Symantec NetBackup™ Plug-in for VMware vCenter Guide

Release 7.6

✓Symantec

Symantec NetBackup™ Plug-in for vCenter Guide

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Contents

Introduction and notes

This chapter includes the following topics:

- About the Symantec NetBackup plug-in for VMware vCenter

- Notes and recommendations on the NetBackup plug-in

- How to access the features of the Symantec NetBackup plug-in

About the Symantec NetBackup plug-in for VMware vCenter

With the NetBackup plug-in for vCenter, you can use vSphere Client to monitor virtual machine backups and 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 is optional and is not required for monitoring virtual machine backups.)

The backup information appears on the **Symantec NetBackup** tab in the vSphere Client interface.

You can start a virtual machine recovery from any of several points in the vSphere Client interface.

See "How to access the NetBackup Recovery Wizard" on page 45.

Figure 1-1 shows a VMware environment with NetBackup servers and the NetBackup plug-in.

Figure 1-1   VMware environment with NetBackup plug-in
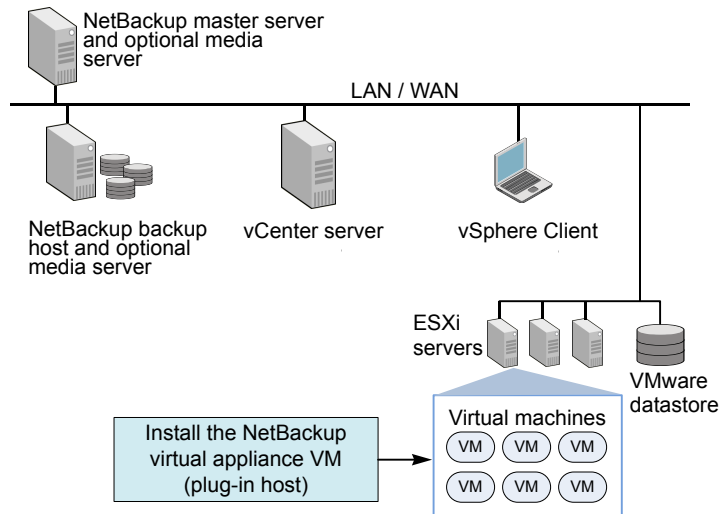
Support for ESX and ESXi

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 "Requirements for the NetBackup plug-in for vCenter" on page 13.

Notes and recommendations on the NetBackup plug-in

Note the following about the NetBackup plug-in for vCenter:

- 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 refresh button at the top.

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

- The plug-in does not support use of the https://<IP_address>:5480/ URL for setting properties.

- The plug-in does not support multiple vCenter servers. The plug-in is intended for monitoring and restoring virtual machines within one vCenter server. The plug-in Recovery Wizard can browse and restore images of virtual machines from only one vCenter.

  To use the plug-in with another vCenter, you must either unregister the current vCenter or install another plug-in.

  See "Manually unregistering the NetBackup plug-in for vCenter" on page 21.

- If **Enhanced Security Configuration** is enabled in Internet Explorer on the vSphere Client host, you may need to add the plug-in as a Trusted site. This step is only required when you first open the **Symantec NetBackup** tab on the vSphere Client host.

- If the plug-in virtual appliance is configured on an NFS datastore, the NFS server determines the type of disk provisioning that you can use. Note that thick provisioning may not be available.

  The following VMware article contains more information:

  VMware vSphere Online Library: About Virtual Disk Formats

- Depending on your firewall configuration, you may need to modify your firewall rules to allow the vSphere Client host to access the plug-in host. vSphere Client must have access to the port to which the plug-in host is configured.

  Note: The default port for the plug-in host is 9445.

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

- See "Notes on restoring virtual machines with the NetBackup Recovery Wizard" on page 45.

- When the plug-in installation completes, restart the vCenter service `VMware VirtualCenter Server` if you use vCenter 4.0.

- 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.

How to access the features of the Symantec NetBackup plug-in

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

Table 1-1   Basic functions in the Symantec NetBackup plug-in

Feature	How to access in vSphere Client
Monitor the status of virtual machine backups	Use the **Symantec NetBackup** tab. See "Symantec NetBackup tab in vSphere Client" on page 25.
Restore a virtual machine	You can access the Recovery Wizard in several ways. See "How to access the NetBackup Recovery Wizard" on page 45. **Note:** The Recovery Wizard is optional. It is not required for monitoring virtual machine backups.

Installing the NetBackup Plug-in for vCenter

This chapter includes the following topics:

- Requirements for the NetBackup plug-in for vCenter

- Configuration overview for the NetBackup plug-in for vCenter

- Consistent naming for the vCenter server

- Upgrading the NetBackup plug-in for vCenter

- Installing the NetBackup plug-in for vCenter

- Disabling or uninstalling the NetBackup plug-in for vCenter

- Manually unregistering the NetBackup plug-in for vCenter

Requirements for the NetBackup plug-in for vCenter

Symantec provides the NetBackup plug-in as a virtual appliance. The requirements depend on which component of the plug-in you want to use.

The following tables describe the requirements:

Table 2-1 describes the requirements that are common to both monitoring virtual machine backups and to recovering virtual machines.

Table 2-2 describes the requirements that apply only to monitoring virtual machine backups.

Table 2-3 describes the requirements that apply only to recovering virtual machines with the NetBackup Recovery Wizard. This wizard is not required for monitoring virtual machine backups.

Table 2-1   Common requirements for the vCenter plug-in virtual appliance

Requirement	Details
VM hardware	For the vCenter plug-in virtual appliance:
	2 vCPU
	Minimum 4 GB vRAM
	Minimum 24 GB of disk space on the datastore
Network access	The vSphere Client host must have access to the vCenter server where the virtual appliance is installed.
VMware versions	vCenter Server version 4.0 and later
	vSphere Client version 4.0 and later
	ESXi version 4.0 U4 and later. (Note that ESXi version 4.1 U3 is not supported.)
	For a list of ESX versions that VMware supports for CentOS 6.4, refer to VMware documentation. (CentOS 6.4 is the guest OS of the vCenter plug-in virtual appliance.)
	For a list of VMware versions that NetBackup supports, see *Support for NetBackup 7.x in virtual environments*:
	http://www.symantec.com/docs/TECH127089
Web browser in vSphere Client	Internet Explorer version 7 or later.
Windows 2003 hot fix	For the vCenter systems that run on Windows 2003, it may be necessary to install a Windows hot fix. Without the hot fix, you may not be able to access the vCenter plug-in and the message "Action Canceled" appears. You can download the hot fix from the following Microsoft support article:
	http://support.microsoft.com/kb/968730

Table 2-2   Requirements for monitoring virtual machine backups

Requirement	Details
NetBackup versions	NetBackup 7.5 and later.

Table 2-3   Requirements for recovering virtual machines with the NetBackup
Recovery Wizard

Requirement	Details
NetBackup versions	NetBackup 7.6 and later.
NetBackup master server platforms	- Windows - Red Hat - SUSE - Solaris SPARC - Solaris x86 For all the OS levels and versions that are supported for master server, refer to the NetBackup compatibility lists in the *NetBackup 7.6 Release Notes*.
NetBackup Web Services	The NetBackup Web Services must be enabled on the NetBackup master server. See "Configuration overview for the NetBackup plug-in for vCenter" on page 15.

