CA ARCserve D2D

User Guide

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Contact CA

Contact Technical Support

For your convenience, CA provides one site where you can access the information you need for your Home Office, Small Business, and Enterprise CA products. At http://ca.com/support, you can access the following:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Provide Feedback

If you have comments or questions about CA product documentation, you can send a message to techpubs@ca.com.

If you would like to provide feedback about CA product documentation, complete our short customer survey, which is also available on the CA Support website, found at http://ca.com/docs.

Support Links for CA ARCserve D2D:

CA Support Online offers a rich set of resources for resolving your technical issues and provides easy access to important product information. With CA Support you have easy access to trusted advice that is always available. The following links let you access the various CA Support sites that are available to help you:

Understanding your Support

This link provides information on maintenance programs and support offerings, including terms and conditions, claims, service-level objectives (SLO), and service hours.

https://support.ca.com/prodinfo/d2dsupportofferings

Registering for Support

This 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

This link takes you to the One-Stop Product Support page for CA ARCserve D2D.

https://support.ca.com/prodinfo/arcserved2d

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Chapter 1: Understanding CA ARCserve D2D

This section contains the following topics:

Introduction

CA ARCserve D2D is a disk-based backup product designed to provide a fast, simple, and reliable way to protect and recover critical business information. CA ARCserve D2D is a light-weight solution for tracking changes on a machine at the block level and then backing up only those changed blocks in an incremental fashion. As a result, CA ARCserve D2D lets you perform frequent backups (as frequently as every 15 minutes), thereby reducing the size of each incremental backup (as well as the backup window) and providing a more up-to-date backup. CA ARCserve D2D also provides the capability to restore files/folders, volumes, and applications, and perform bare metal recovery from a single backup.

CA ARCserve D2D User Guide

The same topics contained in the CA ARCserve D2D Help system are also available as a User Guide in PDF format. The latest PDF version of this guide can always be accessed from here: CA ARCserve D2D User Guide.

Features

BACKUP

CA ARCserve D2D provides the following backup features:

- Lets you perform different types of backup jobs, such as full, incremental, or verify.
- Provides volume filtering capability to let you specify to back up only the selected volumes.
  - If the specified backup destination is located on the local volume, a warning message will be displayed to notify you that this volume will not be backed up.
  - If system/boot volume is not selected for backup, a warning message will be displayed to notify you that the backup will not be usable for Bare Metal Recovery (BMR).
- Protects all specified volumes of your machine (except if the volume contains the backup destination).
- Lets you set/change backup schedules (or immediately initiate a customized backup).
- Lets you remotely manage several machines (one at a time).
- Lets you perform backups from both CA ARCserve D2D and CA ARCserve Backup simultaneously.
- Provides a system tray monitor to display status/notification information and perform quick actions.

Block Level Incremental Backups

- Only backs up the blocks on the source volumes that have changed since the last successful backup.
- Significantly reduces the amount of backup data.

  If you have a large file and only change a small portion of this file, CA ARCserve D2D will back up only the changed portion to the incremental backup and not back up the whole file.
- Consumes less disk space and less time.
- Lets you perform more frequent backups, making the backup images more up-to-date (as often as every 15 minutes) for recovery.

Infinite Incremental (I^2) Snapshots

- Initially creates one full backup and then intelligently creates incremental snapshot backups forever (after the initial full backup).
- Uses less storage space, performs backups faster, and puts less load on your production servers.
- Can automatically collapse (merge) incremental changes optimizing the use of disk storage.

Application Consistent Backups

- Takes advantage of Windows Volume Shadow Copy Service (VSS) to ensure data consistency for any VSS-aware application.
- Provides recovery of both Microsoft SQL Server and Microsoft Exchange Server (without performing a full disaster recovery).

Ad-Hoc Backups

An ad-hoc backup is one that is created when the situation makes it necessary, rather than being arranged in advance or being part of a plan.

- Provides you with the flexibility to perform "ad-hoc" backups outside of the scheduled backups.

  For example, if you have repeat schedule for Full, Incremental, and Verify backups and you want to make major changes to your machine, you may want to perform an immediate backup without waiting for the next scheduled backup to occur.
- Provides you with the capability to add a customized (unscheduled) recovery point so that you can roll back to this previous point in time if necessary.

  For example, if you install a patch or service pack and then discover that it adversely affects the performance of your machine, you may want to roll back to the ad-hoc backup session that does not include it.

Change Backup Destination

- Provides you with the capability to change the backup destination. When the disk space on your destination volume reaches its maximum capacity, CA ARCserve D2D lets you change the destination and continue with full or incremental backups.

  Note: You can also configure email alert notifications for Destination Threshold so that you can be informed if it reaches the specified threshold value.

Export Recovery Points

- Provides you with the capability to export recovery point data and safely store it offsite in case of a catastrophe, or you may want to save your recovery points to multiple locations. In addition if your destination is getting full, you may want to consolidate your backups into a single recovery point which resembles the exact state at that point. When you select a recovery point to export you are not only capturing the backup blocks that were created for that specified point-in-time, but also whatever previous backup blocks are needed to recreate a full and most recent backup image.

Backup Status Monitoring

CA ARCserve D2D provides the capability to monitor:

- Last backup status
- Recovery Points
- Destination capacity
- Protection summary
- Most recent backups
- Overall backup success rate
- License notifications

Job Status Monitoring

CA ARCserve D2D provides the capability to monitor:

- Details about the next scheduled job
- Details about the currently running job

RESTORE

CA ARCserve D2D provides the following restore features:

- Restore data from specific recovery points
- Search/browse to a specific file/folder to restore
- Set the restore destination to an alternate location or server

Types of Restores

CA ARCserve D2D provides three types of restores:

- **File-Level Restore**

  Restores any backed up files/folders.

- **Application Restore**

  Restores backed up Microsoft SQL Server/Microsoft Exchange data at the database level.

- **Bare Metal Recovery (BMR)**
  - Recovers a computer system from "bare metal", and includes the operating system, applications, and data components necessary to rebuild or restore the entire backed up system (for disaster recovery, migration from one server to another).
  - Restores to dissimilar hardware and resolves any hardware differences.
  - Expands and restores to bigger disks if necessary.

Disk Resizing

- During a Bare Metal Recovery, you can restore the image to another disk, and resize the disk partitions if required (without losing any data stored on the drive).
- When restoring to another disk, the capacity of new disk must be the same size or larger than the original disk.

  Note: Disk resizing is for basic disks only, and not for dynamic disks.

REMOTE DEPLOYMENT

After CA ARCserve D2D is installed on a server, you can further deploy it remotely to other servers.

CA ARCserve D2D Videos

For those of you who believe that "a picture is worth a thousand words" CA ARCserve D2D provides a variety of how-to videos designed to simplify your understanding and performance of specific tasks. Watching step-by-step videos is a great way to help you learn how to use D2D features to perform essential system protection procedures.

You can access these instructional videos from the CA ARCserve D2D user interface or from within the product documentation. Just choose the CA Support website or YouTube as the source for viewing these videos.

- To view CA ARCserve D2D videos on CA Support
- To view CA ARCserve D2D videos on YouTube

The videos supplied are just a start, and we expect to have more created in the future. If you have any ideas for new videos, let us know. You can click the user interface link to Provide Feedback to Development, or post a comment on the Expert Advice Center. You can even send CA an email using the link at the bottom of all Online Help topics.

How CA ARCserve D2D Works

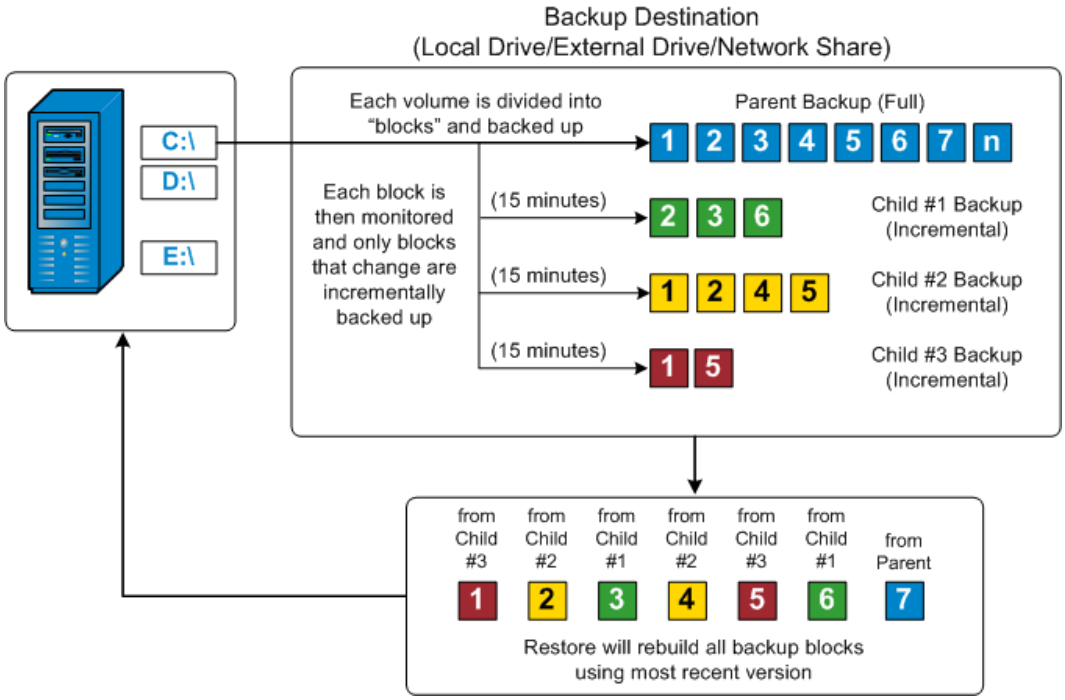
CA ARCserve D2D lets you perform frequent and periodic block level backups of your full machine. These backups can be stored on either an internal drive, an external drive, or on a remote network share. To avoid a continuous and never-ending backup cycle, the volume being backed up cannot be specified as the backup destination. CA ARCserve D2D provides the capability to perform Full, Incremental, or Verify type backups.

The basic process for how CA ARCserve D2D works is simple. When you initiate a backup (either as scheduled or manually launched), CA ARCserve D2D captures full VSS snapshot, and then backs up only blocks that has been changed from previous successful backup. During this block-level backup process, CA ARCserve D2D not only captures the data, but also creates a catalog containing all information related to the operating system, installed applications (Microsoft SQL and Microsoft Exchange only), configuration settings, necessary drivers, and so on. When required, you can then restore this backed-up image to recover your data or your entire machine.

How Block-Level Incremental Backups Work

When invoked (either as scheduled or manually initiated), CA ARCserve D2D divides the specified volume into a number of subordinate data blocks that are then backed up. The initial backup is considered the "parent backup" and will be a full backup of the volume to establish the baseline blocks to be monitored. Prior to performing the backup, a VSS snapshot is created and an internal monitoring driver then checks each block to detect any changes. As scheduled, CA ARCserve D2D incrementally backs up only those blocks that have changed since the previous backup. CA ARCserve D2D allows you to schedule the subsequent block-level incremental backups ("child backups") as frequently as every 15 minutes to provide up-to-date backup images.

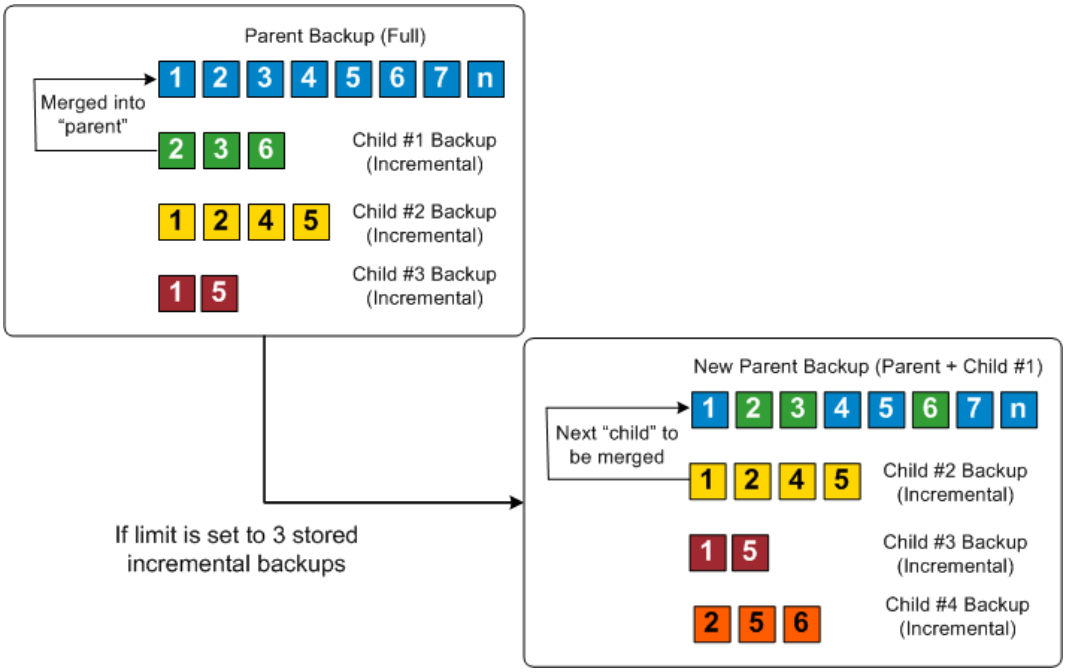
If you need to restore the volume information, CA ARCserve D2D will then locate the most recent backed up version of each block and rebuild the entire volume using these most current blocks.



How Infinite Incremental Backups Work

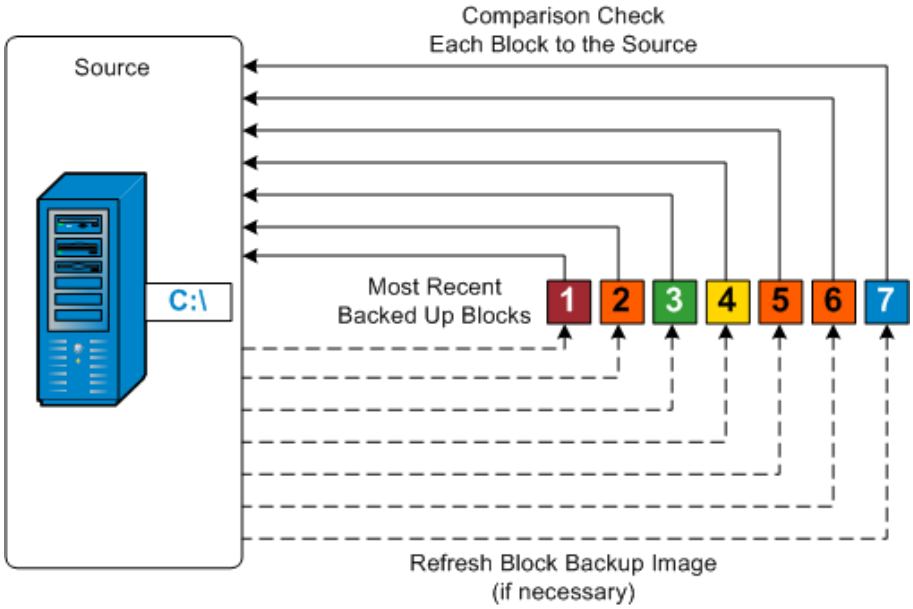
If left alone, the incremental snapshots (backups) would continue, as often as 96 times each day (every 15 minutes). These periodic snapshots will accumulate a large chain of backed up blocks to be monitored each time a new backup is performed, and require added space to store these ever-growing backup images. To minimize this potential problem, CA ARCserve D2D allows you to set a limit for the number of incremental child backups to be stored. This can be done by configuring the Recovery Points option from the Protection Settings tab on the Backup Settings dialog.

When the specified limit is exceeded, CA ARCserve D2D will merge the earliest (oldest) incremental child backup into the parent backup to create a new baseline image consisting of the "parent plus oldest child" blocks (unchanged blocks will remain the same). This cycle of merging the oldest child backup into the parent backup will repeat for each subsequent backup, allowing you to perform Infinite Incremental (I^2) snapshot backups, while maintaining the same number of stored (and monitored) backup images.



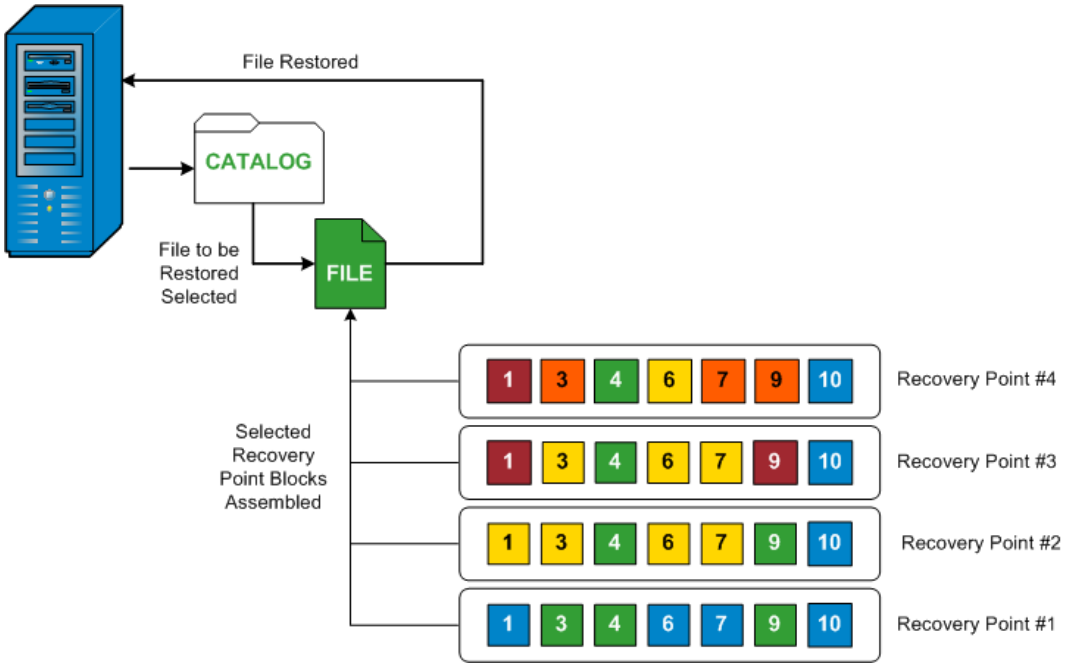
How Verify Backups Work

Every so often (as scheduled or when manually initiated), CA ARCserve D2D can perform a Verify (resynchronization) type backup to provide a confidence check of the stored backup image and resynchronize that image if necessary. A Verify type backup will look at the most recent backup of each individual block and compare the content and information to the source. This comparison verifies that the latest backed up blocks represent the corresponding information at the source. If the backup image for any block does not match the source (possibly because of changes in the system since the last backup), CA ARCserve D2D will refresh (resynchronize) the backup of the block that does not match. A Verify backup can also be used to get the same guarantee as a full backup without taking the space of full backup. The advantage of a Verify backup is that it is very small when compared to full backup because only the changed blocks (blocks that do not match the last backup) are backed up. However, a Verify backup is also slower than an Incremental backup because CA ARCserve D2D has to compare all of source disk blocks with the blocks of the last backup.



How File Level Restores Work

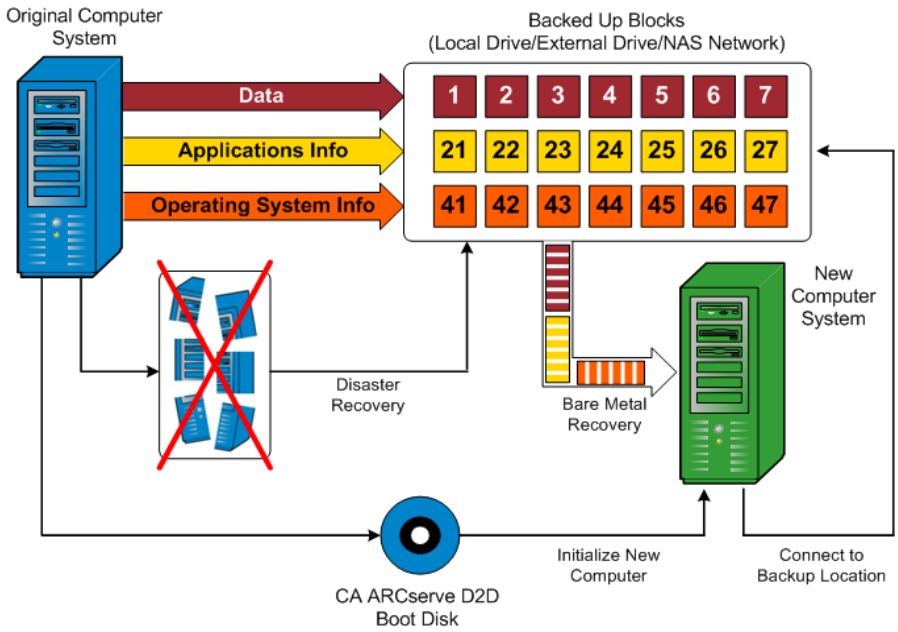
During a block-level backup, each backed up file is made up of a collection of blocks that define that particular file. A catalog file is created containing a list of the backed up files, along with the individual blocks that were used for each file and the available recovery points for these files. When you need to restore a particular file, you can search your backup and select the file you want to restore and the recovery point you want to restore from. CA ARCserve D2D will then collect the version of the blocks that were used for the recovery point of the specified file, and reassemble and restore the file.



How Bare Metal Recovery Works

Bare Metal Recovery is the process of restoring a computer system from "bare metal" by reinstalling the operating system and software applications, and then restoring the data and settings. The most common reasons for performing a bare metal recovery are because your hard drive either fails or becomes full and you want to upgrade (migrate) to a larger drive or migrate to newer hardware. Bare metal recovery is possible because during the block-level backup process, CA ARCserve D2D captures not only the data, but also all information related to the operating system, installed applications, configuration settings, necessary drivers, and so on. All relevant information that is necessary to perform a complete rebuild of the computer system from "bare metal" is backed up into a series of blocks and stored on the backup location.

Note: Dynamic disks will be restored at disk level only. If your data is backed up to a volume on a dynamic disk, you will not be able to restore this dynamic disk (including all its volumes) during BMR.



When you perform a bare metal recovery, the CA ARCserve D2D boot disk is used to initialize the new computer system and allow the bare metal recovery process to begin. When the bare metal recovery is started, CA ARCserve D2D will prompt you to select or provide a valid location to retrieve these backed up blocks from, as well as the recovery point to be restored. You may also be prompted to provide valid drivers for the new computer system if needed. When this connection and configuration information is provided, CA ARCserve D2D begins to pull the specified backup image from the backup location and restore all backed up blocks to the new computer system (empty blocks will not be restored). After the bare metal recovery image is fully restored to the new computer system, the machine will be back to the state that it was in when the last backup was performed, and CA ARCserve D2D backups will be able to continue as scheduled. (After completion of the BMR, the first backup will be a Verify Backup).

Chapter 2: Installing CA ARCserve D2D

This section contains the following topics:

Installation Considerations

Review the following installation considerations before installing CA ARCserve D2D.

- The CA ARCserve D2D installation package is available through a web download and from the product installation CD/DVD.
- Ensure that you have administrator privileges or the proper permissions to install software on the servers where you are installing CA ARCserve D2D.
- If you uninstall and install a new CA ARCserve D2D build and specify the same backup destination as the previous build, the first backup after the installation will be run as a Verify backup.
- After you install CA ARCserve D2D to a server, there is a deployment link on the home page to let you deploy CA ARCserve D2D remotely. With this link you will be able to deploy CA ARCserve D2D to other servers remotely.
- If CA ARCserve D2D is being installed on a x64 Windows Core Operating System (Windows Server 2008/R2 Core edition), you should also install Windows-on-Windows 64-bit (WOW64) on the Server Core for CA ARCserve D2D setup to work.
- By default, CA ARCserve D2D uses the Hypertext Transfer Protocol (HTTP) for communication among all of its components. If you are concerned about the security of passwords communicated between these components, you can change the protocol being used to Hypertext Transfer Protocol Secure (HTTPS). For more information, see Change Server Communication Protocol (see page 133).

How the Installation Process Affects Operating Systems

The CA ARCserve D2D installation process updates various Windows operating system components using an installation engine called the Microsoft Installer Package (MSI). The components included in MSI let CA ARCserve D2D perform custom actions that let you install, upgrade, or uninstall CA ARCserve D2D.

The following table describes the custom actions and the affected components.

Note: All CA ARCserve D2D MSI packages call the components listed in this table when you install and uninstall CA ARCserve D2D.

Component	Description
CallAllowInstall	Lets the installation process check for conditions relating to the current CA ARCserve D2D installation.
CallPreInstall	Lets the installation process read and write MSI properties. For example, read the CA ARCserve D2D installation path from the MSI.
CallPostInstall	Lets the installation process perform various tasks relating to installation. For example, registering CA ARCserve D2D into the Windows Registry.
CallAllowUninstall	Lets the uninstallation process check for conditions relating the current CA ARCserve D2D installation.
CallPreUninstall	Lets the uninstallation process perform various tasks relating to uninstallation. For example, un-registering CA ARCserve D2D from the Windows Registry.
CallPostUninstall	Lets the uninstallation process perform various tasks after the installed files are uninstalled. For example, removing the remaining files.
ImageCopy	Lets the installation process perform the image copy for CA ARCserve D2D deployment.
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.)

Component	Description
CheckForProductUpdates	Uses FLEXnet Connect to check for product updates. This custom action launches an executable file called 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 called Agent.exe, and it passes the following: /au[ProductCode] /EndOfInstall /Reboot

Directories Updated

The installation process installs and updates CA ARCserve D2D files in the following directories by default (x86 and x64 operating systems):

C:\Program Files\CA\ARCserve D2D

You can install CA ARCserve D2D into the default installation directory or into an alternate 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\CA ARCserve D2D

- The installation process creates new registry keys and modifies various other registry keys, based on your system's current configuration.

Applications Installed

The installation process installs the following applications into your computer:

- CA Licensing
- Microsoft Visual C++ 2005 SP1 Redistributable
- Microsoft Windows Installer 3.1 Redistributable (v2)
- Java Runtime Environment (JRE) 1.6.0_16
- Tomcat 6.0.20

System Reboot Required by CA ARCserve D2D Installation

A system reboot is required by CA ARCserve D2D installation. One driver "ARCFlashVolDrv.sys" needs to be installed onto the target machine. This driver can only be loaded and take affect after a system reboot. Without the driver, the core functionality of CA ARCserve D2D will not work.

System Reboot Required by CA ARCserve D2D Uninstallation

A system reboot is required by CA ARCserve D2D uninstallation. One driver "ARCFlashVolDrv.sys" is installed onto the target machine while CA ARCserve D2D was installed. This driver will be loaded when the system is booted. To completely remove this driver from the machine, one system reboot after uninstallation is required.

Unsigned Binary Files

CA ARCserve D2D installs binary files that are developed by third parties, other CA products, and CA ARCserve D2D that are not signed. The following table describes these binary files.

Binary Name	Source
CALicense.msi	CA License
zlib1.dll	Zlib Compression Library
tomcat6.exe	Tomcat
tomcat6w.exe	Tomcat
awt.dll	Java Runtime Environment
cmm.dll	Java Runtime Environment
dcpr.dll	Java Runtime Environment
deploy.dll	Java Runtime Environment
deploytk.dll	Java Runtime Environment
dt_shmem.dll	Java Runtime Environment
dt_socket.dll	Java Runtime Environment
eula.dll	Java Runtime Environment
fontmanager.dll	Java Runtime Environment
hpi.dll	Java Runtime Environment
hprof.dll	Java Runtime Environment
instrument.dll	Java Runtime Environment
ioser12.dll	Java Runtime Environment

j2pcsc.dll	Java Runtime Environment
jaas_nt.dll	Java Runtime Environment
java.dll	Java Runtime Environment
java.exe	Java Runtime Environment
java_crw_demo.dll	Java Runtime Environment
javacpl.exe	Java Runtime Environment
java-rmi.exe	Java Runtime Environment
javaw.exe	Java Runtime Environment
javaws.exe	Java Runtime Environment
jawt.dll	Java Runtime Environment
jbroker.exe	Java Runtime Environment
JdbcOdbc.dll	Java Runtime Environment
jdwp.dll	Java Runtime Environment
jli.dll	Java Runtime Environment
jp2iexp.dll	Java Runtime Environment
jp2launcher.exe	Java Runtime Environment
jp2native.dll	Java Runtime Environment
jp2ssv.dll	Java Runtime Environment
jpeg.dll	Java Runtime Environment
jsound.dll	Java Runtime Environment
jucheck.exe	Java Runtime Environment
jureg.exe	Java Runtime Environment
jusched.exe	Java Runtime Environment
keytool.exe	Java Runtime Environment
kinit.exe	Java Runtime Environment
klist.exe	Java Runtime Environment
ktab.exe	Java Runtime Environment
management.dll	Java Runtime Environment
mlib_image.dll	Java Runtime Environment
msvcrt.dll	Java Runtime Environment
net.dll	Java Runtime Environment
npjp2.dll	Java Runtime Environment
nio.dll	Java Runtime Environment

npdeploytk.dll	Java Runtime Environment
npt.dll	Java Runtime Environment
orbd.exe	Java Runtime Environment
pack200.exe	Java Runtime Environment
policytool.exe	Java Runtime Environment
regutils.dll	Java Runtime Environment
rmi.dll	Java Runtime Environment
rmid.exe	Java Runtime Environment
rmiregistry.exe	Java Runtime Environment
jvm.dll	Java Runtime Environment
servertool.exe	Java Runtime Environment
splashscreen.dll	Java Runtime Environment
ssv.dll	Java Runtime Environment
ssvagent.exe	Java Runtime Environment
tnameserv.exe	Java Runtime Environment
unpack.dll	Java Runtime Environment
unpack200.exe	Java Runtime Environment
verify.dll	Java Runtime Environment
w2k_lsa_auth.dll	Java Runtime Environment
wsdetect.dll	Java Runtime Environment
zip.dll	Java Runtime Environment
vcredist_x64.exe	Microsoft
vcredist_x86.exe	Microsoft

Binary Files Containing Incorrect File Version Information

CA ARCserve D2D installs binary files that are developed by third parties, other CA products, and CA ARCserve D2D 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 D2D installs binary files that are developed by third parties, other CA products, and CA ARCserve D2D that do not contain an embedded manifest and do not contain a text manifest. The following table describes these binary files.

