

CA ARCserve® Backup for Windows

Agent for VMware Guide

r12



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CA Product References

This documentation set references the following CA products:

- Advantage™ Ingres®
- BrightStor® ARCserve® Backup for Laptops and Desktops
- BrightStor® CA-1® Tape Management
- BrightStor® CA-Dynam®/B Backup for VM
- BrightStor® CA-Dynam®/TLMS Tape Management
- BrightStor® CA-Vtape™ Virtual Tape System
- BrightStor® Enterprise Backup
- BrightStor® High Availability
- BrightStor® Storage Resource Manager
- BrightStor® VM:Tape®
- CA ARCserve® Backup Agent for Novell Open Enterprise Server for Linux
- CA ARCserve® Backup Agent for Open Files on NetWare
- CA ARCserve® Backup Agent for Open Files on Windows
- CA ARCserve® Backup Client Agent for FreeBSD
- CA ARCserve® Backup Client Agent for Linux
- CA ARCserve® Backup Client Agent for Mainframe Linux
- CA ARCserve® Backup Client Agent for NetWare
- CA ARCserve® Backup Client Agent for UNIX
- CA ARCserve® Backup Client Agent for Windows
- CA ARCserve® Backup Enterprise Option for AS/400
- CA ARCserve® Backup Enterprise Option for Open VMS
- CA ARCserve® Backup for Windows
- CA ARCserve® Backup for Windows Agent for IBM Informix
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- CA ARCserve® Backup for Windows Agent for Microsoft Data Protection Manager
- CA ARCserve® Backup for Windows Agent for Microsoft Exchange
- CA ARCserve® Backup for Windows Agent for Microsoft SharePoint

- CA ARCserve® Backup for Windows Agent for Microsoft SQL Server
- CA ARCserve® Backup for Windows Agent for Oracle
- CA ARCserve® Backup for Windows Agent for Sybase
- CA ARCserve® Backup for Windows Agent for VMware
- CA ARCserve® Backup for Windows Disaster Recovery Option
- CA ARCserve® Backup for Windows Disk to Disk to Tape Option
- CA ARCserve® Backup for Windows Enterprise Module
- CA ARCserve® Backup for Windows Enterprise Option for IBM 3494
- CA ARCserve® Backup for Windows Enterprise Option for SAP R/3 for Oracle
- CA ARCserve® Backup for Windows Enterprise Option for StorageTek ACSLS
- CA ARCserve® Backup for Windows Image Option
- CA ARCserve® Backup for Windows Microsoft Volume Shadow Copy Service
- CA ARCserve® Backup for Windows NDMP NAS Option
- CA ARCserve® Backup for Windows Serverless Backup Option
- CA ARCserve® Backup for Windows Storage Area Network (SAN) Option
- CA ARCserve® Backup for Windows Tape Library Option
- CA XOsoft™ Assured Recovery™
- CA XOsoft™
- Common Services™
- eTrust® Antivirus
- eTrust® Firewall
- Unicenter® Network and Systems Management
- Unicenter® Software Delivery
- Unicenter® VM:Operator®

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Chapter 1: Introducing the Agent

This section contains the following topics:

[Introduction](#) (see page 7)

[How to Administer Virtual Machines to Manage Backup Operations](#) (see page 7)

[How VMware Consolidated Backup Works](#) (see page 9)

[VCB Limitations](#) (see page 11)

Introduction

CA ARCserve Backup is a comprehensive storage solution for applications, databases, distributed servers, and file systems. It provides backup and restore capabilities for databases, business-critical applications, and network clients.

Among the agents CA ARCserve Backup offers is the CA ARCserve Backup Agent for VMware. VMware provides you with a mechanism called VMware Consolidated Backup (VCB) that is integrated with VMware ESX Server and VMware VirtualCenter Server. VCB lets you protect Virtual Machine (VM) files and data. Using VCB you can offload VM backup activity to a dedicated backup proxy system, and then use the backup and restore functionalities provided by CA ARCserve Backup to protect Virtual Machines.

How to Administer Virtual Machines to Manage Backup Operations

The agent lets you back up data and it works best under the following circumstances:

- You want to reduce resource restraints in the ESX Server system.
Note: VMware ESX Server is an application that manages system, storage, and network resources in multiple VM environments.
- You do not want to deploy a backup agent on your VMs.
- Your environment consists of a storage area network (SAN) fabric or iSCSI storage and your VMs reside on a SAN or an iSCSI storage LUN.
- You need to restore data at the file level or raw (full VM) level.

VCB lets you perform the following administrative tasks:

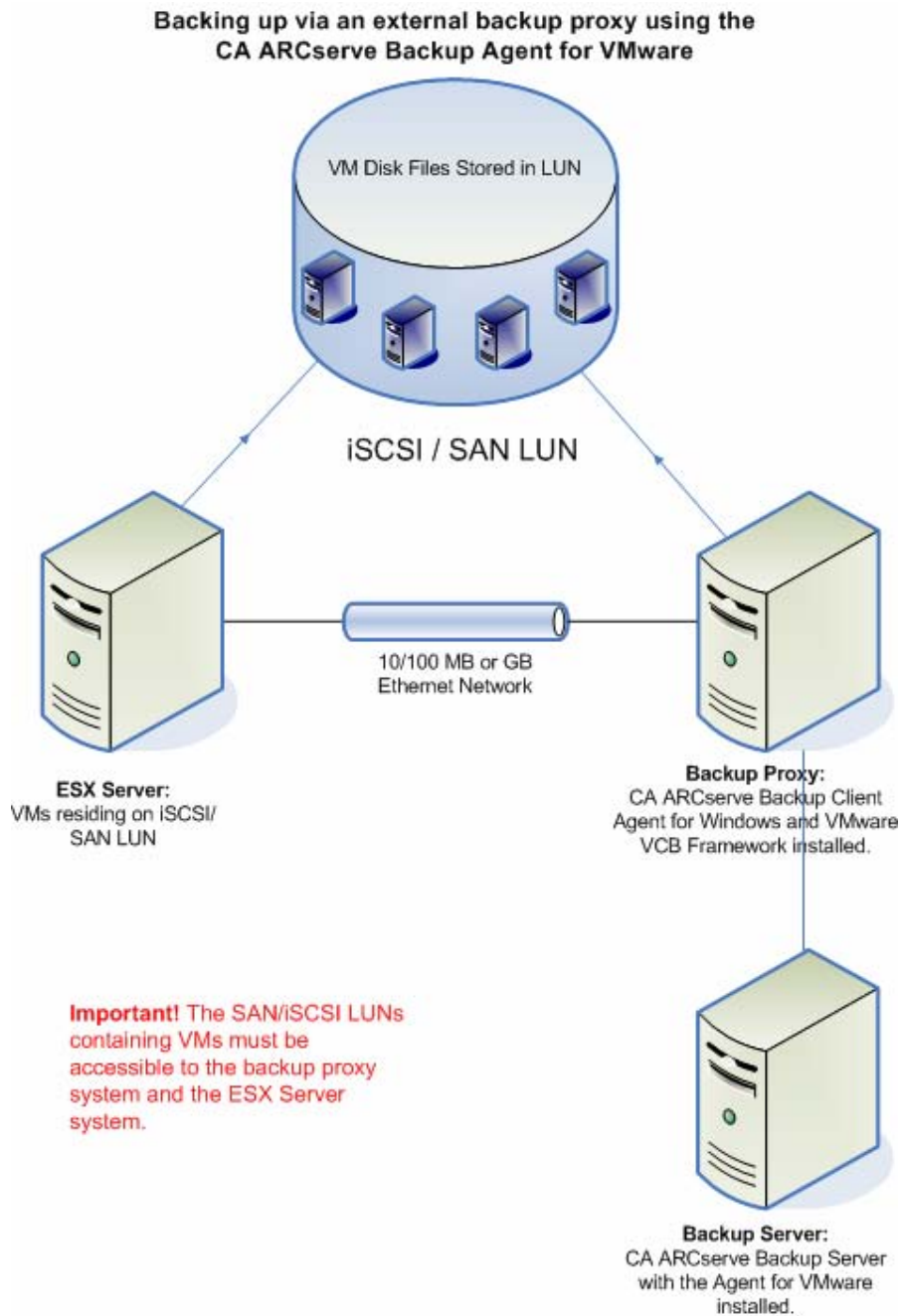
- Take a snapshot of a VM and mount or export the backup data to one or more backup proxy systems and remove the load from the ESX Server system.
- Perform file level backups and restores of a VM running any VMware-supported Windows-based operating system.
- Perform raw (full VM) level backups and restores of a VM running any VMware-supported operating system.
- Perform LAN-free (Local Area Network) backups, if the VMs reside on a SAN.
- Back up a VM, regardless of its power state.
- Reduce administration overhead by centralizing backup management on backup proxy systems. You do not need to deploy agents on the VMs.

Note: This capability requires you to install the CA ARCserve Backup Client Agent for Windows on the backup proxy system.

How VMware Consolidated Backup Works

The agent lets you perform raw VM (full VM) and file level VM backups using a backup proxy system.

The following diagram illustrates the network architecture for backing up VM images or files using a backup proxy system:



When you deploy this architecture in your environment, consider the following:

- Microsoft .NET Framework Version 2.0 or higher must be running on the backup proxy system.
- If the VM resides on a SAN LUN, the LUN must be shared between the ESX Server system and the backup proxy system and have the same LUN number assigned. The LUN in the backup proxy system should not be signed.

Note: To obtain the latest information about this configuration, see the VMware VCB documentation.

- The raw (full VM) level backup method makes a copy of all of the disk and configuration files associated with a specific VM, letting you restore the entire VM.