Configuration overview for the NetBackup plug-in for vCenter

Table 2-4 lists NetBackup configuration requirements that are related to the plug-in.

Table 2-4   NetBackup configuration related to the plug-in

Task	Description and notes
NetBackup must be configured to back up the virtual machines.	For example, the NetBackup administrator must configure the following: - The VMware backup host (access host). - The NetBackup credentials for the vCenter server. **Note:** The vCenter credentials can be entered as a fully qualified domain name or IP address. Specify the vCenter server in the same way when you install the plug-in. - Policies of type **VMware**, with the **Post events to vCenter** option set to **All Events**. The *NetBackup for VMware Administrator's Guide* contains details on setting up VMware policies.

Table 2-5 lists the steps for installing the NetBackup vCenter plug-in. See the reference topic in the table for details about each step.

Table 2-5   Installing the plug-in

Step	Description	Reference topic and notes
1	Install the virtual appliance and plug-in for vCenter.	See "Installing the NetBackup plug-in for vCenter" on page 18. **Note:** From the vSphere Client host, install the virtual appliance while you are logged into the vCenter. Network issues may occur if you are logged directly into the ESXi server.
2	Install the trusted SSL certificate.	See "Installing the trusted SSL certificate" on page 23.

Table 2-6 lists the steps for setting up the NetBackup vCenter plug-in for monitoring backups.

Table 2-6   Setting up the plug-in for backup monitoring

Description	Reference topic and notes
Set vCenter privileges.	See "Setting vCenter privileges for backup monitoring" on page 25.

Table 2-7 lists the steps for setting up the NetBackup vCenter plug-in for recovering virtual machines (the NetBackup Recovery Wizard).

Note: This wizard is not required for monitoring virtual machine backups.

Table 2-7   Setting up the plug-in for the NetBackup Recovery Wizard

Step	Description	Reference topic
1	Enable the NetBackup Web Services on the master server.	See "Enabling NetBackup Web Services on the Windows master server" on page 34. See "Enabling NetBackup Web Services on the UNIX or Linux master server" on page 36.
2	Configure ports for the NetBackup Web Services.	See "Configuring ports for the NetBackup Web Services" on page 38.
3	Create an authentication token file.	See "Creating an authentication token" on page 40.

Table 2-7　　　Setting up the plug-in for the NetBackup Recovery Wizard *(continued)*

Step	Description	Reference topic
4	Authorize the plug-in to restore virtual machines.	See " Authorizing the plug-in to restore virtual machines" on page 43.
5	Set vCenter privileges for virtual machine recovery.	See "Setting vCenter privileges for recovering virtual machines" on page 44.

Consistent naming for the vCenter server

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

- In the NetBackup credentials.
- In the NetBackup plug-in installation.
- In the vCenter server installation.

If the fully qualified name of the vCenter server was not used during installation of the vCenter, do the following in vSphere Client: click **View > Administration > Server Settings**, then click **Advanced Settings**. Set the `VirtualCenter.VimApiUrl` key to the fully qualified domain name.

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.

Upgrading the NetBackup plug-in for vCenter

Follow these steps to upgrade the plug-in from an earlier version.

Table 2-8　　　Upgrading the plug-in from an earlier version

Step	Description	Reference topic and notes
1	Review the requirements for the plug-in.	Some requirements have changed since the FA version of the plug-in was issued. See "Requirements for the NetBackup plug-in for vCenter" on page 13. See "Configuration overview for the NetBackup plug-in for vCenter" on page 15.

Table 2-8   Upgrading the plug-in from an earlier version *(continued)*

Step	Description	Reference topic and notes
2	Unregister the existing plug-in.	See "Manually unregistering the NetBackup plug-in for vCenter" on page 21.
3	Uninstall the existing virtual appliance and plug-in.	See "Disabling or uninstalling the NetBackup plug-in for vCenter" on page 20.
4	Install the latest version of the virtual appliance and plug-in.	See "Installing the NetBackup plug-in for vCenter" on page 18.

Installing the NetBackup plug-in for vCenter

The NetBackup plug-in for vCenter is provided as a virtual appliance in a preconfigured virtual machine. The virtual appliance is available in a .zip file on the FileConnect webpage, as described in this installation procedure.

Note: After the virtual appliance is installed, it should be dedicated to hosting the NetBackup plug-in: it should not be used for other purposes.

To install the plug-in, you need the following information about the vCenter server:

- Host name or IP address
- User name and password
- Port number for the vCenter server (default is 443).

To install the virtual appliance and plug-in for vCenter

1   In your NetBackup product entitlement letter, locate your serial number for software downloads.

2   Go to the FileConnect webpage and enter your serial number:

    https://symantec.flexnetoperations.com

3   From FileConnect, download the NetBackup plug-in .zip file.

4   Unzip the file and copy the plug-in `.ova` package to a location that is accessible to the vSphere Client host.

5   From the vSphere Client host, log in to the vCenter server.

6 On the vCenter server, select **File > Deploy OVF template**.

Install the virtual appliance in vCenter, not directly in the ESXi server.

7 Browse to the location of the plug-in `.ova` package.

Click **Next** to work through the screens.

8 On the **Properties** screen, enter static network addresses only. Dynamic Host Configuration Protocol (DHCP) is not supported.

If your entries do not display properly on the **Properties** screen, use the Windows **Display** Control Panel to reduce the size of the text.

See "The Network Properties screen in the Deploy OVF Template wizard does not display properly" on page 55.

9 Follow the remaining screens to finish installing the virtual appliance.

10 Click the `NBvcplugin` virtual machine and click the **Console** tab.

The boot process continues and asks for a new root password. Set the root password for the virtual appliance. The boot process continues until the following appears:

```
Symantec NetBackup Plugin for vCenter 7.6 Installation Program
```

11 Follow the installation prompts.

Enter the host name or IP address for the vCenter server, and a user name and password. For the vCenter server port number and web server port number, accept the defaults.

Note: You are allowed to re-enter the vCenter logon credentials five times. Without a valid logon for the vCenter, the installation stops. Delete the `NBvcplugin` virtual machine, obtain the correct logon information, and begin the installation procedure again.

Note: You may need to modify your firewall rules to allow vSphere Client to access the plug-in host. The vSphere Client host must have access to port 9445 of the plug-in host.

The plug-in installation begins.

12 When installation completes, restart the following:

- vSphere Client
- The vCenter service (restart required only for vCenter 4.0)

The virtual appliance boot process continues.

13   Verify that the plug-in has the correct time.

If the time is not correct, go to the console of the virtual appliance and use the `date` command to change the time, as follows.

- Set the date and time by means of the `-s` option.
  For example:
  ```
  date -s "Wed Feb 6 09:41:54 UTC 2013"
  ```

  Note: Symantec recommends keeping the plug-in in UTC.

- Then restart the virtual appliance.

Disabling or uninstalling the NetBackup plug-in for vCenter

You can disable the NetBackup plug-in, or remove the virtual appliance that contains the plug-in.

