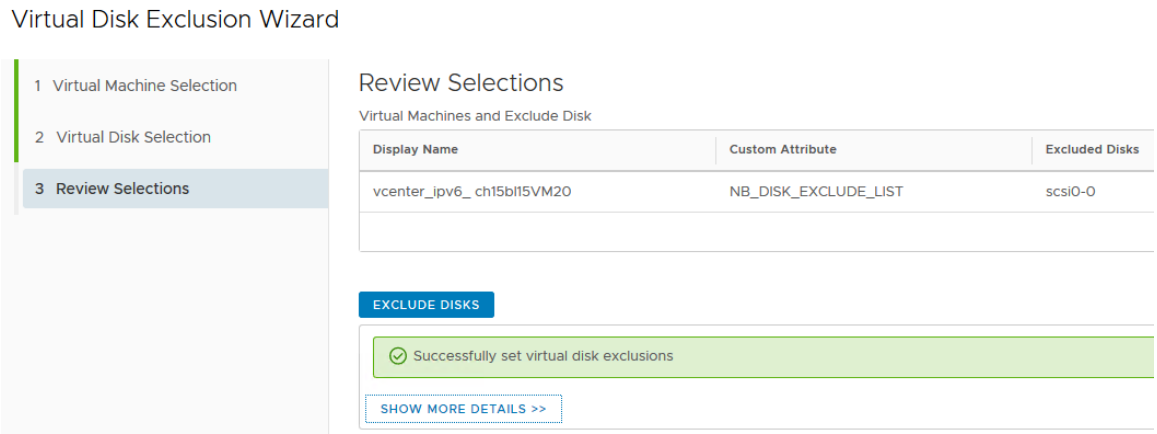
   You can remove VMs or refresh the display by clicking the vertical ellipsis next to the VM:

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 clicking the check box next to the **Exclude disk** column header. If a disk is excluded already, a warning icon appears in the **Exclude disk** column.

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:



a. Review the selections for the disks to exclude.

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

c. Click **Finish**.

Chapter 4

Monitoring backup status

This chapter includes the following topics:

- vCenter privileges for backup monitoring
- Backup monitoring displays in the NetBackup plug-in for vSphere Client (HTML5)
- Summary display
- Virtual Machines display
- Events display
- Using the Veritas NetBackup plug-in for backup reporting
- How to respond to backup status

vCenter privileges for backup monitoring

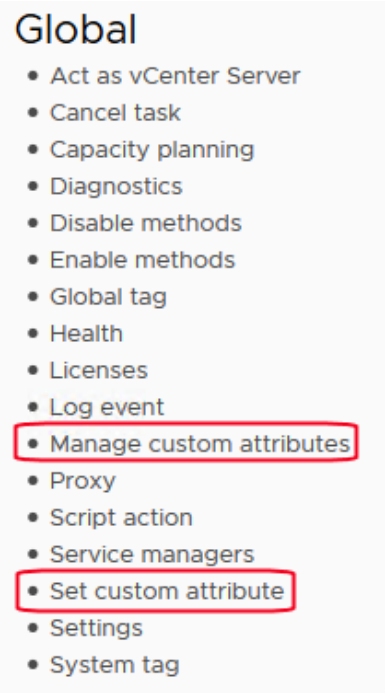
Before you can use the NetBackup plug-in for vSphere Client (HTML5) to monitor virtual machine backups, you must set vCenter privileges. Use vSphere Client to make sure that the following **Global** privileges are set in vCenter:

Manage custom attributes

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 vSphere Client, the **Global** privileges may look similar to the following:

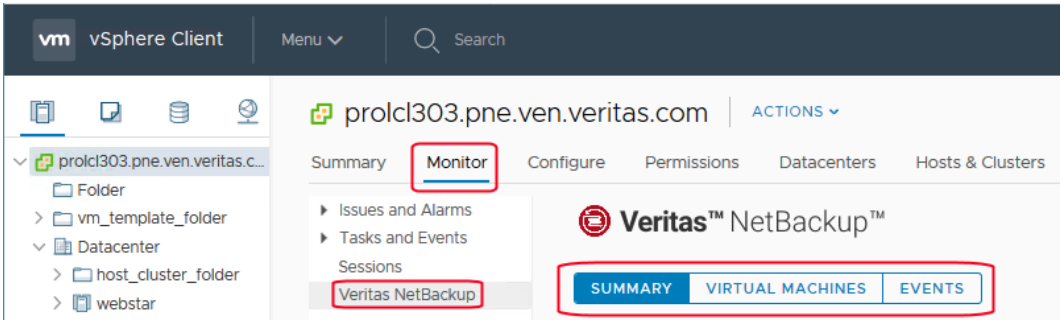


Backup monitoring displays in the NetBackup plug-in for vSphere Client (HTML5)

In vSphere Client, on the **Monitor** tab, click **Veritas NetBackup** to display VM backup information.

Note: Select an object, such as a vCenter, folder, datacenter, or ESXi host. The plug-in displays information for the VMs within the object that you select.

Figure 4-1 The three monitor options: Summary, Virtual Machines, Events



The following table describes the available displays.

Table 4-1 Summary, Virtual Machines, and Events displays in the NetBackup plug-in for vSphere Client (HTML5)

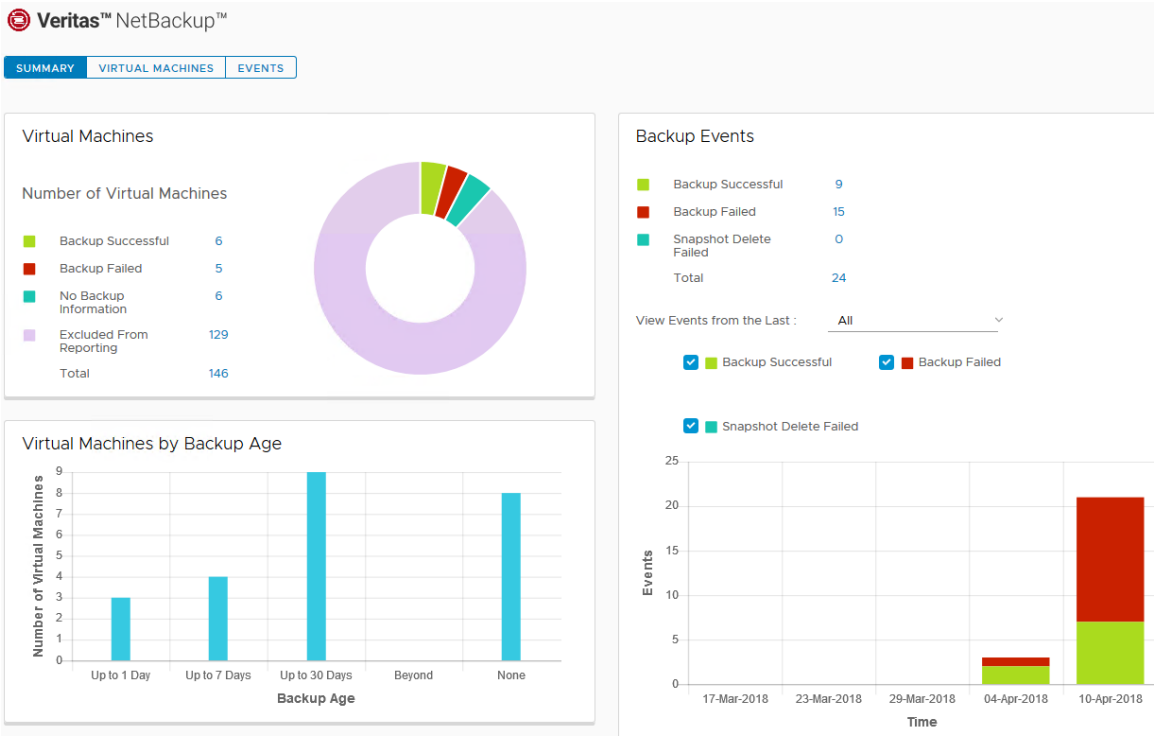
View	Information shown
Summary	A summary and graphical display of backup success and backup events for a specified time period. Can show the current backup status for a selected VM. See "Summary display" on page 53.
Virtual Machines	Tabular display of backup information for a group of VMs. **Note:** 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 55.
Backup Events	More detailed tabular display 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 57.

Summary display

This 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.

The following shows an example of the Summary display for multiple VMs.

Figure 4-2 Summary display



The Summary display presents the following backup information.

Table 4-2 Summary display in the NetBackup plug-in for vSphere Client (HTML5)

Panel	Description
Virtual Machines	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 Summary display in the NetBackup plug-in for vSphere Client (HTML5) *(continued)*

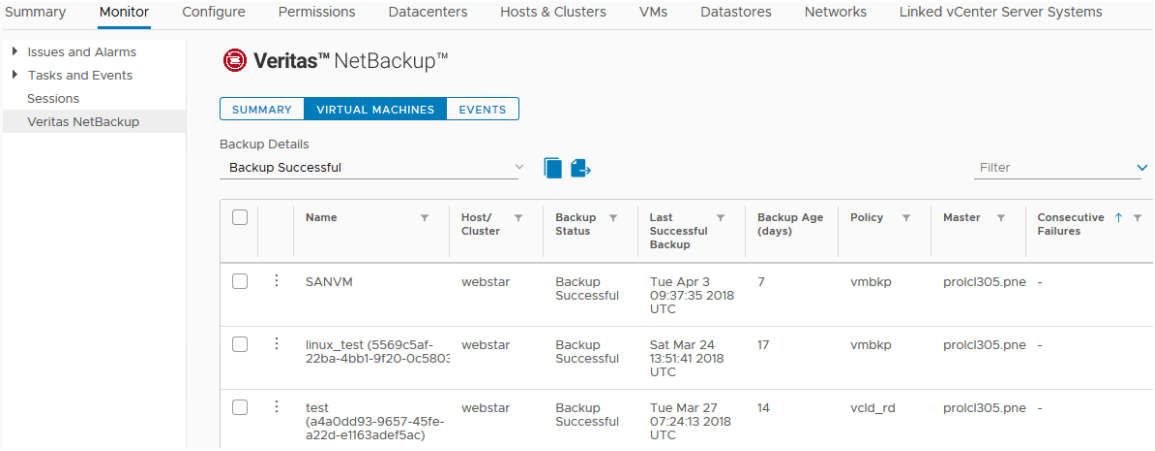
Panel	Description
Backup Events	Lists the total number of backup events and a breakdown of the events by **Backup Successful**, **Backup Failed**, and **Snapshot Delete Failed**. **Note:** Click on the linked values for **Backup Successful**, **Backup Failed**, **Snapshot Delete Failed**, or **Total** 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. 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. The display lists backup information for each VM.

