# **User's Manual**



# **R-Drive Image**



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# I R-Drive Image

**R-Drive Image** is unique and powerful drive image software. It creates <u>drive image</u> files on-the-fly, that is, without stopping Windows. Such images may be stored anywhere including various removable media. It compresses image data with variable <u>compression</u> level to save <u>free space</u>. It also restores such images on the disks on-the-fly, except system partitions. **R-Drive Image** creates special startup disk (a startup CD/DVD disc, or USB removable storage device) to restore system partitions. It mounts images as virtual disks to copy only certain files from the images. It also directly copies an entire disk to another - no time spent for file structure scanning.

System integrators and computer assemblers can use <u>**R-Drive Image OEM kit</u>** to create system recovery disks to include them with their fully assembled computer systems.</u>

**Note:** The current version has a limited support for dynamic disks or other non-MBR/GPT partitioning scheme. See **Support for Various Disk Partition Schemes and File Systems** for details.

The **<u>R-Drive Image Features</u>** topic tells more about **R-Drive Image**.

The System Requirements topic tells more about R-Drive Image system requirements.

The **<u>R-Drive Image Registration</u>** topic explains how to register your copy of **R-Drive Image**.

The License Transfer topic explains how to transfer the Standalone and Corporate licenses.

The **Disk Actions** chapter explains disk actions such as:

- Create an Image of a partition, logical disk, or entire hard drive
- <u>Create an Image from Files</u>
- Copy Files to a Folder
- <u>Restore Data from an Image</u>
- Copy Disk to Disk to make an exact copy of one disk on another
- Manage partition and logical disks
- Mount an Image as a Virtual Logical Disk (read-only)
- <u>Unmount Virtual Logical Disks</u>
- Check an Image File to check an existing image file

The **RAIDs**, and Various Disk and Volume Managers chapter explains how to perform disk actions with various compound volumes such as:

- Hardware RAIDs
- <u>BitLocker Drive Encryption</u>
- Windows Software RAIDs, Spanned, and Other Volumes
- <u>Windows Storage Spaces</u>
- Apple RAIDs
- <u>Apple CoreStorage/File Vault/Fusion Drive Volumes</u>
- Linux mdadm RAIDs
- Linux Logical Volume Manager Volumes

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- <u>Create Startup Disk</u>
- <u>Restoring Data to a System or Other Locked Disk</u>
- <u>Create an Image Using the Startup Disks</u>
- Disk to Disk Copy Using the Startup Disks

The <u>Scheduled Actions</u>, <u>Command Line Operations</u>, <u>and Scripting</u> chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- <u>Scheduler and Unattended Actions</u>
- <u>Scripting and Command Line Operations</u>
- <u>Rotation schemes</u> (backup sets)

The **<u>Technical Information</u>** chapter gives technical information on

- Updates
- <u>Cloud Services</u>
- Image Replications
- Logging
- <u>Creating consistent point-in-time backups</u>
- <u>Support for Various Disk Partition Schemes and File Systems</u>
- <u>Supported Virtual Disk and Disk Image Formats:</u>
- Disk Wiping Algorithms
- Supported CD and DVD Recorders
- List of Hardware Devices Supported in the Startup Mode

The <u>**R-Drive Image OEM kit</u>** chapter explains how computer system integrators can create system recovery disks for their systems</u>

- Create a Master Image
- Create Startup Media

Follow this link to obtain R-Drive Image Contact Information and Technical Support

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# 1.1 R-Drive Image Features

**R-Drive Image** is unique and powerful drive image software. It creates <u>disk images</u>: files that contain exact, byte-by-byte, copies of hard drives, partitions, or logical disks. Such images may be stored in any location: other hard disks or various removable media, such as CD-R(W) and DVD discs, USB external disks, and network drives. At any time, data from such images may be restored on their original disks or on any other partitions or even on drive's <u>free space</u>. Images may contain data from the partitions, logical disks, and entire hard drives, or only individual files.

**Note:** The current version has a limited support for dynamic disks or other non-MBR/GPT partitioning schemes. See **Support for Various Disk Partition Schemes and File Systems** for details.

Using **R-Drive Image**, you can completely restore your system immediately after heavy data loss caused by an operating system crash, virus attack, or hardware failure. You can also use **R-Drive Image** for mass system deployment: if you need to setup many identical computers, you can setup manually only one system, than, using **R-Drive Image**, you can make an image of the system, and deploy it on all other computers, saving your time and cost.

You can copy a hard drive, partition, or logical disk directly to another one. Such copying is much faster than traditional file by file copying, as no time spent for file structure scanning.

If you need to restore only certain files from an image, you can mount that image as a read-only virtual disk and copy those files directly from the image using Windows Explorer or any other file utility.

**R-Drive Image** includes a partition manager that can delete, <u>wipe</u>, create, and re-sized partitions and logical disks.

If you are a system integrator, consultant, or computer assembler, you can use <u>**R-Drive Image OEM kit</u>** to create system recovery disks to include them with your fully assembled computer systems.</u>

# R-Drive Image features:

- A simple wizard interface no in-depth computer management skills are required.
- Commands in the shortcut menu to perform some disk actions, like restoring data from an image file and mounting an image as a virtual disk directly from Windows explorer.
- Image files are created on-the-fly, no need to stop and restart Windows. All other disk writes are stored in a cache until the image is created.
- Images can be created for storage devices with removable media.
- Images can contain data from the entire disk or useful information only, that is, only those disk parts that contain data from existing files.
- Images can be <u>created from individual files</u>, not only partitions and logical disks. Individual files may be <u>copied to a certain folder</u>.
- Individual files <u>can be copied to a specified folder</u>.
- Images can be burned on CD/DVD recorders directly from the program
- Image data can be compressed to save free space.
- Image files can be stored on removable media. Support for USB 2.0 and 3.0 devices in the startup mode.
- Images can be stored on various <u>cloud services</u> and download from them to restore data on the disks.
- Images can be split into several files to fit the type of the storage medium.
- Image can be created incrementally and differentially.
- Image files can be password-protected and contain comments. Images of the rdi type may also be encrypted using the AES-XTS algorithm.
- Images <u>can be replicated</u>, that is, their copies can be saved in one or several different places.
- <u>Partition manager</u> that allows you to delete, wipe, create, and resize partitions and logical disks. It can be used to clean entire hard drives before disposal.
- Support for several image format types: .rdr (R-Drive Image's proprietary internal format), and virtual machine formats: <u>VHD/VHDX</u>, <u>VDI</u>, and <u>VMDK</u> (last two only in Corporate, Technician, Commercial, OEM System Recovery Media versions). In addition, you may open several additional formats: .dmg

(<u>Apple Disk Image</u>), <u>e01(ewf</u>), and aff (<u>advanced forensic format</u>), the latest two for the Commercial and OEM System Recovery Media versions.

- Support for various non-MBR/GPT partitioning schemes and file systems. See <u>Support for Various Disk</u> <u>Partition Schemes and File Systems</u> for details.
- Support for <u>RAIDs</u>, and various disk and volume managers, such as <u>Windows Storage Spaces</u>, <u>Apple RAIDs</u>, <u>Apple CoreStorage/File Vault/Fusion Drives</u>, and <u>Linux LVM</u>.
- Data from an image are restored on-the-fly, except on a system partition. Data to the system partition can be restored either by restarting **R-Drive Image** in its startup mode directly from Windows, or by using specially created <u>startup disks</u>.
- Special startup disks (a startup CD/DVD disc or USB removable storage device) can be created to restore data to a system partition. Such disks can be used to perform basic disk imaging operations on Mac computers with <u>some restrictions</u>.
- Data from an image can be restored on a free (unpartitioned) space on any place on a hard drive. The size of the restored partition can be changed
- Data from an image can be restored on other existing partitions. **R-Drive Image** deletes such partitions and restores data on that free space.
- An entire disk can be directly copied to another one.
- An image can be mounted as a read-only virtual drive and its content can be viewed and copied.
- An image can be checked for its integrity.
- Support for **S.M.A.R.T.** warnings.
- A built-in scheduler automatically starts disk actions at scheduled times/events.
- Scripts can be created for frequent or unattended actions. Scripts are executed from a command line and can be included in any command file.
- <u>Advanced and versatile logs</u> accessible directly from the user interface.
- Support for <u>rotation schemes</u> (backup sets). A rotation scheme is a set of files (usually a file for a full image of an object and a number of its incremental/differential backups) which **R-Drive Image** treats as one unit. Rotation schemes (backup sets) are used to flexibly control the parameters of complex backup tasks such as a total size allocated for the image files, number of image files to keep, and time for which the data will be kept. Available are simple and custom rotation schemes. Custom rotation schemes are available in the **Corporate**, **Technician**, **Commercial**, and **OEM System Recovery Media** versions.
- **R-Drive Image OEM System Recovery Media** creation: special startup disk that may be used to restore a computer system after a complete failure when it requires a complete fresh setup (system recovery disks).

Note: You need to purchase an OEM registration key to activate this feature.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain <u>R-Drive Image Contact Information and Technical Support</u>

# 1.2 System Requirements

- An Intel-compatible platform.
- The administrative privileges are required to install and run R-Drive Image.

Operating systems on which various versions can run:

- All versions: Windows 11/10/8.1/8/7/Vista/XP/2000 Windows (including 64 bits editions).
- Corporate, Technician, Commercial versions: Server 2022/2019/2016/2012/2008/2003 (including 64 bits editions).

# 1.3 Contact Information and Technical Support

To obtain the latest version of **R-Drive Image**, go to:

Product Site: http://www.drive-image.com/

Sales Department: <u>sales@r-tt.com</u>

The **R-Drive Image** Technical Support Team is available 24 hours a day, seven days a week, and has an average e-mail response time less than 4 hours.

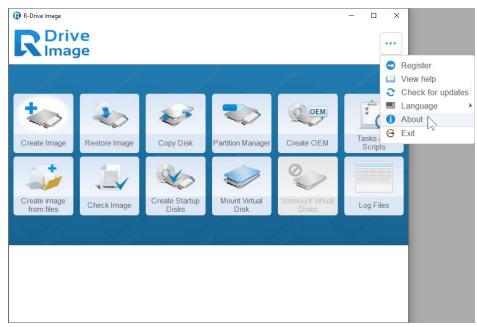
Tech. Support: support@r-tt.com

You may send a support request form from <u>http://www.r-tt.com/Support\_request.html</u>. You may be asked to provide a system dump.

# To create a system dump:

1 Go to the About dialog box

R-Drive Image Action selection panel



2 And click the Write system dump button Write system dump button

About R-Drive Image			
R Drive R-Drive Image	Image System Recove Copyright (c) 2		
Home site: http://www.drive-image Technical support: http://www.r-tt. Customer service: http://www.r-tt. This product is licensed to:	com/SupportRequest.sh	Check for up	
Licensee: Tester 1 R-TT Testing Team Product: R-Drive Image License Type: OEM Kit Number of licenses: 1			
R-TT Testing Team Product: R-Drive Image License Type: OEM Kit	Disclaimer	View licens	se

# 1.4 R-Drive Image Registration

The trial period of **R-Drive Image** will start after its fresh install. The **Action Selection** panel will show its remaining time.



You need to obtain a registration key to activate the **R-Drive Image** trial version. You may obtain this key online at the **R-TT web site** or on the **R-Drive Image Please register R-Drive Image** message.

The registration keys are sent to customer e-mail boxes immediately after purchase.

With the purchase of a new **R-TT** software product, you receive one year of support services that includes technical support, customer support and all upgrades and new releases for your product during that term. When your 1-year support service expires, you will need to renew that support at a discounted price to continue receiving support services. The renewal support purchase will extend your support by 1-year from the date of its expiration.

More details are on the Buy On Line page (http://www.r-tt.com/BuyOnLine.shtml) at the R-TT web

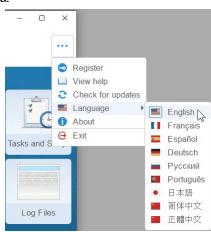
# <u>site</u>.

# To obtain a registration key directly from R-Drive Image,

1 Click the **About** button



and select **Register** on the shortcut menu.



2 Click the Buy license online button on the Please register R-Drive Image message

	r R-Drive Image Corporate	×
Name:	Tester 1	0
Company:	R-TT Testing Team	
Serial numb	er:	$\checkmark$
<paste re<="" td=""><td>gistration Key here&gt;</td><td></td></paste>	gistration Key here>	
	Buy license online	
	Buy license online	

and follow the instructions.

To register with a registration key,

- 1 Click the About button and select Register on the shortcut menu.
- 2 Enter the registration key on the Please register R-Drive Image message and click the OK button. The registration information will appear.

	see: Tes		
R-TT	Testing	Team	
test@			
	uct: R-D		ao
	ise Type		
Num	per of lic	enses:	1

Sometimes you may need an active Internet connection to finish program activation after its registration.

#### If you don't have an Internet connection.

You need to manually obtain an activation code to complete the registration and activation. The Online Activation dialog window will appear when you enter the activation code.

R-Drive In Online Activation	
al state to plan	Your license must be activated.
	An error occurred during automatic online activation:
ι - <del>Γ΄</del>	Host not found
	Please check your internet connection and try again.
	You can also get an activation code manually using the following URL or the QR code on the I
o ny sana	https://secure.r-tt.com/cgi- bin/UserConsole?mks=38b7cb6ea71677ad8b8e3b392b89ef4a71ed9eda&hw_id=SIKV-OWSI
	Hardware code SIKV-OWSI
Activation code	
Field to enter the activa	on code
	Apply activation code

You may copy the url with the activation information and go to it on another computer connected to the Internet, obtain the activation code, and enter it into the respective field on the dialog box.

You may also use your smartphone to activate **R-Drive Image**. Scan the QR-code and go to the specified URL, obtain the activation code, and finish program activation.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

# 1.5 License Transfer

All **R-Drive Image** licenses are transferable. However, **R-Drive Image** Standalone and Corporate licenses can be transferred to another computer only one way. You can transfer the license to a new computer, but the license may not be transferred between different computers back and forth and be reused on the computer it was transferred from.

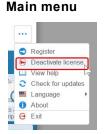
For example, you have **R-Drive Image** installed on Computer A. You may transfer the license from Computer A to Computer B, and **R-Drive Image** will work on Computer B. But it won't run on Computer A under this license anymore, even if you deactivate this license on Computer B and remove **R-Drive Image** from it. Then you may transfer the license to Computer C, but **R-Drive Image** will work neither on Computer A, nor on Computer B. And so on...

If you have just one **R-Drive Image** license, you can simply install the software on a new computer you want to transfer the license to and then activate it. The license on the previously licensed machine will be automatically deactivated as soon as the software is activated on a new computer. For computers connected to the Internet the online activation is processed in the background mode and you will not even notice it. For off-line activations you will need to use a QR code and it will take extra 1-2 minutes to complete the activation. So, a single **R-Drive Image** license does NOT require a license deactivation procedure.

When you have more than one **R-Drive Image** license linked to the same registration key, our system may not recognize what particular license you want to transfer to a new computer and in this situation, the license deactivation procedure is a must.

Option 1. R-Drive Image software is still installed on the computer from which it is being transferred and the computer is connected to the Internet.

1 Open the R-Drive Image main menu and choose the Deactivate license option.



2 The following message will appear:

# Deactivation message

you will no this comp	ge Standalone lic t be able to reacti uter vith deactivation?	ivate it on
	Yes	No

Click Yes to deactivate the license.

- 3 Uninstall/Remove R-Drive Image from the computer
- 4 Install R-Drive Image on a new computer and activate it.

Option 2. R-Drive Image software is still installed on the computer from which it is being transferred and the computer is NOT connected to the Internet.

1 Open the R-Drive Image main menu and go to the About option to get the hardware code of the computer on which the license is currently active.

The About dialog box

		3
Drive	R-Drive Image Star	ndalone 7.1 (Build 7112)
R Drive Image	Copyright (c) 2001-2023	R-Tools Technology Inc.
Home site: http://www.dr	ive-image.com/	
Technical support: http://	www.r-tt.com/SupportRequest.s	html
Customer service: http://	www.r-tt.com/PurchasingReque	st.shtml
This product is licensed	to:	
Product: R-Drive Image License Type: Standalo Registration key: Diow/ Hardware code: FJNK-	one AOApb	
License Type: Standalo Registration key: Djow/	one A0Apb CIHI	
License Type: Standald Registration key: Diow/ Hardware code: FJNK- Number of computers:	one (AOApb CHI 1	View license
License Type: Standalo Registration key: Djow/ Hardware code: FJNK-	one (AOApb CHI 1	View license
License Type: Standald Registration key. Djow/ Hardware code: FJNK- Number of computers.	one GAApb CHII T T	View license

- 2 Write down or take a photo of the Hardware Code
- 3 Uninstall/Remove R-Drive Image from the computer
- 4 Install R-Drive Image on a new computer.

Since the license on the previous computer was deactivated offline, our server will not know which machine to deactivate the license on and you will be prompted to enter the hardware code of the previous computer. Enter the saved Hardware code in the Activation window

#### Activation dialog box



and click the OK button.

Option 3. R-Drive Image was installed and activated on a computer that has already been decommissioned/replaced and the Licensee doesn't have access to that computer.

1 In this case you can't deactivated the R-Drive Image license,

but you can check the hardware codes of your other computers on which **R-Drive Image** licenses are being used and are currently active.

2 Send the list of the codes of computers on which you still keep and want to retain R-Drive Image licenses

(main menu > About) to <u>our customer support team</u> and they will help you deactivate the license for computers that you do not have access to.

# II Disk Actions

This chapter explains how to perform disk actions. Each action starts from the Action Selection panel.



# ■Keyboard Navigation

You may use the keyboard to navigate through and select items and objects on the panels. If there are several objects that can be selected, a dashed frame will appear around the object that is in the current focus.

Source	Keyboard focus
MBR 7.87GB 2.92GB 1	
Space	Select/Deselect.
Keyboard arrows	Right / Left / Up / Down
Alt+S / Alt+D	Switch between the Source / Destination panels.
Tab/Shift-Tab	Forward / Backward

# Changing the program language

You may select the language of **R-Drive Image** panels. To do so, click the HeIp button and select the required language on the Language menu.

# To start a required action, select

- Create an Image of a partition, logical disk, or entire hard drive
- <u>Create an Image from Files</u>
- Copy Files to a Folder
- <u>Restore Data from an Image</u>
- Copy Disk to Disk to make an exact copy of one disk on another
- Manage partition and logical disks

- Mount an Image as a Virtual Logical Disk (read-only)
- <u>Unmount Virtual Logical Disks</u>
- Check an Image File to check an existing image file

The **<u>RAIDs</u>**, and Various Disk and Volume Managers chapter explains how to perform disk actions with various compound volumes such as:

- Hardware RAIDs
- <u>BitLocker Drive Encryption</u>
- Windows Software RAIDs, Spanned, and Other Volumes
- <u>Windows Storage Spaces</u>
- Apple RAIDs
- <u>Apple CoreStorage/File Vault/Fusion Drive Volumes</u>
- Linux mdadm RAIDs
- Linux Logical Volume Manager Volumes

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- <u>Create Startup Disk</u>
- <u>Restoring Data to a System or Other Locked Disk</u>
- <u>Support for Various Disk Partition Schemes and File Systems</u>
- <u>Disk to Disk Copy Using the Startup Disks</u>

The <u>Scheduled Actions, Command Line Operations, and Scripting</u> chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- <u>Scheduler and Unattended Actions</u>
- <u>Scripting and Command Line Operations</u>
- Rotation schemes (backup sets)

The **Technical Information** chapter gives technical information on

- Updates
- Cloud Services
- Image Replications
- Logging
- Creating consistent point-in-time backups
- Support for Various Disk Partition Schemes and File Systems
- Supported Virtual Disk and Disk Image Formats:
- Disk Wiping Algorithms
- Supported CD and DVD Recorders
- List of Hardware Devices Supported in the Startup Mode

The <u>**R-Drive Image OEM kit</u>** chapter explains how computer system integrators can create system recovery disks for their systems</u>

• Create a Master Image

# <u>Create Startup Media</u>

Follow this link to obtain **R-Drive Image Contact Information and Technical Support** 

# 2.1 Create an Image

**Note:** You may read about <u>Support for Various Disk Partition Schemes and File Systems</u> to learn more about possible options for your specific case.

You may create <u>images</u> of entire objects or <u>backup only selected files</u> during this action. Images from files can also be created by selecting <u>Create an Image from Files</u> on the **Action Selection** panel.

# Creating images of entire objects

# To create an image:

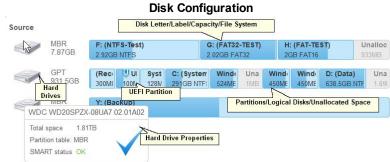
# 1 Click Create image on the Action Selection panel

R-Drive Image will start analyzing the computer disk configuration, the **Progress...** message showing the progress.

Drive Image		
Analyzing partition D:\		

Then the **Select disk(s) to create image** panel will show the configuration.

# ■ More information...



# ■ S.M.A.R.T. warning for a hard drive

If a hard drive has S.M.A.R.T. warnings, a color mark will appear on its left-top corner. Drugging the cursor over the drive will show a tooltip explaining that warning.



Warnings will also appear in confirming e-mails for scheduled actions.

\* ============[S.M.A.R.T.]==================

- ! SAMSUNG HM320HJ 2AK10001(298GB #2): Health Status: BAD
- [01] Read Error Rate

**S.M.A.R.T.** (Self-Monitoring, Analysis and Reporting Technology) is a technology widely-used in hard drives and solid-state devices that monitors their reliability conditions to predict possible hardware failures.

2 Select the objects you want to backup on the Select disk(s) to create image panel and click the Next button

#### EKeyboard Navigation

You may use the keyboard to navigate through and select items and objects on the panels. If there are several objects that can be selected, a dashed frame will appear around the object that is in the current focus.

Source	Keyboard focus
MBR 7.87GB F: (NTFS-Test) 2.92GB NTFS	G: (FAT32-TEST)     H: (FAT-TEST)     Unalloc:       2.02GB FAT32     2GB FAT16     932MB
Space	Select/Deselect.
Keyboard arrows	Right / Left / Up / Down
Alt+S / Alt+D	Switch between the Source / Destination panels.
Tab/Shift-Tab	Forward / Backward

More information...

Selected Objects					
Source	e Selected Object Disk Letter/Label	/Capacity/File System	Selected Object		
	MBR 7.87GB 2.92GB NTFS		H: (FAT-TEST) 2GB FAT16 933MB		
WE		yster Wind Una Wind B NTF: 524ME 1MB 450ME Partitions/Logica			
Par	ritiion table: MBR MART status OK	operties			
You may select all object	ts on a hard drive by clic	king the hard di	rive icon.	. It will show the	

Unalloca

MBR 7.87GB F: (NTFS-Test) G: (FAT32-TEST) H: (FAT-TEST) 2 92GB NTES 2GB FAT16 2 02GB EAT32 marked hard drive.

Use the **Refresh** button if your computer disk configuration has been changed (when you connect a USB disk, for example).

You may select the backup type for each partition. You may store in the image either the exact Sector by backup copy of the object, Backup useful information only, or Backup selected files...Right-click the object and select the required backup type on the shortcut menu.

Source							
	MBR 7.87GB	F: (NTFS-Test) 2.92GB NTFS	🔿 Do not backup		(FAT-TES B FAT16		Unalloc: 932MB
	GPT 931.5GB	(Recc U UI 300ME 100M	<ul> <li>Backup actual data only</li> <li>Sector by sector backup</li> </ul>	Windc 450MB	Windc 450MB	D: (Data) 638.5GB NT	Una 1.691
	MBR 1.81TB	Y: (Backup) 1.81TB exFAT	O Backup selected files				

3 Select the place on the **Choose destination of new image** panel to which the image files will be written, specify the file name, and click the Next button

ain menu	Select the destinat	ion for the new image •
> V	RAIDHP5x16 RDI-Images Sbad001SPartition1-1_Partition1-3-image4.rdr Fimage2.rdr F-image2.rdr F-image.rdr F-image.rdr G F-ifles-image.rdr HardwareRAID0.rdr	Existing image details MBR 7.87GB F: (NTFS-Test 2.92GB NTFS 2GB FAT1
	HDD1-image.rdr HDD1-image2.rdr HDD1-image2.rdr HDD1-image3.rdr Image_Bad.rdr Partition1-1_Partition1-3-image2.rdr Partition1-1_Partition1-3-image2.rdr Partition1-1_Partition1-3-image3.rdr	Dates of included archives           6/25/2021 5:54:21 AM           7/2/2021 5:42:16 AM           7/4/2021 10:59:26 AM
	Partition1-1_Partition1-3-image4.rdr     SoftRAID0.rdr     SoftRAID1.rdr     Connect to cloud	Imaging mode Overwrite ▼ ▲ The data in the existing image will be replaced with new ones
e name:	Y:\RDI-Images\Partition1-1 Partition1-3-image	e.rdr 💦 Replications R-Drive Image format

You may select any place including connected network drives, **supported CD and DVD Recorders**, or any other devices with removable storage. Several <u>cloud services</u> are also supported.

Images can be replicated, that is, their copies may be saved to one or other different locations.

You may also choose what image format will be created. (Only in the Corporate, Technician, Commercial, and OEM System Recovery Media versions).

<b>⊒lmage fi</b> l	le format	
RDR	Default. A proprietary im protected.	age format. Data in the image can be compressed and password
VHD and VHDX	A <u>virtual disk format</u> mai	nly used in the Windows built-in virtual machine.
VMDK		ormat for virtual machines. Only the <b>Corporate</b> , <b>Technician</b> , <b>System Recovery Media</b> versions support this format.
VDI		VirtualBox virtual machine. Only the <b>Corporate</b> , <b>Technician</b> , <b>System Recovery Media</b> versions support this format.
You may r	read more about virtual disk	formats in the help page <u>Supported Virtual Disk and Disk Image Formats</u> .
🗉 Imagin	g Options	
Differenti	ally	Appended changes will be those between the saved full image and the current state. If there is no full image, it will be created instead. When

	restoring data, you will need the full image and ONLY the differential file created at the instant to which you want to restore data.
Incrementally	Appended changes will be those between the last saved changes and the current state. If there is no full image, it will be created instead. When restoring data, you will need the full image and ALL files (both incremental and differential ones) created to the instant to which you want to restore data.

**Minimum file sizes:** If you need to keep only the latest backup instant, you may use the Append changes differentially to the existing image option and delete all previous differential files. If you need to keep all instances, you may use the Append changes incrementally to the existing image option to keep overall file sizes smaller.

**Data safety:** If any of the differential file is damaged, data will be lost only for that backup instant. If any of the incremental file is damaged, data will be lost for all subsequent backup instances starting from the damaged file until the next full of differential backup.

Full	All data in the image file will be replaced with the current one.