To disable the NetBackup plug-in

1   In vSphere Client, click **Plugins > Manage Plug-ins**.

2   Right-click on **Symantec NetBackup plug-in for vCenter** and click **Disable**.

The Symantec NetBackup tab is removed.

3   To re-enable the plug-in, right-click on **Symantec NetBackup plug-in for vCenter** and click **Enable**.

To uninstall the NetBackup plug-in

1   Right-click on the virtual appliance that contains the plug-in and select **Remove from Inventory**.

If necessary, the virtual appliance can be re-imported from the datastore. For permanent removal of the virtual appliance, click **Delete from disk**.

2   To reinstall the plug-in, you must manually unregister it.

Manually unregistering the NetBackup plug-in for vCenter

Note: The NetBackup plug-in installer allows one plug-in instance per vCenter server. You must uninstall the current plug-in before you can re-register it with the same vCenter server.

To manually unregister the plug-in

1   Open a web browser and use the following to log on to the vCenter Server Managed Object Browser (MOB):

Keep all on one line:

```
https://vCenter Server IP or host name
/mob/?moid=ExtensionManager&method=unregisterExtension
```

where *vCenter Server IP* or *host name* is the IP address or system name of the vCenter Server where the NetBackup plug-in is registered.

If the VMware web service does not use the default port 443, specify the following (all on one line):

```
https://vCenter Server IP or host name:
PortNumber/mob/?moid=ExtensionManager&method=unregisterExtension
```

where *PortNumber* is the VMware web service port number.

2   At the prompt, specify the credentials.

You must have the Unregister extension privilege on the vCenter Server.

3   In the **UnregisterExtension** window, enter the following in the **extensionKey** value field:

Symantec NetBackup plugin for vCenter

4   Click **Invoke Method**.

The NetBackup plug-in is unregistered from the vCenter Server.
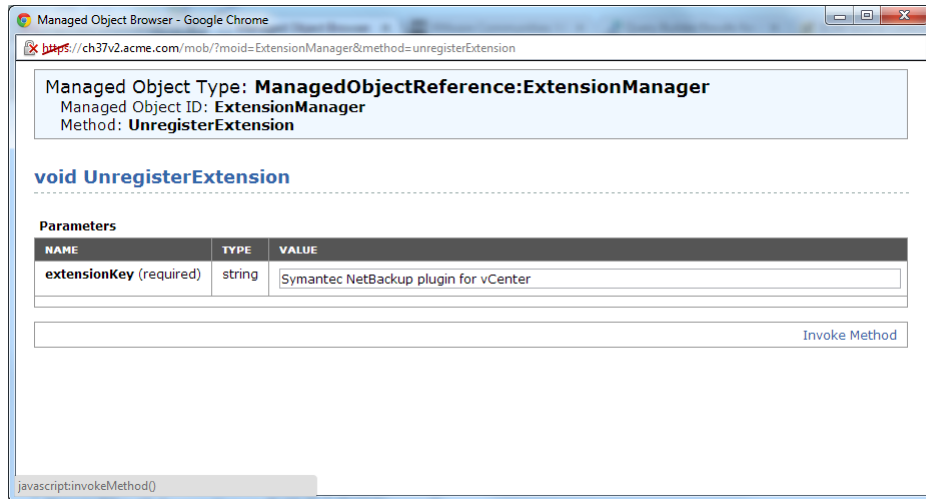
Monitoring backup status

This chapter includes the following topics:

- Configure the NetBackup plug-in for vCenter for backup monitoring

- Symantec NetBackup tab in vSphere Client

- Summary display

- Virtual Machines display

- Events display

- Using the Symantec NetBackup tab for backup reporting

- How to respond to backup status

Configure the NetBackup plug-in for vCenter for backup monitoring

Before you can use the plug-in to monitor virtual machine backups, configure the following:

- Install a trusted SSL certificate.
  See "Installing the trusted SSL certificate" on page 23.

- Set vCenter privileges.
  See "Setting vCenter privileges for backup monitoring" on page 25.

Installing the trusted SSL certificate

When you first use the NetBackup plug-in in vSphere Client, you are prompted to install a trusted SSL certificate. This certificate gets installed on the computer on

which vSphere Client is running. This certificate authenticates and secures communication from the vSphere Client to the NetBackup plug-in host.

If you ignore the certificate warning, the same message appears whenever you log into vCenter. To stop the messages, install the SSL certificate in the Trusted Root Certification Authorities store, as follows.

To install the trusted SSL certificate

1   When the Security Warning appears, click **Install this certificate and do not display any security warnings for xxxx**. Then click **View Certificate** to examine the certificate and authenticate the identity of the connecting NetBackup plug-in host.
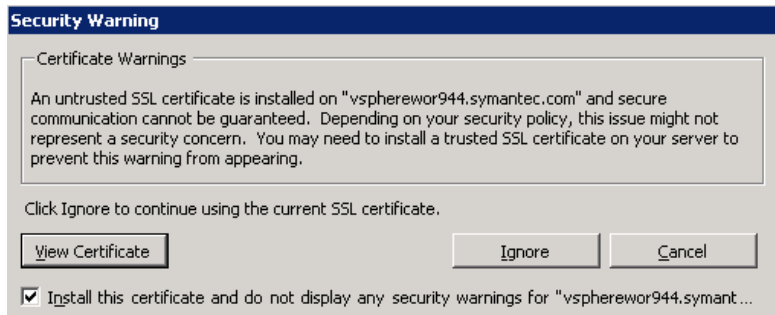
2   On the **Certificate** dialog, click **Install Certificate...**.

3   On the **Certificate Import Wizard**, click **Next**.

4   On the **Certificate Store** dialog, click **Place all certificates in the following store**. Click **Browse**.

5   Select **Trusted Root Certification Authorities** and click **OK**.

6   Click **Next**.

7   On the final screen, click **Finish**.

A warning message describes the certificate to be installed.

8   Click **Yes**.

Setting vCenter privileges for backup monitoring

Use the following procedure to set the user privileges in vCenter that the NetBackup plug-in requires.

To set required vCenter privileges for backup monitoring

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

In vSphere Client, click **Home > Roles** and set the following:

To monitor virtual machine backups	**Global > Manage custom attributes**
	Global > Set custom attribute

Symantec NetBackup tab in vSphere Client

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

In the vSphere Client, go to **Home > Inventory > Hosts and Clusters** and select a vSphere object.

Note: You must select an object beneath the vCenter server, such as a folder, datacenter, or ESXi host. The information that appears in the **Symantec NetBackup** tab applies to the VMs within the object that you select.

Table 3-1 describes the displays that appear on the **Symantec NetBackup** tab.

Table 3-1   Summary, Virtual Machines, and Events displays

Display	Information shown
Summary	A summary and graphical view of backup success and backup events, for a specified time period. Can show the current backup status for a selected VM.
	See "Summary display" on page 26.
Virtual Machines	Tabular view of backup information for a group of VMs.
	Note: This display is available when you click on a vSphere object that is above 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 28.
Events	More detailed tabular view of backup information based on events. Can show backup events for a VM or its parent object.
	You can filter the information with a range of criteria. Includes an option for customized sorting in multiple columns.
	See "Events display" on page 30.