The following is an example of the Virtual Machines display.

Figure 4-3 Virtual Machines display in the NetBackup plug-in for vSphere Client (HTML5)



The following table describes the fields and options in the Virtual Machines display.

Table 4-3 Fields and options in the Virtual Machines display

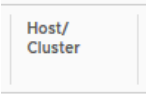
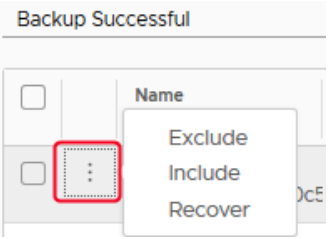
Option	Description
All	For the selected vSphere object, shows all backup status (successful, failed, and so forth).
Backup Successful	For the selected vSphere object, shows only the VMs that were successfully backed up.
Backup Failed	For the selected vSphere object, shows only the VMs that were not successfully backed up.
No Backup Information	For the selected vSphere object, shows only the VMs for which no backup status exists. For example: 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.
Excluded From Reporting	For the selected vSphere object, shows the VMs that were intentionally excluded from scheduled backups (contact the NetBackup administrator).
Name	The name of the VM.
Host/Cluster	The ESXi host or cluster that contains the VM.
Backup Status	The current status of backups for the VM. The status values are: No Backup Information, Backup Successful, Backup Failed, Excluded From Reporting
Last Successful Backup	The date and time of the last successful backup.
Policy	The NetBackup policy that created the backup.
Master	The NetBackup master server where the backup policy is defined.
Consecutive Failures	The number of consecutive backup failures.
	You can adjust the width of each column.

Table 4-3 Fields and options in the Virtual Machines display *(continued)*

Option	Description
	Click on the vertical ellipsis next to a row to exclude or include a VM in the display, or to recover the 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.
	Click the export icon to export the rows to a comma-separated text (CSV) file: To export the information for a particular VM, first click on the check box of the VM. Click the copy icon to save the information to the Clipboard:

Events display

This display shows backup information based on events, such as backup successful, backup failed, and snapshot delete failed.

The following is an example of the Events display.

Figure 4-4 Events display

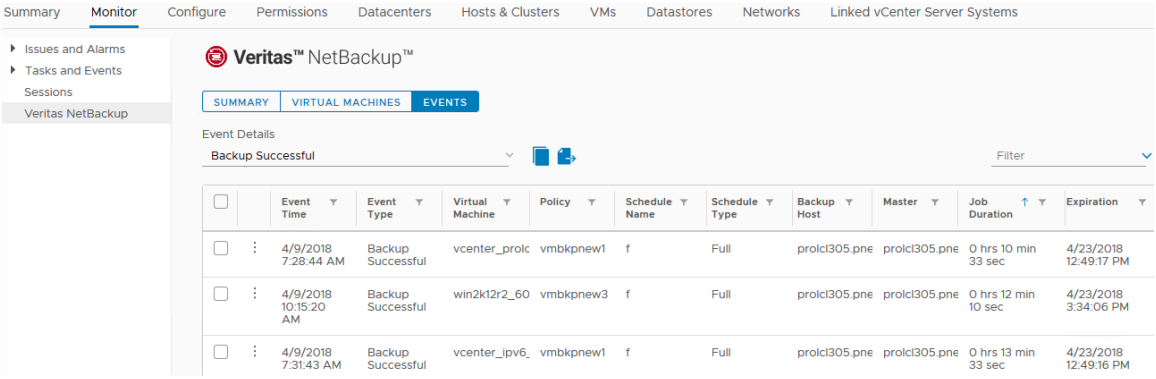
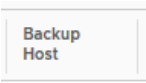
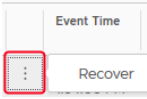


Table 4-4 Fields and options in the Events display

Option	Description
ALL	For the selected vSphere object, shows all backup status (successful, failed, and so forth).
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.
Event Time	The time at which that the event occurred.
Event Type	The values are: Backup Successful, Backup Failed, Snapshot Delete Failed
Virtual Machine	The name of the VM.
Policy	The NetBackup policy that created the backup.
Schedule Name	The name of the schedule for the backup.
Schedule Type	The type of schedule for the backup.
Backup Host	The backup host (proxy) that performed the backup.
Master	The NetBackup master server where the backup policy is defined.

Table 4-4 Fields and options in the Events display *(continued)*

Option	Description
Job Duration	The amount of time that the backup job needed to complete.
Expiration	The date on which the backup expires.
	You can adjust the width of each column.
	To recover a VM, select **Backup Successful** under **Event Details**, click on the vertical ellipsis in the VM's row, and click **Recover**. The **Recovery Wizard** appears.
	Click the export icon to export the rows to a comma-separated text (CSV) file: To export the information for a particular VM, first click on the check box of the VM. Click the copy icon to save the information to the Clipboard:

Using the Veritas NetBackup plug-in for backup reporting

The following procedures explain how to find VM backup status in the NetBackup plug-in for vSphere Client (HTML5).

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 Client (HTML5).
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 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 53.
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 55.

   See "Events display" on page 57.

To determine which VMs are not backed up

1. Select the appropriate object in vSphere 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 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 the copy icon or export icon:

The copy icon copies the information to the Clipboard. The export icon exports the rows to a comma-separated text (CSV) file.

How to respond to backup status

For the backup status that is reported in the NetBackup plug-in for vSphere Client (HTML5), 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 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 Client (HTML5)" on page 9.
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 Client.

Chapter 5

Restoring virtual machines

This chapter includes the following topics:

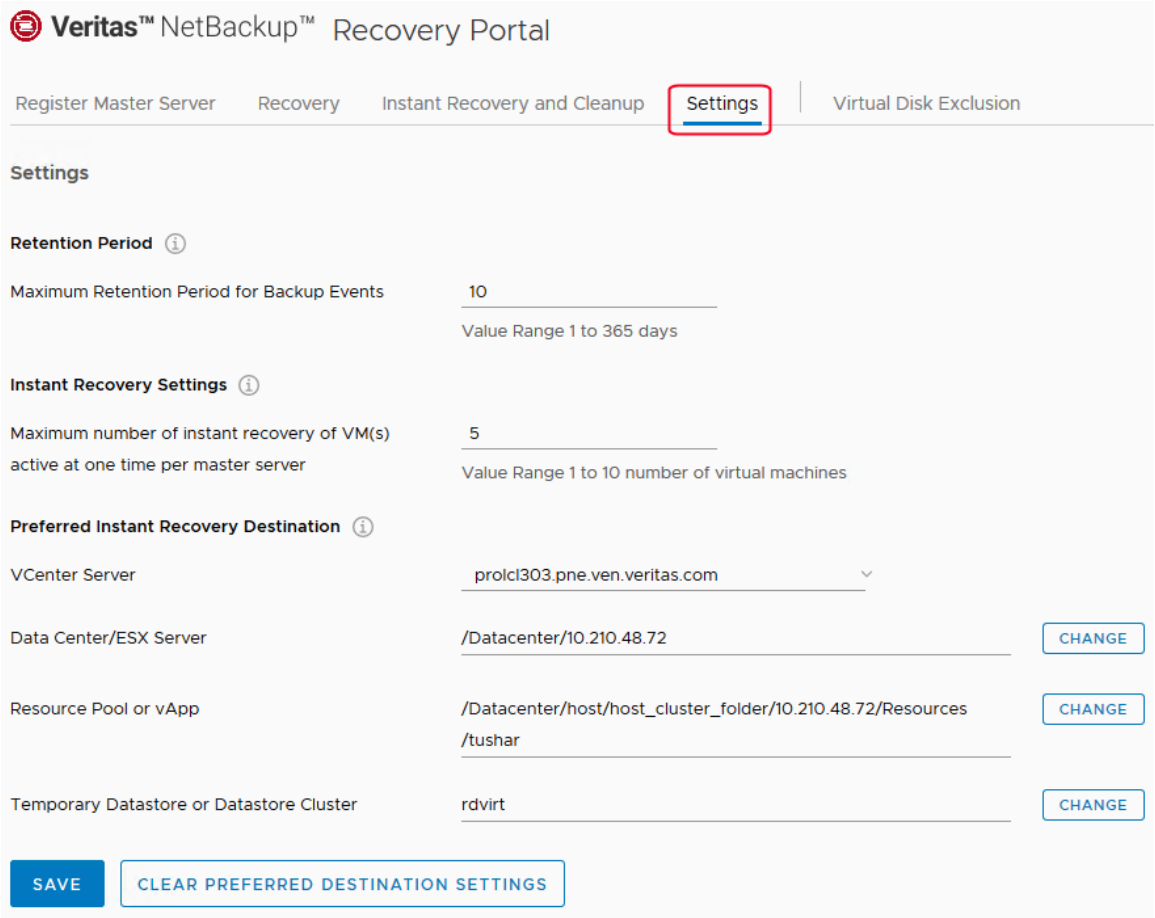
- Configuring settings for virtual machine recovery
- Notes on the NetBackup recovery wizards
- How to access the NetBackup Recovery Wizards
- NetBackup Recovery Wizard screens
- NetBackup Instant Recovery Wizard screens
- Instant Recovery: Cleaning the recovery environment and releasing the NetBackup resources

Configuring settings for virtual machine recovery

Use the **Settings** option to configure the settings for virtual machine recovery with the NetBackup plug-in for vSphere Client (HTML5).

To configure the settings for virtual machine recovery

1. In vSphere Client, click **Veritas NetBackup**.
2. Click **Settings**.



3. Enter the settings as described in Table 5-1.
4. For the **Preferred Instant Recovery Destination** options, use the pull-down or the **Change** options.
5. Click **Save** to save the settings.

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

Table 5-1 Options in the **Settings** dialog

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 master 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.
Save	Click **Save** before leaving this screen.

