

# CA ARCserve® Central Virtual Standby

User Guide  
r16.5



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## CA Technologies Product References

This document references the following CA Technologies products:

- CA ARCserve® Backup
- CA ARCserve® D2D
- CA ARCserve® Replication and High Availability
- CA ARCserve® Central Host-Based VM Backup
- CA ARCserve® Central Protection Manager
- CA ARCserve® Central Reporting
- CA ARCserve® Central Virtual Standby

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- Product and documentation downloads
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- **Understanding your Support**--The following link provides information about maintenance programs and support offerings, including terms and conditions, claims, service-level objectives (SLO), and service hours.

<https://support.ca.com/prodinfo/centappssupportofferings>

- **Registering for Support**--The following link takes you to the CA Support Online registration form which is used to activate your product support.

<https://support.ca.com/prodinfo/supportregistration>

- **Accessing Technical Support**--The following link takes you to the One-Stop Product Support page for CA ARCserve Central Applications.

<https://support.ca.com/prodinfo/arccentapps>

## Documentation Changes

The following documentation updates have been made since the last release of CA ARCserve Central Virtual Standby:

- Updated to include user feedback, enhancements, corrections, and other minor changes to help improve the usability and understanding of the product or the documentation itself.
- Added [Create a CA ARCserve Replication and High Availability Scenario for Remote Virtual Standby](#) (see page 17). This topic describes how to create CA ARCserve D2D and CA ARCserve Central Host-Based VM Backup scenarios from CA ARCserve Replication and High Availability when creating a Remote Virtual Standby Policy.
- Added [Import Nodes from CA ARCserve Replication](#) (see page 39). This topic describes how you can import multiple nodes from CA ARCserve Replication.
- Added [Configure Remote Converters](#) (see page 39). This topic describes how you can convert CA ARCserve D2D recovery points to automatically register them with either Microsoft Hyper-V or VMware vCenter or ESXi.
- Updated Create Policies to [Create CA ARCserve Central Virtual Standby Policies](#) (see page 40). This topic now includes the two types of policies that you can create: Local and Remote Virtual Standby Policies.
- Updated [Node Management Tasks](#) (see page 61). This topic now includes the Import Nodes from CA ARCserve Replication option.
- Added [Set Backup Passwords for One or More CA ARCserve D2D Nodes](#) (see page 63). This topic describes how to set one or more CA ARCserve D2D backup passwords and have them transferred to the converter located on the MSP site.
- Updated [Edit or Copy Policies](#) (see page 72). This topic now includes the two types of policies you can choose from to edit or copy.
- Updated [View Logs](#) (see page 79). This topic now includes the following Module options: Pause/Resume Heartbeat, Pause/Resume Virtual Standby, Update Multiple Nodes, Standby VM, and Import Nodes from CA ARCserve Replication.
- Added [Power On Virtual Standby Virtual Machines](#) (see page 105). This section describes the ability to power on the Virtual Standby virtual machine [locally](#) (see page 105) and [remotely](#) (see page 112).
- Added [Managing the BMR Operations Menu](#) (see page 140). This section describes three types of BMR operations.
- Updated [Access Denied Errors Occur When Adding a Node by IP/Name](#) (see page 179). This topic now includes two solutions for disabling User Account Control (UAC).
- Added [Exclude Files From Antivirus Scanning](#) (see page 200). This topic describes the files, folders, and processes to exclude before antivirus scanning.



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# Chapter 1: Introducing CA ARCserve Central Virtual Standby

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This section contains the following topics:

[Introduction](#) (see page 11)

[How CA ARCserve Central Virtual Standby Works](#) (see page 12)

[CA ARCserve Central Applications Bookshelf](#) (see page 14)

## Introduction

CA ARCserve Central Applications combine core data protection and management technologies with an ecosystem of targeted applications that work in unison to facilitate on- and off-premises protection, copy, movement, and transformation of data across global environments.

CA ARCserve Central Applications are easy to use, manage, and install. It provides organizations with automated control of their information to make educated decisions about the access, availability, and security of their data, based on the overall business value.

Among the applications offered by CA ARCserve Central Applications is CA ARCserve Central Virtual Standby. CA ARCserve Central Virtual Standby integrates with CA ARCserve D2D and lets you provision virtual machines from CA ARCserve D2D backup sessions. The application lets you do the following:

- Convert CA ARCserve D2D recovery points that are stored on the CA ARCserve D2D destination devices to VMware Virtual Disk (VMDK) or Microsoft Virtual Hard Disk (VHD) formats based on a schedule. From the recovery point snapshots you can allow the virtual machines to function as CA ARCserve D2D source servers in the event that your source servers fail.
- Push conversion policies to CA ARCserve D2D source servers.
- Store recovery point snapshots on VMware ESX Server-based or Windows Hyper-V-based virtual machines.
- Power on virtual machines manually or automatically if an emergency situation occurs.
- Recover data from recovery point snapshots to the original or alternate source servers (V2P recoveries).

## How CA ARCserve Central Virtual Standby Works

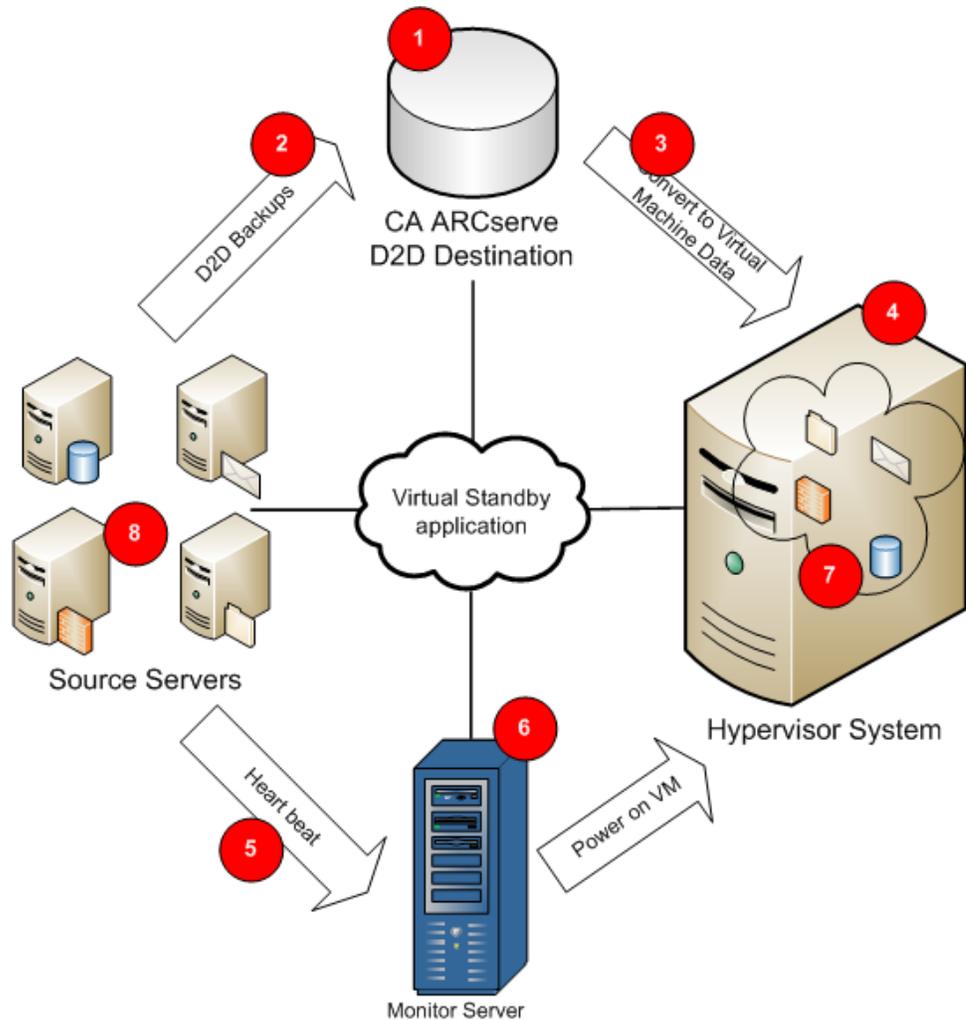
Virtual Standby lets you protect the CA ARCserve D2D source servers functioning in your environment by doing the following:

- Convert CA ARCserve D2D recovery points that are stored on the CA ARCserve D2D destination devices to VMware Virtual Disk (VMDK) or Microsoft Virtual Hard Disk (VHD) formats based on a schedule.
- Copy the converted data to a hypervisor system.
- Create recovery point snapshots from the virtual machine VMDK or VHD data.
- Monitor the health of the source server.
- Power on virtual machines automatically from the recovery point snapshots upon detection of an emergency.

**Note:** Virtual Standby can be configured to power on recovery point snapshots automatically or manually when a problem occurs.

- Recover the data from the virtual machine to the source server, after you correct the problems on the source server.

The following diagram illustrates this process:



CA ARCserve D2D (1) creates recovery points on the CA ARCserve D2D destination device (2) for the source servers. Virtual Standby converts the recovery points to virtual machine format (3) and stores the data as recovery point snapshots on the hypervisor system (4).

The monitor server (6) monitors the health of source servers. If the monitor server cannot detect a heartbeat (5) from a source server (8), the monitor server powers on a thin-provisioned virtual machine (7) on the hypervisor system (4) to function as the source server using data contained in the most recent Recovery Point Snapshot. CA ARCserve Central Virtual Standby creates a virtual machine partition that is the same size as the source server.

After you correct the problems on the source server, you can recover the source server (8) to its current state using the data (7) that is stored in the VM on the hypervisor system.

**Note:** If you want to back up the virtual machine after it is powered on, you can deploy a CA ARCserve D2D backup policy to the virtual machine using CA ARCserve Central Protection Manager.

## CA ARCserve Central Applications Bookshelf

The topics contained in the CA ARCserve Central Applications Help system are also available as a User Guide in PDF format. The latest PDF version of this guide and Help System can be accessed from the CA ARCserve Central Applications Bookshelf.

The CA ARCserve Central Applications Release Notes files contain information relating to system requirements, operating system support, application recovery support, and other information you may need to know before installing this product. In addition, the Release Notes files contain a list of known issues that you should be aware of before you use CA ARCserve Central Applications. The latest version of the Release Notes can be accessed from the CA ARCserve Central Applications Bookshelf.

# Chapter 2: Installing CA ARCserve Central Virtual Standby

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This section contains the following topics:

[Prerequisite Installation Tasks](#) (see page 15)

[Installation Considerations](#) (see page 24)

[Install CA ARCserve Central Virtual Standby](#) (see page 25)

[Uninstall CA ARCserve Central Virtual Standby](#) (see page 27)

[Install CA ARCserve Central Virtual Standby Silently](#) (see page 28)

[Uninstall CA ARCserve Central Virtual Standby Silently](#) (see page 30)

## Prerequisite Installation Tasks

Before you install CA ARCserve Central Virtual Standby, complete the following prerequisite tasks:

- Verify that the latest supported release of CA ARCserve D2D is installed on the following:

- The source servers that you want to protect
- The server that you designate to store recovery point snapshots

**Note:** This requirement applies to only to Hyper-V servers that are configured to monitor the health of nodes (physical or virtual machine), and to store the recovery point snapshots for the nodes.

- The server that you designate to monitor the source servers

**Note:** If you installed CA ARCserve Central Protection Manager in your production environment, you can install CA ARCserve D2D on remote nodes using D2D Deployment. For more information, see the CA ARCserve Central Protection Manager User Guide.

- In Hyper-V environments, verify that CA ARCserve D2D is installed on the Hyper-V host system. In Hyper-V environments, Hyper-V host systems function as the storage location for recovery point snapshots and as the monitor server.
- In VMware environments, verify that CA ARCserve D2D is installed on the proxy system.

**Note:** In VMware environments, the target ESX Server data store functions as the storage location for recovery point snapshots. The proxy system can optionally function as the monitor server.

- Review the Release Notes file. The Release Notes file contains a description of system requirements, supported operating systems, and a list of issues that are known to exist with this release.
- Verify that your system meets the minimum software and hardware requirements that are required to install CA ARCserve Central Virtual Standby.
- Verify that your Windows account has administrator privileges or any other equal privileges to install software on the computers where you plan to install CA ARCserve Central Virtual Standby.
- Verify that your account has VMware vCenter or ESX Server administrative privileges and Windows administrative privileges. The account requires the Global License role on the vCenter Server system or ESX Server system to allow VDDK operations to complete successfully.
- Verify that you have the user names and passwords of the computers where you are installing CA ARCserve Central Virtual Standby in your possession.
- Verify that you have the host names or IP address of the computers that you want to monitor the source computers in your possession.
- Verify that you have the host names or IP address of the computers where you want to store recovery point snapshots in your possession.
- Verify that you have all the licenses that are required to install CA ARCserve Central Virtual Standby available to you.
- Verify that the CA ARCserve D2D release number is the same release number as CA ARCserve Central Virtual Standby.
- CA ARCserve Central Applications lets you install CA ARCserve D2D and upgrade the previous version to the latest version on remote nodes using the Deploy utility. To back up data on the remote nodes using the latest version of CA ARCserve D2D, you must obtain the latest version of CA ARCserve D2D licenses and apply the licenses on the nodes. If you do not apply the licenses within 31 days of the date that you installed or upgraded on the nodes, CA ARCserve D2D stops working.

## Remote Virtual Standby Prerequisite Installation Tasks

Remote Virtual Standby lets you create virtual standby virtual machines from replicated CA ARCserve D2D and CA ARCserve Central Host-Based VM Backup sessions.

Before you use Virtual Standby to create virtual standby virtual machines of replicated CA ARCserve D2D sessions, complete the prerequisite tasks in the following order:

1. Install CA ARCserve Replication and High Availability. See the CA ARCserve Replication and High Availability User Guide for more details.  
**Important!** A license is required to run CA ARCserve Replication and High Availability when performing a Remote Virtual Standby.
2. Configure CA ARCserve D2D, CA ARCserve Central Host-Based VM Backup, or both to create recovery points. For more details, see the CA ARCserve D2D User Guide or the CA ARCserve Central Host-Based VM Backup User Guide.
3. Create a replication scenario that copies the recovery points to a remote location. For more details, see [Create a CA ARCserve Replication and High Availability Scenario for Remote Virtual Standby](#) (see page 17).

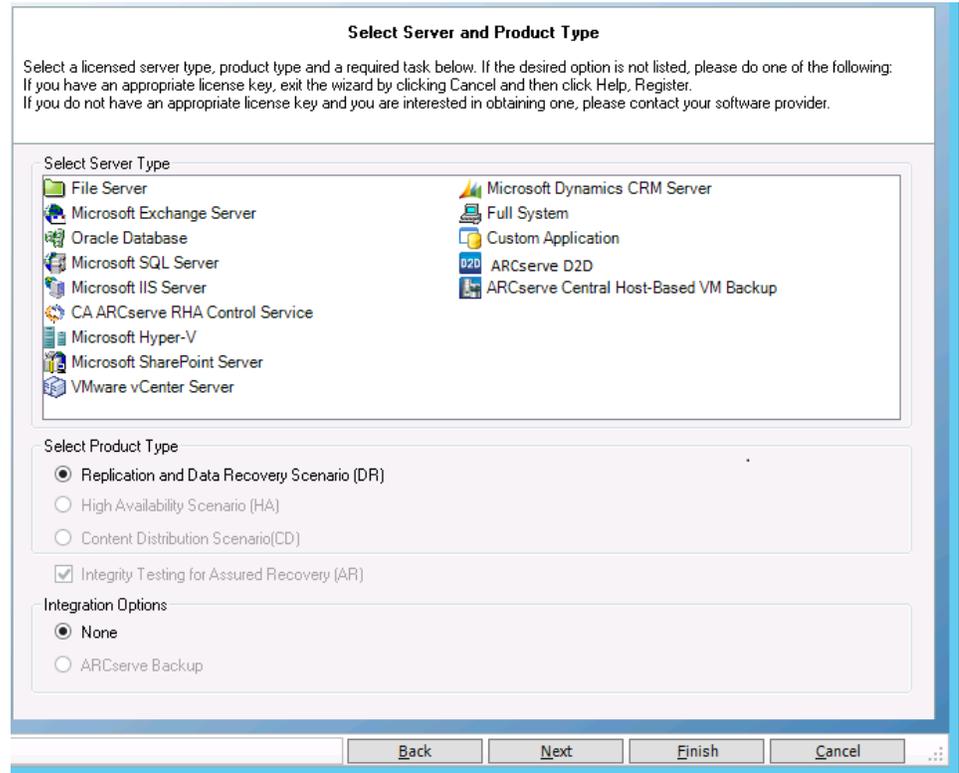
### Create a CA ARCserve Replication and High Availability Scenario for Remote Virtual Standby

Virtual Standby lets you create CA ARCserve Replication and High Availability scenarios to copy recovery points to a remote location.

**Follow these steps:**

1. Open CA ARCserve Replication and High Availability Manager. From the Scenario menu, click New or click the New button on the Standard toolbar.  
The Welcome screen of the Scenario Creation Wizard is displayed.
2. Select Create a New Scenario.

The Select Server and Product Type screen opens.



3. Select the following options and click Next.
  - a. Server Type: ARCserve Central Host-Based VM Backup.

**Note:** The following processes also applies to ARCserve D2D.
  - b. Product Type: Replication and Data Recovery Scenario (DR).
  - c. Integration Options: None.

The ARCserve Central Host-Based VM Backup server credentials dialog opens.

4. Enter the Central Host-Based VM Backup server credentials and click OK. The server name is populated based on what was specified in step 3.

The ARCserve Central Host-Based VM Backup Destination Host and Virtual Machine Selection screen opens.

**Note:** This screen is not available for a CA ARCserve D2D scenario and only unique to a CA ARCserve Central Host-Based VM Backup scenario.

Virtual Machine Name	Policy Name	Proxy Name	vCenter/ESX
<VM 1>	<Policy 1>	<IP address>	<IP address>
<VM 2>	<Policy 1>	<IP address>	<IP address>
<VM 3>	<Policy 2>	<IP address>	<IP address>
<VM 4>	<Policy 3>	<IP address>	<IP address>

CA ARCserve Replication and High Availability connects to the CA ARCserve Central Host-Based VM Backup server to get the policy and display backup destination hosts and its virtual machines.

5. Select the hostname and select virtual machines that you want to protect.

**Include Newly Created Virtual Machines:** Specifies that all sub folders in the main host backup folder are replicated when you run this scenario. Any newly created VM backup folders are also replicated. Only the folders for unchecked VMs are excluded. Those folders are marked as excluded folders. If you do not select this option, only the selected backup folders are replicated.

The backup files of the selected virtual machines are replicated when you run this scenario. These are the backup files that are created by CA ARCserve D2D.

6. Enter the following Master and Replica details:

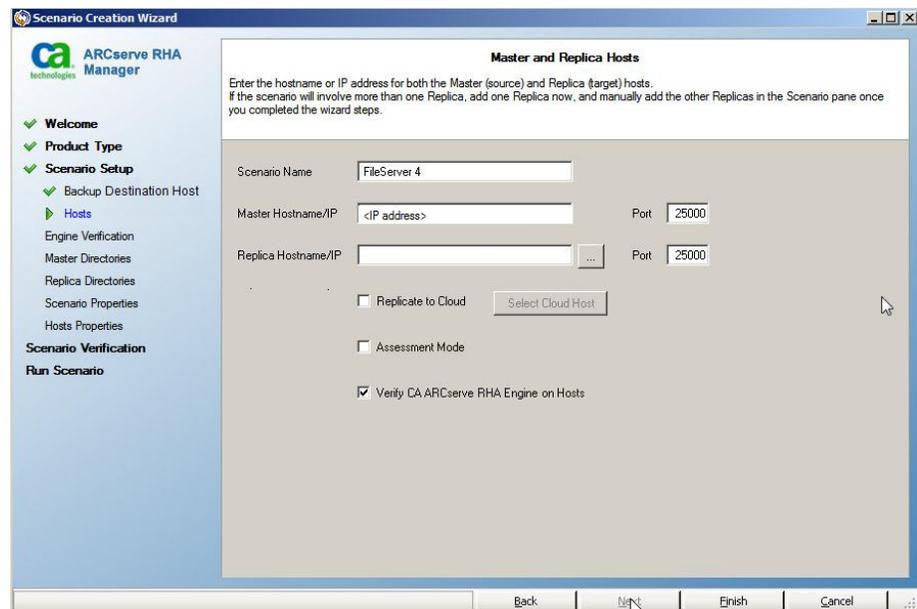
**Scenario Name:** Accept the default name or enter a unique name.

**Master Hostname/IP:** Automatically populated based your hostname selection.

**Replica Hostname/IP:** Enter the host name or IP address of the Replica server. This server is the target server. Use the Browse button to search for a replica server.

**Port:** Accept the default port number (25000) or enter new port numbers for the Master and Replica.

**(Optional) Verify CA ARCserve RHA Engine on Hosts:** Select this option to verify whether the Engines are installed and running on the specified Master and Replica hosts.



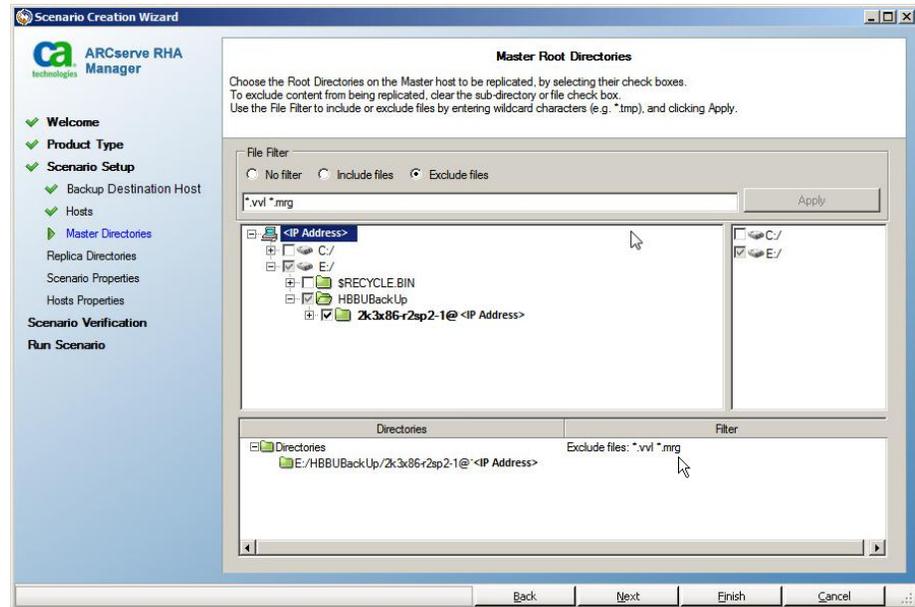
7. Click Next.

The Engine Verification screen opens.

The Hosts Verification screen opens if you enabled the option, Verify the CA ARCserve RHA Engine on Hosts. The software verifies the existence and connectivity of the Master and Replica hosts specified on the previous screen.

8. Click Next.

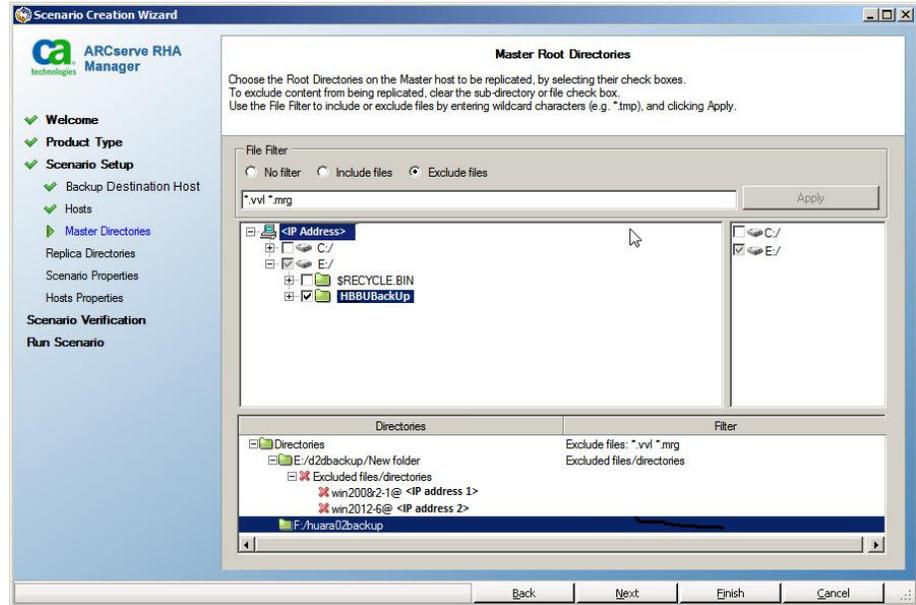
The Master Root Directories screen opens.



The RHA engine discovers the backup folders of the selected virtual machines. These backup folders are automatically selected.

**Note:** These folders are the backup folders that are created by CA ARCserve D2D.

When you select Include Newly Created Virtual Machines in the "ARCserve Central Host-Based VM Backup Destination and Virtual Machine Selection" screen, the main backup folder is selected for replication and the excluded folders are listed in the filter pane.



9. Click Next.

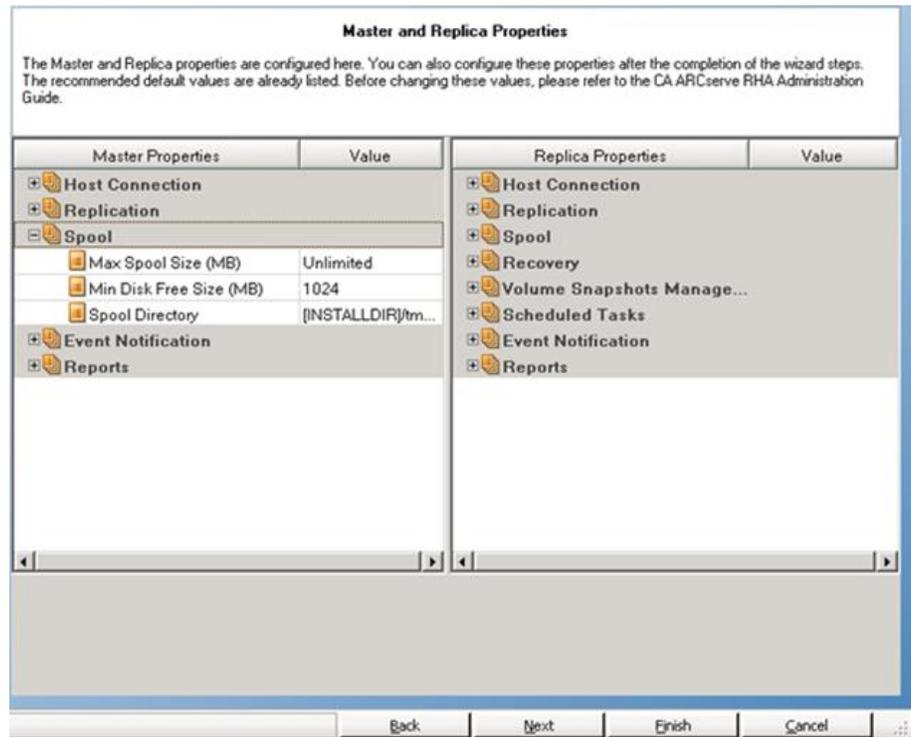
The Replica Root Directories screen opens.

10. Accept the default and click Next.

The Scenario Properties screen opens.

11. Configure the properties that affect the entire scenario. For this example, simply accept the defaults. These properties can also be configured outside of the Wizard. For more information about configuring scenario properties, see [Configure Scenario Properties](#).
12. Click Next.

The Master and Replica Properties screen opens.



13. Configure the properties that are related to either the Master or Replica hosts. For this example, simply accept the defaults. For more information about how to configure master and replica properties, see [Configure Master or Replica Server Properties](#).

**Note:** Select a different drive for spooling on the Master properties so the default Spool location (C:) does not fill up your local drive. (recommended)

14. Click Next.

The Scenario Verification screen opens.

The software validates the new scenario and verifies the parameters for a successful replication. After the verification completes, the screen opens, displaying any problems and warnings. The software permits you to continue even if warnings are displayed. Resolve any warnings if necessary.

15. Click Next when all errors and warnings are resolved.

The Scenario Run screen opens.

16. Select Finish.

The CA ARCserve Replication and High Availability scenario is successfully created. Now you can run this scenario and back up virtual machine files that are created by CA ARCserve D2D.

**Important!** It is recommended that you consult the Event Console to verify that the initial data synchronization has completed otherwise the backup jobs fail.

## Installation Considerations

Before you install CA ARCserve Central Virtual Standby, review the following installation considerations:

- The CA ARCserve Central Applications installation package installs a module named CA ARCserve Central Applications Server. The server is a module that is common to all applications. The module contains the web service, binaries, and configurations that let the application communicate with each other.

When you install the application, the installation package installs the CA ARCserve Central Applications Server module before installing the product components. If it becomes necessary to apply a patch to the application, the patch updates the module before updating the product components.

- CA ARCserve D2D installs VMware Virtual Disk Development Kit (VDDK) on all computers where you install CA ARCserve D2D. You do not need to download and install VDDK on your Virtual Standby proxy systems.

If you want to use a different version of VDDK, download and install VDDK and then modify the value of the VDDKDirectory registry located at HKEY\_LOCAL\_MACHINE\SOFTWARE\CA\CA ARCSERVE D2D to the installation folder where the new VDDK is installed.

The default location for VDDK is as follows:

- **x64 Operating System**

c:\Program Files (x86)\VMware\VMware Virtual Disk Development Kit

**Note:** Unzip the VDDK64.zip file from the VDDK installation directory to the VDDK64 folder.

For example, c:\Program Files (x86)\VMware\VMware Virtual Disk Development Kit\VDDK64

- **x86 Operating System**

c:\Program Files\VMware\VMware Virtual Disk Development Kit

- CA ARCserve Central Virtual Standby does not support creating virtual disk images on compressed volumes and volumes that are encrypted by the file system.

**Note:** This limitation applies to only Hyper-V hypervisors.

- CA ARCserve Central Virtual Standby does not support protecting VMware virtual machines that are named using JIS2004 Unicode characters.
- CA ARCserve Central Virtual Standby does not support protecting virtual machines that have a disk size that is greater than two terabytes.

## Install CA ARCserve Central Virtual Standby

The installation wizard helps guide you through the process of installing one or more CA ARCserve Central Applications.

**Note:** Before you install an application, review the Release Notes file and verify that all of the tasks described in Prerequisite Tasks are complete.

### To install CA ARCserve Central Virtual Standby

1. Download the CA ARCserve Central Applications installation package to the computer where you want to install the application, and then double-click the Setup file.

The installation package extracts its contents to your computer and then the Prerequisite Components dialog opens.

2. Click Install on the Prerequisites Components dialog.

**Note:** The Prerequisite Components dialog opens only if Setup does not detect that the required prerequisite components are installed on your computer.

After Setup installs the prerequisite components, the License Agreement dialog opens.

3. Complete the required options on the License Agreement dialog and click Next.  
The Configuration dialog opens.

4. On the Configuration dialog, complete the following:

- **Components**--Specify the applications that you want to install.

**Note:** If you are installing this application using the suite installation package, you can install multiple applications.

- **Location**--Accept the default installation location or click Browse to specify an alternative installation location. The default location is as follows:

C:\Program Files\CA\ARCserve Central Applications

- **Disk Information**-- Verify that your hard drive has sufficient free disk space to install the applications.

- **Windows Administrator Name**--Specify the user name of the Windows Administrator account using the following syntax:

Domain\User Name

- **Password**--Specify the password for the user account.

- **Specify Port Number**--Specify the port number that you want to use to communicate with the web-based user interface. As a best practice, you should accept the default port number. The default port number is as follows:

8015

**Note:** If you want to specify an alternative port number, the available port numbers are from 1024 through 65535. Before you specify an alternative port number, verify that the specified port number is free and available for use. Setup prevents you from installing the application using a port that is not available for use.

- **Use HTTPS for web communication**--Specify to use HTTPS communication for data transmission. By default, this is not selected.

**Note:** HTTPS (secure) communication provides a higher level of security than HTTP communication. HTTPS is recommended communication protocol if you transmit confidential information in your network.

- **Allow Setup to register CA ARCserve Central Applications services and programs to the Windows Firewall as exceptions**--Verify that the check box next to this option is selected. Firewall exceptions are required if you want to configure and manage CA ARCserve Central Applications from remote computers.

**Note:** For local users, you do not need to register firewall exceptions.

Click Next.

The installation process executes.

After the installation process completes, the Installation Report dialog opens.

5. The Installation Report dialog summarizes the installation. If you want to check for updates to the application now, click Check for updates and then click Finish.

The application is installed.

## Uninstall CA ARCserve Central Virtual Standby

You can uninstall the application using Programs and Features located in Windows Control Panel.

**Follow these steps:**

1. From the Windows Start menu, click Start and click Control Panel.  
Windows Control Panel opens.
2. From Windows Control Panel, click the drop-down list next to View by and then click Large icons or Small icons.  
The icons for the Windows Control Panel applications appear in a grid layout.
3. Click Programs and Features.  
The Uninstall or change a program window opens.
4. Locate and click the application that you want to uninstall.  
Right-click the application and click Uninstall on the pop-up menu.  
Follow the on-screen instructions to uninstall the application.

The application is uninstalled.

## Install CA ARCserve Central Virtual Standby Silently

CA ARCserve Central Applications lets you install CA ARCserve Central Virtual Standby silently. A silent installation eliminates the need for user interaction. The following steps describe how to install the application using Windows Command Line.

### To install CA ARCserve Central Virtual Standby silently

1. Open the Windows Command Line on the computer where you want to start the silent installation process.
2. Download the CA ARCserve Central Applications self-extracting installation package to your computer.

Start the silent installation process using the following Command Line syntax:

```
"CA ARCserve Central Applications Setup.exe" /s /v"/q -Path:<INSTALLDIR>  
-Port:<PORT> -U:<UserName> -P:<Password> -Products:<ProductList>"
```

#### Usage:

**s**

Lets you run the executable file package in silent mode.

**v**

Lets you specify additional command line options.

**q**

Lets you install the application in silent mode.

**-Path:<INSTALLDIR>**

(Optional) Lets you specify the target installation path.

#### Example:

```
-Path:"C:\Program Files\CA\ARCserve Central Applications\"
```

**Note:** If the value for INSTALLDIR contains a space, enclose the path with backslashes and quotation marks. Additionally, the path cannot end with a backslash character.

**-Port:<PORT>**

(Optional) Lets you specify the port number for communication.

#### Example:

```
-Port:8015
```

**-U:<UserName>**

Lets you specify the user name to use to install and run the application.

**Note:** The user name must be an administrative account or an account with administrative privileges.

**-P:<Password>**

Lets you specify the password for UserName.

**-Products:<ProductList>**

(Optional) Lets you specify CA ARCserve Central Applications to install silently. If you do not specify a value for this argument, the silent installation process installs all components of CA ARCserve Central Applications.

**CA ARCserve Central Host-Based VM Backup**

VSPHEREX64

**CA ARCserve Central Protection Manager**

CMX64

**CA ARCserve Central Reporting**

REPORTINGX64

**CA ARCserve Central Virtual Standby**

VCMX64

**All CA ARCserve Central Applications**

ALL

**Note:** The following examples describe the syntax that is required to install one, two, three, or all CA ARCserve Central Applications silently:

-Products:CMX64

-Products:CMX64,VCMX64

-Products:CMX64,VCMX64,REPORTINGX64

-Products:ALL

The application is installed silently.

## Uninstall CA ARCserve Central Virtual Standby Silently

CA ARCserve Central Applications lets you uninstall CA ARCserve Central Virtual Standby silently. A silent installation eliminates the need for user interaction. The following steps describe how to uninstall the application using Windows Command Line.

**Follow these steps:**

1. Log in to the computer where you want to uninstall the application.  
**Note:** You must log in using an administrative account or an account with administrative privileges.
2. Open the Windows Command Line and execute the following command to start the silent uninstallation process:

```
<INSTALLDIR>%\Setup\uninstall.exe /q /p <ProductCode>
```

Or,

```
<INSTALLDIR>%\Setup\uninstall.exe /q /ALL
```

**Example:** The following syntax lets you uninstall CA ARCserve Central Virtual Standby silently.

```
"%ProgramFiles%\CA\ARCserve Central Applications\Setup\uninstall.exe" /q /p  
{CAED4835-964B-484B-A395-E2DF12E6F73D}
```

**Usage:**

**<INSTALLDIR>**

Lets you specify the directory where the application is installed.

**Note:** Execute the syntax that corresponds with the architecture of the operating system on the computer.

**<ProductCode>**

Lets you specify the application to uninstall silently.

**Note:** The silent uninstallation process lets you install one or more CA ARCserve Central Applications. Use the following product codes to uninstall CA ARCserve Central Applications silently:

**CA ARCserve Central Host-Based VM Backup**

{CAED49D3-0D3C-4C59-9D99-33AFAF0C7126}

**CA ARCserve Central Protection Manager**

{CAED05FE-D895-4FD5-B964-001928BD2D62}

**CA ARCserve Central Reporting**

{CAED8DA9-D9A8-4F63-8689-B34DEEEEC542}

**CA ARCserve Central Virtual Standby**

{CAED4835-964B-484B-A395-E2DF12E6F73D}

The application is uninstalled silently.



# Chapter 3: Configure Virtual Standby Policies

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This section contains the following topics:

[Discover Nodes](#) (see page 33)

[Create CA ARCserve Central Virtual Standby Policies](#) (see page 40)

[Assign and Unassign Nodes to Policies](#) (see page 51)

## Discover Nodes

CA ARCserve Central Virtual Standby lets you use several methods to discover or add nodes:

Local Policy:

- [Add nodes by IP address or node name](#) (see page 33)
- [Import nodes from a file](#) (see page 34)
- [Add nodes from CA ARCserve Central Host-Based VM Backup servers](#) (see page 36)

Remote Policy:

- [Import nodes from CA ARCserve Replication and High Availability](#) (see page 39)

## Add Nodes by IP Address or Node Name

Virtual Standby lets you add nodes based on the IP address or the node name. Add the CA ARCserve D2D source nodes that you want to protect.

**Note:** This option only applies to local virtual standby policies.

### To add nodes by IP address or node name

1. From the home page, select Node on the Navigation bar.  
The Node screen displays.
2. From the Node toolbar, click Add, and then click Add Node by IP/Name on the pop-up menu.  
The Add Node by IP/Name dialog opens.