Summary display

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

Figure 3-1 shows an example of the Summary display for multiple VMs.

Figure 3-1   Summary display with backup data for multiple VMs
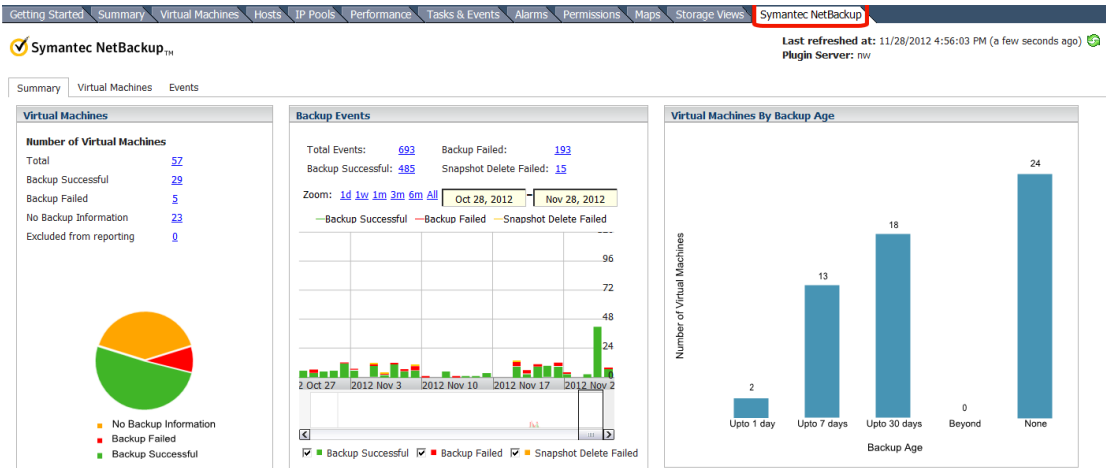
The Summary display presents backup information in the following panels.

Table 3-2   Summary panels

Panel	Description
Virtual Machine(s)	Shows the current backup status and related information for a particular VM or for all the VMs that belong to the selected vSphere object.
	If the panel applies to more than one VM: click on the underlined values (such as for **Total** or **Backup Successful**) to see the details in the **Virtual Machines** display.
Backup Events	Shows the total number of backup events, and a breakdown of the events in three categories: **Backup Successful**, **Backup Failed**, and **Snapshot Delete Failed**.
	Also includes a bar chart that represents the type and number of backup events that occurred within a specified period. Each bar represents the events that occurred on a particular day. Hover over a bar to see the number of events for that day: the updated totals appear directly over the chart.
	You can configure the chart as follows:
	■ Select the types of events that appear in the chart by clicking on the colored check boxes.
	■ Move the slider to adjust the time period, or click on a **Zoom** time period. You can also specify the date range by entering start and end dates in the edit boxes. The maximum date range is one year by default.
	Note: Click on the values for **Total Events**, **Backup Successful**, **Backup Failed**, or **Snapshot Deletion Failed** to list those events in the **Events** display.

Table 3-2   Summary panels *(continued)*

Panel	Description
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.

Virtual Machines display

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

Use the arrow on the right-most column header to hide or show a column. See Figure 3-2.

Figure 3-2   Enable or disable columns in Virtual Machines display (detail)

Note: You can move the table columns right or left (drag and drop).

You can also filter the information that appears in this display (**View**, **Filter**, **Backup Age**).

The display in Figure 3-3 has been filtered to show data only for VMs that meet the following criteria: the VM has a successful backup, the backup image is up to seven days old, and the name of the VM contains the letters `vm`.

Figure 3-3   Virtual Machines display

Table 3-3 describes the options for filtering or changing the display.

Table 3-3   Display options in the Virtual Machines display

Option	Description
View	Filters the display according to backup status (**Backup Successful**, **Backup Failed**, **No Backup Information**, **Excluded from reporting**). For example: If **View** is set to Backup Successful, it displays only the VMs that were backed up successfully.
Filter **contains**	Allows additional filtering. Select a type for **Filter** and enter a filter value in the **contains** field. For example: If it is set to `Name nfs`, it displays only the VMs that have a name that contains the characters `nfs`.
Add	Saves the current **Filter** type and value (in a blue-highlighted field), to allow the addition of more filters. Each **Filter** that you add further narrows the results. Click on a filter to remove it and refresh the display.
Clear All	Removes all filtering criteria from the **Filter** and **contains** fields and refreshes the display.
Backup Age	Filters the display according to the age of the backups.
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.
Export	Saves the information as an Excel file (.xls), as a comma-separated text (CSV) file, or to the Clipboard.
Sort	Allows customized sorting in multiple columns. Each selection for **Column** and **Order** is a level. For example: If one level is **Name A to Z**, and you add the level **Policy Z to A**, the information appears as follows: the VMs appear by name in ascending order, then the VMs appear by policy name in descending order. To change the order in which the sorting occurs, select a level and click **Move Up** or **Move Down**.

Events display

The Events display shows backup information based on events. It can show backup events for a single VM or for all VMs in the selected object.

Most of the filtering options on this display are described in another topic:

See "Virtual Machines display" on page 28.

Show events since filters the events according to the time period you select.

Figure 3-4 shows an Events display with unfiltered data (the default).

Figure 3-4   Events display

Note the following:

Snapshot Delete Failed: 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.

Using the Symantec NetBackup tab for backup reporting

The following procedures explain how to find VM backup status in the **Symantec NetBackup** tab.

In the vSphere Client interface: Go to **Home > Inventory > Hosts and Clusters** and select a vSphere object (such as a datacenter, ESXi host, or VM). The

information that appears in the **Symantec NetBackup** tab applies only to the object that you select.

To find backup status for a single VM

1   Select the VM in vSphere Client.

2   Click the **Symantec NetBackup** tab.

3   Under **Summary**, **Virtual Machine**, see the **Current Backup Status** and the **Backup Events**.

To find backup status for multiple VMs

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

2   Click the **Symantec NetBackup** tab.

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

    See "Summary display" on page 26.

3   For the backup status of particular VMs, click the **Virtual Machines** display and find the VMs in the **Name** column.

    Use the **View** field to select the type of backup message to show (such as **Backup Successful** or **Backup Failed**).

    Use **Filter** to further limit the type of information that appears.

    Use **Backup Age** to filter the display by backup age.

    See "Virtual Machines display" on page 28.

To determine which VMs are not backed up

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

2   Click the **Symantec NetBackup** tab.

3   Click the **Virtual Machines** display.

4   Set the **View** field to **Backup Failed**.

5   You can use **Filter** and **Backup Age** to filter the display.

6   To save the report, click **Export** 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   Click the **Symantec NetBackup** tab.

In the **Summary** display, **Virtual Machines By Backup Age** shows the age of the backups (up to one day, up to seven days, and so forth).

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

Set **View** to **All** or to **Backup Successful**.

If necessary, use **Filter** to filter the displayed information.

4   To save the report, click **Export** and select an output type.

How to respond to backup status

For the backup status that is reported in the plug-in, the following example actions may be appropriate. You may need to confer with the NetBackup administrator.

