

Integrating RDX[®] QuikStor[™] into Windows[®] Backup with Full System Recovery for Windows Server OS **INTEGRATION BRIEF**



The built-in Windows Backup included with current Windows operating systems does not support removable media. In order to back up the system or user data with removable storage products and Windows Backup, a user must backup to a fixed local disk or incorporate third-party backup software that recognizes the removable storage device. RDX[®] QuikStor[™] has solved this problem by providing a fixed disk mode that allows RDX removable storage to be used with Windows Backup.

This guide shows step-by-step instructions on a Windows Server 2012 R2 environment how to:

- create a bootable RDX QuikStor media including a system recovery image
- set up a backup job including media rotation for full disaster protection
- set up deduplication on server volumes to safe disk and backup space
- recover from a system crash using RDX QuikStor recovery media

Windows Server



Configure RDX QuikStor in fixed disk mode

Use the RDX utility software (version 1.54 or later) to configure RDX QuikStor in fixed disk mode. The software is available on the RDX QuikStor download section of the Tandberg Data website. In addition, the latest firmware should be downloaded and installed.(2.27 or later).

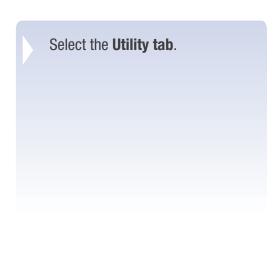
odel DX	Vendor TANDBERG	Device S/N 780514513	Device FW Rev 0227	Device Status Good	Cartridge Status Not Available
20	TANUDENG	100314313	0221	0000	Rocavalable
ReScan					

Start the RDX Utility and select (click) the drive to work with. Then click on **Diagnostic** to work with the drive.

If there is RDX Media (Cartridge) in the Drive eject it.

TANDBERG DATA - RD	X Utility			×
Status Test Utility	y]			
	vice Data	1	Cartridge Data	_
Vendor:	TANDBERG		Vendor:	
Model:	RDX		Model:	
Serial Number:	7780514513		Serial Number:	
Status:	Good		Status: No Media	
Cartridge Loads:	534		Cartridge Loads:	
Firmware:	0227		Firmware:	
Product Type:	USB 3+ External (56)		Cartridge Type:	
OEM Name:	Tandberg		Write Protect:	
Interface:	USB		Temperature:	
Bom On Date:	26092014		Capacity:	
Device Mode:	Removable Disk		Free Space:	
Power Source:	Bus Powered		Used Space:	

NDBERG DATA - RDX U Ratus Test Utility		>
	Change Firmware	
	Change Device Mode	



To use RDX with Windows Backup Click on **Change Device Mode** and follow the dialog to Configure RDX in Fixed disk mode.

Change Device Mode	Х
Device Mode Fixed Disk - For use with Windows Backup C Removable Disk - Default	
OK Cancel	



TANDBERG DATA - RDX Utility		×
Status Test Utility	Change Firmware Change Device Mode	
Mode is now: Fixed Disk	^	

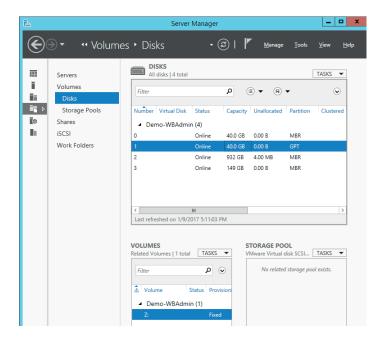
Check the status message in the lower part of the window. Click **Exit** and close the RDX utility window.

TANDBERG DATA - RD	X Utility	;	×
Status Test Utility	y]		
	vice Data	Cartridge Data	
Vendor:	TANDBERG	Vendor:	
Model:	RDX	Model:	
Serial Number:	7780514513	Serial Number:	
Status:	Good	Status: No Media	
Cartridge Loads:	534	Cartridge Loads:	
Firmware:	0227	Firmware:	
Product Type:	USB 3+ External (56)	Cartridge Type:	
OEM Name:	Tandberg	Write Protect:	
Interface:	USB	Temperature:	
Born On Date:	26092014	Capacity:	
Device Mode:	Fixed Disk	Free Space:	
Power Source:	Bus Powered	Used Space:	

RDX is now in Fixed Disk Mode.