3. Complete the following fields on the Add Node by IP/Name dialog:
  - **IP/Node Name**--Lets you specify the IP address or the name of the node.
  - **Description**--Lets you specify a description for the node.
  - **Username**--Lets you specify the user name that is required to log in to the node.
  - **Password**--Lets you specify the password that is required to log in to the node.

Click OK.

4. (Optional) If the newly added node does not appear in the nodes list, click Refresh on the Node toolbar.

The Add Node by IP/Name dialog closes and the node is added.

## Import Nodes from a File

CA ARCserve Central Virtual Standby lets you import multiple nodes from a file. You can import nodes from a comma-separated values text file (.txt) or a spread sheet (.CSV).

The application lets you import up to 100 nodes from a file. If the file contains more than 100 nodes, the application imports only the first 100 nodes. If you need to add more than 100 nodes, import 100 using a file and then add the remaining nodes manually.

**Note:** This option only applies to local virtual standby policies. For information about how to add nodes manually, see [Add Nodes by IP Address or Node Name](#) (see page 33).

### To import nodes from a file

1. Log in to the application.

From the Navigation Bar on the home page, select Node.

The Node screen displays.
2. From the Node toolbar, click Add, and then click Import Nodes from file on the pop-up menu.

The Select Nodes dialog opens.
3. Click Browse to specify the file that contains the nodes that you want to import.

**Note:** You can specify a comma separate values (CSV) file or a text file that contains comma-separated values.

Click Upload.

The Node Names and the corresponding User Names appear on the dialog.

4. Click Next.

The Node Credentials dialog opens.

If the User Names and Passwords provided are correct, a green checkmark appears in the Verified field. If the User Names and Passwords provided are not correct, a red exclamation point appears in the Verified field.

5. Do one of the following:

- To add the nodes, verify that all user names and passwords are correct. To change the credentials for a specific node, click the Node Name field.

The Validate Credential dialog opens.

Complete the required fields on the Validate Credential dialog and click OK.

- To apply a global user name and password to all nodes, complete User Name and Password fields and click Apply to Selected.

The global user name and password is applied to all nodes.

Click Finish.

The nodes are added.

## Add Nodes from CA ARCserve Central Host-Based VM Backup Servers

CA ARCserve Central Host-Based VM Backup is an application that lets you back up virtual machines using one instance of CA ARCserve D2D that is installed on a backup proxy server. CA ARCserve Central Virtual Standby lets you add the nodes that CA ARCserve Central Host-Based VM Backup servers are protecting so that you can create recovery point snapshots for the nodes. The virtual machines must have CA ARCserve D2D policies assigned, and the policies were assigned using CA ARCserve Central Host-Based VM Backup.

Be aware of the following:

- This option only applies to local virtual standby policies.
- CA ARCserve Central Virtual Standby lets you use several methods to add nodes:
  - Add nodes manually
  - Add nodes from a text file
  - Add nodes from CA ARCserve Central Host-Based VM Backup servers

CA ARCserve Central Virtual Standby lets you apply policies directly to nodes, whereas with CA ARCserve Central Host-Based VM Backup, you apply policies to backup proxy servers. This behavior continues after you add nodes from CA ARCserve Central Host-Based VM Backup servers.

**Note:** For information about assigning CA ARCserve D2D policies to virtual machine nodes, see the *CA ARCserve Central Host-Based VM Backup User Guide*.

- Virtual Standby cannot power on recovery point snapshots for nodes that were added from CA ARCserve Central Host-Based VM Backup servers automatically. However, you can power on recovery point snapshots for nodes that were added from CA ARCserve Central Host-Based VM Backup servers manually.

### Follow these steps:

1. Log in to the application.  
From the Navigation Bar on the home page, select Node.  
The Node screen displays.
2. From the Node category, click Add, and then click Add virtual machine from the CA ARCserve Central Host-Based VM Backup server on the pop-up menu.  
The Add virtual machine from CA ARCserve Central Host-Based VM Backup server dialog opens.

3. Complete the following fields on the Add VM from CA ARCserve Central Host-Based VM Backup server dialog:
  - **Machine Name**--Lets you specify the IP address or the host name of the CA ARCserve Central Host-Based VM Backup server.
  - **User Name**--Lets you specify the user name that is required to log in to the CA ARCserve Central Host-Based VM Backup server.
  - **Password**--Lets you specify the password that is required to log in to the CA ARCserve Central Host-Based VM Backup server.
  - **Port**--Lets you specify the port number that you want the application to use to communicate with the CA ARCserve Central Host-Based VM Backup server.
  - **Use HTTPS**--Lets you specify to use secure HTTPS communication.

Click OK.

One of the following events occurs:

- If this is the first time that you are importing nodes from this ESX Server system, Virtual Standby imports all of the virtual machines that contain a CA ARCserve Central Host-Based VM Backup policy assignment. After the import process is complete, you can verify the nodes on the Nodes screen.
- If this is not the first time that you are importing nodes from this ESX Server system, the Add VM from CA ARCserve Central Host-Based VM Backup server dialog provides you with a list of nodes that were imported previously. A dialog then appears that asks if you want to overwrite the information for the previously imported nodes.
- If the application does not detect new nodes, the Add VM from CA ARCserve Central Host-Based VM Backup server dialog closes. A message then appears that indicates no nodes were imported.

4. Do one of the following actions:

- **To add the newly detected nodes and overwrite the previously detected nodes:** Click the check box next to the nodes that are detected as imported previously and then click OK.

The application adds the newly detected nodes and overwrites the previously detected nodes. The application overwrites only the status and the credentials that were applied to the previously detected nodes.

- **To add only the newly detected nodes (do not import and overwrite the previously detected nodes):** Do not click the check box next to the nodes that are detected as imported previously and then click OK.

The application adds only the newly detected nodes. The application does not overwrite the previously detected nodes.

- **To exit without adding newly detected nodes and previously detected nodes:** Click Cancel.

The application does not add nodes.

5. (Optional) Click Refresh on the toolbar to verify that all of the newly added nodes appear in the nodes list.

The nodes are added.

**Note:** When CA ARCserve D2D information is updated on the CA ARCserve Central Host-Based VM Backup server, the server automatically informs CA ARCserve Central Virtual Standby to import the virtual machines from CA ARCserve Central Host-Based VM Backup and to redeploy the policies. If CA ARCserve Central Virtual Standby is not available, you can manually import the virtual machines from CA ARCserve Central Host-Based VM Backup.

---

## Import Nodes from CA ARCserve Replication

CA ARCserve Central Virtual Standby lets you import one or more nodes from CA ARCserve Replication and High Availability. You can import nodes by specifying the information from the Replication Manager where you want to import the nodes.

**Note:** This option applies to only [remote virtual standby policies](#) (see page 46). It is required that you [create a CA ARCserve Replication and High Availability scenario for a Remote Virtual Standby Policy](#) (see page 17) before importing nodes.

**Follow these steps:**

1. Log in to the application.  
From the Navigation Bar on the home page, select Node.  
The Node screen displays.
2. From the Node toolbar, click Add, and then click Import Nodes from CA ARCserve Replication on the pop-up menu.  
The Import Nodes from CA ARCserve Replication dialog opens.
3. Specify the Replication Manager Hostname, Port, Protocol, Username, and Password that contains the nodes that you want to import.  
Click Connect.  
The Node Names, Scenario Name, Converter, Backup Location, and Configuration status appear on the dialog.
4. Click Import.

The nodes are imported successfully and displayed on the Node screen.

## Configure Remote Converters

CA ARCserve Central Virtual Standby lets you convert CA ARCserve D2D recovery points that CA ARCserve Replication and High Availability protects which automatically registers them with Microsoft Hyper-V, VMware vCenter, or ESXi.

When the nodes are imported from CA ARCserve Replication and High Availability to CA ARCserve Central Applications, the nodes can then be converted. The CA ARCserve Replication and High Availability replica folder is where the nodes are converted from.

**Follow these steps:**

1. Log in to the application.  
From the Navigation Bar on the home page, select Node.  
The Node screen displays.

2. From the Groups bar, click the All Nodes group or click the group name containing the nodes that you want to convert.  
The nodes that are associated with the group appear in the nodes list.
3. Click the converter that you want to configure from the Converter column.  
The Configure Remote Converters dialog opens.
4. Specify the Port, Protocol, Username, and Password for the selected converter and click Update to save the information.

The converter is configured.

## Create CA ARCserve Central Virtual Standby Policies

Virtual Standby lets you create two types of policies to define custom conversion policies that you assign to CA ARCserve D2D nodes. The two types of policies are:

- [Local Virtual Standby Policy](#) (see page 40)
- [Remote Virtual Standby Policy](#) (see page 46)

**Note:** To create policies, CA ARCserve D2D must be installed on the monitor server.

## Create Local Virtual Standby Policy

Virtual Standby lets you create local virtual standby policies to define custom conversion policies that you assign to CA ARCserve D2D nodes.

**Note:** To create policies, CA ARCserve D2D must be installed on the monitor server.

**Follow these steps:**

1. Log in to the Virtual Standby server and open Virtual Standby.  
From the Navigation bar on the home page, click Policies.  
The Policy window opens.
2. Click New and then click New Local Virtual Standby Policy on the pop-up menu.  
The Create Local Virtual Standby Policy dialog opens.
3. In Policy Name field, specify a name for the policy.  
Click the Virtual Standby tab.  
The Virtualization Server, Virtual Machine, and Stand-in Settings options display.

4. Click Virtualization Server.

The Virtualization Server options appear.

5. Complete the following Virtualization Server options:

**VMware Systems:**

- **Virtualization type**--Click VMware.
- **ESX Host/vCenter**--Specify the host name of the ESX or vCenter Server system.
- **User Name**--Specify the user name that is required to log in to the VMware system.

**Note:** The account that you specify must be an administrative account or an account with administrative privileges on the ESX or vCenter Server system.

- **Password**--Specify the password for the User Name that is required to log in to the VMware system.
- **Protocol**--Specify HTTP or HTTPS as the protocol that you want to use for communication between the source CA ARCserve D2D node and the monitoring server.
- **Port**--Specify the port that you want to use for data transfer between the source server and the monitoring server.
- **ESX Node**--The values in this field vary based on the value specified in the ESX Host/vCenter field:
  - **ESX Server systems**--When you specify an ESX Server system in the ESX Host/vCenter field, this field displays the host name of the ESX Server system.
  - **vCenter Server systems**--When you specify a vCenter Server system the ESX Host/vCenter field, this field lets you specify (from a drop-down list) the ESX Server system that you want to associate with this policy.
- **Monitor Server**--Specify the host name of the server that you want to monitor the status of the source server.

**Note:** The monitor server can be any physical computer or virtual machine provided that server is not functioning as the proxy server for a CA ARCserve Central Host-Based VM Backup implementation.

- **User Name**--Specify the user name that is required to log in to the monitoring system.
- **Password**--Specify the password for the User Name that is required to log in to the monitoring system.
- **Protocol**--Specify HTTP or HTTPS as the protocol that you want to use for communication between the CA ARCserve Central Virtual Standby server and the ESX Server system (monitoring server).

- **Port**--Specify the port that you want to use for data transfer between the CA ARCserve Central Virtual Standby server and the ESX Server system (monitoring server).
- **Use monitor server as proxy for data transfer**--Specify this option to let the monitor server copy the conversion data from the CA ARCserve D2D source node to the ESX Server datastore. With this option enabled, Virtual Standby transfers the conversion data from the source node to the ESX Server datastore using fibre channel communication, which is faster than using LAN communication to transfer data.

**Note:** The Use monitor server as proxy for data transfer option is enabled by default. You can disable this option to allow the CA ARCserve D2D source server to copy the conversion data directly to the datastore on the ESX Server system.

**Hyper-V Systems:**

- **Virtualization type**--Click Hyper-V.
- **Hyper-V Host Name**--Specify the host name of the Hyper-V system.
- **User Name**--Specify the user name that is required to log in to the Hyper-V system.  
**Note:** The account that you specify must be an administrative account or an account with administrative privileges on the Hyper-V system.
- **Password**--Specify the password for the User Name that is required to log in to the Hyper-V system.
- **Port**--Specify the port that you want to use for data transfer between the source server and the monitoring server.
- **User Name**--Specify the user name that is required to log in to the monitoring system.
- **Password**--Specify the password for the User Name that is required to log in to the monitoring system.
- **Protocol**--Specify HTTP or HTTPS as the protocol that you want to use for communication between the CA ARCserve Central Virtual Standby server and the Hyper-V Server system (monitoring server).
- **Port**--Specify the port that you want to use for data transfer between the CA ARCserve Central Virtual Standby server and the Hyper-V Server system (monitoring server).

Click Virtual Machine.

The Virtual Machine options appear.

6. Complete the following Virtual Machine options:

**VMware Systems:**

Apply the following Virtual Machine options to VMware systems:

- **VM Name Prefix**--Specify the prefix that you want to add to the display name for the virtual machine on the ESX Server system.

**Default value:** CAVM\_

- **VM Resource Pool**--Specify the name of resource pool where standby virtual machine is to be grouped.
- **CPU Count**--Specify the minimum and maximum CPU count supported by the standby virtual machine.
- **Memory**--Specify the total amount of RAM in MB to be allocated for the standby virtual machine.

**Note:** The amount of RAM specified must be a multiple of two.

- **VM Datastore**--Specify the location where you want to store the conversion data.
  - **Specify one datastore for all virtual disks**--Lets the application copy all of the disks related to the virtual machine to one data store.
  - **Specify a datastore for each virtual disk**--Lets the application copy disk related information for the virtual machine to the corresponding datastore.
- **VM Network**--Lets you define the NICs, virtual networks, and paths that the ESX Server system uses to communicate with the virtual machines.
  - **Specify a network adapter type for each NIC and connect the network adapter to the following virtual network**--Lets you define how to map the virtual NIC to the virtual network. Specify this option when the virtual machine contains virtual NICs and a virtual network.
  - **Specify a network adapter type and a virtual network for each NIC**--Lets you define the name of the virtual network that you want the NIC to use to communicate.

### Hyper-V Systems:

Apply the following Virtual Machine options to Hyper-V systems:

- **VM Basic Settings**--Complete the following VM Basic settings:
  - **VM Name Prefix**--Specify the prefix that you want to add to the display name for the virtual machine on the Hyper-V system.  
**Default value:** CAVM\_
  - **CPU Count**--Specify the minimum and maximum CPU count supported by the standby virtual system.
  - **Memory**--Specify the total amount of RAM in MB to be allocated to the standby virtual machine.  
**Note:** The amount of RAM specified must be a multiple of four.
- **VM Path**--Specify one of the following VM Path options:
  - **Specify one path for all virtual disks**--Specify the location on the Hyper-v server where you want to store the conversion data.
  - **Specify a path for each virtual disk**--Specify the location on the Hyper-V server where you want to store the conversion data for each virtual disk.  
**Note:** CA ARCserve Central Virtual Standby does not support creating virtual disk images (VHD files) on compressed volumes and volumes that are encrypted by the file system. If the path specified resides on compressed or encrypted Hyper-V volumes, Virtual Standby prevents you from creating the policy.
- **VM Network**--Lets you define the NICs, virtual networks, and paths that the Hyper-V server uses to communicate with the virtual machines. Specify one of the following options and complete the required fields.
  - **Specify a network adapter type for each NIC and connect the network adapter to the following network**--Lets you define how to map the virtual NIC to the virtual network. Specify this option when the virtual machine contains virtual NICs and a virtual network.
  - **Specify a network adapter type and a virtual network for each NIC**--Lets you define the name of the virtual network that you want the NIC to use to communicate.

Click Stand-in Settings.

The Stand-in Settings options appear.

7. Complete the following Stand-in Settings options:

**Recovery:**

Select one of the following methods:

- **Manually start the Virtual Machine**--Lets you power on and provision virtual machines manually when the source server fails or stops communicating. Specify this option when you prefer to analyze the cause of the failure before you provision the virtual machines and allow the servers to function as source servers.
- **Automatically start the Virtual Machine**--Lets you power on and provision virtual machines automatically when the source server fails or stops communicating. Specify this option when you want to allow the virtual machines to function as source servers immediately after the source servers fail or stop communicating.

**Note:** Manually start the Virtual Machine is the default recovery option.

**Heartbeat Properties:**

- **Timeout**--Specify the length time that the monitor server must wait for a heartbeat before it powers on a recovery point snapshot.
- **Frequency**--Specify the frequency that the source server communicates heartbeats to the monitor server.

**Example:** The Timeout value specified is 60. The Frequency value specified is 10. The source server will communicate heartbeats in 10-second intervals. If the monitoring server does not detect a heartbeat within 60 seconds of the last heartbeat that was detected, the monitor server powers on a virtual machine using the latest recovery point snapshot.

Click the Preferences tab.

The Email Alerts options appear.

8. Complete the following Email Alerts options:

- **Missing heartbeat for source machine**--Virtual Standby sends alert notifications when the monitor server does not detect a heartbeat from the source server.
- **VM powered on for source machine configured with auto power ON**--Virtual Standby sends alert notifications when it powers on a virtual machine that was configured to power on automatically when a heartbeat is not detected.
- **Missing heartbeat for source machine configured with manual power ON**--Virtual Standby sends alert notifications when it does not detect a heartbeat from a source server that is not configured to power on automatically.

- **VM storage free space less than**--Virtual Standby sends alert notifications when it detects insufficient free disk space on the defined hypervisor path. The detection occurs when the amount of free disk space is less than the user-defined threshold. The threshold can be defined either an absolute value (MB) or as a percentage of the capacity of the volume.
- **Virtual Standby errors/failure/crash**--Virtual Standby sends alert notifications when it detects an error that occurred during the conversion process.
- **Virtual Standby success**--Virtual Standby sends alert notifications when it detects that a virtual machine powered on successfully.
- **Hypervisor is not reachable**--Virtual Standby sends alert notifications when it detects that it cannot communicate with the ESX Server system or the Hyper-V system.
- **License failure**--Virtual Standby sends alert notifications upon detection of licensing problem on Virtual Standby servers, source servers, and monitoring servers.
- **The Virtual Standby did not start successfully from the Recovery Point Snapshot**--Virtual Standby sends alert notifications when it detects that a virtual machine was not powered automatically and the Automatically start the Virtual Machine Stand-in Recovery option is specified.

Click Save.

The policy is saved.

## Create Remote Virtual Standby Policy

Virtual Standby lets you create remote virtual standby policies to define custom conversion policies that you assign to nodes from CA ARCserve Replication and High Availability.

### Follow these steps:

1. Log in to the Virtual Standby server and open Virtual Standby.  
From the Navigation bar on the home page, click Policies.  
The Policy window opens.
2. Click New and then click New Remote Virtual Standby Policy on the pop-up menu.  
The Create Remote Virtual Standby Policy dialog opens.
3. In Policy Name field, specify a name for the policy.  
Click the Virtual Standby tab.  
The Virtualization Server and Virtual Machine options display.

4. Click Virtualization Server.

The Virtualization Server options appear.

5. Complete the following Virtualization Server options:

**VMware systems:**

- **Virtualization type**--Click VMware.
- **ESX Host/vCenter**--Specify the host name of the ESX or vCenter Server system.
- **User Name**--Specify the user name that is required to log in to the VMware system.

**Note:** The account that you specify must be an administrative account or an account with administrative privileges on the ESX or vCenter Server system.

- **Password**--Specify the password for the User Name that is required to log in to the VMware system.
- **Protocol**--Specify HTTP or HTTPS as the protocol that you want to use for communication between the source CA ARCserve D2D node and the monitoring server.
- **Port**--Specify the port that you want to use for data transfer between the source server and the monitoring server.
- **ESX Node**--The values in this field vary based on the value specified in the ESX Host/vCenter field:
  - **ESX Server systems**--When you specify an ESX Server system in the ESX Host/vCenter field, this field displays the host name of the ESX Server system.
  - **vCenter Server systems**--When you specify a vCenter Server system the ESX Host/vCenter field, this field lets you specify (from a drop-down list) the ESX Server system that you want to associate with this policy.

**Hyper-V Systems:**

- **Virtualization type**--Click Hyper-V.
- **Hyper-V Host Name**--Specify the host name of the Hyper-V system.
- **User Name**--Specify the user name that is required to log in to the Hyper-V system.  
**Note:** The account that you specify must be an administrative account or an account with administrative privileges on the Hyper-V system.
- **Password**--Specify the password for the User Name that is required to log in to the Hyper-V system.
- **Protocol**--Specify HTTP or HTTPS as the protocol that you want to use for communication between the source CA ARCserve D2D node and the monitoring server.
- **Port**--Specify the port that you want to use for data transfer between the source server and the monitoring server.

Click Virtual Machine.

The Virtual Machine options appear.

6. Complete the following Virtual Machine options:

**VMware Systems:**

Apply the following Virtual Machine options to VMware systems:

- **VM Name Prefix**--Specify the prefix that you want to add to the display name for the virtual machine on the ESX Server system.

**Default value:** CAVM\_

- **VM Resource Pool**--Specify the name of resource pool where standby virtual machine is to be grouped.
- **CPU Count**--Specify the minimum and maximum CPU count supported by the standby virtual machine.
- **Memory**--Specify the total amount of RAM in MB to be allocated for the standby virtual machine.

**Note:** The amount of RAM specified must be a multiple of two.

- **VM Datastore**--Specify the location where you want to store the conversion data.
  - **Specify one datastore for all virtual disks**--Lets the application copy all of the disks related to the virtual machine to one data store.
  - **Specify a datastore for each virtual disk**--Lets the application copy disk related information for the virtual machine to the corresponding datastore.
- **VM Network**--Lets you define the NICs, virtual networks, and paths that the ESX Server system uses to communicate with the virtual machines.
  - **Specify a network adapter type for each NIC and connect the network adapter to the following virtual network**--Lets you define how to map the virtual NIC to the virtual network. Specify this option when the virtual machine contains virtual NICs and a virtual network.
  - **Specify a network adapter type and a virtual network for each NIC**--Lets you define the name of the virtual network that you want the NIC to use to communicate.

### Hyper-V Systems:

Apply the following Virtual Machine options to Hyper-V systems:

- **VM Basic Settings**--Complete the following VM Basic settings:
  - **VM Name Prefix**--Specify the prefix that you want to add to the display name for the virtual machine on the Hyper-V system.  
**Default value:** CAVM\_
  - **CPU Count**--Specify the minimum and maximum CPU count supported by the standby virtual system.
  - **Memory**--Specify the total amount of RAM in MB to be allocated to the standby virtual machine.  
**Note:** The amount of RAM specified must be a multiple of four.
- **VM Path**--Specify one of the following VM Path options:
  - **Specify one path for all virtual disks**--Specify the location on the Hyper-v server where you want to store the conversion data.
  - **Specify a path for each virtual disk**--Specify the location on the Hyper-V server where you want to store the conversion data for each virtual disk.  
**Note:** CA ARCserve Central Virtual Standby does not support creating virtual disk images (VHD files) on compressed volumes and volumes that are encrypted by the file system. If the path specified resides on compressed or encrypted Hyper-V volumes, Virtual Standby prevents you from creating the policy.
- **VM Network**--Lets you define the NICs, virtual networks, and paths that the Hyper-V server uses to communicate with the virtual machines. Specify one of the following options and complete the required fields.
  - **Specify a network adapter type for each NIC and connect the network adapter to the following network**--Lets you define how to map the virtual NIC to the virtual network. Specify this option when the virtual machine contains virtual NICs and a virtual network.
  - **Specify a network adapter type and a virtual network for each NIC**--Lets you define the name of the virtual network that you want the NIC to use to communicate.

Click the Preferences tab.

The Email Alerts options appear.

7. Complete the following Email Alerts options:
  - **VM storage free space less than**--Virtual Standby sends alert notifications when it detects insufficient free disk space on the defined hypervisor path. The detection occurs when the amount of free disk space is less than the user-defined threshold. The threshold can be defined either an absolute value (MB) or as a percentage of the capacity of the volume.
  - **Virtual Standby errors/failure/crash**--Virtual Standby sends alert notifications when it detects an error that occurred during the conversion process.
  - **Virtual Standby success**--Virtual Standby sends alert notifications when it detects that a virtual machine powered on successfully.
  - **Hypervisor is not reachable**--Virtual Standby sends alert notifications when it detects that it cannot communicate with the ESX Server system or the Hyper-V system.
  - **License failure**--Virtual Standby sends alert notifications upon detection of licensing problem on Virtual Standby servers, source servers, and monitoring servers.
  - **The Virtual Standby did not start successfully from the Recovery Point Snapshot**--Virtual Standby sends alert notifications when it detects that a virtual machine was not powered automatically and the Automatically start the Virtual Machine Stand-in Recovery option is specified.

Click Save.

The policy is saved.

## Assign and Unassign Nodes to Policies

To create recovery point snapshots, you assign virtual standby conversion policies to the CA ARCserve D2D nodes that you want to protect.

Virtual Standby lets you unassign nodes from policies. Virtual Standby does not let you assign multiple policies to nodes. When you want to assign nodes to new policies, you unassign the current policy from the nodes before you can assign the new policy to nodes.

### Follow these steps:

1. Log in to the virtual standby server and open Virtual Standby.

From the Navigation bar on the home page, click Policies to open the Policies screen.
2. From the Policies list, click the policy that you want to assign or unassign nodes.

Detailed information about the specified policy appears in the Policy Details tab and the Policy Assignment tab.

3. Click the Policy Details tab to view detailed information about the policy.  
(Optional) Click Edit on the toolbar to edit the current settings for the policy.  
**Note:** For more information, see Edit Policies.
4. Click the Policy Assignment tab.  
Click Assign and Unassign on the Policy Assignment tab.  
The Assign/Unassign Policy dialog opens.
5. Specify the following fields from the Assign/Unassign Policy dialog:
  - **Group**--Select the group name containing the policy that you want to assign.
  - **Node Name Filter**--Lets you filter the available nodes based on common criteria.  
**Note:** The Filter fields support the use of wildcard characters.  
**Examples:**
    - Acc\* lets you filter all nodes having a node name that begins with Acc.
    - \*.123 lets you filter all nodes having .123 in the IP Address.**Note:** To clear the filter results, click X in the Filter field.
6. Do one of the following actions:
  - **Assign a node**--From the Available Nodes list, locate the node that you want to assign to the policy.  
Click the single right arrow.  
The node moves from the Available Nodes list to the Selected Nodes list.
  - **Assign nodes**--From the Available Nodes list, click the double right arrow.  
All nodes move from the Available Nodes list to the Selected Nodes list.
  - **Unassign a node**--From the Selected Nodes list, locate the node that you want to unassign from to the policy.  
Click the single left arrow.  
The node moves from the Selected Nodes list to the Available Nodes list.
  - **Unassign nodes**--From the Selected Nodes list, click the double left arrow.  
All nodes move from the Selected Nodes list to the Available Nodes list.Click OK.

The nodes are assigned/unassigned from the policy.

## Deploy Policies

After you create a policy, you [assign nodes to a policy](#) (see page 51) and then deploy the policy.

The following behavior applies to the policy deployment process:

- The policy deployment process fails under the following conditions:
  - The Windows Server 2008 Hyper-V Role is installed on the CA ARCserve D2D source server (node).
  - The CA ARCserve D2D node was imported from CA ARCserve Central Host-Based VM Backup. The Windows Hyper-v role is enabled on the Host-based VM backup proxy system and the backup proxy system is specified as the Virtual Standby destination.
- CA ARCserve Central Virtual Standby cannot automatically power on virtual machines that were added from CA ARCserve Central Host-Based VM Backup servers. As a result, when you deploy policies that contain a recovery method that is defined as Automatically start the virtual machine to nodes protected by Host-Based VM Backup, Virtual Standby changes the value of the recovery method to Manually start the virtual machine.

### Follow these steps:

1. Log in to the Virtual Standby server and open Virtual Standby.  
From the Navigation bar on the home page, click Policies to open the Policies screen.
2. From the Policies list, click the policy that you want to deploy.  
Detailed information about the specified policy appears in the Policy Details tab and the Policy Assignment tab.
3. Click the Policy Details tab to view detailed information about the policy.  
(Optional) Click Edit on the toolbar to edit the current policy settings.  
**Note:** For more information, see Edit Policies.
4. Click the Policy Assignment tab.  
Detailed information about the nodes that are assigned to the policy appears.  
(Optional) Click Assign and Unassign on the toolbar to assign or unassign nodes to the policy.  
**Note:** For more information, see [Assign Nodes to a Policy](#) (see page 51) or Unassign Nodes from Policies.

5. Click Deploy Now on the toolbar.

The Deploy Now confirmation message appears.

6. Click OK.

The policy is deployed.

**Note:** You can also view the policy deployment status for the particular node on the Node screen under the Policy column.

# Chapter 4: Getting Started With CA ARCserve Central Virtual Standby

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The following sections describe how to configure CA ARCserve Central Virtual Standby to protect CA ARCserve D2D nodes.

**Note:** Before you can complete the configurations described in this section, verify that all [Prerequisite Installation Tasks](#) (see page 15) are complete.

This section contains the following topics:

[Log in to CA ARCserve Central Virtual Standby](#) (see page 56)

[Specify the ESX Server or vCenter Server System for VMware-Based Nodes](#) (see page 57)

## Log in to CA ARCserve Central Virtual Standby

You can log in to CA ARCserve Central Virtual Standby directly from the computer where the application is installed or from a remote computer using a supported browser. For a complete list of the supported browsers, see the *CA ARCserve Central Virtual Standby Release Notes*.

### To log in to CA ARCserve Central Virtual Standby

1. Do one of the following options:

- If you are logged in to the server where CA ARCserve Central Virtual Standby is installed; launch the application from your program files.

A browser window opens and displays the CA ARCserve Central Virtual Standby login screen.

Complete the following fields on the login screen:

- Username
- Password

Click Login.

- If you are not logged in to the server where CA ARCserve Central Virtual Standby is installed; open a browser window and specify the following url in the address bar:

`http://<CA ARCserve Central Application Server Name>:<Port Number>/virtualstandby/`

**Note:** You can specify the host name or the IP address of the server when CA ARCserve Central Virtual Standby is installed. The default port is 8015.

Press Enter.

A browser window opens and displays the CA ARCserve Central Virtual Standby login screen.

Complete the following fields on the login screen:

- Username
- Password

Click Login.

You are logged in to CA ARCserve Central Virtual Standby and the home page opens.

## Specify the ESX Server or vCenter Server System for VMware-Based Nodes

**Note:** The following procedure applies to only VMware-based virtual machine source nodes.

In various VMware-based implementations, Virtual Standby may not be able to detect source nodes that are configured as virtual machines that reside on ESX Server and vCenter Server systems. This behavior prevents Virtual Standby from applying the correct license to the nodes, deploying policies to the nodes, and executing conversion jobs.

The procedure that follows lets you specify the host name or IP address of the ESX Server or vCenter Server system where the nodes reside. After you complete the procedure, Virtual Standby can detect, apply licenses, deploy policies, and execute conversion jobs for nodes that you want to protect. If there are multiple virtual machines that reside on one ESX Server or vCenter Server system that act as one source node, the procedure lets you consume one license for all of the nodes, which helps to reduce the overall cost of protecting the source nodes.

### To specify the ESX Server or vCenter Server system for VMware-based nodes

1. Log in to the application.  
From the Navigation bar on the home page, click Node.  
The Node screen displays.
2. From the Groups bar, click the All Nodes group or click the group name containing the node that you want to update.  
The nodes associated with the group appear in the nodes list.
3. Click the node that you want to update and then click Specify ESX Server from the pop-up menu.  
The Specify ESX Server dialog opens.

**Note:** If the application detects that VMware Tools is not installed on the virtual machine that is managed by either an ESX Server or vCenter Server system, the virtual machine resides on a Hyper-V system, or the node detected is not a virtual machine, an error message appears.

4. Complete the following fields on the Specify ESX Server dialog:

- ESX/vCenter Host

**Note:** Specify the host name or the IP address of the ESX Server or vCenter Server system.

- User Name

- Password

- Port

**Note:** The default communication port is 443. If the node communicates with the ESX Server or the vCenter Server system using a different port number, specify the port number that is used.

- Protocol

**Note:** The default communication protocol is HTTPS. If the node communicates with the ESX Server or the vCenter Server system using HTTP, click HTTP.

Click OK.

The ESX Server or vCenter Server system is assigned to the node.

# Chapter 5: Using CA ARCserve Central Virtual Standby

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This section contains the following topics:

[Log In to CA ARCserve D2D Nodes](#) (see page 59)

[Log in to Monitor Servers](#) (see page 60)

[Node Maintenance Tasks](#) (see page 61)

[Node Group Management Tasks](#) (see page 67)

[Virtual Standby Policy Management Tasks](#) (see page 72)

[Application Configuration Tasks](#) (see page 73)

[View Logs](#) (see page 79)

[Add Links to the Navigation Bar](#) (see page 80)

[Virtual Standby Home Page](#) (see page 81)

[CA ARCserve Central Virtual Standby Monitoring Tasks](#) (see page 86)

[Change Server Communication Protocol](#) (see page 102)

## Log In to CA ARCserve D2D Nodes

From the Virtual Standby home page, you can log in to CA ARCserve D2D nodes.

### To log in to CA ARCserve D2D nodes

1. Open the application and click Nodes in the Navigation Bar.

The Node screen displays.

2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to.

The nodes list displays all nodes associated with the specified group.

3. Browse to and click the node that you want to log in to and then click Login D2D from the pop-up menu.

**Note:** If a new browser window does not open, verify that the pop-up options for your browser allow all pop-ups or pop-ups only for this website.

You are logged in to the CA ARCserve D2D node.

**Note:** The first time that you log in to the CA ARCserve D2D node, an HTML page may open and display a warning message. This behavior can occur when using Internet Explorer. To correct this behavior, close Internet Explorer and repeat Step 3. You should then be able to log in to the CA ARCserve D2D node successfully.

## Log in to Monitor Servers

Virtual Standby lets you log in directly to the server that is monitoring the CA ARCserve D2D source nodes. From the monitor server, you can perform maintenance tasks and view information about the health of the source servers that the monitor server is monitoring. You can distinguish CA ARCserve D2D nodes from monitor servers by the following icons:

**Monitor server icon:**



**CA ARCserve D2D node icon:**



**To log in to monitor servers**

1. Log in to the Virtual Standby server and open Virtual Standby.

From the Navigation bar on the home page, click Nodes.

The Nodes screen opens.

2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to.

The nodes list displays all nodes associated with the specified group.

3. Do one of the following:

- If you know the IP address or host name of the monitor server, browse to and click the monitor server that you want to log in to and then click Login D2D from the pop-up menu.
- If you do not know the IP address or host name of the monitor server, browse to and click the CA ARCserve D2D node whose monitor server you want to log in and then click Log in to Monitor Server on the pop-up menu.

**Note:** If a new browser window does not open, verify that the pop-up options for your browser allow all pop-ups or pop-ups only for this website.

You are logged in to the monitor server.

---

## Node Maintenance Tasks

Virtual Standby lets you use several methods to add nodes:

- [Add nodes by IP address or node name](#) (see page 33).
- [Import nodes from a file](#) (see page 34).  
**Note:** This method lets you import multiple nodes from a list of nodes in a comma-separated file.
- [Add nodes from CA ARCserve Central Host-Based VM Backup servers](#) (see page 36).  
**Note:** This method lets you import virtual machine nodes that are protected by the CA ARCserve Central Host-Based VM Backup application.
- [Import nodes from CA ARCserve Replication and High Availability](#) (see page 39).

In addition, you can perform the following node management tasks.

- [Update nodes](#) (see page 61).
- [Set Backup Passwords for one or more CA ARCserve D2D nodes](#) (see page 63).
- [Delete nodes](#) (see page 64).
- [Release licenses from nodes](#) (see page 65).
- [Stop Monitoring Nodes from the Monitor Server](#) (see page 66).
- [Update nodes and policies after changing the host name of the CA ARCserve Central Applications server](#) (see page 67).

## Update Nodes

Virtual Standby lets you update information about nodes that were added previously.

**Note:** You cannot update nodes that were imported from a CA ARCserve Central Host-Based VM Backup server.

**Follow these steps:**

1. Log in to the application.  
From the Navigation Bar on the home page, select Node.  
The Node screen displays.
2. From the Groups bar, click the All Nodes group or click the group name containing the nodes that you want to update.  
The nodes that are associated with the group appear in the nodes list.

3. Click the nodes that you want to update and then right-click and click Update Node from the pop-up menu.

The Update Node dialog opens.

**Note:** To update all nodes in the node group, right-click the Node Group name and then click Update Node from the pop-up menu.

4. Update the node details as needed.

**Note:** To update multiple nodes on the Node list, select the desired nodes, right-click any node, and click Update Node from the pop-up menu. The user name and password are the same for all selected nodes. By default, the Specify new credentials option and the Take control of the node check box is selected. You can specify a new user name and password for the selected nodes and can force this server to manage the nodes. In addition, you can select Use existing credentials to apply the current user name and password. The fields become disabled.

5. Click OK.

The Update Node dialog closes and the nodes are updated.

**Note:** If changes were made to CA ARCserve D2D nodes, the Update Node dialog opens to let you specify more details.

The screenshot shows a dialog box titled "Update node" with a close button in the top right corner. The dialog contains the following fields and options:

- IP/Node Name: [Text Input Field]
- Description: [Text Input Field]
- User Name: [Text Input Field]
- Password: [Text Input Field]
- ARCserve Products Installed**
  - ARCserve D2D
    - Port: [Text Input Field]
    - Use HTTPS:

At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

6. (Optional) If the updated information does not display in the node list, click Refresh on the toolbar.

The node is updated.

## Set Backup Passwords for One or More CA ARCserve D2D Nodes

When you submit D2D backups, the password for the backup is stored on the D2D node that you are protecting. CA ARCserve Replication and High Availability then replicates the D2D recovery points to the Managed Service Provider (MSP) site. The converter on the MSP site then converts the replicated data to virtual machine data and stores the data on the MSP site. However, the converter cannot convert the replicated recovery points snapshots because the backup passwords reside on the D2D node.

To ensure that the converter can convert the replicated recovery point snapshots, Virtual Standby lets you specify backup passwords for the D2D data that the converter can use to convert the data.

### Follow these steps:

1. Log in to the application.  
From the Navigation Bar on the home page, select Node.  
The Node screen displays.
2. From the Groups bar, click the All Nodes group or click the group name containing the nodes that you want to set backup passwords.  
The nodes that are associated with the group appear in the nodes list.
3. Click the nodes that you want to set backup passwords and then right-click and select Set Backup Passwords from the pop-up menu.

The Set Backup Passwords for Node dialog opens.