Table 3-4   Tips for responding to backup status in the NetBackup vCenter plug-in

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 and 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 use the **Exclude** option on the plug-in **Virtual Machines** display to remove the VM's status from the display. ■ The ESXi server may have been removed from the vCenter server. See "Notes and recommendations on the NetBackup plug-in" on page 10.
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.

Recovering virtual machines

This chapter includes the following topics:

- Configure the NetBackup Recovery Wizard
- Notes on restoring virtual machines with the NetBackup Recovery Wizard
- How to access the NetBackup Recovery Wizard
- NetBackup Recovery Wizard screens

Configure the NetBackup Recovery Wizard

Note: The NetBackup Recovery Wizard is an optional feature of the NetBackup plug-in for vCenter, for recovering virtual machines. It is not required for monitoring virtual machine backups.

To use the NetBackup Recovery Wizard to restore virtual machines, configure the following:

Table 4-1 Configuring the NetBackup Recovery Wizard

Step	Description	Reference topic
1	Enable the NetBackup Web Services on the master server.	See "Enabling NetBackup Web Services on the Windows master server" on page 34. See "Enabling NetBackup Web Services on the UNIX or Linux master server" on page 36.
2	Configure ports for the NetBackup Web Services.	See "Configuring ports for the NetBackup Web Services" on page 38.
3	Create an authentication token file.	See "Creating an authentication token" on page 40.
4	Authorize the plug-in to restore virtual machines.	See " Authorizing the plug-in to restore virtual machines" on page 43.
5	Set the required vCenter privileges.	See "Setting vCenter privileges for recovering virtual machines" on page 44.

Enabling NetBackup Web Services on the Windows master server

By default, the NetBackup Web Services are disabled on the master server. To allow the NetBackup plug-in for vCenter to communicate with the master server, the NetBackup administrator must enable the NetBackup Web Services.

Table 4-2 To enable the NetBackup Web Services on the Windows master server

Step	Description	Reference topic
1	Create a group `nbwebgrp` and a user `nbwebsvc`.	See "To create group nbwebgrp and user nbwebsvc" on page 35.
2	Grant the **Log On As Service** right.	See "To grant the Log On As Service right" on page 35.
3	Set up the NetBackup Web Services on each master server that the plug-in must access to perform restores.	See "To set up NetBackup Web Services" on page 35.

To create group nbwebgrp and user nbwebsvc

◆ On the master server, check whether the `nbwebgrp` group contains the `nbwebsvc` user.

If the user and group do not exist, create them.

`nbwebsvc` and `nbwebgrp` can be local user and local group or domain user and domain group. They can be an Active Directory user and group.

Note: A combination of local user and domain group or domain user and local group is not supported. Both `nbwebsvc` and `nbwebgrp` must be local, or both must be part of the same domain.

Caution: For security reasons, it is highly recommended to create this user with a strong password and disable remote login for this user.

To grant the Log On As Service right

1 Go to **Control Panel > Administrative Tools > Local Security Policy**.

2 Under **Security Settings**, click **Local Policies** and then **User Rights Assignment**.

3 Right click **Log on as a service** and select **Properties**.

Add the `nbwebsvc` user. For a domain user, include the appropriate domain.

4 Save your changes and close the **Log on as a service Properties** dialog.

Now you can start the WMC service from the Windows Services tool or by means of the `setupWmc` script. In a clustered environment, you must start the WMC service on all nodes.

To set up NetBackup Web Services

1 Run the `setupWmc` script on the master server:

- If the master server is not in a clustered environment:

  install_path\NetBackup\wmc\bin\install\setupWmc.bat -password *password*

  The password is for the local user `nbwebsvc`.

- If the master server is in a clustered environment:

  install_path\NetBackup\wmc\bin\install\setupWmc.bat -domain *domain_name* -password *password*

  The domain_name is for the domain that contains group `nbwebgrp` and user `nbwebsvc`, and the password is for user `nbwebsvc`.

Note: If `setupWmc.bat` fails to start the NetBackup Web Services, a message is displayed. The following log file contains further details:

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

Enter the following for help with this command:

`setupWmc.bat -help`

2 To make sure the NetBackup Web Services are enabled, go to the following location in a web browser:

`https://<server>:<port>/nbwebservice/application.wadl`

Where:

- `server` is the host name or IP address of the master server, or the virtual name or IP address for clustered environments.

- `port` is the port number.
  To find the port that NetBackup Web Services uses, enter the following on the NetBackup master server:
  `install_path\NetBackup\wmc\bin\install>configurePorts.bat -status`

The `HTTP 401` error indicates that the NetBackup Web Services are enabled.

Enabling NetBackup Web Services on the UNIX or Linux master server

By default, the NetBackup Web Services are disabled on the master server. To allow the NetBackup plug-in for vCenter to communicate with the master server, the NetBackup administrator must enable the NetBackup Web Services.

Table 4-3 To enable the NetBackup Web Services on the UNIX or Linux master server

Step	Description	Reference topic
1	Create a group `nbwebgrp` and a user `nbwebsvc`.	See "To create group `nbwebgrp` and user `nbwebsvc`" on page 37.
2	Set up the NetBackup Web Services on each master server that the plug-in must access to perform restores.	See "To set up NetBackup Web Services" on page 37.

To create group `nbwebgrp` **and user** `nbwebsvc`

◆ On the master server, check whether the `nbwebgrp` group contains the `nbwebsvc` user.

To create the `nbwebgrp` group, enter the following:

```
/usr/openv/netbackup/bin # groupadd nbwebgrp
```

To create the `nbwebsvc` user, enter the following:

```
/usr/openv/netbackup/bin # useradd -g nbwebgrp -c 'NetBackup Web
Services application account' -d /usr/openv/wmc nbwebsvc
```

Enter the command with the values as shown. The -c option specifies the password file comment, and -d specifies the user's home directory as `/usr/openv/wmc`.

Note: Symantec recommends default permissions (UMASK) for the `nbwebsvc` user. NetBackup assigns appropriate permissions to this user when it enables NetBackup Web Services.

To set up NetBackup Web Services

1 Run the `setupWmc` script on the master server:

```
/usr/openv/wmc/bin/install/setupWmc
```

Enter the following for help with this command:

```
setupWmc -help
```

2 To make sure the NetBackup Web Services are enabled, go to the following location in a web browser:

```
https://<server>:<port>/nbwebservice/application.wadl
```

Where:

- `server` is the host name or IP address of the master server, or the virtual name or IP address for clustered environments.

- `port` is the port number.
  To find the port that NetBackup Web Services uses, enter the following on the NetBackup master server:

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

The `HTTP 401` error indicates that the NetBackup Web Services are enabled.