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 29.
- 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 Client (HTML5), 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 Client

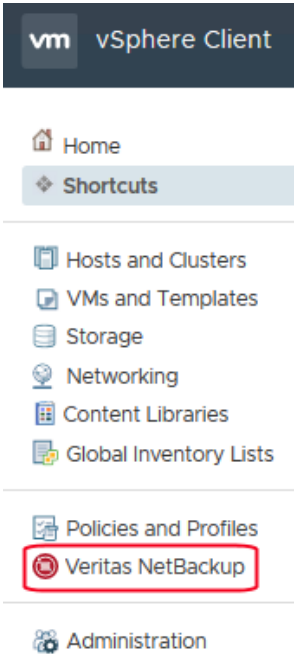
Action	Description
	**1** In the vSphere Client left pane (or in the **Menu**), click **Veritas NetBackup**. **2** Click **Recovery** or **Instant Recovery and Cleanup**. **3** Click **RUN RECOVERY WIZARD** or **RUN INSTANT RECOVERY WIZARD**.

Table 5-2 How to start the NetBackup recovery wizards in vSphere Client *(continued)*

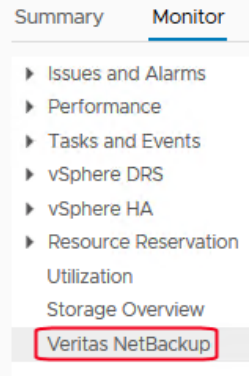
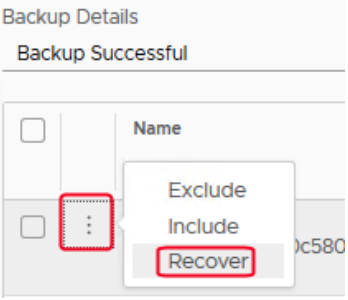
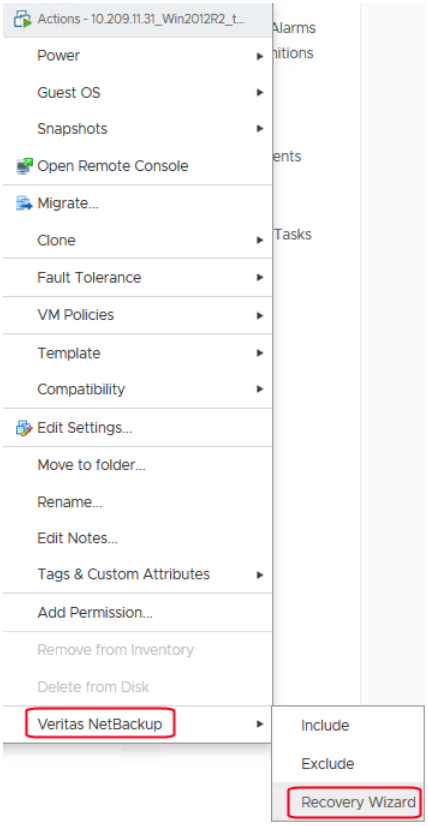
Action	Description
 	In vSphere Client, click the **Monitor** tab, then click **Veritas NetBackup**. Click **Virtual Machines** or **Events**, click on the vertical ellipsis next to a virtual machine that had a successful backup, and click **Recover**.

Table 5-2 How to start the NetBackup recovery wizards in vSphere 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**.

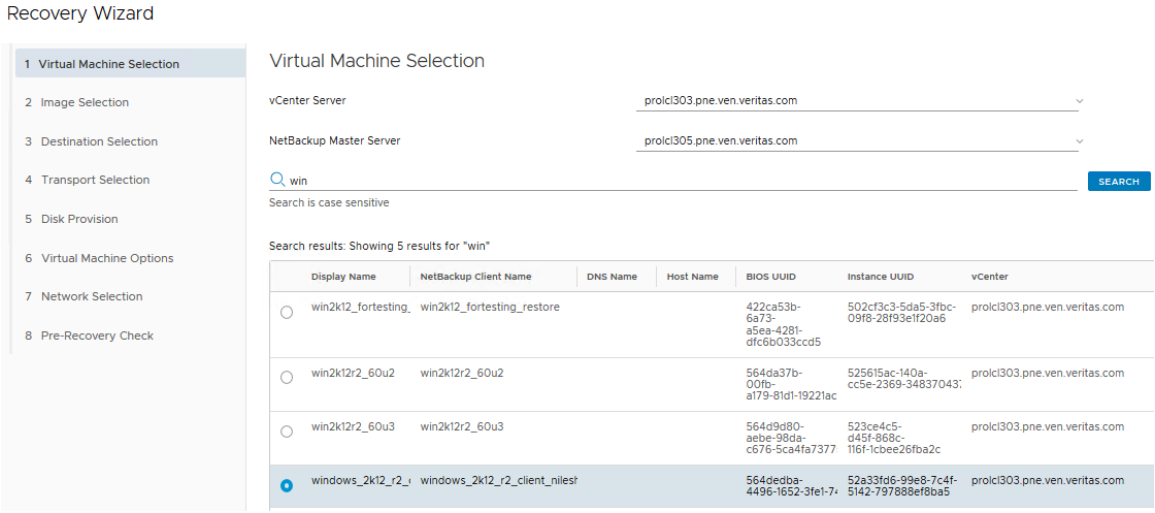
NetBackup Recovery Wizard screens

Use the following screens to restore a virtual machine with the NetBackup plug-in for vSphere Client (HTML5).

Virtual Machine Selection screen

Select the virtual machine to restore.

Figure 5-1 Virtual Machine Selection screen in the NetBackup Recovery Wizard for vSphere Client (HTML5)



Note: The Recovery Wizard is dismissed when you click on the side navigation or header, and any entries cannot be saved. Click **Acknowledge** to continue.

Table 5-3 Fields in the Virtual Machine Selection screen

Field	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 vSphere Client (HTML5) plug-in to restore virtual machines" on page 34.
NetBackup Master Server	Use the drop-down list to select the master server that made the backup. If the master server does not have any VM backups, the error message `no entity was found EC:227` appears. If the master server is not in the drop-down, you must register the master server with the vCenter. See "Authorizing the NetBackup vSphere Client (HTML5) plug-in to restore virtual machines" on page 34.

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

Field	Description
SEARCH	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 master 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 (Latest Backup) in the NetBackup Recovery Wizard for vSphere Client (HTML5)

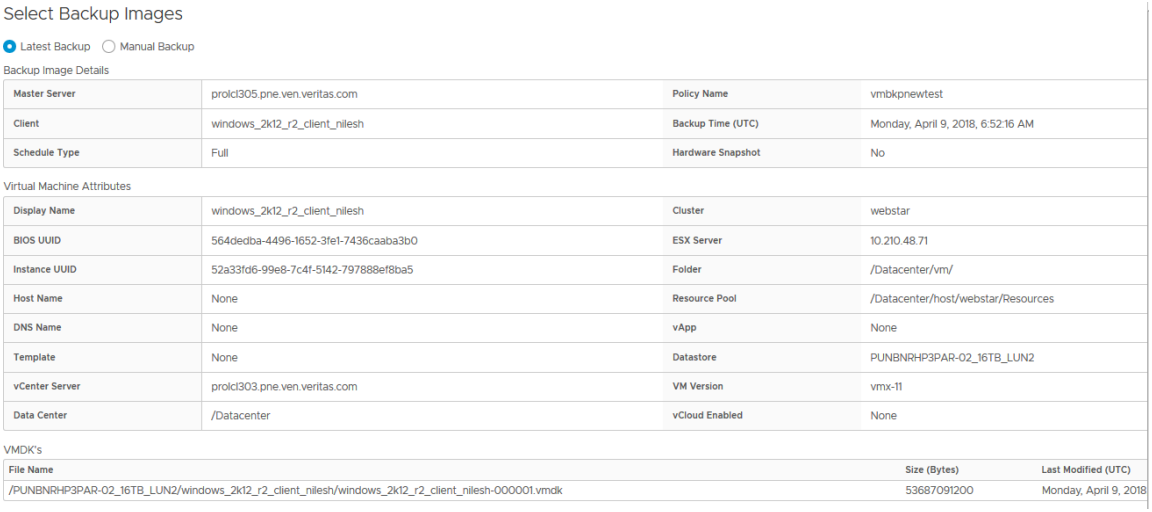


Table 5-4 Fields in the Image Selection screen (Latest Backup)

Field	Description
Latest Backup	Selects the latest available backup image.
Backup Image Details	Shows the details of the latest VM backup image.

Table 5-4 Fields in the Image Selection screen (Latest Backup) *(continued)*

Field	Description
Virtual Machine Attributes	Shows the VM attributes of the latest backup image.
VMDKs	Shows the vmdk file(s) of the latest backup image.

Figure 5-3 Image Selection screen (Manual Backup) in the NetBackup Recovery Wizard for vSphere Client (HTML5)