Binary Name	Source
CA ARCserve D2D Setup.exe	CA ARCserve D2D
ARCFlashVolDrvINSTALL.exe	CA ARCserve D2D
BaseLicInst.exe	CA License
UpdateData.exe	CA License
WindowsInstaller-KB893803-v2-x86.exe	Microsoft
vcredist_x64.exe	Microsoft
vcredist_x86.exe	Microsoft
tomcat6.exe	Tomcat
tomcat6w.exe	Tomcat

Binary Files that have a Privilege Level of Require Administrator in Manifest

CA ARCserve D2D installs binary files that are developed by third parties, other CA products, and CA ARCserve D2D 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 D2D services, components, and applications. The binaries corresponding to these services, components, and applications contain CA ARCserve D2D 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.

Binaries	Source
afbkw.exe	CA ARCserve D2D
afbkw.exe	CA ARCserve D2D
AFBackend.exe	CA ARCserve D2D
AgentDeployTool.exe	CA ARCserve D2D
Asremsvc.exe	CA ARCserve D2D
DeleteMe.exe	CA ARCserve D2D
MasterSetup.exe	CA ARCserve D2D
MasterSetup_Main.exe	CA ARCserve D2D
SetupFW.exe	CA ARCserve D2D
setup.exe	CA ARCserve D2D
silent.exe	CA License
jbroker.exe	Java Runtime Environment
jucheck.exe	Java Runtime Environment

Install CA ARCserve D2D

This section describes how to install CA ARCserve D2D on your local system using the InstallShield Wizard. The InstallShield Wizard is an interactive application that guides you through the installation process.

To install CA ARCserve D2D

1. Access the CA ARCserve D2D installation package from either the CA web site or the product CD. Select the CA ARCserve D2D Setup.exe if you are using installation package downloaded from the CA web site. Select setup.exe if you are using the product CD.

   Note: If the installation is performed using web downloaded installation package, the contents of the package are extracted to your local system.

   The License Agreement dialog opens.

2. On the License Agreement dialog, read and accept the terms of the Licensing Agreement and click Next.

   The Configuration dialog opens.

3. Enter the following information on the Configuration dialog:

   a. Username and password.

   b. Specify or browse to the location where CA ARCserve D2D is to be installed.

      The default location is: C:\Program Files\CA\ARCserve D2D

   c. Port number. This port number is used to connect to the web-based UI.

      The default port number is: 8014.

      Note: The available port numbers for CA ARCserve D2D installation are between 1024 and 65535. You should ensure that the specified port number is free and available for use. Setup will not let you install CA ARCserve D2D for a port that is not available for use.

   d. Select the check box to allow setup to register CA ARCserve D2D services and programs to Windows Firewall as exceptions.

      Note: Firewall exceptions are required if you want to configure and manage CA ARCserve D2D from remote machines. (For local users, you do not need to register firewall exceptions).

4. Click Install to launch the installation process.

   The Installation Progress screen is displayed indicating the status of the installation.

5. When the installation is complete, the Installation Report summary screen is displayed and automatically performs the product configuration. Click Finish.

   An alert message is displayed, informing you that a system restart is required and asking if you want to reboot at this time or at a later time.

   When the reboot is finished, CA ARCserve D2D is installed on your local system.

6. After installation, CA ARCserve D2D can be accessed from either the Start menu or from the CA ARCserve D2D Monitor.

7. After installation is complete, you may want to use the CA ARCserve D2D Boot Kit utility to create a BMR application USB stick if you are planning to use the created USB stick along with Windows 7/2008/2008 R2 installation media (CD/DVD) for BMR.

   When performing BMR, you will have a choice of using a Windows PE image (which is provided with the CA ARCserve D2D product) or the created USB stick along with the Windows 7/2008/2008 R2 installation media. The Boot Kit utility will also help you integrate BMR applications and third party NIC/SCSI/FC drivers to a USB stick.

   For more information about the Boot Kit utility, see Create a Boot Kit (see page 115).

Video

YouTube: How to: Install CA ARCserve D2D

CA Support: How to: Install CA ARCserve D2D

Silent Install

Silent installation allows for unattended installation and will not prompt you for any input. Silent installations are used when there are similar installations to be performed on more than one computer.

There are two methods for launching a CA ARCserve D2D silent installation:

- from the self-extracting executable file package you installed when you downloaded CA ARCserve D2D
- from the CA ARCserve D2D CD (ISO) image which includes the CA ARCserve D2D setup and WinPE.

To launch the silent installation from the self-extracting executable, run the following command:

```
"CA ARCserve D2D Setup.exe" /s /a /i /AdminUser:<UserName>
/AdminPwd:<Password>
```

To launch the silent installation from the CD image, run the following command:

```
<CDROOT>\Install\MasterSetup.exe /i /AdminUser:<UserName>
/AdminPwd:<Password>
```

Note: UserName must be an account that has administrative privileges.

For a silent installation, CA ARCserve D2D will automatically use all the default backup settings and the following configuration settings:

- Install location: C:\Program Files\CA\ARCserve D2D
- Port: 8014

In addition, you must restart the target machine after the silent installation is finished.

Chapter 3: Getting Started with CA ARCserve D2D

This section contains the following topics:

Getting Started

When you first access CA ARCserve D2D, the Getting Started dialog is displayed. From this dialog you can access videos and the online help to learn more about CA ARCserve D2D. In addition, you can also access the various dialogs to specify such configuration settings as your backup source and destination, parameters, schedule, alert notifications, and other related tasks. You can also select the option to not show this Getting Started dialog again.

CA ARCserve D2D User Interface

Before you use CA ARCserve D2D, you should be familiar with the related home page interface. The home page interface can be accessed from either the Start menu or from the CA ARCserve D2D Monitor.

The CA ARCserve D2D home page displays various icon symbols to provide a quick visual indication of the current status, along with a guidance for the urgency of any actions may need to be taken.

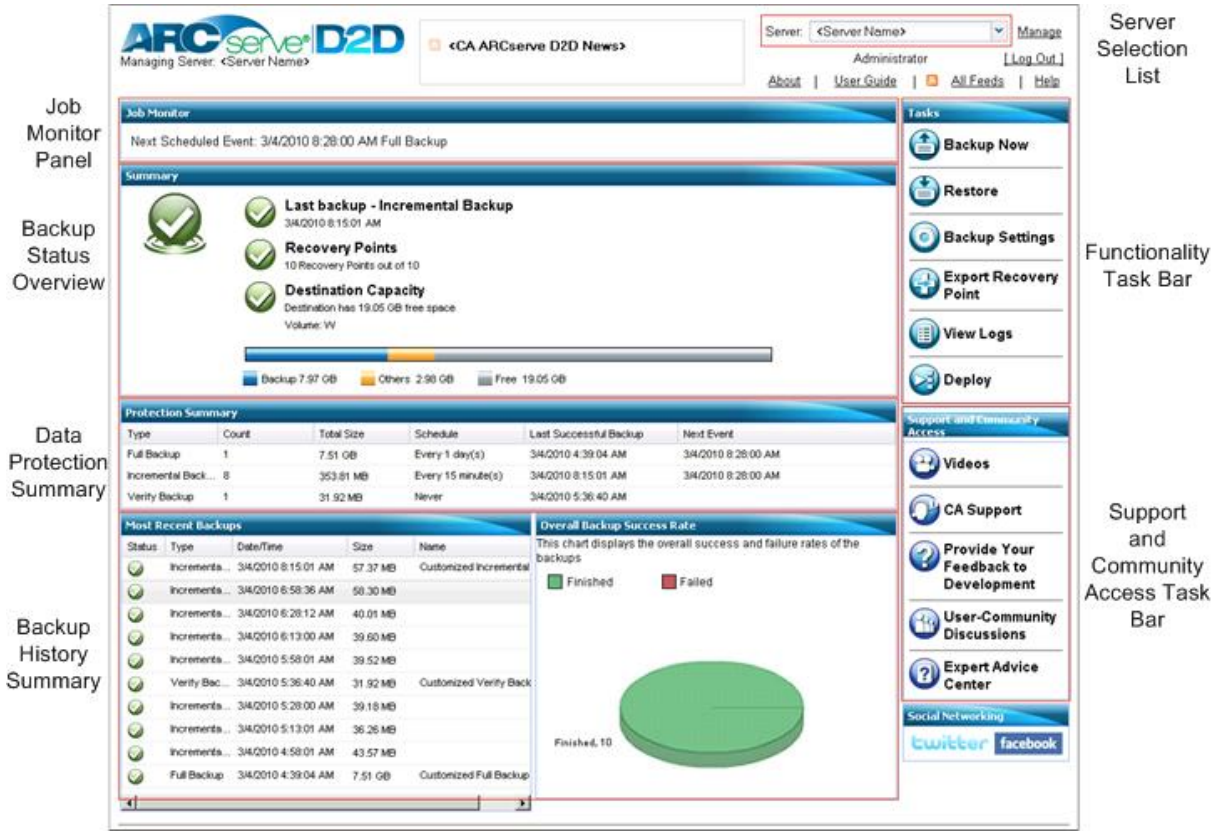
Successful
(No action is necessary)

Caution
(Action may be necessary soon)

Warning
(Immediate action is necessary)

The CA ARCserve D2D home page consists of the following sub-sections:

- Server Selection List
- Job Monitor Panel
- Backup Status Overview
- Data Protection Summary
- Backup History Summary
- Functionality Task Bar
- Support and Community Access Task Bar



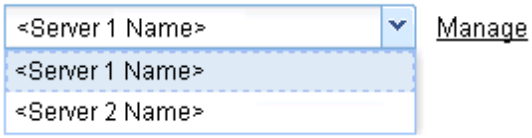
Video

YouTube: How to: Get Started with CA ARCserve D2D

CA Support: How to: Get Started with CA ARCserve D2D

Server Selection List

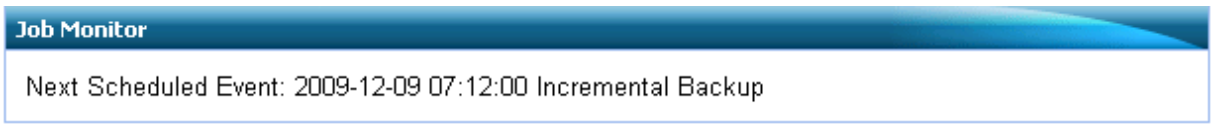
From the home page, you can view the name of the CA ARCserve D2D server you are managing or select a server to manage from the Server Selection List. The Server drop down list lets you quickly and easily manage or view the status of these servers. After CA ARCserve D2D is installed on a server, you can then further deploy it to remote servers from the CA ARCserve D2D UI.



Servers will automatically be added to the Server Selection list when you successfully deploy CA ARCserve D2D to a remote server. In addition, you can also manually add/delete a server to/from the Server Selection list using the Manage link on the home page. For more information, see Manage Server Selection List (see page 113).

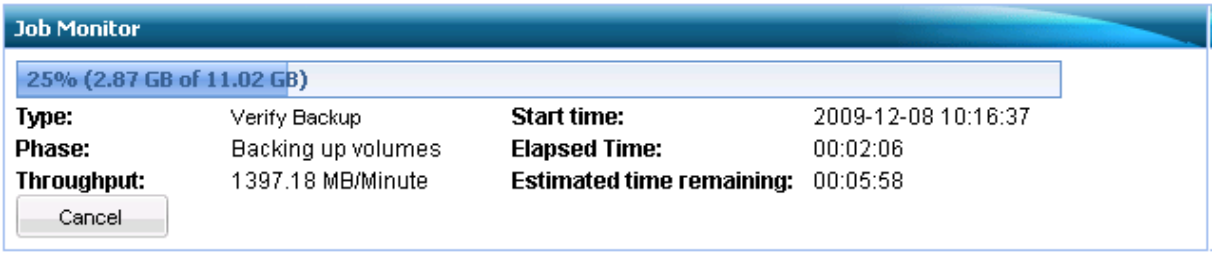
Job Monitor Panel

When no jobs are currently running, the job monitor panel displays the date and time of the next scheduled backup, along with the type of backup (Full, Incremental, or Verify) to be performed.



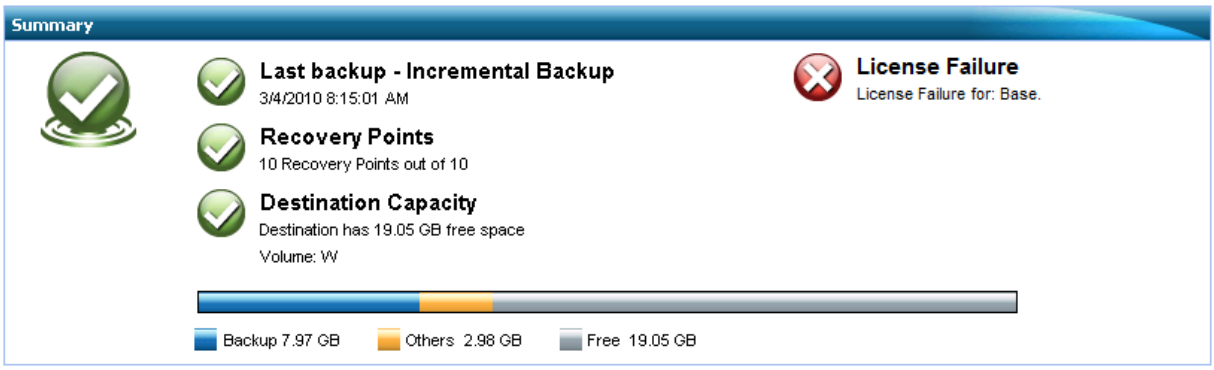
When a job is running, this panel expands to display information about the ongoing activity.

You can click the Cancel button to stop the running job.



Backup Status Overview

The Backup Status Overview section of the home page provides a quick and easy, high-level status of your backup health.



Last Backup

Displays the date and time of the last backup, along with the status of that backup.

- If the last backup was successful, a green check icon is displayed indicating your machine is safely protected.
- If the last backup was not successful, a red X icon is displayed indicating your most recent backup failed and the machine cannot be restored with that recovery point.
- If no backups have been performed for your machine, a yellow caution icon is displayed indicating your machine is not protected.

Note: If a backup fails because of a license validation failure, the License Failure status will be displayed to the right of the Last Backup information.

Recovery Points

Displays the number of Recovery Points for your monitored server. You can specify a minimum number of recovery points to maintain a safe recovery environment.

- If there are no saved recovery points, a red X icon is displayed indicating a dangerous backup environment.
- If you have at least one recovery point, but have not reached your specified number of recovery points, a yellow icon is displayed.
- If you have reached the specified number of recovery points, a green check icon is displayed.

Destination Capacity

Displays the amount of free space available at your backup destination. The Destination Capacity display provides an additional indication of the amount of space used for the backups, the amount of space used by others, and the amount of available free space.

- If the amount of available free space is reduced to below the predetermined safe percentage of your destination capacity, a red X icon is displayed indicating an unsafe backup environment and the immediate need to increase the free space capacity of the backup destination or change the destination to another location which has adequate space.
- If the amount of available free space is above the safe level, a green check icon is displayed.

Note: You can set up an email alert notification when the amount of unused space at the backup destination is less than a specified value. For more information about setting up this email alert notification, see Specify Advanced Backup Settings (see page 60).

Data Protection Summary

The Data Protection Summary section of the home page displays status information for the available backups.

Protection Summary

Type	Count	Total Size	Schedule	Last Successful Backup	Next Event
Full Backup	2	22.20 GB	Never	4/6/2010 9:59:04 AM	
Incremental Backup	9	1011.25 MB	Every 15 minute(s)	4/6/2010 11:47:01 AM	4/7/2010 7:17:00 AM
Verify Backup	0	0 Bytes	Never		

For each type of backup (Full, Incremental, and Verify), this summary displays the following:

Count

For each type of backup, indicates the number of successful backups that were performed (scheduled or non-scheduled).

Total Size

For each type of backup, indicates the total size of the backed up data.

Schedule

For each type of backup, indicates the configured schedule for automatic backups.

Last Successful Backup

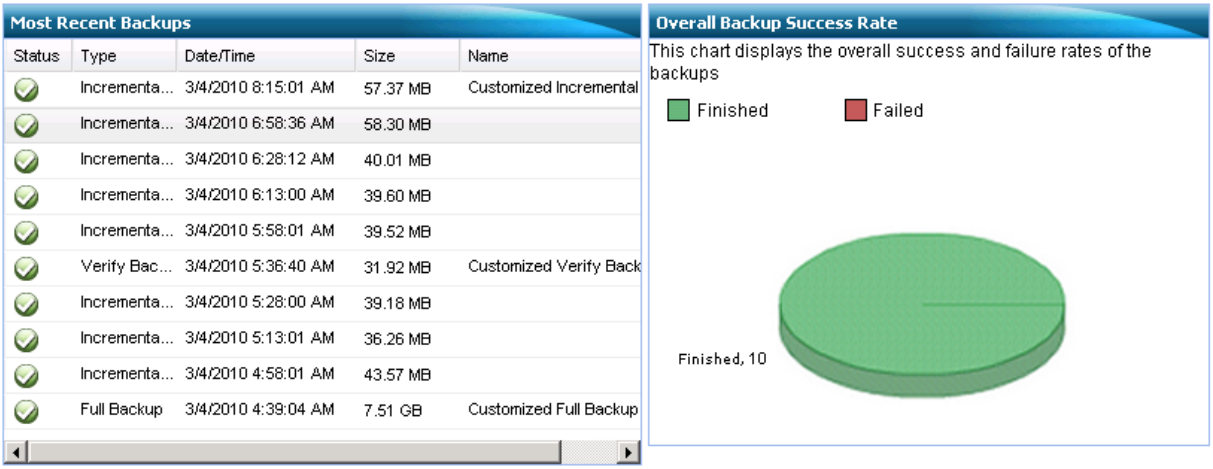
For each type of backup, indicates the date and time that the last successful backup was performed.

Next Event

For each type of backup, indicates the next scheduled event. If this column is blank, it indicates that you do not have a schedule for this type of backup or the non-recurring schedule has been satisfied.

Backup History Summary

The Backup History Summary section of the home page displays status information for the most recent backups and the overall backup status rate.



Most Recent Backups

Displays the most recent backups, along with the corresponding status, the type of backup performed, the date and time of the backup, and size of the data backed up. In addition it also includes the name of the backup (if it was specified by the user).

Overall Backup Success Rate

Displays a pie chart comparing the number of successful backups and the number of unsuccessful backups.

Functionality Task Bar

The Functionality Task Bar section of the home page provides a means to initiate the various CA ARCserve D2D functions.

Backup Now

Lets you run a Full, Incremental, or Verify ad-hoc backup immediately based on current backup settings. The backup settings are configured and defined through the Backup Settings. For more information, see Run Backup Now (see page 70).

Restore

Lets you perform file level or application-level restores to the original location or to an alternate location. When you select this function, you then specify to either "Browse Recovery Points" or "Find Files/Folders to Restore" to locate the backup image to be restored. For more information, see Restore Methods (see page 76).

Backup Settings

Lets you configure/modify your backup parameters (backup destination, schedule, retention count, email notifications, and so on) to meet your specific needs. For more information, see Manage Backup Settings (see page 44).

Export Recovery Points

Lets you view a list of available recovery points (successful backups) and select which recovery point you want to use to create a consolidated copy. This consolidated copy combines the blocks from the previous full and all incremental backups leading to the selected recovery point. In addition, the consolidated copy also removes any unused blocks (reducing the image size) to lets you gain more efficient use of your backup resources.

Each recovery point represents a point in time that a VSS snapshot image was captured and contains not only the data, but also all information related to the operating system, installed applications, configuration settings, necessary drivers, and so on. For more information, see Manage Recovery Points (see page 102)

View Logs

Lets you view logs of activities performed during operations such as backup, restore, and copy. The Activity Log displays the status of the job, including such details as the throughput, compression size, elapsed time, etc. For more information, see View Logs (see page 109).

Deploy

Lets you deploy CA ARCserve D2D to remote machines. For more information, see Deploy CA ARCserve D2D Remotely (see page 110).

Support and Community Access Task Bar

The Support and Community Access Task Bar section of the home page provides a means to initiate the various support-related functions.

To avoid any delays in response and ensure your communication is routed to the proper destination, it is important to know and understand which of these sites are used for which functions.

For example:

- If you discover a bug in the product, you should select the **CA Support** link and post the problem there. By doing this, the CA Support team can directly assist you in resolving your problem in a productive and efficient manner.
- If you are seeking any product-related advice, such as the best settings to protect your environment, you should select the **User-Community Discussions** link and post the question on the CA ARCserve D2D Google Group to see if the experts in the community can provide a good answer. By doing this, you can interact with other users in similar working environments and establish an open communication for sharing ideas and advice.
- If you have a suggestion or idea for improving the product for the next release, you should select the **Provide Your Feedback to Development** link and post your idea on the GetSatisfaction site. By doing this, you can interact directly with the CA Development team to work together to improve the product and help make it better for you.
- If you just want to get the latest news and information about the CA ARCserve D2D product from the CA Product Management team, you should select the **Expert Advice Center** link.

Videos

Provides access to view various CA ARCserve D2D-related videos. These videos are for basic CA ARCserve D2D features and procedures. A Select Video Source dialog is displayed to allow you to select to access the videos from YouTube or CA Support.

CA Support

Provides access to "One Stop Support" from where you can resolve issues and get important product information.

Provide Your Feedback to Development

Provides access to the CA ARCserve D2D Development team (via the GetSatisfaction web site) from where you can view Frequently Asked Questions, ask your own questions, share ideas, and report any problems.

Note: Available in English only.

User-Community Discussions

Provides access to interact with the CA ARCserve D2D online community and be part of the CA ARCserve D2D User Group. This group allows you to share your CA ARCserve D2D experiences with other users.

Note: Available in English only.

Expert Advice Center

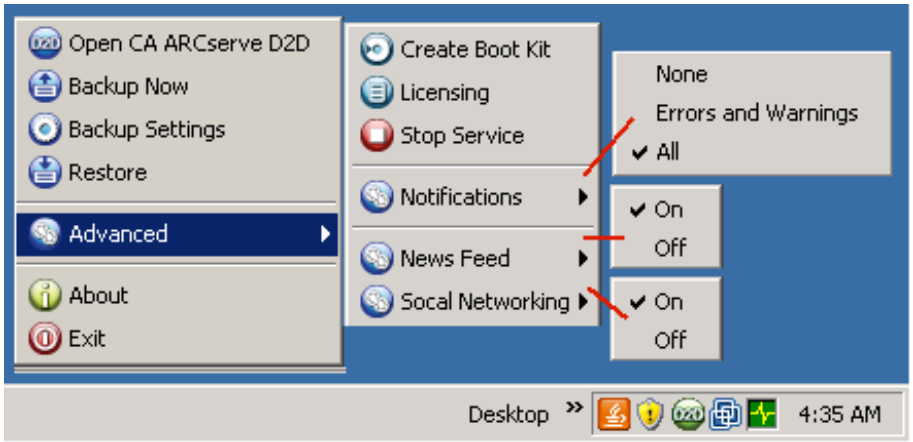
Provides access to the ARCserve Expert Advice Center which is a convenient landing page from where you can then access Tips and Tricks from the CA ARCserve D2D Development team (blogs), product information, group discussions, official CA Support, and other valuable CA ARCserve D2D-related information.

Social Networking

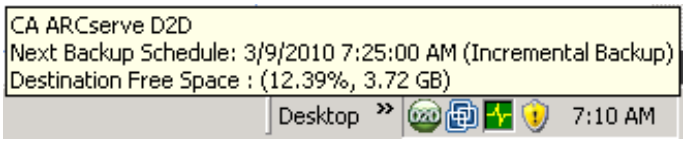
Provides access to Twitter and Facebook for CA ARCserve D2D-related social networking.

CA ARCserve D2D Monitor

From the CA ARCserve D2D Monitor you can access many of the same task functions that you can access from the CA ARCserve D2D home page. The available tasks that you can launch from the tray monitor are to open the CA ARCserve D2D home page, Backup Now, Backup Settings, Restore, and Advanced Settings. From the Advanced Settings option, you can access additional subordinate options such as Create Boot Kit, Licensing, Start/Stop Service, configure alert Notifications, turn on/off the News Feed, and turn on/off Social Networking.



In addition, when you hover your cursor over the CA ARCserve D2D Monitor icon, a backup status overview message is displayed.

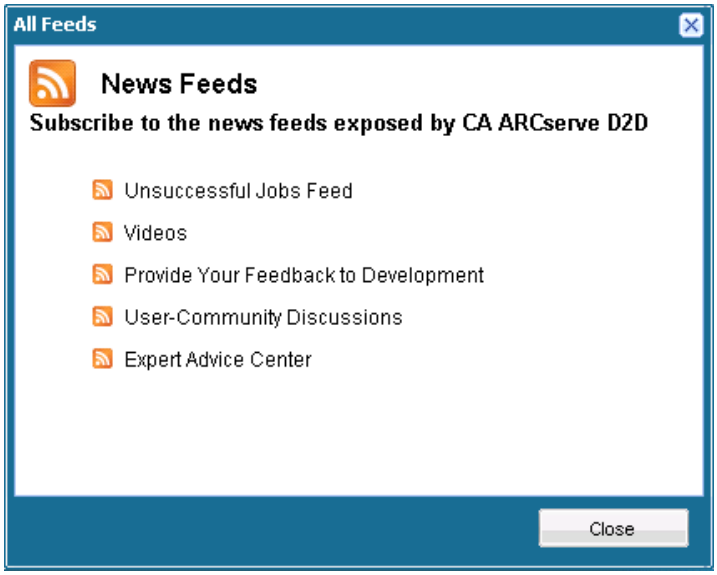


All Feeds

CA ARCserve D2D provides an All Feeds link to let you easily subscribe to RSS feeds from related web sites. Really Simple Syndication (RSS) feeds allow you to stay informed by having relevant and up-to-date information sent to you straight from the web sites that you are interested in. With RSS feeds, you do not need to keep checking back to a particular web site to see if it has been updated. All you need to do is subscribe to the RSS feed, much like you would subscribe to a magazine, but instead of it being delivered to your physical mail box each time the magazine is published, the information is delivered to you (via an RSS feed) every time your subscribed website is updated.

To subscribe and read RSS feeds you need an RSS feed reader. There are many different programs to view RSS feeds from such as Outlook, your internet browser (Internet Explorer, Firefox), web-based readers (My Yahoo!, Google Reader), and desktop-based readers (Feed Demon). After you have subscribed to a feed, the RSS feed reader is able to check for new content at specified time intervals and retrieve the updates.

When you click the All Feeds link, the All Feeds dialog opens to let you subscribe to the various CA ARCserve D2D related RSS feeds.



Unsuccessful Jobs Feed

When you subscribe to this RSS feed, you will receive an update notification each time an unsuccessful backup, restore, or copy job is performed on your machine. An unsuccessful job includes all failed, incomplete, canceled, and crashed attempts.

Video

When you subscribe to this RSS feed, you will receive a notification each time the CA ARCserve D2D videos are updated. This RSS feed is only applicable for the YouTube version of the videos.

Provide Your Feedback to Development

When you subscribe to this RSS feed, you will receive a notification each time the Get Satisfaction web site information is updated. This site provides access to the CA ARCserve D2D Development team where you can view Frequently Asked Questions, ask your own questions, share ideas, and report any problems.

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Manage Backup Settings

Prior to performing your first backup, you must specify the backup settings. These settings allow you to specify behaviors such as the destination for your backup, the schedule for each type of backup, and the settings and advanced settings for your backup jobs. These settings can be modified at any time from the CA ARCserve D2D home page.