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 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 4-4   Port sets for NetBackup Web Services

Port set	http port	https port	shutdown port
First set	8080	8443	8205
Second set	8181	8553	8305
Third set	8282	8663	8405

If the `configurePorts` script does not find one of the sets free (for example, 8080, 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`

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 Http Port: 8080
Current Https Port: 8443
Current Shutdown Port: 8205
```

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

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

You can configure one, two, or three ports at a time. For example, to configure the http port to 8081 and the https port to 8553:

```
configurePorts -httpPort 8081 -httpsPort 8553
```

Output:

```
Old Http Port: 8080
New Http Port: 8081
Old Https Port: 8443
New Https Port: 8553
```

Use this command as needed to configure a set of ports for http, https, and shutdown. See Table 4-4 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.

Creating an authentication token

To allow the plug-in to restore VMs, you must generate an authentication token on the NetBackup master server (or on the appliance as 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 vCenter_plugin_host
```

UNIX, Linux

```
/usr/openv/wmc/bin/install ./manageClientCerts -create
vCenter_plugin_host
```

where *vCenter_plugin_host* is the fully qualified domain 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.

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 " Authorizing the plug-in to restore virtual machines" on page 43.

To create an authentication token on the NetBackup appliance as master server

1   Use the CLISH on the appliance to enter the **vCenter Client Administration view**:

```
nbapp213.Manage> vCenter
```

The following appears:

```
Entering vCenter Client Administration view...

Credential  Manage vCenter client credential
Exit        Logout and exit from the current shell.
Return      Return to the previous menu.
Shell       Shell operations.
```

2   Enter the following:

```
nbapp213.vCenter> Credential Create vCenter_plugin_host
```

where *vCenter_plugin_host* is the fully qualified domain name of the vCenter where the plug-in is installed. The following is example output:

```
Successfully created client certificate for 'vCent_1' to secure
access to the NetBackup Web Service Layer on Master Server
'nb-appliance', port '8443'.
```

In this example, the compressed file is created at:
`/usr/openv/var/global/wsl/credentials/clients/vCent_1.zip`

3   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 " Authorizing the plug-in to restore virtual machines" on page 43.

Revoking an authorization token

You can delete or revoke a master server authentication token, as follows.

To revoke the authorization token

1   Enter the following on the master server:

Windows

```
install_path\NetBackup\wmc\bin\install\manageClientCerts.bat
-delete vCenter_plugin_host
```

UNIX, Linux

```
/usr/openv/wmc/bin/install ./manageClientCerts -delete
vCenter_plugin_host
```

where *vCenter_plugin_host* is the fully qualified domain 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 backups that were made by this master server.

2   To re-authorize the plug-in for restores for this master server, create a new token and if necessary re-add the master server in vSphere Client.

See "Creating an authentication token" on page 40.

See " Authorizing the plug-in to restore virtual machines" on page 43.

Listing all current authorization tokens

You can list all the master server authentication tokens that are presently in use.

To list all current authorization 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 plug-in host and the master server when a certificate 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 "...".

Authorizing the 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 a master server authentication token from the NetBackup administrator. Then you can 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

2   Copy the authentication token file to the vSphere Client host (make a note of the location).

3   In vSphere Client, click **Home**.

4   Click the **Symantec NetBackup** icon.

5   Click **Add/Remove Servers**.

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

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

> **Note:** If an "Out of sync" message appears after you add a master server, click on the message as requested. This message can be ignored: it does not indicate a problem in adding the NetBackup authentication token.

> **Note:** If a "Connection Refused" message appears, the ports for the NetBackup Web Services may not be correctly configured on the master server. The following topic contains configuration instructions.

See "Configuring ports for the NetBackup Web Services" on page 38.

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

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

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

Setting vCenter privileges for recovering virtual machines

Use the following procedure to set the user privileges in vCenter for the NetBackup Recovery Wizard.

To set required vCenter privileges for recovering virtual machines

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

In vSphere Client, click **Home > Roles** and set the following:

To recover virtual machines	**NetBackup Recovery > Add or Remove NetBackup Servers**
	NetBackup Recovery > Virtual Machine Recovery
	Global > Log Event
	Note: When you deploy the plug-in, NetBackup recovery privileges are automatically enabled for the Administrator role. These privileges allow the VMware administrator to use the NetBackup Recovery Wizard to recover virtual machines to any destination in vCenter. To give the recovery privileges to other users, you must enable the NetBackup Recovery privileges for other roles.

> **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.

Notes on restoring virtual machines with the NetBackup Recovery Wizard

Use the **Symantec NetBackup Recovery Wizard** in vSphere Client to restore a virtual machine from its NetBackup image. You can restore the virtual machine to its original location or to a different location.
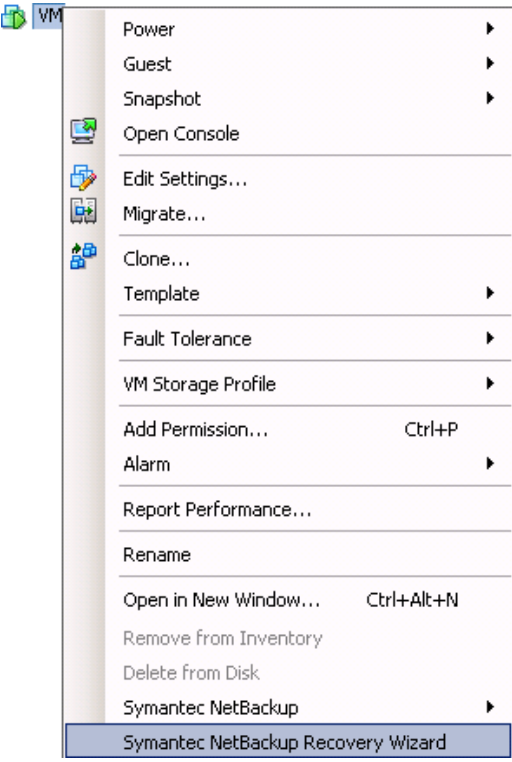
Note the following about the NetBackup Recovery Wizard:

- For the pre-requisites for using the Recovery Wizard:
  See "Configure the NetBackup Recovery Wizard" on page 33.

- The NetBackup Recovery Wizard is an optional feature of the plug-in. It is 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. See "About restore of individual files" and "Restoring individual files" in the *NetBackup for VMware Administrator's Guide*.

- The Recovery Wizard does 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*.

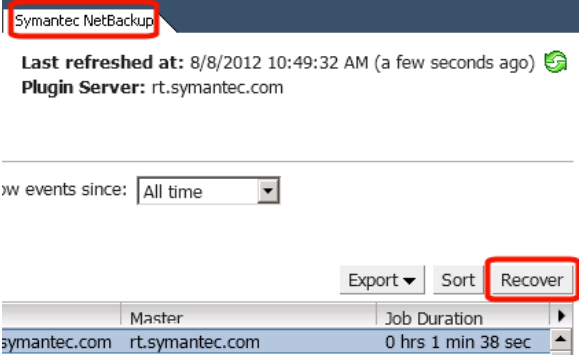- The Recovery Wizard does not use NetBackup's Instant Recovery feature.

How to access the NetBackup Recovery Wizard

In vSphere Client, you can launch the Recovery Wizard in any of three ways as shown in Table 4-5

Table 4-5   Three ways to start the **NetBackup Recovery Wizard in vSphere Client**

Action	Description
	Right click on the virtual machine and select **Symantec NetBackup Recovery Wizard**. By default, the wizard selects the original location as the target for the restore. You can overwrite the virtual machine in the original location or direct the restore to another location.
	Click **Home**, click the **Symantec NetBackup Recovery** icon, and then click **Start VM Recovery Wizard**.