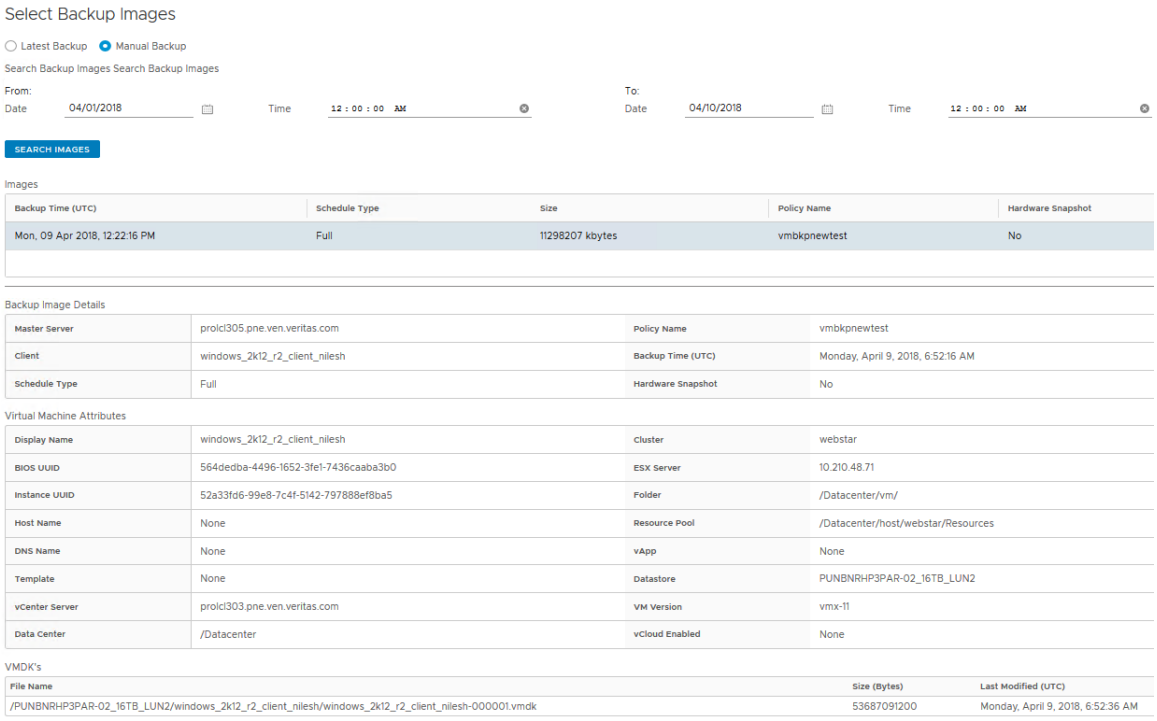
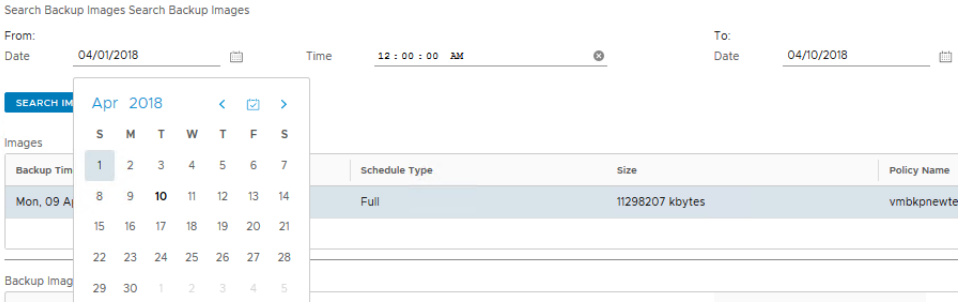


Table 5-5 Fields in the Image Selection screen (Manual Backup)

Field	Description
Manual Backup	Click this option to select a different backup image.

Table 5-5 Fields in the Image Selection screen (Manual Backup) *(continued)*

Field	Description
Search Backup Images	Use the **From** and **To** date and time fields to choose a date range, then click **SEARCH IMAGES**.  Then click **SEARCH IMAGES**.
Images	Lists the images that fall within the search dates. Click on an image. Further information about the image appears under **Virtual Machine Attributes** and **VMDKs**.
Virtual Machine Attributes	For the selected image, lists the attributes of the VM at the time it was backed up.
VMDKs	Lists the vmdk file(s) of the selected image.
Next	Click **Next** for the next recovery screen.

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 Client (HTML5)

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.
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 NetBackup 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 Client (HTML5)

Table 5-7 Fields in the Transport Selection screen

Field	Description
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.
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.
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.

Table 5-7 Fields in the Transport Selection screen *(continued)*

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.

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 Client (HTML5)

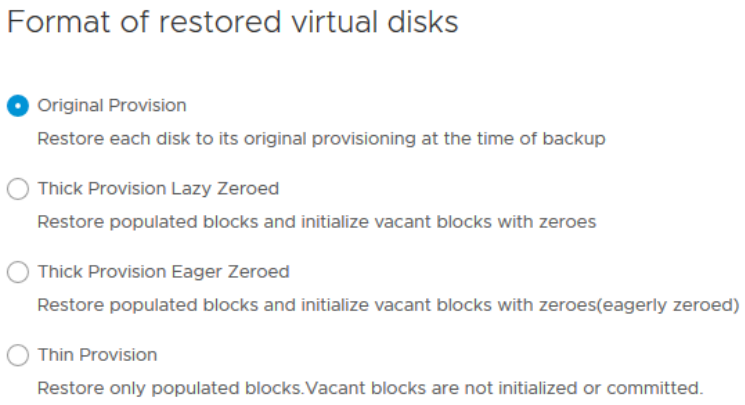


Table 5-8 Fields in the Disk Provision screen

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.

Table 5-8 Fields in the Disk Provision screen *(continued)*

Field	Description
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 Client (HTML5)

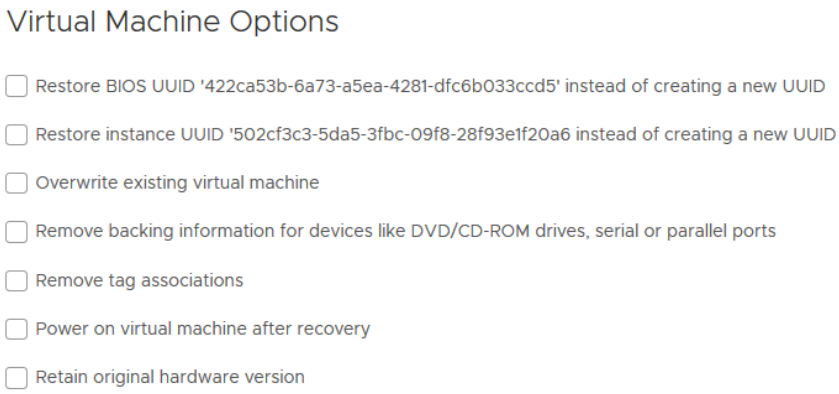


Table 5-9 Fields in the Virtual Machine Options screen

Field	Description
Restore BIOS UUID xxx instead of creating 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.
Restore Instance UUID xxx instead of creating 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.

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

Field	Description
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 Client (HTML5)

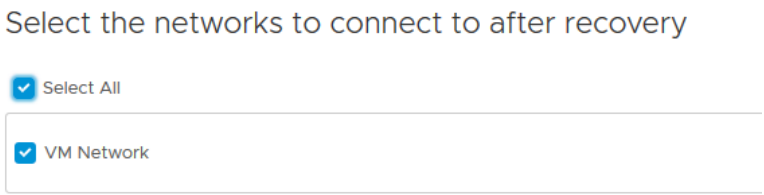


Table 5-10 Fields in the Network Selection screen

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 Client (HTML5)

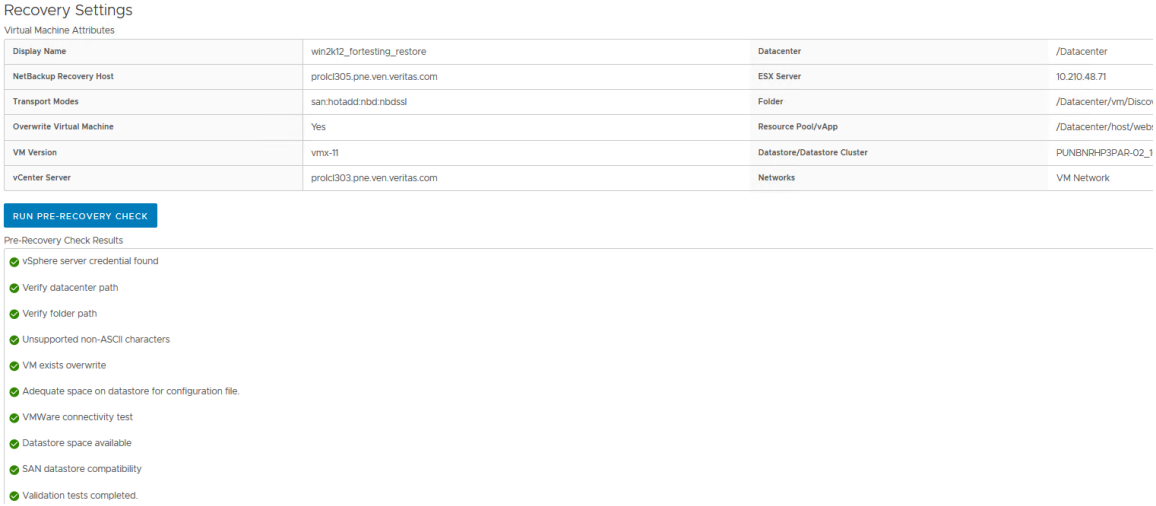


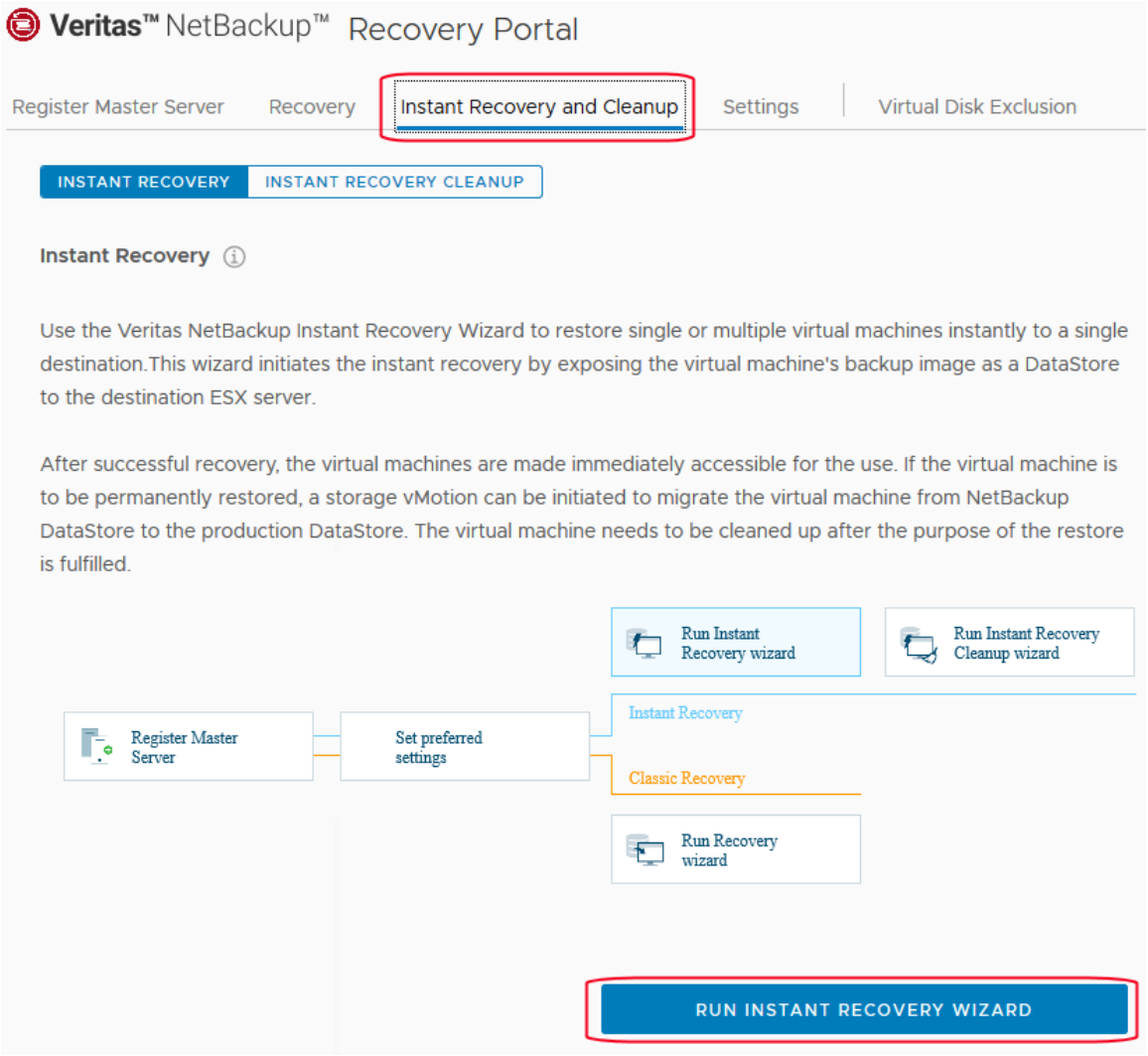
Table 5-11 Fields in the Pre-Recovery Check screen