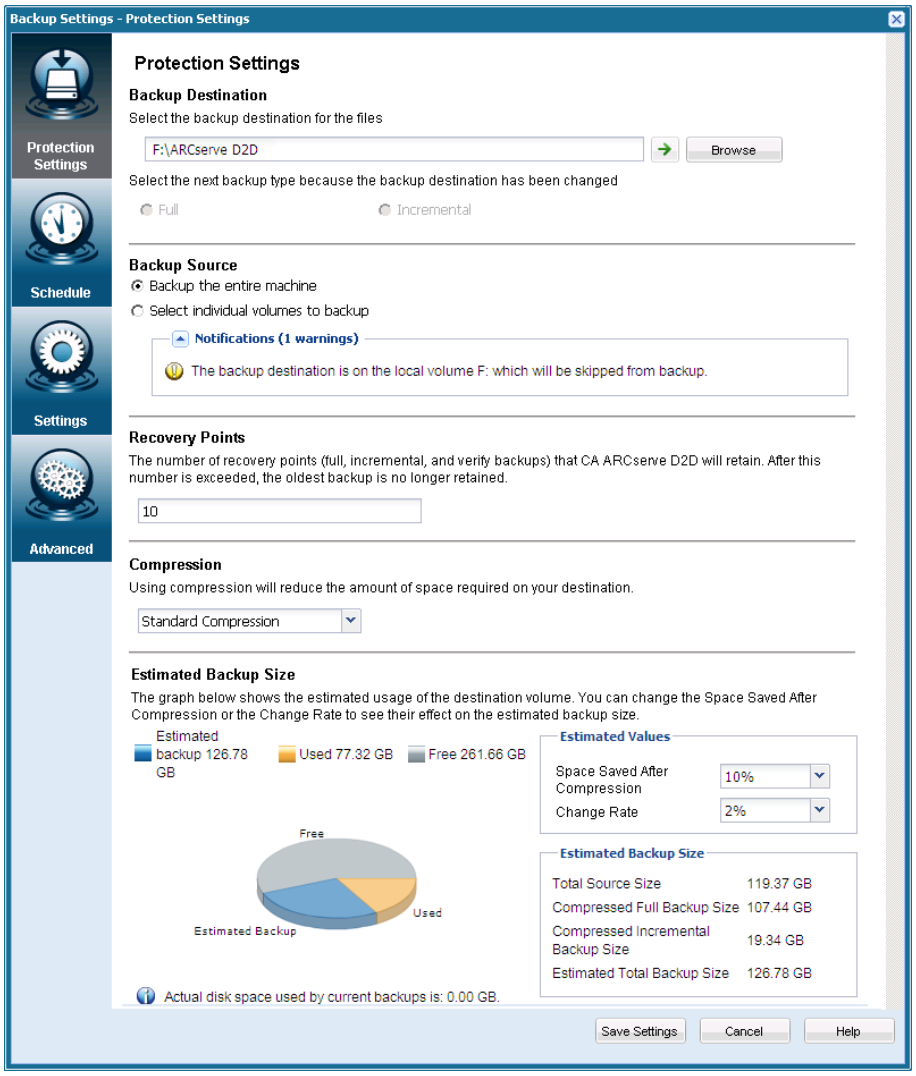
Specify the Protection Settings

CA ARCserve D2D lets you specify the protection settings for your information to be backed up.

Specify the protection settings

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), select Backup Settings.

   The Backup Settings dialog opens, displaying the Protection Settings options.



2. Specify the **Backup Destination**.

   You can specify a local path (volume or folder), or remote shared folder (or mapped drive) for the backup location, or you can browse to a backup location.

   You can click on the green arrow icon button to verify the connection to the specified location.

   – If you entered a local path for the destination, this button is disabled.

   – If you enter a network path and click this button, you will be prompted to provide the username and password.

   – If you are already connected to this path successfully, and click this button you can change the username and password used to connect.

   – If you do not click this button, CA ARCserve D2D will check the destination path and if needed will prompt you for the username and password.

   a. If you specify to back up to your local path (volume or folder), the specified backup destination cannot be the same location as your backup source. If you inadvertently include the source in your destination, the backup job will ignore this portion of the source and not include it in the backup.

      For example, if you are attempting to back up your entire local machine which consists of Volumes C, D, and E; and also specify Volume E as your destination, CA ARCserve D2D will only back up Volumes C and D to Volume E. Data from Volume E will not be included in the backup. If you want to back up all local volumes, you will need to specify a remote location for your destination.

      Important! Make sure your specified destination volume does not contain system information or else it will not be protected (backed up) and your system will fail to recover after Bare Metal Recovery (BMR) if necessary.

      Note: Dynamic disks will be restored at disk level only. If your data is backed up to a volume on a dynamic disk, you will not be able to restore this dynamic disk during BMR.

   b. If you choose to back up to a remote shared location, you must specify a location path or browse to the location. You will also have to provide user credentials (User name and Password) to access the remote machine.

c. If the specified backup destination has changed since the last backup was performed, you will need to select the backup type. These options will only be enabled when you change your backup destination. The available options are Full Backup and Incremental Backup.

Full Backup

Specifies that the next backup performed will be a full backup. The new backup destination does not have any dependency on the old backup destination. If you continue with a full backup, the previous location is no longer needed for backups to continue. You can choose to keep the old backup for any restores or delete it if you do not want to perform any restores from there. It will not affect future backups.

Incremental Backup

Specifies that the next backup performed will be an incremental backup. The next incremental backup to the new destination will be performed without copying all the backups from the previous destination. However, the new location is dependent on the previous location because the changes will include just the incremental data (not the full backup data). Do not delete the data from the previous location. If you change the backup destination to another folder, and attempt to perform an incremental backup and the former backup destination does not exist, the backup will fail.

3. Specify the **Backup Source**.

You can specify to back up the entire machine or an individual volume on your machine.

Backup the entire machine

Specifies to back up the entire machine. All volumes on the machine will be backed up.

Note: If the full machine backup option is selected, CA ARCserve D2D will automatically discover all disks/volumes attached to current machine, and include them in the backup.

For example, if a new disk is attached to the machine after the backup setting is configured, you will not need to change the backup settings and the data on the new disk will be protected automatically.

Select individual volumes to backup

This volume filtering capability lets you specify to back up only the selected volumes. You also have the option to Select/Unselect all listed volumes.

Note: If some volumes are selected explicitly for backup, only the selected volumes will be backed up. If a new disk/volume is attached to the machine, you will need to manually change the volume selection list to protect the data on the new disk/volume.

When you select this option, a listing of all available volumes will be displayed, along with the corresponding volume information and notification messages.

Name	Layout	Type	File System	Contents	Total Size	Used Space
C:	Simple	Basic	NTFS	Boot, Page file	29.20 GB	9.13 GB
D:	Simple	Basic	NTFS		10.70 GB	82.95 MB
System Reserved	Simple	Basic	NTFS	System	100.00 MB	28.19 MB

Selected Volume Size: 28.19 MB

Notifications (2 warnings)

Volume D: is on the backup destination chain which will be excluded from backup source selection.

Boot volume C: is not in the backup source volume list. The backup cannot be used for BMR.

- **Name** – volume drive letter, mount point, volume GUID (Globally Unique Identifier) name
- **Layout** – simple, spanned, mirror, stripped, RAID5 (backup of a RAID 5 volume on Microsoft Dynamic Disks is not supported; but backup of hardware RAID is supported).
- **Type** – basic, dynamic
- **File system** – NTFS, FAT, FAT32 (backup of FAT and FAT32 is not supported)
- **Contents** – Application (SQL/Exchange), System, Boot, Page file, Active, Removable Device, VHD, 2TB Disk
- **Total size** – capacity of the volume
- **Used Space** – available disk space

The notification messages will be displayed for any of the following conditions:

- **Local volume related**

  If the specified backup destination is located on the local volume, a warning message will be displayed to notify you that this volume will not be backed up.

- **BMR related**

  If system/boot volume is not selected for backup, a warning message will be displayed to notify you that the backup will not be usable for BMR.

- **Application related**

  If the application data files are located on a volume that is not selected for backup, the application name and database name will be displayed for reference.

4. Specify the **Recovery Points**.

   Specifies the number of recovery points (backup images) retained.

   When the specified limit is exceeded, CA ARCserve D2D will merge the earliest (oldest) incremental child backup into the parent backup to create a new baseline image consisting of the "parent plus oldest child" blocks. This cycle of merging the oldest child backup into the parent backup will repeat for each subsequent backup, allowing you to perform infinite incremental backups, while maintaining the same retention count.

   Note: If you destination does not have sufficient free space, you may consider reducing the number of saved recovery points

   By default the retention count is set to 31 recovery points.

   Note: The maximum number of recovery points is 1344.

5. Specify the type of **Compression**.

   Specifies the type of compression to be used for backups.

   Compression is usually performed to decrease your disk space usage, but also has an inverse impact on your backup speed due to the increased CPU usage.

The available options are:

- **No Compression**

  No compression will be performed. This option has the lowest CPU usage (fastest speed), but also has the highest disk space usage for your backup image.

- **Standard Compression**

  Some compression will be performed. This option provides a good balance between CPU usage and disk space usage. This is the default setting.

- **Maximum Compression**

  Maximum compression will be performed. This option provides the highest CPU usage (lowest speed), but also has the lowest disk space usage for your backup image.

Notes:

- If your backup image contains uncompressible data (such as JPG images, ZIP files, and so on), additional storage space may need to be allocated to handle such data. As a result, if you select any compression option and have uncompressible data in your backup, it may actually result in an increase in your disk space usage.
- If you change the compression level from "No Compression" to either "Standard Compression" or "Maximum Compression", or if you change from either "Standard Compression" or "Maximum Compression" to "No Compression", the first backup performed after this compression level change will automatically be a Full Backup. After the Full Backup is performed, all future backups (Full, Incremental, or Verify) will be performed as scheduled.
- If your destination does not have sufficient free space, you may consider increasing the Compression setting of the backup.

6. Calculate the **Estimated Backup Size**.

   Displays the estimated usage of the destination volume.

   For more information about using these estimated backup calculations, see Estimate Future Backup Space Requirements (see page 52).

   - **Estimated Values**

     The estimated values can be used to calculate the approximate overall backup size based on the number of recovery points.

     - **Space Saved After Compression.**

       This value indicates how much disk space is saved after compression.

       For example, if the data size of a volume is 1000 MB, and after backup the compressed data size is 800 MB, then the Space Saved After Compression is estimated to be 200 MB (20%).

     - **Change Rate**

       This value indicates the typical data size of an incremental backup.

       For example, if an incremental backup data size is 100 MB, and the full backup data size is 1000 MB, the change rate is estimated to be 10%.

   - **Pie Chart**

     With the Estimated Values defined, CA ARCserve D2D will calculate and display the estimated backup size required based on the configuration of the backup destination and the recovery points. The pie chart will also display the size of used space and free space.

   - **Estimated Backup Size**

     Displays the estimated values for Total Source Size, Compressed Full Backup Size, Compressed Incremental Backup Size, and Estimated Total Backup Size.

7. Click Save Settings.

   Your protection settings are saved.

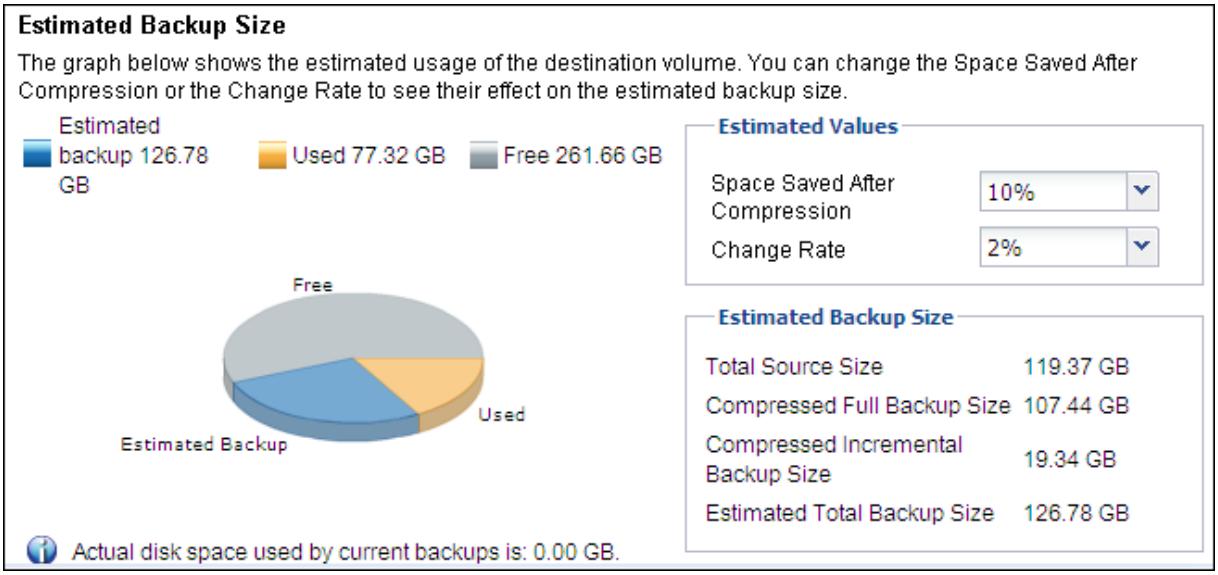
Video

YouTube: How to: Configure Backup Settings - Part 1 (Protection Settings)

CA Support: How to: Configure Backup Settings - Part 1 (Protection Settings)

Estimate Future Backup Space Requirements

CA ARCserve D2D provides you with this handy tool to calculate the estimated amount of available free space that you will need for backups. The concept of this tool is based partially on your estimate of future data change and partially on the space occupied from previous backups.



To use this estimating tool

1. Select the backup source. This may be your entire machine or selected volumes within your machine.

   The actual size of the selected backup source will be displayed in the Total Source Size field.

2. Estimate the anticipated Change Rate for future backups.

   This estimate should be based upon past performance of how much your total backup size has changed for each subsequent incremental backup.

3. Estimate the Space Saved After Compression percentage value

   This estimate should be based upon past performance of your backups with different Compression settings applied.

   As you change this value, you will see the corresponding size impact for your backup sizes.

   Note: If necessary, you can perform some Full Backups, each with a different Compression setting (No Compression, Standard Compression, and Maximum Compression) to establish past performance values and help you to better calculate the percent of space saving that each setting will produce for your backup.

- The Compressed Full Backup Size field will display a calculated value based upon:
  - Size of the backup source
  - Specified compression percentage.
- The Compressed Incremental Backup Size field will display a calculated value based upon:
  - Estimated Change Rate
  - Number of recovery points to be saved
  - Specified compression percentage
- The Estimated Total Backup Size field will display the anticipated space you will need for future backups and is based upon:
  - Amount of space required for one Full Backup plus
  - Amount of space required for the number of Incremental Backups needed to satisfy the specified number of saved recovery points.

4. From this Estimated Total Backup Size value, you should be able to determine if your backup destination has sufficient space to fit your backup.

   If you destination does not have sufficient free space, you may consider the following corrective actions:

   - Reduce the number of saved recovery points
   - Increase the available free space at the backup destination
   - Change the backup destination to a larger capacity
   - Reduce the size of the backup source (maybe eliminate unnecessary volumes from the backup)
   - Increase the Compression setting of the backup

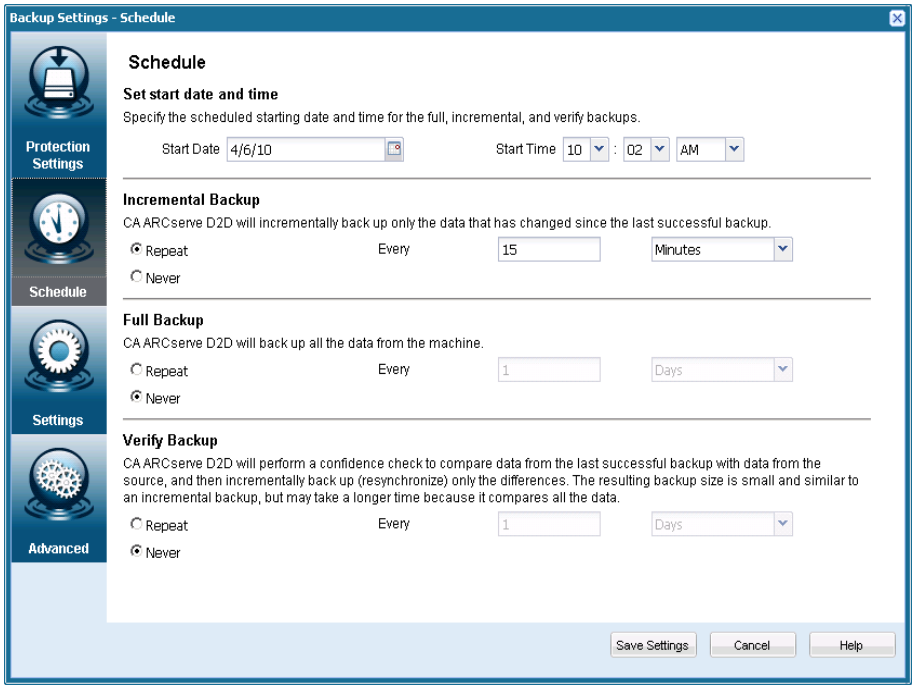
Specify the Backup Schedule

CA ARCserve D2D lets you specify the schedule for your backups.

Specify the backup schedule

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), select Change Backup Settings and click the Schedule tab.

   The Schedule options dialog opens.



2. Specify your backup schedule options.

   Set start date and time

   Specifies the start date and start time for your scheduled backups.

Incremental Backup

Specifies the backup schedule for Incremental backups.

As scheduled, CA ARCserve D2D will incrementally back up of only those blocks that have changed since the last successful backup. The advantages of Incremental backups are that it is a very fast backup and it produces a very small backup image. This is the most optimal way to perform backups and you should use this by default.

The available options are Repeat and Never. If you select the Repeat option, you must then also specify the elapsed time period (in minutes, hours, or days) between backup attempts. The minimum setting for Incremental backups is every 15 minutes.

By default the schedule for Incremental backups is to repeat every 1 day.

Full Backup

Specifies the backup schedule for Full backups.

As scheduled, CA ARCserve D2D will perform a Full backup of all used blocks from the source machine. The available options are Repeat and Never. If you select the Repeat option, you must then also specify the elapsed time period (in minutes, hours, or days) between backup attempts. The minimum setting for Full backups is every 15 minutes.

By default the schedule for Full backups is Never (no scheduled repeat).

Verify Backup

Specifies the backup schedule for Verify backups.

As scheduled, CA ARCserve D2D will verify that the protected data is valid and complete by performing a confidence check of the stored backup image to the original backup source and will resynchronize that image if necessary. A Verify type backup will look at the most recent backup of each individual block and compare the content and information to the source. This comparison verifies that the latest backed up blocks represent the corresponding information at the source. If the backup image for any block does not match the source (possibly because of changes in the system since the last backup), CA ARCserve D2D will refresh (resynchronize) the backup of the block that does not match. A Verify backup can also be used (very infrequently) to get the guarantee of full backup without taking the space of full backup.

The advantage of a Verify backup is that it produces a very small backup image when compared to full backup because only the changed blocks (blocks that do not match the last backup) are backed up. The disadvantage of a Verify backup is that the backup time is long because CA ARCserve D2D has to compare all of source disk blocks with the blocks of the last backup.

The available options are Repeat and Never. If you select the Repeat option, you must then also specify the elapsed time period (in minutes, hours, or days) between backup attempts. The minimum setting for Verify backups is every 15 minutes.

By default the schedule for Verify backups is Never (no scheduled repeat).

3. Click Save Settings.

   Your backup schedule settings are saved.

Note: If at a given time there are more than one type of backup scheduled to be performed simultaneously, the type of backup that will be performed is based upon the following priorities:

- Priority 1 - Full backup
- Priority 2 - Verify backup
- Priority 3 - Incremental backup

For example, if you have all three types of backup scheduled to be performed at the same time, CA ARCserve D2D will perform the Full backup. If there is no Full backup scheduled, but a Verify and Incremental backup is scheduled to be performed at the same time, CA ARCserve D2D will perform the Verify backup. A scheduled incremental backup will only be performed if there is no conflict with any other type of backup.

Video

YouTube: How to: Configure Backup Settings - Part 2 (Schedule Settings)

CA Support: How to: Configure Backup Settings - Part 2 (Schedule Settings)

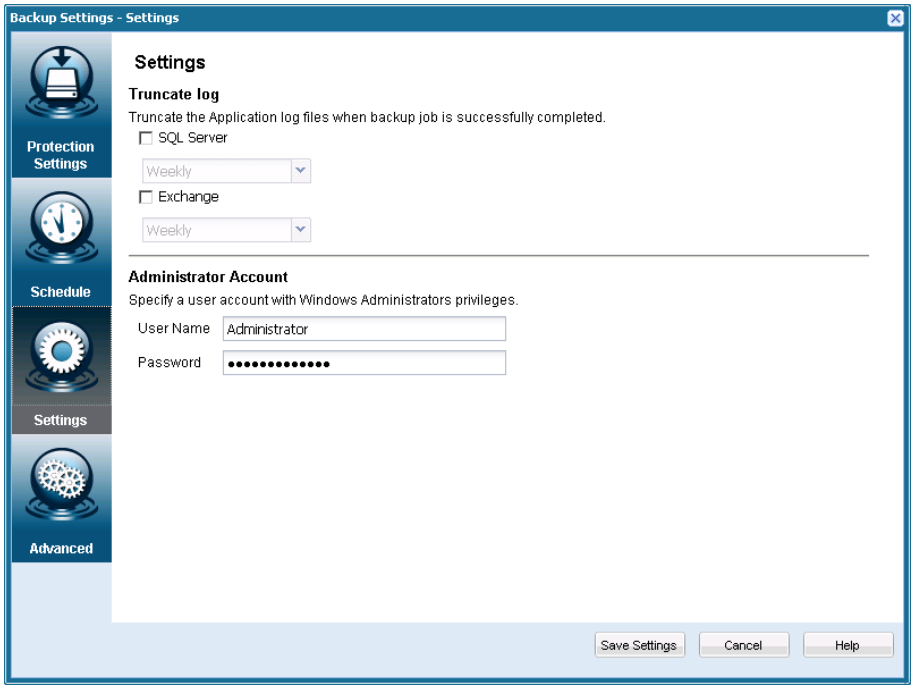
Specify the Backup Settings

CA ARCserve D2D lets you specify the settings for your backups.

Specify the backup settings

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), select Change Backup Settings and click the Settings tab.

   The Settings options dialog opens.



2. Specify your backup settings options.

Truncate Log

Specifies to truncate the accumulated transaction log files for the selected applications after the next successful backup.

CA ARCserve D2D backups consist of a snapshot image and the transaction log files that were created for it. At some point in time, these older (committed) transaction log files are no longer needed and should be purged to make space for new log files. The process of purging these log files is called truncating the log. This option enables truncating of committed transaction log files, which conserves disk space.

The available options are SQL Server and Exchange Server. You can select either, both, or none of these applications. If you select any of these applications, you will also be able to specify a scheduled time period (Daily, Weekly, or Monthly) for automatic log truncation:

Note: The transaction log files cannot be truncated without performing a successful backup.

- **Daily** - Each day after the backup completes successfully, the committed transaction logs will be purged immediately.
- **Weekly** - After 7 days, the committed transaction logs will be purged immediately after the backup completes successfully.
- **Monthly** - After 30 days, the committed transaction logs will be purged immediately after the backup completes successfully.

If a backup job is already running at the same time the purging is scheduled to be performed, the purging operation will be moved to the next scheduled job.

For Example:

If you scheduled an Incremental Backup to be automatically performed every day at 5:00 pm, and then started a Full Backup manually at 4:55 pm. Assume that the backup successfully finishes at 5:10 pm.

In this case, the Incremental Backup that was scheduled for 5:00 pm will be skipped because the ad-hoc Full Backup is still in progress. Now the committed transaction log files will be purged after the next successful backup job. In this case it will be performed on the next day after the scheduled Incremental Backup completes successfully at 5:00 pm.

Administrator Account

Specifies the User Name and Password with access rights to perform the backup. CA ARCserve D2D will verify that the name and password are valid and the user belongs to an administrator group.

Notes:

- To specify a domain account, the format for user name should be a fully qualified domain user name in the form of "<domain name>\<user name>".
- If the Administrator Account information for the CA ARCserve D2D server is changed (User Name/Password), you should also reconfigure the Administrator Account information from this dialog.

3. Click Save Settings.

   Your backup settings are saved.

Video

YouTube: How to: Configure Backup Settings - Parts 3 and 4 (Settings and Advanced Settings)

CA Support: How to: Configure Backup Settings - Parts 3 and 4 (Settings and Advanced Settings)

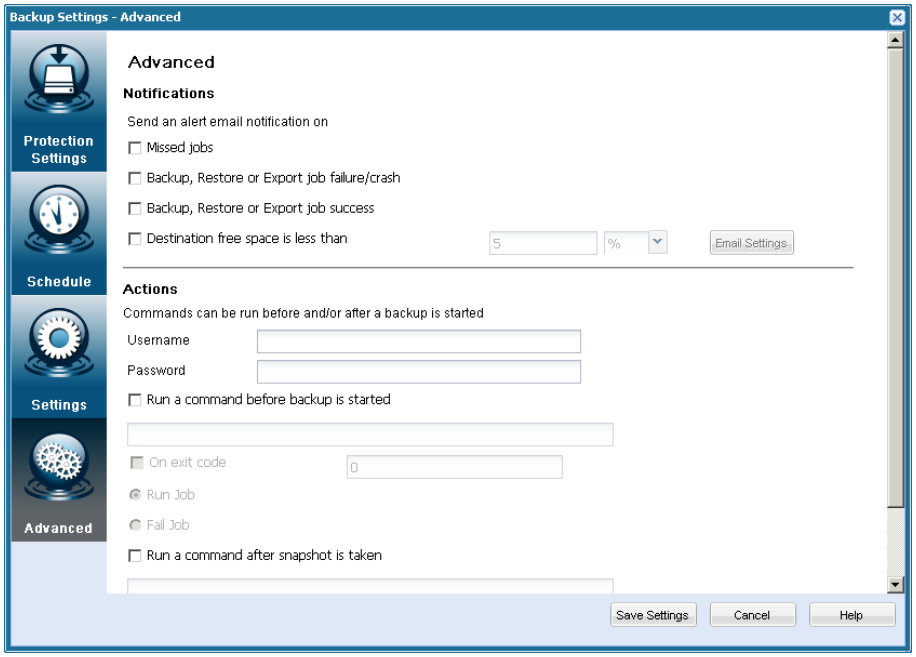
Specify Advanced Backup Settings

CA ARCserve D2D lets you specify the advanced settings for your backups.

Specify the advanced backup settings

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), select Change Backup Settings and click the Advanced Settings tab.

   The Advanced Settings options dialog opens.



2. Specify your advanced backup setting options.

   Notifications

   Specifies to send automatic email alert notifications upon the completion of selected events. The available options are to send an alert notification for the following events:

   – **Missed jobs**

     Sends an email alert notification for all missed jobs. A missed job is any scheduled job that did not run at the scheduled time. This could happen when some other job is running or previous job that started earlier did not finish yet. For example, if an export or recovery job is running at the scheduled time for a backup job, then that backup job will be missed.

   – **Backup, Restore, or Export job failure/crash**

     Sends an email alert notification for all unsuccessful backup, restore or export job attempts. This category includes all failed, incomplete, canceled, missed jobs, and crashed attempts.

   – **Backup, Restore, or Export job success**

     Sends an email alert notification for all successful backup, restore or export job attempts.

   – **Destination free space is less than**

     Sends an email alert notification when the amount of unused space at the backup destination is less than a specified value. For this option, you can further select either a percentage of the total capacity or a specific value (in MB) for the threshold level of when the alert notification will be sent.

   After you select to send an email notification, you can then click Email Settings to display the related dialog. For more information, see Specify Email Settings (see page 63).

Actions

Specifies to run script commands for actions to be taken prior to the start of the backup, after the snapshot image is captured, and/or upon the completion of the backup. You can also trigger the script command based upon specific exit codes and select the action to be taken (run job or fail job) when that exit code is returned.

- A "run job" action directs CA ARCserve D2D to continue to run the job if the specified exit code is returned.
- A "fail job" action directs CA ARCserve D2D to cancel the job if the specified exit code is returned.

3. Click Save Settings.

   Your advanced backup settings are saved.