You can use this method for disaster recovery operations.

- The file level backup method lets you make a copy of individual files contained on the disk in a VM, which can include all files.

You can use this method for situations that involve restoring files that were corrupted or accidentally deleted.

- When you submit a backup job, you can perform a raw (full VM) level or file level backup of the VM. You must specify the primary or member server where the job will execute.

Important! To perform file level backups of a VM, a VMware-supported Windows operating system must be installed on the VM.

When the backup job is running, the primary or member server communicates with the Client Agent for Windows that is running on the backup proxy system. The Client Agent for Windows then takes a snapshot of the VM and mounts or exports the snapshot into the backup proxy system, by default, into the Client Agent for Windows installation directory.

Note: For information about changing the default mount path, see Set Up Backing Up ESX Server Systems Using a Backup Proxy System.

The Client Agent for Windows then replaces the root directory and creates the CA ARCserve Backup database records as if the backup was taken directly from the VM. This behavior ensures that you can perform file level restores to the original VM location.

More information:

[Set Up Backing Up ESX Server Systems Using a Backup Proxy System](#) (see page 15)

VCB Limitations

When you use VCB in your environment, consider the following limitations:

- You cannot back up VMs with virtual disks that are physically compatible Raw Device Maps (RDM), Independent - persistent and Independent non-persistent disks.
- To back up VMs stored on a SAN storage LUN, the LUN should be accessible to the backup proxy system, and have the same LUN number assigned. The LUN in the backup proxy system should not be signed.
Note: To obtain the latest information about this configuration, see the VMware VCB documentation.
- To back up an individual file or directory, a VMware-supported Windows-based operating system must be running on the VM.
- VCB supports mounting up to 60 concurrent VM volumes.

Examples: Mounting Concurrent VMware Volumes

- 60 VMs with one C:\ drive
- 30 VMs with two VM volumes: one C:\ drive and one D:\ drive

Note: For information about how to install VCB, set up VCB, and the limitations of using VCB, see the VMware Virtual Machine Backup Guide on the VMware website.

Chapter 2: Installing the Agent

This section contains the following topics:

[How to License the Agent for VMware](#) (see page 13)

[Installation Prerequisites](#) (see page 14)

[How to Install and Configure the Agent](#) (see page 14)

[Install the Agent Using the Server Admin](#) (see page 15)

[Set Up Backing Up ESX Server Systems Using a Backup Proxy System](#) (see page 15)

[Populate the CA ARCserve Backup Database Using the ARCserve VMware Configuration Tool](#) (see page 21)

[Populate the CA ARCserve Backup Database Using the ca_vcbpopulatedb Command Line Utility](#) (see page 25)

[When to Populate the ARCserve Database](#) (see page 33)

[Uninstall the Agent](#) (see page 34)

How to License the Agent for VMware

The CA ARCserve Backup Agent for VMware uses a count-based licensing method. You must register one CA ARCserve Backup Agent for VMware license for each ESX Server system that is running in your VMware environment. The licenses for the agent are registered on the CA ARCserve Backup Primary Server or Stand-alone Server.

Example: Licensing

Your environment consists of three ESX Server systems and you want to protect the VMs in the ESX Server systems using the backup proxy mechanism.

You must register three CA ARCserve Backup Agent for VMware licenses on the CA ARCserve Backup Primary Server or Stand-alone Server.

Installation Prerequisites

Before installing the agent, you must satisfy the following prerequisites:

- Ensure your system requirements meet the minimum requirements needed to install the agent.
For a list of requirements, see the readme file.
- Ensure that you have Administrator privileges.
- Ensure that you know the name and password of the system where you are installing the agent.
- Ensure that Microsoft .NET Framework Version 2 or higher is installed and running in your environment.

How to Install and Configure the Agent

There are two methods that you can use to install the agent:

- Install the agent while you are installing CA ARCserve Backup. The agent follows the standard installation procedure for CA ARCserve Backup system components, agents, and options.
- Install the agent after you install CA ARCserve Backup. The Server Admin lets you install and uninstall the agent at any time after you install CA ARCserve Backup.

Note: For more information, see [Install the Agent Using the Server Admin](#) (see page 15).

To install and configure the agent, ensure that you complete the following tasks:

1. Follow the procedures about installing CA ARCserve Backup in the *Implementation Guide*.

Note: To install the agent, you must select the Primary Server or Stand-alone Server installation type. The agent does not support member server installations.

2. Install the license for the CA ARCserve Backup Agent for VMware on the CA ARCserve Backup Primary or Stand-alone Server.
3. Complete the configuration tasks described in [Set Up Backing Up ESX Server Systems Using a Backup Proxy System](#) (see page 15).

Install the Agent Using the Server Admin

The agent follows the standard installation procedure for CA ARCserve Backup system components, agents, and options. However, if you did not install the agent when you installed CA ARCserve Backup, you can use the Server Admin to install the agent.

To install the agent using the Server Admin

1. Log in to the ARCserve primary server.
From the CA ARCserve Backup Manager Console, click Server Admin in the Quick Start menu.
The Server Admin opens.
2. From the domain directory tree, right-click the primary server and select Install/Uninstall Options from the pop-up menu.
The Install/Uninstall Options dialog opens.
3. Check the check box next to Agent for VMware and click OK.
CA ARCserve Backup installs the agent.
4. After you complete the installation, you must complete the configuration tasks described in [Set Up Backing Up ESX Server Systems Using a Backup Proxy System](#) (see page 15).

Set Up Backing Up ESX Server Systems Using a Backup Proxy System

This section describes how to set up your environment to back up VM images and files using a backup proxy system.

To set up backing up ESX Server systems using a backup proxy system

1. Install ESX Server. For more information about ESX Server requirements, see the VMware ESX Server Installation guide on the VMware website.
Note: To manage your ESX Servers through VMware VirtualCenter, you must install and configure VirtualCenter Server as part of Virtual Infrastructure installation.

2. Install VCB on the backup proxy system with the following environmental conditions:

- Windows 2003 Server (32-bit) must be the operating system running on the backup proxy system.
- If the VMs that you want to back up reside on a SAN, the backup proxy system must be able to access the SAN storage LUN, and have the same LUN number assigned. The LUN in the backup proxy system should not be signed.

Note: For information about VCB installation, setup, and limitations, see the *Virtual Machine Backup Guide* on the VMware website.

3. To set up backing up VMs through a VCB Backup Proxy using an ESX Server system, configure one of the following communication protocols:

Important! To set up backing up a VCB Proxy using using a VirtualCenter Server system, go to Step 4.

- **https**

To use https as the communication protocol between the ESX Server system and the backup proxy system, copy the self-generated SSL certificate from the ESX Server system to the backup proxy system, and then install the certificate on the backup proxy system.

Note: https the default communication protocol used by the ARCserve VMware Configuration Tool and the ca_vcbpopulatedb utility. https lets CA ARCserve Backup communication between VCB Backup Proxy and the ESX Server system or the VirtualCenter Server system.

You can find the SSL certificate (labeled rui.crt) from the following directory on the ESX Server system:

```
/etc/vmware/ssl/rui.crt
```

To install the SSL certificate, right-click the object and select Install from the pop-up menu.

Note: The host name assigned in the SSL certificate must match the name of the ESX Server system specified when running the ca_vcbpopulatedb command line utility. If the name does not match or if the host name is missing in the SSL certificate then the following message appears "Bad Server Certificate, The certificate CN name does not match the passed value". You must select Yes to continue.

- **http**

To use http as the communication protocol between the backup proxy system and the ESX Server system, you must configure the http protocol on the ESX Server system as follows in the config.xml file located at /etc/vmware/hostd/config.xml:

- a. Locate the <proxy Database> tag within the <http> tag.
- b. Add the following text with the <proxy Database> tag:

```
<server id="1">  
<namespace> /sdk </namespace>  
<host> localhost </host>  
<port> 8085 </port>  
</server>
```

- c. Remove the following text:
<redirect id="2"> /sdk </redirect>
- d. Restart the VMware Infrastructure SDK Management Service by executing the following command:

```
# service mgmt-vmware restart
```

Note: For more information, see the Virtual Infrastructure SDK documentation on the VMware website.

Go to Step 5.

4. To set up backing up VMs through a VCB Backup Proxy and a VirtualCenter Server system, configure one of the following communication protocols:

- **https**

To use https as the communication protocol between the VirtualCenter Server system and the backup proxy system, you must copy the self-generated SSL certificate from the VirtualCenter Server system to the backup proxy system, and then install the certificate on the backup proxy system.

Note: https is the default communication protocol used by the ARCserve VMware Configuration Tool and the ca_vcbpopulatedb utility. https lets CA ARCserve Backup communication between VCB Backup Proxy and the ESX Server system or the VirtualCenter Server system.

You can access the SSL certificate (labeled rui.crt) from the following directory on the ESX Server system:

```
C:\Documents and Settings\All Users\Application Data\VMware\VMware  
VirtualCenter\SSL\rui.crt
```

To install the SSL certificate, right-click the object and select Install from the pop-up menu.

Note: The host name assigned in the SSL certificate must match the name of the VirtualCenter Server system specified when running the ca_vcbpopulatedb command line utility. If the name does not match or if the host name is missing in the SSL certificate then the following message appears "Bad Server Certificate, The certificate CN name does not match the passed value". You must select Yes to continue.

- **http**

To use http as the communication protocol between the backup proxy system and the VirtualCenter Server system, you must configure the http protocol on the VirtualCenter Server system as follows in the vpxd.cfg file located at

```
"C:\Documents and Settings\All Users\Application Data\VMware\VMware VirtualCenter\vpxd.cfg";
```

- a. Locate the <proxy Database> tag within the <http> tag.