Field	Description
Virtual Machine Attributes	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 98.
Finish	Starts the recovery of the virtual machine.

NetBackup Instant Recovery Wizard screens

The Instant Recovery Wizard of the NetBackup plug-in for vSphere Client (HTML5) allows you to recover and power on one or more virtual machines instantly.

In vSphere Client, click **Veritas NetBackup** > **Instant Recovery and Cleanup** > **RUN INSTANT RECOVERY WIZARD**.



Instant Recovery: Virtual Machine Selection screen

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 search for and add the virtual machines to restore (click **+ ADD VIRTUAL MACHINE**).

See "Instant recovery-ready backup images are not available for selection" on page 99.

Figure 5-10 Virtual Machine Selection screen in the NetBackup Instant Recovery Wizard for vSphere Client (HTML5)

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 vSphere Client (HTML5) plug-in to restore virtual machines" on page 34.
NetBackup Master Server	Use the drop-down list to select the master server that made the backup. In certain cases, the master server may not appear in the drop-down list: See "A NetBackup master server is not available in the master server list of the Instant Recovery Wizard" on page 96. **Note:** This drop-down only lists the master servers that are registered with the vCenter server selected in the vCenter drop-down. If the master 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 master server.

Table 5-12 Fields in the Virtual Machine Selection screen *(continued)*

Operations	Description
SEARCH	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 master 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 under **Search results**. Select the virtual machines and add them to restore and then click **Next**.

Note: Selecting the NetBackup master server and vCenter server is mandatory. To select multiple virtual machines, click the check box next to each virtual machine.

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 Machine	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 virtual machine recovery" on page 62. **Note:** The maximum number of instant recovery jobs includes active instant recoveries plus the number of virtual machines being added for the recovery operations.
Reset Search parameters	You can reset the search parameters to cancel earlier selections.

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

Instant Recovery: Image Selection screen

The upper pane of this screen shows the backup images that are ready for instant recovery (IR). By default, the screen lists the IR-ready images that are not more than 7 days old.

Figure 5-11 Image Selection screen in the NetBackup Instant Recovery Wizard for vSphere Client (HTML5)

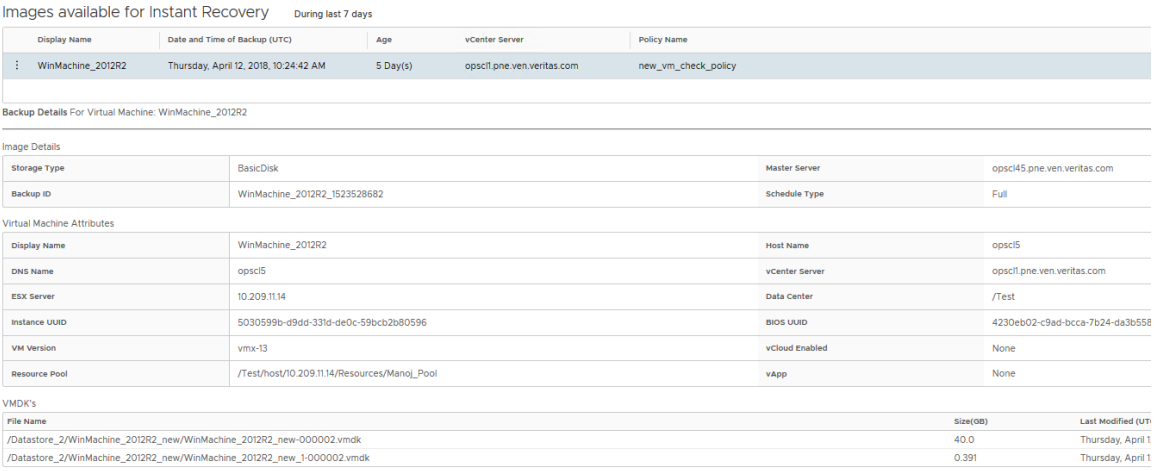
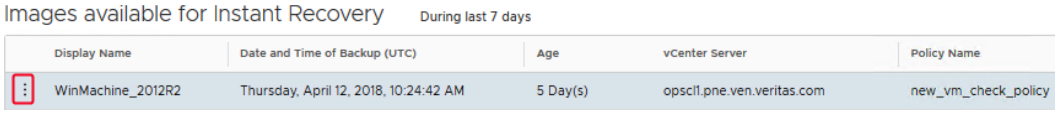


Table 5-14 Fields under Images available for Instant Recovery

Field	Description
Display Name	Name of the virtual machine that was selected and added in the previous screen.
Date and Time of Backup (UTC)	Date and time of the 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 an 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 vertical ellipsis at the left of the row and click **View More Images** to search for a different backup image:



The **Show Images for** screen appears:

Show Images for : WinMachine_2012R2

LAST 7 DAYS | LAST 30 DAYS | LAST 90 DAYS | CUSTOMIZE

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

Date and Time of Backup (UTC)	Age	Size(GB)	Policy Name
Thursday, April 12, 2018, 10:24:42 AM	5 Day(s)	8.98	new_vm_check_policy
Thursday, April 12, 2018, 9:12:45 AM	5 Day(s)	9.01	new_vm_check_policy

Backup Details

Image Details

Storage Type	BasicDisk	**Master Server**	opscl45.pne.ven.veritas.com
Backup ID	WinMachine_2012R2_1523528682	**Schedule Type**	Full

Virtual Machine Attributes

Display Name	WinMachine_2012R2	**Host Name**	opscl5
DNS Name	opscl5	**vCenter Server**	opscl1.pne.ven.veritas.com
ESX Server	10.209.11.14	**Data Center**	/Test
Instance UUID	5030599b-d9dd-331d-de0c-59bcb2b80596	**BIOS UUID**	4230eb02-c9ad-bcca-7b24-da3b5580d13c
VM Version	vmx-13	**vCloud Enabled**	None
Resource Pool	/Test/host/10.209.11.14/Resources/Manoj_Pool	**vApp**	None

VMDK's

File Name	Size(GB)	Last Modified (UTC)
/Datastore_2/WinMachine_2012R2_new/WinMachine_2012R2_new-000002.vmdk	40.0	Thu, 12 Apr 2018, 03:55:04 PM

Click on a time period to search for additional backup images. Select the desired image in the results. You can scroll down to view the image details. Click **Select** to proceed.

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

Table 5-15 Fields under Backup Details and Virtual Machine Attributes

Field	Description
Image Details	Information on the backup.
Storage Type	The storage type that was used for the backup. **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.
Master Server	The NetBackup master server that made the backup.
Backup ID	The backup ID.
Schedule Type	The type of schedule that was used for the backup.
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.
DNS Name	The DNS name of the VM.
vCenter server	The vCenter server name.
ESX server	The ESX server name.
Data center	Displays the name of the data center.
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.)
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.
VM Version	Displays the original hardware version of the VM.
vCloud Enabled	Indicates whether the VM resided in a vCloud environment when the VM was backed up.
Resource Pool	The resource pool of the VM.
vApp	The vApp.

Table 5-15 Fields under Backup Details and Virtual Machine Attributes *(continued)*

Field	Description
VMDKs	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.

Instant Recovery: Destination Selection

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

Note: If you specified the preferred destination settings under **Veritas NetBackup > Settings**, those settings are populated on this destination screen. The following topic explains how to set preferred destination parameters:

See "Configuring settings for virtual machine recovery" on page 62.

Figure 5-12 Destination Selection screen in the NetBackup Instant Recovery Wizard for vSphere Client (HTML5)

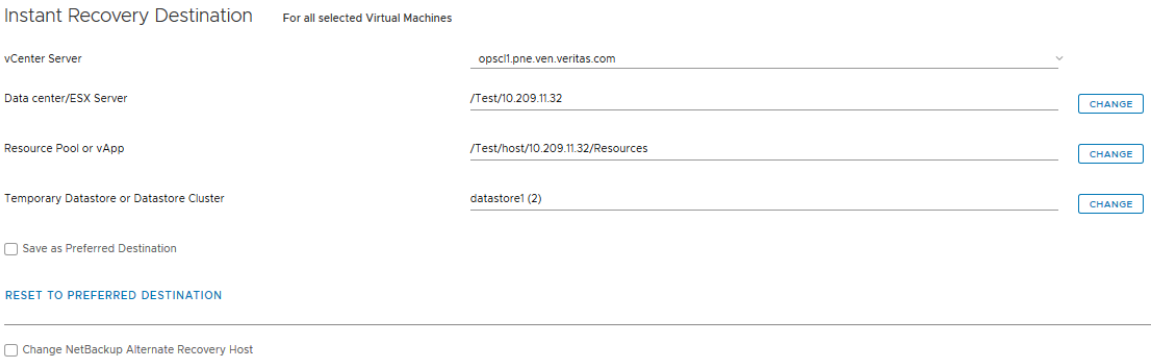


Table 5-16 Fields in the Destination Selection screen

Field	Description
vCenter Server	Use the drop-down to select the vCenter server. It lists only those vCenter servers that are associated with the master 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 **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 or 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.
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.
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 virtual machine recovery” on page 62.
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 completes the recovery. This setting is optional.