# Click the Options button to specify additional options and parameters, if necessary.

# • Image Options panel

# Image options

Image compression ratio	You may compress the data in the image to save space. Please note that the smaller size you select the more time will be spent to create the image file and vise versa.
Volume size for multi- volume image	You may set this option to Automatic and let Windows decide how to split the image file. This mostly depends on the file system on the destination disk. You may also either explicitly specify the split size, or choose a preset for various devices with removable storage. Select Fixed size for that. For the RDR format, a new partial file of the image will be started when the previous file reaches the specified file size. For the <u>VMDK</u> format, a new partial file of the image will be started when the specified data volume of the source object has been processed. Files in the VHD/VHDX and VDI formats cannot be split. You may read more about virtual disk formats in the help page <u>Supported Virtual Disk and Disk Image Formats</u> .
Estimated size	Shows the estimated size of the image file. An actual image size depends on how much empty space is on the selected partition and what file types are there.
Password protection	You may protect your image file with a password. <b>Note:</b> If you leave the Encrypt image option clear this feature will provide a relatively moderate protection against conventional unauthorized access. If this option is selected, <b>R-Drive Image</b> will encrypt the image using the AES-XTS algorithm. <b>Note:</b> Only files in the RDR format can be password protected and encrypted.
Image description	You may attach a text description to the image for annotation. Maximum length of the description is 255 characters.
Validate image when completed	Select this option if your want <b>R-Drive Image</b> to check the newly created file image for its consistency. This may be useful for storing image files with critical

		data. Please note that this operation requires additional time.						
Shutdown computer when completed		If this checkbox is selected, <b>R-Drive Image</b> will shut your computer down when completed the task.						
	<b>(P</b> Options	X						
	Image opti	Faster Smaller						
	Backup opt	Estimated image size: 1 976B						
		Encrypt image						
		Test image						
		Validate the image when completed Shutdown computer when completed						
		Ok Cancel						

# • Notifications Options panel

# Notifications options

# Execute on

You may specify the applications of the \*.com, \*.exe, and \*.pif types, and their parameters delimited by a space.

# **Mail Notification**

If a personal firewall is installed on your computer, you should allow the r-driveimagecl.exe application to get access to the e-mail server.

# Test mail account

Click this button to test whether you entered the correct mail settings.

est emai
account
ICCOI

# • Backup Options panel

# Backup Options

Snapshot provider	A snapshot provider is a service <b>R-Drive Image</b> uses to read the disk content while creating its image. <b>R-Drive Image</b> uses the snapshot providers in the order specified on the tab. If it fails to use the first one selected, it tries to use the second one, and so on.
Windows Volume Snapshot Service	If this check box is selected, <b>R-Drive Image</b> will try to use the Windows native snapshot provider. This snapshot provider is able to notify system applications that a snapshot is being taken. If this option is selected, pagefile.sys and hibernate.sys files are excluded from the image of the system disk.
R-TT Volume Snapshot Service	If this check box is selected, <b>R-Drive Image</b> will try to use R-TT snapshot provider. This snapshot provider is not able to notify system applications that a snapshot is being taken.
Notify system applications	If this check box is selected, the snapshot provider, if it supports this feature, notifies system applications that a snapshot is being taken.
Limit I/O rate	Specifies the rate limits for reading/writing data from/to disks
Limit read	The rate limit for reading from the source disk
Limit write	The rate limit for writing to the destination disk
Process priority	These options specify how much computer resources <b>R-Drive Image</b> will consume during a backup process.

Backup Process Priority	Specifies the priority of the backup process. Similar to that specified in Windows Task Manager.
Use CPU cores	Specifies how many processor cores <b>R-Drive Image</b> will use for the backup process.
Ignore disk read errors (bad sectors)	<ul> <li>If this check box is selected, R-Drive Image will ignore possible read errors when it tries to read data from bad sectors.</li> <li>R-Drive Image works with disks with bad sectors in the following way:</li> <li>It reads a certain part of disk (predefined by Windows) and</li> <li>If read errors are ignored, the entire part with bad sectors will be filled with zeros.</li> <li>If read errors are not ignored, R-Drive Image reads that part sector by sector and shows a warning message for every bad sector with two options: skip the sector or try to read it again. In this case only the bad sectors will be filled with zeros, but all that requires manual actions and extremely slows the imaging process.</li> <li>Please note that R-Drive Image is developed for the work with normally functioning disks. If you need to image a malfunctioning disk, use <u>R-Studio</u>, a data recovery utility. It has more controls for imaging, and can create R-Drive Image-compatible images even in its demo mode, that is, without registering.</li> </ul>
Backup AUX applications	<b>R-Drive Image</b> is able to make applications run before and after all backup operations. Please note that those application should return a 0 exit code. Leave these fields blank if in doubt.
Before	An application <b>R-Drive Image</b> starts before the backup operations starts. If you need to start several applications, you may use a command file. Example: "cmd.exe /c example.bat"
After	An application <b>R-Drive Image</b> starts after the backup operations completes. If you need to start several applications, you may use a command file. Example: "cmd.exe /c example.bat"
Snapshot AUX applications	<b>R-Drive Image</b> is able to make applications run before and after taking the snapshot of one or several volumes. Please note that those application should return a 0 exit code. Leave these fields blank if in doubt.
Before	An application <b>R-Drive Image</b> starts before it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: "cmd.exe /c example.bat"
After	An application <b>R-Drive Image</b> starts after it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: "cmd.exe /c example.bat"

See Creating consistent point-in-time backups for more details.

.

	Snapsh	ot providers	Process priority			
Image options Notifications	R-T	dows volume snapshot service T volume snapshot service y system applications	Backup process priority Use CPU cores	Normal Unlimited	•	
ackup options	Limit I/C	) rate				
		t read (MB/sec) 0 ×				
	Backup	AUX applications				
	Before	Before Enter filename				
	After	"C:\Program Files (x86)\R-Wipe&C	Clean\RwcRun.exe"		)	
	Snapsh	ot AUX applications				
	Before	Enter filename			)	
	After	Enter filename				

4 Verify that the information on the Processing panel is correct and click the Start button You may also create a <u>script</u> for this action. Click the Script to Clipboard button and paste the script to any text-processing utility.

lain menu	Processing	]	Save script▼	
		Append changes differer Compression Estimated image size Estimated total duration	ntially Faster speed 2.99GB 3 minute(s) 20 second(s)	
149 Estimated to 4 minute	ime left	Operation 1 of 4 Operation Backup type Partition	Backup partition Actual data only Logical Partition #1	
Backup pa Logical Partition # Operation	1 NTFS-Test	File System Volume Label Used space Capacity Located on HDD Estimated duration	NTFS NTFS-Test 1.15GB 2.92GB QUANTUM87GB #1) 53 second(s)	
		Operation 2 of 4		

> R-Drive Image will start creating the image file(s)

The **Progress** bar will show the progress of the current operation and overall process. When the image is created, the **Image created successfully.** message will appear. You may cancel the current operation by clicking the **Cancel** button. The **Operation canceled by user** message will appear.

-		(1997)		R-Drive Ima	age		×
R-Drive Image	× fully	R-Drive Image	× Operation canceled by user		There is not enough space on the disk. Click OK to retry. G:\E-image2.rdr		
	Ok		Ok			Ok	Cancel

If there is not enough space on the destination place, the **Not enough space** message will appear. You may select another place for the rest of the image file or cancel the operation

When the operation is over, you may see the results of the operation by clicking the **Open logs** button .

#### Writing images on CD-R/RW discs and other devices with removable storage CD-R/RW and DVD discs

If you select a CD/DVD drive to write the image file, you will see the **Media Options** panel

You may create a system recovery disc(s) for your system if you select the Include **R-Drive Image bootable version** option on this panel. You may start your system up using such CD/DVD disc and recover the data using the **R-Drive Image** <u>startup version</u>.

Then select appropriate CD/DVD Media Options. Leave Use ISO caching selected unless you have problems with data recording on a disc.

Options		
Imaga optiona	CD Media Options	
Image options	Write speed Maximum	
Notifications	Write method O Direct write      Use ISO caching	
Backup options	DVD Media Options	
Media options	Write speed Maximum	-
	Write method      Direct write Use ISO caching	

When you click the Start button, **R-Drive Image** will open the CD-R/RW drive tray and the **Insert a blank CD-R/RW disc...** message will appear. Insert a blank CD-R/RW disc and click the **OK** button. Each time **R-Drive Image** fills the disc, the **Insert the next blank CD-R/RW disc...** message will appear. Insert the next blank CD-R/RW disc and click the **OK** button.

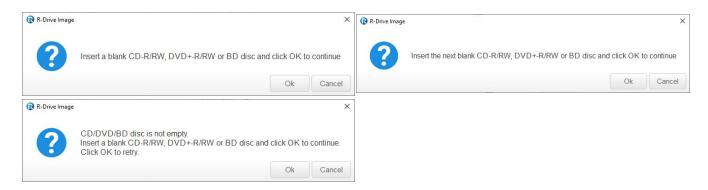
If you mistakenly insert a non-empty CD-R/RW disc, the **CD-R/RW disc is not empty...** message will appear. Change the disc to another empty CD-R/RW disc and click the **OK** button.

Supported CD and DVD Recorders.

Disk/file structure for CD-R/RW discs and other devices with removable storage

If you specify the fil disk/file structure:	<code>ename.rdr</code> file name for the image file, $R\text{-Drive}\ Image$ will create the following
Disc	File name
The first disk	filename1.rdr
The second disk	filename2.rdr
The third disk	filename3.rdr
It is recommended the	the way work the dick accordingly. You will start restoring the data from the last dick. Go

It is recommended that you mark the disk accordingly. You will start restoring the data from the last disk. Go to the **<u>Restore Data from an Image</u>** topic for more details.



# ■Bad Sectors

When **R-Drive Image** encounters a bad sector, the **IO Error** message will appear. You may either cancel the current action or fill the bad sectors with zeros.

#### IO Error Options

Abort Click this button to cancel the action	
Retry	Click this button to try to read the bad sectors once again
Ignore	Click this button to skip this error and fill the bad sectors with zeros
Ignore All	Click this button to skip all errors and fill the bad sectors with zeros

R-Di	rive Image				$\times$
8	Error reading The request f	sector 10680 ailed due to a	32 on disk fatal devic	ST380815AS e hardware e	6 4.AAB rror (483)
		Retry	lanore	Ignore All	Abort

# Backup only selected files from the Select disk(s) to create image panel

You may also copy those files to a specified folder.

# 1 Click Create image on the Action Selection panel.

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress.

R-Drive Image			
Analyzing partition D.	(		
8			

Then the Select disk(s) to create image panel will show the configuration.

- 2 Right-click the objects files on which you want to backup on the Select disk(s) to create image panel and select Backup selected files only on the shortcut menu.
- 3 Select files on the Files Selected panel and select the files you want to backup and click the OK button

Name	Туре	Size	Last modified	O.	
Y 🔳 🧇 NTFS (NTFS-Test)	Volume	2.92GB			
>	Folder		12/8/15 9:48 AM		
> 🔲 📕 Documents	Folder		10/5/18 7:16 PM		
> 🔄 📒 Files to wipe	Folder		4/23/11 6:12 PM		
> 🔄 📕 MaxQDA	Folder		8/6/12 6:33 PM		
> 🔲 📕 MyPhoto	Folder		4/5/11 7:43 PM		
👻 🔽 📙 Photo	Folder	48.4MB	4/5/11 7:41 PM		
V 🌪 Picture 001.jpg	File	1.56MB	4/23/07 10:08 AM		
🔽 🌞 Picture 002.jpg	File	1.82MB	4/23/07 10:08 AM		
🔽 🌞 Picture 003.jpg	File	1.60MB	4/23/07 10:08 AM		
🔽 🌞 Picture 004.jpg	File	1.55MB	4/23/07 10:08 AM		
V 🌪 Picture 005.jpg	File	1.51MB	4/23/07 10:08 AM		
🔽 🌞 Picture 006.jpg	File	1.42MB	4/23/07 10:08 AM		
🔽 🌞 Picture 007.jpg	File	1.48MB	4/23/07 10:08 AM		
🔽 🌞 Picture 008.jpg	File	1.34MB	4/23/07 10:08 AM		
🔽 🌞 Picture 009.jpg	File	1.62MB	4/23/07 10:08 AM		
🔽 🌞 Picture 010.jpg	File	1.78MB	4/23/07 10:08 AM		
🔽 🌞 Picture 011.jpg	File	1.44MB	4/23/07 10:08 AM		
🔽 🌞 Picture 012.jpg	File	1.85MB	4/23/07 10:08 AM		
🔽 🌞 Picture 013.jpg	File	1.69MB	4/23/07 10:08 AM		
🔽 🌞 Picture 014.jpg	File	1.71MB	4/23/07 10:08 AM		
🔽 🌞 Picture 015.jpg	File	2.02MB	4/23/07 10:08 AM		
🔽 🌞 Picture 016.jpg	File	1.50MB	4/23/07 10:08 AM		
🔽 🌞 Picture 017.jpg	File	1.97MB	4/23/07 10:08 AM		
🔽 🌺 Picture 018.jpg	File	1.70MB	4/23/07 10:08 AM		

You may search for individual files, use <u>filters</u>, or the <u>Batch mode</u> if you want to include all files of several patterns. Such patterns may include multiple file names, masks, and paths.

R Enter file filter specifications. Wildcards can be used	×
Photo Promo MaxQDA *jpg MyDocs??.docx	
Save	Ok Cancel

R-Drive Ima	ige - Create Imag	je							_	C	1 ;
G) ain menu	Refresh			Select dis	sk(s) to	crea	te imag	je			
ource											
	MBR 7.87GB	F: (NTFS-Test) 2.92GB NTFS			(FAT32-1 )2GB FAT:			(FAT-TES B FAT16	די	<b>Un</b> 932	alloc; MB
	GPT 931.5GB	(Recc U UI 300ME 100M	Syste 128M	C: (System) 291GB NTFS	Windc 524MB	Una 1MB	Windc 450MB	Windc 450MB	D: (Data) 638.5GB N		<b>Una</b> 1.691
	MBR 1.81TB	Y: (Backup) 1.81TB exFAT									
							_				
de Bac							0	Disks		-	Next

And click the Next button on the Select disk(s) to create image panel

4 Select the place on the **Choose destination of new image** panel to which the image files will be written, specify the file name, and click the Next button

🕞 R-Drive Image	- Create Image	- 🗆 X
Main menu	Select the destinat	tion for the new image
> > > *	RAIDGRS RAID10 RAID52X RAIDHF5x16 RDI-Images Sbad001SPartition1-1_Partition1-3-image4.rdr E-image.rdr E-image.rdr G-files-image.rdr G-Gfiles-image.rdr HDD1-image.rdr HDD1-image.rdr HDD1-image2.rdr HDD1-image2.rdr	Existing image details MBR F: (NTFS-Test) 1.7MB RimgFS
	Image_Bad.rdr     Partition1-1_Partition1-3-image2rdr     Partition1-1_Partition1-3-image2.rdr     Partition1-1_Partition1-3-image3.rdr     Connect to cloud	Imaging mode Differential V
File name:	Y:\RDI-Images\F_files-image.rdr	Replications R-Drive Image format
<b>A</b> Back		Options ODisks Selected + 47 files

You may select any place including connected network drives, <u>supported CD and DVD Recorders</u>, or any other devices with removable storage.

Click the Options button to specify additional options and parameters, if necessary.

• Image Options

- Notifications Options
- Backup Options

See Creating consistent point-in-time backups for more details.

5 Verify that the information on the **Processing** panel is correct and click the Start button

You may also create a <u>script</u> for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility.

# > R-Drive Image will start creating the image file(s)

The Progress bar will show the progress of the current operation and overall process. When the image is created, the **Image created successfully.** message will appear.

When the operation is over, you may see the results of the operation by clicking the **Open logs** button .

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

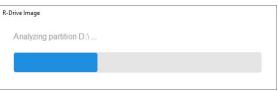
# 2.2 Create an Image from Files

You may backup only selected files rather than the entire object. You can do that in the <u>Create Image</u> and Create an Image from Files (below) actions. You may also <u>copy those files to a specified folder</u>.

# Create Image from selected files from the Action Selection panel

# 1 Click Create image from files on the Action Selection panel

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress.



2 Select files you want to include in the image on the **Select files for new image** panel and click the Next button

ain menu	Select file	es for	new image		••
ame	Туре	Size	Last modified	0	6
🗌 🖙 D: (Data, NTFS)	Volume	931.5GB			
F: (NTFS-Test, NTFS)	Volume	2.92GB			
G: (FAT32-TEST, FAT32)	Volume	2.02GB			
> SRECYCLE.BIN	Folder		3/31/2011 8:57:32 PM		
> 🗌 📕 .fseventsd	Folder		12/5/2012 6:50:52 PM		
> 🗌 📕 .Spotlight-V100	Folder		12/5/2012 6:50:52 PM		
> 🗌 📕 .Trashes	Folder		12/5/2012 6:50:52 PM		
> 🔽 📒 Files to Delete	Folder	208KB	2/15/2023 12:52:24 PM		
> 🔽 📕 Files to Recover	Folder	198.7MB	7/1/2005 12:50:28 AM		
> 🔽 📒 Music	Folder	192.1MB	2/15/2023 12:52:24 PM		
> 🗌 📒 Recycled	Folder		7/22/2005 1:30:16 AM		
> 🗌 📒 System Volume Information	Folder		7/1/2005 12:49:24 AM		
> 🗌 📕 Temp	Folder		4/27/2007 10:56:56 AM		
> 🗌 📒 TMP	Folder		2/15/2023 12:52:28 PM		
> 🗌 📒 Video	Folder		12/4/2012 7:44:14 PM		
	File	4KB	12/5/2012 6:50:52 PM		
P1000075.JPG	File	2.04MB	8/6/2005 6:04:54 AM		
V 🌪 P1000076.JPG	File	1.93MB	8/6/2005 6:06:04 AM		
🗌 🦇 H: (FAT-TEST, FAT16)	Volume	1.99GB			
🗌 🧼 Y: (Backup, exFAT)	Volume	1.81TB			
🗌  Z: (Net_Drive, NTFS)	Volume	1.59TB			

You may search for individual files, use <u>filters</u>, or the <u>Batch mode</u> if you want to include all files of several patterns. Such patterns may include multiple file names, masks, and paths.

3 Select the place on the **Choose destination of new image** panel to which the image files will be written, specify the file name, and click the Next button

R-Drive Image -	- Create image from files	- 🗆 X
Main menu	Select the destinat	ion for the new image ····
~	RDI-images       Image.trition1-1_Partition1-3-image4.rdr         E-image.rdr       F-image.rdr         F-files-image.rdr       F-image.rdr         HardwareRAID0.rdr       HDD1-image.rdr         HDD1-image.rdr       HD1-image.rdr         HD1-image.rdr       HD1-image.rdr         HardwareRAID1-1_Partition1-3-image.rdr       HD1-image.rdr         Partition1-1_Partition1-3-image.rdr       HD1-image.rdr	Existing image details C: (FAT32-TEST) 396.6MB RImgFS Dates of included archives 7/11/2021 12:45:25 PM
	Particul 1-2articul 1-3-images.dr     Particul 1-1 Particul 1-3-image4.rdr     SoftRAID0.rdr     SoftRAID1.rdr     SoftSpanned.rdr     Connect to cloud	Imaging mode Overwrite   The data in the existing image will be replaced with new ones
File name:	Y:\RDI-Images\G_files-image.rdr	Replications R-Drive Image format
<b>H</b> Back		Options 53 files selected > Next

You may select any place including connected network drives, <u>supported CD and DVD Recorders</u>, or any other devices with removable storage. Several <u>cloud services</u> are also supported.

<u>Images can be replicated</u>, that is, their copies may be saved to one or other different locations.

Click the Options button to specify additional options and parameters, if necessary.

• Image Options panel

Image compression ratio	You may compress the data in the image to save space. Please note that the smaller size you select the more time will be spent to create the image file and vise versa.
Volume size for multi- volume image	You may set this option to Automatic and let Windows decide how to split the image file. This mostly depends on the file system on the destination disk. You may also either explicitly specify the split size, or choose a preset for various devices with removable storage. Select Fixed size for that. For the RDR format, a new partial file of the image will be started when the previous file reaches the specified file size.
Estimated size	Shows the estimated size of the image file. An actual image size depends on how much empty space is on the selected partition and what file types are there.
Password protection	You may protect your image file with a password. <b>Note:</b> If you leave the Encrypt image option clear this feature will provide a relatively moderate protection against conventional unauthorized access. If this option is selected, <b>R-Drive Image</b> will encrypt the image using the AES-XTS algorithm.
Image description	You may attach a text description to the image for annotation. Maximum length of the description is 255 characters.
Validate image when completed	Select this option if your want <b>R-Drive Image</b> to check the newly created file image for its consistency. This may be useful for storing image files with critical data. Please note that this operation requires additional time.
Shutdown computer when completedIf this checkbox is selected, R-Drive Image will shut your compute completed the task.	

# • Notifications Options panel

# Notifications options

# Execute on

You may specify the applications of the \*.com, \*.exe, and \*.pif types, and their parameters delimited by a space.

# **Mail Notification**

If a personal firewall is installed on your computer, you should allow the r-driveimagecl.exe application to get access to the e-mail server.

# Test mail account

Click this button to test whether you entered the correct mail settings.

# • Backup Options panel

# Backup Options

Snapshot provider	A snapshot provider is a service R-Drive Image uses to read the disk content
	while creating its image. R-Drive Image uses the snapshot providers in the order
	specified on the tab. If it fails to use the first one selected, it tries to use the second
	one, and so on.
Windows Volume Snapshot Service	If this check box is selected, <b>R-Drive Image</b> will try to use the Windows native snapshot provider. This snapshot provider is able to notify system applications that

	a snapshot is being taken.
	If this option is selected, pagefile.sys and hibernate.sys files are excluded
	from the image of the system disk.
R-TT Volume	If this check box is selected, R-Drive Image will try to use R-TT snapshot
Snapshot Service	provider. This snapshot provider is not able to notify system applications that a
	snapshot is being taken.
Notify system	If this check box is selected, the snapshot provider, if it supports this feature,
applications	notifies system applications that a snapshot is being taken.
Limit I/O rate	Specifies the rate limits for reading/writing data from/to disks
Limit read	The rate limit for reading from the source disk
Limit write	The rate limit for writing to the destination disk
Process priority	These options specify how much computer resources R-Drive Image will
	consume during a backup process.
Backup Process	Specifies the priority of the backup process. Similar to that specified in Windows
Priority	Task Manager.
Use CPU cores	Specifies how many processor cores R-Drive Image will use for the backup
	process.
Ignore disk read errors	If this check box is selected, R-Drive Image will ignore possible read errors
(bad sectors)	when it tries to read data from bad sectors.
	<b>R-Drive Image</b> works with disks with bad sectors in the following way:
	It reads a certain part of disk (predefined by Windows) and
	• If read errors are ignored, the entire part with bad sectors will be filled with
	zeros.
	• If read errors are not ignored, <b>R-Drive Image</b> reads that part sector by sector
	and shows a warning message for every bad sector with two options: skip the
	sector or try to read it again. In this case only the bad sectors will be filled with
	zeros, but all that requires manual actions and extremely slows the imaging
	process.
	Please note that R-Drive Image is developed for the work with normally
	functioning disks. If you need to image a malfunctioning disk, use <b><u>R-Studio</u></b> , a
	data recovery utility. It has more controls for imaging, and can create R-Drive
	Image-compatible images even in its demo mode, that is, without registering.
Backup AUX	R-Drive Image is able to make applications run before and after all backup
applications	operations. Please note that those application should return a 0 exit code. Leave
	these fields blank if in doubt.
Before	An application <b>R-Drive Image</b> starts before the backup operations starts. If you
	need to start several applications, you may use a command file.
	Example:"cmd.exe /c example.bat"
After	An application R-Drive Image starts after the backup operations completes. If
	you need to start several applications, you may use a command file.
	Example:"cmd.exe /c example.bat"
Snapshot AUX applications	R-Drive Image is able to make applications run before and after taking the

	snapshot of one or several volumes. Please note that those application should return a 0 exit code. Leave these fields blank if in doubt.
Before	An application <b>R-Drive Image</b> starts before it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: "cmd.exe /c example.bat"
After	An application <b>R-Drive Image</b> starts after it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: "cmd.exe /c example.bat"

See Creating consistent point-in-time backups for more details.

4 Verify that the information on the Processing panel is correct and click the Start button You may also create a <u>script</u> for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility.

# > R-Drive Image will start creating the image file(s)

The Progress bar will show the progress of the current operation and overall process. When the image is created, the **Image created successfully.** message will appear.

When the operation is over, you may see the results of the operation by clicking the **Open logs** button .

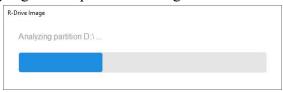
# 2.3 Copy Files to a Folder

**R-Drive Image** can copy individual files to a specified folder. Such copy is differential, that is, **R-Drive Image** compares files in the source and target folders and copies only those files that are new or have been altered.

# To create an image:

# 1 Click Create image from files on the Action Selection panel

**R-Drive Image** will start analyzing the computer disk configuration.



2 Select files you want to include into the Differential copy on the Select files for new image panel and click the Next button

- patterns. Such patterns may include multiple file names, masks, and paths.3 Select a folder to copy files to on the Select destination of new image panel, switch image file format
- to Differential copy to folder, and click the Next button

Select the destination for the new image panel

ain menu	elect the destination for the new image
Desktop     OneDrive - Personal     Tester 1     Tester 1     Desktop     Desktop     Desktop     Downloads     Music     Downloads     Music     Evitures     Wideos     Sup System (C:)     Teste (D)	Existing image details Directory size details Destination free space: 243.7GB Source used space: 883.7MB Source contains 180 file(s)
✓ → Data (D:)     SRECYCLE.BIN     SRECYCLE.BIN     Acer     Backups     BumYourSecrets     CanonMovie	Connect to cloud
	3 Connect to cloud

You may select any place including connected network drives, **supported CD and DVD Recorders**, or any other devices with removable storage. Several <u>cloud services</u> are also supported.

<u>Copied files can be replicated</u>, that is, their copies may be saved to one or other different locations.

Click the Options button to specify additional options and parameters, if necessary.

# Copy options panel

<b>(P</b> Options		×
Copy options	Backup paths:	
copy options	Relative (from E:)	•
Notifications	Copy attributes:	
Backup options	All	
	File copy options	
	Remove files in the destination that have no matching files in the source	
	Also remove excluded from copy files in the destination	
	Compare file contents even for matching files (slow)	
	Shutdown computer when completed	
	Ok	Cancel
<u> </u>		

#### • Copy options

Backup paths	Full: The entire file path starting from the device root will be saved. Relative: The file path will be saved from the topmost selected folder.	
Copy attributes Specifies how file attributes will be copied: All, Remove hidden/sys attributes, Do not copy file attributes.		
File copy options		
Remove files in the destination that have no matching files in the source	If this checkbox is selected, <b>R-Drive Image</b> will delete those files in the destination folder which have been removed/deleted in the source folder(s). Copy filters are also applied. For example, if only jpg files (the *.jpg filter) are to be copied, only jpg files will be deleted.	
Also remove excluded from copy files in the destination	If this checkbox is selected, <b>R-Drive Image</b> will delete all files in the destination folder which have been removed/deleted in the source folder(s), regardless on all copy filters.	
Compare file contents even for matching files	<b>R-Drive Image</b> compares matching files by their size and modification time stamp, and overwrites mismatching files. If this checkbox is selected, <b>R-Drive Image</b> will compare by their content, which severe slows down this operation.	
Shutdown computer when completed	If this checkbox is selected, <b>R-Drive Image</b> will shut your computer down when completed the task.	