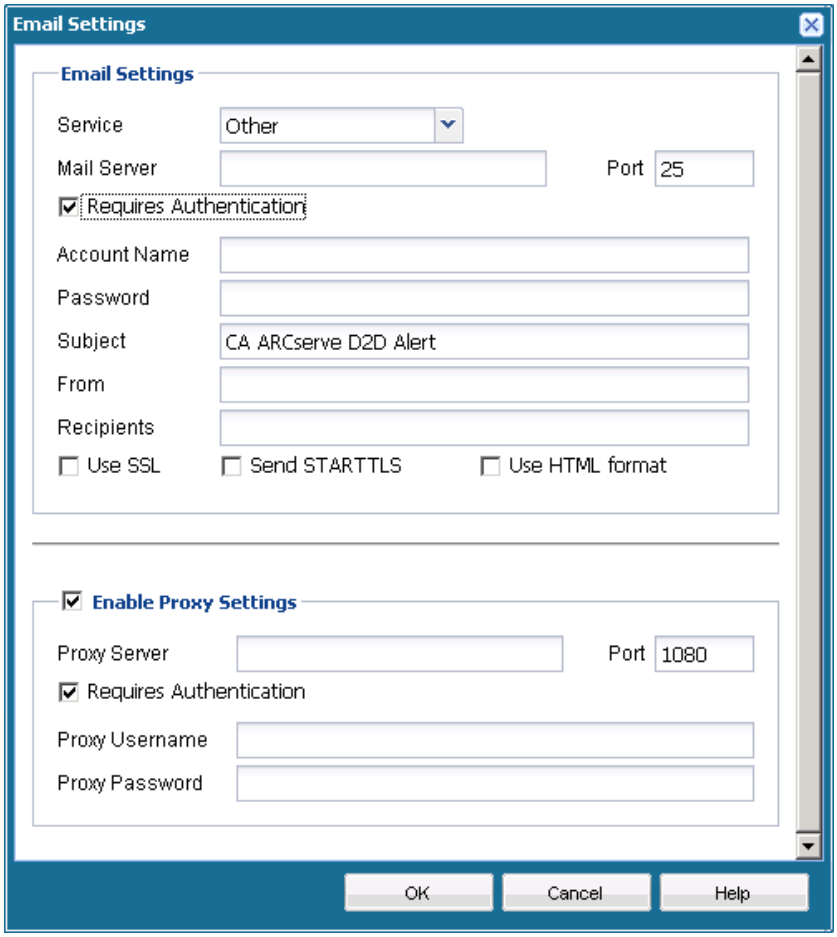
Video

YouTube: How to: Configure Backup Settings - Parts 3 and 4 (Settings and Advanced Settings)

CA Support: How to: Configure Backup Settings - Parts 3 and 4 (Settings and Advanced Settings)

Specify Email Settings

From the Email Settings dialog you can specify email settings such as the mail server, subject title, who the email is coming from, the email recipients, and enabling and defining your proxy settings. These settings will apply to all email alert notifications and can be modified at any time.



Service

The email provider service to use for sending the alert notifications. The available options are Google Mail, Yahoo Mail, Live Mail, and Other.

- If you select Other, you must identify the mail server and corresponding port number to be used. This is the default setting.
- If you select Google Mail, Yahoo Mail, or Live Mail the mail server and port number fields are automatically populated.

Mail Server

The host name of the SMTP mail server that CA ARCserve D2D can use to send the email alerts.

Port

The output port number for the mail server.

Requires Authentication

Specifies if this mail server requires authentication when attempting to send an email via the Internet. When this option is selected, the corresponding user Account Name and Password must be provided.

Subject

Subject description for the email alert notifications that CA ARCserve D2D will send. By default, this is "CA ARCserve D2D Alert".

From

The email address that CA ARCserve D2D will use to send the email alert notifications.

Recipients

Email address for the recipients of the email alert notifications to be sent.

Note: To enter multiple email addresses, each address must be separated by a semi-colon character.

Use SSL

Email server requires an SSL (Secure Sockets Layer) connection to transmit data securely via the internet.

Send STARTTLS

Email server requires a STARTTLS (Start TLS extension) command issued to initiate a secure SMTP connection between servers.

Use HTML format

Email alert notifications will be sent as HTML. If this option is not selected, the alerts will be sent as plain text. By default, this option is selected.

Enable Proxy Settings

Specifies if you want to connect to a proxy server for sending your email alert notifications. When this option is selected, the corresponding name of the proxy server and port number must be provided.

Chapter 4: Using CA ARCserve D2D

This section contains the following topics:

Backup Considerations

Prior to performing a CA ARCserve D2D backup, you should consider the following:

- **Destination available free space**

  If your destination does not have sufficient free space, you may consider the following corrective actions:

  - Reduce the number of saved recovery points
  - Increase the available free space at the backup destination
  - Change the backup destination to a larger capacity
  - Reduce the size of the backup source (maybe eliminate unnecessary volumes from the backup)
  - Increase the Compression setting of the backup

- **Ensure you have proper licensing**

  When using CA ARCserve D2D to perform backups (especially for SQL Server and Exchange Server), it is important to make sure you have the proper licenses.

- **Backup disk size**

  A volume will be skipped from a backup if it is located on a disk larger than 2TB and an uncompressed backup format is used.

- **Ensure you are using a supported disk**

  Different types of disks are supported as CA ARCserve D2D backup source disks and destination disks.

  For more information, see Disks Supported by CA ARCserve D2D (see page 69).

- **How changing your backup destination can affect saved recovery points**

  When you continue performing Incremental backups to the changed destination and the specified number of saved recovery points is reached, CA ARCserve D2D will start merging the earliest backup sessions to the first destination in order to maintain that specified number of recovery points. As this merging process is repeated, the number of recovery points saved to the first destination will decrease, while at the same time the number of recovery points for the changed destination will increase. Eventually, there will be no recovery points for the first destination and all the sessions will be merged to the changed destination.

- **How changing backup destinations can affect continued backups**

  If you configure and perform a Full Backup (and maybe some Incremental Backups) to a destination and then you decide to change your backups to a different destination, you can reconfigure your backup settings and continue performing Incremental Backups to the new destination without any problems.

If you later decide to change your backup destination again, you can simply reconfigure your backup settings again and continue performing Incremental Backups to the new destination without any problems.

For example:

- If you have a machine and it is configured to backup up to Folder A on your local/remote volume, and after you perform a Full Backup and some Incremental backups, your destination is getting full and you want to change to a different destination (Folder B). You can reconfigure the backup settings to the Folder B destination and CA ARCserve D2D will continue performing Incremental backups to that new destination. As a result, you will have your Full Backup and some Incremental Backups on the original Folder A destination, and you will have some Incremental Backups on the new Folder B destination.
- If after performing some Incremental Backups to Folder B, you decide to reconfigure to another new destination (Folder C), CA ARCserve D2D will continue performing Incremental Backups to the Folder C destination because the link to the original Full Backup location (Folder A) has been maintained.

If you configure and perform a Full Backup (and maybe some Incremental Backups) to a destination and then you decide to change your backups to a different destination, you can copy or move the contents from the original destination to the new destination, and then reconfigure your backup settings and continue performing Incremental Backups to the new destination without any problems.

However, if you have Full Backups in one location and Incremental Backups in a second location and then move the contents from the second location to a third location and attempt to continue performing Incremental Backups, then these backups will fail because the link to the first location has been lost.

For example:

- If you have a machine and it is configured to backup up to Folder A on your local/remote volume, and after you perform a Full Backup and some Incremental Backups, your destination is getting full and you want to change to a different destination (Folder B). You can move the contents of Folder A to Folder B and reconfigure the backup settings to the new Folder B destination. CA ARCserve D2D will continue performing Incremental Backups to that new Folder B destination. As a result, you will have your Full Backup and Incremental Backups all on the new Folder B destination.
- However, if your first destination is in Folder A (which now contains a Full Backup and some Incremental Backups) and you change the destination to Folder B using CA ARCserve D2D backup settings and continue to perform Incremental Backups, in this scenario, Folder B will now only contain Incremental Backups. Then, if you move the contents from Folder B to another new destination in Folder C (moving only the Incremental Backups from Folder B without a Full Backup included), in this scenario, if you continue to perform Incremental Backups to Folder C, these Incremental Backups will fail because the link to the original Full Backup location (Folder A) has been lost.

- **Restrictions for a Microsoft SQL Server Backup**

  Due to Microsoft SQL Server VSS writer restrictions, some Microsoft SQL Server databases with a special status will automatically be skipped and not be backed up by CA ARCserve D2D. These databases include:

  - Database with 'Restoring' status. This status indicates that the database may be the log shipping secondary database, the mirror database, or the database waiting for more backed-up data to be restored.
  - Database with 'Offline' status. This status indicates that the database is not available for general use.
  - If your database is configured in one volume and the logs are configured in another volume and you select only one volume to back up, the Microsoft SQL application backup will be skipped for that particular database.
  - Any database in a dismounted state will be skipped from Microsoft Exchange application backup.

- **Restrictions for a Microsoft Exchange Server Backup**

  - If your database is configured in one volume and the logs are configured in another volume and you select only one volume to back up, the Microsoft Exchange application backup will be skipped for that particular database.

Disks Supported by CA ARCserve D2D

Different types of disks are supported for CA ARCserve D2D backup source and destination disks. The following matrix lists the types of disks that are supported for each function.

Disk (Volume) Type	As Backup Source	As Backup Destination
GPT Disk	Yes	Yes
System Reserved Partition (Windows 2008 R2 Boot Manger)	Yes	Not applicable
Mounted Volume (No drive letter/NTFS formatted)	Yes	Yes
RAW Volume (No drive letter/Not formatted)	No	No
VHD Mounted Volume (Windows 2008 R2)	No	Yes
Dynamic Disk:		
■ No RAID	Yes	Yes
■ Software RAID (RAID-0 (Stripe)	Yes	Yes
■ Software RAID (RAID-1 (Mirrored)	Yes	Yes
■ Software RAID-5	No	Yes
Hardware RAID (include Embedded RAID)	Yes	Yes
File System:		
■ FAT/FAT32	No	Yes*
Shared Volume:		
■ Windows Shared Volume	No	Yes
■ Linux Shared Volume (samba shared)	No	Yes
Device Type:		
■ Removable Disk (Ex. Memory Stick, RDX)	No	Yes

* FAT/FAT32 cannot hold a single file larger than 4 GB. If after compression the CA ARCserve D2D file is larger than 4 GB (because the source is huge) the backup will fail.

Run a Backup Now

Normally, your backups are performed automatically and are controlled by your schedule settings. However, there may be a need to perform an ad-hoc backup (Full, Incremental, or Verify) immediately at an unscheduled time.

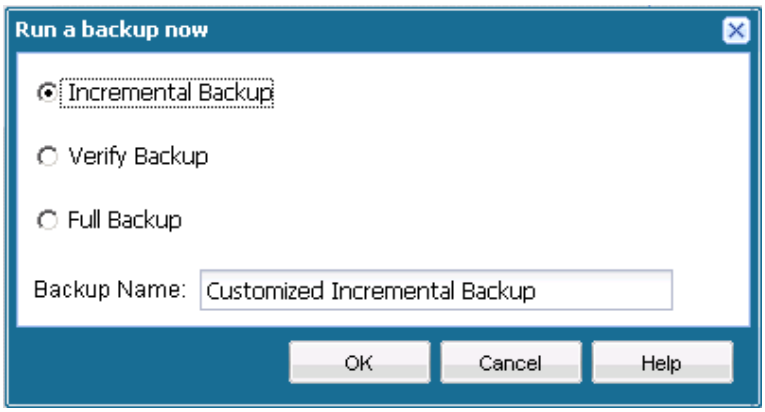
An ad-hoc backup is one that is created when the situation makes it necessary, rather than being arranged in advance or being part of a plan. For example, if you have a repeat schedule for Full, Incremental, and Verify backups and you want to make major changes to your machine, you should perform an immediate backup without waiting for the next scheduled backup to occur.

In addition, an ad-hoc backup also provides you with the capability to add a customized (unscheduled) recovery point so that you can roll back to this previous point in time if necessary. For example, if you install a patch or service pack and then discover that it adversely affects the performance of your machine, you may want to roll back to the ad-hoc backup session that does not include it.

Run a backup now

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), click Backup Now.

   The Run a backup now dialog opens.



2. Select the type of backup you want to perform.

   The available options are Full, Incremental, or Verify.

   Full Backup

   Immediately initiates a Full backup of your entire machine or the selected volumes.

   Incremental Backup

   Immediately initiates an Incremental backup of your machine. An Incremental backup will back up of only those blocks that have changed since the previous backup.

   The advantages of Incremental backups are that it is a very fast backup and it produces a very small backup image. This is the most optimal way to perform backups.

   Verify Backup

   Immediately initiates a Verify backup of your machine. A Verify backup will look at the most recent backup of each individual block and compare the content and information to the source. This comparison verifies that the latest backed up blocks represent the corresponding information at the source. If the backup image for any block does not match the source, CA ARCserve D2D will refresh (resynchronize) the backup of the block that does not match.

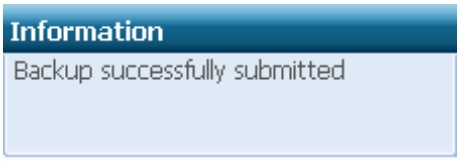
   The advantage of a Verify backup is that it produces a very small backup image when compared to Full backup because only the changed blocks (blocks that do not match the last backup) are backed up. The disadvantage of a Verify backup is that the backup time is slow because CA ARCserve D2D has to compare all of source disk blocks with the blocks of the last backup.

   Note: If you add a new volume to the backup source, the newly added volume will be fully backed up regardless of which overall backup method is selected.

3. If necessary, specify a backup name and click OK.

   Note: By default, if no backup name is specified, it will be named Customized Full/Incremental/Verify Backup.

   A confirmation pop-up screen appears, and the selected type of backup will be launched immediately.



Note: CA ARCserve D2D allows only one job to run at a time. If you attempt to manually launch a backup job now and during that time another job is currently running, an alert message will open informing you that another job is running and requesting that you try again at a later time.

Note: If a custom (ad-hoc) backup job fails, no makeup job will be created. A makeup job is only created for a failed scheduled job.

Video

YouTube: How to: Perform Ad-hoc Backups

CA Support: How to: Perform Ad-hoc Backups

CA ARCserve D2D in a Microsoft Hyper-V Environment

CA ARCserve D2D provides both host-level and virtual machine (VM) level protection for Microsoft Hyper-V environments. The following scenarios describe situations you may encounter and offer protection solutions using CA ARCserve D2D.

Note: Ensure that you apply the appropriate license for each of these scenarios.

- **Scenario 1 - You want to protect your Hyper-V host server:**

1. Install CA ARCserve D2D on the Hyper-V Host server.
2. Ensure that you back up the system and boot volume (if you are choosing volume filtering).
3. If the Hyper-V host server goes down, follow the standard Bare Metal Recovery procedure in CA ARCserve D2D to recover your Hyper-V host server.
4. If you want to restore selected files, use the standard CA ARCserve D2D restore procedure.

- **Scenario 2 - You want to protect your Hyper-V host server and the Virtual Machines which are hosted on that server:**

1. Install CA ARCserve D2D on the Hyper-V host server.
2. Ensure that you back up the entire machine to provide complete protection of both the host server and VMs.
3. Submit the backup jobs.
4. To restore a VM from a CA ARCserve D2D backup, there are two possible solutions:

   a. **Restore the VM to original location:**

      - From the restore window in CA ARCserve D2D, select the VM files (".vhd", ".avhd", configuration files, etc.).
      - Select "Restore to original location" as the destination and select the "Overwrite existing files" option for resolving conflicts.
      - Submit the restore job.

      Note: It is recommended to turn off the VM before submitting the restore job because if the older file is active, it will be overwritten by CA ARCserve D2D only after you reboot the Hyper-V host server to complete the restore process.

      - When the restore job has finished, open the Hyper-V Manager and start the VM.

- If the VM is not yet registered in the Hyper-V Manager, you will need to create a new VM. During the VM creation process, point the path of VM's configuration and vhd file to the same path of destination location where the restore was performed.

b. **Restore the VM to alternate location on the same Hyper-V Host server:**

- From the restore window in CA ARCserve D2D, select the VM files (".vhd", ".avhd", configuration files, etc.).
- Select "Restore to alternate location" as the destination and provide a destination path.
- Submit the restore job.
- When the restore job has finished, open the Hyper-V Manager and create a new VM. During VM creation process, point the path of VM's configuration and vhd file to the same path of destination location where the restore was performed.
- When the VM is created, start the VM.

Note: Refer to Microsoft Hyper-V documentation for more detailed information for restoring Hyper-V Virtual Machines.

- **Scenario 3 - You want to protect your Hyper-V Virtual Machines:**

  To protect your Hyper-V Virtual Machines (VM) using CA ARCserve D2D, there are two possible solutions:

  a. **Install CA ARCserve D2D on the Hyper-V host server**

  - Using the CA ARCserve D2D Backup Settings, select the volume where the VM files (".vhd", ".avhd", configuration files, etc.) are located.
  - Submit a backup job.
  - To restore a Hyper-V Virtual Machine from a CA ARCserve D2D backup, follow the steps for either of the restore solutions provided in Scenario 2.

  b. **Install CA ARCserve D2D inside the Windows Virtual Machine**

  Follow standard backup and restore procedure to protect the VM, just like a physical machine.

Note: For scenarios 2 and 3a, if you attached/mounted an iSCSI LUN directly inside the VM, the data inside the LUN will not be backed up using CA ARCserve D2D Hyper-V host level backups. You can overcome this limitation by using the same approach as the "Install CA ARCserve D2D inside the Windows Virtual Machine" solution in scenario 3b.

Restore Considerations

Prior to performing a CA ARCserve D2D restore, you should consider the following:

- **Restore Considerations to a remote destination**

  If all the drive letters (A - Z) are occupied, restore to remote path will not succeed because CA ARCserve D2D needs to use one drive letter to mount the remote destination path.

- **Restore Considerations for Hyper-V servers**

  On a Hyper-V server (even if you have the proper VM license), you will need to manually restore VHD files of VM and then re-register them with Hyper-V Manager.

  Note: After the VHDs are registered they are not directly registered with Hyper-V Manager. You can either attach them to existing VM or create a new VM and attach those to them.

- **Restore Considerations for a Microsoft SQL Server 2008 database with FILESTREAM data**

  Both the database and its related FILESTREAM BLOB data can be automatically backed-up by CA ARCserve D2D, but the FILESTREAM BLOB data cannot be restored automatically with the database. This is because FILESTREAM feature is still not supported by latest SQL Server Writer. As a result, when one database with FILESTREAM BLOB data is restored, just restoring the database is no longer enough, and the folder of FILESTREAM BLOB data needs to be restored as well.

  Note: FILESTREAM is a feature introduced by Microsoft SQL Server 2008, which provides the capability of storing binary large object (BLOB) data (MP3, Word, Excel, PDF, etc.) in the NTFS file system, rather than in a database file.

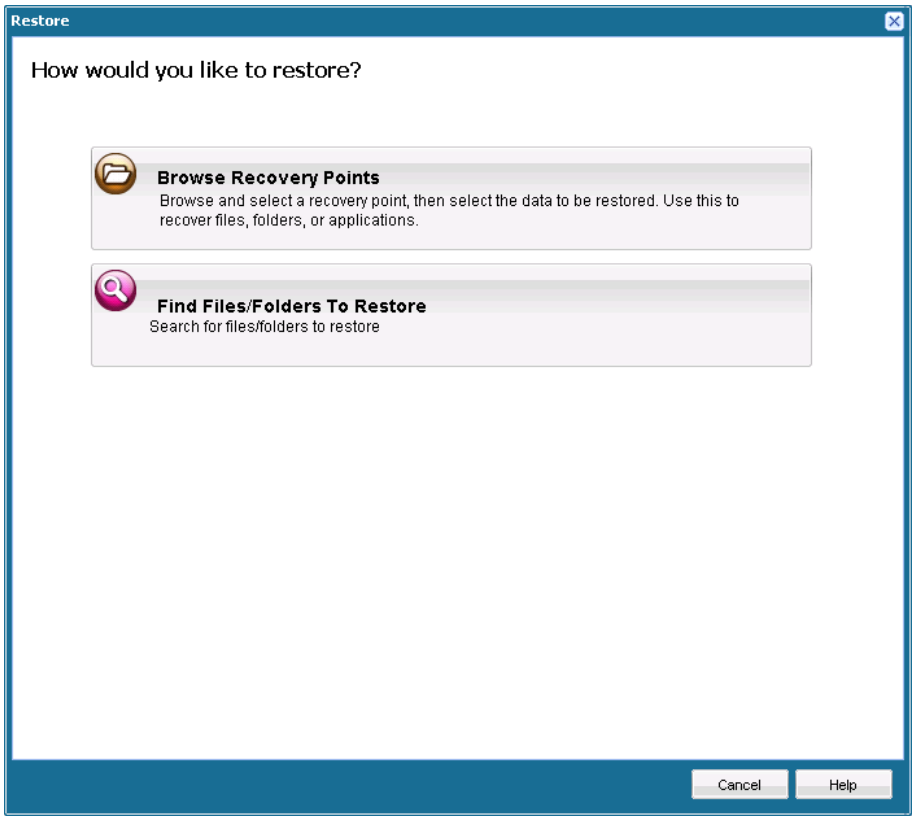
Restore Methods

The goal of running a successful restore job is to quickly identify the data you need and to retrieve it from the appropriate backup location. CA ARCserve D2D provides two methods to identify and locate the backed up data and allow you to restore it.

Restore data

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), select Restore.

   The restore methods selection dialog opens.



2. Select the type of restore you want to perform.

   The available options are Browse Recovery Points and Find Files/Folders to Restore.

   Note: You must use the Browse Recovery Points if you want to restore any applications.

   Browse Recovery Points

   Allows you to browse the available recovery points (successful backups) from a calendar view. The calendar dates that contain valid recovery points will be highlighted in green. When you select a recovery date, all the associated recovery points for that date will be displayed. You can then browse and select the backup content (including applications) to be restored. For more information, see Restore by Recovery Points (see page 79).

   Find Files/Folders to Restore

   Allows you to search for a file name pattern in a specific location and/or the file version to be restored. For more information, see Restore by Find File/Folder (see page 84).

Restore Markers

Regardless of which restore method you select, when you navigate to a specific volume, folder, or file to restore, each object displayed in the restore window has a green or gray box to its left called a marker. These markers are visual indicators of the objects that are or are not selected for restore.

Green marker

Lets you control the extent of the restore for an object directly. Click a marker to exclude an object from a restore or to indicate that you want the restore for the object to be full or partial. As you click the marker, you fill or empty the marker of color, indicating the extent of the restore.

Gray marker

These markers are associated with objects that are not real and that you cannot restore. Typically, these items serve as placeholders under which other objects are grouped and displayed. As you click the green markers under a gray marker item, the fill proportion of the gray marker changes automatically from empty to partial to full depending on the proportion of files you have chosen to restore.

The following table describes the different marker configurations and corresponding restore levels:

Marker	Configuration	Description
	Completely filled center.	Full restore.
	Partially filled center.	Partial restore.
	Empty center.	Do not restore.

Note: Gray marker configurations follow the same pattern as green marker configurations, but reflect the proportion of files under them that are selected for restore.

The fill proportion of a marker at a higher level of the directory tree depends on the fill proportions of the markers of the objects at the lower levels.

- If all the markers at the lower levels are completely filled, then the marker at the higher level is also automatically completely filled.
- If the markers at the lower levels are a mix of completely filled and partially filled, then the marker at the higher level is automatically partially filled.

If you click a marker at a higher level so that it is completely filled, then all the markers at the lower levels are automatically filled completely.

Restore by Recovery Point

Each time CA ARCserve D2D performs a successful backup, a point-in-time snapshot image of your backup is also created. This collection of recovery points allows you to locate and specify exactly which backup image you want to restore.

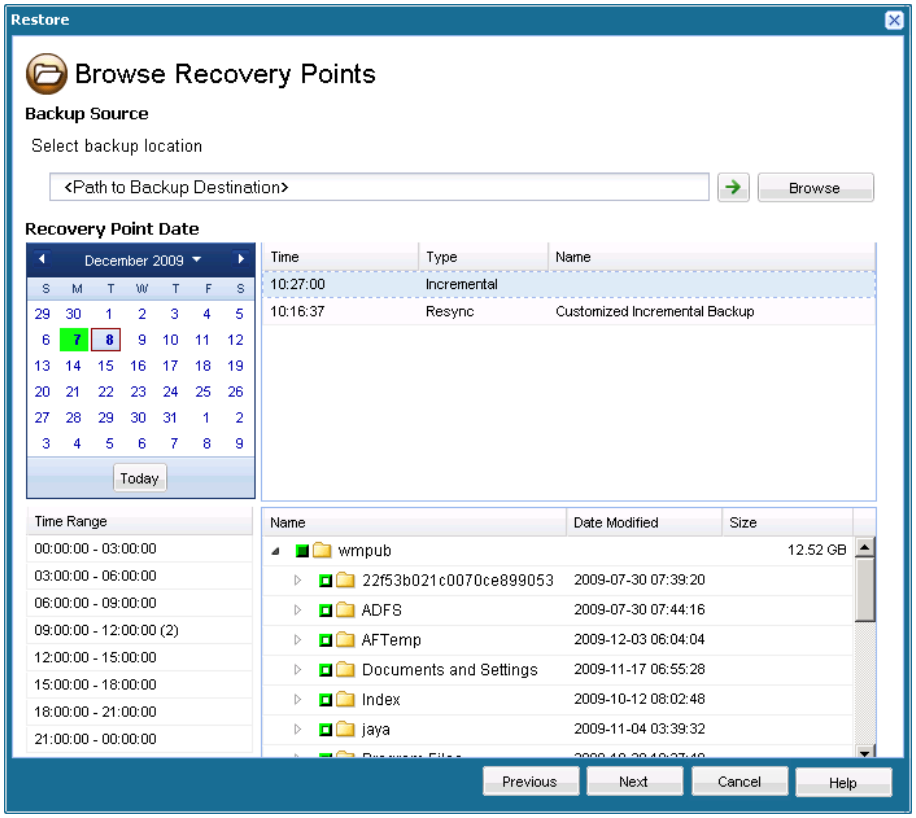
Restore from a recovery point

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), select Restore.

   The restore methods selection dialog opens.

2. Click the Browse Recovery Points option.

   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 information 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.

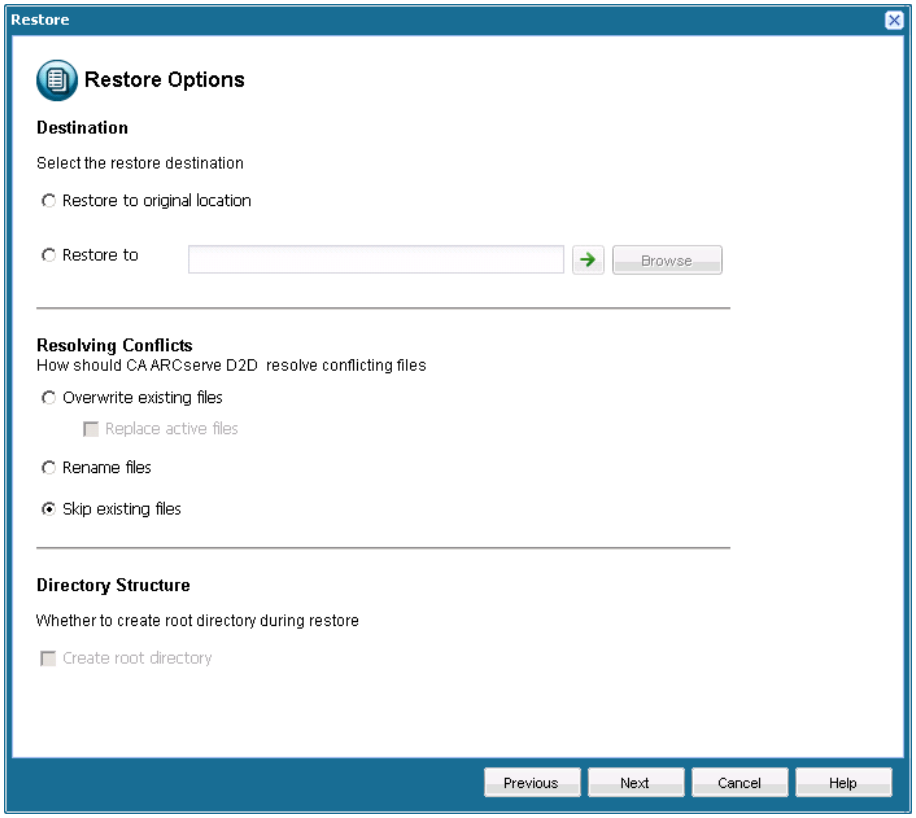
      The corresponding backup content (including any applications) for that recovery point is displayed.

   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. When the backup information to be restored is specified, click Next.

   The Restore Options dialog is displayed.



6. 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.

   Restore to Original Location

   Restores to the original location from where the backup image was captured.

   Note: When restoring the CA ARCserve D2D logs folder to the original location, the files that are in the logs folder will be skipped.

   Restore to:

   You can either specify a location or browse to the location where your backup images will be restored. You can click on the green arrow icon button 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.

7. Select what CA ARCserve D2D will do to resolve any conflicts that are encountered during the restore process.

   The available options are to whether or not to overwrite the existing files and whether or not to replace any active files.

   Overwrite existing files

   Overwrites (replaces) any 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

   Replaces any active files upon reboot. If during the restore attempt CA ARCserve D2D discovers that the existing file is currently in use or being accessed, 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

   Creates a new file 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

Skips over and not overwrite (replace) any existing files that are located at the restore destination. Only objects that are not currently existing on your machine will be restored from the backup files.