Set Backup Passwords for Node <Node Name>

Enter one or more backup encryption passwords. During the conversion process, all passwords will be used in succession to try to decrypt the session.  
**Note:** When all of the passwords are not valid, conversion jobs will fail.

+ Add | Delete

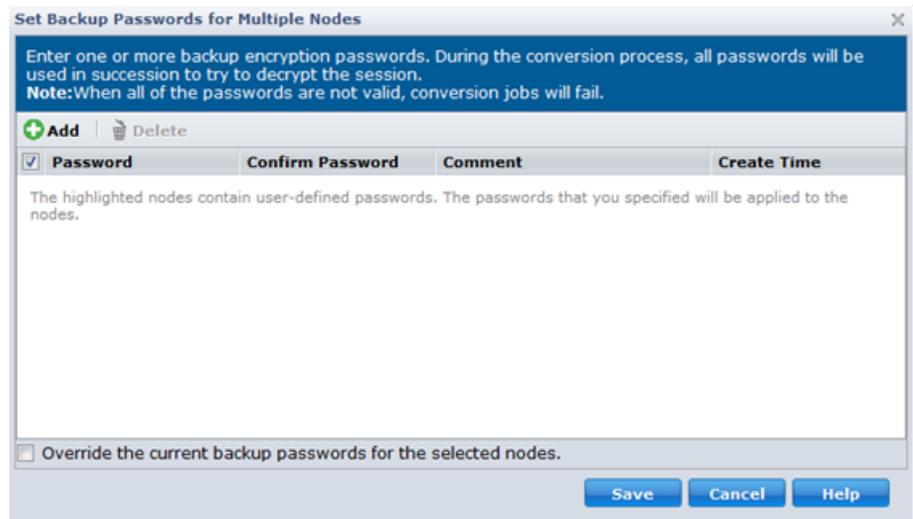
<input checked="" type="checkbox"/>	Password	Confirm Password	Comment	Create Time
	No password			

Save Cancel Help

You can perform the following tasks in the Set Backup Passwords dialog, for one or more nodes:

- **Add**--Click Add to add one or more backup passwords to the selected nodes.
- **Delete**--Click Delete to delete one or more backup passwords from the selected nodes.

**Note:** For multiple nodes, you can override the current backup passwords for multiple nodes by selecting the Override the current backup passwords for the selected nodes check box.



4. Click Save.

The dialog closes and the backup passwords are set for the selected remote nodes.

## Delete Nodes

Virtual Standby lets you delete nodes from your environment.

**Follow these steps:**

1. Log in to the application.  
Click Node on the Navigation bar to open the Node screen.
2. From the Groups bar, click the All Nodes group or click the group name containing the node that you want to delete.

The nodes that are associated with the group appear in the nodes list.

3. Check one or more nodes that you want to delete and then click Delete on the toolbar.

A confirmation message opens.

4. Do one of the following:
  - Click Yes to delete the node.
  - Click No if you do not want to delete the node.

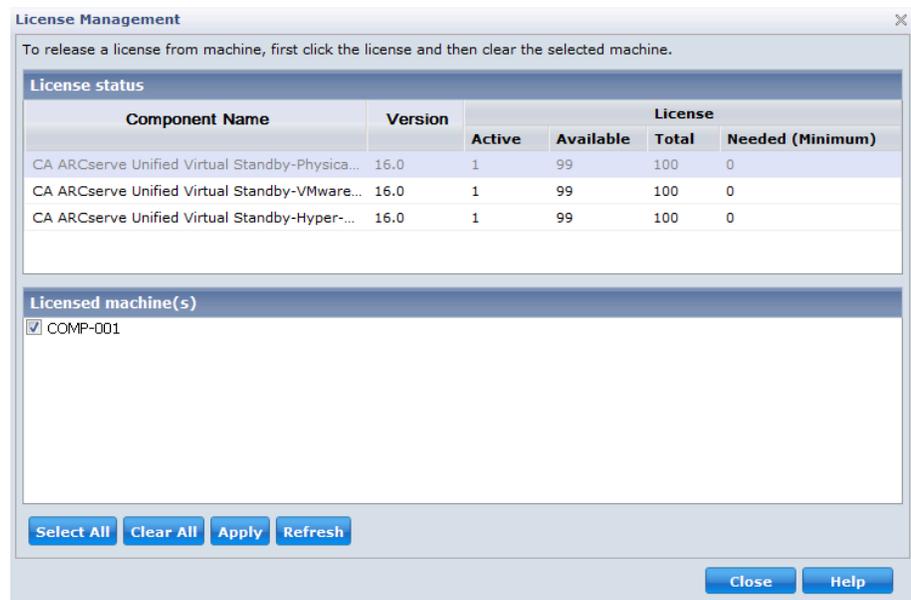
## Release Licenses from Nodes

CA ARCserve Central Virtual Standby licensing functions on a count-based mechanism. Count-based licensing lets you grant a single overall license to the node with a predetermined number of active license rights included in the overall license pool. Each node that uses the license is granted an active license from the pool, on a first-come basis, until the total number of available license rights has been reached. If all the active license rights were applied and you want to add a license to a different node, release the license rights from one or more of the nodes to increase the available license count before the different node can use the license.

### To release licenses from nodes

1. Log in to the application.
2. From the home screen, open the License Management dialog by clicking Help and clicking Manage Licenses.

The License Management dialog opens and displays a list of the licenses applied to physical computers, VMware-based virtual machines, and Hyper-V-based virtual machines as illustrated by the following dialog:



3. In the Licenses status section, select the license that you want to release from nodes.

The nodes using the license display in the Licensed machines section of the License Management dialog.

4. Click the check box next to the node that you want to release the license.

**Note:** Click Clear All to clear the check box next to all of the nodes that display in the Licensed machines section of the License Management dialog.

5. Click Apply.

The license is released from the specified node.

6. (Optional) Click Refresh to refresh the list of nodes using the specified license.

## Stop Monitoring Nodes from the Monitor Server

CA ARCserve Central Virtual Standby lets you stop monitoring nodes from the Virtual Standby tab on the monitor server.

**Important!** When you stop monitoring nodes, the Virtual Standby virtual machines may not contain the most current recovery point snapshots that are required to power on the virtual machines. In addition, you can power on virtual machines for the nodes that you stopped monitoring (manually) only from the hypervisor system.

### To stop monitoring nodes from the monitor server

1. Log in to the monitor server.

**Note:** For more information, see [Log in to Monitor Servers](#) (see page 60).

2. After the monitor server opens, click the Virtual Standby tab.

The Virtual Standby screen opens.

3. From the Sources tree, expand All, Source Running, Action Required, or VM Running to locate the source node that you want to stop monitoring.

4. Right-click the node that you want to stop monitoring and click Stop Monitoring on the pop-up menu.

A warning message appears.

5. If you are sure that you want to stop monitoring the specified node, click Yes.

The node is removed from the Sources tree and the monitor server stops monitoring the node.

## Update Nodes and Policies After Changing the Host Name of the CA ARCserve Central Applications Server

After you change the host name of the CA ARCserve Central Virtual Standby server, you update the nodes and the policies applied to the nodes. You perform these tasks to maintain the relationship between the CA ARCserve Central Virtual Standby server and the nodes that the CA ARCserve Central Virtual Standby server is protecting. The following table describes the possible scenarios and the corrective action for each scenario.

Scenario	Corrective Action
The node was added after the host name of the CA ARCserve Central Virtual Standby server was changed.	No action required.
The node was added before the host name of the CA ARCserve Central Virtual Standby server was changed and a policy was not applied to the node.	Update the node. For more information, see <a href="#">Update Nodes</a> (see page 61).
The node was added before the host name of the CA ARCserve Central Virtual Standby server was changed and a policy was applied to the node.	Reapply the policy. For more information, see <a href="#">Deploy Policies</a> (see page 53).

## Node Group Management Tasks

Virtual Standby lets you manage the CA ARCserve D2D node groups that you are protecting.

This section contains the following topics:

[Add Node Groups](#) (see page 68)

[Modify Node Groups](#) (see page 69)

[Delete Node Groups](#) (see page 70)

[Filter Node Groups](#) (see page 71)

## Add Node Groups

Node groups let you manage a collection of CA ARCserve D2D source computers based on common characteristics. For example, you can define node groups classified by the department they support: Accounting, Marketing, Legal, Human Resources, and so on.

The application contains the following node groups:

■ **Default Groups:**

- **All Nodes**--Contains all nodes associated with the application.
- **Nodes without a Group**--Contains all nodes associated with the application that are not assigned to a node group.
- **Nodes without a Policy**--Contains all nodes associated with the application that do not have a policy assigned.
- **SQL Server**--Contains all nodes associated with the application and Microsoft SQL Server is installed on the node.
- **Exchange**--Contains all nodes associated with the application and Microsoft Exchange Server is installed on the node.

**Note:** You cannot modify or delete the default node groups.

■ **Custom Groups**--Contains customized node groups.

**Follow these steps:**

1. Log in to the application.  
From the Navigation bar on the home page, click Node to open the Node screen.
2. Click Add on the Node Group toolbar.  
The Add Group dialog opens and nodes appear in the Available Nodes list.
3. Specify a Group Name for the node group.
4. Specify the following fields from the Add Group dialog:
  - **Group**--Select the group name containing the nodes that you want to assign.
  - **Node Name Filter**--Lets you filter the available nodes based on common criteria.  
**Note:** The Node Name filter field supports the use of wildcard characters.  
For example, Acc\* lets you filter all nodes having a node name that begins with Acc. To clear the filter results, click X in the Filter field.

5. To add nodes to the node group, select the node or nodes that you want to add and click the single right arrow.

The nodes move from the Available Node list to the Selected Nodes list, and are assigned to the node group.

**Note:** To select and move all the nodes from the current group, click the double right arrow.

6. (Optional) To move nodes from the Selected Nodes list to the Available Nodes list, click the single left arrow.

**Note:** To select and move all nodes in the current group, click the double left arrow.

7. Click OK.

The Node Group is added.

## Modify Node Groups

The application lets you modify the node groups that you created. You can add and remove nodes from node groups and change the name of node groups.

**Note:** You cannot modify the following node groups:

- **All Nodes**--Contains all nodes associated with the application.
- **Nodes without a Group**--Contains all nodes associated with the application that are not assigned to a node group.
- **Nodes without a Policy**--Contains all nodes associated with the application that do not have a policy assigned.
- **SQL Server**--Contains all nodes associated with the application and Microsoft SQL Server is installed.
- **Exchange**--Contains all nodes associated with the application and Microsoft Exchange Server is installed.

**Follow these steps:**

1. Log in to the application.  
From the Navigation Bar on the home page, click Node.  
The Node screen displays.
2. Click the node group that you want to modify and then click Modify in the Node Group toolbar.  
The Modify Group dialog opens.
3. To modify the Group Name, specify a new name in the Group Name field.

4. To add nodes to the node group, select the node or nodes that you want to add to the node group and click the right arrow.

The nodes move from the Available Node list to the Selected Nodes list, and are assigned to the node group.

**Note:** To move all nodes from the Available Node list to the Selected Nodes list, click the double right arrow.

5. To remove nodes from the node group, click the left arrow or the double left arrow to remove one or all nodes respectively.
6. (Optional) To filter the available nodes based on common criteria, specify a filtering value in the Node Name Filter field.

**Note:** The Filter field supports the use of wildcard characters.

For example, Acc\* lets you filter all nodes having a node name that begins with Acc. To clear the filter results, click the X in the Filter field.

7. Click OK.

The node group is modified.

## Delete Node Groups

The application lets you delete the Node Groups that you created.

You cannot delete the following node groups:

- **All Nodes**--Contains all nodes associated with the application.
- **Nodes without a Group**--Contains all nodes associated with the application that are not assigned to a node group.
- **Nodes without a Policy**--Contains all nodes associated with the application that do not have a policy assigned.
- **SQL Server**--Contains all nodes associated with the application and Microsoft SQL Server is installed on the nodes.
- **Exchange**--Contains all nodes associated with the application and Microsoft Exchange Server is installed on the nodes.

**Note:** The process of deleting node groups does not delete individual nodes from the application.

**Follow these steps:**

1. Log in to the application.  
From the Navigation Bar on the home page, click Node to open the Node screen.
2. Click the node group that you want to delete and then click Delete in the Node Group toolbar.  
The Confirm message box dialog opens.
3. If you are sure that you want to delete the node group, click Yes.  
**Note:** Click No if you do not want to delete the node group.

The node group is deleted.

## Filter Node Groups

Virtual Standby lets you use filters to display CA ARCserve D2D nodes in a group with a particular application installed. Virtual Standby lets you filter the nodes that have the following applications installed:

- CA ARCserve Backup
- CA ARCserve D2D
- Microsoft SQL Server
- Microsoft Exchange Server

**To filter node groups**

1. Log in to the Virtual Standby server and open Virtual Standby.  
From the Navigation Bar on the home page, select Node.  
The Node screen displays.
2. From the Groups list, click the group that you want to filter.  
**Note:** You can filter all of the default groups (All Nodes, Unassigned, SQL Server, and Exchange) and all custom-named groups.  
From the Filter toolbar, click the check box next to the application that you want to filter.

The node group is filtered.

## Virtual Standby Policy Management Tasks

Virtual Standby lets you manage the conversion policies that you use to protect your CA ARCserve D2D nodes.

- [Create CA ARCserve Central Virtual Standby Policies](#) (see page 40)
- [Assign and Unassign Nodes to Policies](#) (see page 51)
  - [Deploy Policies](#) (see page 53)
- [Edit or Copy Policies](#) (see page 72)
- [Delete Policies](#) (see page 73)

### Edit or Copy Policies

Virtual Standby lets you edit or copy policies after they are created.

#### To edit policies

1. Log in to the Virtual Standby server and open Virtual Standby.  
From the Navigation bar on the home page, click Policies.  
The Policy window opens.
2. From the Policies screen, click the check box next to a policy and do one of the following:
  - Click Edit on the toolbar and edit the selected policy.
  - Click Copy on the toolbar to copy and create a new policy from the selected policy.  
**Note:** When you copy a policy, the Copy Policy dialog opens. Specify a name for the new policy and click OK.  
The Edit Policy dialog opens.
3. If you want to change the policy name, specify a name in the Policy Name field.
4. Apply your changes to the Virtual Standby tab and the Preferences tab based on the type of policy you selected.
  - [Local Virtual Standby Policy](#) (see page 40)
  - [Remote Virtual Standby Policy](#) (see page 46)

The policy is edited.

## Delete Policies

Virtual Standby lets you delete policies that were created previously.

**Note:** Virtual Standby does not let you delete policies that are assigned to nodes. To delete policies with assigned nodes, you must unassign the nodes from the policy and then delete the policy. For information about how to unassign nodes from a policy, see [Unassign Nodes from Policies](#).

### To delete policies

1. Log in to the Virtual Standby server and open Virtual Standby.  
From the Navigation bar on the home page, click VCM Policies.  
The Policy window opens.
2. From the Policies list, click the policy that you want to delete.
3. Click Delete on the Policies toolbar.  
A delete confirmation message appears.
4. Click Yes to delete the policy.

**Note:** If you delete a policy in error, you must recreate the policy. If you do not want to delete the policy, click No.

The policy is deleted.

## Application Configuration Tasks

Virtual Standby lets you specify email alerts settings and how to update your Virtual Standby installation.

This section contains the following topics:

[Configure Email Settings](#) (see page 74)

[Configure Automatic Updates](#) (see page 75)

[Configure Social Networking Preferences](#) (see page 77)

[Modify the Administrator Account](#) (see page 78)

## Configure Email Settings

You can configure email settings for use with your application to send alerts automatically under conditions you specify.

**Follow these steps:**

1. Log in to the application.  
From the Navigation bar on the home page, click Configuration to open the Configuration screen.
2. From the Configuration panel, click Email Configuration to display the Email Configuration options.
3. Complete the following fields:
  - **Service**--Specify the type of email service from the drop-down. (Google Mail, Yahoo Mail, Live Mail or Other).
  - **Mail Server**--Specify the host name of the SMTP server that you want CA ARCserve Central Applications to use to send email.
  - **Requires Authentication**--Select this option when the mail server that you specified requires authentication. The Account Name and Password are required.
  - **Subject**--Specify a default email subject.
  - **From**--Specify the email address the email is being sent from.
  - **Recipients**--Specify one or more email addresses, separated by a semicolon(;), the email is being sent to.
  - **Use SSL**--Select this option if the mail server you specified requires secure connection (SSL).
  - **Send STARTTLS**--Select this option if the mail server you specified requires STARTTLS command.
  - **Use HTML format**--Lets you send the email messages in HTML format. (selected by default)
  - **Enable Proxy Settings**--Select this option if there is a proxy server and then specify the proxy server settings.
4. Click Test Email to verify that the mail configuration settings are correct.
5. Click Save.

**Note:** You can click Reset to revert to the previously saved values.

The email configuration is applied.

## Configure Automatic Updates

CA ARCserve Central Virtual Standby lets you define when to check for product updates and how often to update your Virtual Standby installation.

### To configure automatic updates

1. Log in to the application.
2. Click Configuration on the Navigation bar to open the Configuration screen.
3. From the Configuration panel, click Update Configuration.

The update configuration options appear.

4. Select a Download Server.

- **CA Server**--Click Proxy Settings for the following options:

- **Use browser proxy settings**--Lets you use the credentials that provided for the browser proxy settings.

**Note:** The Use browser proxy settings option affects Internet Explorer and Chrome.

- **Configure proxy settings**--Specify the IP Address or Host Name of the proxy server and the port number. If the server you specified requires authentication, click Proxy server requires authentication and provide the credentials.

Click OK to return to Update configuration.

- **Staging Server**--If you select this option, click Add Server to add a staging server to the list. Enter its host name and Port number and click OK.

If you specify multiple staging servers, the application tries to use the first server listed. If connection succeeds, the remaining servers listed are not used for staging.

5. (Optional) Click Test Connection to verify the server connection and wait until the test completes.
6. (Optional) Click Automatically check for updates, and then specify the day and time. You can specify a daily or weekly schedule.

Click Save to apply the Update configuration.

## Configure Proxy Settings

CA ARCserve Central Applications let you specify a proxy server to communicate with CA Support to check for and download available updates. To enable this capability, you specify the proxy server that you want to communicate in behalf of the CA ARCserve Central Applications server.

### Follow these steps:

1. Log in to the application and click Configuration on the Navigation bar.

The Configuration options appear.

2. Click Update Configuration.

The update configuration options display.

3. Click Proxy Settings.

The Proxy Settings dialog opens.

4. Click one of the following options:

- **Use browser proxy settings**--Lets the application detect and use the same proxy settings that are applied to the browser to connect to the CA Technologies server for update information.  
**Note:** This behavior applies to only Internet Explorer and Chrome browsers.
- **Configure proxy settings**--Lets you define an alternative server that the application will use to communicate with CA Support to check for updates. The alternative server (proxy) can help ensure security, increased performance, and administrative control.

Complete the following fields:

- **Proxy Server**--Specify the host name or IP address of the proxy server.
- **Port**--Specify the port number that the proxy server will use to communicate with the CA Support website.
- **(Optional) Proxy server requires authentication**--If the login credentials for the proxy server are not the same as the credentials for the CA ARCserve Central Applications server, click the check box next to Proxy server requires authentication and specify the User Name and Password that is required to log in to the proxy server.

**Note:** Use the following format to specify the user name: <domain name>/<user name>.

Click OK.

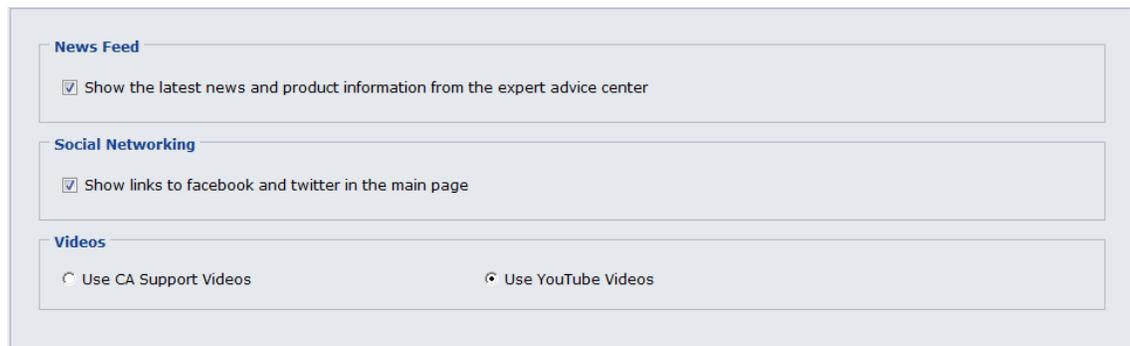
The proxy settings are configured

## Configure Social Networking Preferences

CA ARCserve Central Applications let you manage the social networking tools that can help you manage each application. You can generate news feeds, specify links to popular social networking websites, and select video source websites.

### To configure social networking preferences

1. Log in to the application.  
From the Navigation bar on the home page, click Configuration.  
The Configuration screen displays
2. From the Configuration panel, click Preferences Configuration.  
The Preferences options appear.



The screenshot shows a configuration panel with three sections:

- News Feed**:  Show the latest news and product information from the expert advice center
- Social Networking**:  Show links to facebook and twitter in the main page
- Videos**:  Use CA Support Videos  Use YouTube Videos

3. Specify the options that you require:
  - **News Feed**--Lets the application display RSS feeds about CA ARCserve Central Applications and CA ARCserve D2D related news and product information (from the Expert Advice Center). The feeds appear on the home page.
  - **Social Networking**--Lets the application display icons on the home page for access to Twitter and Facebook for CA ARCserve Central Applications and CA ARCserve D2D related social networking websites.
  - **Videos**--Lets you select the type of video to view your CA ARCserve Central Applications and CA ARCserve D2D products. (Use YouTube Videos is the default video.)

Click Save.

The Social Networking options are applied

4. From the Navigation bar, click Home.  
The Home Page displays.
5. Refresh your browser window.  
The Social Networking options are applied.

## Modify the Administrator Account

CA ARCserve Central Applications let you modify the user name, password, or both for the administrator account after you install the application. This administrator account is used only for the default display user name on the login screen.

**Note:** The user name specified must be a Windows administrative account or an account that has Windows administrative privileges.

**Follow these steps:**

1. Log in to the application and click Configuration in the Navigation bar.  
The configuration options appear.
2. Click Administrator Account
3. The Administrator account settings appear.
4. Update the following fields, as required:
  - User Name
  - PasswordClick Save

The administrator account is modified.

---

## View Logs

The View Log contains comprehensive information about all the operations performed by your application. The log provides an audit trail of every job that is run (with the most recent activities listed first) and can be helpful in troubleshooting any problems that may occur.

### Follow these steps:

1. From the home page, click View Logs in the navigation bar.  
The View Logs screen appears.
2. From the drop-down lists, specify the log information that you want to view.
  - **Severity**--This option lets you specify the severity of the log that you want to view. You can specify the following severity options:
    - **All**--This option lets you view all logs, regardless of the severity.
    - **Information**--This option lets you view only logs that describe general information.
    - **Errors**--This option lets you view only logs that describe severe errors that occurred.
    - **Warnings**--This option lets you view only logs that describe warning errors that occurred.
    - **Errors and Warnings**--This option lets you view only severe errors and warning errors that occurred.
  - **Module**--This option lets you specify the module for which you want to view logs. You can specify the following module options:
    - **All**--This option lets you view logs about all application components.
    - **Common**--This option lets you view logs about common processes.
    - **Import Nodes From File**--This option lets you view only logs about importing CA ARCserve D2D nodes in to the application from a file.
    - **Policy Management**--This option lets you view only logs about managing policies.
    - **Updates**--This option lets you view only logs about updating the application.
    - **Pause/Resume Heartbeat**--This option lets you view only logs of virtual standby virtual machines that had paused or resumed heartbeat.
    - **Pause/Resume Virtual Standby**--This option lets view only logs of virtual standby virtual machines that had paused or resumed virtual standby.
    - **Update Multiple Nodes**--This option lets you view only logs about updating multiple nodes simultaneously.

- **Standby VM**--This option lets you view only logs of virtual machines that were powered on.
- **Import Nodes from CA ARCserve Replication**--This option lets you view only logs of nodes that were imported from CA ARCserve Replication.

- **Node Name**--This option lets you view only logs for a specific node.

**Note:** This field supports the wildcard '\*' and '?'. For example, enter 'lod\*' to return all activity logs for the computer name that begins with 'lod'.

**Note:** The Severity, Module, and Node Name options can be applied collectively. For example, you can view Errors (severity) that relate to Updates (Module) for Node X (Node Name).

Click Refresh. 

The logs display based on the view options specified.

**Note:** The displayed Time in the log is based on the time zone of your application database server.

## Add Links to the Navigation Bar

Each of the CA ARCserve Central Applications has an Add New Tab link in the Navigation bar. Use this feature to add entries in the Navigation bar for additional web-based applications you would like to manage. However, for every application that is installed, a new link is automatically added to the Navigation bar. For example, if you installed CA ARCserve Central Reporting and CA ARCserve Central Virtual Standby on "Computer A" and then launch CA ARCserve Central Reporting, CA ARCserve Central Virtual Standby is automatically added to the Navigation bar.

**Note:** Every application that is installed is detected only if other CA ARCserve Central Applications are on the same computer.

### Follow these steps:

1. From the Navigation bar of the application, click the Add New Tab link.
2. Specify the Name and URL of the application or website you want to add. For example, www.google.com.

Optionally, specify the location of an icon.

3. Click OK.

The new tab is added to the bottom of the Navigation bar.

### Be aware of the following considerations:

- The CA Support link is added by default for your convenience. You can remove the new tab by highlighting the tab and click the Remove link.

## Virtual Standby Home Page

The Virtual Standby tab on the monitor server lets you view information about all of the CA ARCserve D2D servers that you are protecting. However, the Virtual Standby tab on source servers let you view only information about the specific source server that you log in to.

This section contains the following topics:

[How to Use the Virtual Standby Summary Screen](#) (see page 81)

[How to Use the Servers List](#) (see page 82)

[View Summary Information about the Latest Virtual Standby Job](#) (see page 82)

[Monitor the Status of Virtual Conversion Jobs](#) (see page 84)

[View Virtual Standby Settings for Source Servers](#) (see page 85)

[View the Recovery Point Snapshots List](#) (see page 85)

## How to Use the Virtual Standby Summary Screen

The Virtual Standby Summary screen displays icons that provide a quick visual indication of the current status, along with guidance for the urgency of any actions may need to be taken.

The following icons appear on the home page:



Successful  
(No action is necessary)



Caution  
(Action may be necessary soon)



Warning  
(Immediate action is necessary)

The Virtual Standby Summary screen displays the following information:

- **Servers list**--Displays a list of source servers that this monitoring server is protecting. The list sorts servers by their current status. For example, All, Action Required, Server Running, and so on.  
**Note:** The Servers list appears only when you are logged in to the monitoring server. For more information, see [How to Use the Servers List](#) (see page 82).
- **Virtual Standby Summary**--Displays summary information for the selected source server. For more information, see [Monitor the Status of Virtual Conversion Jobs](#) (see page 84).
- **Virtual Standby Settings**--Displays summary information about virtual conversion settings for the selected source server. For more information, see [View Virtual Standby Settings for Source Servers](#) (see page 85).

- **Recovery Point Snapshots**--Displays a list of recovery point snapshots that are available for the selected source server. For more information, see [View the Recovery Point Snapshots List](#) (see page 85).
- **Tasks**--Displays a list of tasks that you can perform for the selected source server. For more information, see [Virtual Standby Monitoring Tasks](#) (see page 86).
- **Support and Community Access**--Provides a mechanism that lets you initiate various support-related functions.  
**Note:** For more information about Support and Community Access, see the CA ARCserve D2D documentation.

## How to Use the Servers List

The Servers list on the Virtual Standby Summary screen displays a list of source servers that a monitoring server is protecting. The list sorts servers by their current status. For example, All, Action Required, Source Running, and so on.

To perform maintenance tasks or to view information about a CA ARCserve D2D node, click the Virtual Standby tab and then click the server as illustrated by the following screen:



## View Summary Information about the Latest Virtual Standby Job

The Node screen lets you view summary information about the last Virtual Standby (conversion) job for a node. You can view information about Virtual Standby jobs that completed successfully and unsuccessfully.

### Follow these steps:

1. Log in the Virtual Standby server.  
Click Nodes on the Navigation bar to open the Node screen.

- In the Status column, roll your mouse pointer over one of the following displayed icons:

 Successful

 Warning

 Error/Failed

The Node Status Summary message box appears and provides you with the following results for the most recent successful Virtual Standby job:

#### **Most Recent Virtual Standby**

The date and time the most recent Virtual Standby job that completed successfully or unsuccessfully.

#### **Recovery Point Snapshots**

Displays the number of recovery points that are converted for the node as of the Most Recent Virtual Standby.

#### **Destination Status**

Displays the amount of available free disk space on the Virtual standby destination. The destination can consist of the following:

- An ESX Server data store that is used to convert to an ESX Server system.
- Free disk space on the volume where a Hyper-V server stores the recovery point snapshots.

- Move your mouse pointer away from the Status icon to close the Node Status Summary message box.
- You can view more information about the latest successful or unsuccessful Virtual Standby job in the following fields:

#### **Last Conversion Results**

Results of the latest Virtual Standby job that completed successfully or unsuccessfully. For example, Finished, Canceled, Failed.

#### **Last Conversion Time**

The date and time the most recent successful or unsuccessful Virtual Standby job completed.

## Monitor the Status of Virtual Conversion Jobs

Virtual Standby lets you monitor the status of in-progress virtual conversion jobs. In addition, Virtual Standby lets you view summary information about the virtual conversion data and the virtual machines that are protecting your CA ARCserve D2D source servers.

### To monitor the status of virtual conversion jobs

1. Open Virtual Standby click Nodes in the Navigation bar.

The Node screen displays.

2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to.

The nodes list displays all nodes associated with the specified group.

3. Browse to and click the node that you want to log in to and then click Login D2D from the pop-up menu.

CA ARCserve D2D opens.

**Note:** If a new browser window does not open, verify that the pop-up options for your browser allow all pop-ups or pop-ups only for this website.

4. Click the Virtual Standby tab.

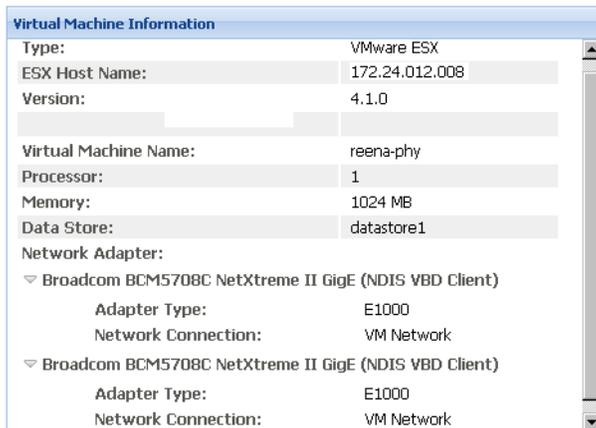
(Optional) If the CA ARCserve D2D server is a monitor server, click the Server list, expand All, Source Running, or Action Required and click the server that you want to monitor.

Virtual Standby displays information about in-progress virtual conversion jobs and summary information about virtual conversion jobs and the virtual machine that is protecting the server.



## View Virtual Standby Settings for Source Servers

The Virtual Standby Summary screen displays information about the virtual machines that are protecting source servers.



## View the Recovery Point Snapshots List

The Virtual Standby screen displays a list of the most recent recovery point snapshots.

The list box displays the date and time the backup of the CA ARCserve D2D server completed.

From the list of recovery point snapshots list, you can power on virtual machines. For more information, see Power On Recovery Point Snapshots.

Recovery Point Snapshots - Ready to Power on	
Time of backup	Action
5/7/2011 11:49:04 AM	 <a href="#">Power On VM from this Snapshot</a>
5/7/2011 11:34:04 AM	 <a href="#">Power On VM from this Snapshot</a>
5/7/2011 11:19:06 AM	 <a href="#">Power On VM from this Snapshot</a>
5/7/2011 11:04:12 AM	 <a href="#">Power On VM from this Snapshot</a>
5/7/2011 11:01:22 AM	 <a href="#">Power On VM from this Snapshot</a>
5/7/2011 10:49:08 AM	 <a href="#">Power On VM from this Snapshot</a>
5/7/2011 10:30:38 AM	 <a href="#">Power On VM from this Snapshot</a>
5/7/2011 12:18:30 AM	 <a href="#">Power On VM from this Snapshot</a>

**Note:** If the Virtual Standby destination is a VMware ESX server, the maximum number of recovery point snapshots that are displayed is 29. If the Virtual Standby destination is a Microsoft Hyper-V server, the maximum number of recovery point snapshots that are displayed is 24.

## CA ARCserve Central Virtual Standby Monitoring Tasks

Virtual Standby lets you perform the following monitoring tasks:

- Pause and resume heartbeats.
- Pause and resume Virtual Standby jobs.
- [View Activity Log data about virtual conversions and recovery point snapshots](#) (see page 86).
- Power on recovery point snapshots.

### View Activity Log Data about Jobs

Virtual Standby lets view Activity Log information about Virtual Conversion jobs. The Activity Log contains Virtual Conversion job records for the CA ARCserve D2D source servers that you are protecting.

**Note:** The Activity Log (activity.log) is stored in the following directory on the server where CA ARCserve D2D is installed:

C:\Program Files\CA\ARCserve D2D\Logs

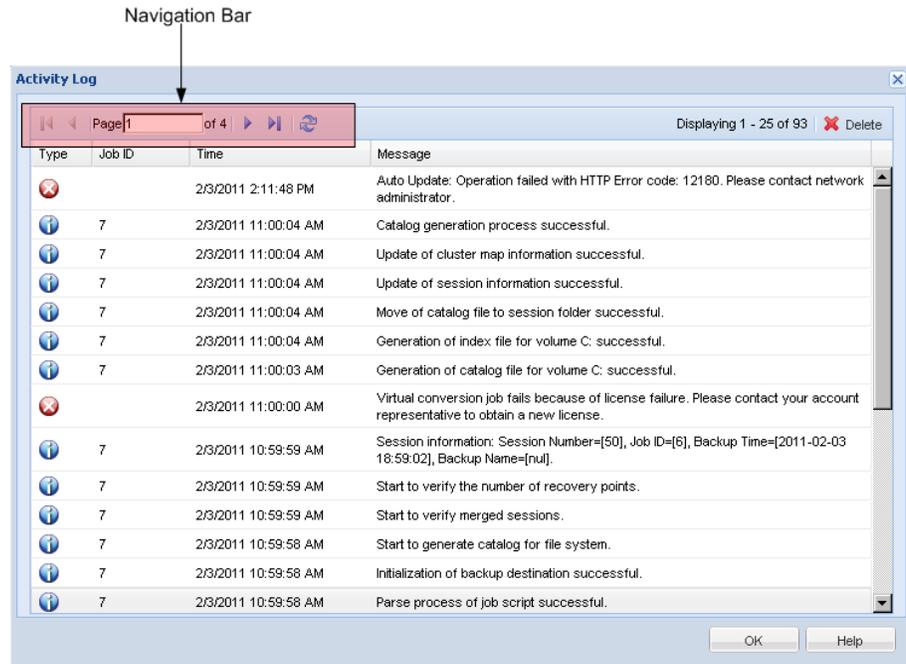
#### To view Activity Log data about jobs

1. Open Virtual Standby and click Nodes on the Navigation bar.  
The Node screen displays.
2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to.  
The nodes list displays all nodes associated with the specified group.
3. Browse to and click the node that you want to log in to and then click Login D2D from the pop-up menu.  
CA ARCserve D2D opens.  
**Note:** If a new browser window does not open, verify that the pop-up options for your browser allow all pop-ups or pop-ups only for this website.
4. Click the Virtual Standby tab.  
Virtual Standby Summary screen opens.

5. (Optional) If you logged in to a monitoring server, expand All or Server Running from the Servers list, and click the node whose Activity Log data you want to view.

From the Virtual Conversion Tasks list located on the right side of the Virtual Standby Summary screen, click View Logs.

The Activity Log window opens.



Use the Navigation bar to search for and view Activity Log records. The following icons appear on the Activity Log:

 Information

 Warning

 Error

**Note:** For information about deleting activity log records, see [Delete Activity Log Records](#) (see page 88).

## Delete Activity Log Records

Virtual Standby lets you manage the overall size of Activity Log data. The Activity Log contains job records for the CA ARCserve D2D source nodes that you are protecting. If you are protecting a large quantity of source servers, you perform frequent backups, or both, the Activity Log can consume a large amount of disk space on the CA ARCserve D2D node.

You can delete Activity Log records that are older than a specified date or delete all Activity Log records.

**Note:** The Activity Log (activity.log) is stored in the following directory on the server where CA ARCserve D2D is installed:

C:\Program Files\CA\ARCserve D2D\Logs

### To delete Activity Log records

1. Open Virtual Standby and click Nodes on the Navigation bar.  
The Node screen displays.
2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to.  
The nodes list displays all nodes associated with the specified group.
3. Browse to and click the node that you want to log in to and then click Login D2D from the pop-up menu.  
CA ARCserve D2D opens.  
**Note:** If a new browser window does not open, verify that the pop-up options for your browser allow all pop-ups or pop-ups only for this website.
4. Click the Virtual Standby tab.  
Virtual Standby Summary screen opens.
5. (Optional) If you logged in to a monitoring server, expand All or Server Running from the Servers list, and click the node whose Activity Log data you want to delete.
6. From the Virtual Conversion Tasks list located on the right side of the Virtual Standby Summary screen, click View Logs.  
The Activity Log window opens.

7. Click Delete on the toolbar.

The Delete Activity Log dialog opens.

8. Click one of the following options:

- **Delete all log records**--Lets you delete all job records in the Activity Log.

**Note:** Use this option with care. You cannot recover deleted Activity Log records.

- **Delete all log records older than**--Lets you delete all job records in the Activity Log that are older than the date that you specify.

Click OK.

The records are deleted from the Activity Log.

## View Status Information About Virtual Standby Jobs from the Virtual Standby Server

CA ARCserve Central Virtual Standby converts CA ARCserve D2D recovery points to recovery point snapshots. You can view status information about in-progress Virtual Standby jobs.

Optionally, you can access the status information from the Virtual Standby server or directly from the node. For information about how to access status information from the nodes, see [View Status Information About Virtual Standby Jobs from the Nodes](#) (see page 90).