Using deduplication

Windows Server 2012 offers a deduplication feature. With deduplication, you can save a lot of disk space on your server-volumes as it eliminates duplicate blocks of data. Deduplication is optional for Windows Backup, but we recommend using it to optimize backup disk space utilization on the RDX.



Start the Server Manager.

Choose **File and Storage Services** at the left panel.

Choose **Disks** at the second most left panel.

Select the disk you want to deduplicate.

Right-Click on the disk in the **Volumes** section of the window and choose **Deduplication Settings**.

b	Dedupe Data (Z:\) Deduplication Settings	x
Dedupe Data) (Z:\)	
Data deduplication:	General purpose file server 🔹	^
Deduplicate files <u>o</u>	lder than (in days): 0	
	sions that you want to exclude from data deduplication, separating comma. For example: doc,txt,png	
Default file e <u>x</u> tensi	ons to exclude: edb.jrs	
<u>C</u> ustom file extensi	ions to exclude:	
To exclude selected	d folders (and any files contained in them) from data deduplication, click Add.	≡
\WindowsImageB	Add	

à	ĺ	Demo-WBAdr	nin Deduplica	ation Schedule	e	-		x
D	emo-WBAdmi	in						
	✓ Enable background opt	timization						
	Regularly run data dedu busy to minimize the im	pact on system p	erformance.	e data deduplicat		ystem	is ^	
	During the specified h resources required to			rmal priority and	consume the			
	Days of the week:	Sunday ✓ Thursday	 ✓ Monday ✓ Friday 	✓ Tuesday Saturday	✓ Wednesd	lay		
	Start time:	8:00 PM 💌						
	Duration (in hours):	24						

Choose **General purpose file server**. Choose **0** days for the age of the files to deduplicate. Click on **Set Deduplication Schedule**.

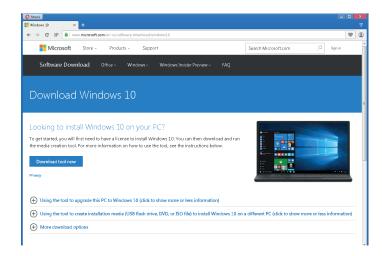
Enable background optimization will run the deduplication process

whenever system utilization is low. In addition a fixed schedule for deduplication could be defined.

Creating a bootable RDX recovery cartridge

In case of a total system crash, the whole operating system needs to be recovered in addition to the application and user files. This could be done by inserting the Windows startup DVD. A more convenient solution is to create a RDX recovery cartridge which includes a bootable Windows Recovery Environment and the backup files.

- • •



Download the **Media Creation Tool**.

You might use this link:

https://www.microsoft.com/ en-us/software-download/ windows10

Start the **Media Creation Tool**. Accept the licence terms.



Select Create installation media for another PC.

Click **Next**.

🍯 Windows 10 Setup

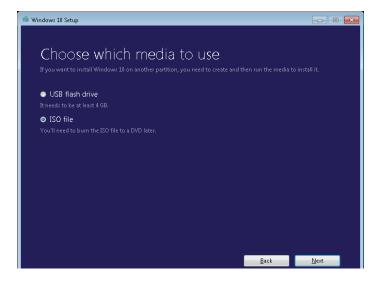
What do you want to do?

- Opgrade this PC now
- Create installation media for another PC

🖆 Windows 10 Setup	- • 🔀
Select language, architecture, and edition Please select from one of the available options to continue.	
Language English (United States) 🗸	
Edition Windows 10	
Architecture 64-bit (x64) 🗸	
Use the recommended options for this PC	
Back	ext

Select the appropriate options for your system. The setting shown on the screenshot might work for most systems.

Click Next.



Chose ISO file and click Next.

🤹 Select a path			×
😋 🖉 🗢 🕞 🗸 Co	mputer >	Search Computer	م
Organize 🔻		10 10 10	- 0
★ Favorites ■ Desktop 0 Downloads 1 Recent Places	Hand Disk Drives (2) Int Coll Disk Coll Int Coll Disk Coll Disk Coll Int Coll Disk Coll Disk Coll Int Coll Disk Col		
Cibraries Documents Music Pictures Videos	Floppy Disk Drive (A:)		
🖳 Computer			
年 Network			
File <u>n</u> ame:	Windows		-
Save as <u>type</u> :	ISO File (*.iso)		•
🔿 Hide Folders		<u>O</u> pen C	ancel

Specify a destination on your hard disk to store the windows ISO file.



