# **Restoring Windows Dynamic Disks**

With CDP Enterprise and Advanced Edition, you can perform Bare-Metal Restore of Windows dynamic disks.

## Reference

Dynamic disk is a physical disk initialized for dynamic storage. Dynamic disks do not use partitions or logical drives. They use a database to track information about dynamic volumes on the disk and about other dynamic disks in the computer. Read more about dynamic disks in

http://technet.microsoft.com/en-us/library/cc737048%28WS.10%29.aspx.

- Note for Windows Dynamic Disks and Software RAID
  - 1. If you are using Windows Software RAID, first restore your System Disk (e.g. C:) while booted from Live CD.
  - 2. Reboot into Windows.
  - 3. Ensure the CDP Agent is running.
  - 4. Use Windows Disk Manager to re-create your Dynamic Disk configuration (e.g. spanned volumes or Software RAID).
  - Use CDP Bare-Metal Restore Wizard to restore remaining dynamic disks mapping file systems to the dynamic disks you created using Windows Disk Manager.

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1. Loading Agent in Recovery Mode and Installing the Server Key

Follow the instructions below to load the Agent in Recovery mode and to install the Server Key.

- 1. Boot the Agent from Live CD or PXE Network Boot.
- 2. Then you may need to configure the network settings.
- 3. To add the server key to the Agent, run the following command on the Agent machine:



2. Restoring Windows System Volume

Follow the instructions below to start the Bare-Metal Restore of the Windows system (boot) Volume.

1. Click on "Recovery Points" in the Main Menu to open the "Recovery Points" screen.



2. Select an Agent from the drop-down menu located on the "Recovery Points" list toolbar.

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3. Select a Disk Safe from the drop-down menu located on the "Recovery Points" list toolbar.

9	Agent Windows 2008 with 💌 📦 Disk Safe Safe f	or Windows dy	🕌 Merge Selected	👌 Lock Selected	🕑 Unlock Select
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4. In the "Recovery Points" list, click on the "Bare-Metal Restore" icon in the "Actions" column for the Recovery Point from which you are going to restore.

9	Agent Windows 2008 with ( *	Disk Safe Safe for Windows	s dyr 🔻 🔣 Merge Selected	💧 Lock Selected	🕑 Unlock Select
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Tip

To find a Recovery Point, you can use the Basic and Advanced List Filters. See Customizing the Recovery Points List.

5. The "Bare-Metal Restore" window opens.

J Bare Metal Restore	
Introduction	1 Introduction
<ul> <li>Choose Filesystems</li> <li>Host</li> </ul>	This wizard will guide you through the options available for a bare metal restore.
<ul> <li>Restore Storage Configuration</li> <li>Choose Partition Tables</li> </ul>	You will need to choose the filesystems to restore, choose the host to restore to, optionally restore partition tables on the target host, map the chosen filesystems, and set the restore options.
<ul> <li>Select Partition Tables</li> <li>Map Partition Tables</li> <li>Restore Partition Tables</li> </ul>	If you are restoring your system disk (e.g. C:) please ensure your physical or virtual machine is booted from one of the available CDP disaster recovery media.
Map Filesystems Restore Options	Notes for Windows Dynamic Disks and Software RAID 1. If you are using Windows Software RAID, first restore your System Disk (e.g. C:) while booted from Live CD
Summary	<ol> <li>Reboot into Windows</li> <li>Ensure the CDP Agent is running</li> <li>Use Windows Disk Manager to re-create your Dynamic Disk configuration (e.g. spanned volumes or Software RAID)</li> <li>Use CDP Bare-Metal Restore Wizard to restore remaining dynamic disks mapping file systems to the dynamic disks you created using Windows Disk Manager</li> </ol>
	Disaster recovery media compatible with CDP Enterprise Server version 3.18.0 is available here: http://download.r1soft.com/d/boot-media/3.18.0/
	☑ Show this tip next time

6. Look through the information on the Introduction screen and click "Next."



7. On the next page, select the disk where the Windows system has been previously installed. In our example, we select disk C:\. If you are restoring Windows 7 or Windows 2008 R2, you should also restore hidden boot partition (it is the first partition marked for the restore on the screenshot below).

Tip You can restore all disks in a single operation. In this case, select all check boxes.

Click "Next" to proceed to the following step.



8. On the next screen, select "Restore to Original Host" option.

Click "Next" to proceed to the following step.