• Notifications Options panel

# Notifications options

# Execute on

You may specify the applications of the \*.com, \*.exe, and \*.pif types, and their parameters delimited by a space.

# **Mail Notification**

If a personal firewall is installed on your computer, you should allow the r-driveimagecl.exe application to get access to the e-mail server.

# Test mail account

Click this button to test whether you entered the correct mail settings.

# • Backup Options panel

# Backup Options

Backup Options Snapshot provider	A snapshot provider is a service <b>R-Drive Image</b> uses to read the disk content
	while creating its image. <b>R-Drive Image</b> uses the snapshot providers in the order specified on the tab. If it fails to use the first one selected, it tries to use the second
	one, and so on.
Windows Volume Snapshot Service	If this check box is selected, <b>R-Drive Image</b> will try to use the Windows native snapshot provider. This snapshot provider is able to notify system applications that a snapshot is being taken. If this option is selected, pagefile.sys and hibernate.sys files are excluded
	from the image of the system disk.
R-TT Volume Snapshot Service	If this check box is selected, <b>R-Drive Image</b> will try to use R-TT snapshot provider. This snapshot provider is not able to notify system applications that a snapshot is being taken.
Notify system applications	If this check box is selected, the snapshot provider, if it supports this feature, notifies system applications that a snapshot is being taken.
Limit I/O rate	Specifies the rate limits for reading/writing data from/to disks
Limit read	The rate limit for reading from the source disk
Limit write	The rate limit for writing to the destination disk
Process priority	These options specify how much computer resources <b>R-Drive Image</b> will consume during a backup process.
Backup Process Priority	Specifies the priority of the backup process. Similar to that specified in Windows Task Manager.
Use CPU cores	Specifies how many processor cores <b>R-Drive Image</b> will use for the backup process.
Ignore disk read errors (bad sectors)	If this check box is selected, <b>R-Drive Image</b> will ignore possible read errors when it tries to read data from bad sectors.
	R-Drive Image works with disks with bad sectors in the following way:
	It reads a certain part of disk (predefined by Windows) and
	• If read errors are ignored, the entire part with bad sectors will be filled with zeros.
	• If read errors are not ignored, <b>R-Drive Image</b> reads that part sector by sector

	and shows a warning message for every bad sector with two options: skip the sector or try to read it again. In this case only the bad sectors will be filled with zeros, but all that requires manual actions and extremely slows the imaging process.
	Please note that <b>R-Drive Image</b> is developed for the work with normally functioning disks. If you need to image a malfunctioning disk, use <u>R-Studio</u> , a data recovery utility. It has more controls for imaging, and can create <b>R-Drive Image</b> -compatible images even in its demo mode, that is, without registering.
Backup AUX applications	<b>R-Drive Image</b> is able to make applications run before and after all backup operations. Please note that those application should return a 0 exit code. Leave these fields blank if in doubt.
Before	An application <b>R-Drive Image</b> starts before the backup operations starts. If you need to start several applications, you may use a command file. Example: "cmd.exe /c example.bat"
After	An application <b>R-Drive Image</b> starts after the backup operations completes. If you need to start several applications, you may use a command file. Example: "cmd.exe /c example.bat"
Snapshot AUX applications	<b>R-Drive Image</b> is able to make applications run before and after taking the snapshot of one or several volumes. Please note that those application should return a 0 exit code. Leave these fields blank if in doubt.
Before	An application <b>R-Drive Image</b> starts before it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: "cmd.exe /c example.bat"
After	An application <b>R-Drive Image</b> starts after it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: "cmd.exe /c example.bat"

See Creating consistent point-in-time backups for more details.

4 Verify that the information on the Processing panel is correct and click the Start button You may also create a <u>script</u> for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility.

### > R-Drive Image will start creating the image file(s)

The Progress bar will show the progress of the current operation and overall process. When the image is created, the **Image created successfully.** message will appear.

When the operation is over, you may see the results of the operation by clicking the **Open logs** button .

# 2.4 Restore Data from an Image

**Note:** You may read about <u>Support for Various Disk Partition Schemes and File Systems</u> to learn more about possible options for your specific case.

## We recommend you stop all other programs before you start restoring data on a partition.

**Note:** Go to the **<u>Restoring Data to a System or Other Locked Disk</u> topic if you want to learn how to restore data to <u>system disks</u>.** 

You may restore data from images for entire disk objects or restore only selected files.

### Restoring partitions and entire disks

### To restore data from an image to a disk/partition:

1 Click **Restore Image** on the **Action Selection** panel.

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then **R-Drive Image** will show you the **Choose image file** panel with the disks/folder structure.

2 Select the file with the image on the Choose image file panel and click the Next button In addition to the rdr native file format, **R-Drive Image** support several virtual disk and disk image formats.

Last used images g-drive:/// gmail.com@/G-image.rdr D:\IMAGES\RDIVF_H-image.rdr HDD1-image2rdr HDD1-image2rdr HDD1-image3.rdr Partition1-1_Partition1-3-image2.rdr Partition1-1_Partition1-3-image3.rdr Partition1-1_Partition1-3-image3.rdr Partition1-1_Partition1-3-image3.rdr Partition1-1_Partition1-3-image3.rdr Partition1-1_Partition1-3-image3.rdr Partition1-1_Partition1-3-image3.rdr Partition1-1_Partition1-3-image3.rdr	etails MBR F: (NTFS-Test H: (FAT-1 7.87GB 2.92GB NTFS 2GB FAT1
HDD1:image2.rdr HDD1:image3.rdr HDD1:image3.rdr HDD2:sBa.rdr Partition1:1_Partition1:3-image2.rdr Partition1:1_Partition1:3-image2.rdr Partition1:1_Partition1:3-image3.rdr Partition1:1_Partition1:3-image4.rdr Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1_Partition1:1	
R-Drivelmage-7000.iso	
SoftRAID0.rdr  SoftRAID1.rdr  SoftRAID1.rdr  SoftSpanned.rdr  V	of included archives 021 5:54:21 AM 21 5:42:16 AM
Connect to cloud	21 10:59:26 AM
ile name: Y:\RDI-Images\Partition1-1_Partition1-3-image.rdr	All supported images

When you click the file, you may view its content in the right panel.

### ■ More information...

Objects in Image Files	
	Source: D:VMAGES\RDIVF-im Disk Letter/Label/Disk Size/File System Data on the disk Jate/time: 03-23-2021
Image with one logical disk	MBR 7.02GB E: (NTFS-Test) 2.92GB NTFS WDC WD75AA-00BAA0 10.09K11 Total space 7.02GB Parition table MBR
Image with two logical disks on one hard drive	Source: D:\IMAGES Disk Letter/Label/Disk Size/File System Image date/time: 03-23-2021  MBR 7.02GB E: (NTFS-Test) 2.92GB (Used space 1.53GB) Logical Partition 2.02GB FAT32 2.92GB (Used space 1.53GB)
Image with two logical disks on two hard drives	Source:     D:\IMAGES\RDI\Two-image.rdr     Image date/time:     03-23-2021       Image date/time:     03-23

You may also restore data directly from Windows explorer by right-clicking the required image file with the .rdr extension and selecting **Restore Image** from the shortcut menu.

If you select an image with <u>incremental or differential</u> data backup, **select** the date and time of image creation and click the **Next** button.

lain menu	Refresh	Create Modify	Fs	Delete C	Clear HDD	Wipe	Undo	Option	15
Source: Y	:\RDI-Image	s\Partition1-1_Partition	1-3-image3.rd	Ir	Image	date/time:	06-25-2		1.0.00
	MBR 7.87GB	F: (NTFS-Test) 2.92GB NTFS				: (FAT-TEST GB FAT16	06-24-2 06-25-2 07-02-2	021 08:	54:21
Destinatio	n								
	Drag her	e to restore files							
	MBR 7.87GB	F: (NTFS-Test)		<b>G: (FAT32</b> 2.02GB FAT		H: (FAT- 2GB FAT		- 18 A A	Unalloc 932MB
hip			sti C: (Syste	em Windo	Una V	Vinde 🕻 Win	( * D: (	Data)	Una
	GPT 931.5GB	(Rei         UI         Sys           3001         100         128			1MB 4	50ME 450	638.	5GB NT	1.69
					1MB 4		638.	5GB NT	1.69

If the image file is password-protected, the **Password prompt...** message will appear. Enter the password and click the **OK** button.

3 Select the object in the image file on the **Image Object Selection** panel, select a destination, and click the Next button

R-Drive Imag	je - Restore Ima	age								1		×
Main menu	Refresh	Create	Modify	Format	Delete	Clea	r HDD	(2) Wipe	Undo	Optic		•••
Source: Y	:\RDI-Image	s\Partition1-1_P	artition1	-3-image2	rdr			Image d	ate/time	: 06-25	5-2021	
	MBR 7.87GB	F: (NTFS-Tes 2.92GB NTFS	t)					(FAT-TES B FAT16	iT)			
Destination	n											
	Drag her	re to restore file:	s (									
	MBR 7.87GB	F: (NTFS-Te 2.92GB NTFS				<b>AT32-TE</b> B FAT32	ST)	H: (FA	T-TEST) AT16	•	Unallo 932.8N	
	GPT 931.5GB	(Rei 101 3001 100		ti C: (Sys A 291GB				ind Wi OME 45		(Data) 8.5GB N1		<b>na</b> 691
	MBR 1.81TB	Y: (Backup) 1.81TB exFAT										
<b>H</b> Back				Shov	w/hide disł	s 2	Operatio	on(s)	Kemo	ve all	📫 Ne	ext

Use the **Refresh** button if your computer disk configuration has been changed (when you connect a USB disk, for example).

R-Drive Image may show only those disks that you wand to see.

### To hide/show disks:

1 Click the Show/hide disks button

### Hide/show disks

	MBR 7.87GB	F: (NTFS-Test) 2.92GB NTFS	<b>3: (FAT32-TEST)</b> .02GB FAT32	H: (FAT-TES 2GB FAT16	Unalloo 932MB
	GPT 931.5GB	(Rei UI Sys 3001 100 128	WindcUna524MB1MB	Wind: Win: 450ME 450N	D: (Data) Un: 638.5GB NTF 1.69
i l	MBR 1.81TB	Y: (Backup) 1.81TB exFAT			

2 Clear/select disks you want to hide/show Hide/show disks

<b>~</b>	MBR 7.87GB	F: (NTFS-Test) 2.92GB NTFS	G: (FAT32-1 2.02GB FAT3	10	(FAT-TEST) IB FAT16	Unallo 932MB
	GPT 931.5GB			Una Wind 1MB 450MI	Wind         D: (Data           450MI         638.5GB	
✓	MBR 1.81TB	Y: (Backup) 1.81TB exFAT				

> R-Drive Image will show only those disks that have been selected Hide/show disks

	rag here to restore files							
MBI 7.87	GB 2.92GB NTFS	G: (FAT32-TEST)	H: (FAT-TEST) 2GB FAT16	Unalloc: 932MB				
MBI 1.81	R Y: (Backup) TB 1.81TB exFAT							
Back		Show/hide disks	eration(s) XRemove	all Next				
	ct all objects of	Show/hide disks 0 Ope			e icon.	GF 93	1 ECD	It will show

You may select only one object at a time, and you need to specify the destination to proceed further.

## ■ S.M.A.R.T. warning for a hard drive

If a hard drive has S.M.A.R.T. warnings, a color mark will appear on its left-top corner. Drugging the cursor over the drive will show a tooltip explaining that warning.



Warnings will also appear in confirming e-mails for scheduled actions.

```
! SAMSUNG HM320HJ 2AK10001(298GB #2): Health Status: BAD
```

```
[01] Read Error Rate
```

! =========[S.M.A.R.T.]=============

**<u>S.M.A.R.T.</u>** (Self-Monitoring, Analysis and Reporting Technology) is a technology widely-used in hard drives and solid-state devices that monitors their reliability conditions to predict possible hardware failures.

### More information...

If the chosen destination is smaller than the selected image, **R-Drive Image** will show the **Destination disk is too small** message and you will need to select another destination.

If you select several partitions as the destination, **R-Drive Image** will show the **You have selected several partitions...** message. If you click the **OK** button, all those partitions will be deleted and data will be restored on that <u>free space</u>.

Note: Although R-Drive Image shows unallocated space instead of the deleted partitions, the partitions and their data will be actually deleted only when R-Drive Image starts restoring the data from the image. Selected Object and Destination

Sc	ource: Total Image	Size tion1-1_Partition	1-3-image. Selected Object	t in the Image time: 07-04-2021 13	3:59:26
Ĭ	MBR 7.87GB QUANTUM FIREB	F: (NTFS-Test) 2.92GB NTFS ALL CR8.4A A5U.1200		H: (FAT-TEST) 2GB FAT16	
De	Partition table: MBF				
	Hard Drives Drag	roperties of Image Source Hard Drive	Selected Destination	Partitions/Logical Disks/Unallocated Space	Unalloc:
19 19	7.87GB           GPT           931.5GB	2.92GB NTFS	St. (PA122 2.02GB FAT Str.) C: (Syster Windc) Disk Letter/Capacity/File System	Una Wind Wind D: (Data)	932MB Una
15	MBR 1.81TB	Y: (Backup) 1.81TB exFAT			
				Data modification confirmation	X
				As a result of execution disk(s) will be deleted a Click 'OK' to confirm the o	
R-Drive Image		×		<ul> <li></li></ul>	GB #2)
Target par	tition/volume size is	Ok			
					Ok Cancel

### 5 Specify restore parameters on this panel and click the Next button

You may change create/copy/modify parameters on the **Create partition, Copy partition**, or **Modify partition** panel. Click the **Create / Copy Options / Modify** button, respectively.

### □Create/Copy Partition Parameters

Partitioning The type of partitioning scheme. See <u>Support for Various Disk Partition</u>

scheme	Schemes and File Systems for the list of supported partition types.
Partition type	Primary (Active)/ Primary/Logical You may specify the type of the partition to be restored. Do not change this setting unless you have serious reasons to do so.
File system	You may select the file system for the partition to be restored.
Allocation unit size	It is the size of a disk block, that is, the minimum allocatable disk space. (only on the <b>Create partition</b> panel.)
Volume label	Label of this volume. You can change it.
Drive letter	Select the letter that will be assigned to the partition. You may select "Do not connect" if you do not want to connect this partition to your system. Or "Do not modify" it you do not want to change the drive letter.
Partition size	Minimum/maximum size of the partition to be restored.
Free space before	You may specify the size of free space that will be left on the hard drive before the beginning of the partition.
Partition size	You may specify the size of the partition to be restored. Should be between the minimum and maximum partition size.
Free space after	You may specify the size of free space that will be left on the hard drive after the end of the partition.
	You may visually adjust the location and size of the object to be restored. All other restore options will be adjusted accordingly. Also, when you adjust one or several restore options directly, these changes will be shown visually. Green marks available space. See <u>Support for Various Disk Partition Schemes and File Systems</u> for the list of supported file systems.

Partition layout	MBR	
Partition type	Logical	
File system	FAT16	
Allocation unit size	Default	
Volume label		
Drive letter	Default	
Partition size	from 512B to 932.8MB	
Free space before	176.8MB	
Partition size	560.9MB	
Free space after	195MB	
	)	

Partition layout	MBR	
Partition type	Logical	
File system	Do not format	
Drive letter	F:	7
Partition size	from 1.56GB to 2.92GB	
Free space before	714.8MB	
Partition size	1.56GB	
Free space after	674.4MB	

You may format a disk if necessary. Click the **Format** button and select the format parameters on the **Format partition** panel.

**∃Format partition options** 

File system	You may select the file system for the partition to be <u>formatted</u> .
Allocation unit size	It is the size of a disk block, that is, the minimum allocatable disk space.

Volume label	Label for this volume.				
		Format partition     Following disk will be     F: NTFS-Te     All data on this disk     Filesystem     Allocation unit size     Volume label	est 2.92GB will be erased NTFS 2KB	x and lost!	
			Ok	Cancel	

You may also delete or <u>wipe</u> selected disk object by clicking the **Delete** button. Click the **Clear HDD** or **Wipe** button if you want to delete all object on the hard drive or wipe its data. Go to the <u>Partition Manager</u> help page for more details..

■ To restore data from an image of an entire hard drive to a hard drive:

The Restore/Copy Parameters panel will be different with different sets of options:

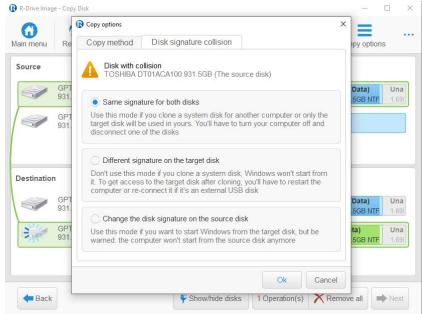
Main menu	Re Copy method	Options	•••
7 Destination M 7 G 9 M M	<ul> <li>Raw disk copy (copy as binary)</li> <li>Copy all partitions onto original places (copy as is)</li> <li>Realign partitions <ul> <li>Fixed active partition</li> <li>Expand/Shrink to fit</li> <li>Fixed active partition</li> </ul> </li> <li>All partitions will be copied to their original places. If the drive's geometry is detected correctly, and there is no non-standard loader, it makes the exact sector-by-sector copy of the original object.</li> </ul>		▼
Back	Ok Cancel	all 🕨 Ne	ext

HDD Copy Method	
Raw disk copy	R-Drive Image writes sector-by-sector the data from the original drive or
	its image to the target one making an exact copy of the original disk
	regardless of its partitioning method. Can be used if other methods create a
	non-bootable disk due to incorrect detection of drive's geometry or non-
	standard loader.
	Drawback: partition sizes cannot be changed.
Copy all partitions	R-Drive Image copies all partitions to their original places. If R-Drive
onto original places	Image detects the drive's geometry correctly, and there is no non-standard
	loader, it makes the same result as during Raw disk copy.
Realign partitions	<b>R-Drive Image</b> will copy the partitions on the disk with a 512KB alignment.
	This is very useful for SSD and advanced-formatted disks. If there are empty

	(non-used) spaces between partitions, those spaces will be removed taking into account the alignment.
Expand/Shrink partition to whole disk	If there are empty (not-used) places between the partitions or they occupy less or more space than the target drive, <b>R-Drive Image</b> proportionally expands/shrinks them to occupy the entire target drive. Otherwise it is similar to Copy all partitions onto original places.
Fixed active partition	R-Drive Image preserves the original offset/size of the active partition (in
	case the loader has links to it).

See Support for Various Disk Partition Schemes and File Systems for details.

When you restore data from an image of a system disk, a disk signature collision may occur. In this case, the **Disk Signature Collision** panel will appear. You may specify the way to resolve this collision on this panel.



Disk Signature Collisio	Disk Signature Collision Resolving					
Same signature for both disk	<b>R-Drive Image</b> will create an identical copy of the source disk with the same signature. To avoid disk signature collision, you'll have to disconnect one of the disks and restart the computer, if necessary. Use this mode if you clone a <u>system disk</u> for another computer or only the target disk will be used in yours.					
Different signature on the target disk.	<b>R-Drive Image</b> will write another disk signature to the target disk. Don't use this mode if you clone a system disk, Windows won't start from it. To get access to the target disk after cloning, you'll have to restart the computer or re-connect it if it's an external USB disk.					
Change the disk signature on the source disk.	<b>R-Drive Image</b> will change the disk signature on the source disk. Use this mode if you want to start Windows from the target disk, but be warned: the computer won't start from the source disk anymore.					

If you try to restore data to a system or other disk locked by the system or other application, the **Disk not locked** message will appear.

opying mode:	VBOX HARDDISK 1.0 Image #1 120GB VBOX HARDDISK 1.0 (120GB #1) Copy all partitions onto original places on: 6 minute(s) 13 second(s)
This data	lock error - Partition X s may happen when you try to access or change a on your system or other already locked disk Retry to lock the disk once again
• 1	so you can choose one of the following options Restart computer (mandatory for system disk) Force system to unlock the disk (not recommended)

- To continue restoring you may:
- If you restore data to your <u>system disk</u>, select Restart computer (recommended) to continue restoring the data in the **R-Drive Image** startup mode. Read carefully the <u>Restoring Data to a System Disk</u> topic before you proceed.
- If you restore data to a disk locked by other low-level disk software (including Windows internal services), stop this software and select Retry to lock the disk once again.
- You may also try to unlock the disk by selecting Force Windows to unlock the disk (not recommended). If Windows fails to unlock the disk, the **Disk not locked** message will appear again. You will need to stop the software locking the disk manually or select Restart computer (recommended) to continue restoring the data in the **R-Drive Image** startup mode.

**Note:** Use this option cautiously, because it may cause unpredictable results including system crash and data loss.

### 6 Verify that the information on the Processing panel is correct and click the Start button

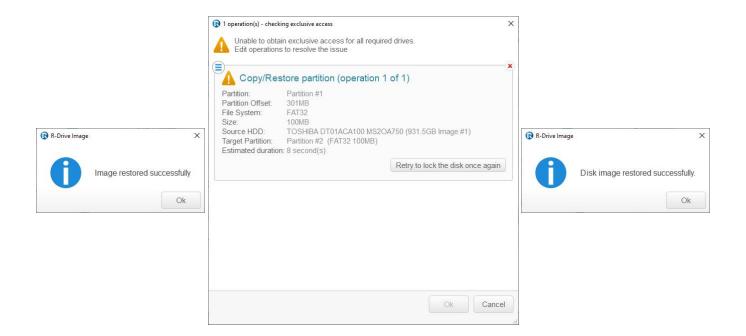
You may also create a <u>script</u> for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility.

### > R-Drive Image will start restoring the data from the image file to the selected destination.

When the image is restored, the Image restored successfully message will appear.

If some other program (like a file manager) is accessing the partition on which the data is to be restored, the **Cannot lock the disk** message will appear. Close this program or make it stop accessing the partition.

If you restore data from an image of an entire hard drive to an entire hard drive, the system may not see the restored partitions until restarted. In this case **R-Drive Image** will show the **Disk image restored successfully.** message. Click the **Yes** button to restart your system.



#### ■ Restoring data from CD-R/RW drives or other devices with removable storage

For the image with the file name filename.rdr, <b>R-Drive Image</b> creates the following disk/file structure:				
Disk	File name			
The first disk	filename1.rdr			
The second disk	filename2.rdr			
The third disk	filename3.rdr			

You should start restoring the data from the last disk.

Each time **R-Drive Image** requires a new disk, the **Insert disk #...** message will appear. Insert the necessary disk and click the **OK** button. Follow the device instructions on how to change its disks. **Note**: At the beginning, **R-Drive Image** may require you to change the first/last disks several times.

#### ■Bad Sectors

When **R-Drive Image** encounters a bad sector, the **IO Error** message will appear. You may either cancel the current action or fill the bad sectors with zeros.

Abort	Click this button to cancel the action					
Retry	Click this button to try to read the bad sectors once again					
Ignore	Click this button to skip this error and fill the bad sectors with zeros					
Ignore All	Click this button to skip all errors and fill the bad sectors with zeros					

### **IO Error Options**

44	R-Drive Image Manual	
	R-Drive Image X	R-Drive Image
	Insert disk =2 and click OK to continue	Error reading image Y:\Images\G-bad.rdr Disk G: inside image is affected Image file is corrupted. Decompression failed. Check system

### Restoring selected files and folders

(See <u>Support for Various Disk Partition Schemes and File Systems</u> for the list of supported file systems)

1 Click **Restore Image** on the **Action Selection** panel

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then **R-Drive Image** will show you the **Choose image file** panel with the disks/folder structure.

## 2 Select the file with the image on the **Choose image file** panel and click the Next button

When you click the file, you may view its content in the right panel.

If you select an image with incremental or differential data backup, **select** the date and time of image creation and click the **Next** button

If the image file is password-protected, the **Password prompt...** message will appear. Enter the password and click the **OK** button.

3 Select the object in the image file on the **Image Object Selection** pane where the files and folders reside, and click the Next button

R-Drive Imag	ge - Restore Im	age						- 0	)
Main menu	Refresh	Create M	F T	rmat Delete	Clear HE	DD Wipe	<b>S</b> Undo	Options	
Source: Y	:\RDI-Image	s\Partition1-1_Pa	rtition1-3-in	nage.rdr	Imag	ge date/time:	06-25-202	21 08:54:2	1 🔻
	MBR 7.87GB	F: (NTFS-Test) 2.92GB NTFS		J		H: (FAT-TE 2GB FAT16	ST)		
Destinatio	n	6							
	Drag he	re to restore files							
I A	MBR 7.87GB	F: (NTFS-Tes 2.92GB NTFS	t)		FAT32-TEST) GB FAT32	H: (FAT 2GB FA		Una 932N	lloc; //B
	GPT 931.5GB	(Rei UI 3001 100			Windc Una 524MB 1MB	Wind: Wi 450ME 450			<b>Una</b> 1.691
	MBR 1.81TB	Y: (Backup) 1.81TB exFAT							
<b>A</b> Back			-	Show/hide di	sks 0 Ope	eration(s)	Kemove a	all 🗭	Next

- ® (F:) 18 files selected - 30MB × Type Size Last modified 0 Name NTFS (NTFS-Test) Volume 2.92GB M Folder 12/8/15 9:48 AM Documents Folder 10/5/18 7:16 PM 5 Files to wipe Folder 4/23/11 6:12 PM > MaxQDA Folder 8/6/12 6:33 PM > V MyPhoto Folder 25.7MB 4/5/11 7:43 PM 🗸 🔳 📕 Photo Folder 4.29MB 4/5/11 7:41 PM 🗌 犠 Picture 001.jpg 1.56MB 4/23/07 10:08 AM File 
   Picture 001 jpg

   Picture 002 jpg

   Picture 003 jpg

   Picture 004 jpg

   Picture 005 jpg

   Picture 005 jpg

   Picture 006 jpg

   Picture 007 jpg

   Picture 007 jpg
   File 1.82MB 4/23/07 10:08 AM File 1.60MB 4/23/07 10:08 AM File 1.55MB 4/23/07 10:08 AM 1.51MB 4/23/07 10:08 AM File File 1.42MB 4/23/07 10:08 AM File 1.48MB 4/23/07 10:08 AM File 1.34MB 4/23/07 10:08 AM Picture 008.jpg Picture 009.jpg Picture 010.jpg Picture 011.jpg Picture 012.jpg Picture 013.jpg Picture 013.jpg Picture 015.jpg File 1.62MB 4/23/07 10:08 AM File 1.78MB 4/23/07 10:08 AM File 1.44MB 4/23/07 10:08 AM 1.85MB 4/23/07 10:08 AM File File 1.69MB 4/23/07 10:08 AM File 1.71MB 4/23/07 10:08 AM File 2.02MB 4/23/07 10:08 AM Output folder: C:\Users\Tester 1\Documents Batch mode Options Ok Cancel
- 4 Mark folders and files to restore on the Select Files to Restore panel, specify the output folder, and click the OK button

You may also specify Options that specifies paths for restored files, control processing of already existing files, and what to do with file attributes.