The ISO file starts downloading. This might take a while.

Click **Next** as soon as download has finished.

e View		Manage	Mount
This PC → La	acal Dis	k (C:) Name inetpub PerfLogs Program Files Program Tiles ProgramData RDX Util Users Windows Mindows.iso	Scan with System Center 2012 Endpoint Protection Open with Restore previous versions Send to Cut Copy Create shortcut Delete Rename Properts
I 3.80 GB	~	٤	······································

The ISO file is now stored onto the local disk of the server.

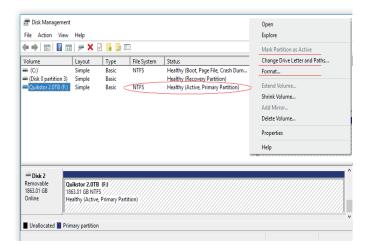
Right click the ISO-file and select **Mount**.

	Drive Tools	DVD Drive (G:) J_C	CCSA_X64FRE_E	
File Home Share View	Manage			~ (
🔄 💿 👻 🕆 📫 🕨 This 🕨 DVD Dr	ive (G:) J_CC	SA_X64FRE_EN	✓ C Search CD Driv	re (G:) J_CCSA ,P
	^	Name	Date modified	Туре
💻 This PC		boot 🕌	7/10/2015 3:32 PM	File folder
besktop		📗 efi	7/10/2015 3:32 PM	File folder
Documents		sources	7/10/2015 3:32 PM	File folder
Downloads Music		鷆 support	7/10/2015 3:32 PM	File folder
Pictures		autorun.inf	7/10/2015 3:32 PM	Setup Information
Videos		bootmgr	7/10/2015 3:32 PM	File
Local Disk (C:)		bootmgr.efi	7/10/2015 3:32 PM	EFI File
RDX 1 (E:)	=	🖆 setup.exe	7/10/2015 3:32 PM	Application
RDX fixed Disk 2 (F:)				
CD Drive (G:) J_CCSA_X64FRE_EN-US	S DV5			
Dedupe Data (Z:)				
_				
📬 Network	<u> </u>			
8 items	~	<	ш	8==

Windows creates a virtual CD drive, which contains the boot files for starting the system and recovery process with the ISO file.

You can now use this ISO file to create RDX boot media.

• Copy these files to an RDX cartridge with a capacity of 2.0TB or less.



Administrat	tor: Command Prompt					_	x
Microsoft Windows [Version 10.0.16299.248]							
(c) 2017 Mie	crosoft Corpora	tion. All	rights r	eserv	ed.		
C:\WINDOWS\	system32>DISKPA	RT					
Microsoft D:	iskPart version	10.0.162	99.15				
Copyright (0 On computer	C) Microsoft Co :	rporation					
DISKPART> 1:	ist disk						
Disk ###	Status	Size	Free	Dyn	Gpt		
Disk 0	Online	465 GB	1024 KB				
	Online	465 GB					
		1863 GB	0 B				
Disk 3 Disk 4	No Media No Media	0 B 0 B	0 B 0 B				
	elect disk 2	00	0.0				
	ow the selected	dick					
		disk.					
DISKPART> c	lean						
DiskPart su	cceeded in clea	ning the o	disk.				
DISKPART> create partition primary							
DiskPart su	cceeded in crea	ting the	specified	part	ition		
DISKPART> active							
DiskPart man	rked the curren	t partiti	on as act	ive.			
DISKPART> fo	ormat fs=ntfs l	abel=Quik	stor2.0TB	quic	k		
100 percent completed							
DiskPart successfully formatted the volume.							
DISKPART> assign							
DiskPart successfully assigned the drive letter or mount point.							
DISKPART> exit							
Leaving DiskPart							
C:\WINDOWS\system32>							

Verify the RDX Media is ready to be Boot Media using Windows Disk Management.

Right click the start button

Open **Disk Management** in Windows. The window lists shows the system disk storage. Locate the RDX drive/Media and review the listed Status.

For a USB connected RDX Cartridge to boot, verify/modify with Windows Disk Manager.

- The format is NTFS
- The Partition is Active
- The RDX partition is primary
- A drive letter is assigned (x:)
- The system BIOS is set to look for a USB Boot disk upon startup.