- b. Add the following text with the <proxy Database> tag:

```
<server id="1">  
<namespace> /sdk </namespace>  
<host> localhost </host>  
<port> -2 </port>  
</server>
```

- c. Remove the following text:

```
<redirect id="1"> /sdk </redirect>
```

- d. Restart the VMware VirtualCenter Server service:

This can be done by from the Services Control Panel.

Note: For more information, see the VMware VCB Backup guide on the VMware website.

Go to Step 5.

5. Install the CA ARCserve Backup Client Agent for Windows on the backup proxy system.

6. On the backup proxy system, open the Windows Registry Editor and access the following registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\ComputerAssociates\CA ARCserve  
Backup\ClientAgent\Parameters
```

Create a new String Value and specify the following Value Name:

```
VMwareAgentBaseMountPath
```

Modify the Value Data for the string so that it specifies the path where you want the agent to temporarily mount the VM during the backup operation as in the following example:

```
c:\mnt
```

Note: If you do not create this key value pair, the agent creates it for you when the VMware Backup job runs. The agent specifies the default installation path for the Client Agent for Windows as the mount path for your backup operations. For example:

```
C:\Program Files\CA\ARCserve Backup Client Agent for Windows
```

Important: To perform Raw (full VM) level backups of VMs, you must ensure there is sufficient free disk space in the volume specified as the mount path for your backup operations.

7. Execute the ARCserve VMware Configuration Tool to populate the CA ARCserve Backup database with information about your VMware environment.

Optionally, you can populate the ARCserve database using the `ca_vcbpopulatedb` command line utility.

Important! The VMs in the ESX Server system must be in a running state when you execute this utility. If the VMs are not in a running state, this utility will not populate the CA ARCserve Backup database with information about the VMs. All the VMs must have a host name and IP address assigned and the latest VMware tools installed.

Populate the CA ARCserve Backup Database Using the ARCserve VMware Configuration Tool

The ARCserve VMware Configuration Tool is a utility that populates the CA ARCserve Backup database with the information about the VMs on your ESX Server. This tool integrates with a command-line utility called `ca_vcbpopulatedb`, which runs in the background, to populate the ARCserve database with information about the VMs. The configuration tool lets you populate the CA ARCserve Backup database with information about the following:

- VCB backup proxy names
- ESX Server or VirtualCenter Server names
- VM Host names
- Volume names contained within the VMs on Windows systems

After you install the agent, you must populate the CA ARCserve Backup database with the information about your VM systems. To accomplish this, you must execute the ARCserve VMware Configuration Tool on the backup proxy system.

Note: If you do not perform this task, you will not be able to browse the VMs in your environment using the Backup Manager.

You should perform this task periodically. For more information, see [When To Populate the ARCserve Database](#) (see page 33).

To populate the CA ARCserve Backup database using the ARCserve VMware Configuration Tool

1. Ensure that the VMs in the ESX Server systems are in a running state.

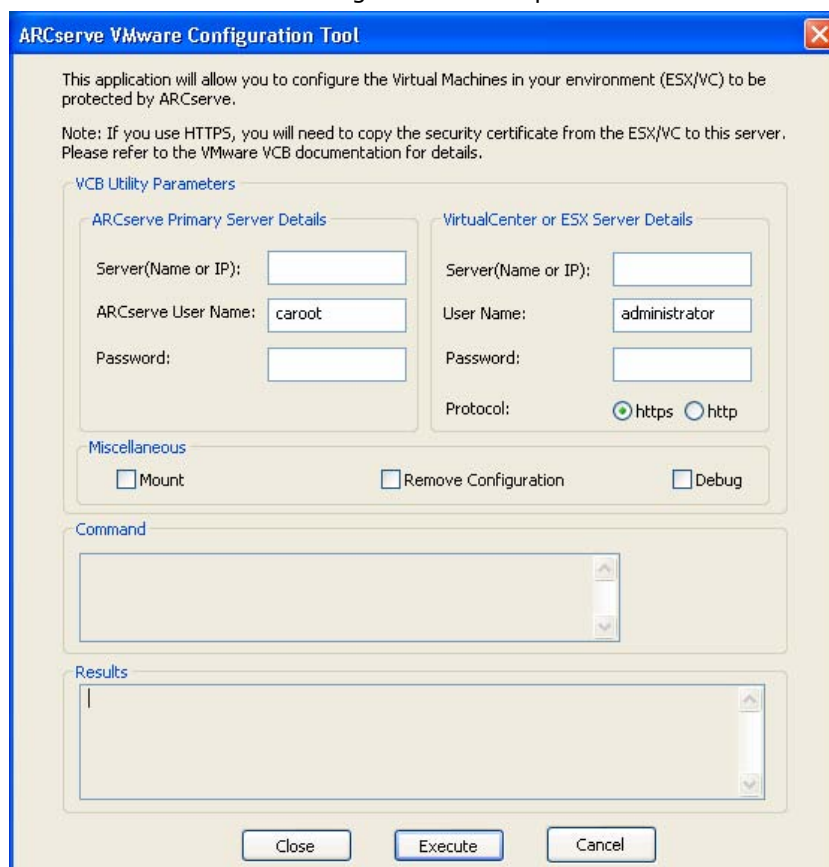
Note: If the VMs are not in a running state, the ARCserve VMware Configuration Tool will not populate the CA ARCserve Backup database with data, and you will not be able to accurately browse and back up the VMs in the ESX Server systems.

2. To start the ARCserve VMware Configuration Tool, browse to the Client Agent for Windows installation directory on the proxy system. By default, the Client Agent for Windows is installed in the following directory:

C:\Program Files\CA\ARCserve Backup Client Agent for Windows

Double-click VCBUI.exe

The ARCserve VMware Configuration Tool opens.



3. Complete the following fields:

ARCserve Primary Server Details

The following options apply to your primary server:

- **Server (Name or IP)**--Lets you specify the name or IP address of the CA ARCserve Backup primary system.
- **ARCserve User Name**--Lets you specify the user name, with CAROOT privileges, for the CA ARCserve Backup primary system.
- **Password**--Lets you specify the password for the ARCserve User name.

VirtualCenter or ESX Server Details

The following options apply to the VMware Virtual Infrastructure in your environment:

- **Server (Name or IP)**--Lets you specify the name of the ESX Server system or the VirtualCenter Server system.
- **User Name**--Lets you specify the name of the ESX Server user or the VirtualCenter user with Administrator privileges.
- **Password**--Lets you specify the password for the ESX Server or the VirtualCenter Server User Name.
- **Protocol (Optional)**--Lets you specify the communication protocol between the backup proxy system and the ESX Server system or the VirtualCenter Server system.

Note: If you omit this argument, the utility assumes https is to be used as the communication protocol.

Miscellaneous

Specify the following Miscellaneous options, as required, to populate the ARCserve database:

Mount

With the Mount option enabled, the configuration tool populates the database with the running VMs that are residing only on the iSCSI/SAN LUN storage device. With this option enabled, the configuration tool skips VMs in the ESX Server or the VirtualCenter Server residing on any storage media other than the iSCSI/SAN LUN.

Note: If you run the configuration tool with the Mount option enabled, the utility takes longer to run because it performs a mount and unmount operation of each running VM.

Remove Configuration

Lets you delete the VMs available in the database for the given ESX Server system or a VirtualCenter Server system under the given backup proxy system.

Debug

Lets you write a detailed debug log. The log will be created in the Client Agent for Windows installation directory. By default, this directory is as follows:

C:\Program Files\CA\ARCserve Backup Client Agent for Windows

Note: The name of the log file is ca_vcbpopulatedb.log.

4. Click the Execute button.

The ARCserve VMware Configuration Tool populates the ARCserve database.

Note: The Results field displays the results of the execution. To view detailed log information, open the log file labeled ca_vcbpopulatedb.log located in the Client Agent for Windows installation directory.

More information:

[ca_vcbpopulatedb Utility Return Codes](#) (see page 32)
[When to Populate the ARCserve Database](#) (see page 33)

Populate the CA ARCserve Backup Database Using the ca_vcbpopulatedb Command Line Utility

The ca_vcbpopulatedb utility is a data collection tool that lets you populate the CA ARCserve Backup database with information about the following:

- VCB backup proxy names
- ESX Server or VirtualCenter Server names
- VM Host names
- Volume names contained within the VMs on Windows systems

After you install the agent, you must populate the CA ARCserve Backup database with the information about your VM systems. To accomplish this, you must execute the ca_vcbpopulatedb utility on the backup proxy system or any other Windows 2003 (32-bit) system where the CA ARCserve Backup Client Agent for Windows is installed.

Note: If you do not perform this task, you will not be able to browse the VMs in your environment using the Backup Manager.

You should perform this task periodically. For more information, see [When To Execute the ca_vcbpopulatedb Utility](#) (see page 33).

To populate the CA ARCserve Backup database using the ca_vcbpopulatedb Command Line utility

1. Ensure that the VMs in the ESX Server systems are in a running state.

Note: If the VMs are not in a running state, the ca_vcbpopulatedb utility will not populate the CA ARCserve Backup database with data, and you will not be able to accurately browse and back up the VMs in the ESX Server systems.

2. Access the backup proxy system, open a command-line window, and run the ca_vcbpopulatedb utility.

Important! You must execute this utility on the backup proxy system or any other Windows 2003 (32-bit) system where the CA ARCserve Backup Client Agent for Windows is installed.

The ca_vcbpopulatedb utility is stored in the Client Agent for Windows directory. By default, the Client Agent for Windows resides in the following directory:

C:\Program Files\CA\ARCserve Backup Client Agent for Windows

3. There are two methods that you can use to run the utility. Choose one of the following methods to run this utility:

- Execute the command using the arguments described in the following syntax:

```
ca_vcbpopulatedb -Primary <PrimaryServerName> -carootUser <ARCserve  
caroot User> -carootPass <ARCserve caroot password> [-vcb  
<VCBMachineName>] -esxServer <ESXServerName> -esxUser <ESXAdmin> -  
esxUserPass <ESXAdminPassword> [-proto <https/http>] [-vcbMountableVM] [-  
delProxydb] [-silent] [-debug]
```

-Primary <PrimaryServerName>

Indicates the name or IP address of the CA ARCserve Backup primary system.

-carootUser <ARCserve caroot User>

Indicates the user name, with CAROOT privileges, for the CA ARCserve Backup primary system.

-carootPass <ARCserve caroot Password>

Indicates the password for the User name.

(Optional) -vcb <VCBMachineName>

Indicates the name or IP address of the VCB backup proxy system.

Note: If you omit this argument, the utility assumes that the current machine name will be used as VCB machine name.

-esxserver <ESXServerName>

Indicates the name of the ESX Server system or the VirtualCenter Server system containing the VMs residing on the iSCSI/SAN LUN.

-esxUser <ESXAdmin>

Indicates the name of the ESX Server system user or the VirtualCenter Server system user with Administrator privileges.

-esxUserPass <ESXAdminPassword>

Indicates the password for the ESXAdmin user.

(Optional) -proto <https/http>

Indicates the communication protocol between the backup proxy system and the ESX Server system or the VirtualCenter Server system.

Note: If you omit this argument, the utility assumes https is to be used as the communication protocol.

-DelProxydb

Deletes all the VMs available in the database for the given ESX Server system or the VirtualCenter Server system under the given backup proxy system.

-VCBMountableVM

Gives you the following options:

If you execute the ca_vcbpopulatedb command-line utility with this switch, you must run the utility on a backup proxy system. Without this switch, you can execute the vcbpopulatedb utility on the backup proxy system or any other Windows 2003 (32-bit) system where the CA ARCserve Backup Client Agent for Windows is installed.

If you specify this switch as a parameter, the utility populates the database with the running VMs that are residing only on the iSCSI/SAN LUN storage device. With this switch specified, the utility would skip VMs in the ESX Server residing on any storage media other than the iSCSI/SAN LUN.

You should run the ca_vcbpopulatedb command-line utility with this switch when you have VMs in an ESX Server residing on multiple storage media, such as the local disk of an ESX Server, SAN LUN, NAS/NFS, or iSCSI storage device.

With this switch included, the utility would populate only the CA ARCserve Backup primary server database with information from the running VMs residing on the iSCSI/SAN LUN storage device.

Note: If you run this utility with the VCBMountableVM switch, the utility would take longer to run because it performs a mount and unmount operation of each running VM.

-Silent

Prevents the utility from printing messages to the command line console.

-Debug

Directs the utility to write a detailed debug log. The log will be created in the Client Agent for Windows installation directory. By default, this directory is as follows:

C:\Program Files\CA\ARCserve Backup Client Agent for Windows

Note: The name of the log file is ca_vcbpopulatedb.log.

- Execute the command using the arguments described in the following syntax:

Note: You must create a configuration file to use this syntax. For more information, see [Create a ca_vcbpopulatedb Configuration File](#) (see page 28).

```
ca_vcbpopulatedb -config <config_file_name>
```

<config_file_name>

Indicates the name of the ca_vcbpopulatedb configuration file.

4. Execute the command.

The ca_vcbpopulatedb utility populates the CA ARCserve Backup database with information about the VMs that are in a running state in your environment.

More information:

[ca_vcbpopulatedb Utility Return Codes](#) (see page 32)

[When to Populate the ARCserve Database](#) (see page 33)

Create a ca_vcbpopulatedb Configuration File

You create a configuration file with details about the CA ARCserve Backup Primary server machine, the CA ARCserve Backup Primary user name, and so on. The ca_vcbpopulatedb utility uses the information specified in the configuration file to populate the CA ARCserve Backup database.

To create a ca_vcbpopulatedb configuration file

1. Open a text editing application such as Notepad. Save the configuration file with a .cfg file extension in the same directory as the ca_vcbpopulatedb utility.
2. Complete the arguments in the following syntax:

```
-Primary <PrimaryServerName> -carootUser <ARCserve caroot User> -carootPass  
<ARCserve caroot password> [-vcb <VCBMachineName>] -esxServer <ESXServerName>  
-esxUser <ESXAdmin> -esxUserPass <ESXAdminPassword> [-proto <https/http>] [-  
vcbMountableVM] [-delProxydb] [-silent] [-debug]
```

-Primary <PrimaryServerName>

Indicates the name or IP address of the CA ARCserve Backup primary system.

-carootUser <ARCserve caroot User>

Indicates the user name, with CAROOT privileges, for the CA ARCserve Backup primary system.

-carootPass <ARCserve caroot Password>

Indicates the password for the User name.

(Optional) -vcb <VCBMachineName>

Indicates the name or IP address of the VCB backup proxy system.

Note: If you omit this argument, the utility assumes that the current machine name will be used as VCB machine name.

-esxserver <ESXServerName>

Indicates the name of the ESX Server system or the VirtualCenter Server system containing the VMs residing on the iSCSI/SAN LUN.

-esxUser <ESXAdmin>

Indicates the name of the ESX Server system user or the VirtualCenter Server system user with Administrator privileges.

-esxUserPass <ESXAdminPassword>

Indicates the password for the ESXAdmin user.

(Optional) -proto <https/http>

Indicates the communication protocol between the backup proxy system and the ESX Server system or the VirtualCenter Server system.

Note: If you omit this argument, the utility assumes https is to be used as the communication protocol.

-DelProxydb

Deletes all the VMs available in the database for the given ESX Server system or the VirtualCenter Server system under the given backup proxy system.

-VCBMountableVM

Gives you the following options:

If you execute the ca_vcbpopulatedb command-line utility with this switch, you must run the utility on a backup proxy system. Without this switch, you can execute the vcbpopulatedb utility on the backup proxy system or any other Windows 2003 (32-bit) system where the CA ARCserve Backup Client Agent for Windows is installed.

If you specify this switch as a parameter, the utility populates the database with the running VMs that are residing only on the iSCSI/SAN LUN storage device. With this switch specified, the utility would skip VMs in the ESX Server residing on any storage media other than the iSCSI/SAN LUN.

You should run the ca_vcbpopulatedb command-line utility with this switch when you have VMs in an ESX Server residing on multiple storage media, such as the local disk of an ESX Server, SAN LUN, NAS/NFS, or iSCSI storage device.

With this switch included, the utility would populate only the CA ARCserve Backup primary server database with information from the running VMs residing on the iSCSI/SAN LUN storage device.

Note: If you run this utility with the VCBMountableVM switch, the utility would take longer to run because it performs a mount and unmount operation of each running VM.

-Silent

Prevents the utility from printing messages to the command line console.

-Debug

Directs the utility to write a detailed debug log. The log will be created in the Client Agent for Windows installation directory. By default, this directory is as follows:

C:\Program Files\CA\ARCserve Backup Client Agent for Windows

Note: The name of the log file is ca_vcbpopulatedb.log.

3. Close and save the configuration file.

More information:

[ca_vcbpopulatedb Utility Return Codes](#) (see page 32)

Examples

The following are examples of syntax for the ca_vcbpopulatedb command:

- Use the following command populate the VM details of the ESX Server having a hostname "ESXServer1" into the ARCserve server "ARCserver1" database under VCB Proxy machine "VCBProxy1" using http protocol with the debug flag set:

```
ca_vcbpopulatedb.exe -Primary ARCserver1 -carootUser caroot -carootPass ca123  
-vcb VCBProxy1 -esxServer ESXServer1 -esxUser root -esxUserPass rootpasswd -  
proto http -debug
```

- Use the following command to remove the all VM details of the ESX Server having a hostname "ESXServer1" from the ARCserve server "ARCserver1" database available under VCB Proxy machine "VCBProxy1" with the debug flag unset:

```
ca_vcbpopulatedb.exe -Primary ARCserver1 -carootUser caroot -carootPass ca123  
-vcb VCBProxy1 -esxServer ESXServer1 -esxUser root -esxUserPass rootpasswd -  
de1Proxydb
```

- Use the following command to populate the VM details of the ESX Server having a hostname "ESXServer1" into the ARCserve server "ARCserver1" database, only the VM mountable inside the VCB proxy machine "VCBProxy1" with the debug flag set:

```
ca_vcbpopulatedb.exe -Primary ARCserver1 -carootUser caroot -carootPass ca123  
-vcb VCBProxy1 -esxServer ESXServer1 -esxUser root -esxUserPass rootpasswd -  
vcbMountableVM -debug
```

ca_vcbpopulatedb Utility Return Codes

The ca_vcbpopulatedb utility generates return codes are written to a log file named ca_vcbpopulatedb.log. The log is created in the Client Agent for Windows installation directory after the ca_vcbpopulatedb utility execution is finished.

The ca_vcbpopulatedb utility generates the following return codes:

0

Indicates that the operation was successful.

1

Indicates that an invalid argument was specified.

2

Indicates that a CA ARCserve Backup domain user authentication failure occurred.

3

Indicates that an ESX Server or a VirtualCenter Server user authentication error occurred.

4

Indicates that an ESX Server or a VirtualCenter Server connection failure occurred.

5

Indicates that a database operation failure occurred.

6

Indicates that an XML creation failure occurred.

7

Indicates that Microsoft .NET version 2.0 or later is not installed in your environment.

8

Indicates that more than one instance of ca_vcbpopulatedb is currently running.

9

Indicates that an unknown error has occurred.

When to Populate the ARCserve Database

You should populate the ARCserve database using the ARCserve VMware Configuration Tool or the `ca_vcbpopulatedb` command line utility periodically to ensure that the CA ARCserve Backup database contains up-to-date information about the VMs and volumes in an ESX Server system.

If you install CA ARCserve Backup on the backup proxy system, and the backup proxy system is a primary server or member server, you can use the Generic Job Scheduler to execute the `ca_vcbpopulatedb` utility periodically. For more information about using the Generic Job Scheduler to schedule jobs, see the *Administration Guide*.

In addition, you should populate the ARCserve database immediately after the following events occur:

- You turned on VMs that were turned off the last time you populated the ARCserve database.
- You added or removed new volumes from a Windows VM, and the Windows VM was running the last time you populated the ARCserve database.
- You deleted or moved VMs from an ESX Server system.

Note: You do not need to repopulate the ARCserve database if the VMs are migrated from one ESX Server system to another system using VMotion.

Uninstall the Agent

The Agent for VMware is an ARCserve primary and stand-alone server-based installation. You must use the CA ARCserve Backup Server Admin to uninstall agents and options of this type.

Note: The Agent for VMware does not appear in the Windows, Control Panel, Add or Remove Programs application.

To uninstall the agent

1. Log in to the ARCserve primary server.
From the CA ARCserve Backup Manager Console, click Server Admin in the Quick Start menu.
The Server Admin opens.
2. From the domain directory tree, right-click the primary server and select Install/Uninstall Options from the pop-up menu.
The Install/Uninstall Options dialog opens.
3. Clear the check box next to Agent for VMware and click OK.
CA ARCserve Backup uninstalls the agent.

Chapter 3: Backing Up and Restoring Data

This section contains the following topics:

[How to Browse Backup Volumes](#) (see page 35)

[Backup Modes](#) (see page 37)

[Back Up Data](#) (see page 39)

[Filter VM Backup Data](#) (see page 42)

[How to Browse Restore Sessions](#) (see page 43)

[Restoring Data](#) (see page 45)

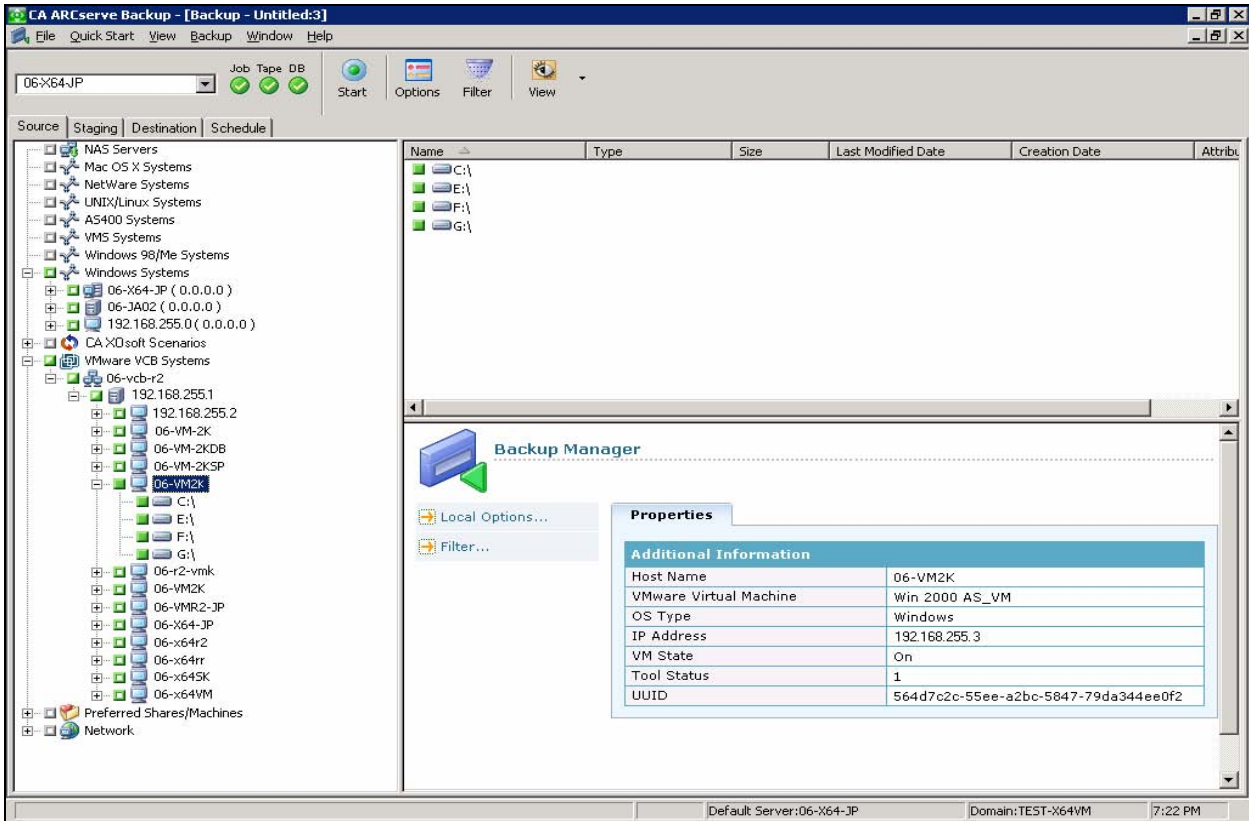
[VCB Backup and Restore Limitations](#) (see page 51)

How to Browse Backup Volumes

The Backup Manager lets you view information about backup proxy systems, ESX Server or VirtualCenter Server systems, and VMs in a directory tree structure after you populate the CA ARCserve Backup database using the ARCserve VMware Configuration Tool.

When the VM is running a VMware-supported Windows-based operating system, you can browse the volumes in the VM.

The following screen illustrates the Backup Manager window with the Source tab displayed. The VMware VCB Systems object is expanded to display the names of the VMware VCB Systems, the backup proxy systems, the ESX Server or the VirtualCenter Server systems, and the VM volumes contained in the Windows operating system.



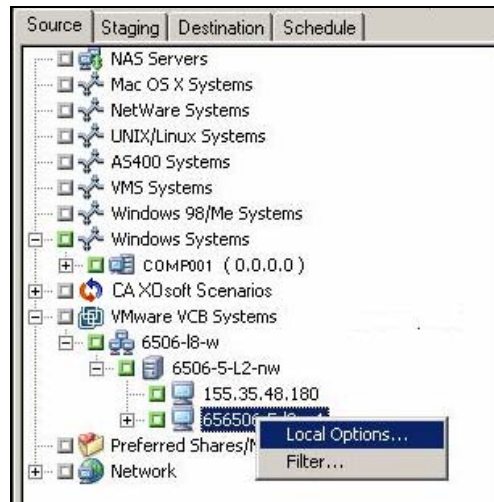
- When you submit a backup job, CA ARCserve Backup prompts you to provide the Username and password credentials for ESX Server system or the VirtualCenter Server system.

CA ARCserve Backup validates the credentials at runtime.

- At the VM level, you can browse in raw mode (full VM) or file mode.
To browse a VM at the file level, a VMware supported Windows operating system must be installed on the VM.
- The browsing modes are as follows:
 - Windows VMs--file mode and raw mode (full VM)
 - Non-Windows VMs--raw mode (full VM) only

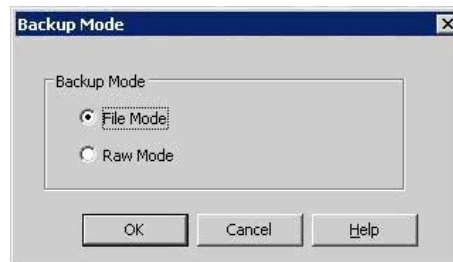
Backup Modes

The following screen illustrates the Backup Manager window with the Source tab displayed. The VMware VCB Systems object is selected and expanded to the VM level. When you select and right-click a Windows VM, the context menu opens as follows:



To specify a backup mode for the job, select Local Options from the pop-up menu.

The Backup Mode dialog opens as shown:



The Backup Mode dialog lets you specify a backup mode for the job. You can back up data that is stored on a VM using the following options:

File Mode

Lets you perform the following actions:

- Back up files and directories contained in VM that is running a VMware supported Windows operating system.
- Perform full, incremental, and differential backups.
- Restore data at file level granularity.
- Process multiple streams of data simultaneously using the multistreaming option.
- Filter data using the Filter option.

Note: For more information about filtering backup data, see the *Administration Guide* or the online help.

Important! The elapsed time required to perform a file level backup of a full VM is greater than the elapsed time required to perform a raw (full VM) level backup of the same VM.

Raw Mode

Lets you perform the following actions:

- Perform full backups of full VM images only.
- Process multiple streams of data simultaneously using the multistreaming option.

Note: Raw mode does not let you restore data at file level granularity or filter raw (full VM) data. Filters applied to raw mode (full VM) backups are ignored at runtime.

Back Up Data

The process for backing up data is identical to that of backing up any file, volume, or node.

Note: For information about the limitations of backing up with VCB, see [VCB Backup and Restore Limitations](#) (see page 51).

To back up data

1. Open the **Backup Manager** and select the **Source** tab.

The Backup Manager source directory tree displays.