By default, this option is selected.

8. Select what CA ARCserve D2D will or will not do with the directory structure during the restore process.

Create root directory

If selected, specifies 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.

For 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).

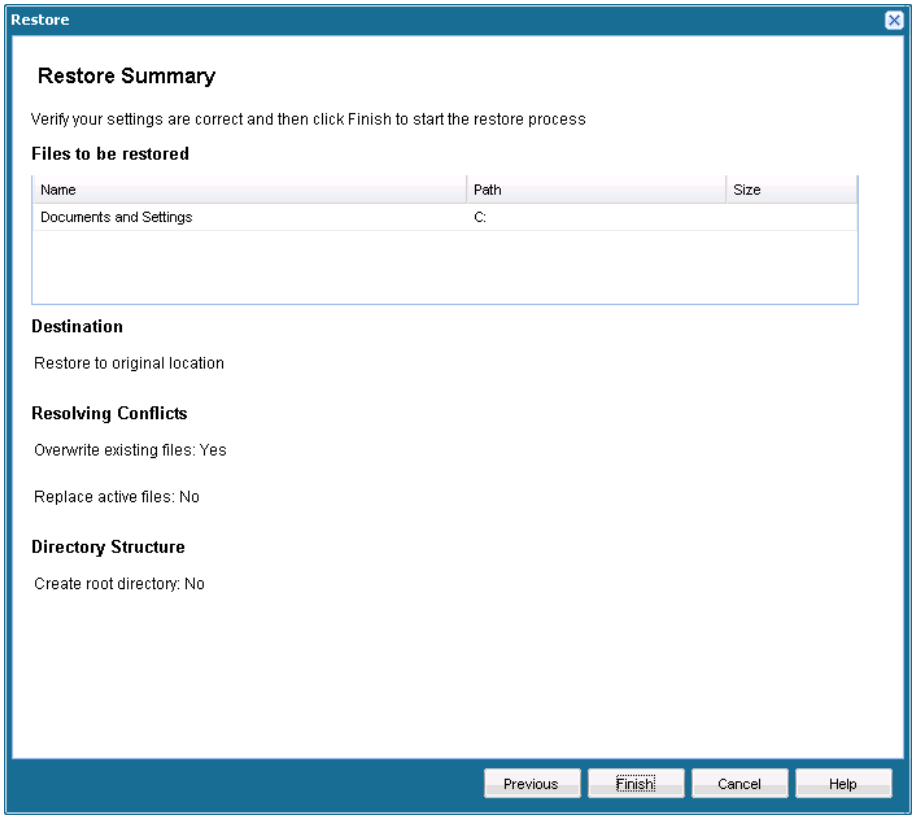
When the Create Root Directory option is selected (checked), the entire root directory path for the files/folders (including the volume name) will be recreated to the destination folder. If the files/folders to be restored are from the same volume name, then the destination root directory path will not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

For 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).

9. When the restore options are selected, click Next.

   The Restore Summary dialog is displayed.



10. 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.

Video

YouTube: How to: Restore by Recovery Point

CA Support: How to: Restore by Recovery Point

Restore by Find File/Folder

Each time CA ARCserve D2D performs a successful backup, all backed up files/folders are included in the snapshot image of your backup. This restore method allows you to specify exactly which file/folder you want to restore.

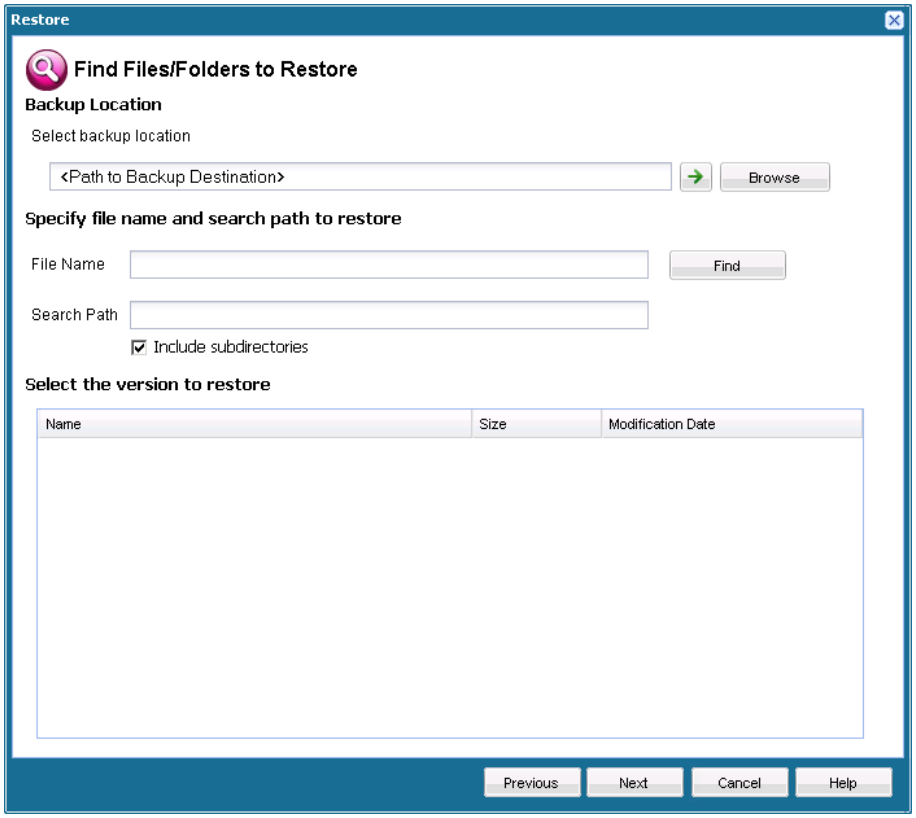
Restore by finding a file or folder

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), select Restore.

   The restore methods selection dialog opens.

2. Click the Find Files/Folders to Restore option.

   The Find Files/Folders to Restore 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.

4. Specify the 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:

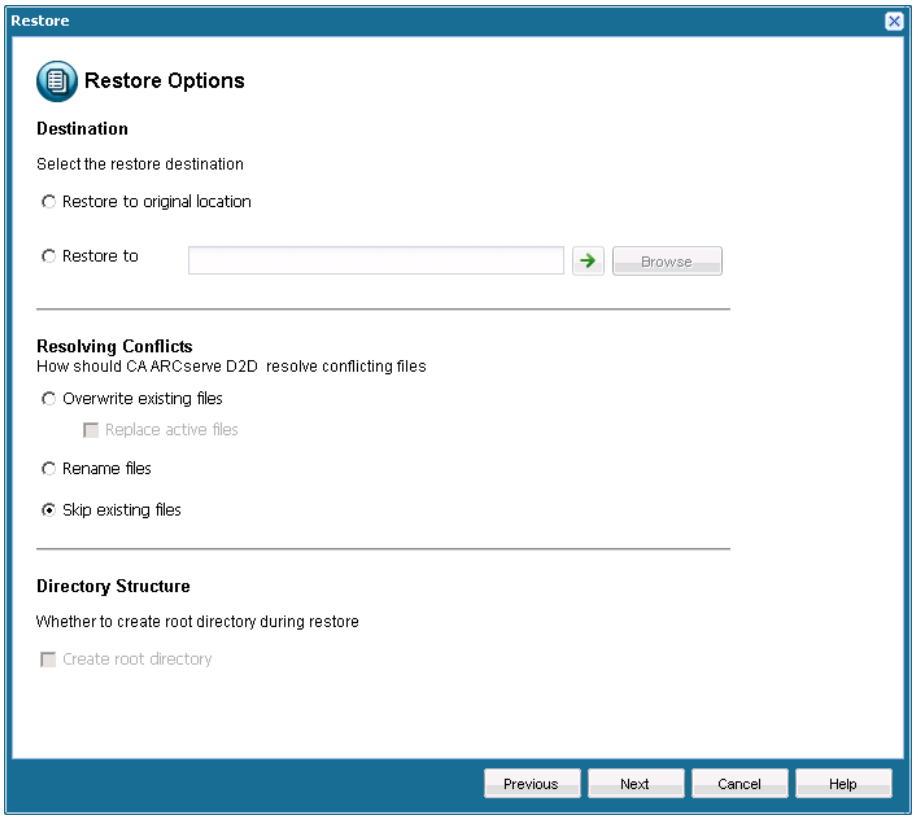
   - "*" - Use the asterisk to substitute zero or more characters in a file or folder name.
   - "?" - Use the question mark to substitute a single character in a file or folder name.

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

5. If necessary, you can also specify a path to further filter your search and select whether to include or not include any subdirectories.
6. Click Find to launch the search.

   The results of the search will be displayed. 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).
7. When the backup information to be restored is specified, click Next.

   The Restore Options dialog is displayed.



8. 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.

   Restore to Original Location

   Restores to the original location from where the backup image was captured.

   Note: When restoring the CA ARCserve D2D logs folder to the original location, the files that are in the logs folder will be skipped.

   Restore to:

   You can either specify a location or browse to the location where your backup images will be restored. You can click on the green arrow icon button 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.

9. Select what CA ARCserve D2D will do to resolve any conflicts that are encountered during the restore process.

   The available options are to whether or not to overwrite the existing files and whether or not to replace any active files.

   Overwrite existing files

   Overwrites (replaces) any 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

   Replaces any active files upon reboot. If during the restore attempt CA ARCserve D2D discovers that the existing file is currently in use or being accessed, 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

   Creates a new file 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

Skips over and not overwrite (replace) any existing files that are located at the restore destination. Only objects that are not currently existing on your machine will be restored from the backup files.

By default, this option is selected.

10. Select what CA ARCserve D2D will or will not do with the directory structure during the restore process.

Create root directory

If selected, specifies 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.

For 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).

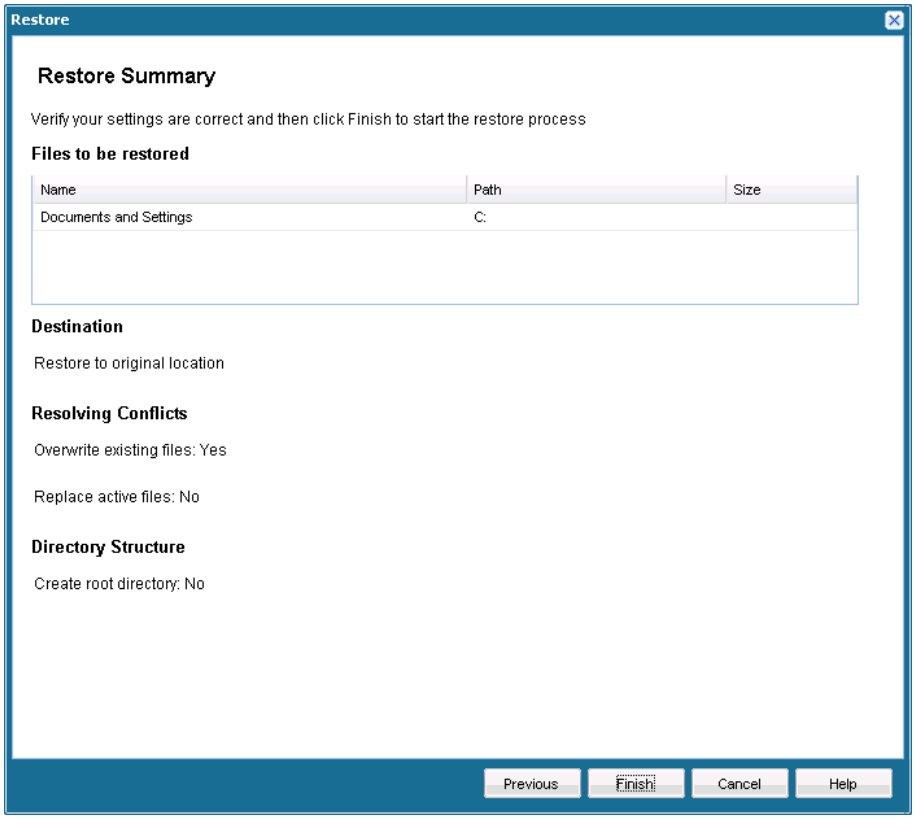
When the Create Root Directory option is selected (checked), the entire root directory path for the files/folders (including the volume name) will be recreated to the destination folder. If the files/folders to be restored are from the same volume name, then the destination root directory path will not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

For 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).

11. When the restore options are selected, click Next.

    The Restore Summary dialog is displayed.



12. 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.

Video

YouTube: How to: Restore Files and Folders

CA Support: How to: Restore Files and Folders

Application Restore

CA ARCserve D2D allows you to not only protect and recover your data, but also helps you to get the applications that will use that data back up and running. All application recoveries can only be made using the Restore by Recovery Point method. During an application recovery, CA ARCserve D2D takes advantage of Windows Volume Shadow Copy Service (VSS) to ensure data consistency for any VSS-aware application. With CA ARCserve D2D you can recover the following applications without performing a full disaster recovery:

- Microsoft Exchange Server (see page 91)
- Microsoft SQL Server (see page 98)

Application Restore - MS Exchange Server

CA ARCserve D2D allows you to not only protect and recover your data, but also helps you to get the Microsoft Exchange Server application that will use that data back up and running. The Microsoft Exchange Server recovery can only be made using the Restore by Recovery Point method.

The following versions of Microsoft Exchange Server are supported by CA ARCserve D2D:

- **Exchange 2003** - Single Server Environment.
- **Exchange 2007** - Single Server Environment, Local Continuous Replication (LCR), and Cluster Continuous Replication (CCR) environment.

  For Exchange 2007 CCR environment, CA ARCserve D2D must be installed on both the active node and passive node of Microsoft Cluster. Backup can be performed from an active node and passive node, but restore can only be performed to an active node.
- **Exchange 2010** - Single Server Environment and Database Availability Group (DAG) environment.

  For Exchange 2010 DAG environment, CA ARCserve D2D must be installed on all member servers in the DAG group. Backup can also be performed from any member server for both active and passive database copies, but restore can only be performed to an active database copy.

  Note: Microsoft Exchange Server 2003 Cluster Environment and Microsoft Exchange Server 2007 Single Copy Cluster (SCC) environment are not supported by CA ARCserve D2D.

Microsoft Exchange Server can be restored at the following levels:

Microsoft Exchange Writer Level

You can perform restore at Microsoft Exchange Writer level if you want to restore all the Microsoft Exchange Server data.

Storage Group Level

You can perform restore at Microsoft Exchange Storage Group level if you want to restore a specific Storage Group.

(Does not apply for Microsoft Exchange Server 2010).

Mailbox Store Level (Exchange 2003)

You can perform restore at Mailbox Store level if you want to restore a specific Mailbox Store.

Mailbox Database Level (Exchange 2007 and 2010)

You can perform restore at Mailbox Database level if you want to restore a specific Mailbox Database.

Restore Microsoft Exchange Server Application

Note: When performing a Microsoft Exchange Server database restore (to either the original location or a recovery storage group/recovery database), you must ensure that the account also has the following administrative privileges:

- Exchange 2003 - Exchange Full Administrator Role
- Exchange 2007/2010 - Exchange Organization Administrator or Exchange Server Administrator Role

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), select Restore.

   The restore methods selection dialog opens.

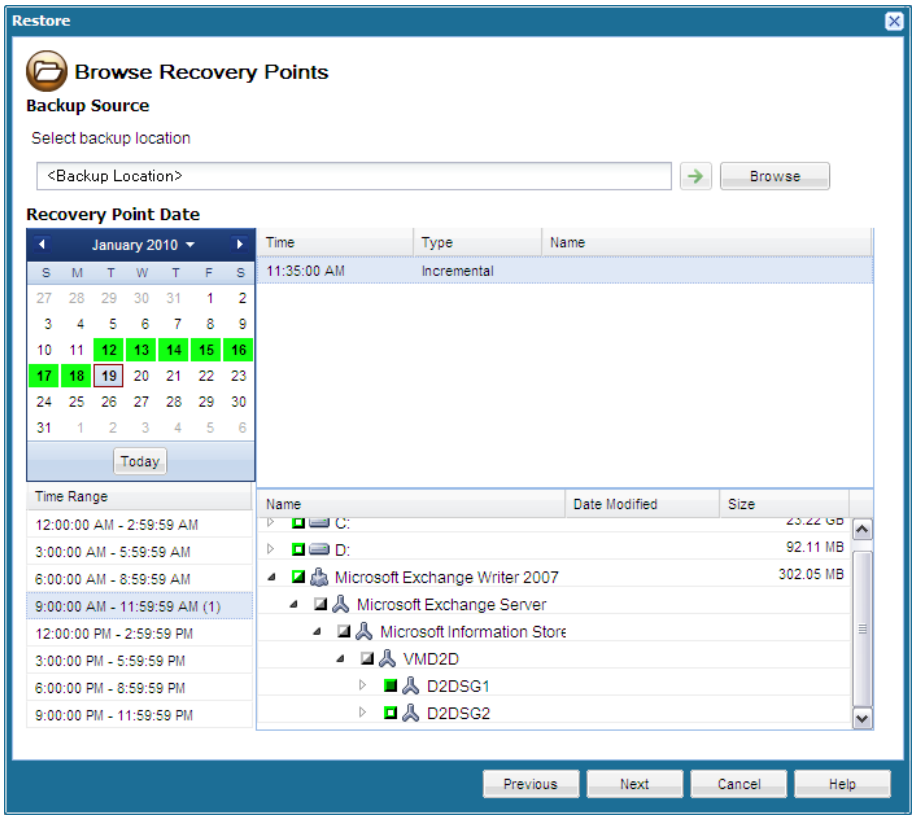
2. Click the Browse Recovery Points option.

   The Browse Recovery Points dialog opens.

3. Select the recovery point (date and time) and then select the Microsoft Exchange database to be restored.

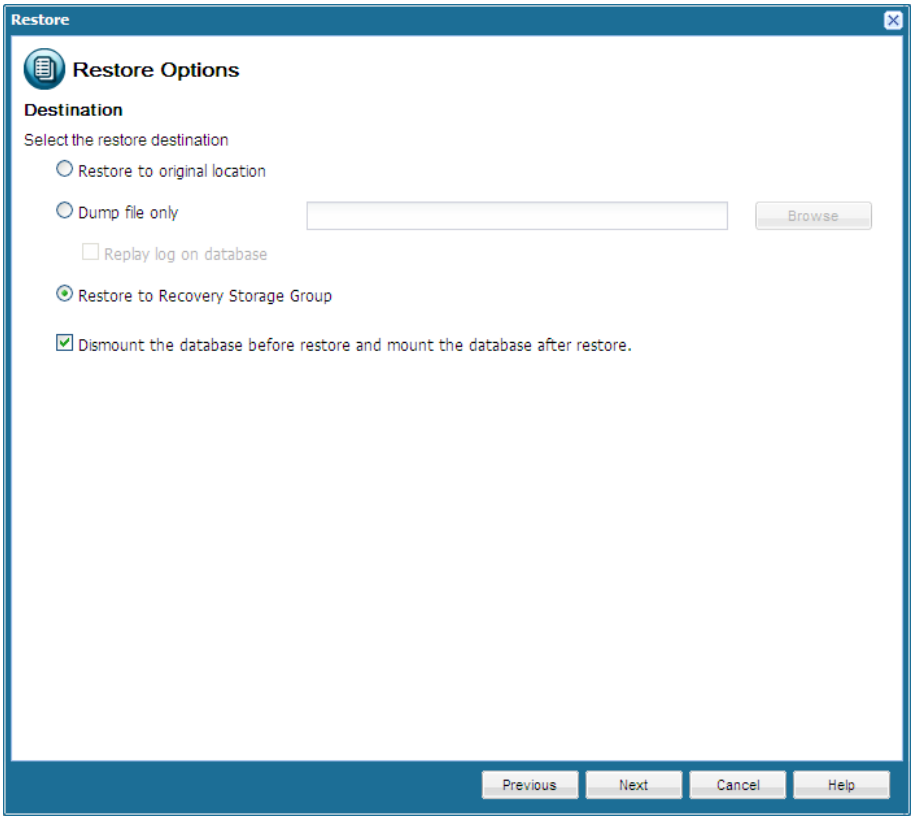
   The corresponding marker box becomes filled (green) to indicate that the database has been selected for the restore.

   Note: If you do not want the transaction log files to be applied after restore, you need to manually delete it before the restore is performed. For more information about manually deleting transaction log files, refer to the Microsoft Exchange Server documentation.



4. Click Next.

   The Restore Options dialog opens.



5. Select the destination for the restore.

   The available options are to restore to the original location of the backup, restore the dump file only, or restore to a Recovery Storage Group/Recovery Mailbox Database.

   Restore to original location

   Restores to the original location from where the backup image was captured.

   Note: When restoring the CA ARCserve D2D logs folder to the original location, the files that are in the logs folder will be skipped.

Dump file only

Restores the dump files only.

For this option, CA ARCserve D2D will restore the Microsoft Exchange database file to a specified folder, and will not bring it online after recovery. You can then move this file to a different server and mount it to exchange server manually to view data contained in it.

Note: When a Recovery Mailbox Database exists, restore with 'Dump file only' option will fail.

Replay log on database

Specifies that when the database files are dumped to the destination folder, you can replay and apply all Microsoft Exchange transaction log files and commit them to the database file. When the database next starts, and transaction log files that were not yet written to the database files are then applied before the database is again made available to you.

Note: This option is not applicable for Microsoft Exchange Server 2003

Restore to Recovery Storage Group (Exchange 2007)

Restore to Recovery Database (Exchange 2010)

Restores the database to a Recovery Storage Group (RSG) or Recovery Database.

An RSG is a storage group that can be used for recovery purposes. You can restore a Microsoft Exchange Mailbox Database from a backup in a Recovery Storage Group and then recover and extract data from it, without affecting the production database that is being accessed by end users.

- If single storage group or database (except a public folder database) from the same storage group are selected to restore, the default restore destination is "Restore to Recovery Storage Group" (or "Restore to Recovery Database").
- If multiple storage groups or databases from multiple storage groups are selected to restore, Exchange can only be restored to the original location or restore with "Dump file only" option. The default restore destination is "Restore to original location".

Before restoring an Exchange 2007 database to a Recovery Storage Group, you must create a Recovery Storage Group and Mailbox Database with the same name.

For example, if you want to restore MailboxDatabase1 from the First Storage Group to a Recovery Storage Group, you need to create a Recovery Storage Group and add the database "MailboxDatabase1" to the Recovery Storage Group.

Note: This option is not applicable for Microsoft Exchange Server 2003

Dismount the database before restore and mount the database after restore

Normally before a restore, Microsoft Exchange will perform some checks to ensure the following:

- The database to be restored is in "Dismounted" status.
- The database is not restored unexpectedly.

  To protect a Microsoft Exchange production database from being restored unexpectedly, a switch is added to allow the database to be overwritten during the restore process. Microsoft Exchange will refuse to restore a database if this switch is not set.

For CA ARCserve D2D, these two options are controlled by this "Dismount the database before restore and mount the database after restore" option. With this option, CA ARCserve D2D lets you launch the restore process automatically without any manual operations. (You can also specify to dismount/mount database manually).

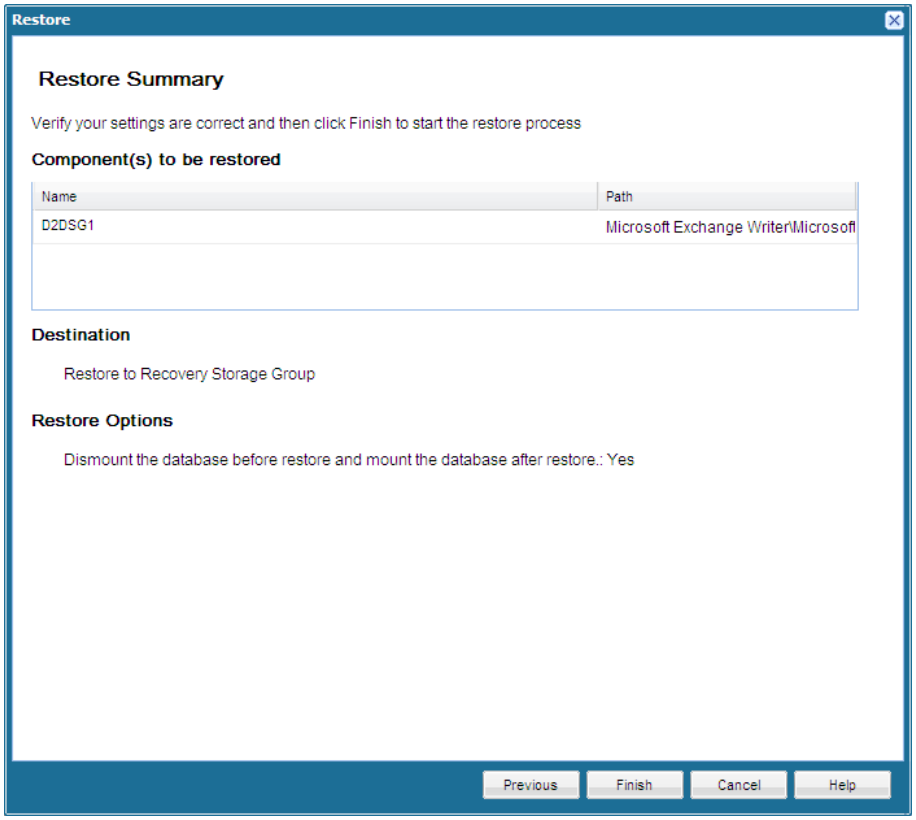
- If checked, specifies that the recovery process will automatically dismount the Exchange database before the restore process and then mount the database after the restore process is completed. In addition, if checked, this option will also allow the Exchange database to be overwritten during the restore.
- If unchecked, specifies that the recovery process will not automatically dismount the Exchange database before recovery and mount the database after recovery.

  The Exchange administrator would have to perform some manual operations such as dismount the Exchange database, set the Allow Overwritten flag on the database, and mount the Exchange database. (The recovery procedure is performed by Exchange during the mounting of the database).

  In addition, if unchecked, this option will not allow the Exchange database to be overwritten during restore.

6. Click Next.

   The Restore Summary dialog opens.



7. 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.

Video

YouTube: How to: Backup and Restore MS Exchange

CA Support: How to: Backup and Restore MS Exchange

Application Restore - MS SQL Server

CA ARCserve D2D allows you to not only protect and recover your data, but also helps you to get the Microsoft SQL Server application that will use that data back up and running. The Microsoft SQL Server recovery can only be made using the Restore by Recovery Point method.

Restore Microsoft SQL Server Application

1. From the CA ARCserve D2D home page (or CA ARCserve D2D Monitor), select Restore.

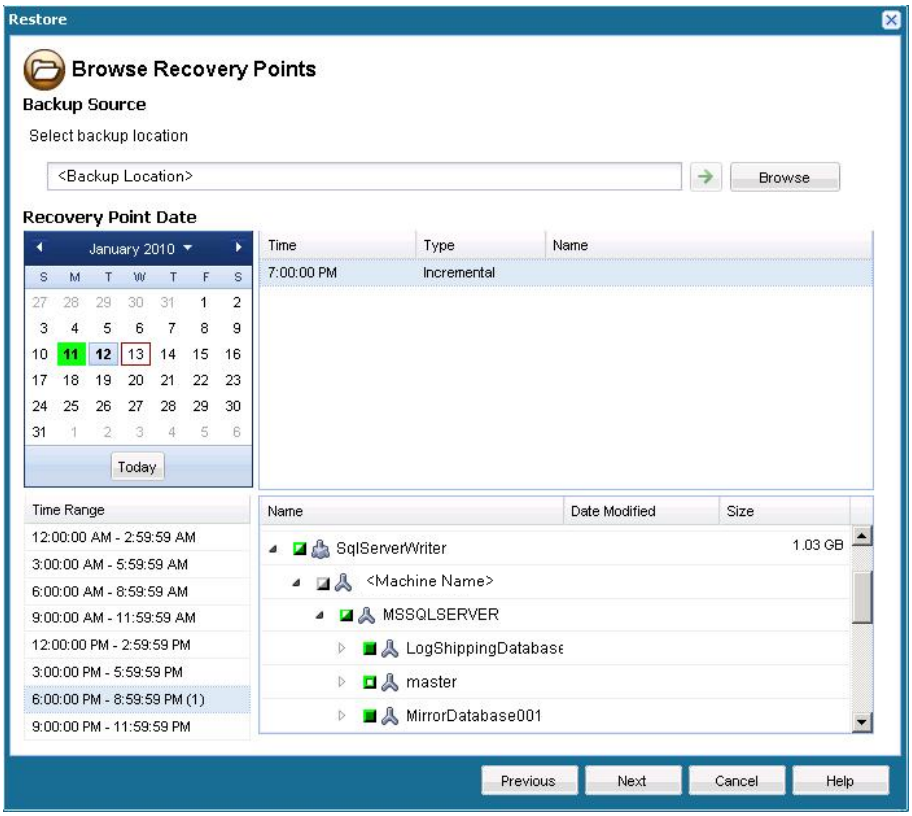
   The restore methods selection dialog opens.

2. Click the Browse Recovery Points option.

   The Browse Recovery Points dialog opens.