R Copy options	×			
Copy from:				
Image root path	•			
If file already exists:				
Ask user				
Copy attributes:				
All	•			
	Ok Cancel			
Copy from:	-	py files either with their full path parent folder		
If file already exists:	<b>7</b> 1	ecify <b>R-Drive Image</b> what to do files when they have the same e new ones.		
Copy attributes:	You may specify <b>R-Drive Image</b> what to c with file attributes: Copy all attribute Remove hidden / system attributes, or Do n copy file attributes.			

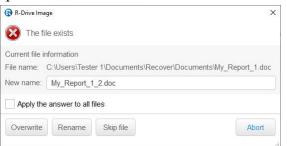
You may search for individual files, use <u>filters</u>, or the <u>Batch mode</u> if you want to include all files of several patterns. Such patterns may include multiple file names, masks, and paths.

	ge - Restore Ima				+					_		
fain menu	Refresh	Create	Modify	Fs	Delete	Clear H	DD Wi	pe Un	ido C	Copy optic	ons	
Source: Y	:\RDI-Images	NPartition1-1_	Partitio	n1-3-image	e.rdr		mage da	te/time:	06-25-	2021 08	:54:21	
	MBR 7.87GB	F: (NTFS-Te 2.92GB NTFS						(FAT-TES B FAT16	T)			
Destinatio	n											
Destinatio												
Destinatio		F: (NTFS-1 2.92GB NTF				• <b>AT32-TE</b> GB FAT32	इन्)	<b>H: (FAT-</b> 2GB FAT	10000	* * *	Unallo 932MB	
Destinatio	MBR		FS II: S	<b>ysti C: (S</b> 28M 291G	\$yster \$ V	B FAT32	na Wir		16 (*) D:	(Data) 8.5GB NT	932MB	
Destinatio	MBR 7.87GB GPT	2.92GB NTF	FS 00 0 12 p)		\$yster \$ V	B FAT32	na Wir	2GB FAT	16 (*) D:		932MB	na
Destinatio	MBR 7.87GB GPT 931.5GB MBR	2.92GB NTF (Re) 300N 10 Y: (Backup	FS 00 0 12 p)		\$yster \$ V	B FAT32	na Wir	2GB FAT	16 (*) D:		932MB	na

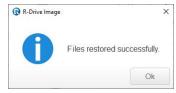
5 Click the Next button to continue file restore on the Image Object Selection panel.

- 6 Verify that the information on the Processing panel is correct and click the Start button You may also create a <u>script</u> for this action. Click the Script to Clipboard button and paste the script to any text-processing utility.
- > R-Drive Image will start restoring the files from the image file to the selected destination.

If the files already exist in the specified folder, **The file exists** message will appear. Click the necessary button to resume the restore operation.



When the image is restored, the Files restored successfully message will appear.



The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain <u>R-Drive Image Contact Information and Technical Support</u>

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# 2.5 Copy a Disk to a Disk

### Attention: All previous data on the destination disk will be completely deleted

To copy an entire disk or its part to another one:

1 Click Copy Disk on the Action Selection panel.

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then the **Object Selection** panel will show the configuration.

■ More information...

		Disk Configuration
	s Hard Drives	Partitions/Logical Disks/Unallocated Space
	GPT 931.5GB	U         Syst         C: (Syster)         Wind         Una         Wind         D: (Data)         Una           300M         Selected Object         B NTF         524M         1MB         450M         638.5GB NT         1.69
	MBR 298GB	E: (Test)-NTFS)         F: (Test2-NTFS)           149.8GB NTFS         148.2GB NTFS
	MBR 298GB	Disk Letter/Disk Size/Used Space/File System/Label Unallocated
You may select all o	objects on a h	hard drive by clicking the hard drive icon. $\overset{\text{GPT}}{\overset{\text{gat.seB}}{\longrightarrow}}$ . It will show the
marked hard drive	7.0700	F: (NTFS-Test)         G: (FAT32-TEST)         H: (FAT-TEST)         Unalloci           2 92GB NTFS         2.02GB FAT32         2GB FAT16         932MB

- marked hard drive.
- 2 Select the disk object on the **Source:** on the **Object Selection** panel, select a destination, and click the Next button

Main menu	Refresh	Create Modify F	ormat Delete Cle	ear HDD Wipe Un	do Copy options
Source					
	GPT 931.5GB	(Rec U U Syst 300M 100N 128M		Una Wind Wind 1MB 450M 450M	D: (Data) Una 638.5GB NT 1.691
	MBR 298GB	E: (Test1-NTFS) 149.8GB NTFS		F: (Test2-NTFS) 148.2GB NTFS	
J.	MBR 298GB				Unallocated 298GB
Destinatio	'n				
	GPT 931.5GB		C: (Syst : Wind 291GB N : 524M	Una         Wind         Wir           1MB         450M         450I	D: (Data)         Una           638.5GB NT         1.691
	MBR 298GB	E: (Test1-NTFS) 149.8GB NTFS		F: (Test2-NTFS) 148.2GB NTFS	* * * *
	MBR 298GB	(Test1-NTFS) 149.8GB NTFS		]	Unallocated 148.2GB

You may select only one object at a time, and you need to specify the destination to proceed further. Use the **Refresh** button if your computer disk configuration has been changed (when you connect a USB disk, for example).

#### More information...

If the destination is smaller than the selected object, **R-Drive Image** won't allow you to select this object and you will need to select another destination.

If you select several partitions as the destination, **R-Drive Image** will show the **You have selected several partitions...** message. If you click the **OK** button, all those partitions will be deleted and data will be restored on that <u>free space</u>.

**Note:** Although **R-Drive Image** shows unallocated space instead of the deleted partitions, the partitions and their data will be actually deleted only when **R-Drive Image** starts copying the data.

Source								
	GPT 931.5GB	(Rec Surel 300M 1 Selected	C: (Syster)			Wind 450M	D: (Data) 638.5GB NT	Una 1.691
	MBR 298GB	E: (Test1-NTFS) 149.8GB NTFS			F: (Test2-NT			
	MBR 298GB				Disk Letter/	Capacity	/File System/L 298GB	abel
De Hard Drives	5			Partitions	/Logical Disk	s/Unalloc	ated Space	
	GPT 931.5GB				MB 450M		D: (Data) 638.5GB NT	Una 1.691
	MBR 298GB	E: (Test1-NTFS)	Destination		F: (Test2-NT) 148.2GB NTFS			:
5	MBR 298GB	(Test1-NTFS) 149.8GB NTFS		:			Unalloc 148.2GE	

#### **Selected Object and Destination**

### S.M.A.R.T. warning for a hard drive

If a hard drive has S.M.A.R.T. warnings, a color mark will appear on its left-top corner. Drugging the cursor over the drive will show a tooltip explaining that warning.



Warnings will also appear in confirming e-mails for scheduled actions.

**<u>S.M.A.R.T.</u>** (Self-Monitoring, Analysis and Reporting Technology) is a technology widely-used in hard drives and solid-state devices that monitors their reliability conditions to predict possible hardware failures.

If you try to copy data to or from a system, or other disk locked by the system or other application, the **Disk not locked** message will appear.

- **■** To continue copying you may:
- If you copy data to or from your system disk, select Restart computer (recommended) to continue restoring the data in the **R-Drive Image** startup mode. Read carefully the **Disk to Disk Copy Using** the Startup Disks topic before you proceed.
- If you copy data to a disk locked by other low-level disk software (including Windows internal services), stop this software and select Retry to lock the disk once again.
- You may also try to unlock the disk by selecting Force Windows to unlock the disk (not recommended). If Windows fails to unlock the disk, the **Disk not locked** message will appear again. You will need to stop the software locking the disk manually or select Restart computer (recommended) to continue copying the data in the **R-Drive Image** startup mode.

Note: Use this option cautiously, because it may cause unpredictable results including system crash and data loss.

 $_{_{\rm 931.5GB}}^{_{\rm GPT}}$  . It will show the You may select all objects on a hard drive by clicking the hard drive icon. G: (FAT32-TEST) H: (FAT-TEST) Unalloca 2GB FAT16

marked hard drive

3 Specify copy parameters on the Restore/Copy Parameters panel and click the Next button

### Restore parameters

You may change create/copy/modify parameters on the Create partition, Copy partition, or Modify partition panel. Click the Create / Copy Options / Modify button, respectively.

■Create/Copy Parti	tion Parameters					
Partitioning	The type of partitioning scheme. See Support for Various Disk Partition					
scheme	Schemes and File Systems for the list of supported partition types.					
Partition type	Primary (Active)/ Primary/Logical You may specify the type of the partition to be restored. Do not change this setting unless you have serious reasons to do so.					
File system	You may select the file system for the partition to be restored.					
Allocation unit	It is the size of a disk block, that is, the minimum allocatable disk space. (only on the					
size	Create partition panel.)					
Volume label	Label of this volume. You can change it.					
Drive letter	Select the letter that will be assigned to the partition. You may select "Do not connect" if you do not want to connect this partition to your system. Or "Do not modify" it you do not want to change the drive letter.					
Partition size	Minimum/maximum size of the partition to be restored.					
Free space before	You may specify the size of free space that will be left on the hard drive before the beginning of the partition.					
Partition size	You may specify the size of the partition to be restored. Should be between the minimum and maximum partition size.					
Free space after	You may specify the size of free space that will be left on the hard drive after the end of the partition.					
	You may visually adjust the location and size of the object to be restored. All other restore options will be adjusted accordingly. Also, when you adjust one or several restore options directly, these changes will be shown visually. Green marks available					

space. See **Support for Various Disk Partition Schemes and File Systems** for the list of supported file systems.

■ To copy data from an entire hard drive to another hard drive:

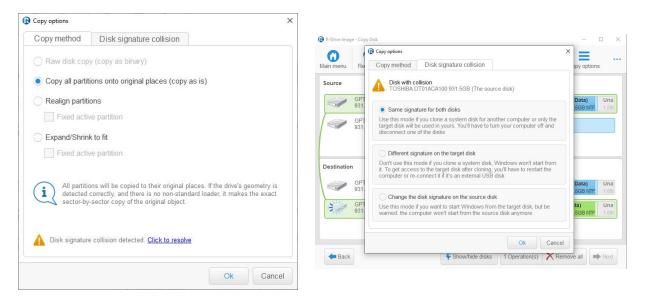
The **Restore/Copy Parameters** panel will be different with different sets of options:

G		Copy options X	E	••
Main menu	Refresh	Copy method	tions	
Source		Raw disk copy (copy as binary)		
	GPT 931.5GB	Copy all partitions onto original places (copy as is)	Una F 1.691	
	MBR 298GB	Realign partitions     Fixed active partition		
	MBR 298GB	Expand/Shrink to fit     Fixed active partition	located B	2
Destination				
	931.5GB	All partitions will be copied to their original places. If the drive's geometry is	F 1.691	1
	MBR 298GB	detected correctly, and there is no non-standard loader, it makes the exact sector-by-sector copy of the original object.	:	1
No.	MBR 298GB		located B	
		Ok Cancel		2

HDD Copy Method					
Raw disk copy	<b>R-Drive Image</b> writes sector-by-sector the data from the original drive or				
	its image to the target one making an exact copy of the original disk				
	regardless of its partitioning method. Can be used if other methods create a				
	non-bootable disk due to incorrect detection of drive's geometry or non-				
	standard loader.				
	Drawback: partition sizes cannot be changed.				
Copy all partitions	R-Drive Image copies all partitions to their original places. If R-Drive				
onto original places	Image detects the drive's geometry correctly, and there is no non-standard				
	loader, it makes the same result as during Raw disk copy.				
Realign partitions	<b>R-Drive Image</b> will copy the partitions on the disk with a 512KB alignment.				
	This is very useful for SSD and advanced- <u>formatted</u> disks. If there are empty				
	(non-used) spaces between partitions, those spaces will be removed taking				
	into account the alignment.				
Expand/Shrink	If there are empty (not-used) places between the partitions or they occupy				
partition to whole	less or more space than the target drive, <b>R-Drive Image</b> proportionally				
disk	expands/shrinks them to occupy the entire target drive. Otherwise it is similar				
	to Copy all partitions onto original places.				
Fixed active partition	R-Drive Image preserves the original offset/size of the active partition (in				
	case the loader has links to it).				
See Support for Var	ious Disk Partition Schemes and File Systems for details.				

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When you copy a system disk, a disk signature collision may occur. In this case, the **Copy options** panel will inform you about this. You may specify the way to resolve this collision on the **Disk Signature Collision** panel.



Disk Signature Collisio	n Resolving
Same signature for both disk	<b>R-Drive Image</b> will create an identical copy of the source disk with the same signature. To avoid disk signature collision, you'll have to disconnect one of the disks and restart the computer, if necessary. Use this mode if you clone a <u>system disk</u> for another computer or only the target disk will be used in yours.
Different signature on the target disk.	<b>R-Drive Image</b> will write another disk signature to the target disk. Don't use this mode if you clone a system disk, Windows won't start from it. To get access to the target disk after cloning, you'll have to restart the computer or re-connect it if it's an external USB disk.
Change the disk signature on the source disk.	<b>R-Drive Image</b> will change the disk signature on the source disk. Use this mode if you want to start Windows from the target disk, but be warned: the computer won't start from the source disk anymore.

4 Verify that the information on the Processing panel is correct and click the Start button You may also create a <u>script</u> for this action. Click the Script to Clipboard button and paste the script to any text-processing utility

> R-Drive Image will start copying the data from the source to the selected destination place.

When the data is copied, the **Object copied successfully** message will appear.

If some other program (like a file manager) is accessing the partition on which the data is to be restored, the **Cannot lock the disk** message will appear. Close this program or make it stop accessing the partition.

If you copy an entire hard drive to another hard drive, two absolutely identical hard drive will appear in your system. That will confuse it and may cause unpredictable results. To prevent that, a **Disk copied successfully** message will appear. You may turn your system off to disconnect one of the disks, or restart it to disable one

of the disk in the BIOS of your system. Under Windows 95/98/Millennium, the target disk will not appear until system restart even if you decide to click the **Cancel** button.





### ■Bad Sectors

When **R-Drive Image** encounters a bad sector, the **IO Error** message will appear. You may either cancel the current action or fill the bad sectors with zeros.

10	Error	Options

Abort	Click this button to cancel the action
Retry	Click this button to try to read the bad sectors once again
Ignore	Click this button to skip this error and fill the bad sectors with zeros
Ignore All	Click this button to skip all errors and fill the bad sectors with zeros

R-Dr	ive Image				$\times$
8	Error reading s The request fa				
		Retry	Ignore	Ignore All	Abort

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

## 2.6 Partition Manager

**R-Drive Image** has a built-in partition manager. It can perform the following disk operations:

 Entire
 An entire hard drive can be cleared or wiped

 hard
 drives:

 Existing
 An existing partition can be modified, formatted, deleted, or wiped

 partitions:
 Unallocate

 Unallocate
 A new partition can be created, or free space can be wiped

 d space:
 Image: Comparison of the space can be wiped

All commands can be invoked either by clicking the respective button on the panel, or by right-clicking the object and selecting the respective menu item.

## Entire hard drive

To convert the drive partitioning scheme (MBR/GPT):

1 Click Partition Manager on the Action Selection panel.

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress.

2 Right-click hard drive and select Convert to GPT/MBR on the shortcut menu.

	Refresh	Create	Modify	FS	Delete	Clear HDD	<b>Wipe</b>	Undo	Options	
_ocal disks										
		Some NTF		B NTFS				Primar 508MB	y Partition NTFS	
9		D: (Test-N								
	Convert	to GPT	_							
	Clear H									
	👲 Wipe di	sk								

- **3** Select another disk action on the Object Selection panel, if necessary. If not, click the Next button
- 4 Verify that the information on the **Processing** panel is correct and click the Start button
- > R-Drive Image will convert the drive to the selected partitioning scheme.

### To clear an entire hard drive:

1 Click Partition Manager on the Action Selection panel.

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress.

2 Select the hard drive and click the Clear HDD button on the **Object Selection** panel.

or right-click the drive and select  $\ensuremath{\text{Clear HDD}}$  in the shortcut menu.

lain menu	Refresh	Create	Modify	Format	Delete	Clear HDD	Wipe	<b>S</b> Undo	Options	••
_ocal disk	s									
		(Systei 50MB NTF		BNTFS			*	Primar 508MB	y Partition NTFS	
	MBR 209GR	D: (Test-N	IFS)							•••
	Convert	to GPT	-							<u> </u>
	The Clear HI									
	👲 Wipe dis	sk	2							

3 Select another disk action on the **Object Selection** panel, if necessary..

R-Drive Imag	e - Partition Ma	inager								
Main menu	Refresh	Create	Modify	Fs Format	Delete	Clear HDD	<b>Wipe</b>	<b>C</b> Undo	Options	••••
Local disks	5									
	MBR 238.4GB	50MB NTF	<b>C:</b> 237.90	B NTFS				Primar 508MB	<b>y Partitic</b> NTFS	'n
	MBR 298GB								Unallo 298GB	ocated
<b>H</b> Back				😤 Sho	w/hide disks	: 1 Operati	on(s)	Remove	e all	Next

If not, click the Next button

- 4 Verify that the information on the **Processing** panel is correct and click the Start button
- > R-Drive Image will remove all objects on the disk.

### To wipe an entire hard drive:

Data wiping is necessary only for files stored on conventional hard drives. Data stored on SSD storage devices cannot be effectively wiped out due to the principles of operation of these devices.

### 1 Click Partition Manager on the Action Selection panel

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress.

- 2 Select the hard drive and click the Wipe button on the Object Selection panel or right-click the drive and select Wipe disk in the shortcut menu.
- 3 Select the necessary wiping algorithm on the Wipe an object panel and click the OK button..

Local disks	😯 Wipe an object X
MBR 238.4GB MBR 298GB	You have selected to wipe the following disk: WDC WD3200BEVT-08A23T1 298GB All existing data on this disk will be overwritten and lost! Are you want to proceed?
	Wiping algorithm         Zeroes (1 pass. Fast)         Pseudo-random (1 pass. Fast)         DOD 5220.22.M (3 passes. Slow. Secure)         DOD 5200.28.STD (7 passes. Very slow. Very secure)         Bruce Schneier (7 passes. Very slow. Very secure)         Peter Gutmann (35 passes. Horribly slow. Military-level secure)
	Ok Cancel

You may read more about wiping algorithms on the **Disk Wiping Algorithms** help page.

- 4 Select another disk action on the **Object Selection** panel, if necessary. If not, click the **Next** button
- 5 Verify that the information on the **Processing** panel is correct and click the Start button
- > R-Drive Image will remove all objects on the disk and wipe it.

### Existing partition

To modify/format/delete/wipe an existing partition:

1 Click Partition Manager on the Action Selection panel

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress.

2 Select the partition and click the Modify/Format//Delete/Wipe button on the **Object Selection** panel and specify the required parameters

Modify panel	Modify parameters
Format panel	Format options
Delete button	Deletes partition
Wipe panel	Wipe algorithms

then click the OK button

- 3 Verify that the information on the **Processing** panel is correct and click the Start button
- > R-Drive Image will perform the specified action.

### Unallocated space

To create a new partition on an allocated space:

1 Click Partition Manager on the Action Selection panel

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress.

- 2 Select the unallocated space, click the Create button on the **Object Selection** panel, and specify the required parameters on the **Create partition** panel, then click the OK button
- 3 Verify that the information on the **Processing** panel is correct and click the Start button
- > R-Drive Image will create a new partition.

### To wipe an unallocated space:

1 Click Partition Manager on the Action Selection panel

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress.

- 2 Select the unallocated space, click the Wipe button on the **Object Selection** panel, and specify the <u>wiping algorithms</u> on the **Wipe partition** panel, then click the OK button
- 3 Verify that the information on the **Processing** panel is correct and click the Start button
- > R-Drive Image will wipe the unallocated space.

# 2.7 Mount an Image as a Virtual Logical Disk

Note: You can mount <u>images</u> only as **read-only** disks. See <u>Support for Various Disk Partition Schemes</u> and File Systems for the list of supported file systems.

To mount an image as a Virtual Logical Disk:

1 Click Mount an Image as a Virtual Logical Disk on the Action Selection panel.

**R-Drive Image** will show you the **Choose image to mount drive(s) from** panel with the disks/folders structure.

2 Select the file with the image on the **Choose image to mount drive(s) from** panel and click the Next button

When you click the file, you may view its content on the right pane.

#### ■ More information...

**Objects in Image Files** 

Image with one logical disk	Source: D:\IMAGES\RDI\F-in Disk Letter/Label/Disk Size/File Data on the disk ate/time: 03-23-21 MBR 7.02GB E: (NTFS-Test) WDC WD75AA-00BAA0 10.09K11 Total space 7.02GB Partition table MBR
Image with two logical disks on one hard drive	Source: D:VIMAGES Disk Letter/Label/Disk Size/File System Image date/time: 03-23-20 MBR 7.02GB E: (NTFS-Test (E) NTFS 2.92GB NTFS 2.92GB NTFS 2.92GB (Used space 1.53GB) Logical Partition
Image with two logical disks on two hard drives	Source:     D:WMAGES/RDI/Two-image.rdr     Image date/time:     03-23-21       Image date/time:
You may select all objects on a hard drive by c	clicking the hard drive icon. GPT 931.5GB G: (FAT32-TEST) G: (

2.02GB FAT32

2GB FAT16

You may also mount the disk from Windows explorer by right-clicking the required image file with the .rdr extension and selecting Mount as Virtual Disk from the shortcut menu.

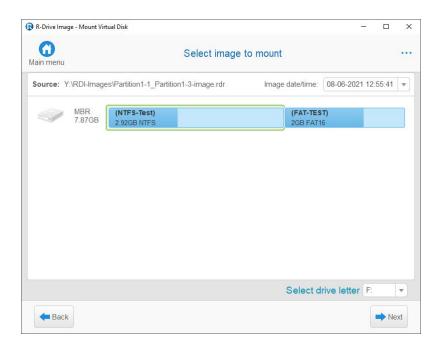
2 92GB NTES

marked hard drive.

If you select an image with incremental or differential data backup, select the date and time of image creation and click the Next button.

If the image file is password-protected, the **Password prompt...** message will appear. Enter the password and click the **OK** button.

Select the object in the image file on the Choose image to mount panel, select a drive letter, and click 3 the Next button



You may select only one object at a time, and you need to specify its drive letter to proceed further.

■ More information...

Total Image Size	Disk Letter/Label/Capacity/ File System	Partitions/Logical Disks/Unallocated Space
MBR 7.02GB 2.92GB WDC WD75AA-00BAA0 10.02		F: 2.02GB FAT32
Total space 7.02GB Partition table MBR	Selected	Object

- 4 Verify that the information on the Processing panel is correct and click the Start button You may also create a <u>script</u> for this action. Click the Script to Clipboard button and paste the script to any text-processing utility
- R-Drive Image will start mounting the selected object as a virtual logical disk. When the disk is mounted, the Virtual disk(s) mounted successfully message will appear.



### Mounting images on devices with removable storage

You cannot mount a split image if its files are stored on separate removable disks. However you can mount such image if you copy all the files into one folder on a hard disk.

**Note:** While **R-Drive Image** is mounting an image, Windows itself may install additional software required to run the virtual logical disks correctly. In this case follow Windows on-screen instructions.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

# 2.8 Unmount Virtual Logical Disks

### To unmount Virtual Logical Disks:

1 Click Unmount Virtual Logical Disks on the Action Selection panel.

R-Drive Image will show you the list of virtual disks on the Choose drive(s) to umount them panel.

Main menu		Select drive(	s) to unmount them	-
Name	~	Туре	Size	Label
<b>∀</b> H:		FAT16	1.99GB	FAT-TEST
G:		FAT32	2.93GB	FAT32-TEST
<b>F</b> :		NTFS	2.92GB	NTFS-Test
Select all	Selec	t none		

■ More information...

#### **Mounted Virtual Logical Disks**

Name	⇒ Туре	Size	Label
K:	FAT16	1.99GB	FAT-TEST
G:	FAT32	2.02GB	FAT32-TEST
<b>F</b> :	NTFS	2.92GB	NTFS-Test

2 Mark the disks on the **Choose drive(s) to umount them** panel and click the Next button *More information...* 

Marked Mounted	Virtual Logical Disks

Name	⇒ Туре	Size	Label
K:	FAT	T16 1.99GB	FAT-TEST
G:	FAT	T32 2.02GB	FAT32-TEST
<b>F</b> :	NT	FS 2.92GB	NTFS-Test

- 3 Verify that the information on the Processing panel is correct and click the Start button You may also create a <u>script</u> for this action. Click the Script to Clipboard button and paste the script to any text-processing utility
- > R-Drive Image will start unmounting the selected virtual logical disks

When the disks are unmounted, the Virtual disk(s) unmounted successfully. message will appear.



The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain <u>R-Drive Image Contact Information and Technical Support</u>

# 2.9 Check an Image File

To check an image file:

More information...

1 Click Check an Image File on the Action Selection panel.

**R-Drive Image** will show you the **Choose image to check integrity** panel with the disks/folder structure.

2 Select the file with the image on the Choose image to check integrity panel and click the Next button When you click the file, you may view its content in the right pane. You may also check either an individual file or all files in the folder/rotation. Files in the subfolder will not be checked.

If there is a split image or a main image file and several <u>incremental/differential</u> ones are selected, **R-Drive Image** will check all image files of the selected image.

Objects in Image Files	
Image with one logical disk	Source: D:\IMAGES\RDI\F-in Disk Letter/Label/Disk Size/File Data on the disk ate/time: 03-23-24 MBR 7.02GB E: (NTFS-Test) 4 ard Drive Properties WDC WD75AA-00BAA0 10.09K11 Total space 7.02GB Partition table MBR Empty space on the disk
Image with two logical disks on one hard drive	Source: D:VMAGES Disk Letter/Label/Disk Size/File System Image date/time: 03-23-20 MBR 7.02GB E: (NTFS-Test) 2.92GB NTFS 2.92GB NTFS 2.92GB (Used space 1.53GB) Logical Partition
Image with two logical disks on two hard drives	Source: D:\IMAGES\RDI\Two-image.rdr Image date/time: 03-23-21

If the image file is password-protected, the **Password prompt...** message will appear. Enter the password and click the **OK** button.

### 3 Verify that the information on the **Processing** panel is correct and click the Start button

You may also create a <u>script</u> for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility

> R-Drive Image will start checking the data in the image file.

When the image is checked, the **Object checked successfully** message will appear if the image file is good. If it is corrupted, **R-Drive Image** will show the **Image corrupted** message.