### Follow these steps:

1. Log in the Virtual Standby server.

Click Nodes on the Navigation bar to open the Node screen.

2. If there are in-progress Virtual Standby jobs, the phase of the job appears in the Job field as illustrated by the following screen:

<input type="checkbox"/>	Node Name	Policy	Virtual Machine N...	Job
<input checked="" type="checkbox"/>	 comp-001	New Policy	2k3x86d2d-1	 Connecting to 172.24.xxx.xxx

3. Click the phase to open the Virtual Standby Status Monitor dialog.

**Note:** For information about the fields that appear on the Virtual Standby Status Monitor, see [Virtual Standby Status Monitor](#) (see page 91).

4. Click Close to close the Virtual Standby Status Monitor dialog.

## View Status Information About Virtual Standby Jobs from the Nodes

CA ARCserve Central Virtual Standby converts CA ARCserve D2D recovery points to recovery point snapshots. You can view status information about in-progress conversion jobs.

Optionally, you can access the status information from the Virtual Standby server or directly from the node. For information about how to access status information from the Virtual Standby server, see [View Status Information About Virtual Standby Jobs from the Virtual Standby Server](#) (see page 89).

### Follow these steps:

1. Open the application and click Nodes in the Navigation bar.

The Node screen displays.

2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to.

The nodes list displays all nodes associated with the specified group.

3. Browse to and click the node that you want to log in to and then click Login D2D from the pop-up menu.

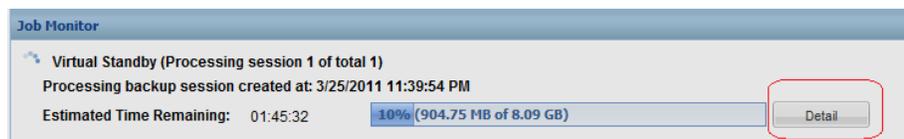
You are logged in to the CA ARCserve D2D node.

**Note:** If a new browser window does not open, verify that the pop-up options for your browser allow all pop-ups or pop-ups only for this website.

4. Click the Virtual Standby tab.

The Virtual Standby Summary screen opens.

If there is an in-progress Virtual Standby job, a status dialog appears in the Job Monitor field as illustrated by the following:



5. Click Detail to open the Virtual Standby Status Monitor.

**Note:** For information about the fields that appear on the Virtual Standby Status Monitor, see [Virtual Standby Status Monitor](#) (see page 91).

6. Click Close to close the Virtual Standby Status Monitor dialog.

## Virtual Standby Status Monitor

The Virtual Standby Status Monitor displays the following real-time information about the Virtual Standby job:

**Phase**

Displays the current phase of the conversion process.

**Cancel Job**

Lets you terminate the conversion job.

**Processing**

Displays the overall progress of the conversion job and the session number of the recovery point that the application is converting.

**Current Provision Point**

Displays status information about the session that the application is converting.

**Source sessions**

Specifies the session number that the application is converting.

**Start Time**

Displays the date and time the application started to convert the session.

**Elapsed Time**

Displays the length of time that elapsed since the application started to convert the current session.

**Throughput**

Displays the rate that the application is converting the session.

**Estimated Time Remaining**

Displays the estimated length of time remaining to convert the current source session.

**All Sessions**

Displays status information about all of the sessions in the recovery point that the application is converting.

**Number of Sessions Converted**

Displays the total number sessions in the provision point that were converted.

**Elapsed Time**

Displays the length of time that elapsed since the application started to convert all sessions contained in the recovery point.

**Estimated Time Remaining**

Display the estimated length of time remaining to convert all sessions contained in the recovery point.

**Number of Sessions Pending**

Displays the number of sessions pending to be converted.

## View Information About Policies Assigned to CA ARCserve D2D Nodes

The application lets you view information about the conversion policies that are assigned to CA ARCserve D2D nodes.

**To view information about policies assigned to CA ARCserve D2D nodes**

1. Open the application and click Nodes in the Navigation bar.

The Node screen displays.

2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to.

The nodes list displays all nodes associated with the specified group.

3. Browse to and click the node that you want to log in to and then click Login D2D from the pop-up menu.

You are logged in to the CA ARCserve D2D node.

**Note:** If a new browser window does not open, verify that the pop-up options for your browser allow all pop-ups or pop-ups only for this website.

4. Click the Virtual Standby tab.

The Virtual Standby summary screen appears.

5. From the Virtual Standby Tasks list, click Virtual Standby Settings.

The Virtual Standby Settings dialog opens.

The Virtual Standby Settings dialog lets you view information about the Virtualization Server, the Virtual Machine, the Stand-in Server, and the Preferences defined in the policy that is assigned to the CA ARCserve D2D node. You cannot edit the policies assigned to the CA ARCserve D2D from the Virtual Standby Settings dialog.

**Note:** For information about how to edit policies, see Edit Policies.

6. Click Cancel to close the Virtual Standby Settings dialog.

## Virtual Standby Settings

The Virtual Standby Settings dialog contains information about the policy assigned to the node. You cannot edit policies from this dialog. For more information, see Edit Policies.

The following options appear on the Virtual Standby tab:

### Virtualization Server Options

#### ■ VMware Systems:

The following options apply to VMware systems:

- **Virtualization type**--VMware.
- **ESX Host/vCenter**--Identifies the host name of the ESX or vCenter Server system.
- **User Name**--Identifies the user name that is required to log in to the VMware system.
- **Password**--Identifies that a password for User Name is required to log in to the VMware system.
- **Protocol**--Displays the communication protocol used between the source CA ARCserve D2D node and the monitoring server.
- **Port**--Identifies the port used for data transfer between the source server and the monitoring server.

#### ■ Monitoring:

The following options apply to VMware systems.

- **Monitor Server**--Identifies the host name of the server that monitors the source server.
- **User Name**--Identifies the user name that is required to log in to the monitoring server.
- **Password**--Identifies that a password for User Name is required to log in to the monitor server.

- **Protocol**--Identifies the communication protocol used between the CA ARCserve Central Virtual Standby server and the ESX Server system (monitoring server).
- **Port**--Identifies the port used for data transfer between the CA ARCserve Central Virtual Standby server and the ESX Server system (monitoring server).
- **Use monitor server as proxy for data transfer**--Identifies that the monitor server copies the conversion data from the CA ARCserve D2D source server to the ESX Server datastore.

**Note:** The Use monitor server as proxy for data transfer option is enabled by default. You can disable this option to allow the CA ARCserve D2D source server to copy the conversion data directly to the ESX Server datastore.

■ **Hyper-V Systems:**

The following options apply to Hyper-V systems:

- **Virtualization type**--Hyper-V.
- **Hyper-V Host Name**--Identifies the host name of the Hyper-V system.
- **User Name**--Identifies the user name that is required to log in to the Hyper-V system.
- **Password**--Identifies that a password for User Name is required to log in to the Hyper-V system.
- **Port**--Identifies the port used for data transfer between the source server and the monitoring server.

**Virtual Machine Options**

■ **VMware Systems:**

- **VM Name Prefix**--Identifies the prefix added to the display name for the virtual machine on the ESX Server system.  
**Default value:** CAVM\_
- **VM Resource Pool**--Identifies the name of resource pool where the standby virtual machine is grouped.

- **Datastore**--Identifies the location where you want to store the conversion data.
  - **Use one datastore for all virtual machine source disks**--Indicates that the application copies all of the disks related to the virtual machine to one data store.
  - **Choose a datastore for each VM source disk**--Indicates that the application copies disk-related information for the virtual machine to the corresponding datastore.
- **Networks**--Identifies the NICs, virtual networks, and paths that the ESX Server system uses to communicate with the virtual machines.
  - **Connect all virtual NICs to the following virtual network**--Identifies the virtual NICs that are mapped to the virtual network. This option is specified when the virtual machine contains virtual NICs and a virtual network.
  - **Choose a virtual network for each virtual NIC**--Identifies the name of the virtual network that you want the NIC to use to communicate.
- **CPU Count**--Identifies the minimum and maximum CPU count supported by the standby virtual machine.
- **Memory**--Identifies the total amount of RAM in MB allocated for the standby virtual machine.
- **Hyper-V Systems:**
  - **VM Name Prefix**--Identifies the prefix added to the display name for the virtual machine on the Hyper-V system.  
**Default value:** CAVM\_
  - **Path**--Identifies the location on the Hyper-v Server where the conversion data is stored.
  - **Networks**--Identifies the NICs, virtual networks, and paths that the Hyper-V server uses to communicate with the virtual machines.
  - **CPU Count**--Identifies the minimum and maximum CPU count supported by the standby virtual machine.
  - **Memory**--Identifies the total amount of RAM in MB allocated to the standby virtual machine.

### Stand-in Settings

#### ■ Recovery:

- **Manually start the Virtual Machine**--Indicates that the virtual machines are powered on and provisioned manually when the source server fails or stops communicating.
- **Automatically start the Virtual Machine**--Indicates that the virtual machines are powered on and provisioned automatically when the source server fails or stops communicating.

#### ■ Heartbeat Properties:

- **Timeout**--Identifies the length time that the monitor server must wait for a heartbeat before it powers on a recovery point snapshot.
- **Frequency**--Identifies the frequency that the source server communicates heartbeats to the monitor server.

The following options appear on the Preferences tab:

#### ■ Email Alerts:

- **Missing heartbeat for source machine**--Indicates that Virtual Standby sends alert notifications when the monitor server does not detect a heartbeat from the source server.
- **VM powered on for source machine configured with auto power ON**--Indicates that Virtual Standby sends alert notifications when it powers on a virtual machine that was configured to power on automatically when a heartbeat is not detected.
- **Missing heartbeat for source machine configured with manual power ON**--Indicates that Virtual Standby sends alert notifications when it does not detect a heartbeat from a source server that is not configured to power on automatically.
- **VM storage free space less than**--Indicates that Virtual Standby sends alert notifications when it detects insufficient free disk space on the defined hypervisor path. The detection occurs when the amount of free disk space is less than the user-defined threshold. The threshold can be defined either an absolute value (MB) or as a percentage of the capacity of the volume.
- **Virtual Standby errors/failure/crash**--Indicates that Virtual Standby sends alert notifications when it detects an error that occurred during the conversion process.
- **Virtual Standby success**--Indicates that the process of creating a virtual standby virtual machine completed successfully.

- **Hypervisor is not reachable**--Indicates that Virtual Standby sends alert notifications when it detects that it cannot communicate with the ESX Server system or the Hyper-V system.
- **License failure**--Indicates that Virtual Standby sends alert notifications upon detection of licensing problem on Virtual Standby servers, source servers, and monitoring servers.
- **The Virtual Standby did not start successfully from the Recovery Point Snapshot**--Indicates that the process of creating a virtual standby virtual machine from a recovery point snapshot did not complete successfully.

## Pause and Resume Virtual Standby Jobs from the Virtual Standby Server

Virtual conversion is the process where Virtual Standby converts CA ARCserve D2D recovery points from source nodes to virtual machine data files named recovery point snapshots. In the event a source node fails, Virtual Standby uses the recovery point snapshots to power on a virtual machine for the source node.

As a best practice, allow the virtual conversion process to operate continuously. However, if you want to pause the virtual conversion process on local and remote Virtual Standby servers temporarily, you can do so from the Virtual Standby server. After you correct the problems on the source node, you can resume the virtual conversion process.

When you pause Virtual Standby jobs (conversion jobs), the pause operation does not pause the conversion job that is currently in progress. The pause operation applies to only the job that is expected to run at the end of the next CA ARCserve D2D backup job. As a result, the next conversion job does not start until you explicitly resume the (paused) conversion job.

**Note:** Optionally, you can pause and resume Virtual Standby jobs directly from the nodes. For more information, see [Pause and Resume Virtual Standby Jobs from the Nodes](#).

### Follow these steps:

1. Log in the Virtual Standby server and click Nodes on the Navigation bar to open the Node screen.
2. Do one of the following actions to specify the nodes that you want to pause or resume Virtual Standby jobs:
  - **Node level:** Click the group containing the nodes that you want to pause or resume and then click the check box next to the nodes that you want to pause or resume.
  - **Group level:** Click the group containing the nodes that you want to pause or resume.

3. Do one of the following:
  - Click Virtual Standby on the toolbar and click Pause or Resume on the pop-up menu to pause conversion jobs temporarily.

Click the selected group, or click the nodes, and click Pause Virtual Standby or Resume Virtual Standby on the pop-up menu to resume conversion jobs.

## Pause and Resume Virtual Standby Jobs from the Nodes

Virtual conversion is the process where Virtual Standby converts CA ARCserve D2D recovery points from source nodes to virtual machine data files named recovery point snapshots. In the event a source node fails, Virtual Standby uses the recovery point snapshots to power on a virtual machine for the source node.

As a best practice, allow the virtual conversion process to operate continuously. However, if you want to pause the virtual conversion process on local and remote Virtual Standby servers temporarily, you can do so from the Virtual Standby server. After you correct the problems on the source node, you can resume the virtual conversion process.

When you pause Virtual Standby jobs (conversion jobs), the pause operation does not pause the conversion job that is currently in progress. The pause operation applies to only the job that is expected to run at the end of the next CA ARCserve D2D backup job. As a result, the next conversion job does not start until you explicitly resume the (paused) conversion job.

**Note:** Optionally, you can pause and resume virtual standby jobs from the Virtual Standby server. For more information, see [Pause and Resume Virtual Standby Jobs from the Virtual Standby Server](#).

### Follow these steps:

1. Open Virtual Standby and click Nodes on the Navigation bar to open the Node screen.
2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to to display all nodes associated with the specified group.
3. Browse to and click the node that you want to pause or resume and click Login D2D from the pop-up menu to open CA ARCserve D2D.
4. Click the Virtual Standby tab to open the Virtual Standby Summary screen.
5. (Optional) If you logged in to a monitoring server, expand All or Source Running from the Servers list, and click the node whose virtual standby job you want to pause or resume.

**Note:** When the virtual standby conversion job is running, Pause Virtual Standby appears in the Virtual Standby task list. When the Virtual Standby conversion job is not running, Resume Virtual Standby appears in the Virtual Standby task list.

6. Do one of the following:
  - Click Pause Virtual Standby to pause conversion jobs temporarily.

Click Resume Virtual Standby to resume conversion jobs.

## Pause and Resume Heartbeats from the Virtual Standby Server

Virtual Standby lets you pause and resume the heartbeats that are detected by the monitoring server. The heartbeat is the process where the source server and monitoring server communicate about the health of the source server. If the monitoring server does not detect a heartbeat after a specified length of time, Virtual Standby provisions the virtual machine to function as the source node.

### Examples: When to Pause or Resume Heartbeats

The following examples describe when to pause and resume heartbeats:

- Pause the heartbeat when you want to offline a node (source server) for maintenance.
- Resume the heartbeat after the maintenance tasks are complete and the node (source server) is online.

Be aware of the following behavior:

- You can pause and resume heartbeats at the group level or at the individual node level.
- You can pause and resume heartbeats for one or more nodes in one step.
- CA ARCserve Central Virtual Standby does not power on recover point snapshots while the heartbeat is in a paused state.
- When you upgrade CA ARCserve D2D installations on source nodes, CA ARCserve Central Virtual Standby pauses the heartbeat for the nodes. To help ensure that monitor servers monitor the upgraded nodes, resume the heartbeat for the nodes after you complete the upgrades on the nodes.

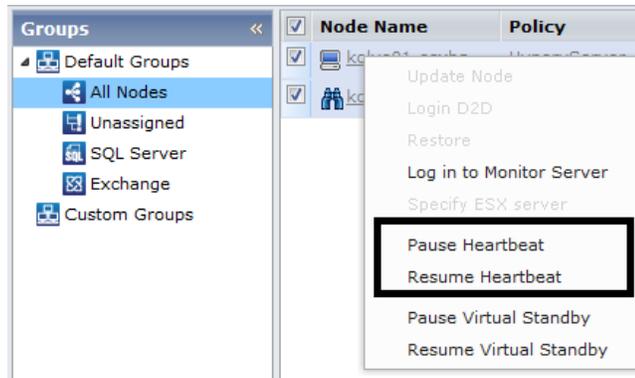
**Note:** Optionally, you can pause or resume heartbeats from the Virtual Standby Summary screen on the node. For more information, see [Pause and Resume Heartbeats from the Nodes](#).

**Follow these steps:**

1. Log in the Virtual Standby server.  
Click Nodes on the Navigation bar to open the Node screen.
2. Do one of the following actions to specify the nodes that you want to pause or resume:
  - **Node level:** Click the group containing the nodes that you want to pause or resume and then click the check box next to the nodes that you want to pause or resume.
  - **Group level:** Click the group containing the nodes that you want to pause or resume.
3. Then do one of the following actions to pause or resume the heartbeat:
  - Click Heartbeat on the toolbar and click Pause or Resume on the pop-up menu as illustrated by the following screen:



- Right-click the selected group or right-click the nodes and click Pause Heartbeat or Resume Heartbeat on the pop-up menu as illustrated by the following screen:



## Pause and Resume Heartbeats from the Nodes

Virtual Standby lets you pause and resume the heartbeats that are detected by the monitoring server. The heartbeat is the process where the source server and monitoring server communicate about the health of the source server. If the monitoring server does not detect a heartbeat after a specified length of time, Virtual Standby provisions the virtual machine to function as the source node.

### Examples: When to Pause or Resume Heartbeats

The following examples describe when to pause and resume heartbeats:

- Pause the heartbeat when you want to offline a node (source server) for maintenance.
- Resume the heartbeat after the maintenance tasks are complete and the node (source server) is online.

**Note:** Optionally, you can pause and resume heartbeats from the Node screen on the Virtual Standby server. For more information, see [Pause and Resume Heartbeats from the Virtual Standby Server](#).

#### Follow these steps:

1. Log in the Virtual Standby server.  
Click Nodes on the Navigation bar to open the Node screen.
2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to.  
The nodes list displays all nodes associated with the specified group.
3. Browse to and click the node that you want pause or resume the heartbeat and click Login D2D from the pop-up menu.  
CA ARCserve D2D opens.
4. Click the Virtual Standby tab.  
Virtual Standby Summary screen opens.
5. (Optional) If you logged in to a monitoring server, expand All or Server Running from the Servers list, and click the node whose heartbeat you want to pause or resume.

**Note:** If the heartbeat is running, Pause Heartbeat appears in the Virtual Conversion task list. If the heartbeat is not running, Resume Heartbeat appears in the Virtual Conversion task list.

6. Do one of the following:
  - If the heartbeat is running, click Pause Heartbeat to pause the heartbeat temporarily.  
**Example:** You want to bring the server offline to perform maintenance tasks.
  - If the heartbeat is not running (paused), click Resume Heartbeat to resume the heartbeat.  
**Example:** The maintenance tasks are complete and you want to bring the server online.

The heartbeat pauses or resumes.

## Change Server Communication Protocol

By default, CA ARCserve Central Applications use the Hypertext Transfer Protocol (HTTP) for communication among all of its components. If you are concerned about the security of passwords that are communicated between these components, you can change the protocol being used to Hypertext Transfer Protocol Secure (HTTPS). When you do not need this extra level of security, you can change the protocol being used to HTTP.

### Follow these steps:

1. Log in to the computer where the application is installed using an administrative account or an account with administrative privileges.  
**Note:** If you do not log in using an administrative account or an account with administrative privileges, configure the Command Line to run using the Run as Administrator privilege.
2. Open Windows Command Line.

3. Do one of the following:

■ **To change the protocol from HTTP to HTTPS:**

Launch the "changeToHttps.bat" utility tool from the following default location (the location of the BIN folder can vary depending upon where you installed the application):

C:\Program Files\CA\ARCserve Central Applications\BIN

When the protocol has been successfully changed, the following message displays:

The communication protocol was changed to HTTPS.

■ **To change the protocol from HTTPS to HTTP:**

Launch the "changeToHttp.bat" utility tool from the following default location (the location of the BIN folder can vary depending upon where you installed the application):

C:\Program Files\CA\ARCserve Central Applications\BIN

When the protocol has been successfully changed, the following message displays:

The communication protocol was changed to HTTP.

4. Restart the browser and reconnect to CA ARCserve Central Applications.

**Note:** When you change the protocol to HTTPS, a warning displays in the web browser. This behavior occurs because of a self-signed security certificate that prompts you to ignore the warning and proceed or add that certificate to the browser to prevent the warning from coming back in future.



# Chapter 6: Power On Virtual Standby Virtual Machines

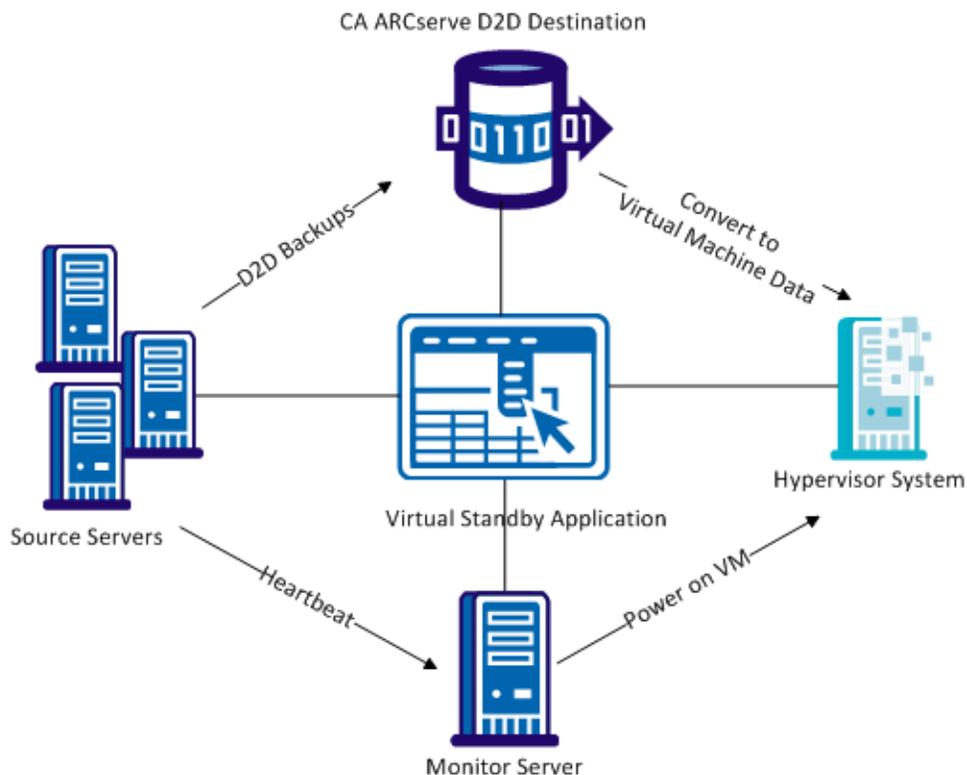
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This section contains the following topics:

- [How to Power On Local Virtual Standby Virtual Machines](#) (see page 105)
- [How to Power On Remote Virtual Standby Virtual Machines](#) (see page 112)
- [How the Application Determines the Quantity of NICs to Power ON](#) (see page 118)
- [How to Protect Powered On Virtual Standby Virtual Machines](#) (see page 120)

## How to Power On Local Virtual Standby Virtual Machines

This scenario describes how storage managers can pause and resume heartbeats from the virtual standby server, pause and resume the virtual conversion process from the virtual standby server, automatically power on virtual standby machines, and how to protect the virtual machines after the machines are powered on.



The following table lists the topics that describe the tasks for powering on virtual standby machines:

Task	See Topic
Power on virtual standby virtual machines automatically from recovery point snapshots when the monitoring server cannot detect a heartbeat from the source server.	<a href="#">Power On Virtual Standby Virtual Machines from Recovery Point Snapshots</a> (see page 106)
Protect the virtual standby virtual machines after the virtual machines are powered on.	<a href="#">Protect Virtual Standby Virtual Machines After it is Powered On</a> (see page 110)

## Power On Virtual Standby Virtual Machines from Recovery Point Snapshots

Virtual Standby can be configured to power on Virtual Standby virtual machines from recovery point snapshots automatically when the monitoring server does not detect a heartbeat from the source server. Optionally, Virtual Standby lets you power on Virtual Standby virtual machines from recovery point snapshots manually in the event a source server fails, an emergency occurs, or you want to offline a source node for maintenance.

**Note:** The following steps describe how to power on Virtual Standby virtual machines from recovery point snapshots manually. For information about how to allow Virtual Standby to power on Recovery Point Snapshots automatically, see [Create CA ARCserve Central Virtual Standby Policies](#) (see page 40).

**Follow these steps:**

1. Open Virtual Standby and click Nodes on the Navigation bar to open the Node screen.
2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D node that you want to log in to.

The nodes list displays all nodes that are associated with the specified group.

3. Browse to and click the node that you want to power on from a recovery point snapshot and click Standby VM from the Actions toolbar.

The Recovery Point Snapshot dialog opens.

4. On the Recovery Point Snapshot dialog, do one of the following options:
  - Select a date and time range of the recovery point snapshot to power on the virtual machine.

OR

- Select "Power on the standby virtual machine with customized network configurations" check box to open the Standby VM Network Configuration dialog.

**Note:** If the standby virtual machine was not configured yet, the link "The standby virtual machine network is not configured." is displayed. Click this link to configure the network.

Click Save. The settings are saved for the virtual standby virtual machine.

Click Close and the Recovery Point Snapshot dialog appears.

Click Power On VM.

The virtual machine is powered on using the data contained in the recovery point snapshot.

**Note:** After the virtual machine is powered on, you can be prompted to restart the computer one or more times. This behavior occurs because VMware installs VMware Tools on the virtual machine or Windows Hyper-V installs Integration Services on the virtual machine.

After you power on Virtual Standby virtual machines from recovery point snapshots, you may need to complete the following tasks:

- Activate the Windows operating system that is running on the virtual machine.
- Start CA ARCserve D2D backups on the virtual machine.

**Note:** For information about creating and assigning CA ARCserve D2D backup policies using CA ARCserve Central Protection Manager, see the *CA ARCserve Central Protection Manager User Guide*.

- Update CA ARCserve Central Virtual Standby with the host name, IP address, and the login credentials for the virtual machine.
- Assign the node to a policy.

**Note:** This task is required only when you want to create recovery point snapshots for the virtual machine that was powered on. For more information, see [Assign Nodes to a Policy](#) (see page 51).

## Power on Virtual Standby Virtual Machines from Hyper-V Manager

When you want to power-on Virtual Standby virtual machines manually, the best practice is to power on the virtual machines from the Virtual Standby screen on the CA ARCserve D2D server. For more information, see [Power on Virtual Standby Virtual Machines from Recovery Point Snapshots](#). However, if you want to start the Virtual Standby virtual machines from the Hyper-V server, you can do so using Hyper-V Manager.

**Note:** The Hyper-V Manager lets you access the recovery point snapshots that CA ARCserve Central Virtual Standby created to protect the node. You should not delete the snapshots. When you delete the snapshots, the relationship between the data contained in the snapshots becomes inconsistent the next time a Virtual Standby runs. With inconsistent data, you cannot power on Virtual Standby virtual machines properly.

### To power on Virtual Standby virtual machines from Hyper-V Manager

1. Log in to the Hyper-V server that is monitoring the nodes that you are protecting.
2. Start Hyper-V Manager by doing the following:  
Click Start, click All Programs, click Administrative Tools, and then click Hyper-V Manager.  
Hyper-V Manager opens.
3. From the Hyper-V Manager directory tree, expand Hyper-V Manager and click the Hyper-V server containing the virtual machine that you want to power on.  
The virtual machines associated with the specified hyper-V server display in the Virtual Machines list in the center pane.

4. Do one of the following:
  - **To power on the virtual machine using the latest snapshot:** In the Virtual Machines list, right-click the virtual machine that you want to power on and click Start on the pop-up menu.
  - **To power on the virtual machine using an older snapshot:**
    - a. In the Virtual Machines list, click the virtual machine that you want to power on.

The snapshots associated with the virtual machine display in the Snapshots list.
    - b. Right-click the snapshot that you want to use to power on the virtual machine and click Apply on the pop-up menu.

The Apply Snapshot dialog opens.
    - c. Click Apply.
    - d. In the Virtual Machines list, right-click the virtual machine that you want to power on and click Start on the pop-up menu.

The Virtual Standby virtual machine is powered on.

If necessary, you can back up the virtual machines and create recovery point snapshots after you power on the virtual machine. For more information, see [Tasks to Perform After Powering on Virtual Standby Virtual Machines](#).

## Power on Virtual Standby Virtual Machines from VMware vSphere Client

When you want to power-on Virtual Standby virtual machines manually, the best practice is to power on the virtual machines from the Virtual Standby screen on the CA ARCserve D2D server. For more information, see [Power on Virtual Standby Virtual Machines from Recovery Point Snapshots](#). However, if you want to start the Virtual Standby virtual machines from the ESX Server or the vCenter Server system, you can do so using VMware vSphere Client.

**Note:** The VMware vSphere Client lets you access the recovery point snapshots that CA ARCserve Central Virtual Standby created to protect the node. You should not delete the snapshots. When you delete the snapshots, the relationship between the data contained in the snapshots becomes inconsistent the next time a Virtual Standby runs. With inconsistent data, you cannot power on Virtual Standby virtual machines properly.

### To power on Virtual Standby virtual machines from VMware vSphere Client

1. Open VMware vSphere Client and log in to the ESX Server or vCenter Server system that is monitoring the nodes that you are protecting.

From the directory tree, expand the ESX Server system or the vCenter Server system, locate, and click the virtual machine that you want to power on.

2. Do one of the following:
  - **To power on the virtual machine using the latest snapshot:** Click the Getting Started tab and then click Power on the virtual machine located on the bottom the screen.
  - **To power on the virtual machine using an older snapshot:**
    - a. Click the Snapshot Manager button on the toolbar.



The Snapshots for (virtual machine name) dialog opens to display a list of snapshots that are available for the virtual machine.

- b. From the list of snapshots, click the snapshot that you want to use to power on the virtual machine and then click Go to.

The Virtual Standby virtual machine is powered on.

If necessary, you can back up the virtual machines and create recovery point snapshots after you power on the virtual machine. For more information, see [Tasks to Perform After Powering on Virtual Standby Virtual Machines](#).

## Protect Virtual Standby Virtual Machines After it is Powered On

After a Virtual Standby virtual machine is powered on (either manually or automatically), the CA ARCserve D2D backup job and the Virtual Standby job will not run as they were scheduled. To resume the jobs after the Virtual Standby virtual machine is powered on, do the following:

1. Modify the VM Name Prefix in the Virtual Standby policy.

When CA ARCserve Central Virtual Standby powers on Virtual Standby virtual machines, the application defines the virtual machine names of the powered on virtual machines as the concatenation of the VM Name Prefix option specified in the Virtual Standby policy and the host name of the source node.

**Example:**

- VM Name Prefix: AA\_
- Host name of the source node: Server1
- Virtual machine name of the Virtual Standby virtual machine: AA\_Server1

After the Virtual Standby virtual machines are powered on, virtual machine name conflicts can occur when you do not modify the VM Name Prefix in the Virtual Standby policy. Problems of this type occur when the source nodes and the Virtual Standby virtual machines reside on the same hypervisor.

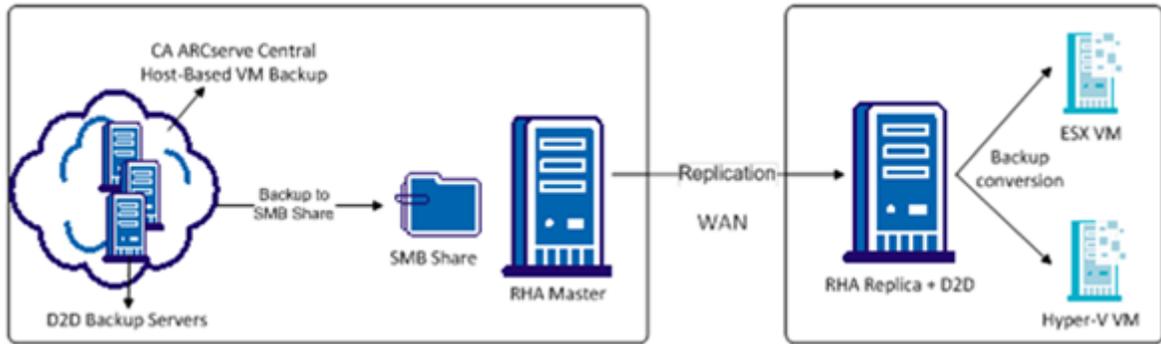
For information about modifying the VM Name Prefix in the Virtual Standby policy, see [Edit Policies](#) (see page 72). If necessary, you can update other Virtual Standby policy settings. Optionally, you can create a new Virtual Standby Policy to protect the Virtual Standby virtual machine. For information about creating new policies, see [Create CA ARCserve Central Virtual Standby Policies](#) (see page 40).

2. After you update the policy or create a new policy, deploy the policy to the Virtual Standby virtual machine. For more information, see [Deploy Policies](#) (see page 53).
3. After you deploy the policy to the Virtual Standby virtual machine, resume the Virtual Standby job. For more information, see [Pause and Resume Virtual Standby Jobs](#).
4. After you deploy the policy, log in to CA ARCserve D2D on the Virtual Standby virtual machine and schedule a repeat method for the CA ARCserve D2D backup job. For more information, see the *CA ARCserve D2D User Guide*.

**Note:** CA ARCserve Central Protection Manager and CA ARCserve Central Virtual Standby have a mechanism that lets you automatically resynchronize the policies to the managed CA ARCserve D2D nodes on a weekly basis. This mechanism lets CA ARCserve Central Protection Manager restart the backup jobs on the Virtual Standby virtual machines by redeploying the policy that was in effect on the CA ARCserve D2D node to the Virtual Standby virtual machine. The policy deployment process behaves in this manner because the source node and the Virtual Standby virtual machine have the same host name, which lets CA ARCserve Central Protection Manager resynchronize the policy. The only limitation to this behavior is the CA ARCserve Central Protection Manager server and the Virtual Standby virtual machine must be able to communicate with each other through the network. After CA ARCserve Central Protection Manager resynchronizes and deploys the policy to the Virtual Standby virtual machine, you then resume the Virtual Standby job on the Virtual Standby virtual machine. For more information, see [Pause and Resume Virtual Standby Jobs](#).

## How to Power On Remote Virtual Standby Virtual Machines

This scenario describes how storage managers can leverage and integrate the capabilities already available with CA ARCserve Replication to move CA ARCserve D2D and CA ARCserve Central Host-Based VM Backup recovery points to offsite locations. This capability enables CA ARCserve Central Virtual Standby to convert those replicated recovery points and to register them automatically with either Microsoft Hyper-V or VMware vCenter or ESXi.



The following table lists the topics that describe the tasks for powering on virtual standby machines:

Task	See Topic
Power on remote virtual standby virtual machines from replicated recovery point snapshots when the source server fails.	<a href="#">Power On Remote Virtual Standby Virtual Machines from Recovery Point Snapshots</a> (see page 112)
Protect the virtual standby virtual machines after the virtual machines are powered on.	<a href="#">Protect Virtual Standby Virtual Machines After it is Powered On</a> (see page 116)

### Power On Remote Virtual Standby Virtual Machines from Recovery Point Snapshots

Virtual Standby can be configured to power on Remote Virtual Standby virtual machines from replicated recovery point snapshots when the source server fails, an emergency occurs, or to offline a source node for maintenance.

**Note:** The following steps describe how to power on Remote Virtual Standby virtual machines from replicated recovery point snapshots.

**Follow these steps:**

1. Open Virtual Standby and click Nodes on the Navigation bar to open the Node screen.
2. From the Groups list, click All Nodes, or click the group that contains the CA ARCserve D2D or CA ARCserve Central Host-Based VM Backup node that you want to log in to.

The nodes list displays all nodes that are associated with the specified group.

3. Browse to and click the node with the standby virtual machines created from a replicated recovery point to power on. Click one of the following options from the pop-up menu:

- **Standby VM Network Configuration:**

- Specify the virtual network and NIC (Network Interface Card), and TCP/IP settings for each network adapter from the Network Adapter Settings tab.

OR

- Update the DNS servers to redirect clients from the source computer to the virtual standby virtual machines based on the TCP/IP settings from the DNS Update Settings tab.

- **Standby VM:**

- Select a date and time range of the recovery point snapshot to power on the virtual machine.

OR

- Select "Power on the standby virtual machine with customized network configurations" check box to open the Standby VM Network Configuration dialog.

**Note:** If the standby virtual machine was not configured yet, the link "The standby virtual machine network is not configured." is displayed. Click this link to configure the network.

Click Save.

The settings are saved for the remote virtual standby virtual machine.

**Note:** After the virtual machine is powered on, you can be prompted to restart the computer one or more times. This behavior occurs because VMware installs VMware Tools on the virtual machine or Windows Hyper-V installs Integration Services on the virtual machine.

After you power on Remote Virtual Standby virtual machines from recovery point snapshots, you may need to complete the following tasks:

- Activate the Windows operating system that is running on the virtual machine.
- Start CA ARCserve D2D backups on the virtual machine.

**Note:** For information about creating and assigning CA ARCserve D2D backup policies using CA ARCserve Central Protection Manager, see the *CA ARCserve Central Protection Manager User Guide*.

- Update CA ARCserve Central Virtual Standby with the host name, IP address, and the login credentials for the virtual machine.
- Assign the node to a policy.

**Note:** This task is required only when you want to create recovery point snapshots for the virtual machine that was powered on. For more information, see [Assign Nodes to a Policy](#) (see page 51).

## Power on Remote Virtual Standby Virtual Machines from Hyper-V Manager

When you want to power-on Remote Virtual Standby virtual machines from the Hyper-V server, you can do so using Hyper-V Manager.

**Note:** The Hyper-V Manager lets you access the recovery point snapshots that was replicated by CA ARCserve Replication and High Availability and converted by CA ARCserve Central Virtual Standby to protect the node. You should not delete the snapshots. When you delete the snapshots, the relationship between the data contained in the snapshots becomes inconsistent the next time a Virtual Standby runs. With inconsistent data, you cannot power on Virtual Standby virtual machines properly.

### Follow these steps:

1. Log in to the Hyper-V server that is monitoring the nodes that you are protecting.
2. Start Hyper-V Manager by doing the following:  
Click Start, click All Programs, click Administrative Tools, and then click Hyper-V Manager to open the Hyper-V Manager.
3. From the Hyper-V Manager directory tree, expand Hyper-V Manager and click the Hyper-V server containing the virtual machine that you want to power on.