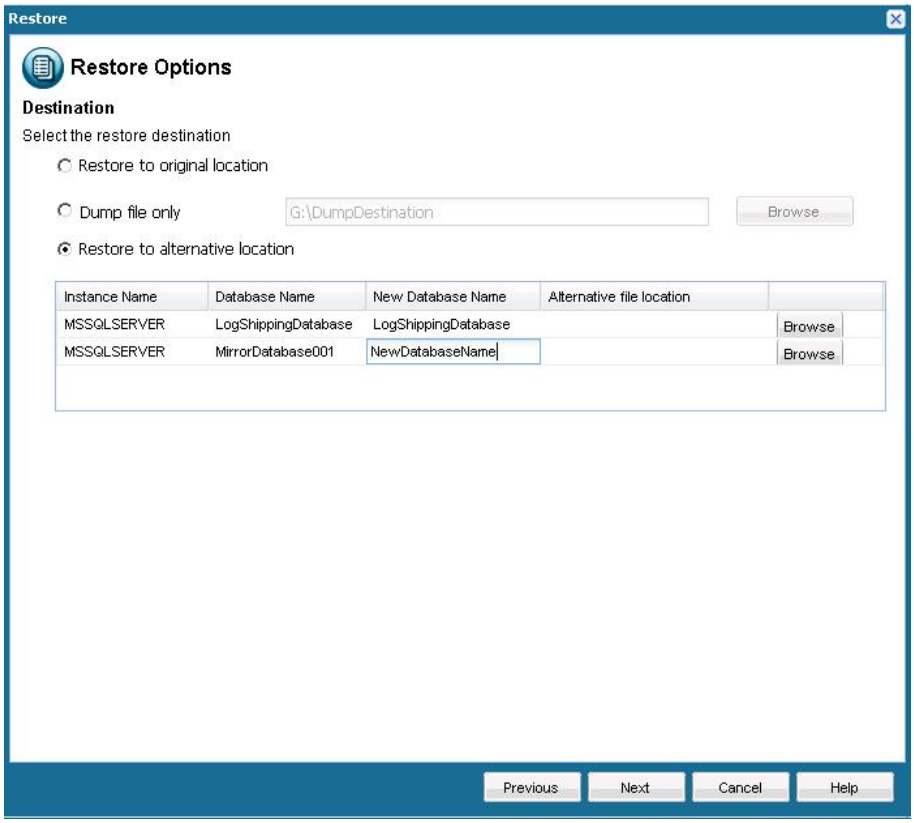
3. Select the recovery point (date and time) and then select the Microsoft SQL Server database to be restored.

   The corresponding marker box becomes filled (green) to indicate that the database has been selected for the restore. You can select a single or multiple databases to be restored.



4. Click Next.

   The Restore Options dialog opens.



5. Select the destination for the restore.

   The available options are to restore to the original location of the backup, restore the dump file only, or restore to an alternate location.

   Restore to original location

   Restores to the original location from where the backup image was captured.

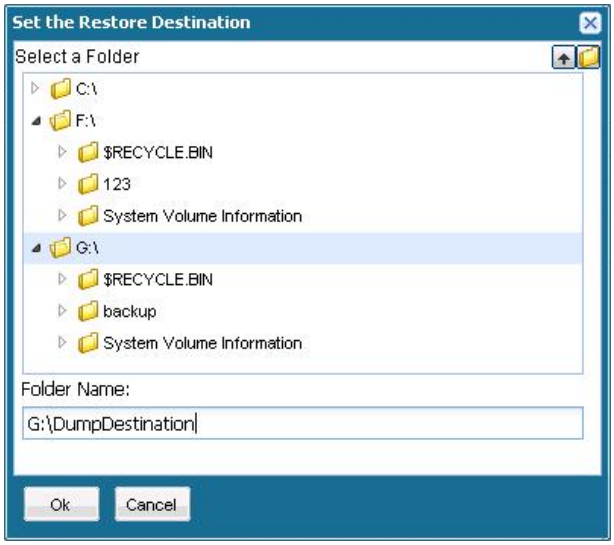
   Note: When restoring the CA ARCserve D2D logs folder to the original location, the files that are in the logs folder will be skipped.

Dump file only

Restores the dump files only.

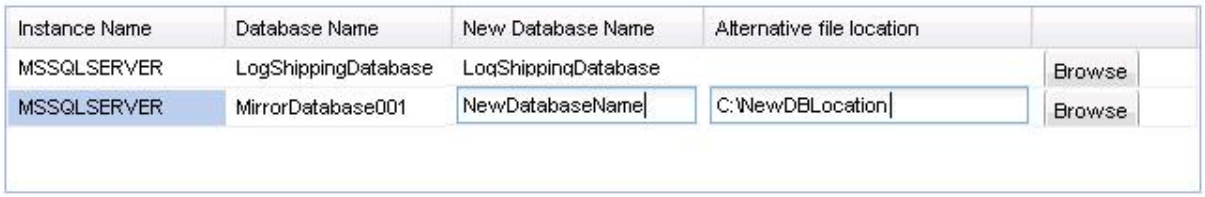
Dump files are created when an application crashes and contains additional (time-stamped) information that can be used to troubleshoot the cause of the problem.

When you select this option, you can then specify or browse to the folder location where the dump file will be restored to.

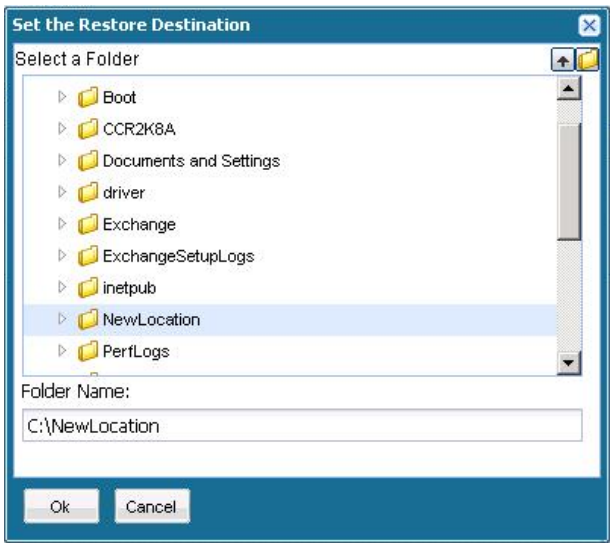


Restore to alternate location

Restores to an alternate location (not the original location).



Because backups can be copied to network locations, they can be used by multiple SQL Server instances. Multiple database restore can be performed (simultaneously) from the instance level. From this listing you can select the database instance and specify a new database name and alternate location to restore the database to. In addition, you can also browse to the alternate location where the database be restored to.



6. Click Next.

   The Restore Summary dialog opens.

7. 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.

Video

YouTube: How to: Backup and Restore MS SQL Server

CA Support: How to: Backup and Restore MS SQL Server

Export Recovery Point

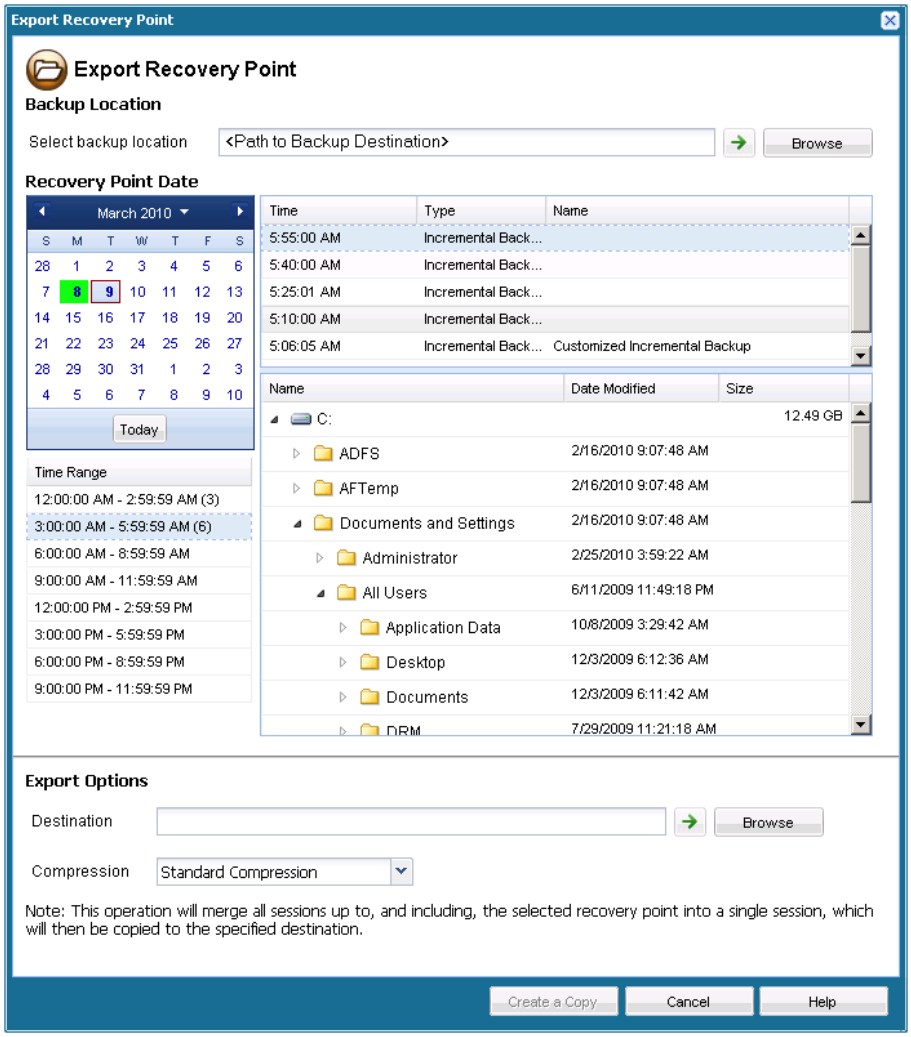
Each time CA ARCserve D2D performs a successful backup, a point-in-time snapshot image of your backup is also created. This collection of recovery points allows you to locate and specify exactly which backup image you want to copy. You may want to copy/export recovery point information to safely store it offsite in case of a catastrophe, or you may want to save your recovery points to multiple locations, or you may just want to consolidate your backups if your destination is getting full and you still want to preserve all your recovery points. When you select a recovery point to copy/export you are not only capturing the backup blocks that were created for that specified point-in-time, but also whatever previous backup blocks are needed to recreate a full and most recent backup image.

Note: This task is only available from the CA ARCserve D2D UI and not from the CA ARCserve D2D Monitor.

Export recovery point

1. From the CA ARCserve D2D home page, select Export Recovery Point.

   The Export Recovery Point dialog opens.



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

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

3. Specify the recovery point to export.
   a. Select the calendar date for the backup image you want to export.

      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 export.

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

4. Specify the export options.
   a. Select the destination.

      You can either specify a location or browse to the location where the copy of your selected recovery point will be stored. You can click on the green arrow icon button to verify the connection to the specified location. If necessary, enter the User name and Password.

   b. Select the level of compression to be performed.

      Note: The specified backup compression level has no relation with copy compression level. For example, in backup destination the compression level may be set to Standard; however, when you submit the copy job, the compression can be changed to No Compression or Maximum Compression.

      Compression is usually performed to decrease your disk space usage, but also has an inverse impact on your backup speed due to the increased CPU usage.

      The available options are:

      - **No Compression** - No compression will be performed. Files will be pure VHD. This option has the lowest CPU usage (fastest speed), but also has the highest disk space usage for your backup image.
      - **Standard Compression** - Some compression will be performed. This option provides a good balance between CPU usage and disk space usage. This is the default setting.
      - **Maximum Compression** - Maximum compression will be performed. This option provides the highest CPU usage (lowest speed), but also has the lowest disk space usage for your backup image.

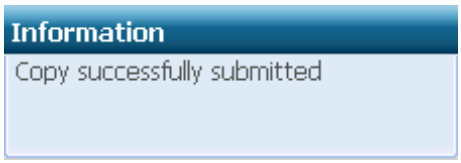
Note: If your backup image contains uncompressible data (such as JPG images, ZIP files, and so on), additional storage space may need to be allocated to handle such data. As a result, if you select any compression option and have uncompressible data in your backup, it may actually result in an increase in your disk space usage.

Note: If you change the compression level from "No Compression" to either "Standard Compression" or "Maximum Compression", or if you change from either "Standard Compression" or "Maximum Compression" to "No Compression", the first backup performed after this compression level change will automatically be a Full Backup. After the Full Backup is performed, all future backups (Full, Incremental, or Verify) will be performed as scheduled.

5. Click Create a Copy.

   A status notification window appears and the copy process for the selected recovery point type will be launched immediately.

   The recovery point image will be copied from the backup source to the export destination.



Video

YouTube: How to: Export a Recovery Point

CA Support: How to: Export a Recovery Point

Create a VHD File from a CA ARCserve D2D Backup

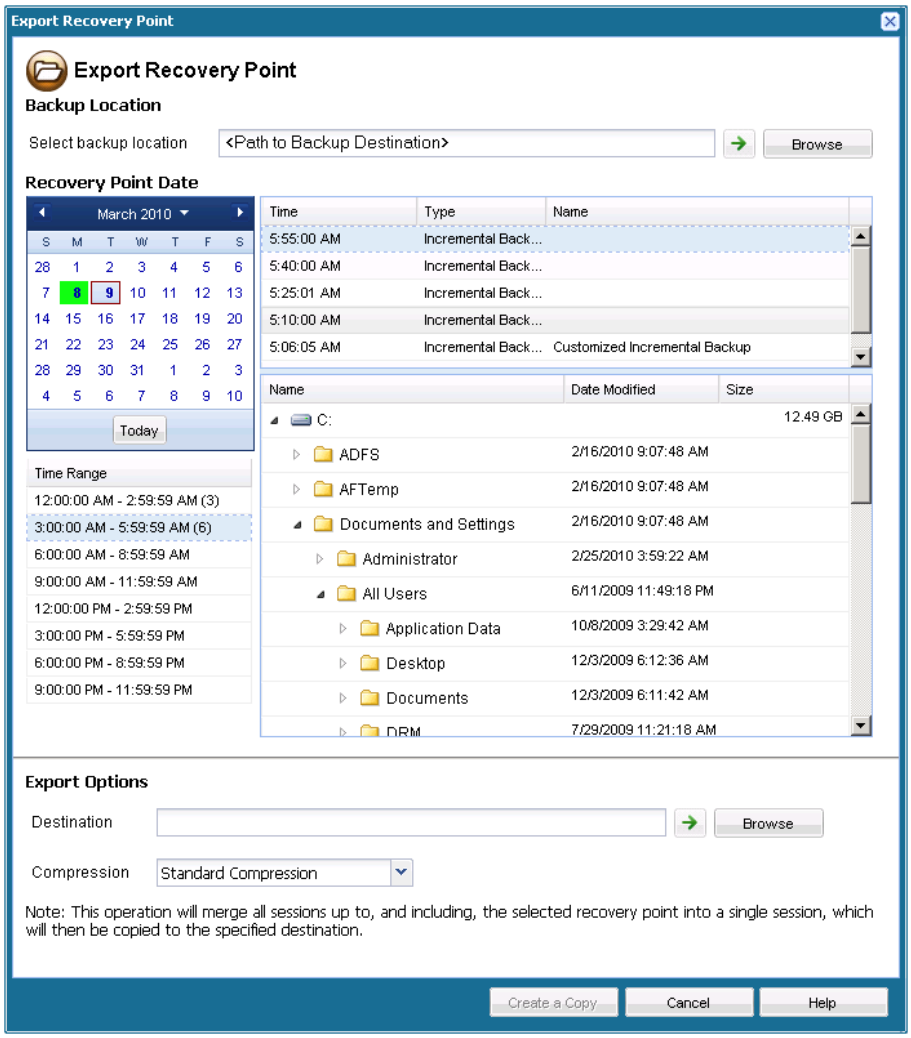
Each time CA ARCserve D2D performs a successful backup, a point-in-time snapshot image of your backup is also created. Prior to creating a Virtual Hard Disk (VHD) file from a CA ARCserve D2D backup, you must have at least one CA ARCserve D2D recovery point available.

Note: This task is only available from the CA ARCserve D2D UI and not from the CA ARCserve D2D Monitor.

Create a VHD file

1. From the CA ARCserve D2D home page, select Export Recovery Point.

   The Export Recovery Point dialog opens.



2. 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.

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

3. Specify the recovery point to export.

   a. Select the calendar date for the backup image you want to export.

      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 export.

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

4. Specify the export options.

   a. Select the destination. You can either specify a location or browse to the location where the copy of your selected recovery point will be stored. If necessary, enter the User name and Password.

      Note: Make sure you select a location that has sufficient free space available to hold the entire VHD.

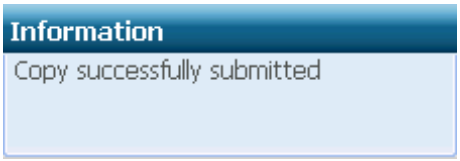
   b. Set the level of compression to "No Compression".

      No compression will be performed. Files will be pure VHD format. This option has the lowest CPU usage (fastest speed), but also has the highest disk space usage for your backup image be performed for VHD files.

5. Click Create a Copy.

   A status notification window appears and the copy process for the selected recovery point type will be launched immediately.

   The recovery point image will be copied from the backup source to the export destination..



6. When the copy and export process is finished, browse to the export destination and navigate to the subordinate folder corresponding to the hostname of the CA ARCserve D2D machine.
7. Open the hostname folder and navigate to the following subordinate folder:

   "VStore\S0000000001"

   For example, if your machine name is "Department_A" and you exported the recovery point (backup) to "E:\export_vhd\" you would navigate to:

   E:\export_vhd\Department_A\VStore\S0000000001
8. Open the "S0000000001" folder and locate all files with a ".D2D" extension.
9. Change each of the file extensions from "D2D" to "VHD".

   Each of these files correspond to an actual physical disk on the source machine. After renaming these files, you can then use them as regular VHD files.

View Logs

The Activity Log contains comprehensive information about all the operations performed by CA ARCserve D2D. 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.

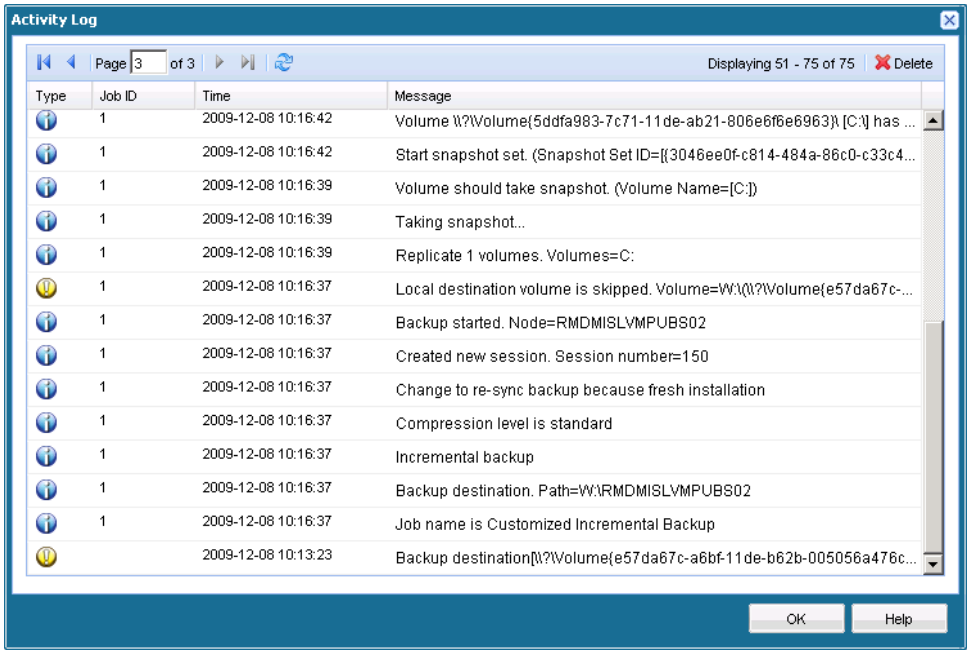
Note: This task is only available from the CA ARCserve D2D UI and not from the CA ARCserve D2D Monitor.

View Logs

1. From the CA ARCserve D2D home page, select View Logs.

   The CA ARCserve D2D Activity Log opens, displaying the following information:

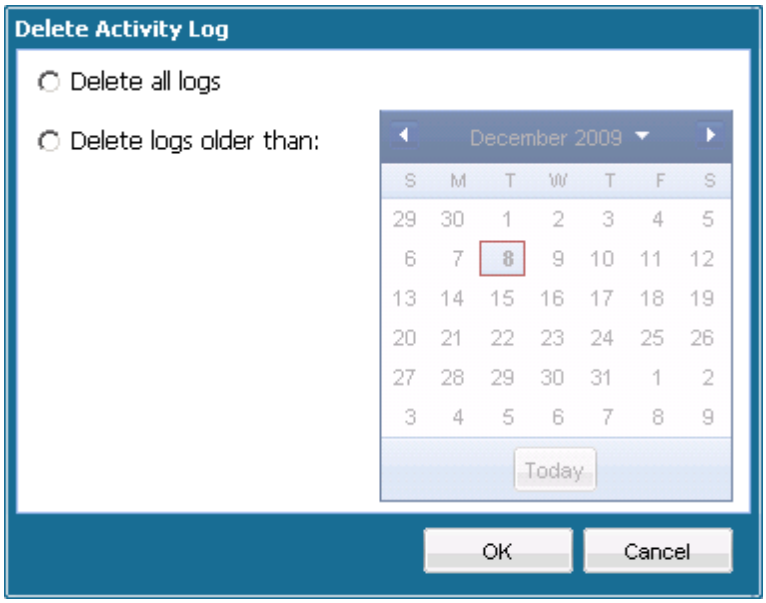
   - Type of Message (Error, Warning, Information)
   - Job ID
   - Time that the message was recorded
   - Message indicating the activity performed or the problem encountered.



2. If necessary, you can click on the Delete button to purge some or all of the log entries.

   The Delete Activity Log dialog opens.

   You can then specify to Delete all logs or Delete logs older than a specific date. If you select the "Delete logs older than" option, you can then specify from the calendar which date will be used as the older than date.



Deploy CA ARCserve D2D Remotely

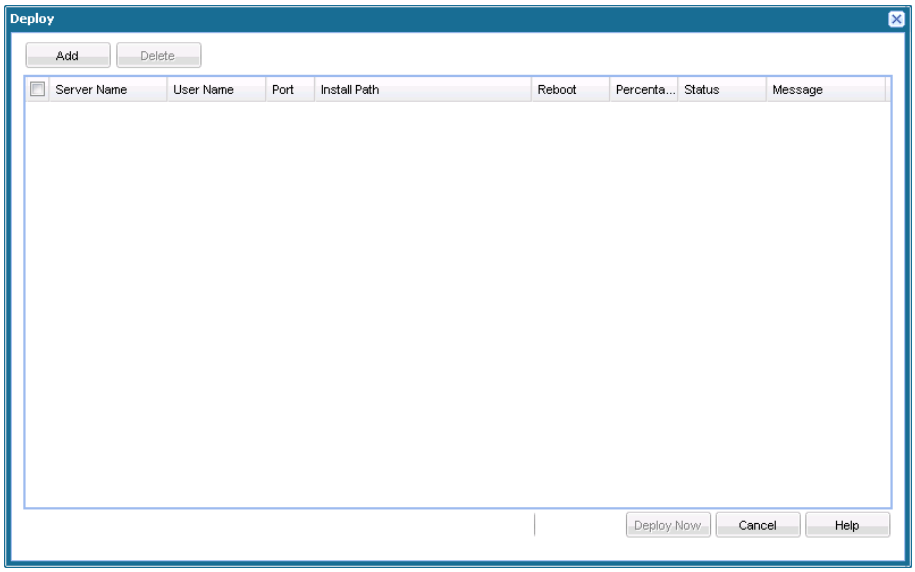
After CA ARCserve D2D is installed on a server, you can then deploy it remotely to other selected servers using the CA ARCserve D2D UI. When CA ARCserve D2D is deployed remotely you will get all the files and folders you would get if you deployed it locally without having to visit the remote system.

Note: This task is only available from the CA ARCserve D2D UI and not from the CA ARCserve D2D Monitor.

Deploy CA ARCserve D2D remotely

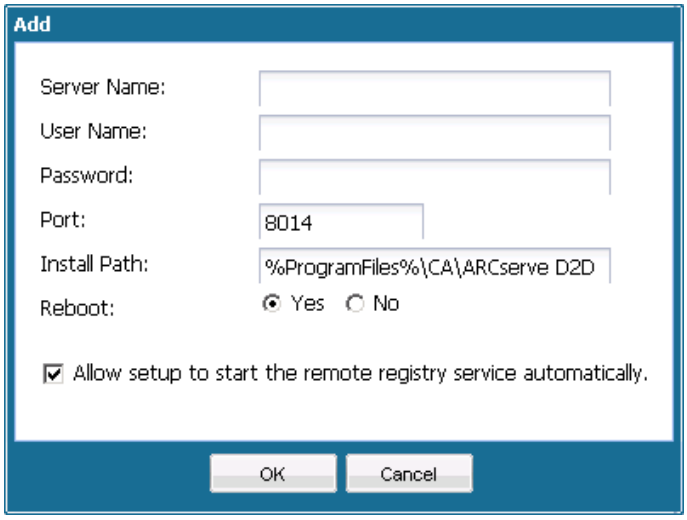
1. From the CA ARCserve D2D home page, select Deploy.

   The Remote Deployment dialog opens.



2. Click Add.

   The Add dialog opens.



3. Enter the following information:
   a. Server name where CA ARCserve D2D will be deployed to.
   b. A valid User Name and Password to access the selected server.

      The user name should be given as <machine name>/<username>
   c. Port number. This port number is used to connect to the web-based UI.

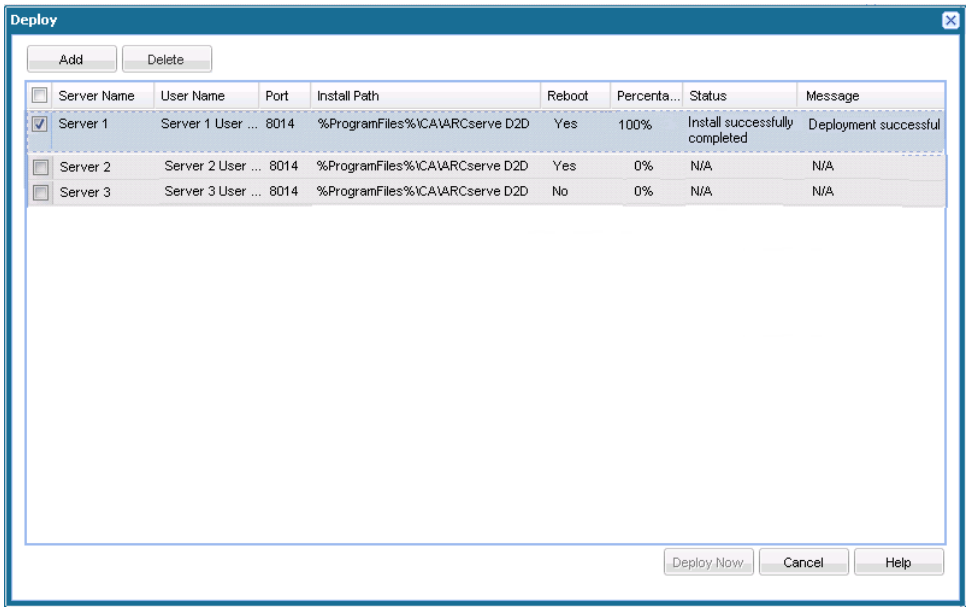
      By default, the port number is 8014.
   d. Installation path on the remote server for CA ARCserve D2D.

      By default, this location is %Program Files%\CA\ARCserve D2D
   e. Specify if you want the required reboot to be performed automatically upon completion of the deployment process or if you want to reboot manually at a later time.

      A system reboot is required (now or later) for the remote deployment of CA ARCserve D2D to take effect.
   f. Specify if you want the setup to start the remote registry service automatically.
4. Click OK to close the Add dialog.

   After you click OK, the deploy tool checks whether the remote machine can be accessed with no problems. If no error is reported, then the server will be automatically added to the remote deployment list. If an error is reported, you will be notified of the appropriate error and the server will not be added to the remote deployment list.

   The Remote Deployment dialog lists all related information for the added server.



5. Select the server for remote deployment and click Deploy Now to launch the remote deployment process.

   A status message is displayed indicating if the remote deployment was successful or not. When the remote deployment is successful, you will be able to access CA ARCserve D2D from that remote server; however, you will only be able to perform backups on servers that are properly licensed.

   In addition the name of the remotely deployed server will now be added to the Server drop down list on the CA ARCserve D2D home page, which lets you quickly and easily manage or view the status of these servers.