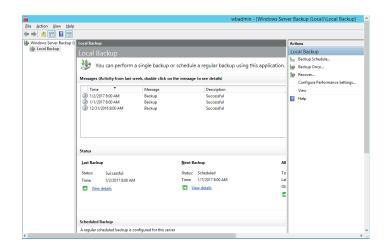
The RDX Media can be repartitioned manually if needed from the Command Prompt. Note all User data will be LOST when the RDX Media is re-partitioned.

- From the Command Prompt (as administrator)
- DISKPART
- DISKPART> list disk
 This list shows the disk choices
- DISKPART> select disk 2 This selects the disk target
- **DISKPART> clean** This erases the disk target
- **DISKPART> create partition primary** This creates the partition
- **DISKPART> active** The boot sector is now active
- DISKPART> format fs=ntfs label=Quikstor2.0TB quick
 Quick Formats and labels the disk Volume
- **DISKPART> assign** This assigns the drive letter to the disk Volume
- **DISKPART> exit** This exits the diskpart tool

Review the RDX Media with Windows Disk Manager described in the previous step. The RDX Media is now ready for the Boot files created with the Media Creation Tool.

Setting up Windows Backup

To start Windows Backup, start Windows Server Backup from the Windows Start Screen.



Choose **Backup Schedule** on the right area of the window.

bo Backup Schedule Wizard					
Getting Star	rted				
Getting Started Select Backup Configurat Specify Backup Time Specify Destination Type Confirmation Summary	You can use this wizard to configure backups to run on a regular schedule. To create a backup schedule, you should first decide: • What to back up (Full Server, System State, selected files, folders or volumes) • When and how often to back up your server • Where to store the backups To continue, click Next.				

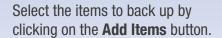
The **Getting Started** screen appears. Click **Next**.

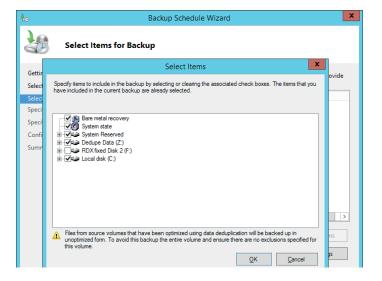
<u>ko</u>	Backup Schedule Wizard
Select Back	up Configuration
Getting Started	What type of configuration do you want to schedule?
Select Backup Configurat	O F <u>u</u> ll server (recommended)
Select Items for Backup	I want to back up all my server data, applications and system state.
Specify Backup Time	Backup size: 19.66 GB
Specify Destination Type	• <u>C</u> ustom
Confirmation	I want to choose custom volumes, files for backup.
Summary	

Select type of backup. Here, we selected **Custom**.

Click Next.

10	Backup Schedule Wizard		
Select Item	s for Backup		
Getting Started Select Backup Configurat Select Items for Backup Specify Backup Time Specify Destination Type Confirmation Summary	Select the items that you want to back up. Selecting bare metal recovery will provide you with the most options if you need to perform a recovery.		
	Add Items Add Items Remove Items Advanced Settings Advanced Settings		





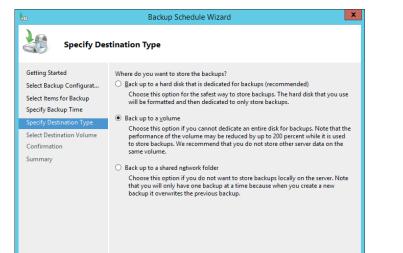
Select the items and drives you
want to backup. In this example,
we chose bare metal recovery to
be able to set up our server from
scratch in the event of a system
crash.

In addition, **System State**, **System Reserved** and **Local Disk (C:)** is automatically selected. We also selected the deduplicated volume **Z**:.

Click OK and Next.

10	bo Backup Schedule Wizard				
Specify Backup Time					
Getting Started Select Backup Configurat	How often and when do you Once a day	want to run backups?			
Select Items for Backup	S <u>e</u> lect time of day: 9:00	PM v			
Specify Backup Time	More than once a day				
Specify Destination Type	Click an available time an	d then click Add to add it to the ba	ckup schedule.		
Confirmation	Available time:	Scheduled time:			
Summary	12:00 AM ▲ 12:30 AM ■ 1:00 AM ■ 1:00 AM 2:00 AM 2:30 AM 3:30 AM 4:00 AM 4:30 AM ▼	9:00 PM	×		

Specify your backup schedule. Click **Next**.