2. Expand the **VMware VCB Systems** object.

The backup proxy systems, the ESX Server or VirtualCenter Server systems, VMs, and VM volumes on VMware supported Windows-based platforms in your environment appear.

3. Select the objects that you want to back up. You can select volumes, an entire node, or any combination of them as the source.

Right-click the objects that you want to back up and select **Local Options** from the pop-up menu.

The **Backup Mode** dialog opens.

4. Select **File Mode** or **Raw Mode** and click **OK**.

Note: For more information about backup modes, see [Backup Modes](#) (see page 37).

CA ARCserve Backup applies the backup mode.

5. To filter VM backup data, right-click the VM and select **Filter** from the pop-up menu.

Note: For more information about filters, see [Filter VM Backup Data](#) (see page 42).

Important! If the **Backup Mode** specified is **Raw Mode** and you specify filters, CA ARCserve Backup does not filter the VM backup data.

6. To specify where you want to store the backup job, click the **Destination** tab or the **Staging** tab.

Note: For more information about specifying a destination or using staging to back up data, see the *Administration Guide* or the online help.

To use multistreaming to transmit backup data, click the Multi Stream check box.

7. To specify the scheduling options for the job, click the **Schedule** tab.

Note: For more information about job scheduling options, see the *Administration Guide* or the online help.

8. To specify global filters, click **Filter** on the toolbar.

The Filter dialog opens.

Note: For more information about filtering VM data, see [Filter VM Backup Data](#) (see page 42). For more information about specifying filters, click the Help button on the Filter dialog.

9. Click **Start** on the toolbar to submit the job.

The **Security and Agent Information** dialog opens.

You must provide ESX Server or VirtualCenter Server and backup proxy system credentials to submit the job, as shown in the following illustration:



10. Select the respective server and click the **Security** button on the **Security and Agent Information** dialog.

The **Security** dialog opens.

11. Enter your login credentials in the **User name** and **Password** fields and click **OK**.

Note: CA ARCserve Backup does not support logging in to systems with passwords that are greater than 23 characters. If the password on the system you are attempting to log in to is greater than 23 characters, you must modify the password on the agent system such that it is 23 characters or less, and then you can log in to the agent system.

CA ARCserve Backup applies your security credentials and the **Submit Job** dialog opens.

12. Complete the fields on the **Submit Job** dialog and click **OK**.

Note: For more information about Submitting Jobs, click the Help button on the Submit Job dialog.

CA ARCserve Backup submits the job.

Note: For more information about viewing job status and other job-related tasks, see the *Administration Guide* or the online help.

More information:

[How VMware Consolidated Backup Works](#) (see page 9)

[How to Browse Backup Volumes](#) (see page 35)

[VCB Backup and Restore Limitations](#) (see page 51)

How the Agent Supports the Preflight Check Utility

The preflight check (PFC) utility lets you run vital checks on the CA ARCserve Backup server and agents to detect conditions that may cause backup jobs to fail.

For Agent for VMware backups, the PFC utility checks the status of the Client Agent for Windows that is running on the backup proxy system. The PFC does not check the status of the VMs that you specified for the backup on the ESX Server system or the VirtualCenter Server system.

Note: For more information about using the PFC utility, see the *Administration Guide*.

The PFC utility performs the following checks on VMware ESX Server backups under the following scenarios:

- A backup job is submitted using the agent. The Client Agent for Windows is running on the VCB proxy system.

The following message displays:

Note: The target node <VCB Proxy System's Name/IP> is a VMware VCB Proxy System. PFC only verifies the status of Client Agent on the VMware VCB Proxy Server. It will not check the status of Virtual Machines which you have selected for backup on the VMware ESX Server.

- A backup job is submitted using the agent. The Client Agent for Windows is not running on the VCB proxy system.

The following message displays:

Issues: Failed to connect to the client agent on <VCB Proxy System's Name/IP>. Ensure that the client agent on <VCB Proxy System's Name/IP> is running.

Note: The target node <VCB Proxy System's Name/IP> is a VMware VCB Proxy System. PFC only verifies the status of Client Agent on the VMware VCB Proxy Server. It will not check the status of Virtual Machines which you have selected for backup on the VMware ESX Server.

Filter VM Backup Data

If the VM is running a VMware-supported Windows operating system, and you are performing a file mode backup, you can filter VM backup data. This mechanism lets you perform the the following tasks:

- Back up only the data on the VM based on, for example, file pattern, date range, date modified, file size, and so on.
- Selectively back up files, folders, or both in a selected volume.
- Apply filtering criteria globally or locally to your backup jobs.

Note: A *global* filter applies filters to all of your backup jobs while a *local* filter applies filters only to the selected VM.

To filter VM backup data

1. Open the Backup Manager window and browse to the VM that you want to filter.
2. Do one of the following actions:
 - To apply **global** filters to the backup operation, click the **Filter** toolbar button on the Backup Manager window.
 - To apply **local** filters to the backup operation, right-click the VM object and select **Filter** from the pop-up menu

The **Filter** dialog opens.

3. Specify the filters required to complete the backup job.

For more information about filtering data, click **Help** on the **Filter** dialog.

More information:

[Back Up Data](#) (see page 39)

How to Browse Restore Sessions

You use the same process to restore data contained in a VM as that of restoring from any other physical server.

Note: For more information about restoring data, see the *Administration Guide* or the online help.

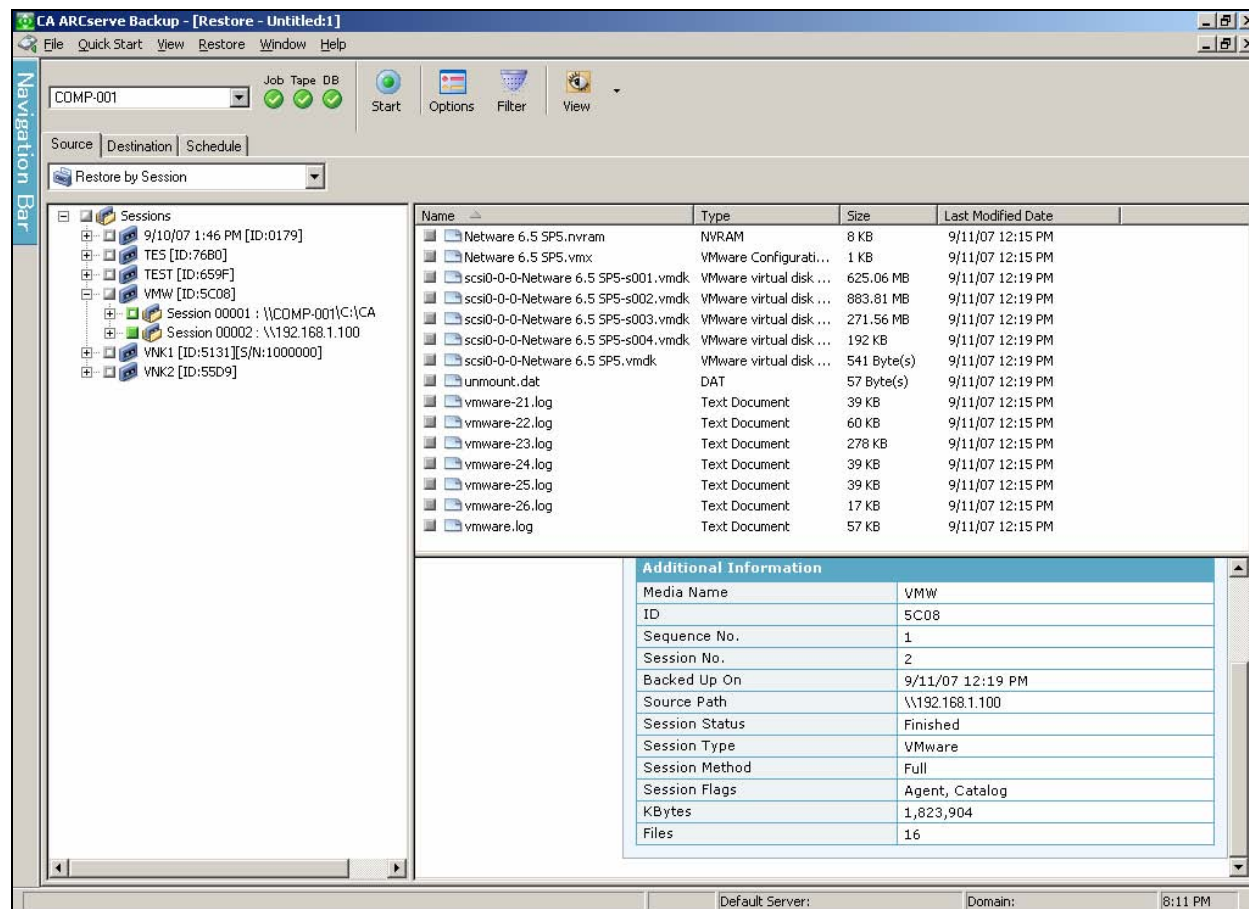
However, restoring data from a VM presents the following limitations:

- You can restore file level backups (File Mode) to their original location or an alternate location.

Note: To restore files to their original location on a VM, the Client Agent for Windows must be installed on the VM.

- You can restore raw (full VM) level backups to an alternate location only.