Instant Recovery: Virtual Machine Options screen

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

Figure 5-13 Virtual Machine Options screen in the NetBackup Instant Recovery Wizard for vSphere Client (HTML5)

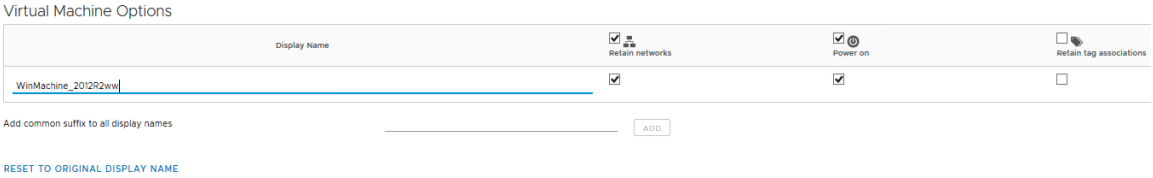


Table 5-17 Fields in the Virtual Machine Options screen

Field	Description
Display Name	The selected VMs are displayed. A display name conflict is highlighted if the provided display name already exists on the destination. For example: For more information about the hosts with name conflicts, click the exclamation mark. Information about all conflicts appears in the resulting pop-up box. **Note:** In case of duplicate display name, change the highlighted display name.
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.

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

Field	Description
Retain original 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.**
RESET TO ORIGINAL DISPLAY NAME	Resets the VM display names to their original names.

Instant Recovery: Review Selection

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

Figure 5-14 Review Selection screen in the NetBackup Instant Recovery Wizard for vSphere Client (HTML5)

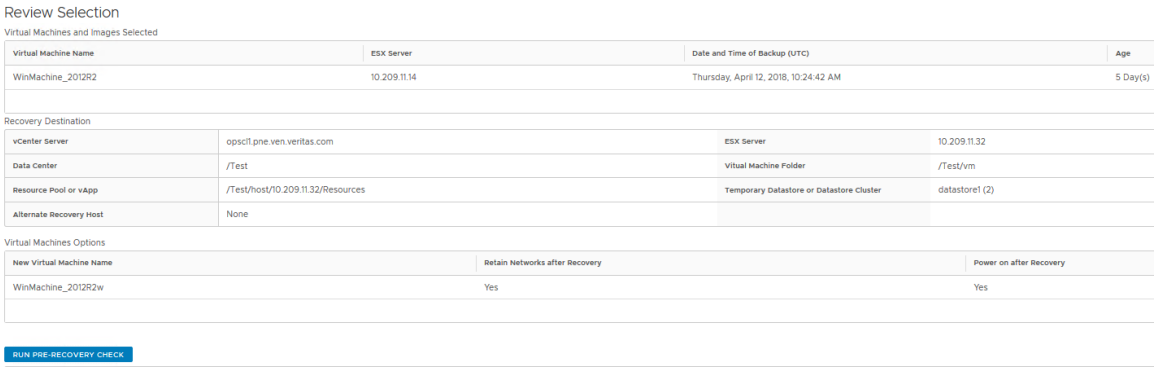


Figure 5-15 Example of pre-recovery check results

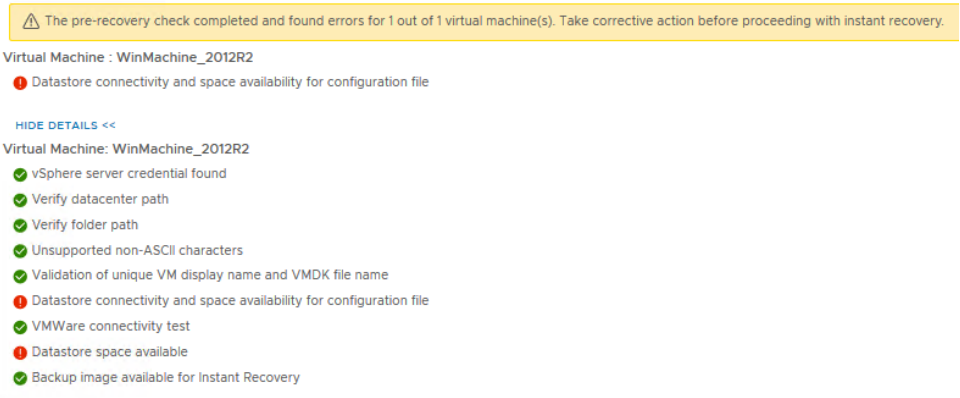


Table 5-18 Fields in the Review Selection screen

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. A 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	The lower panel of the screen 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).

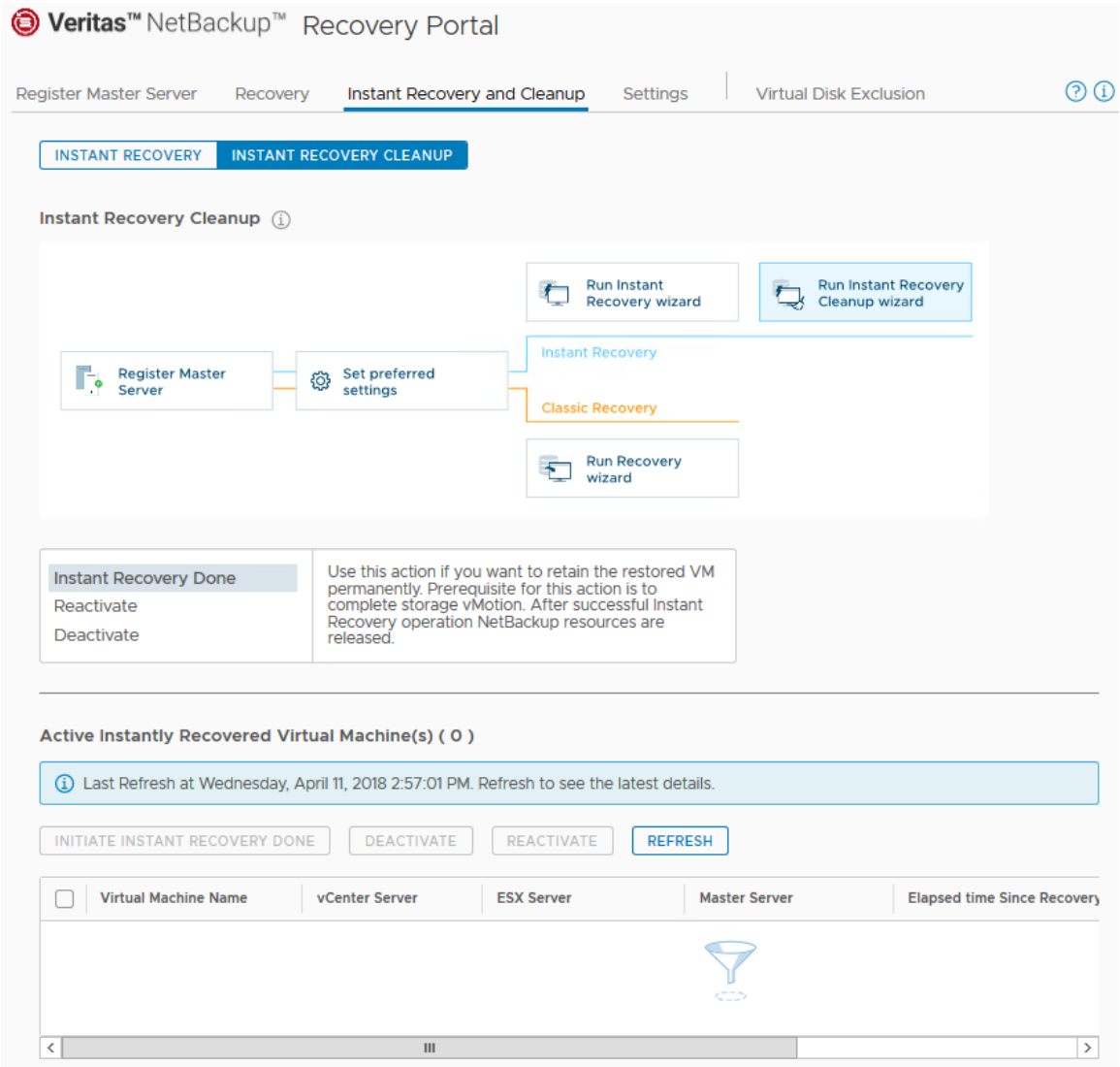
When you click **Finish**, the instant recovery operation starts. You can view the **Instant Recovery Cleanup Page** for the recovery progress. You can initiate a new IR operation by using the IR wizard again.

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

Instant Recovery: 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.

Figure 5-16 Instant Recovery Cleanup screen



Use the following options to complete the instant recovery.

Table 5-19 Fields in the Instant Recovery Cleanup screen

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.
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.
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.
Refresh	Use this option to update the latest image list.