< Back 🚺	🔈 Next	🕽 🕽 Restore	🖉 Cancel

9. On the "Restore Storage Configuration" screen, choose the "Select Storage Configuration to Restore" option.

Click "Next" to proceed to the following step.



9.1 On the next screen, select "Select Partition Tables to Restore" option. Selecting this option lets you pick partition tables from the Recovery Point to restore to the target Agent.

Click "Next" to proceed to the following step.



As the "Select Partition Tables to Restore" option is selected, then three (3) additional steps arise:

- Select Partition Tables
- Map Partition Tables
- Restore Partition Tables

9.1.1 Selecting Partition Tables

Select the partition table layout(s) for the filesystems you want to restore.

#### 🖯 Tip

To display the partition table properties, click on the "Plus" icon in front of the partition table's name.

- Content Type Either MBR (Master Boot Record) or other special type of the partition.
- Size Size of the partition table in gigabytes.
- Number Of Sectors Shows the total number of partition table sectors.
- Sector Size The value in bytes of the sector.
- Serial Number Full serial number of the partition table.
- Partitions The list of partitions allocated with the partition table.

Click "Next" to proceed to the following step.



9.1.2 Mapping Partition Tables

After choosing partition tables to restore, map the selected Partition Table(s) Recovery Points to physical Disks in the Target Agent. From the drop-down menu, select the physical Disks you are going to restore to.

You are provided a table that allows you to map the chosen Partition Tables to physical Disks on the Target Agent. You can see as many lines in the table as the Partition Tables selected for restore. Each Partition Table must be mapped to a physical Disk on the Target Agent before proceeding.

After selecting the Disks, click on "Next" to proceed to the next page.



#### 9.1.3 Restoring Partition Tables

Perform the partition table restore by clicking on the "Restore Partition Tables" button. Once confirmed, the Partition Table Restore will be initiated. A busy indicator will be displayed while the restore is in progress. Restoring the partition table should not take a lot of time because the partition table fits into one sector - 512 bytes.

#### O Notice

Restored partition tables will overwrite the existing partition table layout on the target devices.

When the process is over, click "OK" in the notification pop-up.

Success Restore Partition Tables	$\mathbf{X}$
Successfully restored partition tables	
ОК	

Click "Next" to proceed to the following step.



10. Then on the "Restore Options" screen, select the "Reboot After Restore" option.

Click "Next" to proceed to the following step.

🔇 Back 🚺 🐌 Next 🕽 🝞 Restore 🛛 🔗 Cancel

11. On the "Summary" page, you will need to confirm the selected Bare-Metal Restore options. Each selected file system is listed, along with the name of the target device it is being mapped to.

Summary	Available	
<ul> <li>Restoring to</li> <li>Rebooting A</li> <li>Filesystems</li> </ul>	original host ter Restore Being Restored	
Source	Target	
+	/dev/hda1	
	/dev/hda2	
SUL	Juev/nud2	

Click "Restore" to start the Bare-Metal Restore task.

	< Back 📎 Next 🌔	🧊 Restore	🖉 Cancel
1			

12. The data Restore is initiated. Click "OK" in the notification pop-up.

	Success Summary	]
ľ	Restore scheduled	]
	ОК	

🖯 Tip

The Task results can be sent via email as a Report. See Reporting.

13. The Restore process will start. It can take a while because a lot of data (several gigabytes) should be transmitted over the network. You can go to the "Task History" screen to monitor the task progress. See Accessing Task History.

The Task History page displays the State, Alert, Type, Progress percentage, and the Started time stamp of the Bare-Metal Restore process.

State	🔥 Alert 🗧	🖌 Type 💠	🔒 Name 💠	📃 Agent	Name 💠	🕑 Scheduled	¢	👌 Run Time	
<ul> <li>Image: A start of the start of</li></ul>		1		Windows 2	:008 with	3/29/11 7:22 PI	м	23m 13s	
~		9		Windows 2	:008 with	3/29/11 6:29 PI	м	20m 31s	
<ul> <li>Image: A second s</li></ul>			Backup dynamic dis	Windows 2	:008 with	3/29/11 4:47 PI	м	27m 45s	
<ul> <li>Image: A set of the set of the</li></ul>		<b>U</b>		Big HyperV		3/13/11 2:10 PI	м	32m 5s	
<ul> <li>Image: A set of the set of the</li></ul>		<u> </u>	Backup Hyper-V Wir	Big HyperV		3/9/11 7:24 PM	1	41m 12s	-
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	Success Bare Metal	Pectore cor	moleted	Devices I	Restored				2/2
	successful	y y	ipieceu E	Devices I	Failed				0
01-11-11									
Statistics	② Restore Run Time		3m 12s		🛃 Average Throughput 🛛		0	.4 MB/s	
Statistics Ø Restore	e Run Time	23	2111 123		interug	e iniougnput	-		
<ul> <li>Restore</li> <li>Total D</li> </ul>	e Run Time eltas	23	2 GB -> 6.5 GB (ratio	0.6:1)	- HVCrug	e iniougnput	-		