The virtual machines associated with the specified hyper-V server display in the Virtual Machines list in the center pane.

4. Do one of the following:
  - **To power on the remote virtual machine using the latest snapshot:** In the Virtual Machines list, right-click the virtual machine that you want to power on and click Start on the pop-up menu.
  - **To power on the remote virtual machine using an older snapshot:**
    - a. In the Virtual Machines list, click the virtual machine that you want to power on.

The snapshots associated with the virtual machine display in the Snapshots list.
    - b. Right-click the snapshot that you want to use to power on the remote virtual machine and click Apply on the pop-up menu to open the Apply Snapshot dialog.
    - c. Click Apply.
    - d. In the Virtual Machines list, right-click the virtual machine that you want to power on and click Start on the pop-up menu.

The Remote Virtual Standby virtual machine is powered on.

If necessary, you can back up the remote virtual machines and create recovery point snapshots after you power on the remote virtual machine. For more information, see [Tasks to Perform After Powering on Virtual Standby Virtual Machines](#).

## Power on Remote Virtual Standby Virtual Machines from VMware vSphere Client

When you want to power-on Remote Virtual Standby virtual machines from the ESX Server or the vCenter Server system, you can do so using VMware vSphere Client.

**Note:** The VMware vSphere Client lets you access the recovery point snapshots that was replicated by CA ARCserve Replication and High Availability and converted by CA ARCserve Central Virtual Standby to protect the node. You should not delete the snapshots. When you delete the snapshots, the relationship between the data contained in the snapshots becomes inconsistent the next time a Virtual Standby runs. With inconsistent data, you cannot power on Virtual Standby virtual machines properly.

### Follow these steps:

1. Open VMware vSphere Client and log in to the ESX Server or vCenter Server system that is monitoring the nodes that you are protecting.

From the directory tree, expand the ESX Server system or the vCenter Server system, locate, and click the virtual machine that you want to power on.

2. Do one of the following:
  - **To power on the remote virtual machine using the latest snapshot:** Click the Getting Started tab and then click Power on the remote virtual machine located on the bottom the screen.
  - **To power on the remote virtual machine using an older snapshot:**
    - a. From the VMware vSphere Client, right-click the virtual machine name that you want snapshots of and select Snapshot Manager. The Snapshots for <virtual machine name> dialog open with a list of snapshots available for the remote virtual machine.
    - b. From the list of snapshots, click the snapshot that you want to use to power on the remote virtual machine and then click Go to.

The Remote Virtual Standby virtual machine is powered on.

If necessary, you can back up the virtual machines and create recovery point snapshots after you power on the remote virtual machine. For more information, see [Tasks to Perform After Powering on Virtual Standby Virtual Machines](#).

## Protect Remote Virtual Standby Virtual Machines After it is Powered On

After a Remote Virtual Standby virtual machine is powered on, the CA ARCserve D2D backup job and the Virtual Standby job do not run as they were scheduled. If you want to resume the jobs after the Remote Virtual Standby virtual machine is powered on, do the following actions:

1. Modify the VM Name Prefix in the Virtual Standby policy.

When CA ARCserve Central Virtual Standby powers on Remote Virtual Standby virtual machines, the application defines the virtual machine names of the powered on remote virtual machines as the concatenation of the VM Name Prefix option specified in the Virtual Standby policy and the host name of the source node.

**Example:**

- VM Name Prefix: AA\_
- Host name of the source node: Server1
- Virtual machine name of the Virtual Standby virtual machine: AA\_Server1

After the Remote Virtual Standby virtual machines are powered on, virtual machine name conflicts can occur when you do not modify the VM Name Prefix in the Virtual Standby policy. Problems of this type occur when the source nodes and the Remote Virtual Standby virtual machines reside on the same hypervisor.

For information about modifying the VM Name Prefix in the Virtual Standby policy, see [Edit Policies](#). If necessary, you can update other Virtual Standby policy settings. Optionally, you can create a new Virtual Standby Policy to protect the Remote Virtual Standby virtual machine. For information about creating new policies, see [Create CA ARCserve Central Virtual Standby Policies](#) (see page 40).

2. After you update the policy or create a new policy, deploy the policy to the Remote Virtual Standby virtual machine. For more information, see [Deploy Policies](#) (see page 53).
3. After you deploy the policy to the Remote Virtual Standby virtual machine, resume the Virtual Standby job. For more information, see [Pause and Resume Virtual Standby Jobs](#) (see page 97).
4. After you deploy the policy, log in to CA ARCserve D2D on the Remote Virtual Standby virtual machine and schedule a repeat method for the CA ARCserve D2D backup job. For more information, see the *CA ARCserve D2D User Guide*.

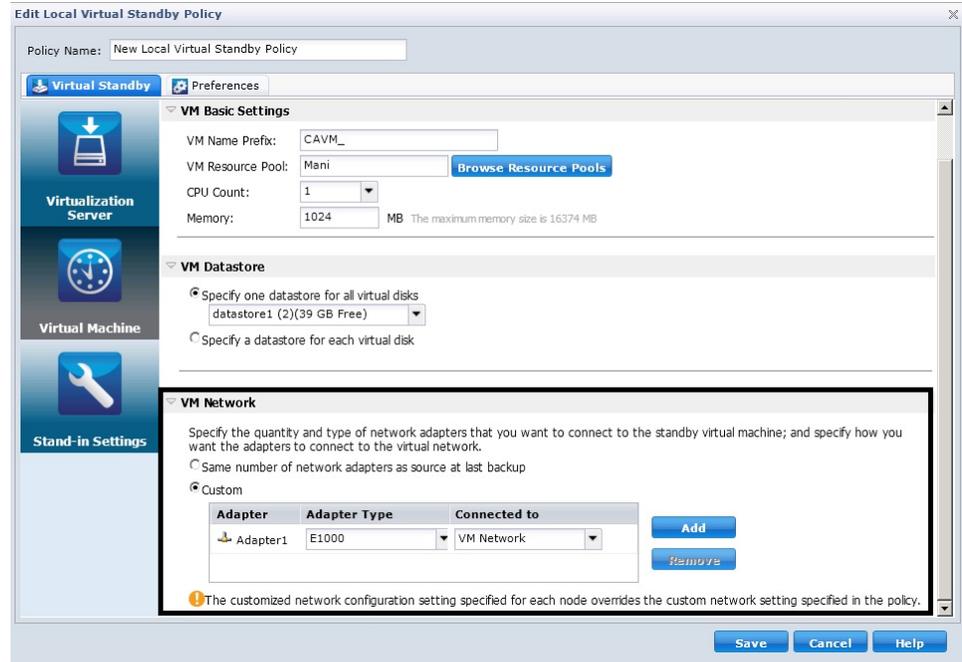
**Note:** CA ARCserve Central Protection Manager and CA ARCserve Central Virtual Standby have a mechanism that lets you automatically resynchronize the policies to the managed CA ARCserve D2D nodes on a weekly basis. This mechanism lets CA ARCserve Central Protection Manager restart the backup jobs on the Remote Virtual Standby virtual machines by redeploying the policy that was in effect on the CA ARCserve D2D node to the Remote Virtual Standby virtual machine. The policy deployment process behaves in this manner because the source node and the Remote Virtual Standby virtual machine have the same host name, which lets CA ARCserve Central Protection Manager resynchronize the policy. The only limitation to this behavior is the CA ARCserve Central Protection Manager server and the Remote Virtual Standby virtual machine must be able to communicate with each other through the network. After CA ARCserve Central Protection Manager resynchronizes and deploys the policy to the Remote Virtual Standby virtual machine, you then resume the Virtual Standby job on the Remote Virtual Standby virtual machine. For more information, see [Pause and Resume Virtual Standby Jobs](#) (see page 97).

## How the Application Determines the Quantity of NICs to Power ON

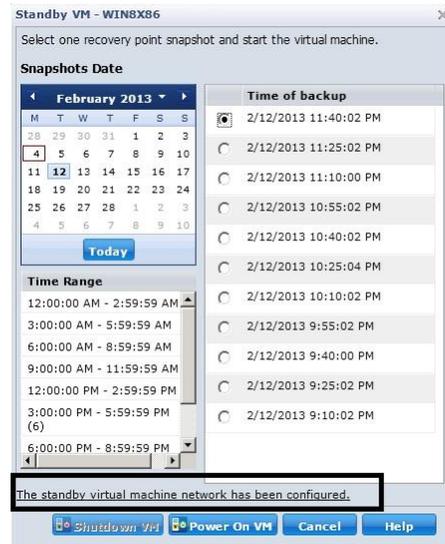
While powering on virtual machines, Virtual Standby determines the quantity of NICs (network interface cards) to power on based on whether the standby virtual machine network is configured. The following table illustrates how Virtual Standby determines the quantity of NICs that are required to power on standby virtual machines:

<b>Values Defined in the Policy for VM Network</b>	<b>The Power on the standby virtual machine with customized network configurations option <i>is not</i> specified</b>	<b>The Power on the standby virtual machine with customized network configurations option <i>is</i> specified</b>
The values defined are the same as the source machine.	Virtual Standby powers on the quantity on NICs defined for the source machine as of the last backup job.	Virtual Standby powers on the quantity NICs based on the larger of the following values: <ul style="list-style-type: none"><li>■ The quantity defined under custom network configuration.</li><li>■ The quantity of NICs defined for the source machine as of the last backup job.</li></ul>
The values defined are custom values.	Virtual Standby powers on the quantity of custom networks that are defined in the policy.	Virtual Standby powers on the quantity NICs based on the larger of the following values: <ul style="list-style-type: none"><li>■ The quantity defined under custom network configuration.</li><li>■ The quantity of NICs defined for the custom policy.</li></ul>

The following dialog (Edit Virtual Standby Policy) illustrates the location where you define policies that consist of custom configurations for NICs to power on:



The following dialog (Standby VM - <host\_name>) illustrates the location where you specify the Power on the standby virtual machine with customized network configurations option:



## How to Protect Powered On Virtual Standby Virtual Machines

After a Virtual Standby virtual machine is powered on (either manually or automatically), the CA ARCserve D2D backup job and the Virtual Standby job will not run as they were scheduled. To resume the jobs after the Virtual Standby virtual machine is powered on, do the following:

1. Modify the VM Name Prefix in the Virtual Standby policy.

When CA ARCserve Central Virtual Standby powers on Virtual Standby virtual machines, the application defines the virtual machine names of the powered on virtual machines as the concatenation of the VM Name Prefix option specified in the Virtual Standby policy and the host name of the source node.

**Example:**

- VM Name Prefix: AA\_
- Host name of the source node: Server1
- Virtual machine name of the Virtual Standby virtual machine: AA\_Server1

After the Virtual Standby virtual machines are powered on, virtual machine name conflicts can occur when you do not modify the VM Name Prefix in the Virtual Standby policy. Problems of this type occur when the source nodes and the Virtual Standby virtual machines reside on the same hypervisor.

For information about modifying the VM Name Prefix in the Virtual Standby policy, see [Edit Policies](#) (see page 72). If necessary, you can update other Virtual Standby policy settings. Optionally, you can create a new Virtual Standby Policy to protect the Virtual Standby virtual machine. For information about creating new policies, see [Create CA ARCserve Central Virtual Standby Policies](#) (see page 40).

2. After you update the policy or create a new policy, deploy the policy to the Virtual Standby virtual machine. For more information, see [Deploy Policies](#) (see page 53).
3. After you deploy the policy to the Virtual Standby virtual machine, resume the Virtual Standby job. For more information, see [Pause and Resume Virtual Standby Jobs](#).
4. After you deploy the policy, log in to CA ARCserve D2D on the Virtual Standby virtual machine and schedule a repeat method for the CA ARCserve D2D backup job. For more information, see the *CA ARCserve D2D User Guide*.

**Note:** CA ARCserve Central Protection Manager and CA ARCserve Central Virtual Standby have a mechanism that lets you automatically resynchronize the policies to the managed CA ARCserve D2D nodes on a weekly basis. This mechanism lets CA ARCserve Central Protection Manager restart the backup jobs on the Virtual Standby virtual machines by redeploying the policy that was in effect on the CA ARCserve D2D node to the Virtual Standby virtual machine. The policy deployment process behaves in this manner because the source node and the Virtual Standby virtual machine have the same host name, which lets CA ARCserve Central Protection Manager resynchronize the policy. The only limitation to this behavior is the CA ARCserve Central Protection Manager server and the Virtual Standby virtual machine must be able to communicate with each other through the network. After CA ARCserve Central Protection Manager resynchronizes and deploys the policy to the Virtual Standby virtual machine, you then resume the Virtual Standby job on the Virtual Standby virtual machine. For more information, see [Pause and Resume Virtual Standby Jobs](#).



# Chapter 7: Restoring Data

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This section contains the following topics:

[Restore Data from CA ARCserve D2D Recovery Points](#) (see page 124)

[Restore Data from CA ARCserve D2D File Copies](#) (see page 129)

[Restore Data Using Find Files/Folders to Restore](#) (see page 134)

[Recovering Source Servers Using Bare Metal Recovery](#) (see page 138)

[Restore Microsoft Exchange Email Messages](#) (see page 156)

## Restore Data from CA ARCserve D2D Recovery Points

Virtual Standby lets you recover data from the available recovery points. The recovery points are point-in-time snapshots of data that resides on CA ARCserve D2D source nodes. From the recovery points you can specify the data that you want to recover.

### To restore data from CA ARCserve D2D recovery points

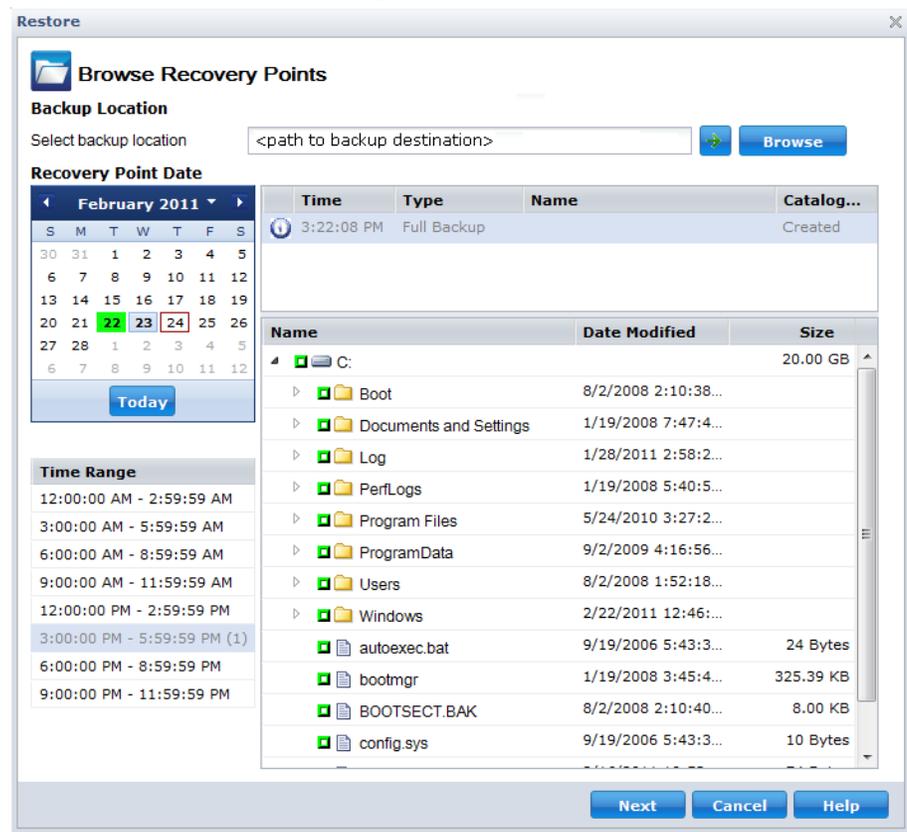
1. Log in to the application and click Node on the Navigation bar.

From the Node screen, expand the group containing the node that you want to restore.

Click the check box next to the node that you want to restore and then click Restore on the toolbar.

2. From the Restore dialog, click Browse Recovery Points.

The Browse Recovery Points dialog opens.



3. Specify the backup source. You can either specify a location or browse to the location where your backup images are stored. If necessary, enter the User name and Password credentials to gain access to that location. You can click green arrow validate icon to verify proper access to the source location.

The calendar view will highlight (in green) all dates during the displayed time period that contain recovery points for that backup source.

4. Specify the data that you want to restore.
  - a. Select the calendar date for the backup image you want to restore.

The corresponding recovery points for that date are displayed, along with the time of the backup, the type of backup that was performed, and the name of the backup.
  - b. Select a recovery point that you want to restore.

The corresponding backup content (including any applications) for that recovery point is displayed.

Note: A clock icon with a lock symbol indicates the recovery point contains encrypted information and may require a password for restore.
  - c. Select the content to be restored.
    - For a volume-level restore, you can specify to restore the entire volume or selected files/folders within the volume.
    - For an application-level restore, you can specify to restore the entire application or selected components, databases, instances, and so on within the application.

5. After you specify the data that you want to restore, click Next.

The Restore Options dialog opens.

6. Complete the following options on the Restore Options dialog:
  - **Destination**--Select the destination for the restore.
    - Restore to Original Location--Lets you restore data to the original location from where the backup image was captured.
    - Restore to--Lets you specify or browse to the location where your backup images will be restored. Click the arrow next to the Restore to field to verify the connection to the specified location.

If necessary, you will need to enter the User Name and Password credentials to gain access to that location.

- **Resolving Conflicts**--Lets you specify how you want CA ARCserve D2D to resolve conflicts that are encountered during the restore process.
  - **Overwrite existing files**--Lets you overwrite (replace) existing files that are located at the restore destination. All objects will be restored from the backup files regardless of their current presence on your machine.
  - **Replace active files**--Lets you replace active files upon reboot. If the restore attempt CA ARCserve D2D detects that the existing file is currently in use, it will not immediately replace that file, but instead to avoid any problems will delay the replacement of the active files until the next time the machine is rebooted. (The restore will occur immediately, but the replacement of any active files is done during the next reboot).

**Note:** If this option is not selected any active file will be skipped from the restore.
  - **Rename files**--Lets you create new files if the file name already exists. Selecting this option will copy the source file to the destination with the same filename but a different extension. Data will then be restored to the new file.
  - **Skip existing files**--Lets you skip over and not overwrite (replace) any existing files that are located at the restore destination. Only objects that do not currently exist on your computer will be restored from the backup files.

By default, this option is selected.

- **Directory Structure**--Lets you specify what CA ARCserve D2D will or will not do with the directory structure during the restore process.
  - Create root directory--Lets you specify that if a root directory structure exists in the captured backup image, CA ARCserve D2D will recreate that same root directory structure on the restore destination path.

When the Create Root Directory option is not selected (unchecked), the file/folder to be restored will be restored directly to the destination folder.

**Example:**

If during the backup you captured the files "C:\Folder1\SubFolder2\A.txt" and "C:\Folder1\SubFolder2\B.txt" and during the restore you specified to the restore destination as "D:\Restore".

If you select to restore the "A.txt" and "B.txt" files individually, the destination for the restored files will be "D:\Restore\A.txt" and "D:\Restore\B.txt" (the root directory above the specified file level will not be recreated).

If you select to restore from the "SubFolder2" level, the destination for the restored files will be "D:\Restore\SubFolder2\A.txt" and "D:\Restore\SubFolder2\B.txt" (the root directory above the specified folder level will not be recreated).

When the Create Root Directory option is selected (checked), the entire root directory path for the files/folders (including the volume name) will be recreated to the destination folder. If the files/folders to be restored are from the same volume name, then the destination root directory path will not include that volume name. However, if the files/folders to be restored are from different volume names, then the destination root directory path will include the volume name.

**Example:**

If during the backup you captured the files "C:\Folder1\SubFolder2\A.txt", "C:\Folder1\SubFolder2\B.txt", and also E:\Folder3\SubFolder4\C.txt" and during the restore you specified to the restore destination as "D:\Restore".

If you select to restore just the "A.txt" file, the destination for the restored file will be "D:\Restore\Folder1\SubFolder2\A.txt" (the entire root directory without the volume name will be recreated).

If you select to restore both the "A.txt" and "C.txt" files, the destination for the restored files will be "D:\Restore\C\Folder1\SubFolder2\A.txt" and "D:\Restore\E\Folder3\SubFolder4\C.txt" (the entire root directory with the volume name will be recreated).

- **Encryption Password**--If the recovery point data you are trying to restore is encrypted, you may need to provide the encryption password.

A password is not required if you are attempting to restore to the same machine from where the encrypted backup was performed. However, if you are attempting to restore to a different machine, a password is required.

**Note:** The following icons indicate whether the recovery point contains encrypted information and may require a password for restore.

**Non-encrypted recovery point:**



**Encrypted recovery point:**



Click Next.

The Restore Summary dialog opens.

7. Verify that the information on the Restore Summary dialog is correct.

**Note:** If you want to change the restore options that you specified, click Previous and go back to the applicable dialog to change the values.

Click Finish.

The restore options are applied and the data is recovered.

## Restore Data from CA ARCserve D2D File Copies

Virtual Standby lets you recover data from CA ARCserve D2D file copies. Files copies are copies of CA ARCserve D2D recovery points that you copy to offline storage, such as a disk or the cloud. From the file copies, you can specify the data that you want to recover.

### To restore data from CA ARCserve D2D file copies

1. Log in to the application and click Node on the Navigation bar.

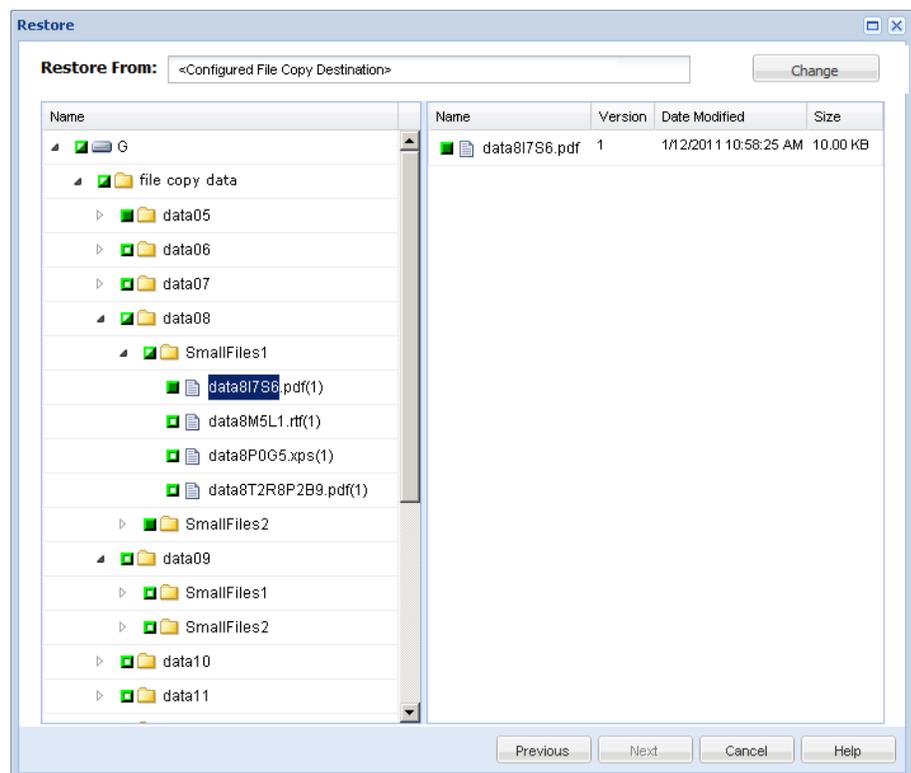
From the Node screen, expand the group containing the node that you want to restore.

Click the check box next to the node that you want to restore and then click Restore on the toolbar.

2. From the Restore dialog, click Browse File Copies.

The Browse File Copies dialog opens as illustrated by the following dialog.

**Note:** The destination that is currently showing in the right pane is the default destination.



3. From the Name pane, specify the file copy data that you want to recover. You can specify any combination of files and folders, or the volume.

When you select an individual file to be restored, all file copied versions of that file will be displayed in the right pane. If multiple versions are available, select the version of file copy that you want to recover.

- **Change Destination**--Lets you browse to an alternative location where your file copy images are stored.

A dialog opens that displays the available alternative destination options.



- **Local or network drive**--The Select a Backup Location dialog opens, allowing you to browse to and select an alternate local or network drive location.
  - **Cloud**--The Cloud Configuration dialog opens, allowing you to access and select an alternate cloud location.
4. Click Next.

The Restore Options dialog opens.

5. Complete the following options on the Restore Options dialog:

- **Destination**--Select the destination for the restore.
  - Restore to Original Location--Lets you restore data to the original location from where the backup image was captured.
  - Restore to--Lets you specify or browse to the location where your backup images will be restored. Click the arrow next to the Restore to field to verify the connection to the specified location.

If necessary, you will need to enter the User Name and Password credentials to gain access to that location.

- **Resolving Conflicts**--Lets you specify how you want CA ARCserve D2D to resolve conflicts that are encountered during the restore process.
  - Overwrite existing files--Lets you overwrite (replace) existing files that are located at the restore destination. All objects will be restored from the backup files regardless of their current presence on your machine.
  - Replace active files--Lets you replace active files upon reboot. If the restore attempt CA ARCserve D2D detects that the existing file is currently in use, it will not immediately replace that file, but instead to avoid any problems will delay the replacement of the active files until the next time the machine is rebooted. (The restore will occur immediately, but the replacement of any active files is done during the next reboot).

**Note:** If this option is not selected any active file will be skipped from the restore.
  - Rename files--Lets you create new files if the file name already exists. Selecting this option will copy the source file to the destination with the same filename but a different extension. Data will then be restored to the new file.
  - Skip existing files--Lets you skip over and not overwrite (replace) any existing files that are located at the restore destination. Only objects that do not currently exist on your computer will be restored from the backup files.

By default, this option is selected.

- **Directory Structure**--Lets you specify what CA ARCserve D2D will or will not do with the directory structure during the restore process.

- Create root directory--Lets you specify that if a root directory structure exists in the captured backup image, CA ARCserve D2D will recreate that same root directory structure on the restore destination path.

When the Create Root Directory option is not selected (unchecked), the file/folder to be restored will be restored directly to the destination folder.

**Example:**

If during the backup you captured the files "C:\Folder1\SubFolder2\A.txt" and "C:\Folder1\SubFolder2\B.txt" and during the restore you specified to the restore destination as "D:\Restore".

If you select to restore the "A.txt" and "B.txt" files individually, the destination for the restored files will be "D:\Restore\A.txt" and "D:\Restore\B.txt" (the root directory above the specified file level will not be recreated).

If you select to restore from the "SubFolder2" level, the destination for the restored files will be "D:\Restore\SubFolder2\A.txt" and "D:\Restore\SubFolder2\B.txt" (the root directory above the specified folder level will not be recreated).

When the Create Root Directory option is selected (checked), the entire root directory path for the files/folders (including the volume name) will be recreated to the destination folder. If the files/folders to be restored are from the same volume name, then the destination root directory path will not include that volume name. However, if the files/folders to be restored are from different volume names, then the destination root directory path will include the volume name.

**Example:**

If during the backup you captured the files "C:\Folder1\SubFolder2\A.txt", "C:\Folder1\SubFolder2\B.txt", and also E:\Folder3\SubFolder4\C.txt" and during the restore you specified to the restore destination as "D:\Restore".

If you select to restore just the "A.txt" file, the destination for the restored file will be "D:\Restore\Folder1\SubFolder2\A.txt" (the entire root directory without the volume name will be recreated).

If you select to restore both the "A.txt" and "C.txt" files, the destination for the restored files will be "D:\Restore\C\Folder1\SubFolder2\A.txt" and "D:\Restore\E\Folder3\SubFolder4\C.txt" (the entire root directory with the volume name will be recreated).

- **Encryption Password**--If the recovery point data you are trying to restore is encrypted, you may need to provide the encryption password.

A password is not required if you are attempting to restore to the same machine from where the encrypted backup was performed. However, if you are attempting to restore to a different machine, a password is required.

**Note:** The following icons indicate whether the recovery point contains encrypted information and may require a password for restore.

**Non-encrypted recovery point:**



**Encrypted recovery point:**



Click Next.

The Restore Summary dialog opens.

6. Verify that the information on the Restore Summary dialog is correct.

**Note:** If you want to change the restore options that you specified, click Previous and go back to the applicable dialog to change the values.

Click Finish.

The restore options are applied and the data is recovered.

## Restore Data Using Find Files/Folders to Restore

Virtual Standby lets you search CA ARCserve D2D recovery points and file copies for specific files or folders to restore.

### To restore data using Find Files/Folders to Restore

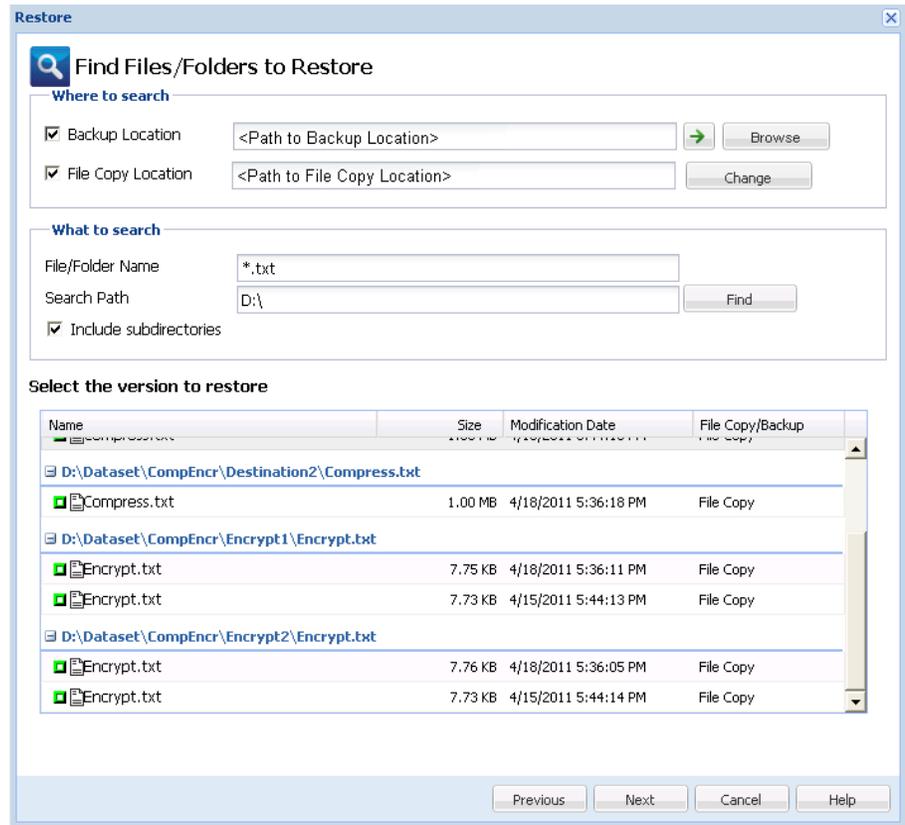
1. Log in to the application and click Node on the Navigation bar.

From the Node screen, expand the group containing the node that you want to restore.

Click the check box next to the node that you want to restore and then click Restore on the toolbar.

2. From the Restore dialog, click Find Files/Folders to Restore.

The Find Files/Folders to Restore dialog opens.



3. Specify where to search (backup and/or archive source).

You can either specify a location or browse to the location where your backup/archive images are stored. If necessary, enter the User name and Password credentials to gain access to that location. You can click green arrow validate icon to verify proper access to the source location.

- Specify what to search for (file or folder name to restore).

**Note:** The File Name field supports full name searching and wildcard searching. If you do not know the complete file name, you can simplify the results of the search by specifying the wildcard characters "\*" and "?" in the File Name field.

The wildcard characters supported for the file or folder name are as follows:

- "\*" - Use the asterisk to substitute zero or more characters in a file or folder name.
- "?" - Use the question mark to substitute a single character in a file or folder name.

For example, if you specify \*.txt, all files with a .txt file extension appear in the search results.

**Note:** If necessary, you can also specify a path to further filter your search and select whether to include or not include any subdirectories.

- Click Find to launch the search.

The results of the search display. If the search discovers multiple occurrences (recovery points) of the same searched file, it will list all occurrences sorted by date (with the most recent listed first). It will also indicate if the searched file has been backed up or archived.

- Select the version (occurrence) of the file/folder that you want to restore and click Next.

The Restore Options dialog opens.

- Complete the following options on the Restore Options dialog:

- **Destination**--Select the destination for the restore.
  - Restore to Original Location--Lets you restore data to the original location from where the backup image was captured.
  - Restore to--Lets you specify or browse to the location where your backup images will be restored. Click the arrow next to the Restore to field to verify the connection to the specified location.

If necessary, you will need to enter the User Name and Password credentials to gain access to that location.

- **Resolving Conflicts**--Lets you specify how you want CA ARCserve D2D to resolve conflicts that are encountered during the restore process.
  - Overwrite existing files--Lets you overwrite (replace) existing files that are located at the restore destination. All objects will be restored from the backup files regardless of their current presence on your machine.
  - Replace active files--Lets you replace active files upon reboot. If the restore attempt CA ARCserve D2D detects that the existing file is currently in use, it will not immediately replace that file, but instead to avoid any problems will delay the replacement of the active files until the next time the machine is rebooted. (The restore will occur immediately, but the replacement of any active files is done during the next reboot).

**Note:** If this option is not selected any active file will be skipped from the restore.
  - Rename files--Lets you create new files if the file name already exists. Selecting this option will copy the source file to the destination with the same filename but a different extension. Data will then be restored to the new file.
  - Skip existing files--Lets you skip over and not overwrite (replace) any existing files that are located at the restore destination. Only objects that do not currently exist on your computer will be restored from the backup files.

By default, this option is selected.

- **Directory Structure**--Lets you specify what CA ARCserve D2D will or will not do with the directory structure during the restore process.
  - Create root directory--Lets you specify that if a root directory structure exists in the captured backup image, CA ARCserve D2D will recreate that same root directory structure on the restore destination path.

When the Create Root Directory option is not selected (unchecked), the file/folder to be restored will be restored directly to the destination folder.

**Example:**

If during the backup you captured the files "C:\Folder1\SubFolder2\A.txt" and "C:\Folder1\SubFolder2\B.txt" and during the restore you specified to the restore destination as "D:\Restore".

If you select to restore the "A.txt" and "B.txt" files individually, the destination for the restored files will be "D:\Restore\A.txt" and "D:\Restore\B.txt" (the root directory above the specified file level will not be recreated).

If you select to restore from the "SubFolder2" level, the destination for the restored files will be "D:\Restore\SubFolder2\A.txt" and "D:\Restore\SubFolder2\B.txt" (the root directory above the specified folder level will not be recreated).

When the Create Root Directory option is selected (checked), the entire root directory path for the files/folders (including the volume name) will be recreated to the destination folder. If the files/folders to be restored are from the same volume name, then the destination root directory path will not include that volume name. However, if the files/folders to be restored are from different volume names, then the destination root directory path will include the volume name.

**Example:**

If during the backup you captured the files "C:\Folder1\SubFolder2\A.txt", "C:\Folder1\SubFolder2\B.txt", and also E:\Folder3\SubFolder4\C.txt" and during the restore you specified to the restore destination as "D:\Restore".

If you select to restore just the "A.txt" file, the destination for the restored file will be "D:\Restore\Folder1\SubFolder2\A.txt" (the entire root directory without the volume name will be recreated).

If you select to restore both the "A.txt" and "C.txt" files, the destination for the restored files will be "D:\Restore\C\Folder1\SubFolder2\A.txt" and "D:\Restore\E\Folder3\SubFolder4\C.txt" (the entire root directory with the volume name will be recreated).

- **Encryption Password**—If the recovery point data you are trying to restore is encrypted, you may need to provide the encryption password.

A password is not required if you are attempting to restore to the same machine from where the encrypted backup was performed. However, if you are attempting to restore to a different machine, a password is required.

**Note:** The following icons indicate whether the recovery point contains encrypted information and may require a password for restore.

**Non-encrypted recovery point:**



**Encrypted recovery point:**



Click Next.

The Restore Summary dialog opens.

8. Verify that the information on the Restore Summary dialog is correct.

**Note:** If you want to change the restore options that you specified, click Previous and go back to the applicable dialog to change the values.

Click Finish.

The restore options are applied and the data is recovered.

## Recovering Source Servers Using Bare Metal Recovery

After you correct the problems or perform maintenance on your source servers, Virtual Standby lets you recover the source servers to their last healthy state, and include the incremental changes that occurred while the Recovery Point Snapshot was powered on.

This recovery process is called a V2P (virtual to physical) recovery.

The V2P recovery process leverages the CA ARCserve D2D Bare Metal Recovery (BMR) process to restore data from virtual machines to physical machines. BMR is the process of restoring a computer system from bare metal, including reinstalling the operating system and software applications, and then restoring the data and settings.

Before you can perform BMR, you must have:

- At least one full backup available.
- At least 1-GB RAM installed on the virtual machine and the source server that you are recovering.
- To recover VMware virtual machines to VMware virtual machines that are configured to behave as physical servers, verify the VMware Tools application is installed on the destination virtual machine.

Dynamic disks are restored at the disk level only. If your data is backed up to a local volume on a dynamic disk, you cannot to restore this dynamic disk during BMR. In this scenario, to restore during BMR you must perform one of the following tasks and then perform BMR from the copied Recovery Point:

- Back up to a volume on another drive.
- Back up to a remote share.
- Copy a recovery point to another location.

**Note:** If you perform BMR to a dynamic disk, do not perform any pre-BMR disk operations (such as cleaning or deleting volume) or else the presence of the disk may not be recognized.

Regardless of which method you used to create the Boot Kit image, the BMR process is basically the same.

For more information about how to create ISO or a BMR USB stick, see [How to Create a Boot Kit](#) in the CA ARCserve D2D User Guide.

The application lets you recover data using the methods described in the following table:

Recovery Method	More Information
Recover source servers from data that was converted to Hyper-V-based Virtual Standby virtual machines.	<a href="#">Recover Source Servers Using Data from Hyper-V Virtual Standby Virtual Machines</a> (see page 144).
Recover source servers from data that was converted to VMware-based Virtual Standby virtual machines.	<a href="#">Recover Source Servers Using Data From VMware Virtual Standby Virtual Machines</a> (see page 150).

## Managing the BMR Operations Menu

The BMR Operations menu consists of the following three types of operations:

- Disk Specific Operations
- Volume/Partition Specific Operations
- BMR Specific Operations

### Disk Specific Operations:

To perform disk specific operations, select the disk header and click Operations.