The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

# III Advanced File Filtering

# 3.1 Filters

Filters can be used if it's necessary to show only files of certain types. For example, the required types are \*.jpg and \*.docx. Then such files can be searched for and marked accordingly. Complex filters can be created using the **Batch mode**.

Note that filters do not mark files, they filter out all other file types making **R-Drive Image** show only files matching the filter(s). File marking affects only those files that are matching the applied filters.

A filter can be specified on the Search window. The example below shows how this filter affects files that **R**-**Drive Image** shows on the **Select files...** panel.

Filter specific	ed	۶d
-----------------	----	----

Sel	ect file	es for	new image			
ain menu						
ame	Туре	Size	Last modified	(	Q	0
✓ □ Documents	Folder					
DOCXFile_500kb.docx	File	340.	*.jpg; *.docx			
easychair.docx	File	2.18		Case-sensitive		-1
file-sample-docx_100kB.docx	File	122.		- Ouse-sensitive		
file-sample-docx_1MB.docx	File	1.01		All dates 📼		
file-sample-docx_500kB.docx	File	565.				
MyDoc1.docx	File	13.5		Y Use a	s filter	
Test_Arch.zip	File	3.39				<u>.</u>
V 🗌 📕 Music	Folder		12/22/21 9:16 PM		. 6	
johnny-cash-cry-cry-cry.mp3	File		4/28/16 9:36 PM			
johnny-cash-san-quentin.mp3	File		4/28/16 9:32 PM			
Johnny_Cash-I_Got_Stripes.mp3	File		4/28/16 9:38 PM			
Johnny_Cash-Man_in_Black.mp3	File		4/28/16 9:29 PM			
Johnny_Cash-THE_GENERAL_LEE.mp3	File		4/28/16 9:22 PM			
johnny_cash_ghost_riders_in_the_sky.mp3	File	3.43MB	4/28/16 9:35 PM			1
V D Photos	Folder		12/22/21 9:16 PM			
MyPhoto6JPG	File		4/29/09 9:54 AM			
MyPhoto7JPG	File		4/29/09 9:55 AM			
MyPhoto8JPG	File		4/29/09 9:55 AM			
MyPhoto9JPG	File	3.36MB	4/29/09 9:56 AM			
> 🗌 🎍 System Volume Information	Folder		11/19/21 9:01 PM			6
Back Batch mode				No files selected	Nex	

After this field has been applied, R-Drive Image will show only \*.jpg and \*.docx files.

### Filter applied

lain menu	Select file	es for	new image			
ame	Туре	Size	Last modified	100 A	0	6
D: (Data, NTFS, 638.5GB)	Volume		*.jpg; *.docx		-	ור
E: (New Volume, NTFS, 232.8GB)	Volume	232.	.jpg, .docx		1	
> A SRECYCLE.BIN	Folder			Case-sensitive		2
Documents     DOCXFile 500kb.docx	Folder	340.			X	
easychair.docx	File	2.18		All dates		
file-sample-docx 100kB.docx	File		10/19/18 6:22 PM			
ile-sample-docx_tookb.docx	File		10/19/18 6:21 PM			- 1
ile sample docx_inibidocx	File		10/19/18 6:23 PM			- 1
MyDoc1.docx	File		10/19/18 7:04 PM			
Music	Folder		12/22/21 9:16 PM			
Y Photos	Folder		12/22/21 9:16 PM			
MyPhoto6JPG	File	1.07MB	4/29/09 9:54 AM			- 1
MyPhoto7JPG	File	842.7KB	4/29/09 9:55 AM			
MyPhoto8JPG	File	997.9KB	4/29/09 9:55 AM			
🗌 🌞 MyPhoto9JPG	File	3.36MB	4/29/09 9:56 AM			
> 🔄 📕 System Volume Information	Folder		11/19/21 9:01 PM			
🛩 🔲 📕 Video	Folder		11/19/21 8:30 PM			
🛩 🔲 📕 Avi	Folder		11/19/21 8:27 PM			
Cops_Season_24_HDTV	Folder		11/19/21 8:28 PM			
🗌 📕 Flv	Folder		11/19/21 8:28 PM			~

Note that folders that contain no \*.jpg or \*.docx files are show as empty.

Applied filters can be edited and saved to load them later.

### Filter being edited

ain menu	Select file	es for	new image			•
ame	Туре	Size	Last modified	100 M	0	
✓ □ Documents	Folder	6			-	٦
DOCXFile_500kb.docx	File	340.	*.jpg; *.docx		B	L
easychair.docx	File	2.18		Case-sensitive		J
🔲 📄 file-sample-docx_100kB.docx	File	122.		Case-sensitive		
file-sample-docx_1MB.docx	File	1.01		All dates 🔻	~	
🔲 📄 file-sample-docx_500kB.docx	File	565.				
MyDoc1.docx	File	13.5MB	10/19/18 7:04 PM			
🗌 📕 Music	Folder		12/22/21 9:16 PM			
Y D Photos	Folder		12/22/21 9:16 PM			
🗌 🏪 MyPhoto6JPG	File	1.07MB	4/29/09 9:54 AM			
🗌 🌞 MyPhoto7.JPG	File	842.7KB	4/29/09 9:55 AM			
🗌 🏪 MyPhoto8JPG	File	997.9KB	4/29/09 9:55 AM			
🗌 🌞 MyPhoto9JPG	File	3.36MB	4/29/09 9:56 AM			
> System Volume Information	Folder		11/19/21 9:01 PM			
✓ □	Folder		11/19/21 8:30 PM			
🗸 🗌 📕 Avi	Folder		11/19/21 8:27 PM			
> Cops_Season_24_HDTV	Folder		11/19/21 8:28 PM			
Elv	Folder		11/19/21 8:28 PM			
🗌 📙 M4V	Folder		11/19/21 8:28 PM			
🗌 📙 Mov	Folder		11/19/21 8:29 PM			
MP4	Folder		11/19/21 8:30 PM			

Folders and their files may be marked/unmarked manually changing folder's marks accordingly. There are four mark types for folders:

<ul> <li>✓ □ Documents</li> <li>□ My.Report_1.doc</li> <li>□ My.Report_2.doc</li> <li>□ My.Report_3.doc</li> <li>□ M. Report_Instructions.doc</li> </ul>	No files or folder matching the selection recursively have been marked in the folder.
✓	No files or folders matching the selection have been found, but they may appear in the future.
<ul> <li>▼ ■ Documents</li> <li>■ My_Report_1.doc</li> <li>▼ ■ My_Report_2.doc</li> <li>▼ ■ My_Report_3.doc</li> <li>■ ■ Report_Instructions.doc</li> </ul>	Some files match the selection and marked in this folder.
<ul> <li>✓ MyPhoto</li> <li>✓ MyPhoto1jpg</li> <li>✓ MyPhoto3jpg</li> <li>✓ MyPhoto3jpg</li> <li>✓ MyPhoto3jpg</li> <li>✓ MyPhoto5jpg</li> <li>✓ MyPhoto5JPG</li> <li>✓ MyPhoto7JPG</li> <li>✓ MyPhoto7JPG</li> </ul>	The folder and all its files and folders recursively match the selection and are marked in this folder.

# 3.2 Batch Mode

Batch mode is a way to apply very complex sets of <u>file filters</u> for automated search for folders and files and marking them for backup or restore. Such sets can be saved for future use and loaded when necessary.

The simple way to specify such a set is to mark all necessary files and folders manually on the **Select Files to Restore** panel and click the **Batch mode** button. Depending whether files or folders are on a disk or in a image, their paths may look slightly different.

Select Files to Restore panel (image)

29 files selected - 283.3MB					
ame	Туре	Size	Last modified		O,
🔳 🥯 FAT32-TEST, FAT32	Volume	2.94GB			
> SRECYCLE.BIN	Folder		3/31/11 11:57 PM		
> 🗌 📙 .fseventsd	Folder		12/5/12 11:50 PM		
> Spotlight-V100	Folder		12/5/12 11:50 PM		
> 🗌 📙 .Trashes	Folder		12/5/12 11:50 PM		
✓ ✓ Eiles to Delete	Folder	208КВ	7/1/05 4:06 AM		
File_2.pst	File	48KB	5/12/06 3:44 AM		
Outlook_recovered_by_R_Mail.pst	File	160KB	5/14/06 8:25 PM		
✓ ■ Files to Recover	Folder	196.9MB	7/1/05 3:50 AM		
🗌 🏪 IMG_6001.JPG	File	640.8KB	5/17/10 9:17 PM		
🔽 🌞 IMG_6002.JPG	File	915.1KB	5/17/10 9:18 PM		
🗌 🌺 IMG_6003.JPG	File	1.12MB	5/17/10 9:18 PM		
V 💽 test1.arc	File	98MB	3/22/05 2:22 AM		
V R test3.arc	File	98MB	3/22/05 2:23 AM		
🔲 🗐 Wipe Test 2.doc	File	22KB	11/17/03 4:13 AM		
Vipe Test 3.doc	File	22KB	11/17/03 4:13 AM		
Wipe Test 6.doc	File	22.5KB	11/17/03 4:14 AM		
V Music	Folder		12/5/12 12:53 AM		
> 🔽 📕 Carl Orff CarminaBurana	Folder	50.8MB	12/5/12 12:53 AM		
> Elton_John	Folder		12/5/12 12:55 AM		
> Manu_Chao	Folder	35.3MB	12/5/12 12:53 AM		
> Ariey	Folder		12/5/12 12:54 AM		
utput folder:     C:\Users\Tester 1\Docum       Batch mode     Options	ents			Ok	Cance
Enter file filter specifications. Wildcards can be used "iles to Delete" "iles to Recover(IMG_6002.JPG" -file "iles to Recover(test1.arc" -file "iles to Recover(test3.arc" -file "iles to Recover(Wipe Test 3.doc" -file fusicCarl Off CarminaBurana" usicWanu_Chao				×	
Save 🗟 Load			Ok	Cancel	

0	- Create image from files					- 0	
Main menu	Sele	ect file	es for	new image			•
Name		Туре	Size	Last modified		0	
🛩 🔳 🥯 E: (Ne	w Volume, NTFS, 232.8GB)	Volume	232.8GB				
> 🗌 📕 SRE	CYCLE.BIN	Folder		11/19/21 8:40 PM			
🛩 🔳 📕 Doc	uments	Folder	12.7MB	11/19/21 8:26 PM			
× 🔽 📕	OpenOffice-files	Folder	9.61MB	11/19/21 8:26 PM			
> 🗸	Calc-files	Folder	485.7KB	11/19/21 8:26 PM			
> 🔽	Microsoft-files	Folder	5.31MB	11/19/21 8:26 PM			
> 🗸	Writer-files	Folder	3.81MB	11/19/21 8:26 PM			
	.DS_Store	File	6KB	4/6/20 11:34 PM			
¥ 🔳 📕	pdf	Folder	3.10MB	11/19/21 8:26 PM			
	file-sample-pdf_100kB.pdf	File	258.8KB	10/19/18 6:31 PM			
	file-sample-pdf_1MB.pdf	File	1.15MB	10/19/18 6:28 PM			
$\checkmark$	file-sample-pdf_500kB.pdf	File	705.5KB	10/19/18 6:30 PM			
	arge_pdf.pdf	File	14.5MB	10/19/18 7:05 PM			
	PDFFile_500kb.pdf	File	1.26MB	10/19/18 6:49 PM			
	easychair.docx	File	2.18MB	6/22/18 6:08 PM			
	Mac_mini_Early2009_UG.pdf	File	3.05MB	6/26/13 3:00 PM			
	Mac_mini_Intel-based_Mid2007_UserGui	File	872.7KB	6/26/13 2:58 PM			
	Mac_mini_Intel_User_Guide.pdf	File	2.16MB	6/26/13 2:56 PM			
	MyDoc1.docx	File	13.5MB	10/19/18 7:04 PM			
	Test_Arch.zip	File	3.39MB	8/9/16 1:43 PM			
> 🗌 📕 Mu	sic	Folder		11/19/21 8:26 PM			
Back	Batch mode				53 files selected 2.33GB	Ne Ne	ext
Enter file filter s	pecifications. Wildcards can be used				×		
:\Documents :\Documents	\OpenOffice-files \pdf\file-sample-pdf_1MB.pdf -file \pdf\file-sample-pdf_500kB.pdf -fil \pdf\PDFFile_500kb.pdf -file (1946) 104 min.Fred Astaire.Bin	le	by.Irvin	g Berlin.Musical.a	vi" -file		

Select Files to Restore panel (image)

Sets are stored in the plain text format (the rdf file extension), and can be composed or edited in the **Batch** window or in any text editor capable of exporting text in this format. Below are the rules that should be followed while writing filter sets.

Every filter set consists of strings each representing a single filter. They are executed in the top to bottom order. If, for example, files are to be marked according to the first string, but unmarked according to the seventh string, they will eventually be unmarked.

Filters can include file names, file paths, and wildcards, like \* and ?. They can also have some keys that modify their impact on the search results. If a path in the filter has a space in it, it should be enclosed in quotation marks.

Switches that modify file filters:

-no	This filter unmarks the folders or files it's applied to. I.g., C:\Photos\*.jpg -no unmarks all jpg files
	in the C:\Photos folder.

-	This filter is applied to files. May be shorten to -fino-file negates the filter, making it applied
file	not to files.
-dir	This filter is applied to folders. May be shorten to -dno-dir negates the filter, making it applied
	not to folders
-	This filter is case-sensitive. May be shorten to -cno-case makes the filter case-insensitive.
case	
-	This filter is applied to the current folder, not to its subfolders. May be shorten to -1no-local
loca	negates the filter making it applied to the folder and its subfolders.
1	
-	This filter is applied to the current folder and its subfolders. May be shorten to -rno-recursive
recu	negates the filter making it applied only to the folder.
rsiv	8 8 11 9
е	
-	The initial date from which files will be marked. It may be either in the form of exact date: -
from	from: 20210101, or relative to the current date: -from:now-3week. Has no effect on folders. May
:	be shorten to -fr.
-to:	The final date to which files will be marked. It may be either in the form of exact date: -
	to:20211201, or relative to the current date: -to:now-1week. Has no effect on folders.

An exact date may be specified as a local time YearMonthDayHour24MinSec, or as a UTC time YearMonthDayHour24MinSecU.

Provided that there's no switches in the filter (i.g., -recursive), a file path in the file filter ending with a path separator is applied to the files in the folder and its subfolders. If not, only to the files in the folder.

The file filter  $D: \forall E \in W$  will be applied to the files in the  $D: \forall E \in V$ .

The file filter D:\Files will be applied to the files in the D:\Files and in its subfolders.

Below is an example of filters recursively applied to files in the D:\Files\Pictures folder and its subfolders.

```
D:\Files\Pictures
D:\Files\Pictures\My_Photo -no
D:\Files\Pictures\My Photo\Home?????.jpg
```

Line 1: All files will be marked in the D:\Files\Pictures folder and its subfolders will be marked.

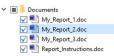
Line 2. All files in the D:\Files\Pictures\My Photo folder will be unmarked.

Line 3: Files named like Home210312.jpg in the folder D:\Files\Pictures\My Photo\ will be marked.

### An importance notice about marking a folder.

If you mark all files in the folder but not the folder itself, its mark will be the following:

### The folder was not marked)

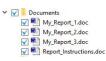


The batch will look like:

Enter file filter specifications. Wildcards can be used	
Oocuments\My_Report_1.doc -file	
ocuments\My_Report_2.doc -file	
Ocuments\My_Report_3.doc -file	
ocuments\Report_Instructions.doc -file	
Pave 🗟 Load	Ok Cancel

And the folder will be restored only if there are marked files/folders in it. If you mark the folder, its mark will be the following:

### The folder was marked)



The batch will look like:

R Enter file filter specifications. Wildcards can be used	×
Documents	
Save 🖡 Load	Ok Cancel

And the folder will always be restored regardless whether there are marked files/folders in it.

# **IV** RAIDs, and Various Disk and Volume Managers

R-Drive Image supports various RAIDs, and Disk/Volume Managers.

- Hardware RAIDs
- <u>BitLocker Drive Encryption</u>
- Windows Software RAIDs, Spanned, and Other Volumes
- <u>Windows Storage Spaces</u>
- Apple RAIDs
- <u>Apple CoreStorage/File Vault/Fusion Drive Volumes</u>
- Linux mdadm RAIDs
- Linux Logical Volume Manager Volumes

The **Disk Actions** chapter explains disk actions such as:

- Create an Image of a partition, logical disk, or entire hard drive
- Create an Image from Files
- Copy Files to a Folder
- Restore Data from an Image
- Copy Disk to Disk to make an exact copy of one disk on another
- Manage partition and logical disks
- Mount an Image as a Virtual Logical Disk (read-only)
- Unmount Virtual Logical Disks
- Check an Image File to check an existing image file

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- <u>Create Startup Disk</u>
- <u>Restoring Data to a System or Other Locked Disk</u>
- Create an Image Using the Startup Disks
- Disk to Disk Copy Using the Startup Disks

The <u>Scheduled Actions</u>, <u>Command Line Operations</u>, <u>and Scripting</u> chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- <u>Scheduler and Unattended Actions</u>
- Scripting and Command Line Operations
- Rotation schemes (backup sets)

The **<u>Technical Information</u>** chapter gives technical information on

- Updates
- <u>Cloud Services</u>
- Image Replications
- Logging
- <u>Creating consistent point-in-time backups</u>
- Support for Various Disk Partition Schemes and File Systems
- Supported Virtual Disk and Disk Image Formats:
- Disk Wiping Algorithms
- Supported CD and DVD Recorders
- List of Hardware Devices Supported in the Startup Mode

The **<u>R-Drive Image OEM kit</u>** chapter explains how computer system integrators can create system recovery disks for their systems

- Create a Master Image
- <u>Create Startup Media</u>

Follow this link to obtain **<u>R-Drive Image Contact Information and Technical Support</u>** 

# 4.1 Hardware RAIDs

R-Drive Image supports hardware RAIDs created by RAID controllers.

# Hardware RAID

BA 0: Marvell 0 - Virtual Disks - Hard_RAID0 - HDD 0: ST380013AS - HDD 1: ST380017AS - Free Physical Disks	Stripe Size RAID Mode	: RAID0 : 152478MB : N∕A	
Help Virtual Disk: A set of dis a range of consecutively m ENTER: Operation F18: EN	numhered logical t	ed to an operating environment blocks with disk-like storage. sturn	► as

Actually, **R-Drive Image** treats them as single hard disks.

## Hardware RAID

	age - Create Im	oge							-	C	1 3
🕜 Main n	nenu		Selec	ct disk(s) f	to crea	te ima	age			0	Help 1
ource											
	GPT 931.5GB	(Rec) U 300MI 100		C: (System 291GB NTF	Wind 524ME	Una 1MB	Wind 450ME	Wind 450ME	D: (Data 638.5GB		<b>Una</b> 1.69
	GPT 111.7GB	UEFI Sys		(Images) .5GB NTFS (G	PT)	5	ardware I	RAIDO	]		
	GPT 148.9GB	System Re 15.9MB	served I	E: (Hardwa 148.8GB NTF	re RAIDO FS (GPT)	ht _				Unalle	
						1.		AID0 (E:) N ed space 1			
						1.	48.8GB (Us				
						1.	48.8GB (Us				
						1.	48.8GB (Us				—
						1.	48.8GB (Us				
						1.	48.8GB (Us				

# Data Restore from an Image of a Hardware RAID

You may restore data from an image of a hardware RAID with the limitations described in the <u>Support for</u> <u>Various Disk Partition Schemes and File Systems</u> section.

#### Hardware RAID

🕽 Main m	enu	F	Restore disks/imag	jes		3	Help
ource: F	:\HardwareR	AID0.rdr	C	Selected Hard	ware RAID0	4-07-202	1
Î	GPT 148.9GB	System Reserved 15.9MB	E: (Hardware RAID0) 148 8GB NTFS (GPT)		RAIDO (F-) NITES Used space 24.6GB)	Unallo 1.10MB	
lestinatio	n			GPT		]	
		e to restore files	E (Hardware BAIDO)			Unallo	o. a.t.
	Drag her GPT 148.9GB	e to restore files System Reserved 15.9MB	E: (Hardware RAID0)		*	Unallo 1.10MB	
	GPT	System Reserved 15.9MB	* 148.8GB NTFS (GPT)		₩in : (D 450) 638.5	1.10MB ata)	Una
	GPT 148.9GB GPT	System Reserved 15.9MB (Re : U : Syst 300 : 101 : 128M System Reser : (H	* 148.8GB NTFS (GPT) * C: (Syste * Wind * 291GB NT * 524ME			1.10MB ata)	Una
	GPT 148.9GB GPT 931.5GB GPT	System Reserved 15.9MB (Re : U : Syst 300 : 101 : 128M System Reser : (H	148.8GB NTFS (GPT)     148.8GB NTFS (GPT)     291GB NT     524ME     148.4GB NT	1MB 450ME		1.10MB ata)	

# 4.2 BitLocker Drive Encryption

**BitLocker Drive Encryption**, or **BitLocker**, is a data protection feature introduced by Microsoft since Windows Vista. It implements some hard/software measures to encrypt either USB external flash drives or internal system SSD/HDD devices. You may read more about **BitLocker Drive Encryption** on the <u>Microsoft site</u> or <u>Wikipedia</u>.

There are following encryption methods (protectors in the Microsoft terms) that can be utilized in the **BitLocker** protection:

- A <u>TPM/TPM+PIN</u> chip
- A USB key (a flash drive containing a .bek file)
- A user's password (not to confuse with a user's logon password) / recovery key

These methods can be used either individually or as a combination thereof. If they are used as a combination, knowing the decryption information for only one method is enough to unlock the device.

**R-Drive Image** can unlock devices encrypted with **BitLocker** provided that all the necessary information is known.

# BitLocker ToGo

This is the method used to lock external removable devices. The password or a recovery key is necessary to know to unlock the device. A recovery key may be in the printed form or contained in a file. A name of such a file has the following pattern: BitLocker Recovery Key 600397A9-48AA-4DE4-B775-C71EB130EA1B.txt, where the last characters is the **BitLocker** volume identifier. That file contains the **BitLocker** volume identifier and a recovery key.

R-Drive Image - Copy Disk				<u> </u>	
) 🌣 🕂 🖉		ଛ ຼ   •			•
ource					
External USB device with a BitLocker ToGo	100MB FAT32 16M	BitLocke	tion (where the r ToGo volume esides)	Windows Recov 508MB NTFS	Unall 1.44N
931.5GB	D: (Data) 931.5GB NTFS	~			
MBR 3.75GB	<b>E:</b> 3.75GB				
BitLocker	BitLocker 3.75GB				
			ked BitLocker o volume		
Destination					
GPT 111.7GB	UEFI Sys Sys 100MB FAT3 16M	tem R C: (System B 111.1GB NTF			Unal 1.44N
- Back		Show/hide disks	0 Operation(s)	X Cancel all	Next

Locked BitLocker ToGo volume example

Double-click the locked BitLocker volume and enter its password or recovery key.

BitLocker ToGo volume's password/key



> R-Drive Image will unlock the volume

BitLocker ToGo volume's password/key

I Syste System R Windows Recov Unall
Tage of a contract of the cont
,
ILOCK_CO) 3 FAT32 (BitLocker)
The unlocked BitLocker ToGo volume
GB

# BitLocker System Drive Encryption

This is the method used to lock internal system drives.

Depending on what methods are used, the following information is necessary to know to unlock the drive.

- A recovery key in the printed form or in a file. A name of such a file has the following pattern: BitLocker Recovery Key FDA7B96C-635E-45AA-BE63-00C3DB3771EE.txt, where the last characters is the **BitLocker** volume identifier. That file contains the **BitLocker** volume identifier and a recovery key.
- A password used to start the preboot process. It shouldn't be confused with the password for the user's logon.

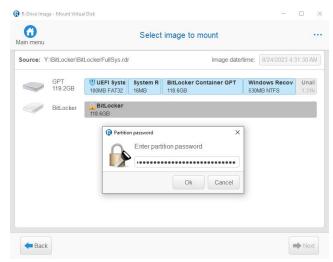
## To unlock a system drive with a BitLocker partition,

## BitLocker System Drive Encryption

R-Drive Image - Mount Virtue     An image with a BitLo     System Drive Encryp     Partition     Source TubitLockerve	Select	t image to mount Hard Drive with BitLocker System Drive Encryption Partition		
GPT 119.2GB	UEFI Syste System R 100MB FAT32 16MB	BitLocker Container GPT 118.6GB		Inali 31N
BitLocker	La BitLocker	ocked BitLocker System live Encryption Partition		
<b>G</b> Back			-	Next

Double-click the locked BitLocker Partition and enter its password or recovery key.

#### **BitLocker System Drive Encryption**



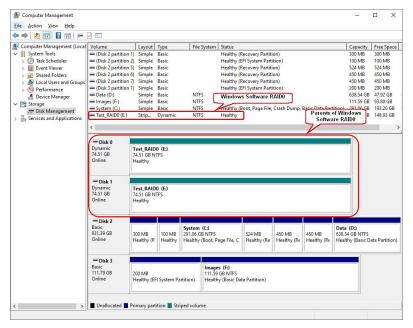
> R-Drive Image will unlock the partition BitLocker System Drive Encryption

An image with a Bit System Drive Encry Partition	rption	t image to mount Hard Drive with BitLocker System Drive Encryption Partition		
<u> </u>	IBILLOCKErFullSys.rdr	$\mathcal{V}$	time: 8/24/2023 4:3	
GPT 119.2GB	UEFI Syste System R 100MB FAT32 16MB	BitLocker Container GPT 118.6GB	Windows Recov 530MB NTFS	Unall 1.31N
BitLocke	BitLocker 118.6GB NTFS			
	Un Di	locked BitLocker System ive Encryption Partition		

# 4.3 Windows Software RAIDs, Mirrors, and Spanned Volumes

**R-Drive Image** supports Windows software RAIDs, mirrors, and spanned volumes. Such objects can be managed using the **Disk Management** item in **Computer management**.