Table 4-5   Three ways to start the **NetBackup Recovery Wizard in vSphere Client** *(continued)*

Action	Description
Symantec NetBackup **Last refreshed at:** 8/8/2012 10:49:32 AM (a few seconds ago) **Plugin Server:** rt.symantec.com ow events since: All time Export ▼ Sort Recover Master Job Duration ymantec.com rt.symantec.com 0 hrs 1 min 38 sec	In the **Symantec NetBackup** tab, click the **Events** tab, click on a successful backup event for the virtual machine, and click the **Recover** tab.

NetBackup Recovery Wizard screens

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

Select source virtual machine

Select the virtual machine to restore.

Table 4-6   Select source virtual machine (NetBackup plug-in Recovery Wizard)

Field	Description
Select NetBackup Master Server	Use the drop-down list to select the master server that made the backup. If the master server is not in the drop-down, you must add the server to the master server list. See "To authorize the plug-in to restore virtual machines" on page 43.
Enter Display Name or UUID or DNS Name or Host Name	Enter the virtual machine name (or portion of the name) that you want to restore, and click **Search**. **Note:** This field is case-sensitive. When you access this dialog by means of **Home > Symantec NetBackup > Recovery Wizard**, this field does not accept pasting values from the Clipboard. You must enter a value manually. For security reasons, VMware does not allow pasting values into this field.

	Table 4-6	Select source virtual machine (NetBackup plug-in Recovery Wizard) *(continued)*

Field	Description
Select Client	The results of the search appear in this list.
	Click the virtual machine to restore and then click **Next**.

Select Backup

In the NetBackup plug-in Recovery Wizard, select the backup image from which to restore the virtual machine.

	Table 4-7	Select Backup (NetBackup plug-in Recovery Wizard)

Field	Description
Select Backup	Use the drop-down to select the backup, as follows
	■ **Latest Backup**
	Selects the latest available backup image.
	■ **Manually Specify**
	Click this option to select a different backup image. The **Browse backups** button appears. Click that button and enter a date range within which to search for images. The vmdk files for the image you select appear under the **Virtual Machine Attributes** area.
	A red triangle next to the date field indicates the entry of an unsupported date format. Use the calendar icon to select a date.
	The Select Backup screen in some cases allows the incorrect entry of a date.
	Click **Select this backup** to select the backup image.
Backup Details	Displays the information on the backup image and the attributes of the virtual machine at the time it was backed up.

Destination Options

Specify the destination for the restored virtual machine.

	Table 4-8	Destination Options (NetBackup plug-in Recovery Wizard)

Field	Description
Original Location	Lists the details of the original location.
Use Original Location	Selects the original location (ESXi server, folder, resource pool, datastore, or cluster) as the restore location. (This setting is the default.)
	To accept the original location, click **Next**.

Table 4-8　　Destination Options (NetBackup plug-in Recovery Wizard)
(continued)

Field	Description
ESXi	The ESXi server for the restored virtual machine. Click **Change** to browse for an ESXi server.
VM Folder	The folder for the restored virtual machine. Click **Change** to browse for a folder.
Resource Pool	The resource pool for the restored virtual machine. Click **Change** to browse for a resource pool.
Datastore or 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.

Transport Modes

Select the recovery host and data transfer mode for the virtual machine restore.

Table 4-9　　Recovery host and transport modes (NetBackup plug-in Recovery Wizard)

Field	Description
NetBackup Recovery Host	The host that performs the recovery. The default is the host that performed the backup (the backup host). In most cases, use the host that performed the backup. Selecting a different host as the recovery host can result in a slow restore or a failed restore, depending on the transport mode. For example, the restore may fail if you select the SAN transport mode in the following case: ■　The host that performed the backup used a SAN connection to access the datastore. ■　The host you select as recovery host does not have SAN access to the datastore.
Transport Modes	Determines how the restore data is sent 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 a mode on the left and use the arrow to add it to the **Selected modes in preference order** panel on the right. The first mode that is added is the first transfer mode that NetBackup tries for the restore.
san	For unencrypted transfer over Fibre Channel (SAN) or iSCSI.

Table 4-9	Recovery host and transport modes (NetBackup plug-in Recovery Wizard) *(continued)*

Field	Description
nbd	For unencrypted transfer over a local network that uses 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 that uses the Network Block Device (NBD) driver protocol. This mode of transfer is usually slower than Fibre Channel.
hotadd	Requires that the recovery host is in a virtual machine.
	For instructions on this transport mode and on installing the recovery host in a virtual machine, refer to your VMware documentation.

Disk Options

Select the provisioning for the restored disks.

Table 4-10	Disk options (NetBackup plug-in Recovery Wizard)

Field	Description
Same as original	Restores the virtual machine's virtual disks with their original provisioning.
Thick Provision Lazy Zeroed	Configures the restored virtual disks in the thick format. The virtual disk space is allocated when the disk is created. This option restores the populated blocks, but initializes vacant blocks with zeros later, on demand.
Thick Provision Eagerly 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 Provisioning	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

Select the recovery options for the virtual machine.

Table 4-11   Virtual machine options (NetBackup plug-in Recovery Wizard)

Field	Description
Restore BIOS UUID instead of creating a new	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.
Power on virtual machine after recovery	The recovered virtual machine is automatically turned on when the recovery is complete.
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.
Retain 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 Connectivity Options

Select the networks for the recovered virtual machine.

Table 4-12   Network connectivity options (NetBackup plug-in Recovery Wizard)

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.
	You can select individual networks for the restored virtual machine.

Recovery Summary

Preview the recovery details.

Table 4-13 Recovery summary (NetBackup plug-in Recovery Wizard)

| Field	Description
Destination	Lists the settings that are used for the recovery.
Pre-Recovery Check Results	Click **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. You must run this check at least once. You can proceed with the restore even if the check fails.
Recover	Starts the recovery of the virtual machine. This button is not available until you run a pre-recovery check.

Troubleshooting

This chapter includes the following topics:

The NetBackup vCenter plug-in does not appear in vSphere Client

The plug-in may not appear if vSphere Client fails to access the plug-in host.

In vSphere Client, click **Plug-ins > Manage Plug-ins**. A NetBackup plug-in message similar to the following indicates that vSphere Client cannot connect to the plug-in.
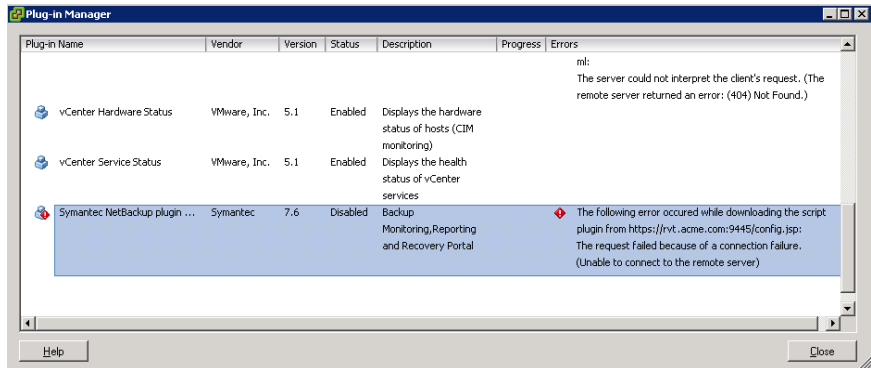
Recommended actions:

- Verify that the vSphere Client host can access the plug-in by name. You may have to modify `C:\Windows\System32\drivers\etc\hosts` on the vSphere Client host to correct the name resolution.