Specify the destination type. You can use either **Back up to a hard disk** or **Back up to a volume**.

We recommend **Back up to a volume** to keep the drive letter and to be able to display the data.

Click **Next** to select the destination volume.

bo Backup Schedule Wizard					x
Select Destination Volume					
Getting Started Select Backup Configurat	Select one or more volumes to store your backups. Use multiple volumes in differ disks if you want to store backups offsite.			e volumes in different	
Select Items for Backup	Volume	Volume Disk Capacity Free Space			1
Specify Backup Time					
Specify Destination Type					
Select Destination Volume					
Confirmation		Add volume	es	x	
Summary					
	Volume	Disk	Capacity	Free Space	
	Dedupe Data (Z:)	VMware Virtual disk SCS		31.76 GB	
	RDX fixed Disk 2 (F:)	TANDBERG RDX USB E) 931.50 GE	899.79 GB	

Ło	Backup Schedule Wizard
Confirmatio	'n
Getting Started Select Backup Configurat Select Items for Backup Specify Backup Time Specify Destination Type Select Destination Volume Confirmation Summary	You are about to create the following backup schedule. Backup times: 9:00 PM Files excluded: None Advanced option: VSS Copy Backup Backup destinations Name Size Used Space RDX fixed Disk 2 (F;) 931.50 GB 31.71 GB
	Backup items Name Bare metal recovery Dedupe Data (Z:) Dedupe Data (Z:) System Reserved System Reserved Previous Next > Einish Cancel

Click **Add** and choose the RDX volume as the backup destination. Click **OK** and **Next**.

The confirmation window is displayed. Click **Finish** to confirm your settings.

	Backup Schedule Wizard
Summary	
Getting Started Select Backup Configurat Select Items for Backup Specify Backup Time Specify Destination Type Select Destination Volume Confirmation Summary	Status: You have successfully created the backup schedule. Your first scheduled backup will happen at 1/9/2017 9:00 PM.

The backup schedule is created. The **Summary** window is displayed and your settings are acknowledged.

Using media rotation

We highly recommend using media rotation to have multiple backup copies and to store at least one copy off-site. For each cartridge you want to include in the rotation, **repeat the above steps**. Be sure you have inserted the appropriate media into the RDX drive before you start. Be aware that there is now an additional step, "Keep or Change Backup Destinations."

10	Backup Schedule Wizard	x
Keep or Cha	ange Backup Destinations	
Modify Scheduled Backu Select Backup Configurat Select Items for Backup Specify Backup Time Specify Destination Type	Do you want to change the backup destinations that are being used? O Keep current backup destinations Modify backup storage destinations	
Keep or Change Backup Select Destination Volume Confirmation Summary		

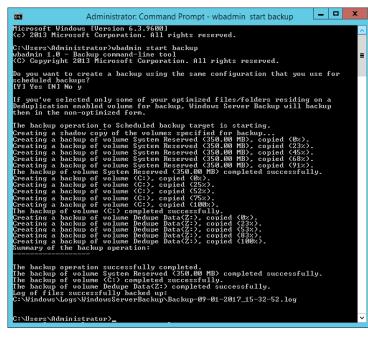
Choose **Modify backup storage** destination. Click on **Next**.

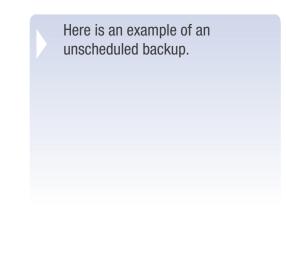
Backup Schedule Wizard			x		
Select Destination Volume					
Modify Scheduled Backu Select Backup Configurat	Select one or more volumes to store your backups. Use multiple volumes in different disks if you want to store backups offsite.				
Select Items for Backup	Volume	Disk	Capacity	Free Space	
Specify Backup Time	\\?cffbba16-8	Offline TANDBERG RDX	0 KB 1.82 TB	0 KB	
Specify Destination Type	2TB RDX (F:)			1.82 TB	
Keep or Change Backup					
Select Destination Volume					
Confirmation					
Summary					
				Add Remove	

Choose the appropriate RDX volume by clicking the **Add** button. Backup can be performed with any volume shown in the list.

Running a backup outside the schedule

You can run an unscheduled backup by issuing a "wbadmin start backup" command in the command line interface.