14. When the process is complete, the server being restored should reboot automatically. If for some reason it does not reboot, you can reboot it by pressing Ctrl-Alt-Del or by executing the reboot command in the root shell.

#### A Notice

Make sure you eject the Disk from the CD-ROM drive so the server will boot from the hard Disk.

#### Note

If the Disk you used for your Bare-Metal Restore is larger than the Disk you backed up previously, the free space on the new Disk will remain free. You can create a new Partition in this space.

#### 3. Booting Windows

Once the system disk has been restored, boot Windows.

#### 4. Configuring Windows Dynamic Disks

After restore only disk C will contain all the data it should contain. All the other disks - called 'Simple Volumes' - will be created, but remain unformatted. You should use Windows Disk Manager to format them and then restore data to them.

## Reference

Disk Management is a system utility for managing hard disks and the volumes or partitions that they contain. Disk Management enables you to perform most disk-related tasks.

- 1. Run the Windows Disk Manager.
- 2. Create the necessary dynamic drives.
- 3. Format the unformatted Simple Volumes (in this example, disk D).

🛼 Server Manager									_ 🗆 ×
File Action View Help									
(= =) 🖄 📰 📓 🔊	K 🖆 🚅 🔍 😼								
Server Manager (DYNAMO)	Disk Management Volume List + Graphical View Actions								
Roles     Features	Volume	Layout Type	File System S	Status		Capacity	Free S	Disk Management	
Diagnostics	(C:)	Simple Dynar	mic NTFS H	Healthy (Boot, Pa	ge File, Crash Dump)	15.90 GB	8.37 🤅	More Actions	•
Configuration	(D:)	Simple Dynar	mic RAW H	lealthy		24.00 GB	24.00		
🖃 🚟 Storage	R1Soft Boot CD	(E:) Simple Basic	CDFS H	Healthy (Primary P	Partition)	130 MB	0 MB		
Windows Server Backup	System Reserve	d Simple Dynar	mic NIFS P	realthy (System)		100 MB	72 MB		
Disk Management									
1									
1									
1									
	•						•		
	Disk 0		(4.)						
1	40.00 GB	System Rese 100 MB NTES	(C:) 15.90 GB NTES		(D:) 24.00 GB RAW				
1	Online	Healthy (Syster	Healthy (Boot, Page	File, Crash Dur	Healthy	Open			
						Explore			
	CD-ROM 0					Extend V	olume		
	CD-ROM	R1Soft Boot CD	(E:)			Shrink Vo	lume		
	130 MB Online	130 MB CDF5 Healthy (Primary P.	artition)			Add Mirro	ir		
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		-			6	Format	rive Lett	PT ADD PADS	
					<u> </u>	- ormacini			
						Reactivat	e Volume	8	
						Delete Vo	lume		
					-	Propertie	<		
	Unallocated	Primary partitio	n 📕 Simple volu	me	-		-		
						Help			

Find more information here:

- Disk Management in Windows XP
- Disk Management in Windows Server 2008 R2
- Disk Management in Windows 7
- Disk Management in Windows Server 2003

#### 5. Restarting CDP Agent

When all the volumes are formatted, you should restart the Agent. See Restarting CDP Agent.

😵 CDP Configuration Utility 📃 🔲	×
File Services Help	
Agent Restart CDP Server	
Configures the R1Soft CDP Agent Port. Use the ticker to select a port and Apply to activate the changes. Once done, you will have to restart the agent service for your changes to take effect	
CDP Agent Port 1167	
Agent debug mode 🔽	
Apply. Cancel	

#### 6. Restoring Simple Volume File Systems

Use CDP to restore dynamic disk file system.