#### Windows software RAID0



#### Windows software mirror

🕌 Computer Management										- [	×
Eile Action View Help											
🗢 🏟 🖄 📰 🔛 🖾											
E Computer Management (Local	Volume	Layout	Туре	File System	Status	- 111			Capacity	Free Space	e % Free
✓	(Disk 2 partition	) Simple	Basic		Healthy (Recover	ry Partition)			300 MB	300 MB	100 %
> 🕑 Task Scheduler	- (Disk 2 partition				Healthy (EFI Syst				100 MB	100 MB	100 %
> 🛃 Event Viewer	= (Disk 2 partition				Healthy (Recover				524 MB	524 MB	100 %
> 👔 Shared Folders	🚍 (Disk 2 partition				Healthy (Recover				450 MB	450 MB	100 %
> 🜆 Local Users and Groups	- (Disk 2 partition				Healthy (Recover				450 MB	450 MB	100 %
> (N) Performance	= (Disk 3 partition				Healthy (EFI Syste				200 MB	200 MB	100 %
🛔 Device Manager	- Data (D:)	Simple		Wind	ows Software RA	MD1			638.54 GB		8 %
✓ Storage	= Images (F:)	Simple				tion)			111.59 GB		68 %
T Disk Management	- System (C:)	Simple		NTS	Healthy (Boot, Pa	age File, Crast	Parents of V		291.06 GB		
> Services and Applications	🖛 Test RAID1 (E:)	Mirror	Dynamic	NTFS	Healthy	L	Software	RAID1	74.51 GB	56.38 GB	76 %
	1						$\overline{v}$				
							<i>A</i>		_		
	Disk 0									)	
	Dynamic	Test RAID									
	74.51 GB Online	74.51 GB N	ITES								
	Unline	Healthy									
									_		
	Disk 1  Dynamic								_		
	74.51 GB	Test RAID 74.51 GB N									
	Online	Healthy	TIFS								
	C.I.I.I.C	riealuriy									
	N									)	
	= Disk 2		1	1		Ú.	1				
	Basic	. 77/7/7/	a (	System	(6)		1		Data (		
	931.39 GB	300 MB	100 MB			524 MB	450 MB	450 MB		GB NTES	
	Online	Healthy (R			Boot, Page File, Cr	Healthy (Rei		Healthy (R		(Basic Data	Partition)
		///////	lincolony	ricolony	(book, rugerne, er	ricolity (rici	ricoliny (ne	ricolony (ii	c ricolary	(busic but	i i unanoni,
		Challed a had a had	4 <u>.</u>								
	- Disk 3										
	Basic	(*************************************			Images (F:)						
	111.79 GB	200 MB			111.59 GB NTFS						
	Online	Healthy (E	FI System P	artition)	Healthy (Basic Dat	ta Partition)					
			1								
< >	Unallocated	Primary par	tition 📕 M	irrored volu	me						

Windows software spanned volume

Þ 🔿 🖄 🔝 📓 📰 🖾 🖟 Computer Management (Local	Values	Layout	Туре	File System	Status			Capacity	Free Spac
System Tools	(Disk 2 partition 1)	Simple	Basic	File System	Healthy (Recovery Par	ition)		300 MB	300 MB
> (P) Task Scheduler	- (Disk 2 partition 2)	Simple	Basic		Healthy (EFI System Pa			100 MB	100 MB
> III Event Viewer	= (Disk 2 partition 5)	Simple	Basic		Healthy (Recovery Par			524 MB	524 MB
> a Shared Folders	- (Disk 2 partition 6)	Simple	Basic		Healthy (Recovery Par			450 MB	450 MB
> A Local Users and Groups	= (Disk 2 partition 7)	Simple	Basic		Healthy (Recovery Par	tition)		450 MB	450 MB
> N Performance	- (Disk 3 partition 1)	Simple	Basic	C Wi	indows Software Sp	anned		200 MB	200 MB
- Device Manager	- Data (D:)	Simple	Basic	NTFS	Volume	unicu		638.54 GB	47.91 GB
Storage	- Images (F:)	Simple	Basic	NTES 7	contry (Basic Data Pa	rtition)		111.59 GB	58.42 GB
T Disk Management	System (C:)	Simple	Basic	NTES	Healthy (Boot, Page Fi	le, Cr Paren	ts of Window	06 GB	193.16 G
Services and Applications	- Test Spanned Volume (I	:) Spanned	Dynamic	NTFS	Healthy	Software	Spanned Vol	ume D3 GB	130.89 G
	- Disk 0					V			
	Dynamic Test 9	<b>panned Vol</b> 5B NTFS 19	ume (E:)			V			
	Dynamic 74.51 GB Online Disk 1 Dynamic Test 5 74.51 Healti	B NTFS y panned Vol 58 NTFS							
	Dynamic 74.51 GB Online Disk 1 Dynamic 74.51 GB Online Test 5 74.51 Dynamic 74.51 GB Online Disk 2	B NTFS y panned Vol 58 NTFS	ume (E:)			V			
	Dynamic 74.51 GB Online Disk 1 Dynamic 74.51 GB Test 1 Test 2 74.51 Online Test 2 74.51 Online	B NTFS y panned Vol B NTFS y	ume (E:)	tem (C:)	524 MB	450 MR	450 MR	Data (D2)	TEC

# Windows Software RAIDs, Mirrors, and Spanned Volumes Imaging

R-Drive Image displays those objects similar to their representation in the Windows Disk Manager.

# Windows software RAID0

🕜 Main r	menu	Sele	tet disk(s) to create image Selected Windows Software RAID0
ource			V
	LDM 74.5GB	System Reserved I 14.9MB	E: (Test_RAID0) 74.5GB NTFS (Dynamic Volume) Test RAID0 (E) NTFS
	LDM 74.5GB	System Reserved I 14.9MB	E: (Test_RAID0) 74.5GB NTFS (Dynamic Volume)
	GPT 931.5GB	(Rec) U Syst 300MI 100N 128N	
	GPT 111.7GB		(Images) 1.5GB NTFS (GPT)

#### Windows software mirror

🕜 Main m	nenu	Sele	ct disk(s) to cre	Selected Win	dows Softwa ID1	ire	Help
Source				V			
a de la compañía de l	LDM 74.5GB	System Reserved 14.9MB	E: (Test RAID1) 74.5GB NTFS (Dyna		st RAID1 (E:) N	1.08	llocate MB
	LDM 74.5GB	System Reserved 14.9MB	E: (Test RAID1) 74.5GB NTFS (Dyna	74	st KAIDT (E:) N I.5GB (Used sp ynamic Volum	ace 18.1GB) Ina	llocate MB
	GPT 931.5GB	(Rec: U U Syst 300MI 100N 128N	C: (Systen Wind 291GB NTF 524M			D: (Data) 638.5GB NTF	<b>Una</b> 1.691
	GPT 111.7GB		(Images) 1.5GB NTFS (GPT)				

#### Windows software spanned volume

🕜 Main r	menu	Sele	ect disk(s) to create image
ource			Spanned Volume
	LDM 74.5GB	System Reserved 14.9MB	E: (Test Spanned Volume) 74.5GB NTFS (Dynamic Volume) Test Spanned Volume (): NTFS
	LDM 74.5GB	System Reserved 14.9MB	E: (Test Spanned Volume) 74 5GB NTFS (Dynamic Volume)
	GPT 931.5GB	(Rec) U Syst 300MI 100N 128N	
	GPT 111.7GB		: (Images) 11.5GB NTFS (GPT)

When you select one parent of a Windows software RAID, mirror, or spanned volume, **R-Drive Image** selects the entire object.

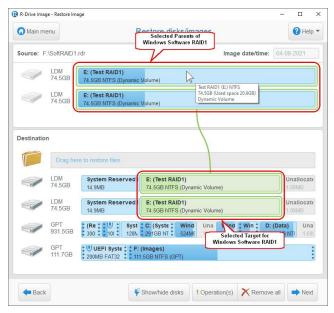
## Data Restore from an Image of a Software RAID, Mirror, and Spanned Volume

You may restore data from an image of a Windows software RAID, mirror, and spanned volume with the limitations described in the **Support for Various Disk Partition Schemes and File Systems** section.

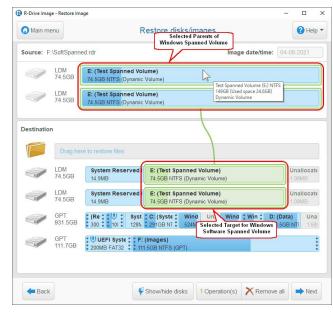
#### Windows software RAID0

🕜 Main m	enu	Restore di S Win	elected Parents of dows Software RA	ID0	Help
Source: F	:\SoftRAID0	dr		Image date/time:	04-07-2021
	LDM 74.5GB	E: (Test_RAID0) 74.5GB NTFS (Dynamic Volume)	Test_RAID0 (E:) 149GB (Used sp		
	LDM 74.5GB	E: (Test_RAID0) 74.5GB NTFS (Dynamic Volume)	Dynamic Volur		
estinatio	n				
	LDM 74.5GB	System Reserved E: (Test_R 14.9MB 74.5GB NTF	AID0) <sup>-</sup> S (Dynamic Volum	e)	Unallocate 1.08MB
		14.9MB 74.5GB NTF System Reserved E: (Test_R	S (Dynamic Volum		
	74.5GB	14.9MB 74.5GB NTF System Reserved E: (Test_R	S (Dynamic Volum AIDO) S (Dynamic Volum Wind Una 524M 1M	e) With Wir D: (D Selected Target for	1.08MB Unallocati 1.08MB (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08
	74.5GB LDM 74.5GB GPT	14.9MB         74.5GB NTF           System Reserved         E: (Test_R 74.5GB NTF           14.9MB         74.5GB NTF           : (Re :: U :: Syst :: C: (Syst ::	S (Dynamic Volum AIDO) S (Dynamic Volum Wind Una 524M 1M	e) Wint: Win: D: (D	1.08MB Unallocati 1.08MB (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08MB) (1.08

#### Windows software mirror



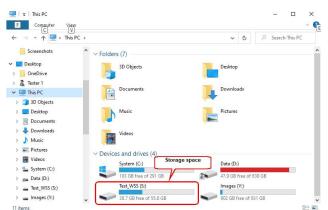
#### Windows software spanned volume



# 4.4 Windows Storage Spaces

**R-Drive Image** supports Windows Storage Spaces created by Windows 8/8.1 and Windows 10/Threshold 2/Anniversary/Fall Creators updates. Storage pools and spaces is a new storage technology, first introduced in Windows 8 and Windows Server 2012, that allows the user to combine various (not always similar) hard drives into a kind of a RAID or compound volume. First, the hard drives are combined into a storage pool, then several storage spaces with striping (similar to RAID0), mirroring (similar to RAID1), and parity (similar to RAID5) can be created in that storage pool. You may read more about storage pools and spaces in the Microsoft's <u>Storage</u> <u>Spaces: FAQ</u>.

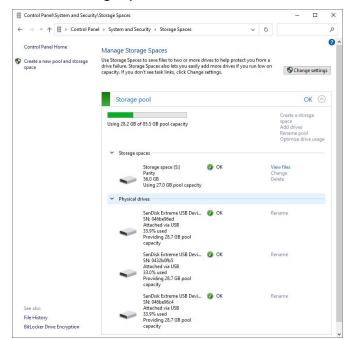
When drives from a storage pool are connected to a Windows computer, it automatically detects them and assembles storage spaces accordingly.



#### Windows storage spaces

Storage pools and spaces can be managed using the Storage Spaces item in the Control Panel.

#### Windows storage spaces



R-Drive Image can image Windows Storage Spaces and then restore data to them with some restrictions.

## Windows Storage Space Imaging

R-Drive Image displays both Windows Storage Spaces and their parents on the Partition Selection panel.

Main menu	Select disk(s) to create image
Source	
GPT 931.50	BB         U U         Syst         C: (Systen         Wind:         Una         Wind:         D: (Data)         Una           300Mil         100N         128N         291/52 NTE         524ME         1MB         450ME         450ME         638.5GB NTF         1.69
GPT 931.50	System Rese Storage Space Unallocate
GPT 29.2GI	System Reserv WSS Protective Partition GPT 120MB 29GB
GPT 29.2GI	System Resen WSS Protective Partition GPT 120MB 29GB
GPT 29.2GI	System Resen WSS Protective Partition GPT 128MB 29GB
GPT 56GB	System Reserv         (Test_WSS)           128MB         55.80B NTFS (GPT)           155.80B VIEW         55.60B (Used space 17.108)
	GPT
ſ	Selected Windows Storage Space
- Back	2 Disks

#### Windows storage spaces

When you select a certain Windows Storage Space, R-Drive Image also shows its respective parents.

## Data Restore from an Image of a Windows Storage Space

You may restore data from an image of a Windows Storage Space with the limitations described in the **Support** for Various Disk Partition Schemes and File Systems section.

#### Windows storage spaces

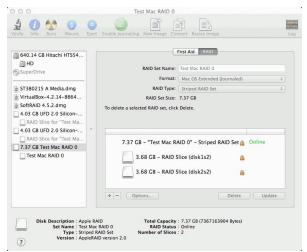
Main m	enu	Restore disks/images
ource: Y	:\WSS-imag	ge.rdr Image date/time: 04-03-2021
	GPT 56GB	System Reserv (Test_WSS) 128MB 55 8GB NTFS (GPT)
estinatio	n	
	Drag he	ere to restore files
	GPT 931.5GB	(Re         U         Syst         C. (Syste         Wind         Una         Wind         Win         D: (Data)         Una           300         101         128N         291GB NT         524ME         1MB         450ME         450         638 5GB NT         1.63
	GPT 931.5GB	System Reserver Y: (Images) 15.9MB 93114GB NTFS (GPT) 16.9MB
Q:	GPT 29.2GB	System Reser WSS Protective Partition GPT 128MB 29GB
	GPT 29.2GB	System Reser WSS Protective Partition GPT 128MB 29GB
Si)	GPT 29.2GB	System Reser         WSS Protective Partition GPT           128MB         29GB
	10000	System Reser (Test_WSS)
	GPT 56GB	128MB \$55.8GB NTFS (GPT)
		128MB 55.8GB NTFS (GPT)

Please, note that **R-Drive Image** can restore data only to fixed-provisional Windows Storage Spaces if the Windows version doesn't support Windows Storage Spaces. The startup version of **R-Drive Image** can restore data only to fixed-provisional Windows Storage Spaces, too. You may read more about thin-provisioned or fixed Windows Storage Spaces in <u>Microsoft's Storage Spaces Overview</u>.

# 4.5 Apple RAIDs

**R-Drive Image** supports various software RAIDs that OS X can create from disks connected to a Mac computer: RAID1 (Mirror set), RAID0 (Stripe set), and Concatenated disk set.

Apple RAID0 example



# Apple RAIDs Imaging

R-Drive Image displays both Apple RAIDs and their members on the Partition Selection panel.

#### Apple RAID0

K-Drive Ima	ige - Create Imi	age							-	_	
🕜 Main m	nenu		Sele	ect disk(s) f	to crea	te ima	ge			8	Help
Source											
	GPT 931.5GB	(Rec) U L 300MI 1000			Wind 524ME	Una 1MB	Wind 450ME	Wind 450ME	D: (Da 638.5G		<b>Una</b> 1.69
	bers of select Apple RAID0	tem Res	erved	E: (Images) 931.4GB NTFS	(GPT)					Unall 1.69M	ocate B
	GPT 3.75GB	UEFI System 200MB FAT3		(Test Mac RAI 3.43GB HFS+ (I		VD)	Test Mac	RAID 0 HI	S+		oot O! B HFS+
	GPT 3.75GB	UEFI System 200MB FAT3		(Test Mac RAI 3.43GB HFS+ (I		ND)		Used space	e 68.4MB)	(Boot 128ME	OS X HFS+
				[	Selecte	d Apple	RAID0	]			

You may select either the Apple RAID, or its members separately.

# Data Restore from an Image of an Apple RAID

You may restore data from an image of an Apple RAID with the limitations described in the **Support for Various Disk Partition Schemes and File Systems** section.

### Apple RAID0

Main menu			Restore disks/ima	iges	Help
Source: E:W	acOSRAI	D0-image.rdr		Selected Ap	ple RAID0 4-02-2021
	PT 75GB	(Test Mac RAID 3.43GB HFS+ (Mar			
	PT 75GB	(Test Mac RAID 3.43GB HFS+ (Mar			
Members of	f Selected	I Apple RAID0		6.86GB (Used s MacOS RAID	pace 68.4MB)
Destination					
	Drag her	re to restore files			
9	PT 31.5GB	300 10( 1	Syst C: (Syst Wind 281 291GB N 524M	Una Wind Wir 1MB 450M 4501	
	of Selecte Apple RAI	ed Target for D0 eserv 15.9MB	e E: (Images) 931.4GB NTFS (GPT)		Unallocate 1.69MB
-	PT 75GB	200MB FAT32	(Test Mac RAID 0) 3.43GB HFS+ (MacOS RA	ND)	F: (Boot   128MB HF
	PT	UEFI Syster	(Test Mac RAID 0)	JD)	(Boot OS *
			(Test Mac RAID 0)		Boot OS :

# 4.6 Apple CoreStorage/File Vault/Fusion Drive Volumes

The macOS operating system has the following disk management systems:

File Vault, is a disk encrypted utility;

**Fusion Drive** is an Apple's hybrid drive technology;

<u>CoreStorage</u> is a logical volume management system.

**R-Drive Image** supports all these technologies and can unlock their encrypted volumes (hard drives and images).

# Apple CoreStorage/File Vault Volume Imaging

R-Drive Image displays both those volumes and their members on the Partition Selection panel.

# Locked Apple CoreStorage

🕜 Main m	ienu	Select disk(s) to create image	() Help
Source	GPT 931.5GB		(Data) Una 8.5GB NT 1.691
I.	GPT 931.5GB	System Reserve Y: (In Apple Core Storage 931.4	Unallocate 1.69MB
<b>S</b>	GPT 7.68GB	UEFI System E: 200MB FAT32 7.36GB (CoreStorage Protective Partition GPT)	F: (Boot O 128MB HFS
		Locked Apple CoreStorage Protect Volume	
- Baci		O Disks	Next

In the above case, the entire hard drive will be imaged.

You may unlock encrypted volumes and image only them. Click the locked volume and enter the password in the **Unlock encrypted drive** dialog box.



#### Unlocked Apple CoreStorage

🕜 Main m	enu	Select disk(s) to create image	() Help
Source			
	GPT 931.5GB		Oata) Una SGB NT 1.69
I.	GPT 931.5GB	System Reserve         Y: (Images)           15.9MB         931.4GE         Apple Core Storage	Unallocate 1.69MB
Q:	GPT 7.68GB	UEFI System E: 200MB FAT32 7.36GB (CoreStorage Protective Partition GPT)	F: (Boot O 128MB HFS
	CoreStorage	File_Vault)	
		File_Vault HFS+ 7.03GB CoreStorage	
		CoreStorage volume	
- Back		1 Disk	Next

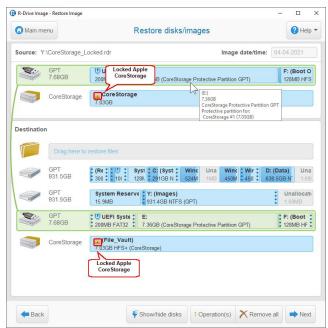
In this case the volume will be image without encryption

# Data Restore from an Image of CoreStorage/File Vault Volumes

You may restore data from an image of an Apple CoreStorage/File Vault volume with the limitations described in the **Support for Various Disk Partition Schemes and File Systems** section.

Data restore from an image of an entire storage device to another storage device.

Apple CoreStorage



In this case the result will be the exact copy of the imaged storage device.

Apple CoreStorage

Data restore from an image of an unencrypted an Apple CoreStorage/File Vault volume device to the place of a locked encrypted volume.

R-Drive Imag	ge - Restore Image					
🕜 Main m	enu	F	Restore disks/i	mages		(?) Help
Source: Y	:\CoreStorage_	Unlocked App Core Storage			Image date/time:	04-04-2021
<b>N</b>		File_Vault) 03GB HFS+ (CoreSto	rage)	7.0	E_Vault HFS+ 3GB (Used space 978.6 reStorage	IMB)
Destinatio	n					
	Drag here to	restore files				
	GPT 931.5GB			Winc Una 524M 1MB		D: (Data) Una 638.5GB N <sup>1</sup> 1.691
	GPT 931.5GB	System Reserv 15.9MB	YE Y: (Images) 931.4GB NTFS (1	GPT)		Unallocate 1.69MB
S:	GPT 7.68GB	200MB FAT32	E: 7.36GB (CoreStora	ge Protective F	Partition GPT)	F: (Boot 128MB HF
	CoreStorage	File_Vault) 7.03GB HFS+ (Co Locked Apple Core Storage	oreStorage)			
		<b></b>				

In this case the result will be an unencrypted volume on the place of the previous encrypted volume.

Data restore from an image of an unencrypted Apple CoreStorage/File Vault volume device to the place of an unlocked encrypted volume.

R-Drive Image - Restore Image × 🕜 Main menu 🕜 Help 🔻 Restore disks/images Unlocked Apple CoreStorage Image date/time: 04-04-2021 Source: Y:\CoreStorage Unlog S: GPT 7.68GB (File\_Vault) 7.03GB HFS+ (CoreStorage File\_Vault HFS+ 7.03GB (Used space 978.6MB) Destination T GPT 931.5GB (Re: U: Syst C: (Syst Win 300 10( 1281 291GB N 5241 Una D: (Data) Una Sil. Unallocate GPT 931.5GB System Reserve Y: (Images) 15.9MB 931.4GB NTFS (GPT) UEFI Syste E: 200MB FAT32 7.36GB (CoreStorage Procective Partition GPT) F: (Boot 128MB HF "Li GPT 7.68GB File\_Vault) and a CoreStorage Inlocked Apple CoreStorage Show/hide disks 1 Operation(s) Remove all Next de Back

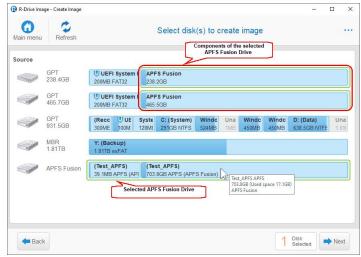
In this case the result will be an encrypted volume on the place of the previous encrypted volume.

Apple CoreStorage

# Apple Fusion Drive Imaging

R-Drive Image displays both this volume and its members on the Partition Selection panel.

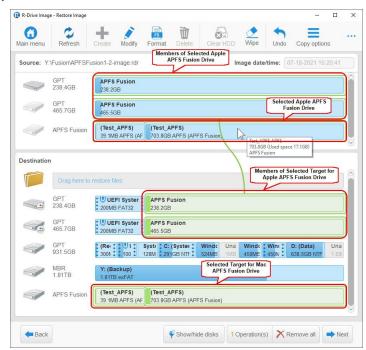
# Apple Fusion Drive



When you select a certain Fusion drive, R-Drive Image also shows its respective components.

# Data Restore from an Image of Apple Fusion Drive Volumes

You may restore data from an image of an Apple Fusion Drive volume with the limitations described in the **Support for Various Disk Partition Schemes and File Systems** section.



## Apple Fusion Drive

# 4.7 Linux mdadm RAIDs

mdadm is a Linux utility used to manage and monitor software RAID devices.

**R-Drive Image** supports such devices and when drives from a mdadm RAID are connected to a Windows computer, it automatically detects them and assembles mdadm RAIDs accordingly.

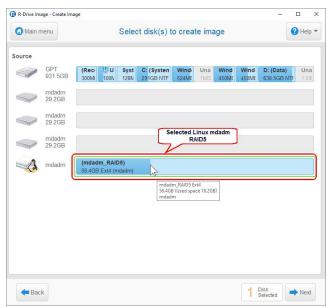
#### Linux mdadm RAIDs



# mdadm RAIDs Volume Imaging

R-Drive Image displays both mdadm RAIDs and their components on the Partition Selection panel.

## Linux mdadm RAID5



# Data Restore from an Image of a mdadm RAIDs Volume

You may restore data from an image of a mdadm RAIDs with the limitations described in the <u>Support for</u> <u>Various Disk Partition Schemes and File Systems</u> section.

#### Linux mdadm RAID5

	nu	Restore disks/ima	ages 🕜 Help
Source: D:	VMAGES\R	DI\mdadm5.rdr	Image date/time: 04-09-2021
	mdadm 29.2GB		
	mdadm 29.2GB		
	mdadm 29.2GB		nux mdadm ID5
1	mdadm	(mdadm_RAID5) 58.4GB Ext4 (mdadm)	<u>A</u>
			mdadm_RAID5 Ext4 58.4GB (Used space 18.2GB) mdadm
			Indum
Destination			
Destination		e to restore files	
Destination		e to restore files (Re U Syst C: (Syste Wind 300 101 128h 281GB NT 524ME	
Destination	Drag her GPT	(Re: Wind	
Destination	Drag her GPT 931.5GB mdadm	(Re : U : Syst C (Syste : Wind 300 : 101 : 128h 291GB NT 524ME	
Destination	Drag her GPT 931.5GB mdadm 29.2GB mdadm	(Re: Wind	
Destination	Drag her 931.5GB mdadm 29.2GB mdadm 29.2GB mdadm	(Re U Syst C (Syste Wind 300 101 128) 281GB NT 524Mt	

# 4.8 Linux Logical Volume Manager Volumes

Linux LVM is a logical volume manager for the Linux OS that manages disk drives and other data storage devices. Using it, It is possible to create single logical volumes on several physical disks, add and replace them in a running system, resize logical volumes, create various RAID configuration, and so on. You may read more about Linux LVM on this Wikipedia article: Logical Volume Manager (Linux).

#### LVM volume example

88

				kvpm	(as superus	er)						
ile <u>V</u> olume Grou	ps <u>T</u> ools	Settings	Help									
Storage Devices	Group:	LVM_Test										
New volume N	ew pool		ie i Delete i	Rename	Snapshot		apshot Mer	ge Redu	ice logical v	volume I	Extend >	
Total: 7.5 GiB Allocatable: 0 B	Used: 7 Free: 0		Clustered: No Format: lvm2		size: 4.0 MiB normal		able: Yes 2 Used: 2	UUID: fi98 PFnH-77D	IEa-UauY-P Y-2EDsdZ	PKa-v07J-	Max pv: Max lvs	
Volume 🔻		Size	Remaining	Data/Cop					LVM_Test	t_Vol		
LVM_Test_Vo	linear	7.5 GiB	0 B (%0)		active		Extents: 1.9 Stripes: 2 o Filesystem: Access: r/w Policy: inhe	f 4.0 KiB ext4	D			
							/media/and	rew/8f434	Mount P fcd-f1e6-4b		15e6b497	563c
							/dev/sdd1 /dev/sdc1	Ρ	hysical Vo	olumes		
∢ Name ▼ S	ize R	emaining	Allocatable	Tags	Logical volu	) mes			/dev/sc	lc1		
/dev/sdc1 3. /dev/sdd1 3.		0 B (%0) 0 B (%0)		S	LVM_Test_V LVM_Test_V	ol	Volume na LVM_Test_' Total exter	Vol	tart 0	End 9	Ext	ents 959
							MDA	Total: 1	1. In u	se: 1	Size: 1,02	20.0 KiB

# LVM volume Imaging

**R-Drive Image** displays both LVM volumes and their components on the **Partition Selection** panel. **LVM Volume** 

Main menu		Sele	ct disk(s) to	o create in	nage			Help
ource	(Rec)	U Syst	C: (System	Wind: Una	Wind	Wind	D: (Data)	Una
931.5GE	300MI 1	00N 128N	291GB NTF	524ME 1ME		450ME	638.5GB NTF	
Components LVM v		eserved	M. (Inc				1100	llocate
	15.9MB		Y: (Images) 931.4GB NTFS (	GPT)			1.69	
K				,			)	
MBR 3.75GB		st-LVM_Tes						
	3.75GB E	α4 (LVM)	Ext	4	_			
MBR		st-LVM_Tes	t Vol) 7.4	9GB (Used space	7.10GB)			
3.75GB	3.75GB Ex	d4 (LVM)	LV	м				
			1					
			Select	ed LVM volum	e			
			L					

When you select a certain LVM volume, **R-Drive Image** also shows its respective members.