Restoring a server using BMR (bare metal recovery)

The following example shows a full server recovery using bare metal recovery (BMR) and windows backup.

The RDX must be in fixed disk mode for this procedure!

If necessary, you might perform this setting from another computer. Please refer to the section "Configure RDX QuikStor in fixed disk mode" at the beginning of this guide.

In case, you don't have another system available, you can change the mode directly at the RDX drive by following these steps:

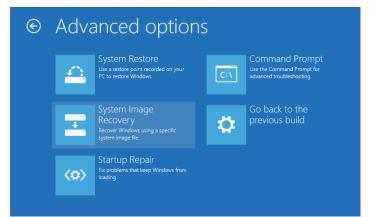
- 1. Press and hold the eject button for five seconds
- 2. The LED on the button will now flash alternatively yellow and green
- 3. Press the eject button once to set the drive into the Fixed-Disk-Mode
- 4. The LED will now flash continuously yellow, green, green
- 5. Press the eject twice in rapid succession to confirm

Attach the RDX-drive and load the appropriate cartridge with the system image previously created and the backup files. Power on your system.

Choose your keyboard layout		
	Armenian Phonetic	
	Armenian Typewriter	
	Assamese - INSCRIPT	
• Arabic (102) AZERTY	• Azeri Cyrillic	
See more keyboard layouts		

As the ISO file created at the beginning contains all language settings, you just need to choose your keyboard layout.

Choose an option Continue <	ed, the follow	ed server has boot- ring screen appears. bleshoot to start the tions menu.
Froubleshoot Action of the recovery drive connected to this PC. This will remove all your files and apps. Advanced options Section of the recovery drive connected to this PC. This will remove all your files and apps. Advanced options Section of the remove of the remov	Choose Adva	nced Options.



Choose System Image Recovery.

♥ System Image Recovery

hoose a target operating syste



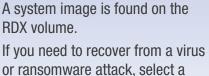
Windows Server

Choose the target operating system, **Windows Server 2012 R2** in our case.



The BMR procedure searches for a system image.

🍋 Re-image your computer		×			
	Select a system image backup				
	This computer will be restored using the system image. Everything on this computer will be replaced with the information in the system image.				
	Troubleshooting information for BMR: http://go.microsoft.com/fwlink/p/?LinkId=225039				
	() Use the latest available system image(recommended)				
	Location: RDX fixed Disk 2 (E:)				
	Date and time: 1/11/2017 12:00:11 PM (GMT-8:00				
	Computer: Demo-WBAdmin				
Select a system image					
		< Back Next > Cancel			



or ransomware attack, select a system image which was created before the attack had happened.

Otherwise choose **Use the latest** available system image.

Click Next.

🍋 Re-image your computer	×
Choose additional restore options	è
Format and repartition disks Select this to delete any existing partitions and reformat all disks on this computer to match the layout of the system image.	Exclude disks
If you're unable to select an option above, installing the drivers for the disks you are restoring to might solve the problem.	Install drivers Advanced
< Back Nex	xt > Cancel

If you want to install additional drivers (e.g., a RAID-driver) choose **Install drivers**.

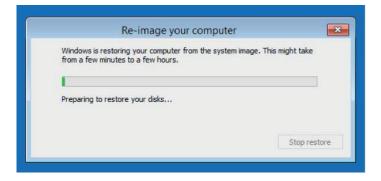
Click Next.

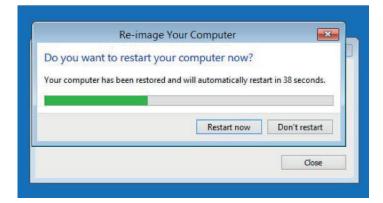
A summary window appears. Click **Finish** to start the recovery

procedure.

he-image your computer		×			
	Your computer will be restored from the following system image:				
	Date and time:	(11/2016 6:37:46 AM (GMT-8:00)			
	Computer:	HCK-RDX02-W2012			
	Drives to restore:	\\?270a3b4b-b06c-11e4-			
a start and a start of the					
and the second					
	< Ba	ck Finish Cancel			
		Caller			

The data is restored to the system.





After the restart,	the system i	s up and	I running.	Additional	tasks mag	y be	performed	to complete	e the
recovery.									

Sales and support for Overland-Tandberg products and solutions are available in over 90 countries. Contact us today at sales@overlandstorage.com or sales@tandbergdata.com

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