Video

YouTube: How to: Deploy CA ARCserve D2D Remotely

CA Support: How to: Deploy CA ARCserve D2D Remotely

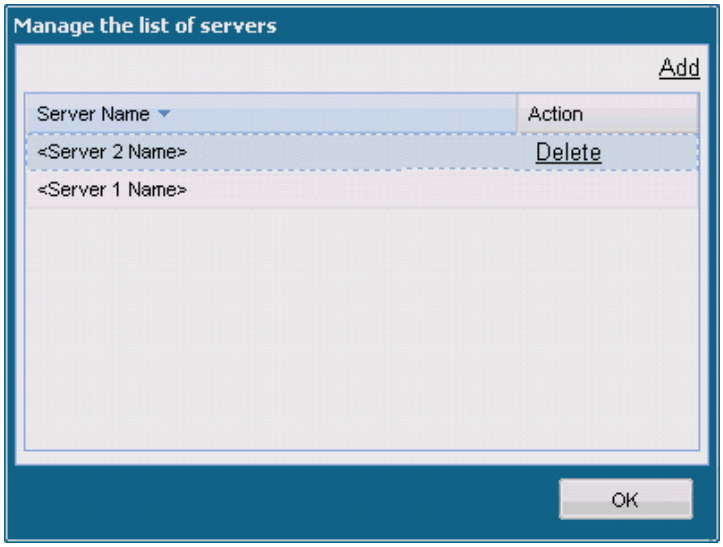
Manage Server Selection List

From the CA ARCserve D2D home page, you can select a server to manage from the Server Selection List. The Server drop down list lets you quickly and easily manage or view the status of these servers. Servers will automatically be added to the Server Selection list when you successfully deploy CA ARCserve D2D to a remote server. In addition, you can also manually add or delete a server on the Server Selection list.

Manage the Server Selection List

1. From the CA ARCserve D2D home page, click the Manage link.

   The Manage the list of servers dialog opens.



2. To delete a server from this list, select the server and click Delete.

   A confirmation warning message will be displayed asking if you are sure you want to delete this server from the list.

   Click Yes to continue and the server will no longer be listed.

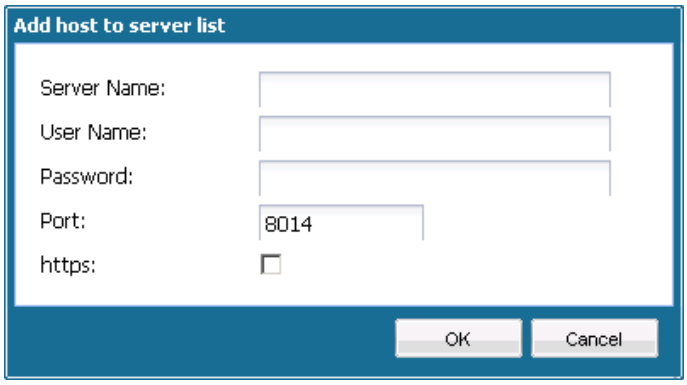
3. To add a server to this list, click Add.

   The Add host to server list dialog opens.

   Enter the requested information: Server Name, User Name, Password, and Port.

   If you want the communication protocol for the new server to be HTTPS, you need to enable the https check box. By default this protocol will be set to HTTP.

   Click OK to continue and the new server will be added to the list.



Create a Boot Kit

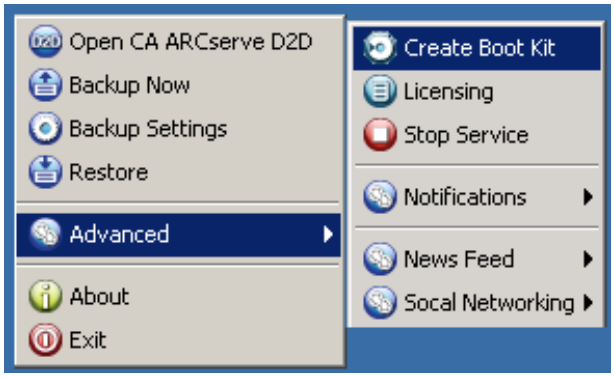
This boot kit consists of a USB stick and the Windows 7/Windows Vista/Windows 2008/Windows 2008R2 installation media (CD/DVD). (The USB stick can also be used with the Windows PE image instead of the installation media).

Note: The created USB stick cannot be used to boot machine. It must work with the Windows 7/Windows Vista/Windows 2008/Windows 2008R2 installation media (CD/DVD) to perform the actual BMR.

To create a boot kit

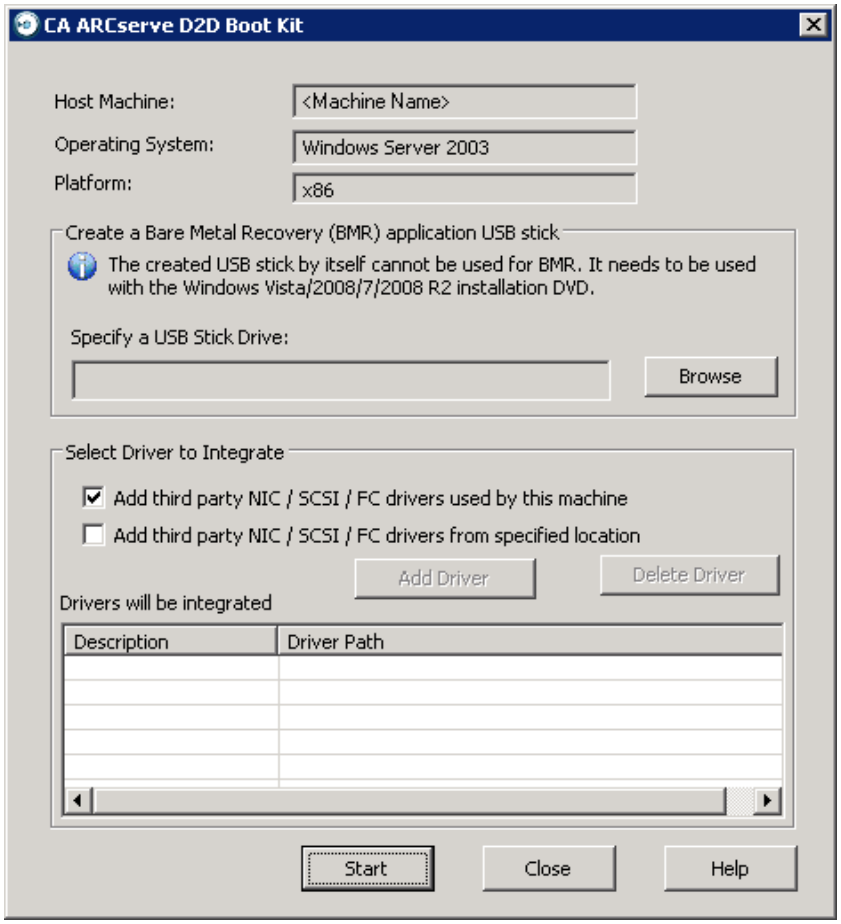
1. From the CA ARCserve D2D Monitor, click the Advanced option and then select Create Boot Kit.

   The CA ARCserve D2D Boot Kit wizard is launched and the Welcome screen opens.



2. Click OK to acknowledge the Welcome message.

   The CA ARCserve D2D Boot Kit dialog opens.



3. Specify or browse to the location for the installed USB stick.

   If you do not have a USB stick available or you do not want to create the boot image on a USB stick at this time, you can save the boot kit data temporarily to another location and then copy it to a USB stick later.

4. If necessary, select the driver integration option.

   - Third party NIC/SCSI/FC drivers which are used by this machine.

     If your server has any third-party driver installed, a copy of this driver will be made during backup. If there is no third-party driver installed, this check box will not be enabled.

- Third party NIC/SCSI/FC drivers which are from a specified location.

  To include any necessary network (NIC), Small Computer System Interface (SCSI), or Fibre Channel (FC) drivers in the boot kit creation process. You can also manually add or delete drivers from the displayed list.

  Note: The USB stick will not contain the data of particular machine unless you select the "Third party NIC/SCSI/FC drivers which are from specified location" option.

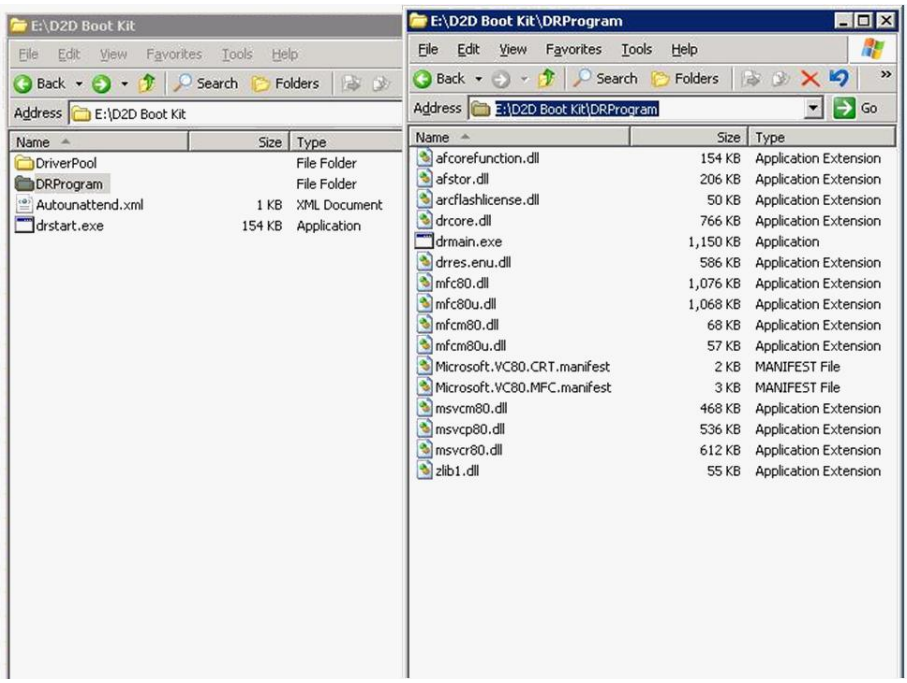
The selected drivers will then be loaded during the recovery process.

5. Click Start.

   The Boot Kit creation progress is displayed and a confirmation message is displayed when the USB stick has been successfully created.

6. After the successful creation of the Boot Kit, you can find the CA ARCserve D2D Boot Kit files on your USB stick.

   Note: The created USB stick can be used for other similar machines. (A USB stick created from a 32-bit platform can only be used to restore a 32-bit server. A USB stick created from a 64-bit platform can only be used to restore a 64-bit server).



Video

YouTube: How to: Create a Boot Kit

CA Support: How to: Create a Boot Kit

Perform Bare Metal Recovery

Bare Metal Recovery (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. The BMR process lets you restore a full machine with minimal effort, even to different hardware. BMR is possible because during the block-level backup process, CA ARCserve D2D not only captures the data, but also all information related to the operating system, installed applications, configuration settings, necessary drivers, and so on. All relevant information that is necessary to perform a complete rebuild of the computer system from "bare metal" is backed up into a series of blocks and stored on the backup location.

Before you can perform BMR, you must have:

- One of the following:
  - A customized Windows PE image which is released along with the CA ARCserve D2D product.
  - A BMR USB stick which is created from the boot kit wizard, along with the Windows 7/Windows Vista/Windows 2008/Windows 2008R2 installation media (CD/DVD). (The USB stick can also be used with the Windows PE image instead of the installation media to load the necessary drivers during BMR, if required).

    Note: When using a USB stick you can add additional drivers to it which you cannot do with the Windows PE image.
- At least one full backup available.

Dynamic disks will be restored at disk level only. If your data is backed up to a local volume on a dynamic disk, you will not be able to restore this dynamic disk during BMR. In this scenario, to restore during BMR you will need to either back up to a volume on another drive, back up to a remote share, or export a recovery point to another location and then perform BMR from the exported Recovery Point.

Note: If you perform BMR to a dynamic disk, you should not perform any pre-BMR disk operations (such as cleaning, deleting volume, etc.) 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.

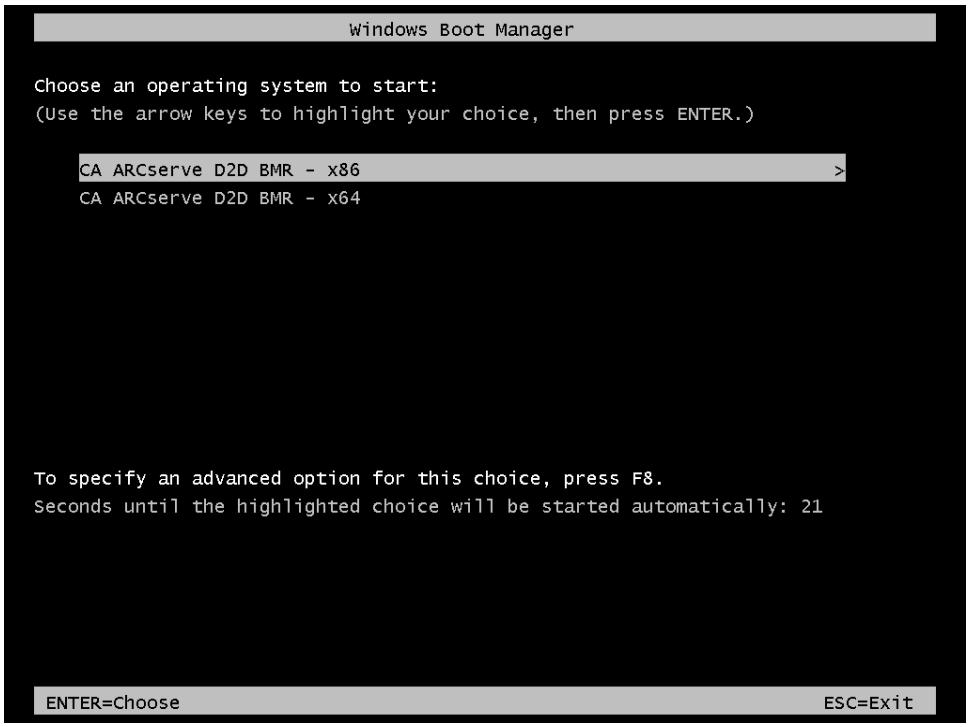
To perform Bare Metal Recovery

1. Insert the saved Boot Kit image media and boot the computer.
   - If you are using a saved Windows PE Image, insert the Boot Kit image CD/DVD.
   - If you are using a USB stick, insert the Windows Server Installation CD/DVD and connect the USB stick with the saved Boot Kit image.

   The BIOS Setup Utility screen is displayed.

2. From the BIOS Setup Utility screen, select the CD-ROM Drive option to launch the boot process.

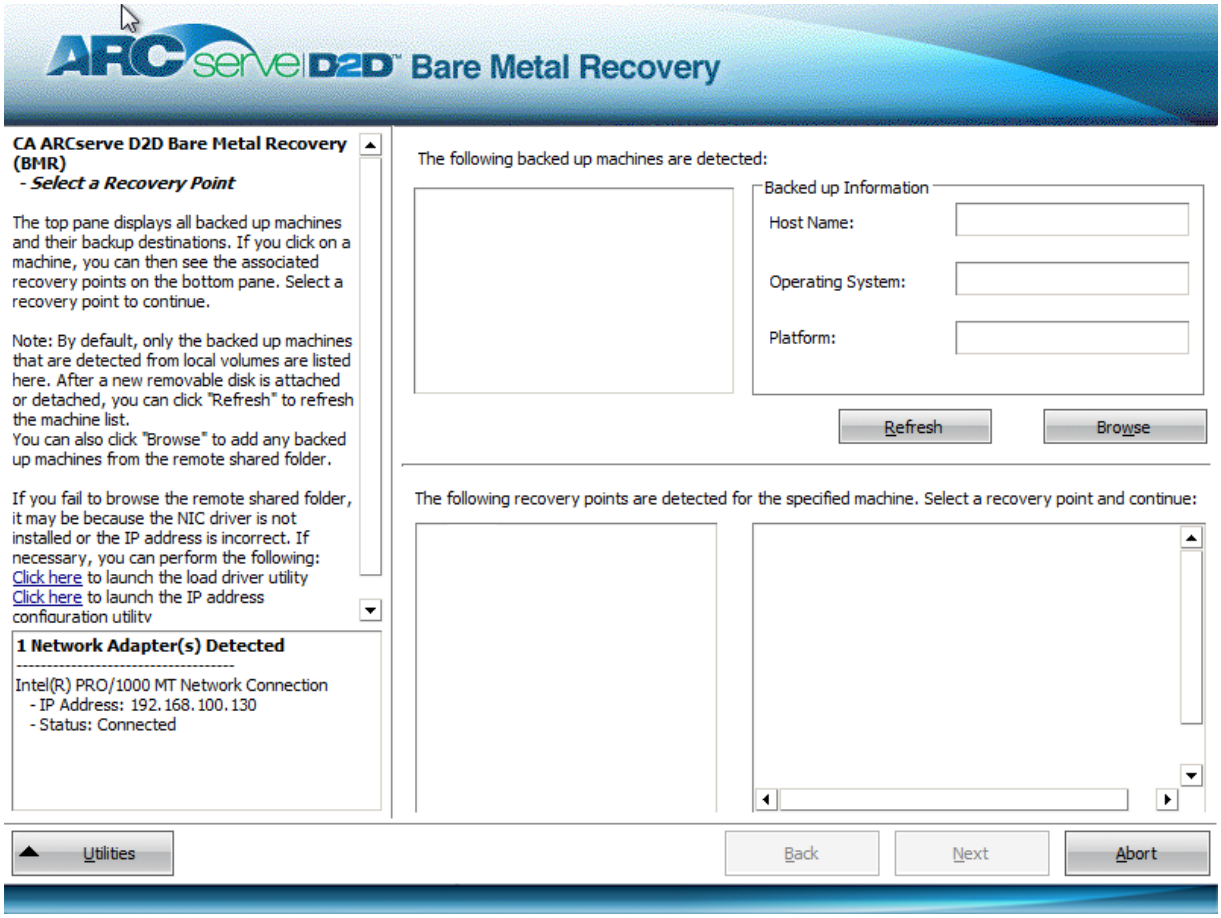
   Note: If you are using Windows PE image to perform BMR you will also need to select an architecture (x86/x64) and press Enter to continue.



3. The CA ARCserve D2D language select screen is displayed. Select a language and press "Next" to continue.

   Note: If you are performing BMR with a BMR USB stick and a Windows 7 or Windows Server 2008 / 2008 R2 installation media (CD/DVD) which does not support a Multilingual User Interface (MUI), it will not display this language select screen.

4. The Bare Metal Recovery process is initiated and the BMR wizard screen opens.



5. From the BMR wizard screen, select machine (or volume) which contains recovery points for your backup image.

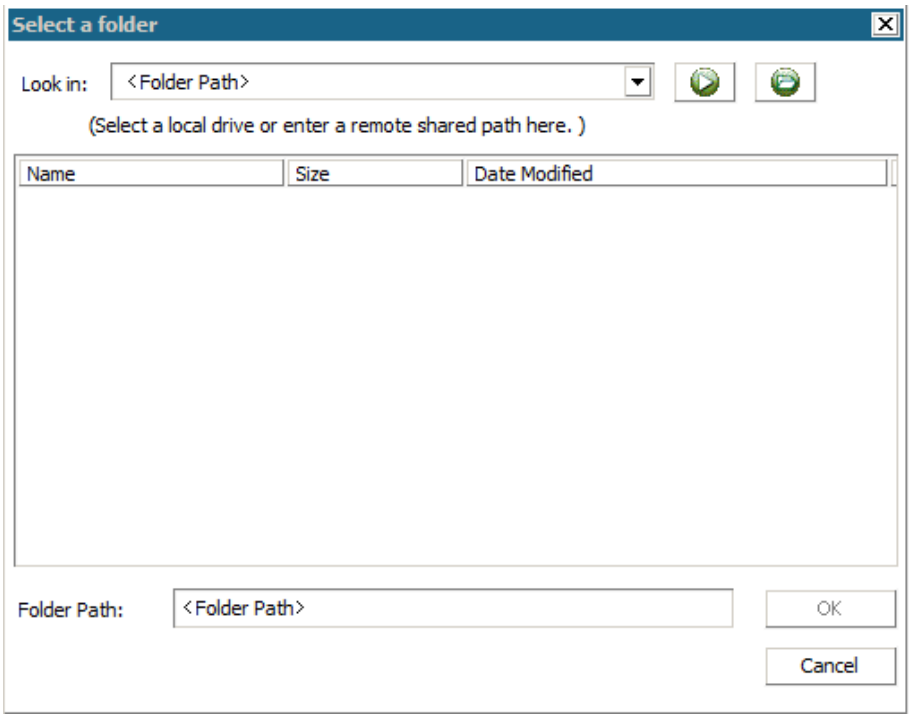
   CA ARCserve D2D lets you recover from any local drive or from a network share.

   - If you are recovering from a local backup, the BMR wizard will automatically detect and display all volumes that contain recovery points.
   - If you are recovering from a remote share, you need to browse to the remote location where the recovery points are stored. If there are multiple machines that contain recovery points, all machines will be displayed.

     You may also need access information (User Name and Password) for the remote machine.

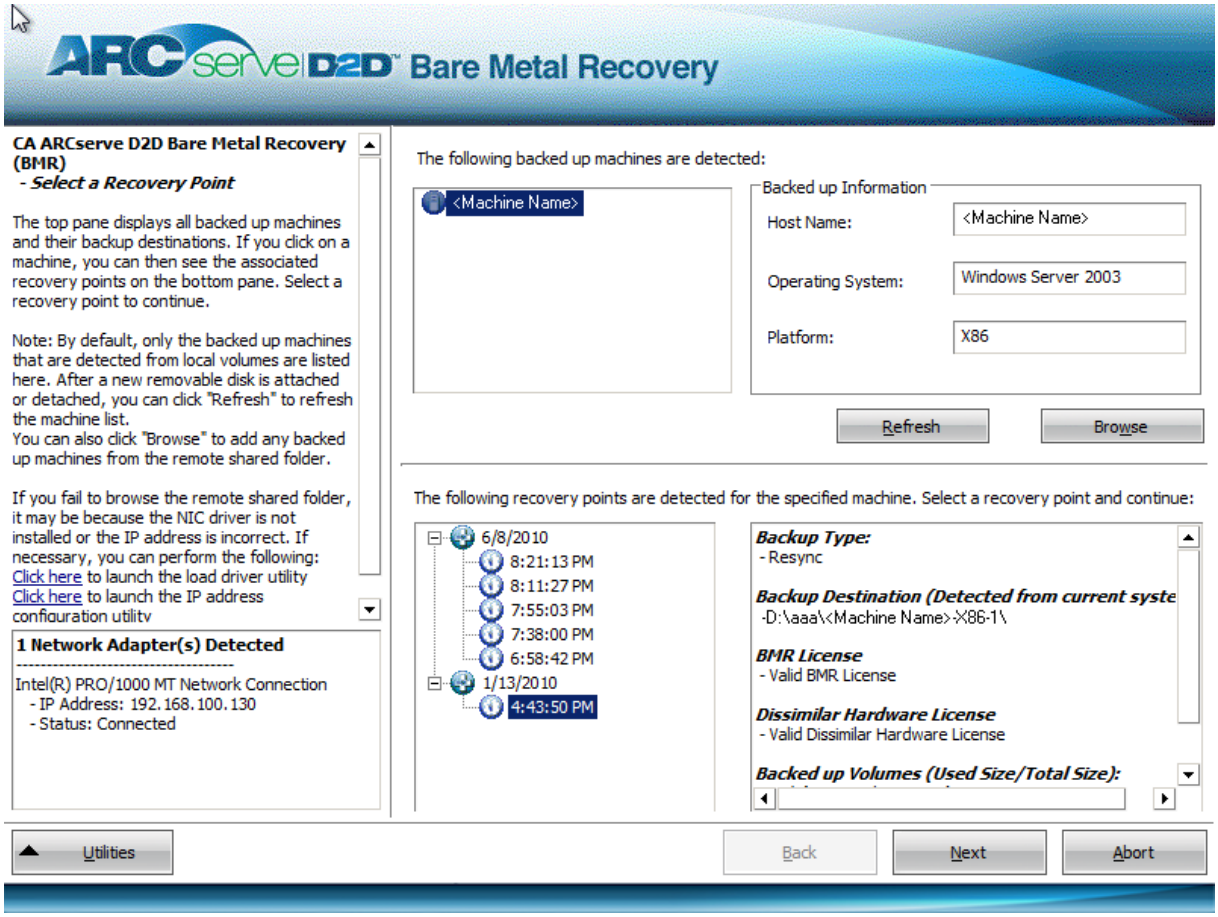
     Note: The network must be up and running to browse to remote recovery points. If necessary you can check/refresh your network configuration information or load any missing drivers from the Utilities menu.

6. If the BMR module cannot detect any local destination volume the "Select a Folder" dialog is automatically displayed and you need to provide the remote share where the backups are residing.



7. Select the folder where the recovery points for your backup are stored and click OK. (You can click the green arrow icon to validate the connection to the selected location).

   The BMR wizard screen now displays the machine name (in the upper left pane), along with the related backup information (in the upper right pane) and all the corresponding recovery points (in the lower left pane).



8. Select which recovery point to restore.

   The related information for the selected recovery point is displayed (in the lower right pane). This display includes such information as the type of backup that was performed (and saved), the backup destination, and the volumes that were backed up.

   Note: If your machine is a Domain Controller, CA ARCserve D2D supports a non-authoritative restore of the active directory (AD) database file during BMR. (Restore of MSCS clusters are not supported).

9. Verify that 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.

10. Select the recovery mode.

    The available options are Advanced Mode and Express Mode.

    - Select Advanced Mode if you want to customize the recovery process.
    - Select Express Mode if you want minimal interaction during the recovery process.

      (This is the default mode).

Note: The remainder of this procedure is applicable only if you selected the Advanced Mode and will provide information to guide you through the BMR process.

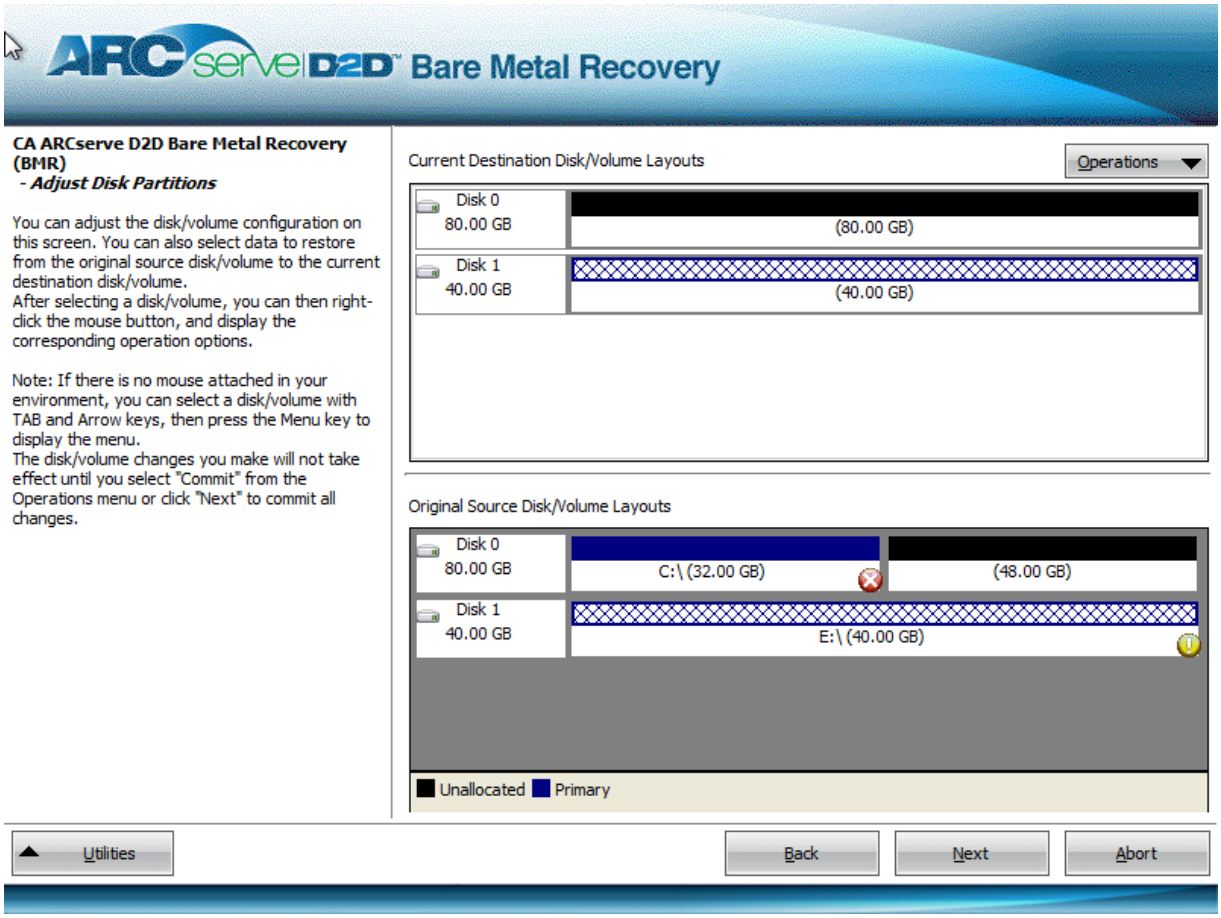
11. Click Next.