Chapter 6

Troubleshooting

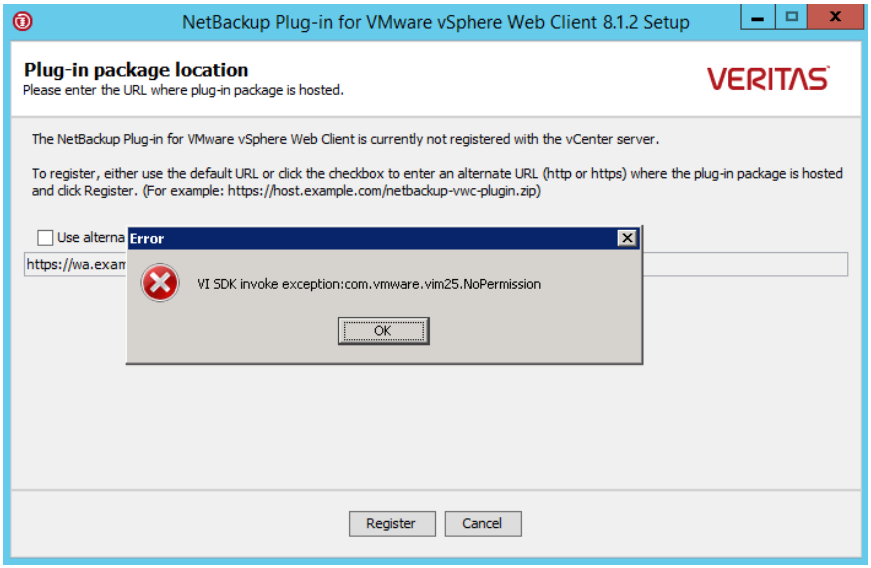
This chapter includes the following topics:

- The message NoPermission appears during plug-in installation
- Reducing the load time for the NetBackup plug-in for vSphere Client (HTML5)
- A NetBackup master server is not available in the master server list of the Instant Recovery Wizard
- The NetBackup plug-in for vSphere Client (HTML5) does not find any backup images in the listed events
- The NetBackup Recovery wizard for vSphere Client (HTML5) does not find a particular backup image
- Mismatch in vCenter server name (uppercase vs. lowercase letters) causes the VMware connectivity test to fail
- Instant recovery 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 master server names are not available for search
- Preferred Instant recovery 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 master servers
- The NetBackup plug-in is not shown in the vSphere Client (HTML5) interface even after registration

- The correct NetBackup master server does not show up for selection for a given vCenter server on the Instant recovery wizard
- Troubleshooting master server communication failures in the plug-in's Recovery Portal
- The NetBackup plug-in is not shown in the vSphere Client (HTML5) interface after vCenter upgrade from older versions to vCenter 7.0 or later

The message `NoPermission` appears during plug-in installation

To install, uninstall, or upgrade the NetBackup vSphere 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 further information on the **Extension** privileges:

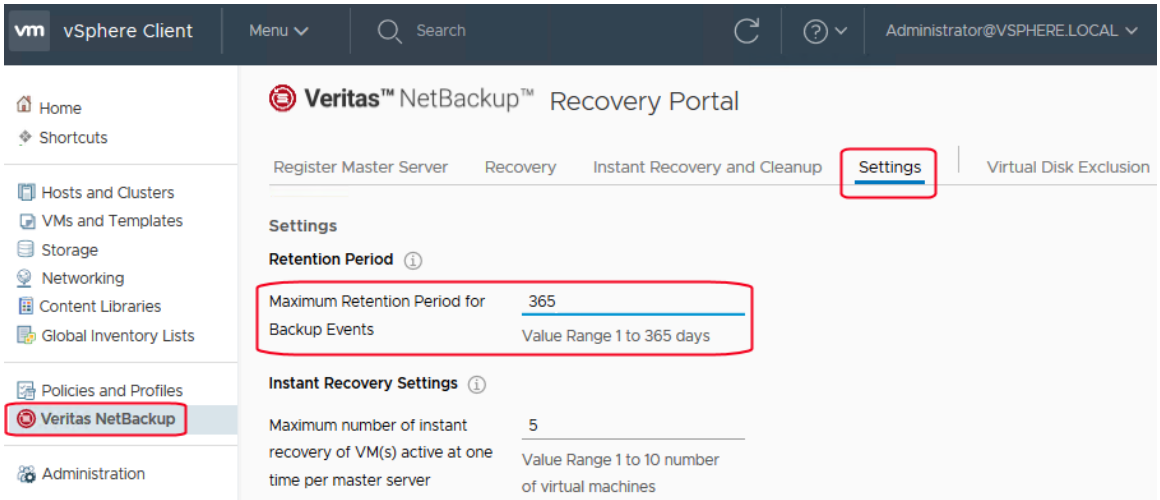
See "vCenter privileges for managing NetBackup plug-in installation" on page 15.

Reducing the load time for the NetBackup plug-in for vSphere Client (HTML5)

If the NetBackup plug-in 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 plug-in

1. In vSphere Client, click **Veritas NetBackup**.
2. Click **Settings**.



3. 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 master server is not available in the master server list of the Instant Recovery Wizard

On the **Virtual Machine Selection** screen of the Instant Recovery Wizard, the master server does not appear in the **NetBackup Master Server** drop-down list.

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

- The NetBackup master server is not registered with the NetBackup vSphere Plug-in.
- The selected vCenter server is not added in the NetBackup master server.
- Invalid token (certificate).
- Unable to connect to the NetBackup master server.
- A mismatch of the vCenter Server name as registered with the NetBackup master server and as registered with the vSphere 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 master server.

The NetBackup plug-in for vSphere Client (HTML5) does not find any backup images in the listed events

To allow the plug-in to monitor backups, the NetBackup master 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 Client (HTML5)" on page 12.

The NetBackup Recovery wizard for vSphere Client (HTML5) 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 vSphere Client, click **Veritas NetBackup > Recovery** or **Instant Recovery and Cleanup**.
2. In the wizard's **Virtual Machine Selection** screen, enter the VM name (try full or partial), and click **Search**.

   The VM should appear in the search results.
3. Click **Next** and continue with the recovery.

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 Client to match the credentials that were entered in the NetBackup master server.

See “Pre-Recovery Check screen” on page 78.

Instant recovery 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** display, the images may not be available on the master 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 master server names are not available for search

On the **Virtual Machine Selection** screen of the plug-in's recovery wizards, the server drop-down lists may not contain any vCenter servers or NetBackup master servers.

Make sure that the following are configured:

- The NetBackup vSphere Client (HTML5) plug-in is registered with the vCenter server.
- The NetBackup authentication token for the client (vCenter) was generated and imported in the vSphere Client 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 Client (HTML5)" on page 32.

See "Adding or deleting an additional host name or IP address for an authentication token" on page 39.

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

Preferred Instant recovery 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 instant recovery 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 display. 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 an 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
- A virtual machine display name conflict.
  The virtual machine name already exists on the ESX server.
- Connectivity and space availability problems.
  Indicates issues that are related to connectivity to various recovery artifacts and the available storage space for recovery.
- A VMware connectivity-related issue.
- The NFS volume eight-mount limit was exceeded on the ESXi host.
- 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 master servers

If it takes too long to display the NetBackup master server list, validate the master 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 Client Virgo logs at the following location:

- **Linux**: `/storage/log/vmware/vsphere-ui/logs/vsphere_client_virgo.log`
- **Windows**:
  `C:\ProgramData\VMware\vCenterServer\logs\vsphere-ui\logs\vsphere_client_virgo`

The NetBackup plug-in is not shown in the vSphere Client (HTML5) 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 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, see the following document: *Support for NetBackup 7.x and 8.x in virtual environments*: http://www.veritas.com/docs/000006177
You have not used the default URL for the plug-in ZIP-file download (securely hosted by the NetBackup master 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.

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

Reason	Description and recommended action

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 Client services.
	The services are `vsphere-ui` and `vsphere-client`.
	For assistance with the command line or vSphere 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 Client services.
	The services are `vsphere-ui` and `vsphere-client`.

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\vCenterServer\cfg\vsphere-ui\`

   Linux: `/etc/vmware/vsphere-ui/`

2. Restart the vSphere Client service.

   The following VMware article contains further information on starting the vSphere Client service:

   https://kb.vmware.com/kb/2109887

3. Log on again to the vSphere Client.

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

   See "Installing the NetBackup plug-in for vSphere Client (HTML5)" on page 17.

The correct NetBackup master server does not show up for selection for a given vCenter server on the Instant recovery 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 master server.
- The name that is registered with the vSphere Client (HTML5).
- The name that is registered with the plug-in during the plug-in installation.

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

To recover VMs, the plug-in must have a registered NetBackup master server with a valid and correct authentication token. The NetBackup administrator generates the authentication token on a specific NetBackup master server for a specific client (such as a vCenter server). The token gives the vCenter access to the NetBackup master server where the token was generated. (Note: you can validate authentication tokens for currently registered master 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 master server, enter the following command:

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

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 39.

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

The NetBackup plug-in is not shown in the vSphere Client (HTML5) interface after vCenter upgrade from older versions to vCenter 7.0 or later

This issue occurs because older versions of vCenter try to re-deploy the plug-in installation media zip file already downloaded by the vCenter from previous registration, which is not compatible with vCenters of versions 7.0 or later.

To solve this issue, you must install the NetBackup plugin provided for newer versions of vCenter. This plugin package is available at this URL on master server:

`https://master_server_host_name:8443/nbwebservice/plugins/netbackup-vwc-plugin-html5ui.zip`

Note: This example uses a port number of 8443. The port number on the master server however may be different.

See "Installing the NetBackup plug-in for vSphere Client (HTML5)" on page 17.

See "Installing the vSphere Client (HTML5) plug-in from a NetBackup media server and plug-in package host (web server)" on page 110.

Appendix A

Instant recovery events and best practices

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 Client. To see its NetBackup events, select the ESX server or top-level vCenter object in vSphere 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 instant recovery 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 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 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 failed.

Best practices for instant recovery operations

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

- Instant recovery can be simultaneously performed for about ten virtual machines for a single NetBackup master server. For performance reasons, it may be better 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 Client interface: **Monitor** tab > **Veritas NetBackup > Events**.
- Remove from the plug-in any NetBackup master 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.

Appendix B

Installing the vSphere Client (HTML5) plug-in from a NetBackup media server and plug-in package host

This appendix includes the following topics:

- Installing the vSphere Client (HTML5) plug-in from a NetBackup media server and plug-in package host (web server)

Installing the vSphere Client (HTML5) 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 Client (HTML5) from a NetBackup media server.

By default, the plug-in is installed over an https connection by means of the NetBackup master server. If the master 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.

The following table is a brief list of the installation requirements, followed by the installation procedure.

Table B-1 Requirements for installing the 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 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. ■ For vCenter versions earlier than 7.0, use the following zip file: `netbackup-vwc-plugin.zip` ■ For vCenter versions 7.0 or later, use the following zip file `netbackup-vwc-plugin-html5ui.zip` **Note:** Do not rename the `netbackup-vwc-plugin.zip` file or the `netbackup-vwc-plugin-html5ui.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 Client (HTML5) interface even after registration" on page 102.