The following screen illustrates the Restore Manager with the Source tab displayed. The Restore by Session option is selected. A session is highlighted in the Restore by Session directory tree.



The session properties section of the Restore Manager window displays the following information about the VMware backup data:

VMware Proxy

Indicates the name of the backup proxy system that was used to back up this VM.

VMware ESX Server

Indicates the name of the ESX Server or the VirtualCenter Server system from which the VM was running when the backup job was submitted.

Host Name

Indicates the host name of the VM involved with the backup job.

Session Method

Indicates the type of backup method that was used to back up the VM (for example, Raw and File).

Restoring Data

When you back up a VM using CA ARCserve Backup on the backup proxy system, you can restore the following types of data:

- [File level backups](#) (see page 45)
- [Raw \(full VM\) level backups](#) (see page 48)

More information:

[VCB Backup and Restore Limitations](#) (see page 51)

Restore File-Level Data

You would restore file level data that was backed up on a VM when a file is corrupt or deleted in error.

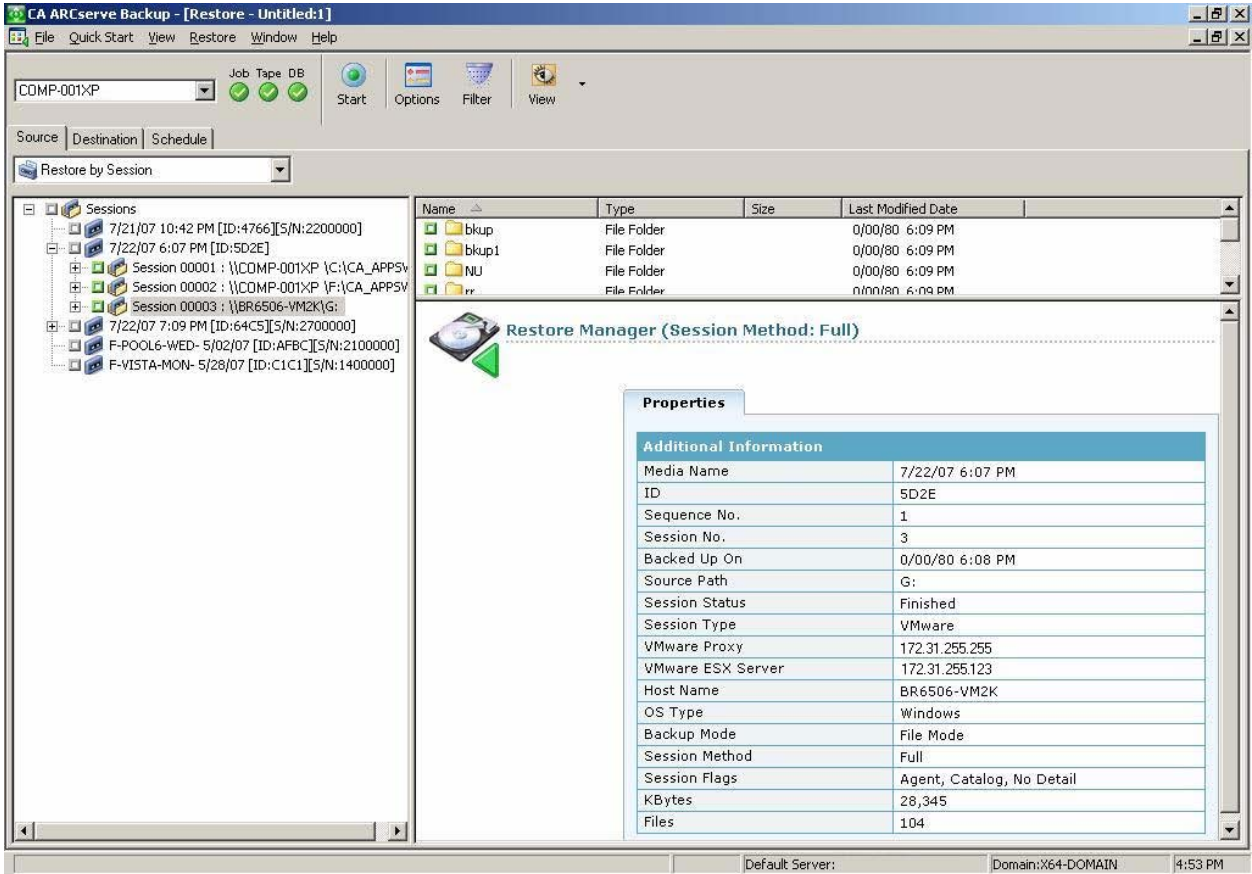
When you restore raw file level backup data, consider the following:

- To restore data that was backed up using the Agent for VMware, the current version of the Client Agent for Windows must be installed on the destination system.
- You use the same process to restore file level backup data as that of restoring any Windows-based client agent file.

For more information about restoring data, see the *Administration Guide*.

To restore file level data

1. Open the **Restore Manager**, click the **Source** tab, and select the **Restore by Session** method from the drop-down list.
2. Browse to the volume and select the session that you want to restore as illustrated by the following screen:



3. Click the **Destination** tab. Click the **Restore files to their original locations** check box to restore the files to their original location.

To restore files to their original location, the Client Agent for Windows must be installed on the VM. If the Client Agent for Windows is not installed on the VM, you can restore the data to any location and then copy the data manually to the VM using a network filesystem share.

Important! To restore VMware-based backup sessions to an alternate location, the Client Agent for Windows must be running on the alternate system and the alternate system must appear under Windows Systems object. If you attempt to restore data to system that does not appear under the Windows Systems object, the restore job will fail. To restore data to an alternate location on a local system that is running a Windows 32-bit operating system, add the system with a fictitious host name and its real IP address under the Windows Systems object on the Restore Manager, Destination tab. Then you can specify the destination as the local system and submit the restore job.

If the backup data was created from a full VM backup, CA ARCserve Backup does not support the **Restore files to their original location** option. For more information, see [Restore Raw \(Full VM\) Level Data](#) (see page 48).

4. Click the **Schedule** tab and specify a schedule from the **Repeat Method** drop-down.
5. Click **Submit** on the toolbar to submit the restore job.
The **Security and Agent Information** dialog opens. To submit the job, you must provide login credentials for the system where you are restoring data.
6. Specify your login credentials in the **User name** and **Password** fields and click **OK**.

CA ARCserve Backup applies your security credentials and the Submit Job dialog opens.

7. Complete the fields on the **Submit Job** dialog and click **OK**.

Note: For more information about Submitting Jobs, click Help on the Submit Job dialog.

CA ARCserve Backup submits the job.

Note: For more information about viewing job status and other job-related tasks, see the *Administration Guide* or the online help.

More information:

[VCB Backup and Restore Limitations](#) (see page 51)

Restore Raw (Full VM) Level Data

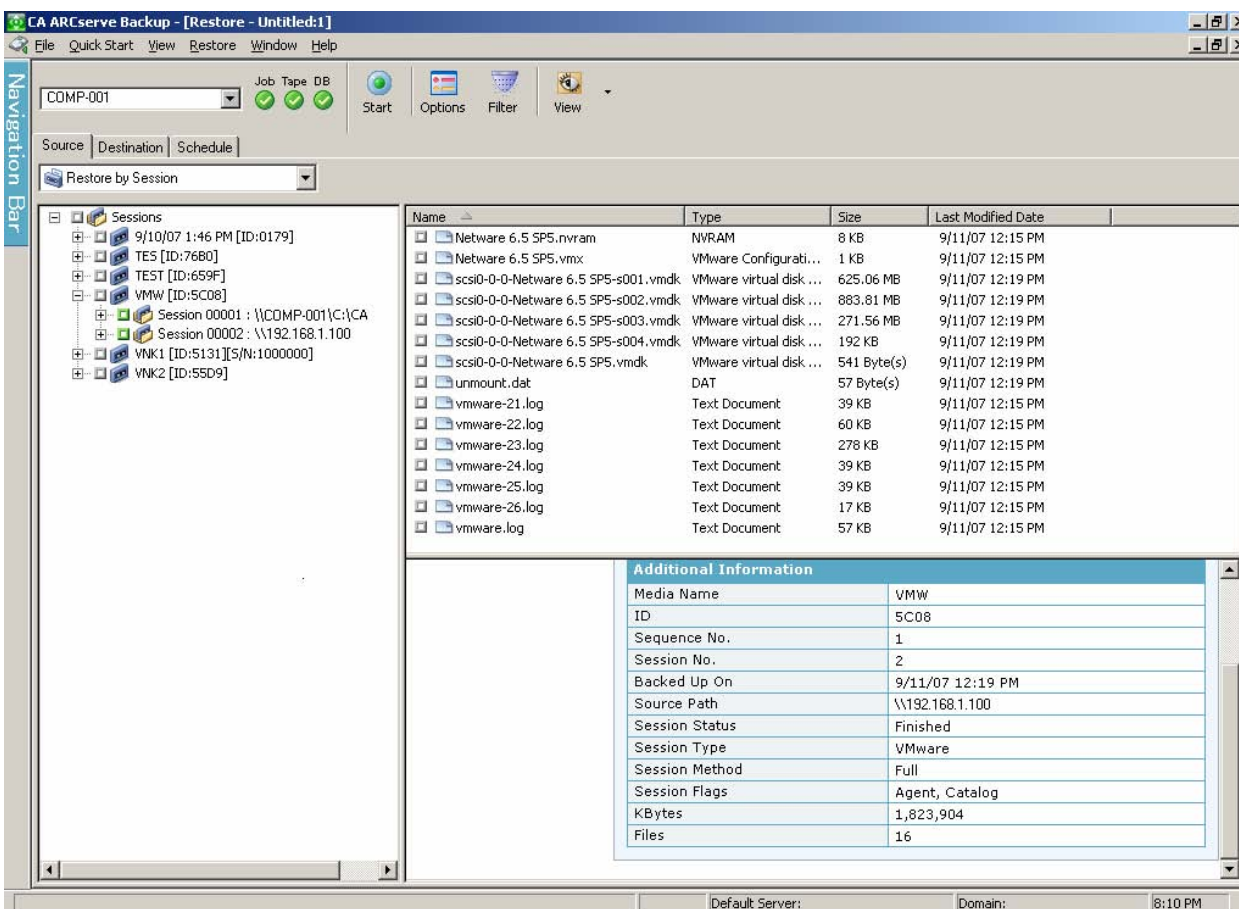
When the operating system that is running on the VM is not a VMware-supported Windows-based operating system, you must perform a raw (full VM) level backup of a VM. You can use this type of restore operation for disaster recovery.

When you restore raw (full VM) level backup data, consider the following:

- To restore data that was backed up using the Agent for VMware, the current version of the Client Agent for Windows must be installed on the destination system.
- You can view raw (full VM) level backup sessions in a directory tree structure at the VM level and perform a full VM restore to an alternate location.

- You cannot restore raw (full VM) level backup data that was backed up from a Windows or non-Windows VM at file level granularity.

The Restore Manager displays session-level details as illustrated by the following screen:



- CA ARCserve Backup ignores filters that you apply to raw (full VM) restore operations.

Note: For more information, see [VCB Backup and Restore Limitations](#) (see page 51).

To restore raw (full VM) level data

1. Open the **Restore Manager** window, click the **Source** tab and select **Restore by Session** from the drop-down list.

Browse to and select the raw (full VM) session that you want to restore.

2. Click the Submit toolbar button to restore the backup data to the backup proxy system or any Windows-based system with the CA ARCserve Backup Client Agent for Windows installed.

Important! To restore VMware-based backup sessions to an alternate location, the Client Agent for Windows must be running on the alternate system and the alternate system must appear under Windows Systems object. If you attempt to restore data to system that does not appear under the Windows Systems object, the restore job will fail. To restore data to an alternate location on a local system that is running a Windows 32-bit operating system, add the system with a fictitious host name and its real IP address under the Windows Systems object on the Restore Manager, Destination tab. Then you can specify the destination as the local system and submit the restore job.

Note: For more information about submitting jobs, see the *Administration Guide*.

3. Copy the restore raw (full VM) level backup data to the original ESX Server system.

4. After the backup directory of the VM is present in its original ESX Server system (where the VM was present) or in a remote server system, you can use the VMware provided `vcbrestore` command line utility to restore the VM. However, before you run the `vcbrestore` utility, you must update the configuration file labeled `backuptools.conf` stored in the following directory:

```
/etc/vmware
```

Syntax:

```
vcbRestore -s <backup_directory>
```

Examples:

The following example describes the syntax required to restore the VM to a directory that is local (`/home/VM/WIN_VM1`) to the ESX Server system:

```
vcbRestore -s /home/VM/WIN_VM1
```

The following example describes the syntax required to restore the VM from a server that is remote (`host_name.ca.com`) to the local ESX Server system:

```
vcbRestore -s scp://root@host_name.ca.com:/home/VM/WIN_VM1
```

Note: The backup should be a complete VM image backup. It should include the VM folder that contains all the resource and configuration files for the VM (for example, `\vmfs\volumes\Volume name\VM-folder`).

VCB Backup and Restore Limitations

The following limitations govern VCB backup and restore operations:

- You cannot browse to the file level in a VM.

The `ca_vcbpopulatedb` utility populates the CA ARCserve Backup database with information to the volume level.

- The VMs in the ESX Server must be in a running state when you run the `ca_vcbpopulatedb` utility.

If the VMs are not in a running state, the `ca_vcbpopulatedb` utility will not populate the CA ARCserve Backup database with accurate data, and you cannot accurately browse the VMs in the ESX Server systems.

- You must run the `ca_vcbpopulatedb` utility after you add, remove, or change volumes in a VM or a VM in an ESX Server system.

Failure to do so can result in inaccurate VM volume data in the CA ARCserve Backup database, and failed backup jobs will occur at runtime.

- There is no command-line support for VCB backups and restores, for example, `ca_backup` and `ca_restore`.

You must use the Backup Manager and Restore Manager to perform VCB backup proxy based backups and restores.

- You cannot use the Restore by Media method to restore file level and raw (full VM) level backup data.
- There is no application level consistency support when backing up data using a backup proxy system.

To protect application level data, you can create custom prescripts and postscripts that let you keep application level data in a consistent state. You can use the custom scripts as pre-freeze and post-thaw scripts. For more information about pre-freeze and post-thaw scripts, see the *VMware Virtual Machine Backup Guide*.

- The Compare Utility does not support comparing VMware backup sessions.

When you try to perform a Compare operation on VMware sessions, CA ARCserve Backup performs a Scan operation instead of the Compare operation.

- The agent does not support the following global backup options:
 - Delete files after backup job
 - Open file retry

Note: For more information about global backup options, see the *Administration Guide*.

- Due to limitations in the physical and logical mapping of the volumes in the CA ARCserve Backup database, the Merge Utility does not support performing a sequential merge.

If you need to merge data about VMware sessions into the CA ARCserve Backup database, you can merge the catalog data.

More information:

[Back Up Data](#) (see page 39)

[Restore File-Level Data](#) (see page 45)

[Restore Raw \(Full VM\) Level Data](#) (see page 48)

Appendix A: Troubleshooting

This section contains the following topics:

[VM Mount Operation Fails](#) (see page 53)

[VM Unmount Operation Fails](#) (see page 55)

[The ARCserve VMware Configuration Tool or the ca_vcbpopulatedb Fails](#) (see page 55)

VM Mount Operation Fails

Valid on Windows platforms.

Symptom:

A raw (full VM) mount operation or a file-level VM mount operation failed.

Solutions:

To perform a raw (full VM) mount operation or a file level VM mount operation, VCB first takes a snapshot of a VM and then exports the files to the backup proxy system. There are several reasons this problem can occur and actions you can take to remedy the this problem.

Reason 1:

There is not enough space in the disk volume on the backup proxy system.

Action 1:

Clean up the disk or change the mount path to a different volume that has enough space.

Reason 2:

The ESX server is down.

Action 2:

Take corrective action if the ESX server on which the VM resides is down.

Reason 3:

VM has become temporarily unmountable.

Action 3:

Run vcbMounter utility for the VM on the backup proxy system, if the VM has become temporarily unmountable.

You can run the utility using the command-line by navigating to the directory where VMware VCB framework is installed. To view the syntax for the utility, type the following in the command line:

```
vcbMounter -help
```

If the vcbMounter utility fails to mount the specified VM, then the problem could be with the VMware VCB framework. Restart the backup proxy system and resubmit the VM backup job.

Reason 4:

The backup source included VMs with an Independent (Persistent/Nonpersistent) disk mode specified.

Action 4:

Clear or Remove the Independent disk mode setting for all virtual disks associated with the VM.

Reason 5:

The job was submitted with incorrect VMware ESX Server or VirtualCenter Server user credentials. The credentials were specified on the Security and Agent Information dialog.

Action 5:

Resubmit the VM backup job with valid credentials. You must provide valid VMware ESX Server system credentials or VirtualCenter Server system credentials, and backup proxy system credentials on the Security and Agent Information dialog.

Reason 6:

A VM is no longer available in the VMware environment.

Action 6:

Run the ARCserve VMware Configuration Tool or ca_vcbpopulatedb utility to populate the CA ARCserve Backup database with updated information about your VMware environment.

VM Unmount Operation Fails

Valid on Windows platforms.

Symptom:

On a VM, an unmount operation fails after a successful mount operation.

Solution:

An unmount operation can fail under the following conditions:

- The mount path is not correct.
- An incorrect mount mode was specified, for example, File or Raw (Full VM).
- Some of the catalog files may have been deleted in the mount point.
- The user deleted or tried to delete the VCB mount snapshot.
- The VM is moved to a different ESX Server system during the backup operation using VMotion.

To fix this problem, you must manually delete the VCB mount snapshot of the VM using the VI Client. If the delete operation fails, restart the VM and delete the VCB mount snapshot for the VM.

To view log information for mount and unmount operations, view the file labeled Mount_jnl.log, which is stored in the Client Agent installation directory.

The ARCserve VMware Configuration Tool or the ca_vcbpopulatedb Fails

Valid on Windows platforms.

Symptom:

The ARCserve VMware Configuration Tool or the ca_vcbpopulatedb utility fails. the following error message appears in the Results field on the ARCserve VMware Configuration Tool.

```
.NET version >= not found. Exiting ca_vcbpopulatedb.
```

Note: This message appears in the Command Prompt window when you execute the ca_vcbpopulatedb utility using the Windows Command Prompt.

Solution:

This error occurs when Microsoft .NET Framework, Version 2.0 or higher, is not detected on the backup proxy system.

To remedy this problem, complete the following steps:

1. Ensure that Microsoft .NET Framework, Version 2.0 or higher, is installed and running on the backup proxy system..
2. Open a .NET Command Prompt and change to the Client Agent for Windows installation directory. By default, the Client Agent for Windows is installed in the following directory:

C:\Program Files\CA\ARCserve Backup Client Agent for Windows

Execute the following command:

```
regasm vcb_com.dll
```

(Optional) If you cannot locate the .NET Command Prompt, complete the following steps:

- a. Open a Windows Command Line and change to the following directory:

C:\WINDOWS\Microsoft.NET\Framework

- b. After you change to this directory, change to the directory that is greater than Microsoft .NET Framework Version 2.0. For example:

C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727

- c. Execute the following command:

```
regasm <Client Agent for Windows installation directory>\Vcb_com.dll
```

After the execution is complete and successful, the following output appears in the .NET Command Prompt or the Windows Command Prompt:

```
Microsoft (R) .NET Framework Assembly Registration Utility 2.0.50727.42  
Copyright (C) Microsoft Corporation 1998-2004. All rights reserved.
```

Types registered successfully.

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