#### Clean Disk

This operation is used to clean all partitions of a disk and is:

- An alternate method to delete all volumes of a disk. With the Clean Disk operation, you do not have to delete each volume one by one.
- Used to delete the non-Windows partitions. Due to a VDS limitation, the non-Windows partition cannot be deleted from the UI, but you can use this operation to clean them all.

**Note:** During BMR, when the destination disk has non-Windows partitions or OEM partitions, you cannot select this partition and delete it from the BMR UI. Usually this would occur if you ever installed Linux/Unix on the destination disk. To resolve this issue, perform one of the following tasks:

- Select the disk header on the BMR UI, click Operations, and use the Clean Disk operation to erase all partitions on the disk.
- Open a command prompt and type Diskpart to open the Diskpart command console. Then type "select disk x" , where 'x' is the disk number and "clean" to erase all partitions on the disk.

#### Convert to MBR

This operation is used to convert a disk to MBR (Master Boot Record). It is available only when the selected disk is a GPT (GUID Partition Table) disk and there are no volumes on this disk.

#### Convert to GPT

This operation is used to convert a disk to GPT. It is available only when the selected disk is an MBR disk and there are no volumes on this disk.

#### Convert to Basic

This operation is used to convert a disk to Basic. It is available only when the selected disk is a Dynamic disk and there are no volumes on this disk.

#### Convert to Dynamic

This operation is used to convert a disk to Dynamic Disk. It is available only when the selected disk is a Basic disk.

#### Online Disk

This operation is used to bring a disk online. It is available only when the selected disk is in the offline status.

**Disk Properties**

This operation is used to view detailed disk properties. It is always available and when you select this operation, a Disk Properties dialog appears.

### **Volume/Partition Specific Operations:**

To perform volume/partition operations, select the disk body area and click Operations. From this menu, you can create new partitions to correspond to the disk partitions on the source volume.

#### **Create Primary Partition**

This operation is used to create a partition on a basic disk. It is available only when the selected area is an unallocated disk space.

#### **Create Logical Partition**

This operation is used to create a logical partition on a basic MBR disk. It is available only when the selected area is an extended partition.

#### **Create Extended Partition**

This operation is used to create an extended partition on a basic MBR disk. It is available only when the disk is an MBR disk and the selected area is an unallocated disk space.

#### **Create System Reserved Partition**

This operation is used to create the System Reserved Partition on a BIOS firmware system and builds a mapping relationship with the source EFI System Partition. It is only available when you restore a UEFI system to a BIOS system.

**Note:** If you previously converted from UEFI to a BIOS-compatible system, use the Create System Reserved Partition operation for destination disk resizing.

#### **Create EFI System Partition**

This operation is used to create the EFI System Partition on a basic GPT disk. It is available only when the target machine firmware is UEFI and the selected disk is a basic GPT disk.

**Note:** If you previously converted from BIOS to a UEFI-compatible system, use the Create EFI System Partition operation for destination disk resizing.

**Note:** Systems that support UEFI also require that the boot partition reside on a GPT (GUID Partition Table) disk. If you are using a MBR (Master Boot Record) disk, you must convert this disk to a GPT disk, and then use the Create EFI System Partition operation for disk resizing.

#### **Resize Volume**

This operation is used to resize a volume. It is an alternate method of Windows "Extend Volume/Shrink Volume". It is available only when the selected area is a valid disk partition.

#### **Delete Volume**

This operation is used to delete a volume. It is available only when the selected area is a valid volume.

#### **Delete Extended Partition**

This operation is used to delete the extended partition. It is available only when the selected area is the extended partition.

#### **Volume Properties**

This operation is used to view detailed volume properties. When you select this operation, a Volume Properties dialog appears.

#### **BMR Specific Operations:**

These operations are specific to BMR. To perform BMR operations, select the disk header or the disk body area and click Operations.

#### **Map Disk From**

This operation is used to build a mapping relationship between the source and target dynamic disks. It is available only when the selected disk is a Dynamic disk.

**Note:** When mapping to another disk, the capacity of each mapped target volume must be the same size or larger than the corresponding source volume.

#### **Map Volume From**

This operation is used to build a mapping relationship between the source and target basic volume. It is available only when the selected volume is a Basic volume.

**Note:** When mapping to another disk, the capacity of each mapped target volume must be the same size or larger than the corresponding source volume.

#### **Commit**

This operation is always available. All of the operations are cached in memory and they do not modify the target disks until you select the Commit operation.

#### **Reset**

This operation is always available. The Reset operation is used to relinquish your operations and restore the disk layout to the default status. This operation cleans all of the cached operations. Reset means to reload the source and target disk layout information from the configure file and current OS, and discard any user changed disk layout information.

## Recover Source Servers Using Data from Hyper-V Virtual Standby Virtual Machines

The application lets you recover source servers using CA ARCserve D2D data that was converted to Hyper-V Virtual Standby virtual machines.

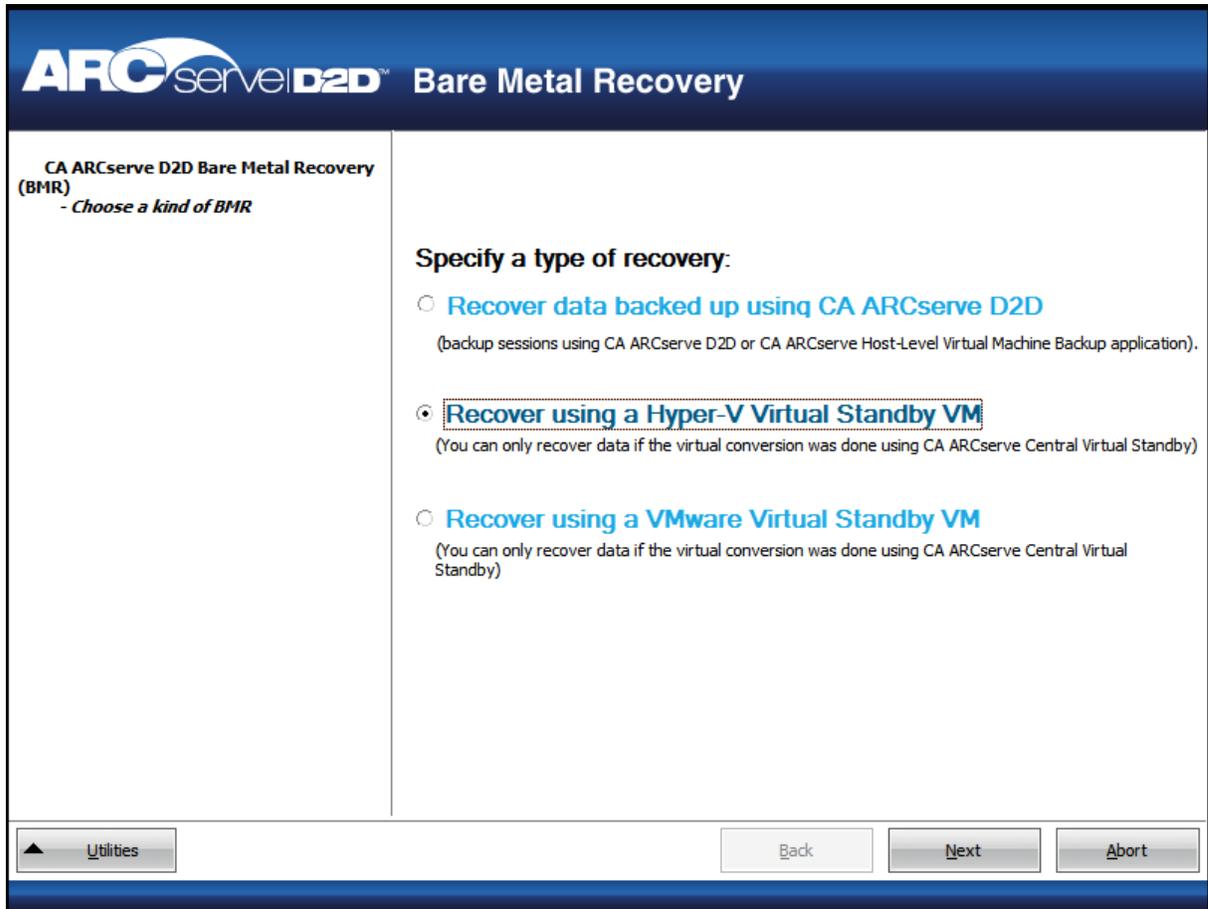
**Note:** The application uses the bare metal recovery process to recover source servers from Hyper-V virtual machines. For more information, see [Recovering Source Servers Using Bare Metal Recovery](#) (see page 138).

CA ARCserve D2D provides the capability to perform Bare Metal Recovery for V2P (Virtual to Physical) machines. This feature lets you perform V2P recovery from the latest state of a standby virtual machine and helps you reduce the loss of your production machine.

After you select the "Recover using a Hyper-V Virtual Standby VM" option, perform the following steps before returning to the Bare Metal Recovery procedure to complete the process.

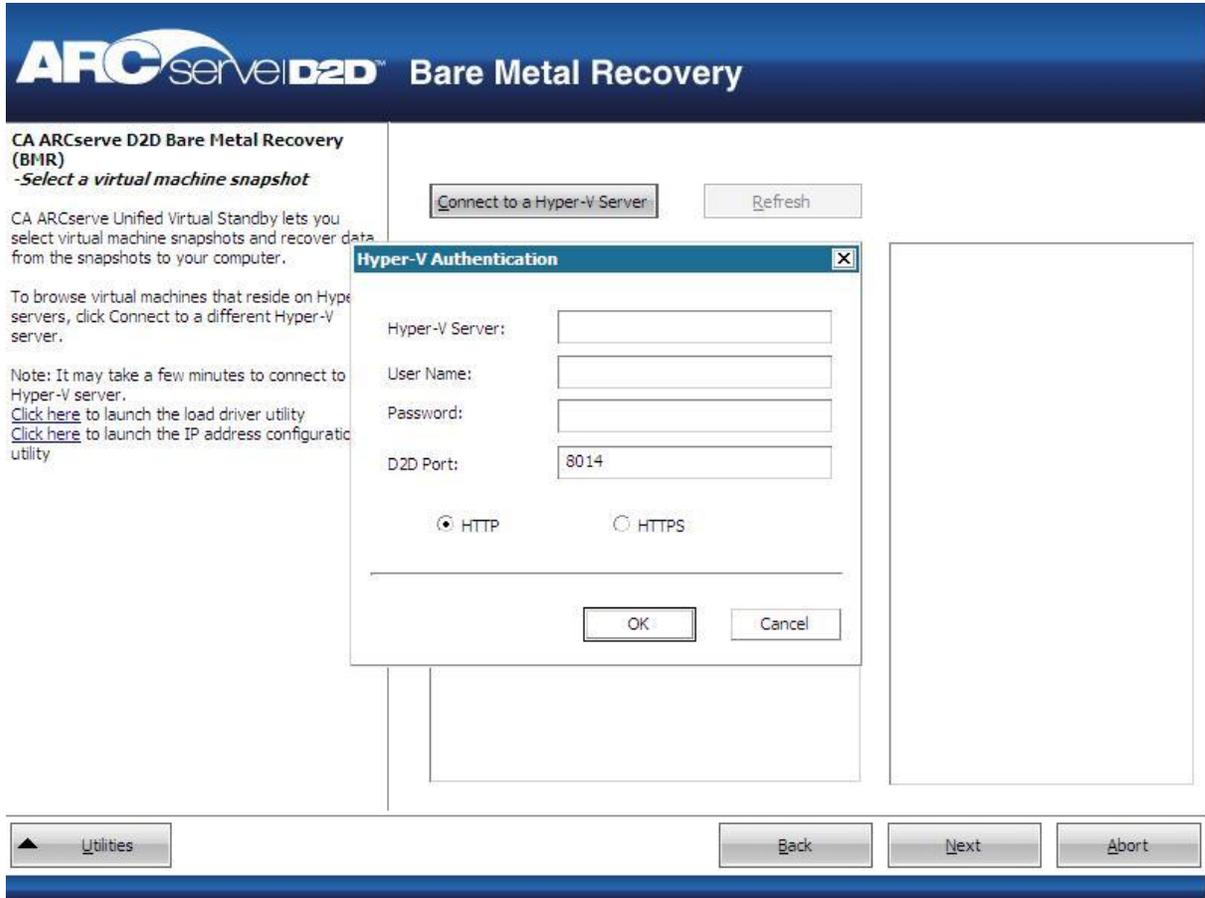
**Follow these steps:**

1. From the select the Type of Bare Metal Recovery (BMR) wizard screen, select the Recover using a Hyper-V Virtual Standby VM option.



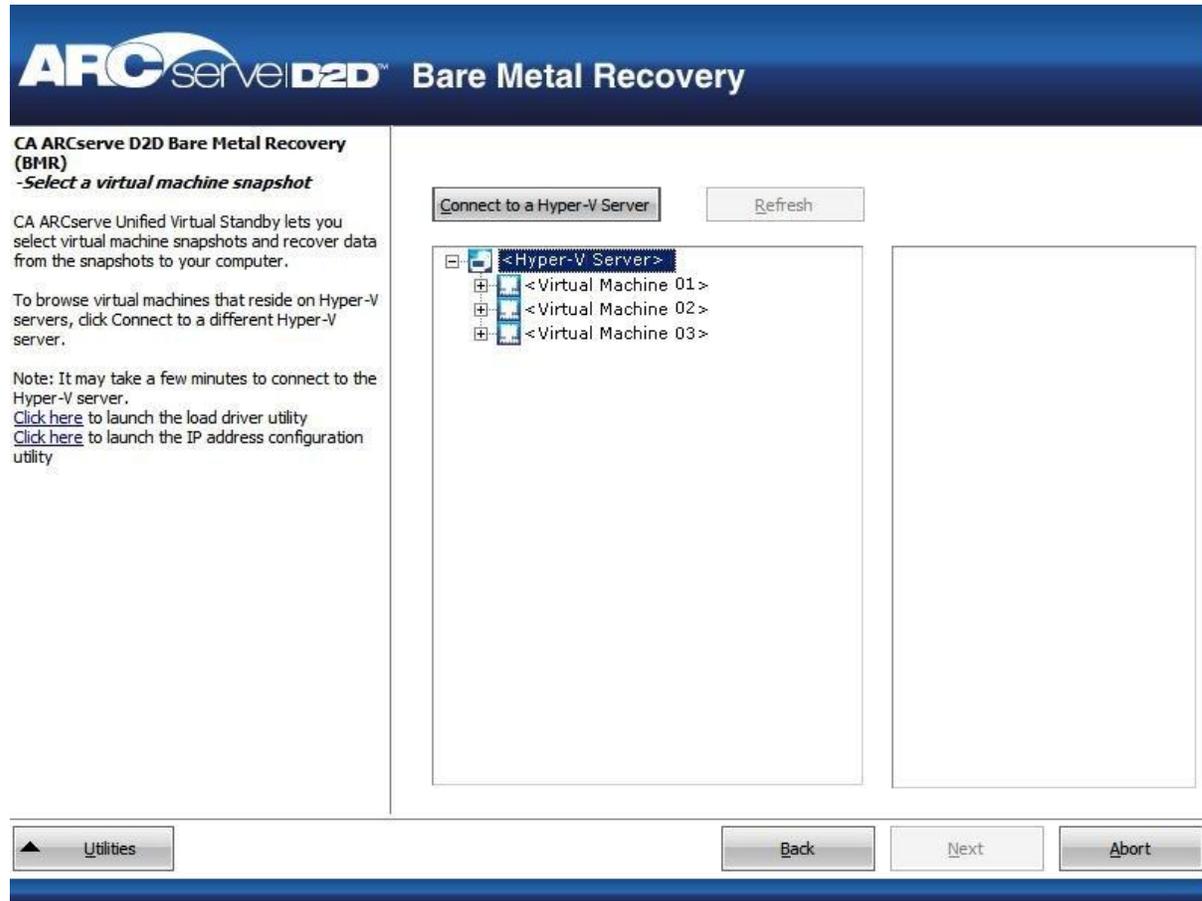
2. Click Next.

The Select a virtual machine snapshot screen is displayed, with the Hyper-V Authentication dialog, prompting you for Hyper-v server details.



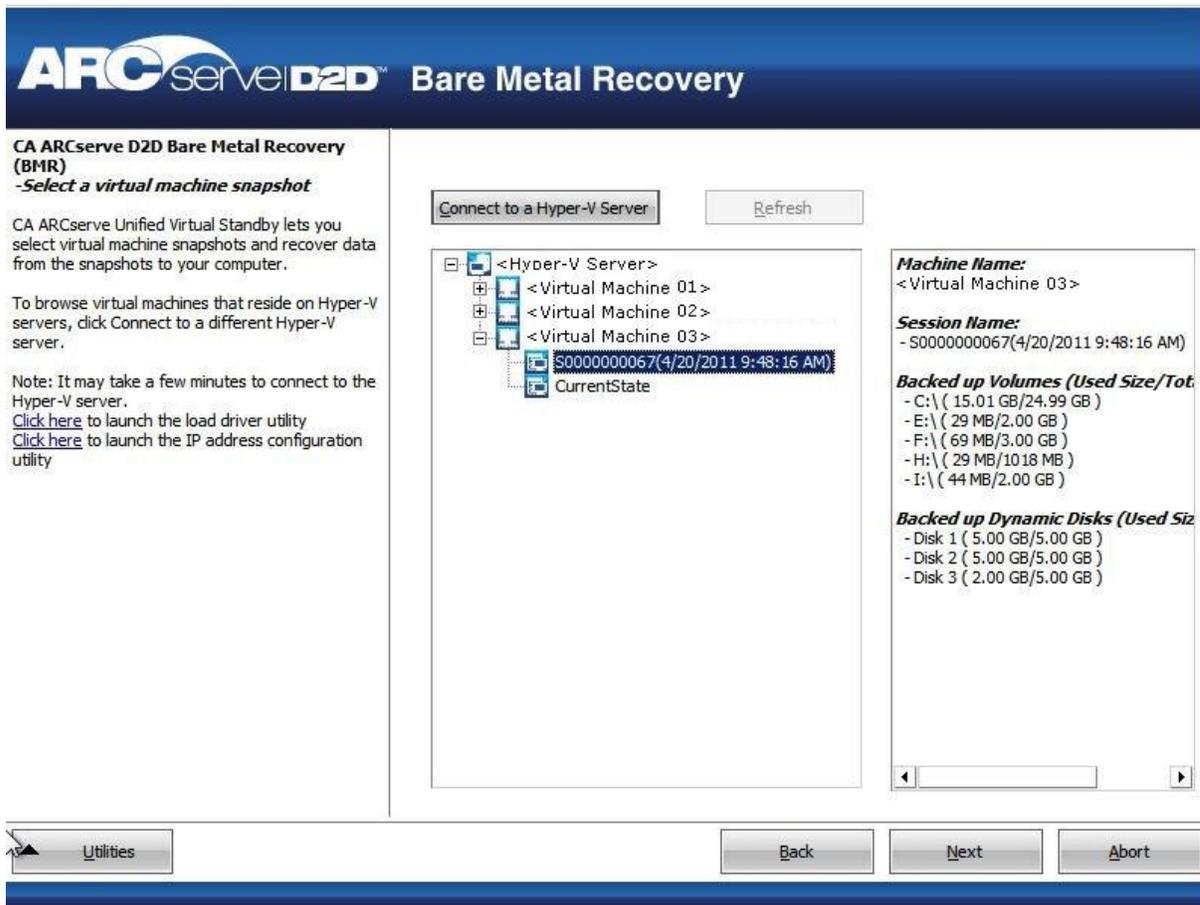
3. Enter the authentication information and click OK.

CA ARCserve D2D detects and displays the Hyper-V Server with a listing of all the virtual machines that are converted to the specified Hyper-V server using CA ARCserve Central Virtual Standby.



- 4. Select the virtual machine that contains the recovery point snapshots for your backup image.

The backup sessions (recovery point snapshots) for the selected virtual machine are displayed.



5. Select the virtual machine backup session (recovery point snapshot) that you want to recover.

The corresponding details for the selected recovery point snapshot (virtual machine name, backup session name, backed up volumes) are displayed in the right pane.

In addition to selecting one of the listed recovery points, you also have the option to select the "Current State" or the "Latest State" recovery point.

- If the virtual machine that you are recovering from is powered on, the "Current State" recovery point is displayed.
- If the virtual machine that you are recovering from is powered off, the "Latest State" recovery point is displayed.

If you select the "Latest State" recovery point, an error message is displayed to inform you that the recovery point you are recovering from is the Latest (and not the Current) state and requesting that you start the virtual machine before continuing with the recovery process.

6. Verify this is the recovery point that you want to restore and click Next.

A BMR wizard screen is displayed with the available recovery mode options.

See Perform Bare Metal Recovery for the remaining steps of this procedure and continue at the corresponding step where the recovery mode is selected.



## Recover Source Servers Using Data From VMware Virtual Standby Virtual Machines

The application lets you recover source servers using CA ARCserve D2D data that was converted to VMware Virtual Standby virtual machines.

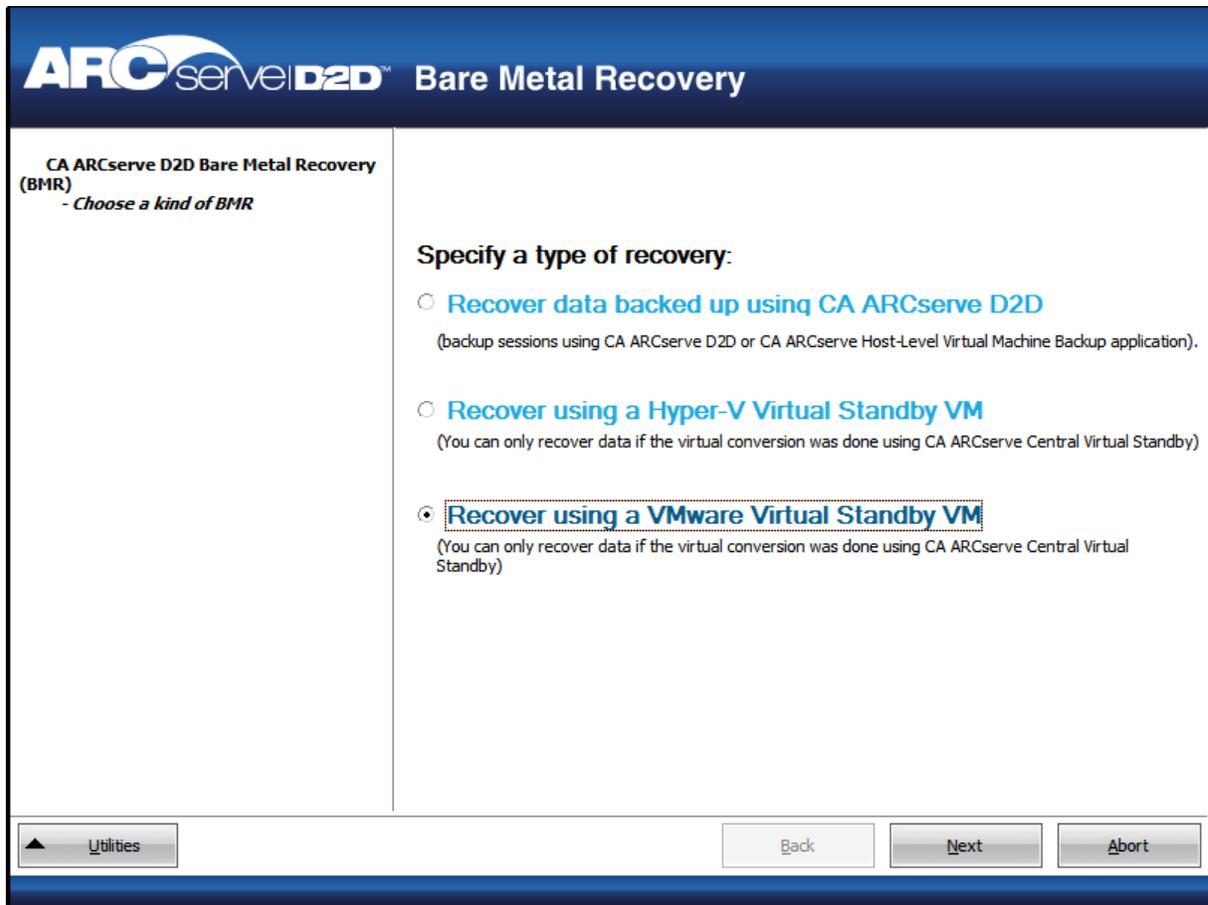
**Note:** The application uses the bare metal recovery process to recover source servers from VMware virtual machines. For more information, see [Recovering Source Servers Using Bare Metal Recovery](#) (see page 138).

CA ARCserve D2D provides the capability to perform Bare Metal Recovery for V2P (Virtual to Physical) machines. This feature lets you perform V2P recovery from the latest state of a standby virtual machine and helps you reduce the loss of your production machine.

After you select the "Recover using a VMware Virtual Standby VM" option, perform the following steps before returning to the Bare Metal Recovery procedure to complete the process.

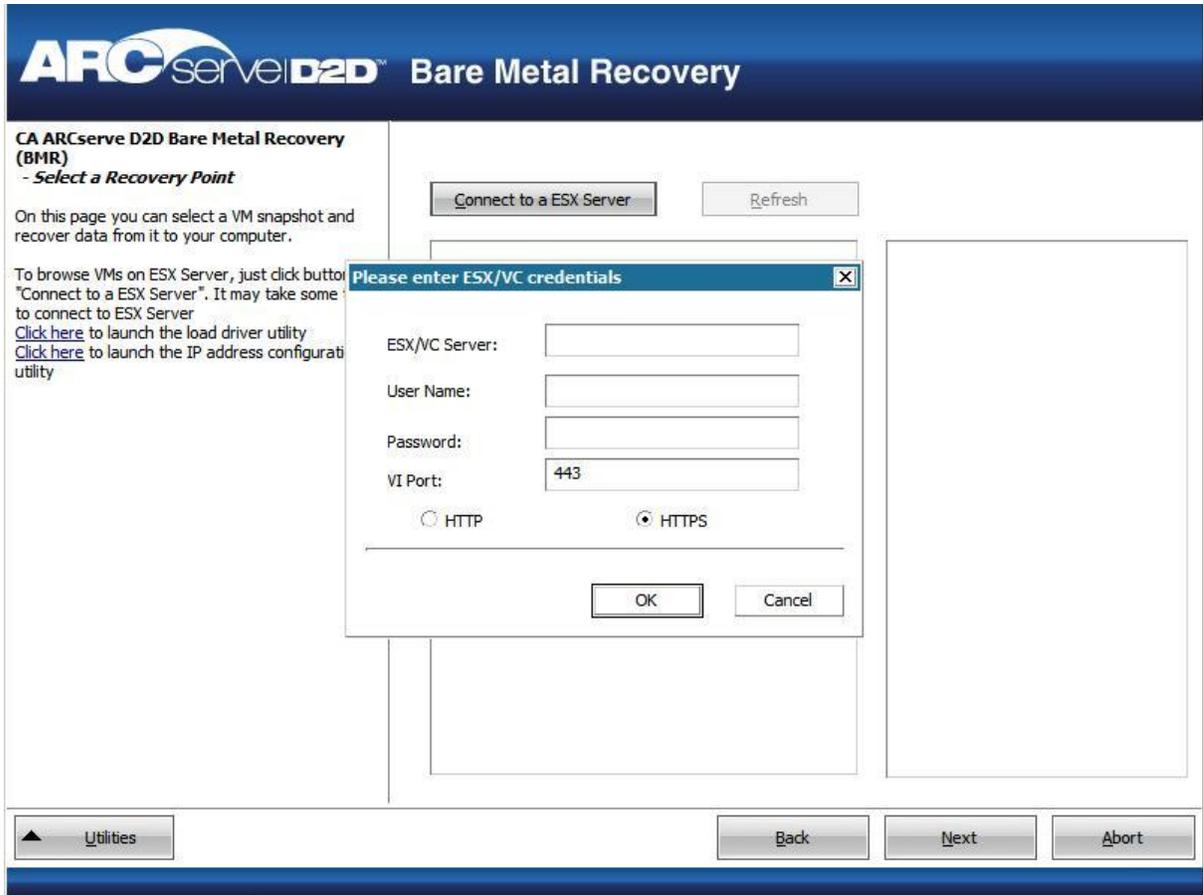
**Follow these steps:**

1. From the select the Type of Bare Metal Recovery (BMR) wizard screen, select the Recover using a VMware Virtual Standby VM option.



2. Click Next.

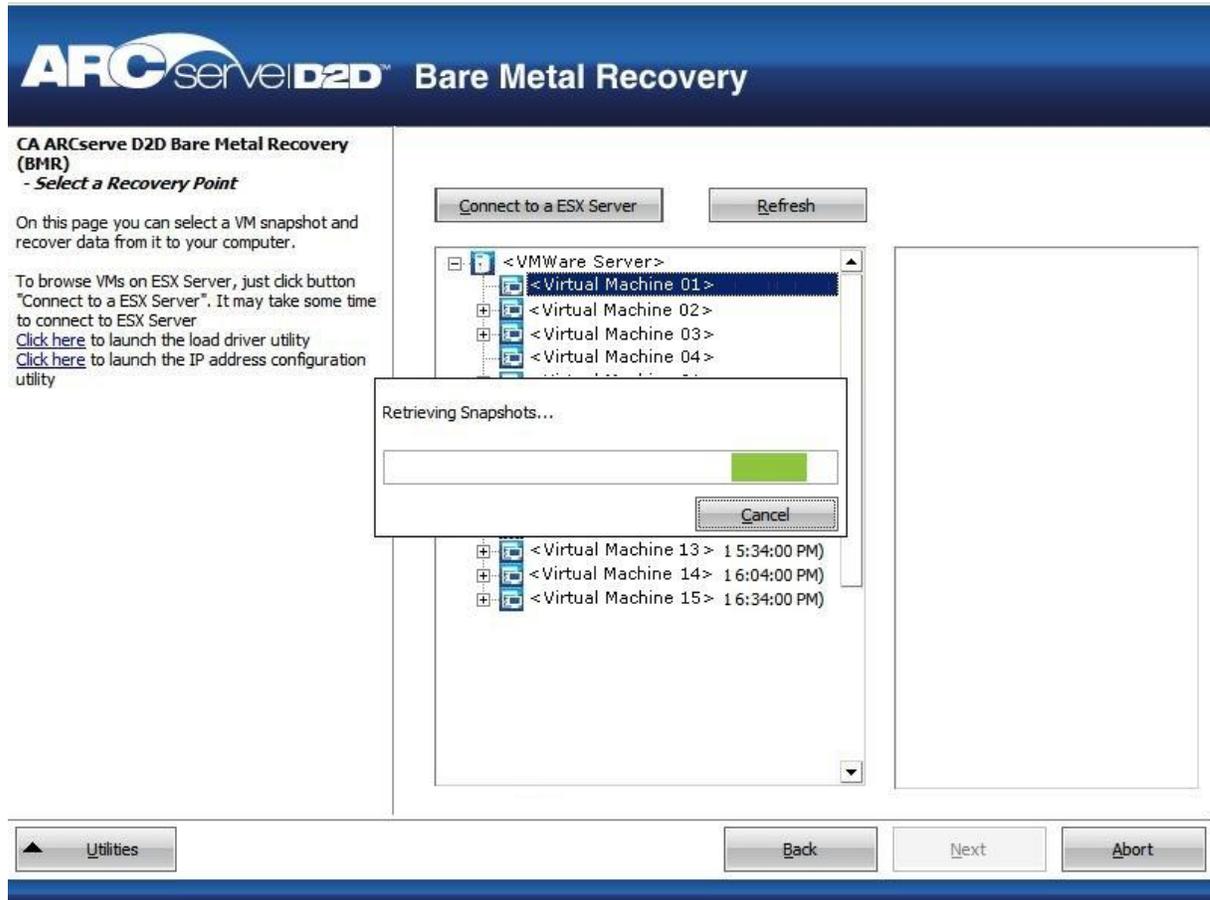
The Select a Recovery Point screen is displayed with the ESX/VC Credentials dialog.



3. Enter the credential information and click OK.

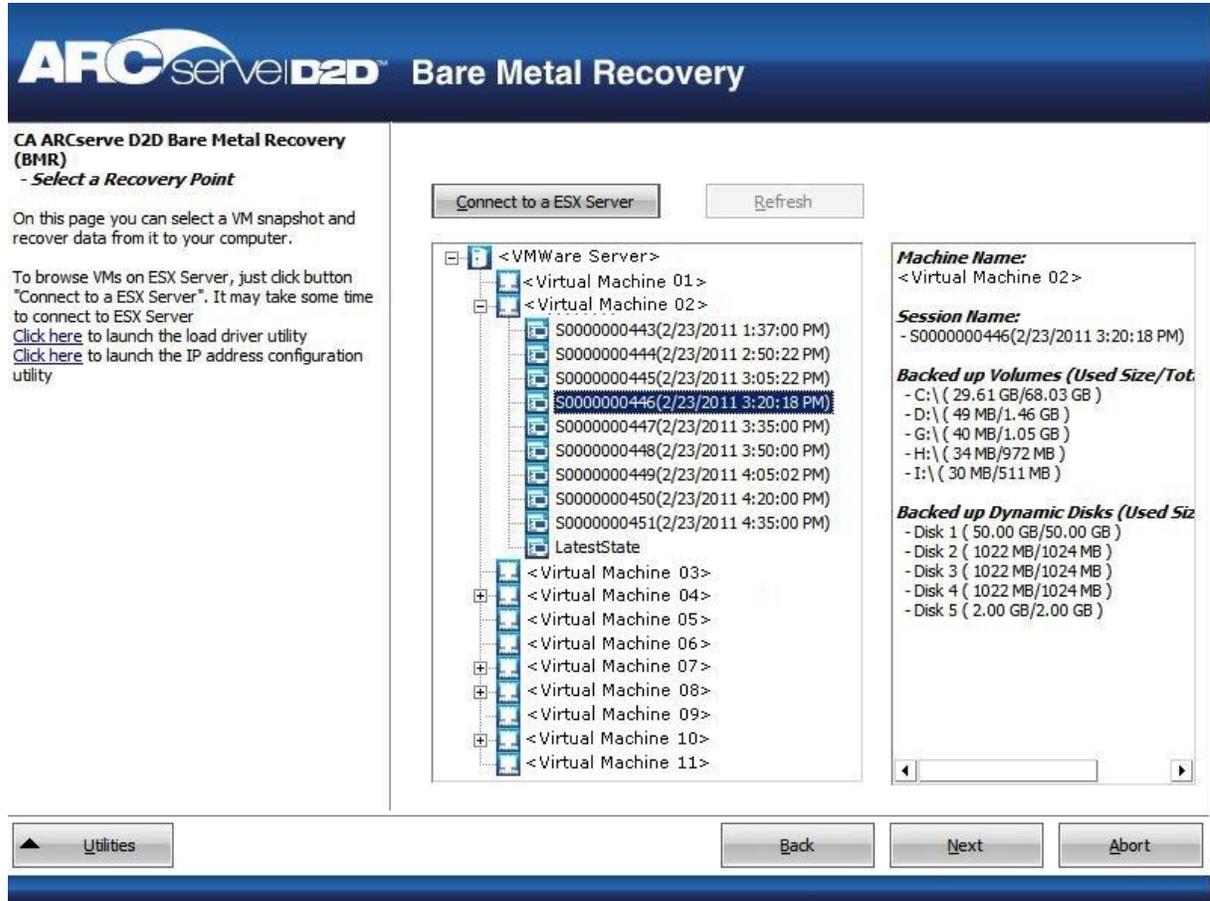
The Select a Recovery Point screen is displayed.

CA ARCserve D2D then retrieves all the recovery point snapshots for the selected VMware server and displays the VMware Server in the left pane, with a listing of all the virtual machines that are hosted on the selected VMware server.



4. Select the virtual machine which contains recovery points for your backup image.

The backup sessions (recovery point snapshots) for the selected virtual machine are displayed.



5. Select the virtual machine backup session (recovery point snapshots) that you want to recover.

The corresponding details for the selected recovery point snapshot (virtual machine name, backup session name, backed up volumes, backed up dynamic disks) are displayed in the right pane.

In addition to selecting one of the listed recovery points, you also have the option to select the "Current State" or the "Latest State" recovery point.

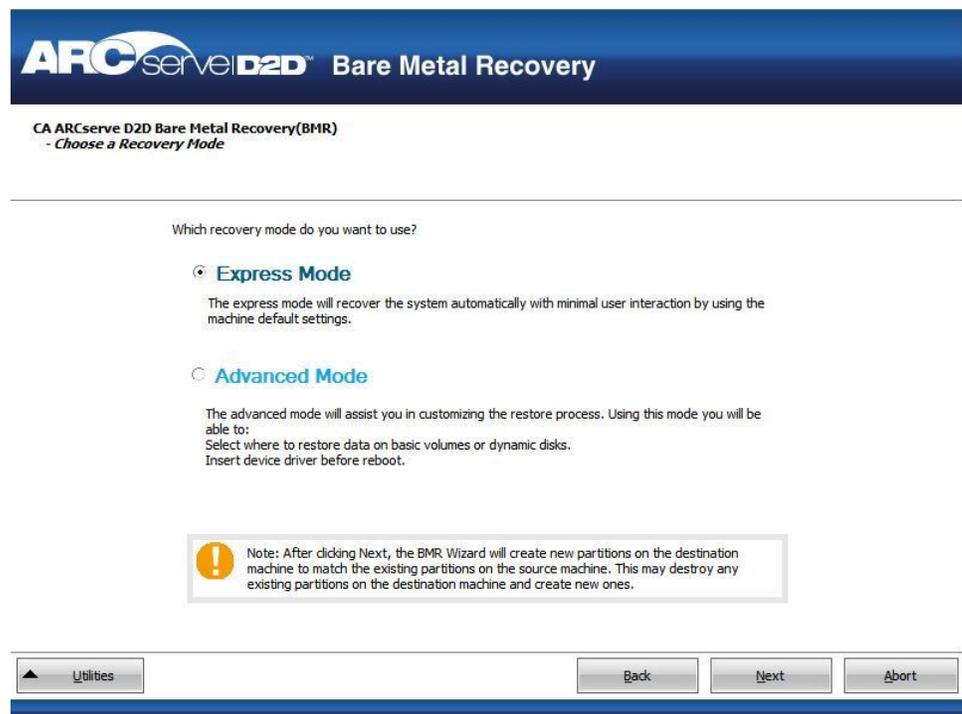
- If the virtual machine that you are recovering from is powered on, the "Current State" recovery point is displayed.
- If the virtual machine that you are recovering from is powered off, the "Latest State" recovery point is displayed.