# Data Restore from an Image of a LVM volume

You may restore data from an image of a LVM volumes with the limitations described in the <u>Support for</u> <u>Various Disk Partition Schemes and File Systems</u> section.

#### **LVM Volume**

R-Drive Image - Restore Image		- 0
Main menu Components of Se LVM Volume (not se		ages 🛛 🕄 Help
Source: Y:\L o-image.rd		Image date/time: 04-02-2021
	/M_Test-LVM_Test_Vol)	
	7.49GB (U VM_Test-LVM_Test_Vol) 55GB Ext4 (LVM)	sed space 7.10GB)
	Selected LVM Volume	
Destination	Selected LVM Volume	
Drag here to	restore files	
	Re Syst C: (Syste Wind 10 10 128 291GB NT 524ME	Una Wind Win D: (Data) Una
Members of Select LVM Volu		* Unallocate
1.5GB 1	5.9MB 931.4GB NTFS (GPT)	1.69MB
	LVM_Test-LVM_Test_Vol) .75GB Ext4 (LVM)	•
	LVM_Test-LVM_Test_Vol) .75GB Ext4 (LVM)	
		Selected Target for LVM Volume

# V Startup Version

There are three types of the **R-Drive Image** startup mode: WindowsPE-based, Linux-based with the Graphic User Interface (GUI). and Linux-based with the Text User Interface (TUI). The interface of the later is actually pseudo-graphic. The Windows-based and Linux-based GUI types have the same interface as that of the Windows version and its operation is similar. You may refer to the respective help pages for detailed instructions. This chapter describes the operation of the TUI startup version.

This chapter explains how to perform disk actions using the R-Drive Image Startup Version such as:

- <u>Create Startup Disk</u>
- Load Computer into Startup Mode
- <u>Restore Data From an Image</u>
- <u>Create an Image</u>
- Disk to Disk Copy
- Create an Image from Files
- <u>Partition Manager</u>
- Check an Image File
- <u>Network Drives</u>

The **Disk Actions** chapter explains disk actions such as:

- Create an Image of a partition, logical disk, or entire hard drive
- <u>Create an Image from Files</u>
- Copy Files to a Folder
- <u>Restore Data from an Image</u>
- Copy Disk to Disk to make an exact copy of one disk on another
- Manage partition and logical disks
- Mount an Image as a Virtual Logical Disk (read-only)

- <u>Unmount Virtual Logical Disks</u>
- Check an Image File to check an existing image file

The **RAIDs**, and Various Disk and Volume Managers chapter explains how to perform disk actions with various compound volumes such as:

- Hardware RAIDs
- <u>BitLocker Drive Encryption</u>
- Windows Software RAIDs, Spanned, and Other Volumes
- <u>Windows Storage Spaces</u>
- Apple RAIDs
- <u>Apple CoreStorage/File Vault/Fusion Drive Volumes</u>
- Linux mdadm RAIDs
- Linux Logical Volume Manager Volumes

The <u>Scheduled Actions</u>, <u>Command Line Operations</u>, <u>and Scripting</u> chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- <u>Scheduler and Unattended Actions</u>
- <u>Scripting and Command Line Operations</u>
- <u>Rotation schemes (backup sets)</u>

The **Technical Information** chapter gives technical information on

- Creating consistent point-in-time backups
- Support for Various non-MBR/GPT Partitioning Schemes
- Supported CD and DVD Recorders
- List of Hardware Devices Supported in the Startup Mode

The **<u>R-Drive Image OEM kit</u>** chapter explains how computer system integrators can create system recovery disks for their systems

- Create a Master Image
- <u>Create Startup Media</u>

Follow this link to obtain **<u>R-Drive Image Contact Information and Technical Support</u>** 

# 5.1 Create Startup Disks

You need to create a startup CD/DVD disc, or USB removable storage device to restore data to a system or other locked disk. You may also create an ISO image of a startup CD disc and burn it using your favorite CD writing software.

You may create a <u>Linux-based</u> or <u>WinPE</u> based startup disk.

# A Linux-based disk

If there is a non-IDE disk controller in your system, or you plan to use network disks or external hardware devices, first check the <u>list of supported hardware</u>.

If you have problems with starting you computer up from the **R-Drive Image** startup disks, select **configure startup media troubleshooting options**. Then the **Startup Media Troubleshooting Options** panel will appear. You may configure these options to eliminate those problems.

	Bootable media type 👌 L	inux-based 🔻		••
lain menu Na	Startup media troubles	hooting options		-
	Display kernel startup	messages		-
ISO ISO	Trace drivers loading			
	Disables ACPI (Advan	ced Configuration and Powe	r Interface)	
CD/DVI	Disables APIC (Advan	ced Programmable Interrupt	Controller)	
Remov	Disables USB devices	s support		
*	Disables SCSI device	s support		
	Disables PATA device	s support		
	Disables PCMCIA dev	ices support		
	Disables DMA for all II	DE disk drives		
	IRQ polling mode			
() A USB sta space.	Default clocksource			
	PCI BIOS	Default	-	
👌 Select a Li	ACPI OSI	Linux		
ISO file name		Linux		
in the manner	Disable specified drivers			

Those options will help you if you have problems with starting you computer up from the **R-Drive Image** startup disks.

Startup Media Troubleshooting Options

Bootable media type	You may select either a Linux-based or WindowsPE based startup version.
Display kernel startup messages	if this checkbox is enabled, <b>R-Drive Image</b> displays all startup messages. That may be useful to locate the source of the problem when your system hangs during <b>R-Drive Image</b> startup.
Trace drivers loading	Select this checkbox when you want to see loading drivers to find which one may lock the system.
Disables ACPI Disables APIC	Select these checkboxes when your system detects some hardware incorrectly during <b>R-Drive Image startup and displays messages like:</b> hda: lost interrupt
Disables USB devices support	Select these checkbox if your system experiences problems with USB devices during <b>R-Drive Image</b> startup.
Disables SCSI devices support	Select these checkbox if your system experiences problems with SCSI devices during <b>R-Drive Image</b> startup.
Disables PATA devices support	Select these checkbox if your system experiences problems with Parallel ATA devices during <b>R-Drive Image</b> startup.
Disables PCMCIA devices support	Select these checkbox if your system experiences problems with PCMCIA devices during <b>R-Drive Image</b> startup.
Disables DMA for all IDE disk drives	Select these checkbox if your system experiences problems with IDE disks during <b>R-Drive Image</b> startup.

IRQ polling mode	Select this checkbox if <b>R-Drive Image</b> does not recognize a device although it is in the supported device list.
Default clocksource	Select this checkbox to select computer default clocksource.
PCI BIOS	Select an appropriate option if your system experiences problems with computer hardware.
ACPI OSI	An option informing the computer BIOS which OS type is going to start. Default is Linux, but it may cause the computer BIOS to drop support for some computer hardware. Change this option if the startup version cannot recognize some computer hardware, or it malfunctions.
Disable specified drivers	Enter the drivers that may cause system lock. Driver names should be separated by a space or comma.

# To create a startup CD disc:

## Supported CD and DVD Recorders

## 1 Select Create Startup Disks on the Action Selection panel and click the Next button

ain menu		Create Startup Disks	
	Name	Туре	Burn speed
ISO ISO		ISO Image File	
CD/D	VD/BD Drive (E:)	PIONEER DVD-RW DVR-219L 1.00	7056 KB/Sec
Rem	ovable (F:)	7.19GB (WINPE)	
A USB s		7.19GB (WINPE) e already connected, formatted as a FAT/FAT32	 2 disk and have sufficient free
A USB s     space.	startup device must b	e already connected, formatted as a FAT/FAT32	
A USB s     space.	startup device must b		

- 2 Select the CD-recorder in the list of supported startup devices with removable storage on the Create Sturtup Disk panel and click the Next button
- 3 Click the Start button on the **Processing** panel
- > R-Drive Image will start creating the startup CD disc

When you click the Start button, **R-Drive Image** will open the CD-R/RW drive tray and the **Insert a blank CD-R/RW disc...** message will appear. Insert a blank CD-R/RW disc and click the OK button. When **R-Drive Image** finishes creating the startup CD disc, the **Startup disks created successfully** message will appear.

If you mistakenly insert a non-empty CD-R/RW disc, the **CD-R/RW disc is not empty...** message will appear. Change the disc to another empty CD-R/RW disc and click the **OK** button.



## To create an ISO image:

- 1 Select Create Startup Disks on the Action Selection panel and click the Next button
- 2 Select **ISO** on the **Create Sturtup Disk** panel, specify a file name for the ISO image, and click the Next button
- 3 Click the Start button on the **Processing** panel
- > When R-Drive Image finishes writing the file with the ISO image, the Startup disks created successfully message will appear



#### 4 Create the startup CD using your favorite CD creation software

Load the created ISO image into the CD creation software. Consult documentation for the software for details.

## To create a startup USB removable device:

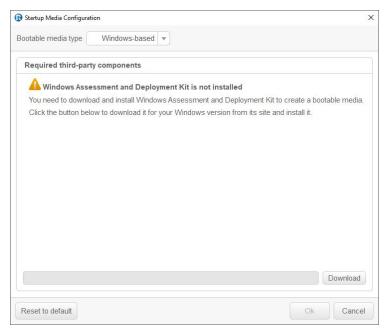
It may be a USB flash disk, ZIP drive, etc. It should be FAT/FAT32 <u>formatted</u> and connected to the computer before selecting **Create Startup Disks** on the **Action Selection** panel. If there is some data on that device, it will not be overwritten.

- 1 Select Create Startup Disks on the Action Selection panel and click the Next button
- 2 Select the required removable device in the list of supported startup devices with removable storage on the **Create Sturtup Disk** panel and click the Next button
- 3 Click the Start button on the **Processing** panel
- > R-Drive Image will start creating the startup USB disc

When **R-Drive Image** finishes creating the startup USB disk, the **Startup disks created successfully** message will appear.

# A WindowsPE-based disk

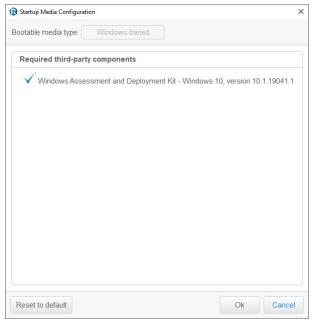
- 1 Select Create Startup Disks on the Action Selection panel and click the Next button.
- 2 Click the Configuration button and select Windows-based in the Bootable media type dropbox. You may need to install additional Windows components.



- 3 Click the Download button and follow the instructions.
- 4 Click the OK button on the message that will appear when the components have been downloaded.



5 Click the OK button on Startup Media Configuration panel,



return to the Create Sturtup Disk, and click the OK button. The Disk Actions chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain <u>R-Drive Image Contact Information and Technical Support</u>

# 5.2 Load Computer into Startup Mode

Sometimes you may need to start your computer into **R-Drive Image** startup mode, for example, to restore data to a <u>system disk</u>.

You may do that through the following methods:

■If you have a Mac computer...

The startup version of **R-Drive Image** can perform basic disk imaging operations for Mac computers. See the <u>Support for Various Disk Partition Schemes and File Systems</u> section for details.

To start a Mac computer with the R-Drive Image startup disk,

1. Insert a CD/DVD disc or connect a USB disk

2. Switch the Mac on.

3. While loading, press the **Option** key on the Mac keyboard (the **Alt** key if you use a non-Apple keyboard).



4. Select the **EFI boot** disk and press **Enter**.



# From the R-Drive Image Graphical User Interface

Note: You cannot use this method if your computer uses <u>UEFI</u> to start up. Use external startup media, like a USB or CD disk instead.

If you try to restart an UEFI computer from the Windows, you'll get a **Cannot prepare to reboot...** message.

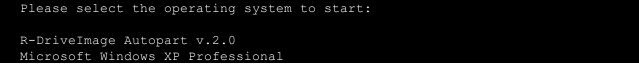


- 1. Select the file with the image, the object in the image file, select the system disk as the destination as it is described in the <u>Restore Data from an Image</u> topic. Do not pay much attention to the image file, as it will be eventually discarded. The only important option at this stage is the image destination. Select the system disk.
- 2. When you click the Next button on the Image Object Selection panel, the Disk not locked message will appear.
- 3. Select **Restart computer (recommended)** and click the **OK** button. The **You are about to restart...** message will appear. Click the **Yes** button. (If you click the **Cancel** button on the **Disk not locked** message, the **Cannot lock the disk** message will appear, and **R-Drive Image** will stay on the **Image Object Selection** panel.)

...

		Edit operation	tain exclusive access tain exclusive access for all requins to resolve the issue	×
R-Drive Image      Restarting      You are about to restart your computer to continue data restoring in the R-Drive Image startup need to repeat the data restoring procedure R-Drive Image could not perform in the Windows We recommend you to read Restoring Data to a System or other Locked Disk Help section be proceed.      PLEASE PAY YOUR ATTENTION! THE LETTERS ASSIGNED TO LOGICAL DI     STARTUP MODE CAN BE DIFFERENT FROM THE LETTERS ASSIGNED IN     OS. A MISTAKE CAN LEAD TO LOGICAL DISK OVERWRITING AND DATA LO Restart now?      Help	mode. efore you ISKS IN WINDOWS	Model: Connected: Size: Target HDD: Copying mode:	VBOX HARDDISK 1.0 Image #1 120GB VBOX HARDDISK 1.0 (120G Copy all partitions onto origin on: 6 minute(s) 13 second(s)	B #1)
				Ok Cancel

You computer will restart. The following text will appear on the screen:



4. Select **R-DriveImage Autopart v.2.0** and press the **Enter** button. You may select **Microsoft Windows XP Professional** to start Windows normally.

## using the R-Drive Image startup USB disk or CD disc

- 1. Make sure that the first startup device in the system BIOS is the required drive. If you are going to use the Linux-based startup disk, disable "Secure boot" in the system BIOS if your computer is certified to run Windows 8 and later. Refer to your system documentation for details. The WindowsPE-based disk doesn't require this step.
- 2. Connect the USB disk or insert the CD disc and start your computer.
- **R-Drive Image** will start in the startup mode.and a startup screen will appear:

Startup Options
R-Drive Image GUI (Graphic Mode) R-Drive Image GUI (Safe Mode) R-Drive Image GUI (Safe SUGA Mode) R-Drive Image TUI (Text Mode)
Automatic boot in 3 seconds se the cursor keys to select which entry is highlighted. ress enter to boot the selected entry.

Select the **R-Drive Image GUI (Graphic Mode)** to run **R-Drive Image** in the graphic mode in which its user interface is similar to the Windows version. if **R-Drive Image** cannot run in this mode, restart the

system in the Safe VGA mode (only VESA-compliant) which is compatible with most video cards and monitors. If it fails too, select the Text mode in which the **R-Drive Image** user interface is shown in the pseudo-graphic mode compatible with all video cards. The help below describes this pseudo-graphic mode.

Use the **Tab** key to switch between the control areas and the arrow keys to select options within the control areas. Press the **Enter** key to activate the selected button.

You may also activate a key by pressing the highlighted letter key. You may exit the program by pressing the x key.

#### Secure boot:

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It may be impossible to start a Windows 8 and later certified computer with the R-Drive Image startup disk without some additional actions. This happens because any computer should use a so-called "Secure boot" procedure to comply with Windows 8 hardware certification from Microsoft. In brief, this procedure prevents computer from booting into any operating system that isn't digitally signed with an appropriate digital signature. "Secure boot" is claimed to prevent unauthorized modification of the boot sector by bootkits, viruses, trojans, and other malicious software. To the date, only Windows 8, Windows Server 2012, and selected Linux distributions support this feature. As a side effect, it also prevents most LiveCDs, rescue disks (Linux-based R-Studio and R-Drive Image included), and other OS from running.

Likely enough, the other requirement of Windows 8 hardware certification is to make it possible for the user to disable the Secure boot procedure. Those settings can be done through the system BIOS under the Boot options. Generally, it's enough to enable Legacy support in those options, but sometimes it may require additional actions. Please, refer to your system documentation to learn more about disabling/enabling Secure boot.

When Secure boot is disabled, it should be possible to start the computer with the Linux-based R-Drive Image startup disk.

Please note that you should enable this feature back after using the startup disks because these versions of Windows or Servers may not start properly without the Secure boot feature enabled.

Before R-Drive Image starts working, it will require activation. An activation window will appear.



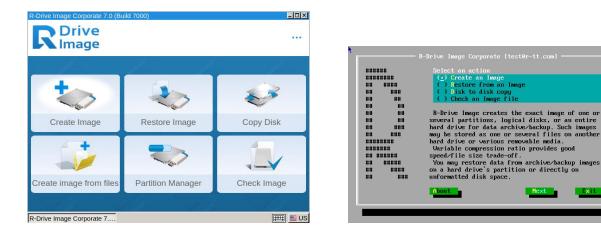
You need to enter a Computer Activation Code to proceed further. You may obtain it by either going to User Console on another computer or by scanning the QR-code by your phone.

Please note that some license restrictions may apply. The <u>License Transfer</u> help page explains them in detail.

When the **Action Selection** panel will appear.

**GUI mode** 

Text mode



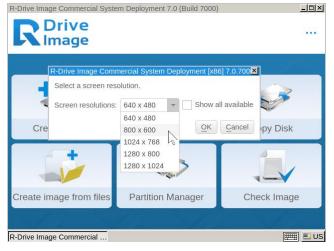
Specifying video settings for the GUI startup version.

You may specify video screen resolution when necessary.

1 Select Display settings in the shortcut menu



2 Select the required screen resolution and click the OK button



# 5.3 Restore Data from an Image

## Restoring data to a system or other locked disk:

**Note:** This help page describes the operation of the TUI startup version. Go to the **<u>Restore Data from an</u>** <u>**Image**</u> help page for the GUI version and to the <u>network drives</u> help If necessary.

You cannot restore data to the system (the disk from which Windows starts) or other locked disk the same way you do that to any other disk. You need either to restart **R-Drive Image** in its startup mode, or start your computer from another computer local disk or from specially created startup <u>disk(s)</u>.

# We recommended that you print out this topic and have the hardcopy on hand while you are performing this action.

If there is a non-IDE disk controller in your system, or you plan to use network disks or external hardware devices, first check the List of Hardware Devices Supported in the Startup Mode.

If you plan to use any external device, turn it on before starting the system.

If the motherboard in your computer supports the Serial ATA (SATA) devices, but IDE disks are also present, only the SATA devices should be set to the Enhanced Mode in BIOS.

Please, note that the startup version of **R-Drive Image** can restore data only to fixed-provisional Windows Storage Spaces You may read more about thin-provisioned or fixed Windows Storage Spaces in <u>Microsoft's</u> <u>Storage Spaces Overview</u>.

# We recommend you stop all other programs before you start restoring data on a partition.

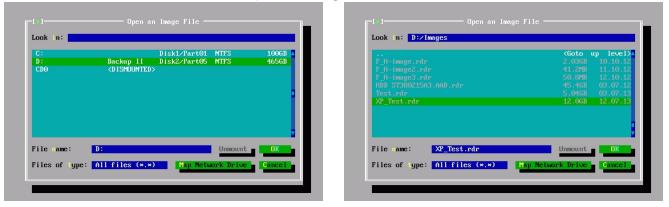
- 1 <u>Restart your computer in the startup mode</u>
- 2 Select Restore Image on the Action Selection panel and press the N key



**Action Selection Panel** 

Use the arrow keys to switch between the options.

# 3 Select the file with the image on the **Open an Image File** panel and press the Enter key Open an Image File Panel



**R/O** Read-only disk. You cannot create images on such disks.

Use the **Tab** key to switch between the control areas and the arrow and **Enter** keys to navigate within the **File** area.

You may also connect <u>network drives</u>.

4 Select the object in the image file on the Select an object panel you want to restore data from and press the N key

from which you want to resto	re data	
VBOX HARDDISK1.0	Disk@Image	100GB
C: Active Partition	Active NTFS	100GB
		M

## Select Source Object Panel

Use the arrow keys to select the object.

5 Select time and data of the data to restore on the Select Image Date/Time panel and press the N key Use the arrow keys to select the object

6 Select the destination for the data on the Select a target for copy/restore operation panel and press the N key

	<goto level="" up=""></goto>
	2.03GB 10.10.12
	41.2MB 11.10.12
	50.8MB 12.10.12
	45.4GB 03.07.12
	5.04GB 03.07.13
'ile name: XP Test.rdr	Unmount OK

# Select Target Object Panel

Use the arrow keys to switch between the target objects.

Н	Hard drive
Р	Primary partition
L	Logical disk
U	Unallocated space

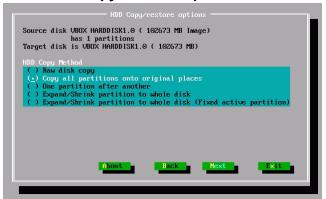
7 Specify restore parameters on the Copy/restore options panel and press the N key Copy/Restore Options Panel

*****	Minimum partition size (MB):	63616
*********	Maximum partition size (MB):	102672
## ## ## ##	Partition type	
## ##	(•) Primary (Active)	
## ##	() Primary	
## ###	() Logical	
## ### ########		
*******	Free space before (MB):	0
## ##### ## ####	Partition size (MB):	102657_

## For restoring/copying one or several partition(s):

Restore Options	
Free space before	You may specify the size of free space that will be left on the hard drive before the beginning of the partition.
Partition size	You may specify the size of the partition to be restored. Should be between the minimum and maximum partition size.
Partition type Primary(Active) Primary Logical	You may specify the type of the partition to be restored. Do not change this setting unless you have serious reasons to do so.

# For restoring/copying an entire hard drive to another hard drive: HDD Copy/Restore Options Panel



HDD Copy Method	
Raw disk copy	<b>R-Drive Image</b> writes sector-by-sector the data from the original drive or its
	image to the target one making an exact copy of the original disk regardless of its
	partitioning method. Can be used if other methods create a non-bootable disk due
	to incorrect detection of drive's geometry or non-standard loader.
	Drawback: partition sizes cannot be changed.
Copy all partitions onto	R-Drive Image copies all partitions to their original places. If R-Drive Image
original places	detects the drive's geometry correctly, and there is no non-standard loader, it
	makes the same result as during Raw disk copy.
Realign partitions	R-Drive Image will copy the partitions on the disk with a 512KB alignment. This
	is very useful for SSD and advanced-formatted disks. If there are empty (non-
	used) spaces between partitions, those spaces will be removed taking into account
	the alignment.
Expand/Shrink partition	If there are empty (not-used) places between the partitions or they occupy less or
to whole disk	more space than the target drive, R-Drive Image proportionally expands/shrinks
	them to occupy the entire target drive. Otherwise it is similar to Copy all partitions
	onto original places.
Fixed active partition	<b>R-Drive Image</b> preserves the original offset/size of the active partition (in case the
	loader has links to it).
See Support for Varia	us Disk Partition Schemes and File Systems for details

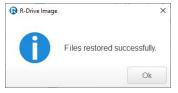
See Support for Various Disk Partition Schemes and File Systems for details.

When you restore data from an image of a <u>system disk</u>, a disk signature collision may occur. In this case, the **Disk Signature Collision** panel will appear. You may specify the way to resolve this collision on this panel.

Disk Signature Collision Resolving	
Same signature for both disk	<b>R-Drive Image</b> will create an identical copy of the source disk with the same signature. To avoid disk signature collision, you'll have to disconnect one of the disks and restart the computer, if necessary. Use this mode if you clone a system disk for another computer or only the terrest disk will be used in yource.
Different signature on the target disk.	disk for another computer or only the target disk will be used in yours. <b>R-Drive Image</b> will write another disk signature to the target disk. Don't use this mode if you clone a system disk, Windows won't start from it. To get access to the target disk after cloning, you'll have to restart the computer or re-connect it if it's an external USB disk.

	R-Drive Image will change the disk signature on the source disk. Use this mode if
signature on the source disk.	you want to start Windows from the target disk, but be warned: the computer
	won't start from the source disk anymore.

- 8 Verify that the information on the Confirm operations panel is correct and press the N key
- > R-Drive Image will start restoring the data from the image file to the selected destination The Progress window will show the progress of the current operation and overall process. When the image is restored, the Operation completed successfully message will appear.
- 9 Verify that the information on the **Processing** panel is correct and click the Start button
- R-Drive Image will start restoring the files from the image file to the selected destination. When the image is restored, the Files restored successfully message will appear.



The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information.

Follow this link to obtain **<u>R-Drive Image Contact Information and Technical Support</u>** 

# 5.4 Create an Image

**Note:** You may read about <u>Support for Various Disk Partition Schemes and File Systems</u> to learn more about possible options for your specific case.

# It is recommended that you print out this topic and have the hardcopy on hand while you are performing this action.

**Note:** This help page describes the operation of the TUI startup version. Go to the <u>Create an Image</u> help page for the GUI version and to the <u>network drives</u> help If necessary.

# If there is a non-IDE disk controller in your system, or you plan to use network disks or external hardware devices, first check the list of supported hardware.

If you plan to use any external device, turn it on before starting the system.

If the motherboard in your computer supports the Serial ATA (SATA) devices, but IDE disks are also present, only the SATA devices should be set to the Enhanced Mode in BIOS.

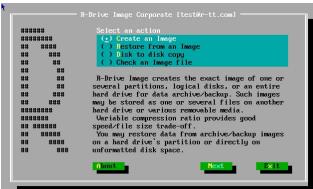
1 <u>Restart your computer in the startup mode</u>

#### 2 Select Create an Image on the Select an action and press the N key

Use the arrow keys to switch between the options.

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#### **Action Selection Panel**



**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then the **R-Drive Image: Select an object you want to archive/backup/copy** panel will show the configuration.

H	Hard drive
Ρ	Primary partition
L	Logical disk
U	Unallocated space

3 Select an object which image you want to create on the **Select source object** panel and press the N key

Use the arrow keys to switch between the objects and the SPACEBAR to select the object.

Select Source Object Panel

X1 VBOX HARDDISK	Disk SATA200:0	120GB 🔺
[X] Z: System Reserved	Active NTFS	500MB •
[X] C: System	Primary NTFS	
[X] E: Primary Partition	Primary NTFS	
1 VBOX HARDDISK	Disk SATA200:0	50GB
[ ] D: Images	Primary NTFS	49GB
bout Refresh	Back Next	Exit

4 Select the place on the Create an Image panel to which the image files will be written, specify the file name, and press the O key

## Create an Image File Panel

I I	Create an	Image File =			L I	
С: D: СD0		Disk1/Part01 Disk2/Part05		100GB ▲ 465GB	SRECYCLE.BIN System Volume Information R-DriveImage_SystemDump-2021-07-30.txt	(Goto up level) (Folder) 30.07.21 (Folder) 30.07.21 391.5KB 30.07.2
File name: Save as type:	Specified (*.rdr	) May Netw	Unmount ork Drive	UK Cance I	File name: <u>System_</u> Save as (ype: <mark>Specified (*.rdr) Map Net</mark> a	Unmount OK work Drive Cancel

**R/O** Read-only disk. You cannot create images on such disks

Use the **Tab** key to switch between the control areas.