To install the plug-in from a NetBackup media server

1. Download the appropriate zip file from the NetBackup master 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.
   - For vCenter versions earlier than 7.0, use the following zip file: `netbackup-vwc-plugin.zip`
   - For vCenter versions 7.0 or later, use the following zip file `netbackup-vwc-plugin-html5ui.zip`

Note: Do not rename the `netbackup-vwc-plugin.zip` file or the `netbackup-vwc-plugin-html5ui.zip` file.

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

For vCenter versions earlier than 7.0:

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

For vCenter versions 7.0 or later:

```
https://master_server_host_name:8443/nbwebservice/plugins
/netbackup-vwc-plugin-html5ui.zip
```

Note: This example uses a port number of 8443. The port number on the master server however may be different.

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2. A security pop-up may ask you to verify or confirm the master 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:

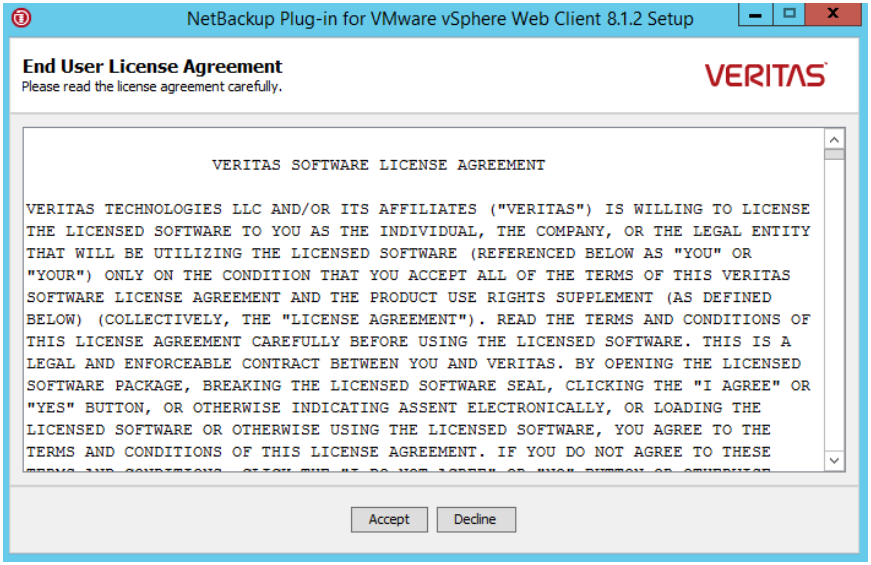
   Windows: *install_path*`\NetBackup\bin\goodies\vwcp_manage.exe`

   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.

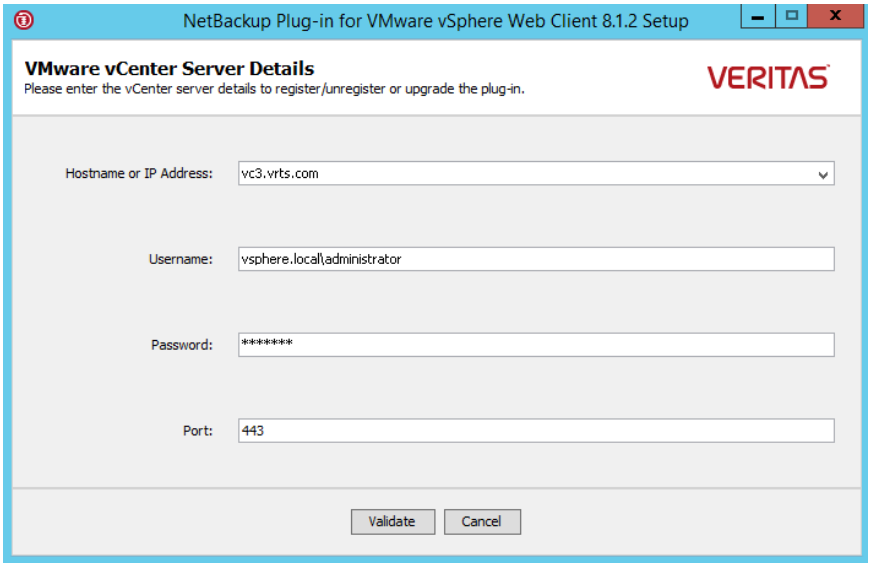
---

4 Registration begins with the End User License Agreement (click **Accept**):



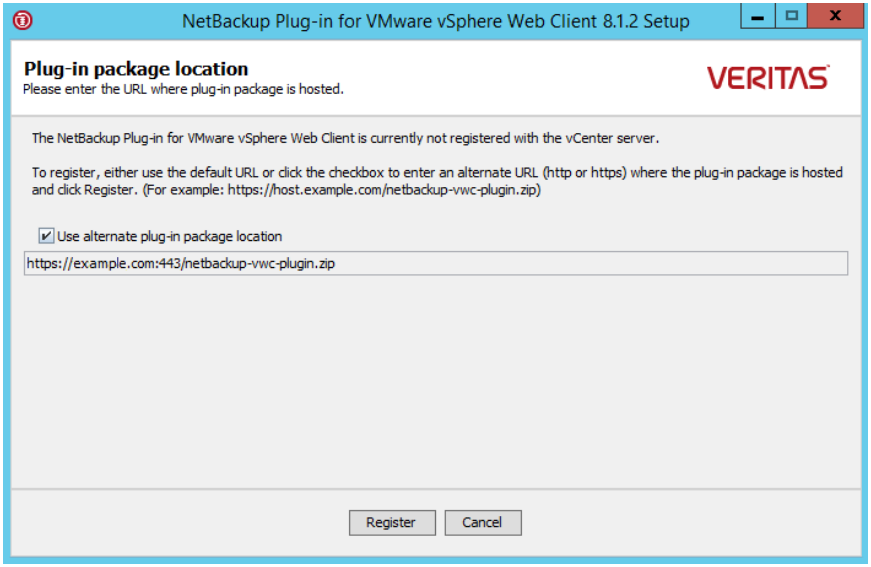
5 On the following dialog, use the pull-down list to select the vCenter server and enter the credentials, then click **Validate**.

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` or `netbackup-vwc-plugin-html5ui.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.

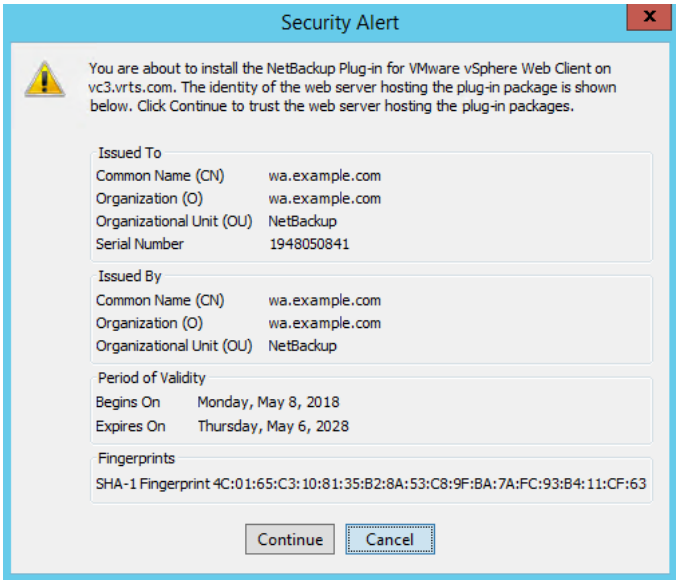


Note: The URL field is not pre-populated with the plug-in package host URL. You must enter the URL.

---

7 Click **Register**.

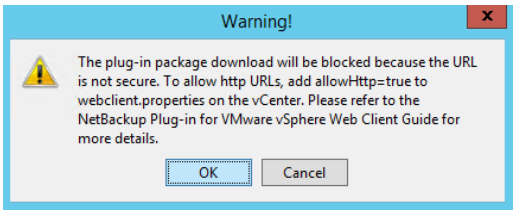
- If the URL entered in step 6 uses the secure `https` protocol, a security alert appears:



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:



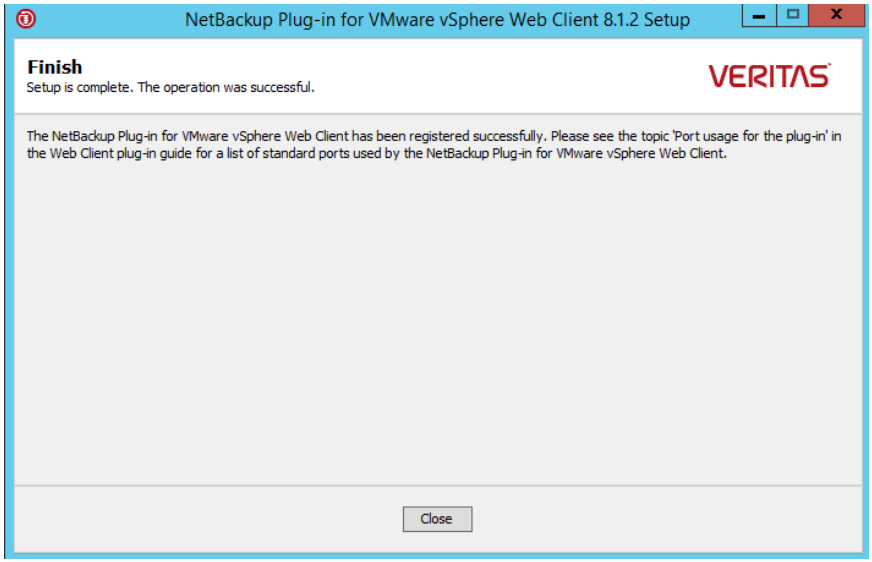
To configure the vCenter to allow an `http` URL, use the procedure in the following topic:

See "The NetBackup plug-in is not shown in the vSphere Client (HTML5) interface even after registration" on page 102.

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).

The following appears:



8 Click **Close**.

9 Log on to vSphere Client (HTML5). If you are currently logged on, log out first.

The **Veritas NetBackup** option should appear in the left pane and in **Shortcuts**.

See "How to access the features of the NetBackup plug-in for vSphere Client (HTML5)" on page 10.

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

See "The NetBackup plug-in is not shown in the vSphere Client (HTML5) interface even after registration" on page 102.

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