- Verify that the plug-in host (virtual appliance) is running.

- Verify that the host name being accessed is correct. If the plug-in host is configured with the wrong host name, delete the virtual appliance and reinstall it.

Reducing the load time for the NetBackup vCenter plug-in

If the plug-in takes a long time to load, too many backups may have occurred in your environment.

To reduce the load time for the NetBackup vCenter plug-in

1   Log in to the plug-in virtual appliance using vSphere Client.

   Log in as the root user and specify the password that was supplied during the plug-in installation.

2   Open the following file in a text editor:

   `/etc/nbvcplugin.env`

3   Find the following line in the file:

   `export MAX_EVENT_HISTORY_IN_DAYS=365`

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

4 Change the numeric value of MAX_EVENT_HISTORY_IN_DAYS to a lower positive number (non-zero). For example: 30.

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.

5 Save the file and exit the text editor.

6 For this setting to take effect, enter the following commands to restart the plug-in service:

```
service nbvcplugin stop

service nbvcplugin start
```

7 Log out of the plug-in virtual appliance.

The Network Properties screen in the Deploy OVF Template wizard does not display properly

During installation of the virtual appliance, the deployment wizard **Network Properties** screen may display improperly if the Windows text size is set too large. For example:
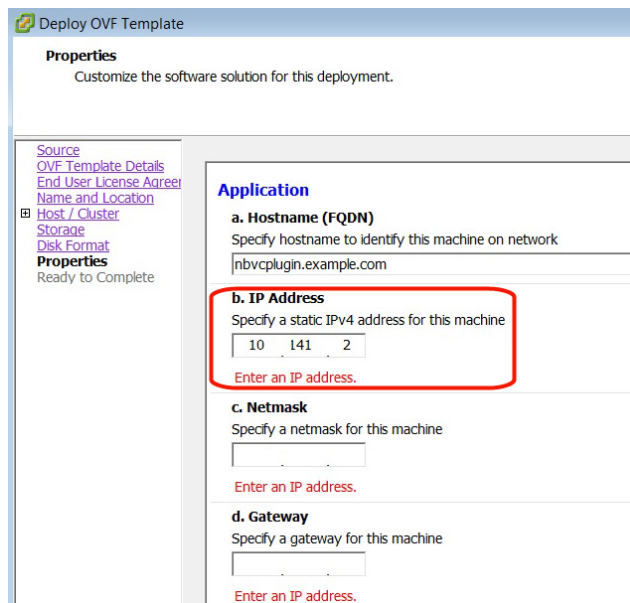
To correct the display, go to the Windows Control Panel and click **Display**. Set the text size to **100%**.

The Symantec NetBackup tab is blank

In vSphere Client, if an operation in the **Symantec NetBackup** tab results in a blank display, close and restart the vSphere Client. Then retry the operation.
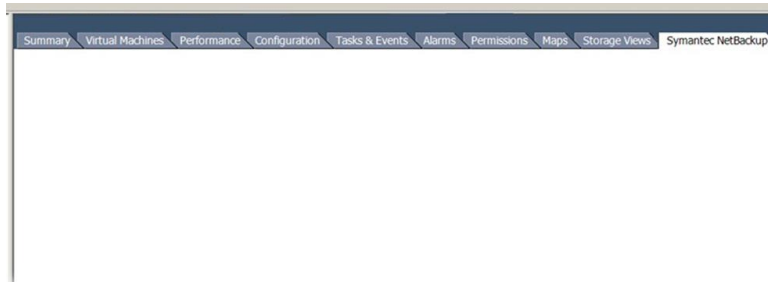
The Recovery Wizard does not find any backup images

The NetBackup plug-in Recovery Wizard may encounter this problem for any of the following reasons:

- The vCenter name resolution for the master server IP on the plug-in host is different from the name resolution for the master server IP on the master server.

- The vCenter was added to the master server using its name but the plug-in was configured using its IP.

- The time setting on the plug-in host is incorrect.
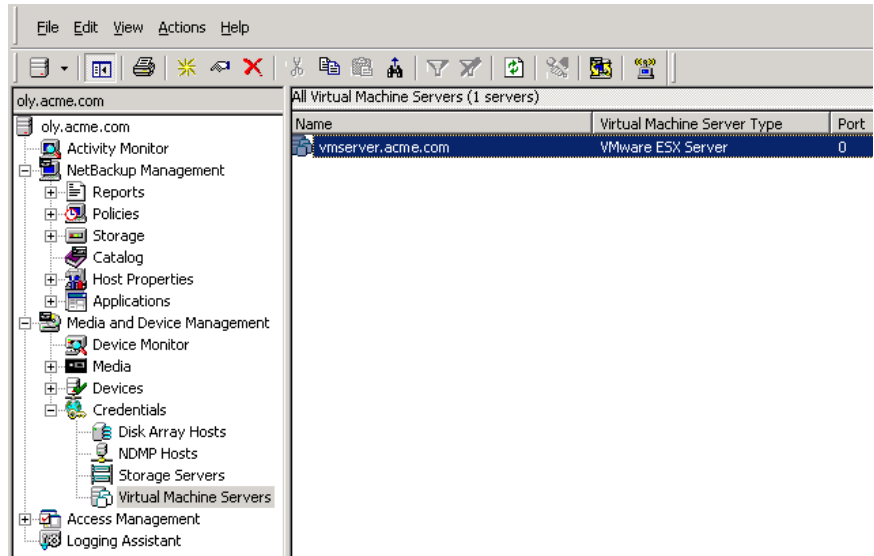
Recommended actions:

- Verify that the name of the plug-in on the plug-in host is identical to the name entered under **Credentials** on the NetBackup master server. The following two name entries should match:

    - On the plug-in host enter the following:

        `/opt/SYMCnbvcPlugin/tomcat/webapps # cat /etc/nbvcplugin.env | grep SERVER_NAME`

        Example result: `SERVER_NAME=vmserver.acme.com`

    - Find the virtual machine server name in the Administration Console on the NetBackup master server, under **Media and Device Management > Credentials > Virtual Machine Servers**:

The name that appears in the Administration Console should match the name that was returned on the plug-in host.

■ Verify that the time setting on the plug-in host (virtual appliance) is correct. If necessary, set the current time using the `date` command.

For example:

```
date -s "Wed Feb 6 09:41:54 UTC 2013"
```

Note: Substitute the current date and time for the values in this example.

Then restart the virtual appliance.

The Recovery Wizard does not find a particular backup image

The NetBackup plug-in 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, start the recovery as follows:

■ In vCenter, click **Home**, click the **Symantec NetBackup Recovery** icon, and then click **Start VM Recovery Wizard**.

■ In the wizard, enter the VM name (full or partial) to begin recovery.