If you select the "Latest State" recovery point, an error message will be displayed to inform you that the recovery point you are recovering from is the Latest (and not the Current) state and requesting that you start the virtual machine before continuing with the recovery process.

6. Verify this is the recovery point that you want to restore and click Next.

A BMR wizard screen is displayed with the available recovery mode options.

See Perform Bare Metal Recovery for the remaining steps of this procedure and continue at the corresponding step where the recovery mode is selected.



## Restore Microsoft Exchange Email Messages

Virtual Standby lets you restore Microsoft Exchange Data from CA ARCserve D2D recovery points. From the recovery points you can recover or restore mailboxes, mailbox folders, and individual email messages.

**Note:** To perform granular restores of Exchange server data, your account must have the required access permissions. For more information, see the *CA ARCserve D2D User Guide*.

### To restore Microsoft Exchange email messages

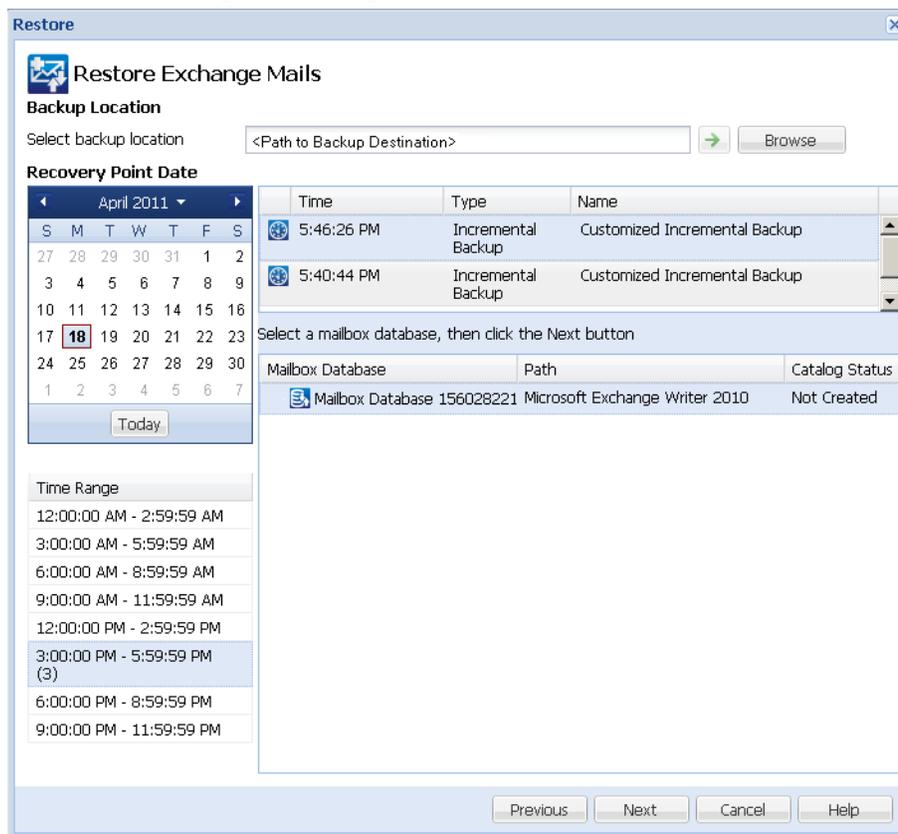
1. Log in to the application and click Node on the Navigation bar.

From the Node screen, expand the group containing the node that you want to restore.

Click the check box next to the node that you want to restore and then click Restore on the toolbar.

2. From the Restore dialog, click Restore Exchange Mails.

The Restore Exchange Mails dialog opens.



- Specify the backup location. You can either specify a location or browse to the location where your backup images are stored. If necessary, enter the User name and Password credentials to gain access to that location. You can click green arrow validate icon to verify proper access to the source location.

The calendar view will highlight (in green) all dates during the displayed time period that contain recovery points for that backup source.

- Select the calendar date for the backup image you want to restore.

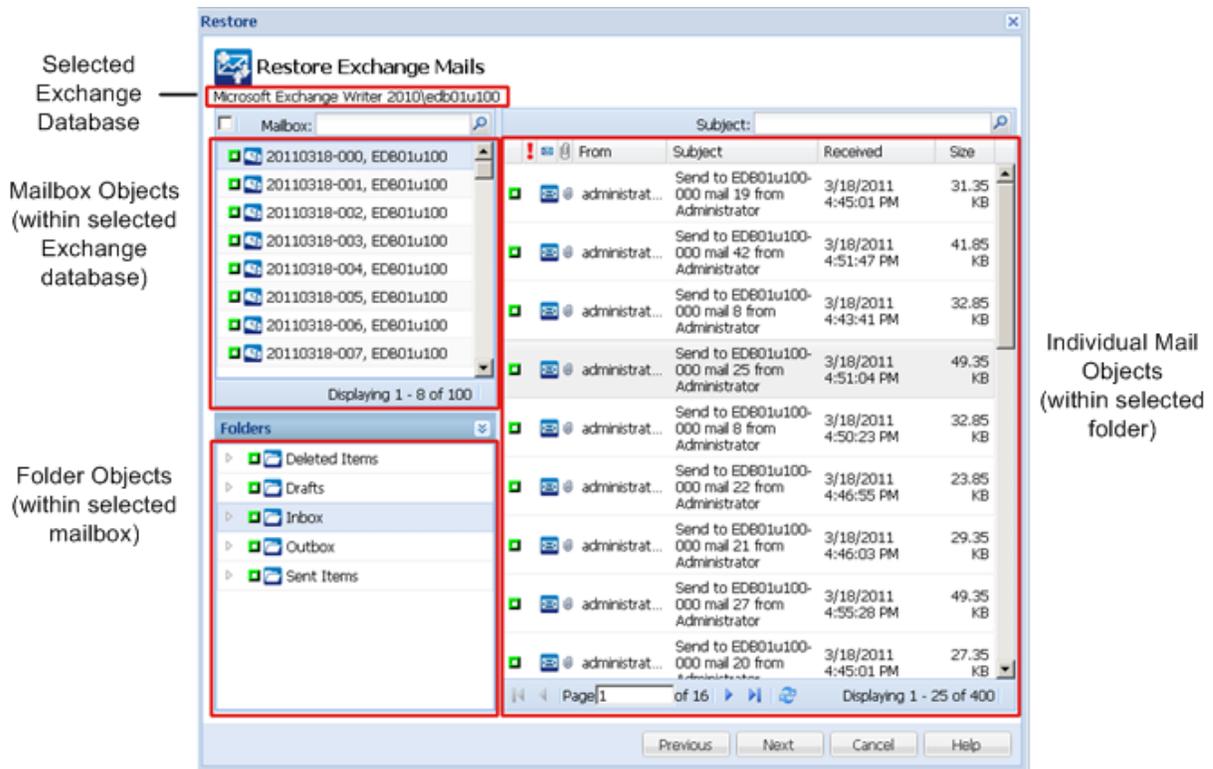
The corresponding Exchange mailbox databases for that date are displayed, along with the time of the backup, the type of backup that was performed, and the name of the backup.

- Select a Exchange mailbox database that you want to restore and click Next.

**Note:** If you did not enable the Exchange Granular Restore option during backup (no catalog generated), a notification message will be displayed asking you if you want to generate an Exchange Granular Restore catalog at this time. If you select No for generating a catalog now, you will not be able to browse to or select a granular recovery point. As a result you will only be able to perform full database restore from the Browse Recovery Points Restore dialog.

The Restore Exchange Mails dialog is updated to display a listing of the mailbox content for the selected database.

**Note:** Exchange Granular Restore supports email restores only. Calendar, Contacts, Notes and Tasks restores are not supported.



6. Select the level of Exchange object(s) to be restored (mailbox, folder, or individual mail).

You can select the entire content or partial content of the Exchange object to restore. You can select multiple Exchange objects to restore.

**Note:** CA ARCserve D2D does not support granular recovery of Exchange public folder objects. You need to use Application Restore to recover the entire public folder database and then extract the specific Exchange object you need.

**Note:** When using CA ARCserve D2D to restore individual mailbox/mail objects from the Exchange mailbox database, the operating system used for the restore must be same as used when it was backed up (including the same Windows Version number and Service Pack level and also the related version of the visual C++ redistributable package required to support it).

**Note:** During browse and restore of emails from the CA ARCserve D2D UI, the "From" field property of the message may not display in the UI for mailboxes which have never logged in to the exchange server. However, if this occurs the emails will still be correctly restored.

- a. You can select a mailbox database.

If you select a mailbox database, all of the mailboxes in that database will be restored.

- b. You can select the mailbox (or mailboxes) to be restored.

If you select a mailbox level, all corresponding content (folders and individual mail) within that mailbox will be restored.

- c. You can select a folder(s) within a selected mailbox to be restored.

If you select the mailbox folder level, all corresponding mail content within that folder will be restored.

- d. You can select the individual mail(s) to be restored.

If you select the individual mail level, only the selected mail object(s) will be restored.

**Note:** For Exchange 2003 only, if the individual mail to be restored was sent using any email client other than Outlook and the mail had some type of flag status marker attached to it when it was backed up, the mail itself will be restored, but the attached marker will not be included with the restored mail.

- When the Exchange objects to be restored are specified, click Next.

The screenshot shows a 'Restore' dialog box with the following content:

- Restore Options**
- Destination**  
Select the restore destination
- Restore to original location
  - User Name:
  - Password:
- Dump email items
- How should CA ARCserve D2D resolve duplicate mails
  - Rename
  - Overwrite
- Restore to alternate location
  - Enter the account, then click the Browse button to choose the destination.
  - User Name:
  - Password:
  - Destination:
- Notes:**  
For Exchange Server 2010 systems, the user name must be a domain account with Exchange Organization management role.
- Buttons: Previous, Next, Cancel, Help

- Select the destination for the restore.

The available options are to restore to the original location of the backup or restore to a different location.

**Note:** For Exchange 2010, archived mailbox items cannot be restored to the original location. Archived mailbox items can only be restored to an alternate location or to a local disk. In addition, regular mailbox items cannot be restored to archive mailboxes.

### Restore to Original Location

Restores the mails to the original location from where the backup image was captured. Mails will retain the same hierarchy and be restored to its original mailbox and original folder.

- If current machine is not the active Exchange server, CA ARCserve D2D will detect the location of the active server and then restore the mails to that active server.
- If mailbox has been moved to another Exchange server, but still in the same organization, CA ARCserve D2D will detect the new Exchange server where the original mailbox resides, and then restore to that new server.
- If the display name of the mailbox was changed, any attempt to restore the mailbox (from an earlier backup session) to its original location will fail because CA ARCserve D2D will not be able to find the changed name. To solve this problem, you can specify to restore this mailbox to an alternate location.

**Note:** When restoring a mailbox or mail to the original location, make sure the destination mailbox is available, or else the restore will fail. CA ARCserve D2D only validates the destination when the restore job is submitted.

### Dump File Only

Restores the mails to a disk. This disk location can be local or a remote machine. The restored mails will maintain the same hierarchy as they had in the corresponding Exchange Mailbox. The file name will become the subject of mail.

**Note:** If the mail subject, folder name, or mailbox name includes any of the following characters, the character will be replaced by hyphen (-) in file name: \ / : \* ? " < > |

For this option, you also need to specify what you want CA ARCserve D2D to do to resolve a conflict situation. In Exchange, you can have multiple mail objects with the same name under the same folder. However in a File System, two files with the same name cannot co-exist under the same folder.

There are two options to resolve this conflict situation:

- **Rename** - If on the disk, there is a file with the same name as the mail subject, CA ARCserve D2D will still name the mail subject, but will append a number at the end of the mail subject.
- **Overwrite** - If on the disk, there is a file with the same name as the mail subject, CA ARCserve D2D will overwrite that file.

**Note:** When you select individual mail objects to restore to the disk (dump), by default the format of the restored mail object will be an Outlook Message (.MSG) file and not a Personal Storage Table (.PST) file.

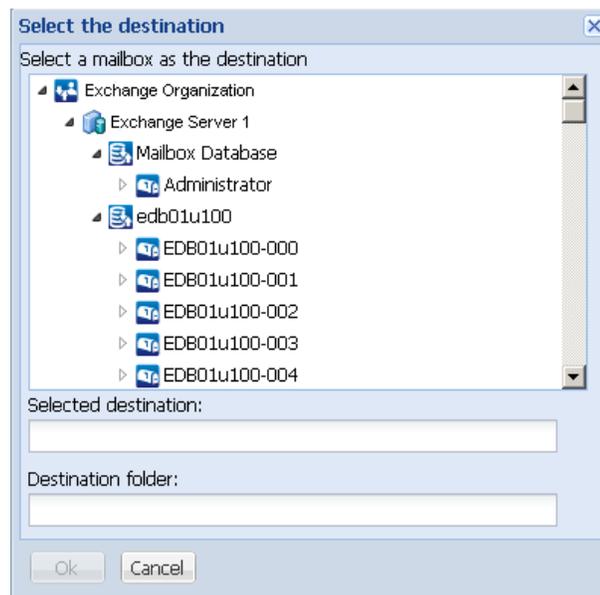
**Restore to Alternate Location:**

Restores the mails to a specified location or lets you browse to the location where your backup images will be restored. The destination must be a mailbox in the same Exchange organization, and a new folder name is required. (If you are attempting to restore mails to an alternate location, the destination cannot be a public folder).

**Note:** When restoring mail to an alternate location, if the specified destination folder already exists, the restore will continue. However, if the specified folder does not exist, then CA ARCserve D2D will create the folder first and then continue the restore.

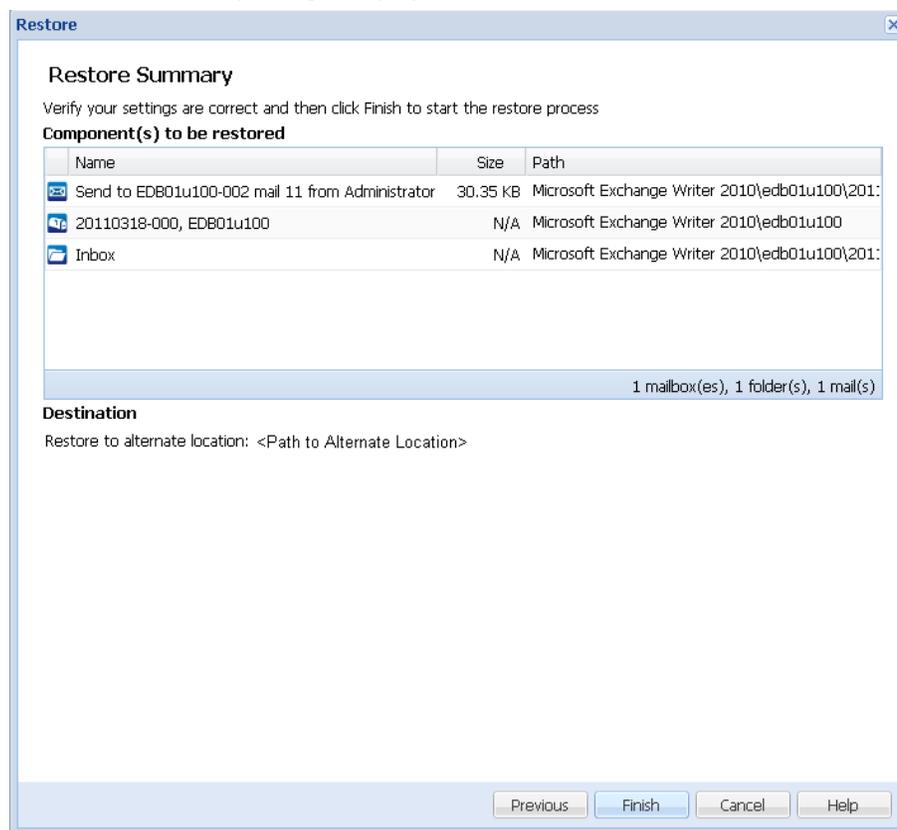
After inputting the User Name and Password, you can click the Browse button to navigate through a list of all Exchange Servers, Storage Groups, Exchange Databases, and Mailboxes in the current organization.

Select any mailbox as the destination.



- When the restore options are selected, click Next.

The Restore Summary dialog is displayed.



- Review the displayed information to verify that all the restore options and settings are correct.
  - If the summary information is not correct, click Previous and go back to the applicable dialog to change the incorrect setting.
  - If the summary information is correct, click Finish to launch the restore process.

**Note:** When the Catalog and Restore Job for Exchange Granular Restore is in progress, the backup session will be in a mounted state. Do not perform any operation (format, change drive letter, delete partition, etc.) on this mounted volume.

# Chapter 8: Troubleshooting CA ARCserve Central Virtual Standby

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This section provides troubleshooting information to help you identify and resolve problems that you can encounter when using CA ARCserve Central Virtual Standby.

This section contains the following topics:

- [Cannot Connect to Specified Server Messages Appear When Attempting to Add Nodes](#) (see page 164)
- [Blank Webpages Appear or Javascript Errors Occur](#) (see page 166)
- [How to Troubleshoot Page Loading Problems](#) (see page 168)
- [Web Pages Do Not Load Properly When Logging in to CA ARCserve D2D Nodes and Monitoring Servers](#) (see page 169)
- [Garbage Characters Appear in Browser Windows When Accessing CA ARCserve Central Applications](#) (see page 170)
- [CA ARCserve D2D Web Service Fails on CA ARCserve D2D Nodes](#) (see page 171)
- [The CA ARCserve D2D Web Service Runs Slowly](#) (see page 174)
- [CA ARCserve Central Virtual Standby Cannot Communicate with the CA ARCserve D2D Web Service on Remote Nodes](#) (see page 176)
- [Certificate Error Appears When You Log In to the Application](#) (see page 177)
- [Invalid Credentials Message Appears When Adding Nodes](#) (see page 178)
- [Invalid Credentials Messages on Windows XP](#) (see page 179)
- [Access Denied Errors Occur when Adding a Node by IP/Name](#) (see page 179)
- [Nodes Do Not Appear on the Node Screen After Changing the Name of the Node](#) (see page 181)
- [Operating System Not Found Errors Occur](#) (see page 181)
- [Virtual Standby Jobs to Hyper-V Systems Fail](#) (see page 182)
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## Cannot Connect to Specified Server Messages Appear When Attempting to Add Nodes

**Valid on Windows platforms.**

**Symptom:**

The following message appears when you try to add or connect to nodes from the Node screen.

Cannot connect to specified server.

**Solution:**

If the preceding message appears when you try to add nodes from the Node screen, the following corrective actions can help you solve the problem:

- Verify that the Windows Server service is running on the CA ARCserve Central Virtual Standby server and the source virtual machine (node).
- Verify that a Windows Firewall exception is applied to the Windows File and Printer Sharing service on the CA ARCserve Central Virtual Standby server and the source virtual machine (node).
- Verify that a Windows Firewall exception is applied to the Windows Netlogon service only if the node is not a member of a domain. Perform this task on the CA ARCserve Central Virtual Standby server and the source virtual machine (node).
- Verify that the value applied to the Sharing and Security model for local account is Classic. To apply the Classic value, do the following:

**Note:** Perform the following steps on the CA ARCserve Central Virtual Standby server and the source virtual machine (node).

1. Log in to the CA ARCserve Central Virtual Standby server and open Control Panel.
2. From the Control Panel, open Administrative Tools.
3. Double-click Local Security Policy.

The Local Security Policy window opens.

4. From the Local Security Policy window, expand Local Policies and expand Security Options.

The Security Policies appear.

5. Right-click Network access: Sharing and security model for local accounts and click Properties on the pop-up menu.

The Network access: Sharing and security model for local accounts properties dialog opens.

6. Click Local Security Setting.

From the drop-down list, select Classic - local users authenticate as themselves.

Click OK.

- Verify that the value applied to the Local Policies for the LAN manager authentication level is set to send LM & NTLMv2 – use NTLMv2 session security if negotiated. To apply the value, do the following:

1. Log in to the CA ARCserve Central Virtual Standby server and open the command prompt.

Execute the following command

```
secpol.msc
```

The Local Security Settings dialog opens.

2. Select local policies and click security options.

Search for Network security: LAN manager authentication level.

Double-click the option.

The Properties dialog opens

3. Select the following option and click OK.

send LM & NTLMv2 – use NTLMv2 session security if negotiated

4. From the command prompt, execute the following command:

```
gpupdate
```

The value is applied.

## Blank Webpages Appear or Javascript Errors Occur

**Valid on Windows Server 2008 and Windows Server 2003 operating systems.**

**Symptom:**

When you open CA ARCserve Central Applications websites using Internet Explorer, blank web pages appear or Javascript errors occur. The problem occurs when opening Internet Explorer on Windows Server 2008 and Windows Server 2003 operating systems.

This problem occurs under the following conditions:

- You are using Internet Explorer 8 or Internet Explorer 9 to view your application, and the browser does not recognize the URL as a trusted site.
- You are using Internet Explorer 9 to view your application, and the communication protocol in use is HTTPS.

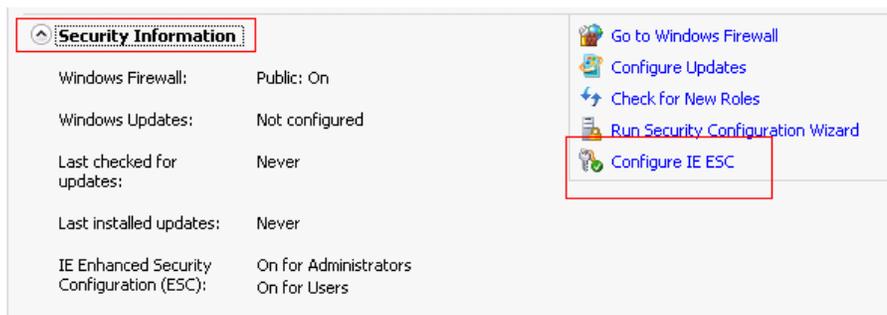
**Solution:**

To correct this problem, disable Internet Explorer Enhanced Security on the computers that you use to view your application.

**To disable Internet Explorer Enhanced Security on Windows Server 2008 systems, do the following:**

1. Log on to the Windows Server 2008 computer that you use to view reports using the Administrator account or an account that has administrative privileges.
2. Right-click Computer on the desktop and click Manage to open the Server Manager window.
3. From the Server Manager window, click Server Manager (Server Name).

From the Server Summary section, open Security Information and click Configure IE ESC as illustrated by the following:



The Internet Explorer Enhanced Security Configuration dialog opens.

4. On the Internet Explorer Enhanced Security Configuration dialog, do the following:
  - Administrators--Click Off
  - Users--Click Off.

Click OK.

The Internet Explorer Enhanced Security Configuration dialog closes and Internet Explorer Enhanced Security is disabled.

**To disable Internet Explorer Enhanced Security on Windows Server 2003 systems, do the following:**

1. Log on to the Windows Server 2003 computer that you use to view reports using the Administrator account or an account that has administrative privileges.
2. Open Windows Control Panel and then open Add or Remove Programs.
3. From the Add or Remove Programs dialog, click the Add/Remove Windows Components option to access the Windows Components Wizard screen.

Clear the checkmark next to Internet Explorer Enhanced Security Configuration.

Click Next.

Follow the on-screen instructions to complete the configuration and then click Finish.

Internet Explorer Enhanced Security is disabled.

## How to Troubleshoot Page Loading Problems

**Valid on Windows platforms.**

**Symptom:**

The following error messages appear in browser windows when you log in to CA ARCserve Central Applications, CA ARCserve D2D nodes, and monitoring servers.

**Message 1:**

Errors on this webpage might cause it to work incorrectly.

**Message 2:**

!

**Solution:**

Web pages do not load properly for many reasons. The following table describes common reasons and the corresponding corrective actions:

Reason	Corrective Action
There are problems with the underlying HTML source code.	Refresh the webpage and try again.
Your network blocks Active scripting, ActiveX, or Java programs.	Allow your browser to use Active scripting, ActiveX, or Java programs.
Your antivirus application is configured to scan temporary Internet files and downloaded programs.	Filter your antivirus application to allow Internet-related files associated with CA ARCserve Central Applications webpages.
The scripting engine installed on your computer is corrupt or outdated.	Update the scripting engine.
The video card drivers installed on your computer are corrupt or outdated.	Update the video card drivers.
The DirectX component installed on your computer is corrupt or outdated.	Update the DirectX component.

## Web Pages Do Not Load Properly When Logging in to CA ARCserve D2D Nodes and Monitoring Servers

### **Valid on Windows platforms.**

#### **Symptom:**

Web pages in browser windows do not load properly, display error messages, or both when logging in to CA ARCserve D2D nodes and Monitoring Servers from the Nodes screen.

#### **Solution:**

This behavior affects mainly Internet Explorer browsers. Web pages may not load properly when Active scripting, ActiveX controls, or Java programs are disabled on your computer or blocked on your network.

You can correct the problem by refreshing your browser window. However, if refreshing your browser window does not correct the problem, do the following:

1. Open Internet Explorer.  
From the Tool menu, click Internet Options.  
The Internet Options dialog opens.
2. Click the Security tab.  
The Security options display.
3. Click Internet zone.  
The Internet Zone options display.
4. Click Custom Level.  
The Security Settings - Internet Zone dialog opens.
5. Scroll to the Scripting category.  
Locate Active scripting.  
Click the Enable or Prompt option.
6. Click OK on the Security Settings - Internet Zone dialog.  
The Security Settings - Internet Zone dialog closes.
7. Click OK on the Internet Options dialog.  
The Internet Options dialog closes and the Active scripting option is applied.

**Note:** If this solution does not correct the problem, consult your systems administrator to verify that other programs, such as antivirus or firewall programs, are not blocking Active scripting, ActiveX controls, or Java programs.

## Garbage Characters Appear in Browser Windows When Accessing CA ARCserve Central Applications

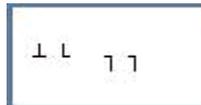
**Valid on all Windows operating systems. All browsers affected.**

**Symptom:**

When you log in to CA ARCserve Central Applications, garbage characters appear in the content area of your browser window.

**Solution:**

This problem occurs when you install CA ARCserve Central Applications using HTTPS communication and then try to access CA ARCserve Central Applications using HTTP communication. The underlying CA ARCserve Central Applications web services component does not support the capability to convert HTTP URLs to HTTPS URLs. As a result, garbage characters appear in your browser window. For example:



To correct this problem, access CA ARCserve Central Applications using HTTPS when you install or configure the applications to communicate using HTTPS.

## CA ARCserve D2D Web Service Fails on CA ARCserve D2D Nodes

### Valid on Windows platforms.

### Symptom:

The web service running on CA ARCserve D2D nodes starts and fails or cannot start.

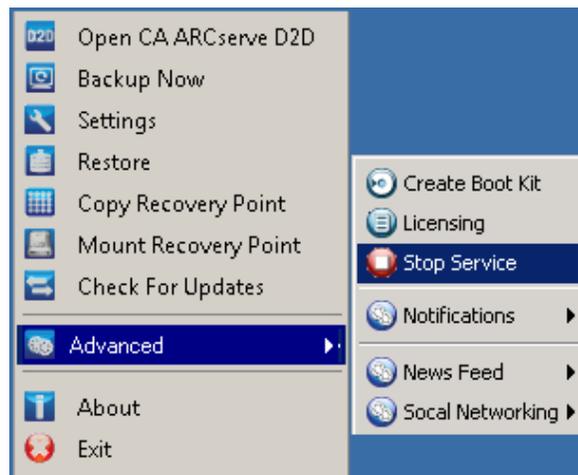
### Solution:

This problem occurs when the port used by the CA ARCserve D2D web service is the same as the port used by the VMware vCenter web service (Tomcat).

The port that CA ARCserve D2D uses can conflict with the default port that Tomcat uses. This conflict causes Tomcat to fail when CA ARCserve D2D is started before it. To remedy this problem, you can change the Tomcat default port as follows:

1. Access the CA ARCserve D2D Monitor, click the Advanced option, and select Stop Service.

The CA ARCserve D2D Web Service is stopped.

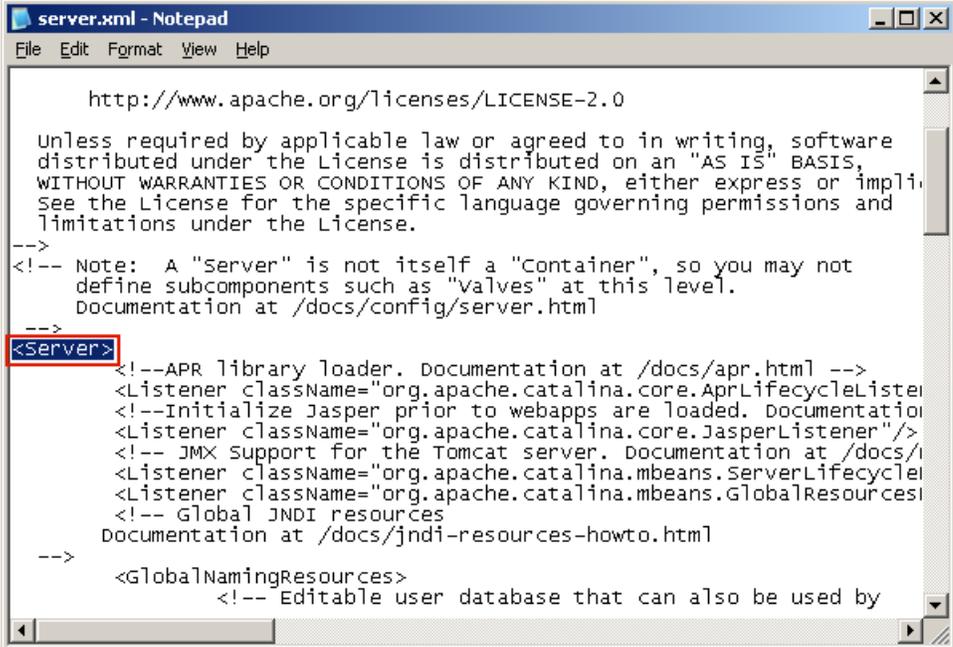


2. Access the Tomcat server.xml file to edit/configure the behavior of Tomcat.

The Tomcat server.xml file is located in the following folder structure:

C:\Program Files\CA\ARCserve Central Applications\TOMCAT\conf

3. Locate the <Server> tag inside the server.xml file.



```
server.xml - Notepad
File Edit Format View Help

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distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or impli.
See the License for the specific language governing permissions and
limitations under the License.
-->
<!-- Note: A "Server" is not itself a "Container", so you may not
define subcomponents such as "Valves" at this level.
Documentation at /docs/config/server.html
-->
<Server>
<!--APR library loader. Documentation at /docs/apr.html -->
<Listener className="org.apache.catalina.core.AprLifecycleLister
<!--Initialize Jasper prior to webapps are loaded. Documentation
<Listener className="org.apache.catalina.core.JasperListener"/>
<!-- JMX Support for the Tomcat server. Documentation at /docs/
<Listener className="org.apache.catalina.mbeans.ServerLifecycleI
<Listener className="org.apache.catalina.mbeans.GlobalResourcesI
<!-- Global JNDI resources
Documentation at /docs/jndi-resources-howto.html
-->
<GlobalNamingResources>
<!-- Editable user database that can also be used by
```

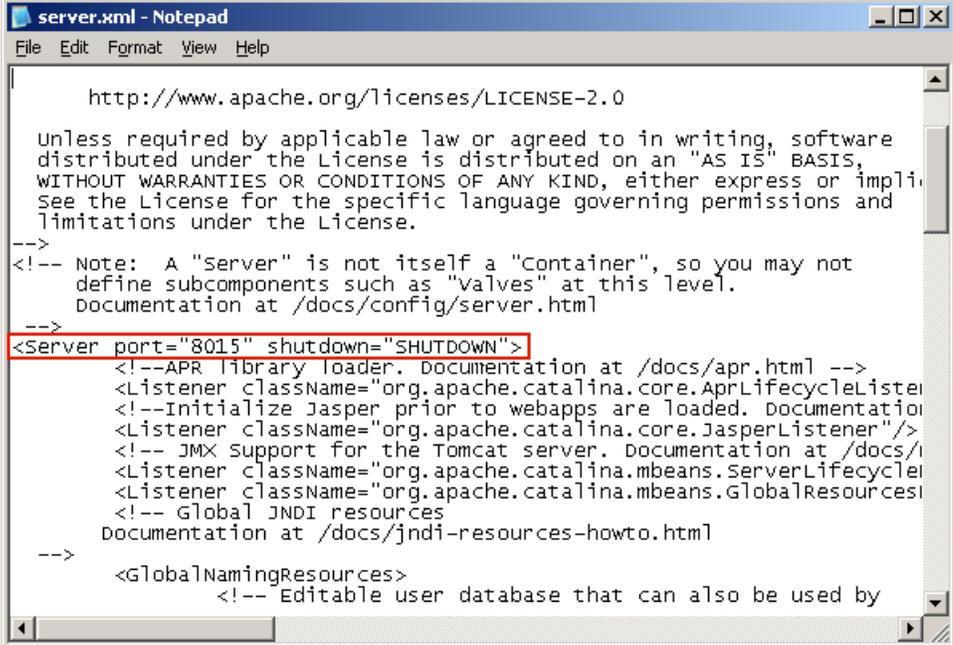
4. Edit the <Server> tag as follows:

**From:**

```
<Server>
```

**To:**

```
<Server port="8015" shutdown="SHUTDOWN">
```



```
server.xml - Notepad
File Edit Format View Help

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distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or impli
See the License for the specific language governing permissions and
limitations under the License.
-->
<!-- Note: A "Server" is not itself a "Container", so you may not
define subcomponents such as "Valves" at this level.
Documentation at /docs/config/server.html
-->
<Server port="8015" shutdown="SHUTDOWN">
  <!-- APR library loader. Documentation at /docs/apr.html -->
  <Listener className="org.apache.catalina.core.AprLifecycleLister
  <!-- Initialize Jasper prior to webapps are loaded. Documentatio
  <Listener className="org.apache.catalina.core.JasperListener"/>
  <!-- JMX Support for the Tomcat server. Documentation at /docs/
  <Listener className="org.apache.catalina.mbeans.ServerLifecycle
  <Listener className="org.apache.catalina.mbeans.GlobalResource
  <!-- Global JNDI resources
  Documentation at /docs/jndi-resources-howto.html
  -->
  <GlobalNamingResources>
    <!-- Editable user database that can also be used by
```

5. Save and close the server.xml file.

The command to shut down Tomcat has now been configured so that it must be received by the server on the named port (8015).

6. Access the CA ARCserve D2D Monitor, click the Advanced option, and select Start Service.

The CA ARCserve D2D Web Service is started.

## The CA ARCserve D2D Web Service Runs Slowly

### Valid on Windows operating systems.

#### Symptom 1:

The CA ARCserve D2D web service on CA ARCserve D2D systems runs slowly. You can detect other symptoms such as:

- The CA ARCserve D2D web service stops responding or occupies 100 percent of the CPU resources.
- CA ARCserve D2D nodes perform poorly or cannot communicate with the web service.

#### Solution 1:

In various environmental configurations, you can discover that the CA ARCserve D2D web service occupies too much CPU time, or the response is slow. By default, Tomcat is configured to allocate a limited amount of memory to the nodes, which may not be suitable for your environment. To verify this problem, review the following log files:

```
<D2D_home>\TOMCAT\logs\casad2websvc-stdout.*.log  
<D2D_home>\TOMCAT\logs\casad2websvc-stderr.*.log  
<D2D_home>\TOMCAT\logs\catalina.*.log  
<D2D_home>\TOMCAT\logs\localhost.*.log
```

Search for the following message:

```
java.lang.OutOfMemoryError
```

To correct this problem, increase the amount of allocated memory.

#### To increase the memory, do the following:

1. Open Registry Editor and access the following key:

- x86 Operating Systems:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Procrun  
2.0\CASAD2WebSvc\Parameters\Java
```

- x64 Operating Systems:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Apache Software Foundation\Procrun  
2.0\CASAD2WebSvc\Parameters\Java
```

2. Do one of the following:
  - If the message in the log file is the following:  
java.lang.OutOfMemoryError: PermGen space  
Append the following to the value of Options.  
-XX:PermSize=128M -XX:MaxPermSize=128M  
**Note:** You may need to increase the value of -XX:MaxPermSize to suit your environment.
  - If the message in the log file is one of the following:  
java.lang.OutOfMemoryError: Java heap space  
java.lang.OutOfMemoryError: GC overhead limit exceeded  
Increase the value of the following DWORD:  
JvmMx
3. Restart the CA ARCserve D2D web service.

### Symptom 2

Scheduled backups are skipped and stop running.

### Solution 2

When you configure the MAX value as 20 or less than 20 for concurrent backups, do the following:

1. Increase the value of the following DWORD:  
JvmMx=256  
**Note:** This DWORD is referenced in Solution 1.
2. Append the following to the value of Options.  
-XX:MaxPermSize=128M  
**Note:** This DWORD is referenced in Solution 1.

When you configure the MAX value as more than 20 but less than 50 for concurrent backups, do the following:

1. Increase the value of the following DWORD:  
JvmMx=512  
**Note:** This DWORD is referenced in Solution 1.
2. Append the following to the value of Options.  
-XX:MaxPermSize=256M  
**Note:** This DWORD is referenced in Solution 1.

## CA ARCserve Central Virtual Standby Cannot Communicate with the CA ARCserve D2D Web Service on Remote Nodes

**Valid on Windows operating systems.**

**Symptom:**

CA ARCserve Central Virtual Standby cannot communicate with the CA ARCserve D2D web service on remote nodes.

**Solution:**

The following table describes reasons why CA ARCserve Central Virtual Standby cannot communicate with the CA ARCserve D2D web service on remote nodes and the corresponding corrective action:

<b>Cause</b>	<b>Corrective Action</b>
The network was not available or not stable when applying policies.	Verify that the network is available and stable and then try again.
The CA ARCserve D2D computer could not handle the load when the application tried to communicate with the node.	Verify that the CPU on the remote CA ARCserve D2D node is in a normal state and then try again.
The CA ARCserve D2D service on the remote node was not running when applying policies.	Verify that the CA ARCserve D2D on the remote node is running and then try again.
The CA ARCserve D2D service was not communicating properly.	Restart the CA ARCserve D2D service on the remote node and then try again.