1. Click on "Recovery Points" in the Main Menu to open the "Recovery Points" screen.



2. Select an Agent from the drop-down menu located on the "Recovery Points" list toolbar.

9	Agent Wi	ndows 2008 with 💎 💷 Disk Safe Safe	for Windows dyr 👻	💢 Merge Selected	💧 Lock Selected	🚽 Unlock Selec
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	1	Mar 29, 2011 4:47:21 PM	📀 Available		<b>3</b> 4	🤹 🤍 🎒

3. Select a Disk Safe from the drop-down menu located on the "Recovery Points" list toolbar.

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ſ	🗖 🛐 Id 💠 🎯 Created On 🗘	State	\$	levices	
ľ	1 Mar 29, 2011 4:47:21 PM	🕗 Available		<b>3</b> 4	🥥 🥑 🕒

4. In the "Recovery Points" list, click on the "Browse" icon in the "Actions" column for the Recovery Point from which you are going to restore.

🚽 Agent Windows 2008 with 🐑 🛛 🕼 Disk Safe Safe	for Windows dyr 👻	🕌 Merge Selected	🎒 Lock Selected	🕜 Unlock Select
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## 🖯 Tip

To find a Recovery Point, you can use the Basic and Advanced List Filters. See Customizing the Recovery Points List.

5. The "Browse Recovery Point" window opens.

V	Browse Recovery Point				
	Restore Selected				
5	Location				🜍 Go   🔞 Up
Г	Name	÷	Size	Access Time	Modify Time
	💿 C:			Mar 29, 2011 4:47:21 PM	Mar 29, 2011 4:47:21 PM
	🗇 D:			Mar 29, 2011 4:47:21 PM	Mar 29, 2011 4:47:21 PM

See also: Browsing Recovery Points.

6. Select the checkboxes next to the files and folders you want to restore.

😡 Browse Recovery Point			
Restore Selected			
E Location D:			😜 Go 🛛 🧐 Up
D Name \$	Size	Access Time	Modify Time
C 💭 \$RECYCLE.BIN		Mar 29, 2011 4:16:01 AM	Mar 29, 2011 4:16:01 AM
Dooks		Mar 29, 2011 3:57:19 AM	Mar 29, 2011 3:57:19 AM
System Volume Information		Mar 29, 2011 5:14:09 PM	Mar 29, 2011 5:14:09 PM

7. Once the files and folders are selected, click on "Restore Selected."

Browse Recovery Point			
Restore Selected			
E Location D:			🜍 Go 🛛 🚳 Up
□ Name ⇔	Size	Access Time	Modify Time
🗖 🥥 \$RECYCLE.BIN		Mar 29, 2011 4:16:01 AM	Mar 29, 2011 4:16:01 AM
🗹 🥥 books		Mar 29, 2011 3:57:19 AM	Mar 29, 2011 3:57:19 AM
🔲 🥥 System Volume Information		Mar 29, 2011 5:14:09 PM	Mar 29, 2011 5:14:09 PM

- 8. The "Restore Files" window will open.
- 9. Specify the following options:
  - Restore to Agent Select the Agent with dynamic disks you have just created.
  - Restore to Folder In our example we select "Original Location."

<b>V</b> ,	Restore Files	0 Size	Access 🗉 🛛
3	Restore to Agent		
0	Agent	Windows 2008 with dyn	namic dis 💙
0	Host Name/IP	127.0.0.1	
	Port Number	1167	
	Driginal Location Overwrite Existing Fi	O Alternate Location	
Õ	Driginal Location	C Alternate Location	
3	Advanced Options		
₩.	stimate Restore Size	9	
₩ F	Restore Discretionary	ACLs (File Permissions)	)
<b>V</b> F	Restore System ACLs	(Audit Rules)	
_		🍓 Restore	🔗 Cancel

10. Click on "Restore."



11. A notification window will inform you that the Restore task has been scheduled. It means the Task has started. The "Reporting" screen displays the progress of the Task.

Click "OK" in the displayed window.

Success	×
Restore scheduled	
ОК	

## Tip The Task results can be sent via Email as a Report. See Reporting.

12. To view the Restore Task details, access the "Reporting" window. See Accessing Task History.

	Alert -	🗹 Type 💠	😗 Name 🗧	🗧 🕎 Agent Name 🗦	🕑 Scheduled 🗦	Ø Run Time	
<b>~</b>		ی		Windows 2008 with	3/30/11 7:36 PM	16m 20s	
×		9		Windows 2008 with	3/29/11 7:22 PM	23m 13s	
<		1		Windows 2008 with	3/29/11 6:29 PM	20m 31s	-
<b>~</b>			Backup dynamic di	s Windows 2008 with	3/29/11 4:47 PM	27m 45s	
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