    The BMR utility starts locating the machine to be recovered and displays the corresponding disk partition information.

    The upper pane shows the disk configuration that you have on the current (target) machine and the lower pane shows the disk partition information that you had on the original (source) machine.

    Important! In the lower pane, if a red X icon is displayed for a source volume, it indicates that this volume contains system information and has not been assigned (mapped) to the target volume. This system information volume from the source disk must be assigned to the target disk and restored during BMR or the reboot will fail.

    Note: When restoring to another disk/volume, the capacity of new disk/volume must be the same size or larger than original disk/volume. In addition, disk resizing is for basic disks only, and not for dynamic disks.



12. If the current disk information you are seeing does not appear correct, you can access the Utilities menu and check for missing drivers.

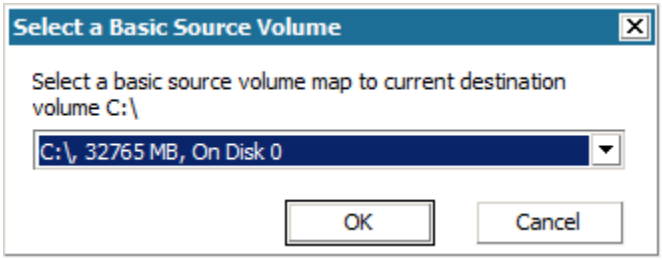
13. If necessary, on the target volume pane you can click on the Operations drop-down menu to display the available options.

    From this menu you can reset any existing partitions or create new partitions to correspond to the disk partitions on the source volume. (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).

    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.

14. Click on each target volume and from the pop-up menu, select the Map Volume From option to assign a source volume to this target volume.

    The Select a Basic Volume dialog opens.

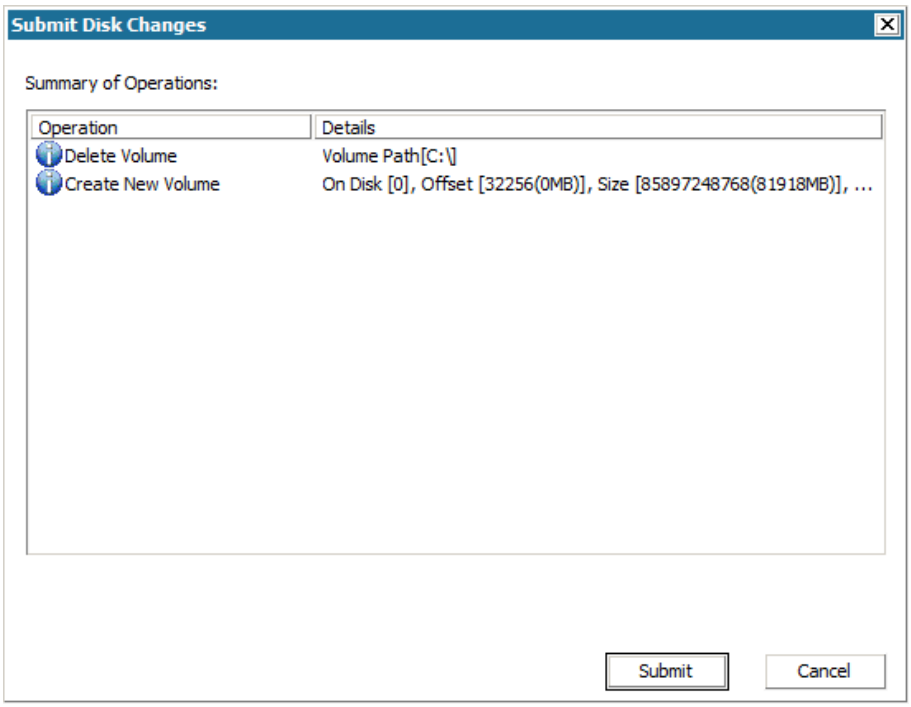


15. From Select a Basic Volume dialog, click the drop-down menu and select the available source volume to assign to the selected target volume. Click OK.

    - On the target volume, a check mark icon is displayed, indicating that this target volume has been mapped to.
    - On the source volume, the red X icon changes to a green icon, indicating that this source volume has been assigned to a target volume.

16. When you are sure that all volumes that you want to restore and all volumes that contain system information are assigned to a target volume, click Next.

    The Submit Disk Changes screen opens, displaying a summary of the selected operations. For each new volume being created, the corresponding information is displayed.



17. When you have verified the summary information is correct, click Submit. (If the information is not correct, click Cancel).

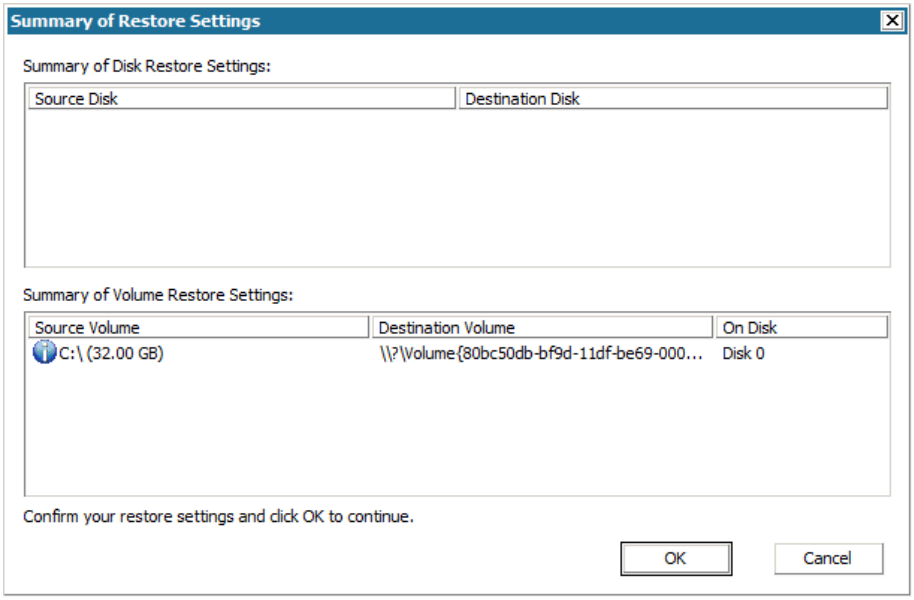
    Note: All operations to the hard drive will not take effect until you submit it.

    On the target machine, the new volumes are created and mapped to the corresponding source machine.

18. When the changes are completed, click OK.

    The Summary of Restore Settings screen opens, displaying a summary of the volumes to be restored.

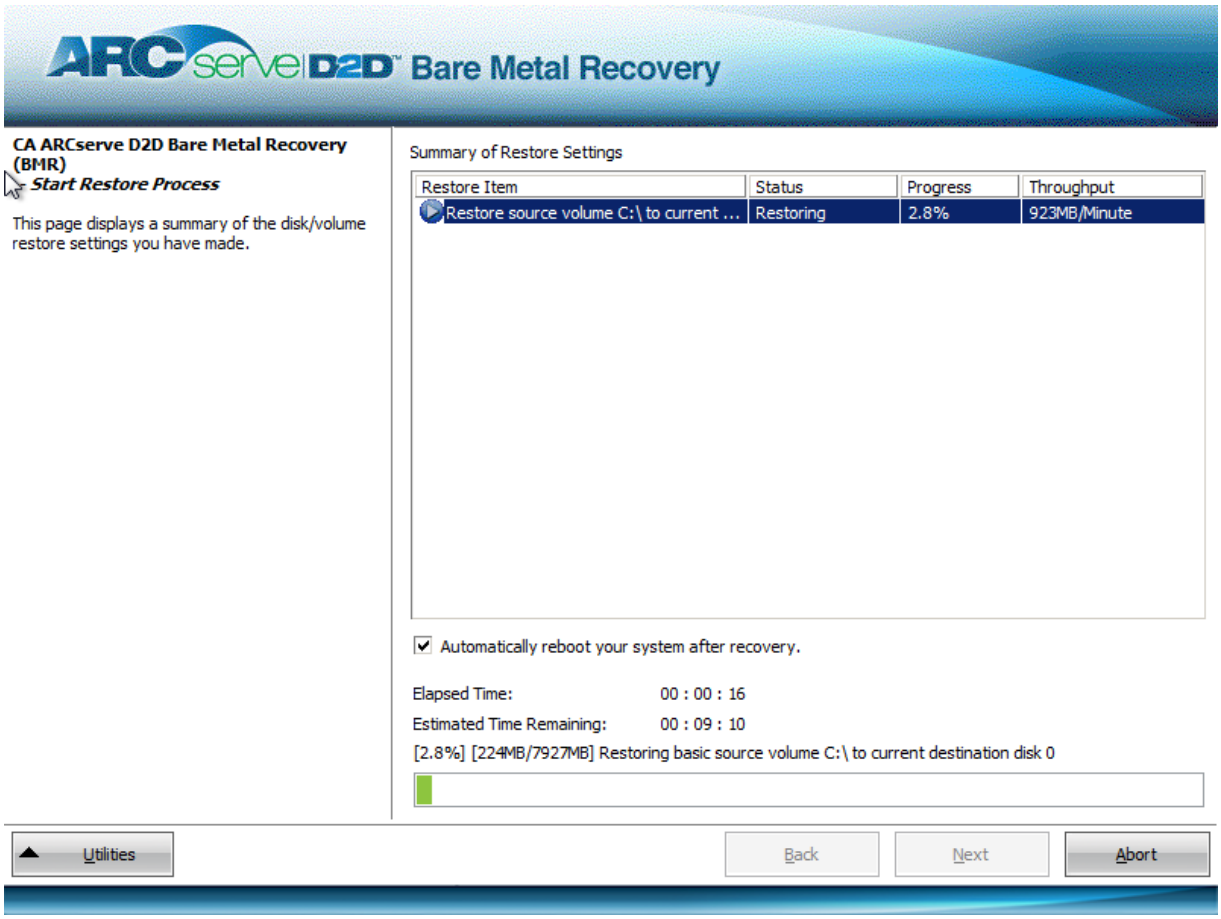
    Note: On the bottom of restore summary window, the drive letters listed in "Destination Volume" column are automatically generated from the Windows Preinstallation Environment (WinPE). They may be different from the drive letters listed in "Source Volume" column. However, the data will still be restored to proper volume even if drive letters are different.



19. When you have verified that the summary information is correct, click OK.

    The restore process starts. The BMR wizard screen displays the restore status for each volume.

    - Depending upon the size of the volume being restored, this operation may take some time.
    - During this process you are restoring, block-by-block whatever you had backed up for that recovery point and creating a replica of the source machine on the target machine.
    - By default, the option to automatically reboot your system after recovery is selected. If necessary, you can clear this option and reboot manually at a later time.
    - If necessary, you can cancel or abort the operation at any time.



20. From the Utilities menu, you can access the BMR Activity Log and use the Save option to save the Activity Log.

    By default, the Activity Log will be saved to the following location:

    X:\windows\system32\dr\log.

    Note: To avoid getting a Windows-generated error, you should not save the Activity Log on your desktop or create a new folder on your desktop using the "Save As" option from the BMR Activity Log window.

21. If you are restoring to dissimilar hardware (the SCSI/FC adapter which used to connect hard drives may have been changed), and there is no compatible driver detected in your original system, a "driver injection" page will be displayed to allow you to provide drivers for these devices.

    You can browse and select drivers to inject to the recovered system so that even if you recovering to a machine with dissimilar hardware, you can still bring the machine back after BMR.

22. When the BMR process is completed, a confirmation notification is displayed.

Notes: After completion of BMR:

- The first backup performed will be a Verify Backup.
- Verify that the BIOS is configured to boot from the disk on which the boot volume was restored to.
- When the machine has been rebooted, you may need to configure the network adapters manually if you restored to dissimilar hardware.
- For dynamic disks, if the status of the disk is offline, you can manually change it to online from the disk management UI (accessed by running the Diskmgmt.msc control utility).
- For dynamic disks, if the dynamic volumes are in a failed redundancy status, you can manually resynchronize the volumes from the disk management UI (accessed by running the Diskmgmt.msc control utility).

Video

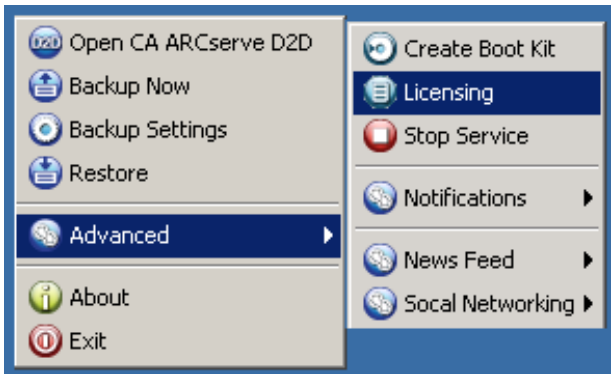
YouTube: How to: Perform a Bare Metal Recovery

CA Support: How to: Perform a Bare Metal Recovery

Add CA ARCserve D2D Licensing

CA ARCserve D2D requires you to license your product to receive authorized and uninterrupted access to the related components. In addition, if you want to deploy CA ARCserve D2D to remote locations, these remote sites will also need to be licensed to take advantage of the benefits provided by CA ARCserve D2D. If you do not license CA ARCserve D2D it will stop working 31 days after you begin using it.

To add CA ARCserve D2D licensing, you need to access the CA ARCserve D2D Monitor Advanced options.



Note: For Windows Core Operating Systems (Windows Server 2008/R2 Core edition), you must run the "CALicnse.exe" file and provide the proper license key information. The CALicnse.exe file is located in the following directory: C:\Program Files\CA\SharedComponents\CA_LIC

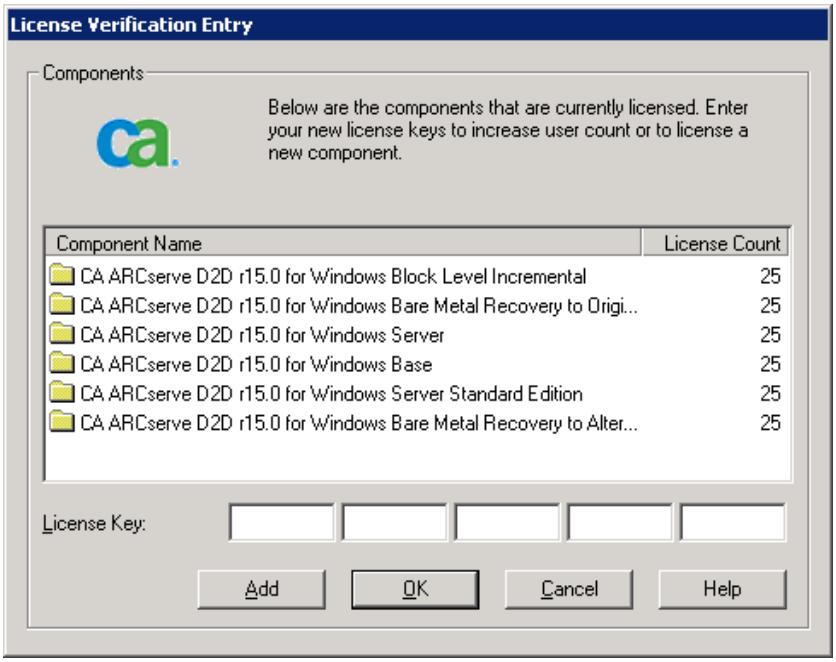
To add CA ARCserve D2D Licensing

Note: This operation should be performed locally on the machines running with CA ARCserve D2D software.

1. Access the CA ARCserve D2D Monitor, click the Advanced option, and select Licensing.

   The License Verification Entry dialog opens, displaying all valid CA licensed products.

   Note: If there are no CA products previously licensed, the field of this dialog will be empty.



2. Enter the 25 digit license key and then click Add, and then OK to accept the key.

   The license key information will be stored in the ca.olf file on each of the machines that are running your CA software.

Change Server Communication Protocol

By default, CA ARCserve D2D uses the Hypertext Transfer Protocol (HTTP) for communication among all of its components. If you are concerned about the security of passwords communicated between these components, you can change the protocol being used to Hypertext Transfer Protocol Secure (HTTPS). In addition, if you do not need this extra level of security, you can easily change the protocol being used back to HTTP.

Note: After you change the protocol from HTTP to HTTPS or from HTTPS to HTTP, you need to restart the browser and reconnect to CA ARCserve D2D.

Change protocol

1. 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 may vary depending upon your CA ARCserve D2D installation path):

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

   When the protocol has been successfully changed, the following message will be displayed:

   "Protocol has been changed to HTTPS. Use https://localhost:8014 to access CA ARCserve D2D system."

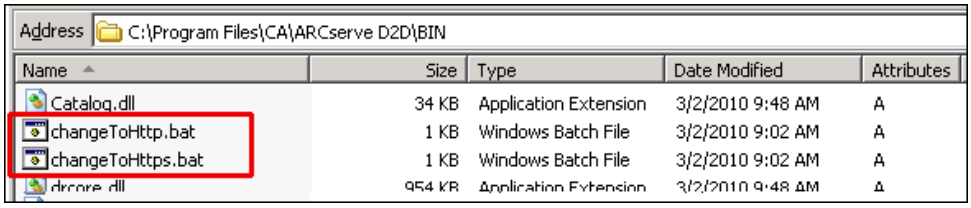
   Note: When the protocol is changed to HTTPS, a warning is displayed in the web browser because of a self-signed security certificate and will ask you to either ignore the warning and proceed or add that certificate to the browser to prevent that warning from coming back in future.

2. 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 may vary depending upon your CA ARCserve D2D installation path):

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

   When the protocol has been successfully changed, the following message will be displayed:

   "Protocol has been changed to HTTP. Use http://localhost:8014 to access CA ARCserve D2D system."



Chapter 5: Troubleshooting CA ARCserve D2D

This section contains the following topics:

Troubleshooting Overview

When a problem is detected, CA ARCserve D2D generates a message to help you identify and resolve the problem. These messages are contained in the CA ARCserve D2D Activity Log, which is accessed from the View Logs option on the homepage UI. In addition, when an incorrect action is attempted, CA ARCserve D2D will generally display a pop-up message to help you identify and quickly resolve the problem.

CA ARCserve D2D-Related Problems

This section explains the most common CA ARCserve D2D troubles, along with the reason and solution.

Unable to Access CA ARCserve D2D After Reboot

If you are not able to access the CA ARCserve D2D UI, perform the following troubleshooting procedure:

1. From the Add or Remove Programs dialog, click the Add/Remove Windows Components option to access the Windows Components Wizard screen and remove the "Internet Explorer Enhanced Security Configuration" component.
2. Add the host name URL to the "Trusted Sites' in Internet Explorer.
3. Adjust the security level in Internet Explorer.

Unable to Reboot Hyper-V VM After BMR

If you performed BMR to a Hyper-V machine consisting of more than one disk connected to an Integrated Drive Electronics (IDE) controller and if the server does not reboot, perform the following troubleshooting procedure:

1. Verify that the disk that contains the system volume is the master disk.

   The Hyper-V BIOS searches for the system volume on the master disk (disk 1) which is connected to the master channel. If the system volume is not located on the master disk, the VM will not reboot.

   Note: Verify that the disk that contains the system volume is connected to an IDE controller. Hyper-V cannot boot from a SCSI disk.

2. If necessary, modify the Hyper-V settings, to connect the disk that contains the system volume to the IDE master channel and reboot the VM again.

Unable to Reboot VMware VM After BMR

If you performed BMR to a VMware machine consisting of more than one disk connected to an Integrated Drive Electronics (IDE) controller or an SCSI adapter and the server will not reboot, perform the following troubleshooting procedure:

1. Verify that the disk that contains the system volume is the master disk.

   The VMware BIOS searches for the system volume on the Master disk (disk 0) which is connected the master channel. If the system volume is not located on the Master disk, the VM will not reboot.

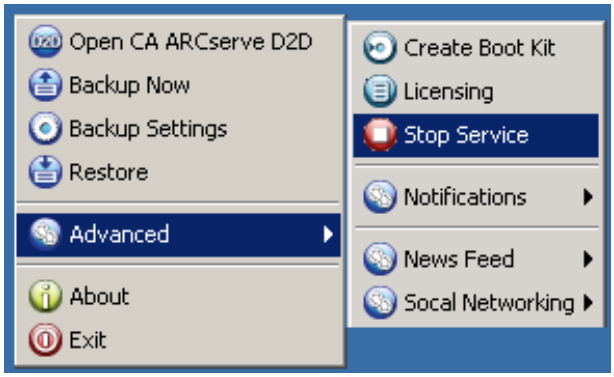
2. If necessary, modify the VMware settings, to connect the disk that contains the system volume to the IDE master channel and reboot the VM again.
3. If the disk is an SCSI disk, verify the disk which contains boot volume is the first disk which connects to the SCSI adapter. If not, assign the boot disk from the VMware BIOS.
4. Verify the disk which contains boot volume is in the previous 8 disks, because the VMware BIOS only detect 8 disks during the boot. If there are more than 7 disks ahead the disk which contains system volumes connected to the SCSI adapter, the VM cannot boot.

CA ARCserve D2D Service could not be started because of port conflict

The port being used by CA ARCserve D2D may conflict with the default port being used by Tomcat. This conflict will cause 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.

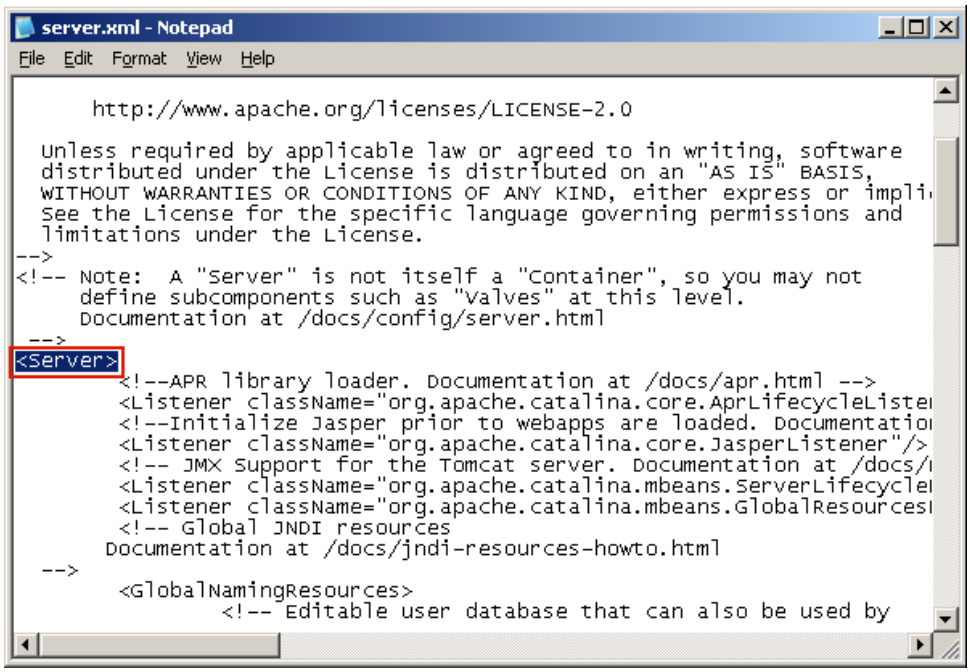


2. Access the Tomcat server.xml file to edit/configure the behavior of Tomcat.

   The Tomcat server.xml file is located in the following folder structure:

   C:\Program Files\CA\ARCserve D2D\TOMCAT\conf

3. Locate the <Server> tag inside server.xml file.



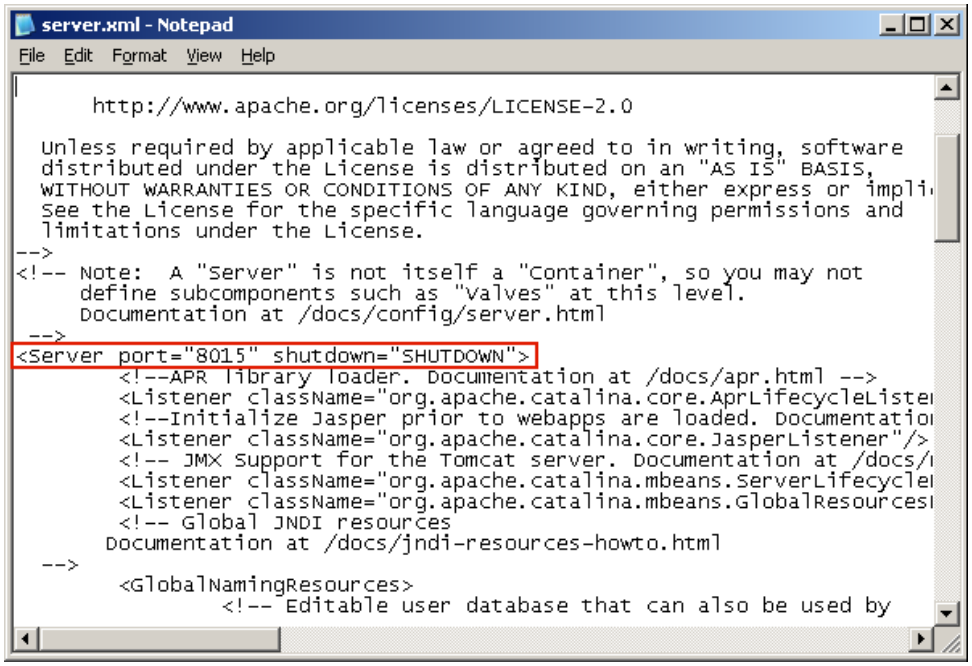
4. Edit the <Server> tag as follows:

   From:

   <Server>

   To:

   <Server port="8015" shutdown="SHUTDOWN">



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.

Setup cannot connect to <<machine name>> during Remote Deployment

If you are getting an error "Setup cannot connect to <<machine name>>. The network share \\<<machine name>>\admin$ is not available via the network", check the following to resolve the problem:

- The Username/Password details provided in the Deploy UI are correct
- The target host is reachable over the network from the current CA ARCserve D2D server
- The file and print sharing service is enabled on the target host. If the firewall is enabled on the target host, an exception should be added for "File and Print Sharing" service.

After BMR, dynamic volumes are not recognized by the operating system

To keep dynamic disks in a consistent state, the Windows operating system automatically synchronizes the Logical Disk Manager (LDM) metadata on each dynamic disk. So when BMR restores one dynamic disk and brings it online, the LDM metadata on this disk will be automatically updated by the operating system. This may result in a dynamic volume not being recognized by the operating system and missing after the reboot.

To remedy this problem, when you perform BMR with multiple dynamic disks, you should not perform any pre-BMR disk operations such as cleaning, deleting volume, etc.

Unable to display CA ARCserve D2D UI in Firefox

If you are using Firefox to connect to the local CA ARCserve D2D server, where the browser and CA ARCserve D2D are both on the same machine, certain proxy settings may cause the CA ARCserve D2D UI not to be displayed.

If this condition occurs, please connect to the loopback address 127.0.0.1 or use the hostname in Firefox instead of using localhost.

Windows failed to start after CA ARCserve D2D has just been installed

If Windows failed to start with the following error after CA ARCserve D2D has just been installed, it may be caused by a Windows internal failure.

File: ARCFlashVolDrv.sys

Status: 0xc0000098

Info: Windows failed to load because a required file is missing, or corrupt.

The probable causes for this problem are:

- User temporary folder is not writable
- Insufficient privilege
- Windows update database corrupted

To resolve this problem, perform the following steps to uninstall the driver:

1. Boot the computer with the Window PE image.
2. Click Run from the Utilities menu.
3. Enter "regedit" in the Run dialog and click OK to open Registry Editor.
4. Select HKEY_LOCAL_MACHINE and click "Load Hive..." from the File menu in the Registry Editor.
5. Locate SYSTEM file under %systemroot%\config directory on your system and click open.
6. Enter a name for the hive to be loaded.
7. Delete the following entries under the new hive that was just loaded.
   - HKEY_LOCAL_MACHINE\%your_hive_name%\ControlSet001\Services\ARCFlashVolDrv
   - HKEY_LOCAL_MACHINE\%your_hive_name%\ControlSet001\Services\Eventlog\System\ARCFlashVolDrv
8. Delete the value "ARCFlashVolDrv" for the following registry keys:

   Important! The "LowerFilters" registry key may contain other Windows driver names as well. Be sure to only delete the "ARCFlashVolDrv" value from the list. Do not delete the entire registry key or any other driver names from within the key.

   - HKEY_LOCAL_MACHINE\%your_hive_name%\ControlSet001\Control\Class\{533C5B84-EC70-11D2-9505-00C04F79DEAF}\LowerFilters
   - HKEY_LOCAL_MACHINE\%your_hive_name%\ControlSet001\Control\Class\{71A27CDD-812A-11D0-BEC7-08002BE2092F}\LowerFilters
9. Click "Unload Hive..." from the File menu in the Registry Editor.
10. Reboot the computer and start Windows normally.

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