## Certificate Error Appears When You Log In to the Application

### **Valid on Windows platforms.**

#### **Symptom:**

The following message appears in your browser window when you log in to the application:

- Internet Explorer:  
There is a problem with this website's security certificate.
- Firefox:  
This connection is untrusted.
- Chrome:  
This site's security certificate is not trusted!

If you specify an option that lets you continue to the website, you can log in to the application successfully. However, you encounter this behavior every time you log in to the application.

#### **Solution:**

This behavior occurs when you specify to use HTTPS as the communication protocol. To correct this problem temporarily, click the link in your browser window that lets you continue to the website. However, the next time that you log in to the application, you will encounter the message again.

HTTPS communication protocol provides a higher level of security than HTTP communication protocol. If you want to continue to communicate using HTTPS communication protocol, you can purchase a security certificate from VeriSign and then install the certificate on the application server. Optionally, you can change the communication protocol used by the application to HTTP. To change the communication protocol to HTTP, do the following:

1. Log in to the server where you installed the application.
2. Browse to the following directory:  
C:\Program Files\CA\ARCserve Central Applications\BIN
3. Execute the following batch file:  
ChangeToHttp.bat
4. After the batch file executes, open Windows Server Manager.  
Restart the following service:  
CA ARCserve Central Applications Service

## Invalid Credentials Message Appears When Adding Nodes

**Valid on Widows platforms.**

**Symptom:**

The following message appears when you try to add nodes to the Nodes screen:

Invalid credentials.

**Solution:**

This problem occurs under the following scenarios:

- The credentials specified on the Add Nodes dialog are incorrect.
- The time on the node is not the same as the time on the application server.

To correct this problem, do the following:

1. Log in to the application server and then log in to the application.

2. From the home page, select Node on the Navigation bar.

The Node screen displays.

3. From the Node toolbar, click Add, and then click Add Node by IP/Name on the pop-up menu.

The Add Node by IP/Name dialog opens.

4. Complete the following fields on the Add Node by IP/Name dialog:

- **IP/Node Name**--Lets you specify the IP address or the name of the node.
- **Description**--Lets you specify a description for the node.
- **User Name**--Lets you specify the user name that is required to log in to the node.
- **Password**--Lets you specify the password that is required to log in to the node.

Click Validate.

5. If the message Invalid credentials appears, do the following:

a. Verify that you specified the correct credentials on the Add Nodes dialog and then click Validate.

b. If the message Invalid credentials appears, verify that the operating system time on the application server is the same as the operating system time on the node.

**Note:** The operating system times can reside in different time zones. However, the operating system times cannot be different dates. Specifically, verify that the operating system date on the node is no more than one calendar day plus or minus the operating system date on the application server.

## Invalid Credentials Messages on Windows XP

**Valid on computers running Windows XP operating systems.**

**Symptom:**

When you add Windows XP-based nodes from the Node screen, the following message appears:

Invalid user credentials.

**Solution:**

Under various conditions, CA ARCserve Central Virtual Standby cannot add Windows XP-based nodes that have the Windows, Use simple file sharing, Folder Option specified. To correct this problem, do the following:

1. Log in to the Windows XP node and open Windows Explorer.
2. From the Tools menu, click Folder Options.  
The Folder Options dialog opens.
3. Click View and scroll to Use simple file sharing (Recommended).
4. Clear the checkmark next to Use simple file sharing (Recommended) and click OK.  
Simple file sharing is disabled.
5. Log in to the CA ARCserve Central Virtual Standby server and then add the node.

## Access Denied Errors Occur when Adding a Node by IP/Name

**Valid on all Windows operating systems that support User Account Control (UAC).**

**Note:** Windows Vista or later versions.

**Symptom:**

When you add nodes from the Add node by IP/Name dialog using a new Windows user account that is not a built-in administrator or domain user account and is a member of the administrators group, the following message displays:

Access is denied. Verify user has administrator privilege and the remote registry access is not restricted by local security policy of the added machine.

The result is that you cannot add the node.

**Solution:**

You can expect this behavior when UAC is enabled on computers running a Windows operating system that supports UAC. UAC is a Windows feature that allows only the Administrator account to log in to the computer from a remote location.

Use one of the following methods to resolve this issue:

**Disable Remote UAC:**

1. Click Start, type regedit in the Search programs and files field, and then press Enter, which opens Windows Registry Editor.

**Note:** You may need to provide administrative credentials to open Windows Registry Editor.

2. Locate and click the following registry key:  
HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System
3. From the Edit menu, click New and then click DWORD (32-bit) Value.
4. Specify LocalAccountTokenFilterPolicy as the name for the new entry and then press Enter.
5. Right-click LocalAccountTokenFilterPolicy and then click Modify.
6. Specify 1 in the Value data field and then click OK.
7. Exit the Registry Editor.

**Disable UAC:**

1. Log in to the node using the Administrator account.
2. Open Windows Control Panel.
3. Open User Accounts.
4. From the Make changes to your user account screen, click Change User Account Control Settings and then do one of the following:
  - **Windows Vista and Windows Server 2008:** On the Make changes to you user account screen, click Turn User Account Control on or off. Then on the Turn on User Account Control (UAC) to make your computer more secure screen, clear the check box next to Use User Account Control (UAC) to help protect your computer, and click OK.  
  
Restart your computer to apply the changes to UAC.
  - **Windows Server 2008 r2 and Windows 7:** On the Choose when to be notified about changes to your computer screen, move the slider from Always notify to Never notify. Click OK, close Windows Control Panel.

Restart your computer to apply the changes to UAC.

## Nodes Do Not Appear on the Node Screen After Changing the Name of the Node

**Valid on Windows platforms.**

**Symptom:**

The host name of the node was changed after it was added to the Node screen. The node no longer appears on the Node screen.

**Solution:**

This behavior is expected. CA ARCserve Central Virtual Standby retains the name of the node as it was added from the node screen. When you rename the node, Virtual Standby cannot detect the node. As such, the node does not appear on the node screen.

To display renamed nodes on the node screen, do the following:

1. Rename the node.
2. Open the Node screen and [delete the node](#) (see page 64) that was renamed.
3. [Add the node](#) (see page 33) using its new name.

## Operating System Not Found Errors Occur

**Valid on Windows platforms.**

**Symptom:**

The following message appears when the power on Virtual Standby virtual machine operation fails:

Operating System Not Found.

**Solution:**

The above behavior can occur on virtual machines that contain SCSI and IDE devices. If this problem occurs, examine how disks are configured on your virtual machine and verify that the boot sequence of the recovered virtual machine is the same as the source virtual machine. If the boot sequence is different, update the BIOS on the recovered virtual machine to match that of the source.

**Note:** Use (0:1) to represent the first IDE disk.

## Virtual Standby Jobs to Hyper-V Systems Fail

**Valid on Windows operating systems.**

**Symptom:**

Virtual Standby jobs fail to Hyper-V systems. The following message appears in the Activity Log:

Virtual Standby job failed to get the Hyper-V VM.

**Solution:**

Virtual Standby jobs fail under the following conditions:

- The Virtual Standby web service is unable to retrieve information about the virtual machine from the Hyper-V system. Communication problems between the CA ARCserve Central Virtual Standby server and the Hyper-V system occur when the required Hyper-V services are not running on the Hyper-V system.

**Solution:** Verify that all of the required Hyper-V services are running on the Hyper-V system.

- The Hyper-V system does not contain a sufficient amount of free disk space that is required to create the Virtual Standby virtual machine or to create a snapshot of the Virtual Standby virtual machine.

**Solution:** Consider reconfiguring the Hyper-V system to allow more free disk space in the system volume.

**Note:** If you discover other possible causes, contact CA Support.

## Virtual Standby Jobs Fail Due to Internal Errors

**Valid on Windows operating systems.**

**Symptom 1:**

Virtual standby jobs fail. One of the following messages appears in the Activity Log:

Failed to convert virtual disk  
An internal error occurred, contact technical support

In addition, VDDK reports the following error message:

Unknown Error.

**Solution 1:**

To correct this problem, consider the following solutions:

- Conversion operations can fail when there is not enough free disk space on the data store that is specified in the Virtual Standby policy. VDDK returns the message because the VDDK API (currently) does not support the capability to detect the amount of free disk space on the data store. To correct this problem, free the amount of disk space on the original data store that is required to complete the operation and then resubmit the job.
- Network disturbance and high network traffic can cause the conversion operations to fail. To correct this problem, verify that source node and the ESX Server system or the vCenter Server system can communicate with each other through the network, and then resubmit the job.
- Multiple concurrent connections consisting of backup or recover VM jobs to the ESX Server system or the vCenter Server system, which includes vSphere SDK connections through the VMware vSphere Client, can cause the jobs to fail. To correct this problem, close all unnecessary connections and then resubmit the job.

This problem is the result of a VMware VDDK connection limitation. The following Network File Copy (NFC) protocol limits apply:

- ESX 4: 9 direct connections, maximum
- ESX 4 through vCenter Server: 27 connections, maximum
- ESXi 4: 11 direct connections, maximum
- ESXi 4 through vCenter Server: 23 connections, maximum
- ESXi 5: Limited by a transfer buffer for all NFC connections and enforced by the host; the sum of all NFC connection buffers to an ESXi host cannot exceed 32MB. 52 connections through vCenter Server which includes the per-host limit.

**Note:** Connections cannot be shared across disks. The maximum limits do not apply to SAN or hotadd connections. If the NFC client fails to shut down properly, connections can remain open for ten minutes.

- Examine the Tasks and Events sections of the VMware vSphere Client log to discover internal errors for the specific virtual machine. Correct the internal errors and then resubmit the job.

**Example:** Another application or operation is using the VMDK file. To correct this problem, release the file and then resubmit the job.

**Symptom 2:**

Virtual standby jobs fail. One of the following messages appears in the Activity Log:

```
Failed to convert virtual disk
An internal error occurred, contact technical support
```

In addition, VDDK reports the following error message:

```
Open vmdk failed with error File not found.
```

**Solution 2:**

This problem can occur under the following conditions:

- VDDK did not process a snapshot properly.
- VDDK did not delete a snapshot manually or internal to the virtual machine.

To correct this problem, resubmit the job. If the job fails again, delete the recovered virtual machine and resubmit the job.

**Symptom 3:**

Virtual standby jobs fail. One of the following messages appears in the Activity Log:

```
Failed to convert virtual disk
An internal error occurred, contact technical support
```

In addition, VDDK reports the following error message:

```
Open vmdk failed or "The server refused connection" error message
```

**Solution 3:**

This problem is the result of a VMware VDDK connection limitation. The following Network File Copy (NFC) protocol limits apply:

- ESX 4: 9 direct connections, maximum
- ESX 4 through vCenter Server: 27 connections, maximum
- ESXi 4: 11 direct connections, maximum
- ESXi 4 through vCenter Server: 23 connections, maximum

**Note:** Connections cannot be shared across disks. The maximum limits do not apply to SAN or hotadd connections. If the NFC client fails to shut down properly, connections can remain open for ten minutes.

## Virtual Standby Jobs Fail Using the hotadd Transport Mode

### **Valid on Windows platforms.**

#### **Symptom:**

Recovery operations fail when recovering data using the hotadd transport mode. The following message appears in the Activity Log:

An unknown error has occurred. Contact technical support.

In addition, VDDK reports the following error message:

Unknown Error.

#### **Solution:**

Recovery operations fail using the hotadd transport mode when the disk settings are not configured properly.

#### **To configure the disk, do the following:**

1. Log in to the backup proxy system using an account with administrative privileges.  
Open Windows Command Line.
2. From the command line, type the following command  
`diskpart`  
Press Enter.  
Type SAN and then press Enter.  
The current SAN policy displays.
3. Type the following command:  
`SAN POLICY = OnlineAll`  
Press Enter.  
The SAN policy is configured as do not automatically mount SAN hosted volumes.

4. To clear the read only attribute of the specific SAN disk, select the disk from the disk list and type the following command:

```
attribute disk clear readonly
```

Press Enter

5. Type exit and then press Enter.

The disk is configured and you can resubmit the job. If the job fails again, mount the hotadd disks manually using disk management on the proxy system.

**To mount the disks manually, do the following:**

1. Log in to the backup proxy system using an account with administrative privileges.

Open Windows Control Panel and double-click Administrative Tools.

The Administrative Tools window opens.

2. From the Favorites list, double-click Computer Management.

The Computer Management opens.

3. Expand Storage and click Disk Management.

The disks display.

4. Right-click the disk that you want to mount and click Online.

The disk is mounted and you can resubmit the job.

## Virtual Standby Jobs End with No Sessions Warning Messages

**Valid on Windows platforms.**

**Symptom:**

The Virtual Standby jobs end and one of the following messages appear in the Activity Log:

```
Virtual Standby job ends with no session(s).
```

```
Virtual Standby was unable to detect backup sessions on the CA ARCserve D2D server to create recovery point snapshots. There may be no backup sessions on the CA ARCserve D2D server that can be converted.
```

**Solution:**

You will encounter problems of this type under the following conditions:

- You used CA ARCserve Central Protection Manager to apply the CA ARCserve D2D backup policy to the node and one of the following.
  - The CA ARCserve D2D backup source settings were changed from the Select individual volumes to back up option to the Back up the entire machine option, and a full backup was not submitted or did not complete using the updated backup settings after Virtual Standby policy was deployed to the node.

**Solution:** Submit a full backup of the CA ARCserve D2D node.

- The CA ARCserve D2D backup source settings were changed from the Back up the entire machine option to the Select individual volumes to back up option after the Virtual Standby policy was deployed to the node.

**Solution:** Change the CA ARCserve D2D backup source settings from the Select individual volumes to back up option to the Back up the entire machine option, and then submit a full backup of the CA ARCserve D2D node.

## Backup and Recovery Jobs Do Not Use the SAN Transport Mode

**Valid on Windows platforms.**

**Symptom:**

Backup and recovery jobs do not use the [SAN transport mode](#) (see page 206). The jobs revert to the [NBD transport mode](#) (see page 205) or the [NBDSSL transport mode](#) (see page 205). The Transport Mode field on the Backup Status Monitor dialog displays the mode that is used.

**Solution:**

The symptoms described above can occur when the SAN LUN is not properly configured on the backup proxy system. However, if Windows Disk Management detects the SAN LUN and the problem persists, the disk could be off line or the read attribute for the disk is not correct. To prevent this behavior from occurring, reconfigure the disk.

**To configure the disk, do the following:**

1. Log in to the source node or the Monitor server using an account with administrative privileges.
2. Open Windows Command Line.
3. From the command line, type the following command

diskpart

Press Enter.

4. Type SAN and then press Enter.

The current SAN policy displays.

5. Type the following command:

```
SAN POLICY = OnLineAll
```

Press Enter.

The SAN policy is configured as do not automatically mount SAN hosted volumes.

6. To clear the read only attribute of the specific SAN disk, select the disk from the disk list and type the following command:

```
attribute disk clear readonly
```

Press Enter

7. Type exit and then press Enter.

The disk is configured and you can resubmit the job.

## Backup and Recovery Jobs Using the hotadd Transport Mode Cannot Mount Disks

### **Valid on Windows platforms.**

#### **Symptom:**

Backup and recovery jobs that use the hotadd transport mode cannot mount disks to the source node or the monitor server. In addition, the following message appears in the Activity Log:

```
Failed to open VMDK file %1!s!. Please refer to debug log AFBackend.Log for more detail.  
Contact technical support.
```

#### **Solution:**

To correct this problem, do the following:

1. Open VMware vSphere Client.  
Log in to the ESX Server system or the vCenter Server system using administrative credentials.
2. Select the proxy virtual machine and edit the settings for the proxy virtual machine.
3. Remove the hotadd disks from the proxy system, if disks were attached during the conversion job.
4. Resubmit the job.

## Troubleshooting Error Numbers

The following table describes error numbers that display as pop-up messages when adding or updating nodes using CA ARCserve Central Virtual Standby.

Error Number	Description	Possible Solution
12884901933	Cannot connect to the CA ARCserve D2D service on *** and error number is 12884901933. Verify that all entries for the node is correct and the CA ARCserve D2D service is running.	<p>Verify the following:</p> <ul style="list-style-type: none"> <li>■ The CA ARCserve D2D service is running on the node.</li> <li>■ The host name, IP address, and communication protocol specified for the node is correct.</li> <li>■ The CA ARCserve D2D web service on the node is running, and not blocked because the DNS cannot resolve the IP address for the node.</li> <li>■ The CA ARCserve D2D web service on the node is running, and the Windows firewall, or any other firewall, is not blocking communication.</li> <li>■ The network cable that is connected to the node is functioning properly.</li> <li>■ The user that is logged in to the node obtained the permissions that are required to communicate using a wireless network.</li> </ul>

## Add New Tab Link Not Launching Properly for Internet Explorer 8, 9, and Chrome

### Valid on Windows

#### Symptom:

When I add a new tab link to the Navigation bar specifying an HTTPS URL, the following error messages appear when I click the new tab:

- Internet Explorer 8 and 9:  
Content was blocked because it was not signed by a valid security certificate.
- Chrome:  
The webpage is not available.

**Solution:**

To correct this problem for Internet Explorer, do the following:

- Internet Explorer 8:  
Click on the message bar and select "Display Blocked Content".
- Internet Explorer 9:  
Click the "Show content" button from the message bar at the bottom of the page.  
The page refreshes and the added tab link opens successfully.

To correct this problem for Chrome, perform the following steps:

**Step 1 - Export Certificate:**

1. Open a new tab in Chrome and enter the HTTPS URL.  
A warning message appears, "The site's security certificate is not trusted!"
2. From the address bar, click the lock with the 'X'.  
A pop-up window opens with a Certification Information link.
3. Click the Certificate Information link.  
The Certificate dialog opens.
4. Click the Details tab and then click Copy to File, to save the certificate to your local computer.  
The Certificate Export Wizard dialog opens.
5. Click Next to select the format you want to use to export the file.  
**Note:** DER encoded binary X.509 (.CER) is selected by default.
6. Click Next to browse to a location where you want to save the certificate.
7. Click Next to complete the Certificate Export Wizard and then click Finish.  
The certificate exports successfully.

**Step 2 - Import Certificate:**

1. Open the Tools Options from Chrome.  
The Options screen opens.
2. Select the Under the Hood option and click Manage Certificates from HTTPS/SSL.  
The Certificates dialog opens.
3. Click Import.  
The Certificate Import Wizard dialog opens.
4. Click Next to browse for the certificate you saved on your local computer.

5. Click Next to open the Certificate Store.  
The Certificate Store dialog opens.
  6. Click Browse to open the Select Certificate Store dialog.  
The Select Certificate Store dialog opens.
  7. Select Trusted Root Certification Authorities from the file list and click OK.  
The Certificate Store dialog appears.
  8. Click Next to complete the Certificate Import Wizard and then click Finish.  
A Security Warning dialog opens stating that you are about to install a certificate.  
Click Yes to agree on the terms.
- The certificate imports successfully.

## Add New Tab Link, RSS Feeds, and Social Networking Feedback Not Launching Properly on Internet Explorer 8 and 9

### Valid on Windows

#### Symptom:

For an HTTPS CA ARCserve Central Applications URL:

When I add a new tab link to the Navigation bar specifying an HTTP URL, the following error message appears when I click the new tab and the Feedback link:

Navigation to the webpage was canceled.

In addition, the RSS Feeds are not displayed.

**Note:** The Feedback link also displays the error message even if you do not select the new added tab link.

#### Solution:

To correct this problem, do the following:

- Internet Explorer 8:  
After you log in, click No on the pop-up security warning message, "Do you want to view only the webpage content that was delivered securely?" By clicking No allows the delivery of unsecured content to your webpage.
- Internet Explorer 9:  
Click the "Show all content" button on the message bar displayed at the bottom of the page. The page refreshes and the added tab link opens successfully.

## Cannot Specify an Asterisk or Underscore as a Wildcard in Filter Fields Using Japanese Keyboards

### Valid on Windows

#### Symptom:

Because of the different keycodes between the US and Japanese keyboards, the Japanese keyboard does not allow you to enter the wildcard character "\*" and other special characters, such as the underscore character "\_", into the following filter fields:

- Occurs only on Firefox:
  - Node > Add Group - Node Name Filter field
  - Policies > Policy Assignment tab > Assign and Unassign Policy - Node Name Filter field
  - Restore > Node Explorer - Node Name field

#### Solution:

- To prevent this from occurring, open a text editing application such as Notepad. Type the special characters, such as "\*" and "\_", in the text editor. Then copy the characters from the text editor into the the field.

## Virtual Machines Do Not Power On Automatically

### Valid on Windows.

#### Symptom:

Virtual machines do not power on automatically. The value of the Recovery, Stand-in setting is defined as Automatically start the Virtual Machine.

#### Solution:

This is expected behavior. The application cannot automatically power on virtual machines that were added from CA ARCserve Central Host-Based VM Backup servers. As a result, when you deploy policies that contain a recovery method that is defined as Automatically start the virtual machine to nodes that are protected by Host-Based VM Backup, Virtual Standby changes the value of the recovery method to Manually start the virtual machine.

The solution to this behavior is to protect the virtual machine using CA ARCserve D2D or CA ARCserve Central Protection Manager.

## CA ARCserve Central Virtual Standby Cannot Communicate With The Nodes

### **Valid on Windows operating systems**

#### Symptom:

CA ARCserve Central Virtual Standby cannot communicate with the nodes.

#### **Solution:**

To ensure that CA ARCserve Central Virtual Standby can deploy policies to nodes and protect nodes, verify that the Virtual Standby server and the nodes that you want to protect can communicate with each other using their host names.

#### **Follow these steps:**

1. From the CA ARCserve Central Virtual Standby server, ping the nodes that you want to protect using the host names of the nodes.
2. From the nodes that you want to protect, ping the CA ARCserve Central Virtual Standby server using the host name of the server.

## Error Preparing for Remote Conversion. Failed to Create VSS Snapshot

### **Valid on all Windows operating systems**

#### Symptom:

When you manually create a VSS snapshot through the vssadmin utility, the following error message appears:

"Another shadow copy creation is already in progress. Please wait a few moments and try again."

#### **Solution:**

Restart the Volume Shadow Copy service.



# Chapter 9: Applying Best Practices

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This section contains the following topics:

[How the Installation Process Affects Operating Systems](#) (see page 195)

[Exclude Files from Antivirus Scanning](#) (see page 200)

[How CA ARCserve Central Virtual Standby Licensing Works](#) (see page 202)

## How the Installation Process Affects Operating Systems

The CA ARCserve Central Applications installation process updates various Windows operating system components using an installation engine named the Microsoft Installer Package (MSI). The components included in MSI let CA ARCserve Central Applications perform custom actions that let you install, upgrade, or uninstall CA ARCserve Central Applications.

The following table describes the custom actions and the affected components.

**Note:** All CA ARCserve Central Applications MSI packages call the components listed in this table when you install and uninstall CA ARCserve Central Applications.

Component	Description
CallAllowInstall	Lets the installation process check for conditions relating to the current application installation.
CallPreInstall	Lets the installation process read and write MSI properties. For example, read the application installation path from the MSI.
CallPostInstall	Lets the installation process perform various tasks relating to installation. For example, registering application into the Windows Registry.
CallAllowUninstall	Lets the uninstallation process check for conditions relating the current application installation.
CallPreUninstall	Lets the uninstallation process perform various tasks relating to uninstallation. For example, un-registering application from the Windows Registry.
CallPostUninstall	Lets the uninstallation process perform various tasks after the installed files are uninstalled. For example, removing the remaining files.

Component	Description
ShowMsiLog	Displays the Windows Installer log file in Notepad if the end user selects the Show the Windows Installer log check box in the SetupCompleteSuccess, SetupCompleteError, or SetupInterrupted dialogs and then clicks Finish. (This works only with Windows Installer 4.0.)
ISPrint	Prints the contents of a ScrollableText control on a dialog. This is a Windows Installer .dll custom action. The name of the .dll file is SetAllUsers.dll, and its entry point is PrintScrollableText.
CheckForProductUpdates	Uses FLEXnet Connect to check for product updates. This custom action launches an executable file named Agent.exe, and it passes the following: /au[ProductCode] /EndOfInstall
CheckForProductUpdatesOnReboot	Uses FLEXnet Connect to check for product updates on reboot. This custom action launches an executable file named Agent.exe, and it passes the following: /au[ProductCode] /EndOfInstall /Reboot

- Directories Updated**--The installation process installs and updates the application files in the following directories by default:

C:\Program Files\CA\*<application name>* (for example, *ARCserve Central Applications* or *ARCserve D2D*)

You can install the application into the default installation directory or into an alternative directory. The installation process copies various system files to the following directory:

C:\WINDOWS\SYSTEM32

- Windows Registry Keys Updated**--The installation process updates the following Windows registry keys:

Default registry keys:

HKLM\SOFTWARE\CA\*<application name>* (for example, *ARCserve Central Applications* or *ARCserve D2D*)

The installation process creates new registry keys and modifies various other registry keys, based on the current configuration of your system.

- **Applications Installed**--The installation process installs the following applications into your computer:
  - CA Licensing
  - Microsoft Visual C++ 2010 SP1 Redistributable
  - Java Runtime Environment (JRE) 1.7.0\_06
  - Tomcat 7.0.29

## Binary Files Containing Incorrect File Version Information

CA ARCserve Central Applications installs binary files that are developed by third parties, other CA products, and CA ARCserve Central Applications that contain incorrect file version information. The following table describes these binary files.

Binary Name	Source
UpdateData.exe	CA License
zlib1.dll	Zlib Compression Library

## Binary Files that Do Not Contain an Embedded Manifest

CA ARCserve Central Applications installs binary files that are developed by third parties, other CA Technologies products, and CA ARCserve Central Applications that do not contain an embedded manifest and do not contain a text manifest. The following table describes these binary files.

Binary Name	Source
BaseLicInst.exe	CA License
UpdateData.exe	CA License
vcredist_x64.exe	Microsoft
vcredist_x86.exe	Microsoft
tomcat7.exe	Tomcat

## Binary Files that have a Privilege Level of Require Administrator in Manifest

CA ARCserve Central Applications installs binary files that are developed by third parties, other CA Technologies products, and CA ARCserve Central Applications that have a privilege level of Administrator or Highest Available. You must log in using an administrative account or an account with the highest available permissions to run various CA ARCserve Central Applications services, components, and applications. The binaries corresponding to these services, components, and applications contain CA ARCserve Central Applications specific functionality that is not available to a basic user account. As a result, Windows will prompt you to confirm an operation by specifying your password or by using an account with administrative privileges to complete the operation.

- **Administrative Privileges**--The administrative profile or an account with administrative privileges has read, write, and execute permissions to all Windows and system resources. If you do not have Administrative privileges, you will be prompted to enter user name / password of an administrator user to continue.
- **Highest Available Privileges**--An account with the highest-available privileges is a basic user account and a power user account with run-as administrative privileges.

The following table describes these binary files.

Binary Name	Source
APMSetupUtility.exe	CA ARCserve Central Applications
ArcAppUpdateManager.exe	CA ARCserve Central Applications
CA ARCserve Central ApplicationsAutoUpdateUninstallUtility.exe	CA ARCserve Central Applications
CA ARCserve Central ApplicationsPMConfigSettings.exe	CA ARCserve Central Applications
CCIConfigSettings.exe	CA ARCserve Central Applications
CfgUpdateUtil.exe	CA ARCserve Central Applications
CfgUpdateUtil.exe	CA ARCserve Central Applications
D2DAutoUpdateUninstallUtility.exe	CA ARCserve Central Applications
D2DPMConfigSettings.exe	CA ARCserve Central Applications
D2DUpdateManager.exe	CA ARCserve Central Applications
DBConfig.exe	CA ARCserve Central Applications
FWConfig.exe	CA ARCserve Central Applications
RemoteDeploy.exe	CA ARCserve Central Applications

<b>Binary Name</b>	<b>Source</b>
RestartHost.exe	CA ARCserve Central Applications
SetupComm.exe	CA ARCserve Central Applications
SetupFW.exe	CA ARCserve Central Applications
SetupWrapper.exe	CA ARCserve Central Applications
Uninstall.exe	CA ARCserve Central Applications
UpdateInstallCommander.exe	CA ARCserve Central Applications
UpgradeDataSyncupUtility.exe	CA ARCserve Central Applications
jbroker.exe	Java Runtime Environment
jucheck.exe	Java Runtime Environment

## Exclude Files from Antivirus Scanning

Antivirus software can interfere with the smooth running of the application by either temporarily blocking access to files or by quarantining or deleting files that are incorrectly classified as suspicious or dangerous. You can configure most antivirus software to exclude particular processes, files, or folders so that you are not scanning data that does not need to be protected. It is important to configure your antivirus software properly so that it does not interfere with backup and restore operations, or any other types of processes.

The following processes, folders, and files should be excluded from the antivirus scanning:

- Process list
  - C:\Program Files\CA\ARCserve Central Applications\BIN\CCIconfigSettings.exe
  - C:\Program Files\CA\ARCserve Central Applications\BIN\CfgUpdateUtil.exe
  - C:\Program Files\CA\ARCserve Central Applications\BIN\DBConfig.exe
  - C:\Program Files\CA\ARCserve Central Applications\BIN\GetApplicationDetails.exe
  - C:\Program Files\CA\ARCserve Central Applications\BIN\GetApplicationDetails64.exe
  - C:\Program Files\CA\ARCserve Central Applications\BIN\GetVolumeDetails.exe
  - C:\Program Files\CA\ARCserve Central Applications\BIN\VixGetApplicationDetails.exe
  - C:\Program Files\CA\ARCserve Central Applications\BIN\VixGetVolumeDetails.exe
  - C:\Program Files\CA\ARCserve Central Applications\BIN\GetApplicationDetails64.exe
  - C:\Program Files\CA\ARCserve Central Applications\Deployment\Asremsvc.exe
  - C:\Program Files\CA\ARCserve Central Applications\Deployment\CheckProdInfo.exe
  - C:\Program Files\CA\ARCserve Central Applications\Deployment\DeleteMe.exe
  - C:\Program Files\CA\ARCserve Central Applications\Deployment\SetupComm.exe
  - C:\Program Files\CA\ARCserve Central Applications\Deployment\RestartHost.exe
  - C:\Program Files\CA\ARCserve Central Applications\Update Manager\D2DAutoUpdateUninstallUtility.exe
  - C:\Program Files\CA\ARCserve Central Applications\Update Manager\D2DPMConfigSettings.exe

- C:\Program Files\CA\ARCserve Central Applications\Update Manager\D2DUpdateManager.exe
- C:\Program Files\CA\ARCserve Central Applications\Update Manager\UpgradeDataSyncupUtility.exe
- C:\Program Files\CA\ARCserve Central Applications\TOMCAT\BIN\tomcat7.exe
- C:\Program Files\CA\ARCserve D2D\TOMCAT\JRE\jre7\bin
  - java.exe
  - java-rmi.exe
  - javaw.exe
  - keytool.exe
  - rmid.exe
  - rmiregistry.exe
- C:\Program Files (x86)\CA\SharedComponents\CA\_LIC
  - CALicnse.exe
  - CAminfo.exe
  - CAregit.exe
  - ErrBox.exe
  - lic98log.exe
  - lic98Service.exe
  - lic98version.exe
  - LicDebug.exe
  - LicRCmd.exe
  - LogWatNT.exe
  - mergecalic.exe
  - mergeolf.exe

To ensure that CA ARCserve Central Virtual Standby and Remote Virtual Standby works properly, exclude the following files that targets Hyper-V virtual machines and Hyper-V processes:

1. Virtual machine configuration files directory:
  - (Default) C:\ProgramData\Microsoft\Windows\Hyper-V
  - CA ARCserve Central Virtual Standby virtual machine configuration files directory
2. Virtual machine virtual hard disk files directory:
  - (Default) C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks

- CA ARCserve Central Virtual Standby virtual machine virtual hard disk files directory
3. Snapshot files directory:
- (Default)  
%systemdrive%\ProgramData\Microsoft\Windows\Hyper-V\Snapshots
  - CA ARCserve Central Virtual Standby virtual machine snapshot files directory
4. Hyper-V process:
- %windows%\system32\Vmms.exe
  - %windows%\system32\Vmwp.exe

## How CA ARCserve Central Virtual Standby Licensing Works

CA ARCserve Central Virtual Standby contains the following licenses:

- CA ARCserve Central Virtual Standby-Physical
- CA ARCserve Central Virtual Standby-VMware
- CA ARCserve Central Virtual Standby-Hyper-V

All of the licenses are count-based. CA ARCserve Central Virtual Standby verifies and grants licenses to CA ARCserve D2D nodes based on the following criteria:

- CA ARCserve Central Virtual Standby applies CA ARCserve Central Virtual Standby-Physical licenses to all CA ARCserve D2D nodes that you add by Name/IP address or import from a file. CA ARCserve Central Virtual Standby grants CA ARCserve Central Virtual Standby-Physical licenses to the nodes after you apply a policy to the nodes and start the virtual conversion process.

**Note:** This is the default behavior for CA ARCserve Central Virtual Standby licensing.

- CA ARCserve Central Virtual Standby applies CA ARCserve Central Virtual Standby-VMware licenses to all CA ARCserve D2D nodes that you add by Name/IP address or import from a file, and are VMware virtual machines that reside on ESX Server systems or vCenter Server systems. However, before CA ARCserve Central Virtual Standby can apply the CA ARCserve Central Virtual Standby-VMware licenses to the nodes, you must associate the nodes with a specific ESX Server system or vCenter Server system.

**Note:** For more information, see [Specify the ESX Server or vCenter Server System for VMware-Based Nodes](#) (see page 57).

CA ARCserve Central Virtual Standby grants the CA ARCserve Central Virtual Standby-VMware licenses to each ESX Server system after you apply a policy to the nodes and start the virtual conversion process.

- CA ARCserve Central Virtual Standby applies CA ARCserve Central Virtual Standby-VMware licenses to all virtual machine nodes that you import from a CA ARCserve Central Host-Based VM Backup system. CA ARCserve Central Virtual Standby grants the CA ARCserve Central Virtual Standby-VMware licenses to virtual machine nodes after you apply a policy to the nodes and start the virtual conversion process.
- CA ARCserve Central Virtual Standby applies CA ARCserve Central Virtual Standby-Hyper-V licenses to all CA ARCserve D2D nodes that you add by Name/IP address or import from a file and reside on a Hyper-V hypervisor. CA ARCserve Central Virtual Standby detects the presence of the Hyper-V server when you add by the nodes by Name/IP address or import the nodes from a file. CA ARCserve Central Virtual Standby grants the CA ARCserve Central Virtual Standby-Hyper-V licenses to CA ARCserve D2D nodes after you add the nodes by Name/IP address or import the nodes from a file.

### Count Mechanism

The following table describes the quantity of CA ARCserve Central Virtual Standby licenses required for a given scenario.

Type of D2D Node	License Required	Count Mechanism
Physical node	CA ARCserve Central Virtual Standby-Physical	One license for each node
VMware virtual machine	CA ARCserve Central Virtual Standby-VMware	One license for each ESX/vCenter Server system
Hyper-V virtual machine	CA ARCserve Central Virtual Standby-Hyper-V	One license for each Hyper-V system

### Examples

- CA ARCserve Central Virtual Standby is protecting five physical CA ARCserve D2D nodes. Five CA ARCserve Central Virtual Standby-Physical licenses are required.
- CA ARCserve Central Virtual Standby is protecting three VMware virtual machines that reside on one ESX Server system. One CA ARCserve Central Virtual Standby-VMware license is required.
- CA ARCserve Central Virtual Standby is protecting 100 VMware virtual machines distributed on ten ESX Server systems. Ten CA ARCserve Central Virtual Standby-VMware licenses are required.
- CA ARCserve Central Virtual Standby is protecting 20 Hyper-V virtual machines distributed on five Hyper-V systems. Five CA ARCserve Central Virtual Standby-Hyper-V licenses are required.

- CA ARCserve Central Virtual Standby is protecting three Hyper-V virtual machines that reside on one Hyper-V system and three VMware virtual machines that reside on one ESX Server system. One CA ARCserve Central Virtual Standby-VMware license is required and one CA ARCserve Central Virtual Standby-Hyper-V license is required.
- CA ARCserve Central Virtual Standby is protecting five VMware virtual machines that were imported from CA ARCserve Central Host-Based VM Backup and reside on one ESX Server system. One CA ARCserve Central Virtual Standby-VMware license is required.

# Glossary

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## **Heartbeat**

A heartbeat is an electronic signal that source nodes send to monitor servers to identify the status of the node.

## **HOTADD Transport Mode**

The HOTADD transport mode is a data transport method that lets you back up virtual machines configured with SCSI disks. For more information, see the Virtual Disk API Programming Guide on the VMware website.

## **Monitor Server**

A monitoring server is a server that verifies the status of source servers in CA ARCserve Central Virtual Standby environments.

## **NBD Transport Mode**

Network Block Device (NBD) transport mode, also referred to as LAN transport mode, uses the Network File Copy (NFC) protocol to communicate. Various VDDK and VCB operations use one connection for each virtual disk that it accesses on each ESX/ESXi Server host when using NBD.

## **NBDSSL Transport Mode**

Network Block Device Secure Sockets Layer (NBDSSL) transport mode uses the Network File Copy (NFC) protocol to communicate. NBDSSL transfers encrypted data using TCP/IP communication networks.

## **Node**

A node is a physical or virtual machine managed by one or more CA ARCserve Central Applications.

## **Node Group**

A node group is a method by which all nodes managed by one or more CA ARCserve Central Applications can be organized, such as by purpose, by OS, or by installed applications.

## **Policy**

A policy is a set of specifications for protecting a node in one or more CA ARCserve Central Applications.

## **Recovery Point**

A recovery point is a backup image comprised of parent-plus-oldest-child blocks. Child backups are merged with the parent backup to create new recovery point images so that the value specified is always maintained.

---

**Recovery Point Snapshot**

A Recovery Point Snapshot is VMware Virtual Disk (VMDK) or Microsoft Virtual Hard Disk (VHD) files that CA ARCserve Central Virtual Standby creates from CA ARCserve D2D recovery points. CA ARCserve Central Virtual Standby lets you power on virtual machines using Recovery Point Snapshots when the source servers that are running CA ARCserve D2D in your production environment fail.

**SAN Transport Mode**

The SAN (Storage Area Network) transport mode lets you transfer backup data from proxy systems connected to the SAN to storage devices using Fibre Channel communication.

**Virtual Conversion**

Virtual conversion is the process where CA ARCserve Central Virtual Standby converts CA ARCserve D2D recovery points from source nodes to virtual machine data files named recovery point snapshots.

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