**External USB drives with the NTFS file system**: the startup version of **R-Drive Image** can save image files on such disks if they are properly disconnected in a Windows system using the **Safely Remove Hardware** icon in the system tray or while shutting Windows down.

You may also connect network drives.

5 Specify image options on the Image Options panel and click the Next button

You may specify image options on this panel.

# Image Options Panel



#### Image options

Options			
Image name:	Shows the file name for the image. You cannot change the file name on this panel.		
Check the image file immediately upon its creation	Select this option if your want R-Drive Image to check the newly created file image for its consistency. This may be useful for storing image files with critical data. Please note that this operation requires additional time.		
Image compression ratio	You may compress the data in the image to save space. Please note that the smaller size you select the more time will be spent to create the image file and vise versa.		
Backup type	You may store in the image either the exact Sector by backup copy of the object or Backup useful information only, that is, you do not have to store empty space of the		

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	object in image files. See <b>Support for Various Disk Partition Schemes and</b> <b>File Systems</b> for the list of supported file systems.
Estimated size	Shows the estimated size of the image file. An actual image size depends on how much empty space is on the selected partition and what file types are there.
Image split size	You may set this option to Automatic and let Windows decide how to split the image file. This mostly depends on the file system on the destination disk. You may also either explicitly specify the split size, or choose a preset for various devices with removable storage. Select Fixed size for that.
Password	You may protect your image file with a password. <b>Note:</b> If you leave the Encrypt image option clear this feature will provide a relatively moderate protection against conventional unauthorized access. If this option is selected, R-Drive Image will encrypt the image using the AES-XTS algorithm.
Image description	You may attach a text description to the image for annotation. Maximum length of the description is 255 characters.

6 Verify that the information on the Confirm operations panel is correct and click the N key

# > R-Drive Image will start creating the image file

The Progress window will show the progress of the current operation and overall process. If you selected a read-only disk as the target, you will see the **File is read-only. Press OK to retry**. message.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

# 5.5 Disk to Disk Copy

# It is recommended that you print out this topic and have the hardcopy on hand while you are performing this action.

**Note:** This help page describes the operation of the TUI startup version. Go to the <u>Copy a Disk to a Disk</u> help page for the GUI version and to the <u>network drives</u> help If necessary.

# If there is a non-IDE disk controller in your system, or you plan to use network disks or external hardware devices, first check the <u>list of supported hardware</u>.

If you plan to use any external device, turn it on before starting the system.

If the motherboard in your computer supports the Serial ATA (SATA) devices, but IDE disks are also present, only the SATA devices should be set to the Enhanced Mode in BIOS.

1 <u>Restart your computer in the startup mode</u>

# 2 Select Disk to disk copy on the Action Selection panel and press the N key

**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then the **R-Drive Image: Select an object you want to archive/backup/copy** panel will show the configuration.

#### **Action Selection Panel**



Н	Hard drive
Ρ	Primary partition
L	Logical disk
U	Unallocated space

Use the arrow keys to switch between the options.

3 Select an object you want to copy on the **Select an object you want to archive/backup/copy** panel and press the N key

Select an object you want to archive/backup/copy Panel



Use the arrow keys to switch between the objects.

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Select the destination for the data on the Select a target for copy/restore operation panel and press 4 the N key

Select a target for copy/restore operation Panel Source: Disk Object (FAT32 200 MB) \* Select a TARGET for copy/restore operation Active Partition 00GI l Space ?0411№0-11 Unuse Disk Object Disk Object Boot OS X Disk2 200MB HFS+ HFSX 128M 102.4MB DISK3 HFSX 1024MB Disk Object FAT32 33GH USBZpO Primary NTFS Exi

Use the arrow keys to switch between the target objects.

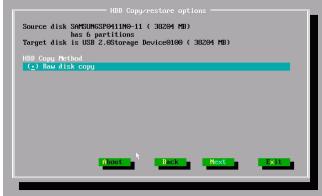
Specify restore parameters on the Copy/restore options panel and press the N key 5 **Copy/restore options Panel** 

######	Minimum partition size (MB):	32
*****		
## ####	Maximum partition size (MB):	38203
## ###		
## ##		
## ##	Partition type	
## ##	() Primary (Active)	
## ##	() Primary	
## ###	(•) Løgical	
## ###		
########		
#######	Free space before (MB):	Θ
## ######	······	
## #####	Partition size (MB):	200
***		
		No. 1
	About Back	Next Exit

## For restoring/copying one or several partition(s):

<u> </u>	
Restore Options	
Free space before	You may specify the size of free space that will be left on the hard drive before the beginning of the partition.
Partition size	You may specify the size of the partition to be restored. Should be between the minimum and maximum partition size.
Partition type Primary(Active) Primary Logical	You may specify the type of the partition to be restored. Do not change this setting unless you have serious reasons to do so.

# For restoring/copying an entire hard drive to another hard drive: HDD Copy/restore options Panel



HDD Copy Method	
Raw disk copy	R-Drive Image writes sector-by-sector the data from the original drive or its
	image to the target one making an exact copy of the original disk regardless of its
	partitioning method. Can be used if other methods create a non-bootable disk due
	to incorrect detection of drive's geometry or non-standard loader.
	Drawback: partition sizes cannot be changed.
Copy all partitions onto	R-Drive Image copies all partitions to their original places. If R-Drive Image
original places	detects the drive's geometry correctly, and there is no non-standard loader, it
	makes the same result as during Raw disk copy.
Realign partitions	<b>R-Drive Image</b> will copy the partitions on the disk with a 512KB alignment. This
	is very useful for SSD and advanced-formatted disks. If there are empty (non-
	used) spaces between partitions, those spaces will be removed taking into account
	the alignment.
Expand/Shrink partition	If there are empty (not-used) places between the partitions or they occupy less or
to whole disk	more space than the target drive, R-Drive Image proportionally expands/shrinks
	them to occupy the entire target drive. Otherwise it is similar to Copy all partitions
	onto original places.
Fixed active partition	R-Drive Image preserves the original offset/size of the active partition (in case the
	loader has links to it).

See Support for Various Disk Partition Schemes and File Systems for details.

When you copy a <u>system disk</u>, a disk signature collision may occur. In this case, the **Disk Signature Collision** panel will appear. You may specify the way to resolve this collision on this panel.

Disk Signature Collision	Resolving		
Same signature for	R-Drive Image will create an identical copy of the source disk with the same		
both disk	signature. To avoid disk signature collision, you'll have to disconnect one of the		
	disks and restart the computer, if necessary. Use this mode if you clone a system		
	disk for another computer or only the target disk will be used in yours.		
Different signature on	R-Drive Image will write another disk signature to the target disk. Don't use this		
the target disk.	mode if you clone a system disk, Windows won't start from it. To get access to the		
	target disk after cloning, you'll have to restart the computer or re-connect it if it's		
	an external USB disk.		

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Change the disk	R-Drive Image will change the disk signature on the source disk. Use this mode if
signature on the	you want to start Windows from the target disk, but be warned: the computer
source disk.	won't start from the source disk anymore.

6 Verify that the information on the Confirm operations panel is correct and click the N key

> R-Drive Image will start copying the data from the source disk to the selected destination

The Progress window will show the progress of the current operation and overall process. When the data is copied, the **Operation completed successfully** message will appear.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain <u>R-Drive Image Contact Information and Technical Support</u>

# 5.6 Create an Image from Files

This action is available on the GUI version only. Go to the the <u>Create an Image from Files</u> help page for instruction and to the <u>network drives</u> help If necessary.

# 5.7 Partition Manager

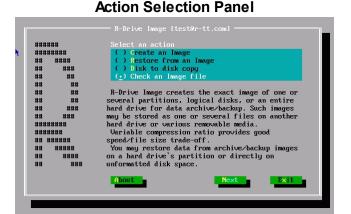
This action is available on the GUI version only. Go to the the <u>Partition Manager</u> help page for instruction and to the <u>network drives</u> help If necessary.

# 5.8 Check an Image File

**Note:** This help page describes the operation of the TUI startup version. Go to the <u>Check an Image File</u> help page for the GUI version and to the <u>network drives</u> help If necessary.

# To check an image file:

1 Click Check an Image File on the Action Selection panel



2 Select the file with the image on the **Open an Image File** panel and click the Next button **Open an Image File Panel** 

D:		Disk1/Part01	NTFS	100GB	11		<goto le⊍el="" up=""></goto>
):	USB2p0	Disk2/Part01	NTFS	37.3GB	System Volum Test.rdr	e Information	<folder> 13.07.13</folder>
CDO	<pre>`<dismounted></dismounted></pre>				lest.rar	- N	
le name:	D:		Unmount	OK	File name:	Test.rdr	Unmount
	All files (*.*)		ork Drive 🗖			All files (*.*)	Map Network Drive Cancel

You may also connect network drives.

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- 3 Verify that the information on the **Processing** panel is correct and click the Start button
- > R-Drive Image will start checking the data in the image file.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

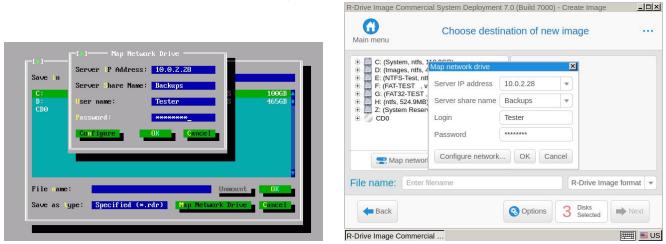
# 5.9 Network Drives

If your computer is on a local network, you may write image files or restore images to / from network drives. To do so, you need to map such a network drive.

## To map a network drive,

## 1 Click the Map Network Drive button and enter required information

#### Map Network Drive



For the network drive' path //SERVER/Backups, Server IP address: The IP address of the SERVER computer Server share name: Backups.

Sometimes it may be necessary to manually configure network settings, if, for example, there is no DHCP server on the network. Click the **Configure network** button, select the required field, click the **Edit Address** button, and enter the required information.

	R-Drive Image Cor	nmercial System D	eployment 7.0 (Build 7000	) - Create Im	age <u> </u>
	Main menu	Network configura	tion	×	
			dapter: eth0 (Intel(R) PR	0/100+) 🔻	3
] Network Adapters	+ C: (System + D: (Images		ethod:		
PCnet32 PCI # 0 10.0.2.15 255.255.255.0 4 ault gateway 10.0.2.2		Configure (	using DHCP	Renew	
[ ]— Please specify Addresses ———	⊕ G: (FAT32- ⊕ B H: (ntfs, 52	Configure r	manually		
AMD PCnet32 PCI # 0			ngs		
IP Address: 10.0.2.15_	⊕ G CD0	IPv4 address	10.0.2.15		
Net Mask: 255.255.0		Network mask	255.255.255.0		
OK Cancel	🚍 Map r	Default gateway	10.0.2.2		
	File name:		ОК	Cancel	mage format
it Address OK Cancel	de Back		( Options	3 Disks Select	Next

# **Network Settings**

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain <u>R-Drive Image Contact Information and Technical Support</u>

# VI Scheduled Actions, Command Line Operations, and Scripting

This chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line or command files.

- Batch Mode
- <u>Scheduler and Unattended Actions</u>
- <u>Rotation Options (Backup Sets)</u>
- <u>Scripting and Command Line Operations</u>

The **Disk Actions** chapter explains disk actions such as:

- Create an Image of a partition, logical disk, or entire hard drive
- <u>Create an Image from Files</u>
- Copy Files to a Folder
- <u>Restore Data from an Image</u>
- Copy Disk to Disk to make an exact copy of one disk on another
- Manage partition and logical disks
- Mount an Image as a Virtual Logical Disk (read-only)
- <u>Unmount Virtual Logical Disks</u>
- Check an Image File to check an existing image file

The **RAIDs**, and Various Disk and Volume Managers chapter explains how to perform disk actions with various compound volumes such as:

- Hardware RAIDs
- <u>BitLocker Drive Encryption</u>
- Windows Software RAIDs, Spanned, and Other Volumes
- <u>Windows Storage Spaces</u>
- Apple RAIDs
- <u>Apple CoreStorage/File Vault/Fusion Drive Volumes</u>
- Linux mdadm RAIDs
- Linux Logical Volume Manager Volumes

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- <u>Create Startup Disk</u>
- Load Computer into Startup Mode
- <u>Restore Data From an Image</u>
- Create an Image
- Disk to Disk Copy
- Create an Image from Files
- <u>Partition Manager</u>
- Check an Image File
- Network Drives

The **Technical Information** chapter gives technical information on

- <u>Updates</u>
- Cloud Services
- Image Replications
- Logging
- <u>Creating consistent point-in-time backups</u>
- Support for Various Disk Partition Schemes and File Systems
- <u>Supported Virtual Disk and Disk Image Formats:</u>
- <u>Disk Wiping Algorithms</u>
- Supported CD and DVD Recorders
- List of Hardware Devices Supported in the Startup Mode

The <u>**R-Drive Image OEM kit</u>** chapter explains how computer system integrators can create system recovery disks for their systems</u>

- <u>Create a Master Image</u>
- Create Startup Media

Follow this link to obtain **R-Drive Image Contact Information and Technical Support** 

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# 6.1 Scheduler and Unattended Actions

You may schedule some disk actions at a certain time or event, and **R-Drive Image** will perform them unattended. You may also execute a task manually. Right-click the task and select **Execute Now** in the context menu.

- Create a task
- Edit a task
- Delete a task
- Run a Task Manually

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

# 6.1.1 Create a Task

Generally, you may set a scheduled task the same way you set a regular action for creating an image of a disk, partition, or an entire hard drive.

To create a new task:

## 1 Click Scheduler/Create Script on the Action Selection panel

The **Scheduled Tasks** panel will appear.

You may create a task for creating an image, image from files, or verifying an image.

Main menu     Create task     Create script     Edit task     Edit task     Edit task     Delete task       Image: Task name     Event     Last start     Result     Status       Image: R-Drive Image Task     on the First Sunday of January, February, Ma     Never     Disabled       Image: R-Drive Image Task     once on 2:49 PM at 1/17/20     Sun, Jul 25, 2021 2:59:53 PM     Te%	0 +	• 📀 •		Ì	
R-Drive Image Task on the First Sunday of January, February, Ma Never Disabled			Edit task Edit event	Delete task	
#1 January, February, Ma Never Disabled	Task name	Event	Last start	Result	Status
R-Drive Image Task         once on 2:49 PM at         Sun, Jul 25, 2021         76%         Running           #2         1/17/20         2:59:53 PM         76%         Running	<b>▼</b> #1	January, February, Ma	Never		Disabled
	R-Drive Image Task #2	once on 2:49 PM at 1/17/20		76%	Running

2 Click the Create Task button on the Scheduled Tasks panel

3 Select the objects you want to backup on the **Partition Selection** panel, image destination on the **Image Destination** panel, specify necessary parameters on the **Image options**, **Notification options**, **Backup options** panels, and on the **Rotation options** panel.

Right-click the selected partition and select **Backup selected files** if you want to backup only individual files on the partition.

<u>Images can be replicated</u>, that is, their copies may be saved to one or other different locations.

Attention: If you a going to use a network drive, please note that if this drive is connected under your account it will be inaccessible to the task run under the local system account unless this drive is also connected to the local system account using the same disk letter. To avoid this problem, you need either to run the task under your own account, or use a UNC path in the form: \\[[domain;]username[:password]@]hostname\share\path.

Go to the Create an Image topic for more details.

Please note that you may use <u>Rotation options (backup sets)</u> for creating complex data backup tasks and maintaining data files.

Rotation scheme		Simple		-	
Imaging mode		Differential		•	
Full image every			6 images		
Maximum number	of full images	· · · · ·	3		
Maximum age of f	ull images		21 day(s)		
Maximum number of image files			30	A	
Maximum size of all image files			20000MB		
Apply quota Af	ter imaging	•			
Always keep f	irst full image				
Tier	Mode	Keep images	Ke	ep period	When exceeded
On each 1 image	Differential	Unlimited	F	orever	No action
On each 6 images	Full	3 images		1 days	Delete

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4 Specify the time or event at which the task should start on the Task execution schedule panel and click the Next button

Perform this task	Monthly	Month schedule
Task is Active	inonuny	Months January;February;March;April;May;Jt 🔻
Wakeup computer to	o run this task	O Days 1
V Run missed task as	soon as possible	
Start time	12:00:00 PM	On First      First      Sunday      First
Repeat task every	15 minutes	
Delay task for up to	15 minutes	
Start date	8/1/2015	
End date	12/31/2015	
Run under user accour	nt	
🗸 Local system		
Jser name		Default
This task is s	cheduled to run on the	e First Sunday of January, February, March,
		tember, October, November, December at

You may specify time/event options on this panel.

# **■***Task* execution schedule options

If this options is not selected, the task will not start at its scheduled time/event
If this checkbox is selected, your computer will automatically start up to perform
this task
If this checkbox is selected, this task will start as soon as it's possible.
The task will start repeatedly on a daily time interval
Time at which the task will start
Time interval in which the task will be repeated within one day
Time interval in which the task will randomly start. May be useful when several
images are being created simultaneously.
Date from which the task will start
Time interval in days in which the task will regularly start
Date from which the task will not start anymore
The task will start repeatedly on a weekly time interval
Time at which the task will start
Time interval in which the task will be repeated within one day

Delay task up to:	Time interval in which the task will randomly start. May be useful when several
	images are being created simultaneously.
Start date:	Date from which the task will start
Run this task every:	Time interval in weeks in which the task will regularly start
On days:	Days of the week on which the task will start
End date: (optional)	Date from which the task will not start anymore
Monthly	The task will start repeatedly on a monthly time interval
Start time:	Time at which the task will start
Repeat task every:	Time interval in which the task will be repeated within one day
Delay task up to:	Time interval in which the task will randomly start. May be useful when several
	images are being created simultaneously.
Start date:	Date from which the task will start
Month schedule	
On day of month	Day of the month on which the task will start
Or	Weekdays in the month on which the task will start
Months	Months when the task will start
Once	The task will start once or repeat it every certain time interval on one day
Start time:	Time on which the task will start
Repeat task every	Time interval in which the task will regularly start
Delay task up to	Time interval in which the task will randomly start. May be useful when several
	images are being created simultaneously.
Start date:	Date from which the task will start
At system startup	The task will start at every system startup
At user logon	The task will start every time a user will log on
Run under user account	A username and password for a user from the Administrators user group.

## > A new task will appear on the Scheduled Tasks panel

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information.

Follow this link to obtain **<u>R-Drive Image Contact Information and Technical Support</u>** 

# 6.1.2 Edit a Task

You may edit a scheduled task.

# To rename a task

1 Click Scheduler/Create Script on the Action Selection panel The Scheduled Tasks panel will appear.

- 2 Right-click the task which you want to rename on the Scheduled Tasks panel
- 3 Select in the context menu Rename and enter a new task name Note: You may also use a keyboard shortcut F2 to rename a task

#### To edit the time or event at which a scheduled task should start:

- 1 Click Scheduler/Create Script on the Action Selection panel The Scheduled Tasks panel will appear.
- 2 Select a task which event you want to edit on the **Scheduled Tasks** panel and click the Edit an Event button

The Task execution schedule panel will appear.

Note: You may also right-click the task and select Edit an event in the context menu.

3 Edit the time or event at which the task should start on the Task execution schedule panel and click the Save button

Go to the Create a Task topic for details

> The task will appear on the Scheduled Tasks panel with the new starting Time/Event

#### To edit an entire scheduled task:

- 1 Click Scheduler/Create Script on the Action Selection panel The Scheduled Tasks panel will appear.
- 2 Select a task which you want to edit on the Scheduled Tasks panel and click the Edit button Note: You may also right-click the task and select Edit a task in the context menu.
- 3 Edit the objects you want to backup on the **Partition Selection** panel, image destination on the **Choose** destination of new image panel, necessary parameters on the **Image options**, **Notification options**, **Backup options** panels, and on the **Rotation options** panel.

Go to the <u>Create an Image</u> topic for more details.

4 Edit the time or event at which the task should start on the Task execution schedule panel, and click the Save button

Go to the <u>Create a Task</u> topic for more details.

> The task will appear on the Scheduled Tasks panel with the new options

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information.

Follow this link to obtain **<u>R-Drive Image Contact Information and Technical Support</u>** 

# 6.1.3 Delete a Task

You may delete a scheduled task that you do not need any more.

## To delete a scheduled task:

1 Click Scheduler/Create Script on the Action Selection panel The Scheduled Tasks panel will appear. 2 Select a task you want to delete on the Scheduled Tasks panel and click the Delete a Task button or Right-click the task and select Delete a Task in the context menu. The Delete selected task message will appear.



#### 3 Click the OK button

> The task will disappear on the Scheduled Tasks panel

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information.

Follow this link to obtain **<u>R-Drive Image Contact Information and Technical Support</u>** 

# 6.1.4 Run a Task Manually

You may run a task manually at any time.

#### To run a scheduled task manually:

- 1 Click Scheduler/Create Script on the Action Selection panel The Scheduled Tasks panel will appear.
- 2 Right-click a task you want to run and select Execute now on the context menu.

You may also create a script from a task and run it manually.

# 6.2 Rotation Schemes (Backup Sets)

<u>Rotation backup schemes</u> is a way to create sets of files (usually a file for a full image of an object and a number of its <u>incremental/differential</u> backups) which **R-Drive Image** treats as one unit. Those schemes may be used to create images of the same objects with the same filenames but with different parameters. Rotation schemes make it possible for you to flexibly control the parameters of complex backup tasks.

You may specify a total size allocated for the image files, a number of image files you want to keep, and the time for which you want to keep the data, etc. All this can be done on the **Rotation options** panel.

**R-Drive Image** supports the following types of rotation schemes:

- <u>Simple Rotation Schemes</u>
- <u>Custom Rotation Schemes</u> (available only in the Corporate, Technician, Commercial, and OEM System Recovery Media versions)

And this page gives an example of the outcome of a rotation scheme:

• <u>An example of a rotation scheme</u>

# 6.2.1 Simple Rotation Schemes

These scheme types are available in all **R-Drive Image** versions: The following simple <u>rotation schemes</u> can be used:

## No rotation

No rotation

and scripts		Rotation opt	ions
Rotation scheme	No rotation	<b>T</b>	
Imaging mode	Differential	-	
	Overwrite		
	Differential		
	Incremental		

#### Imaging mode

Specifies how the data will be written to an existing image file.

**Incremental:** Select this option to preserve the data in the existing image file and append only changes. Appended changes will be those between the last saved changes and the current state. You may restore data as they were on each time of data imaging.

**Differential:** Select this option to preserve the data in the existing image file and append only changes. Appended changes will be those between the first saved full image and the current state. You may restore data as they were on each time of data imaging.

Overwrite: Select this option if you want to completely replace the data in the image file.

**Minimum file sizes:** If you need to keep only the latest backup instant, you may use the Ddifferentially option and delete all previous differential files. If you need to keep all instances, you may use the Incrementally option to keep overall file sizes smaller.

**Data safety:** If any of the differential file is damaged, data will be lost only for that backup instant. If any of the incremental file is damaged, data will be lost for all subsequent backup instances starting from the damaged file until the next full of differential backup.

Rotation scheme outcome: the first image will be a full one, the rest images will be differential ones.

# Simple

# Simple rotation scheme

ask and scripts						
Rotation scheme		Simple		-		
Imaging mode		Differential		7		
Full image every			6 images			
Maximum number o	of full images		3	A 7		
Maximum age of full images			20 day(s)	* *		
Maximum number of image files			22	×		
Maximum size of al	l image files	5	00000MB			
	r imaging	*				
Always keep firs	st full image					
Tier	Mode	Keep images	Ke	ep period	When exce	eded
On each 1 image	Differential	Unlimited	F	Forever	No actio	n
On each 6 images	Full	3 images	3 images 20 days		Delete	

# **□** Simple rotation schemes options

Imaging mode	<ul> <li>Full: All data in the image file will be replaced with the current one.</li> <li>Differentially: Appended changes will be those between the saved full image and the current state. If there is no full image, it will be created instead. When restoring data, you will need the full image and ONLY the differential file created at the instant to which you want to restore data.</li> <li>Incrementally: Appended changes will be those between the last saved changes and the current state. If there is no full image, it will be created instead. When restoring data, you will need the full image and ALL files (both incremental and differential ones) created to the instant to which you want to restore data.</li> <li>Minimum file sizes: If you need to keep only the latest backup instant, you may use the Ddifferentially option and delete all previous differential files. If you need to keep all instances, you may use the Incrementally option to keep overall file sizes smaller.</li> <li>Data safety: If any of the differential file is damaged, data will be lost only for that backup instant. If any of the incremental file is damaged file until the next full of differential backup.</li> </ul>
Full image every	Specifies the number of differential/incremental images after which a full image will be created.
Maximum number of full images	Specifies the number of full images. If it is exceeded, the older full backup files will be removed.
Maximum age of full images	Specifies the number of days for which <b>R-Drive Image</b> will keep full image files. Then the files will be removed.
Maximum number of image files	Specifies the number of image files. If it is exceeded, the older files will be removed.

Maximum size of all image files	Specifies the total size of all files. If it is exceeded, the older files will be removed.
Apply quota	<ul> <li>Before &amp; After imaging: the settings will be applied before creating the image, but as if it's already been created. For example, if the number of files is set to 3, and there are already 3 files, the oldest file will be deleted before creation of the new image file.</li> <li>After imaging: <b>R-Drive Image</b> will create the image file first, then deletes the oldest file.</li> </ul>
Always leave first full image	If this option is selected, the very first image will always be kept.

Note: when a full image file is deleted according to the specified options, **R-Drive Image** deletes all differential/incremental image files related to that full image.

**Rotation scheme outcome:** the first image will be a full one, then next 6 images will be differential ones, then another full image, followed by 6 differential images. One full image and all respective differential imaged will be deleted when 3 full images have been created, You may see the outcome of this scheme on the <u>An</u> example of a rotation scheme help page.

You may read more about next rotation schemes in Wikipedia: Backup rotation scheme.

# Grandfather-Father-Son

# Grandfather-Father-Son scheme

and scripts		Rotation opt	ions	
Rotation scheme		GrandFather-Father-Son	•	
maging mode		Mixed	•	
Keep Daily images		unlimited	* *	
Keep Weekly images		unlimited	×	
Keep Monthly images		unlimited	A V	
Maximum size of all ima	ge files	unlimited	* *	
Apply quota After ima	aging 💌			
Always leave first ful	ll image			
Tier	Mode	Keep Images	Keep period	On Exceed
On each 1 day	Incremental	Unlimited	Forever	Delete
On each 1 week	Differential	Unlimited	Forever	Delete
On each 1 month	Full	Unlimited	Forever	Delete

# Grandfather-Father-Son schemes options

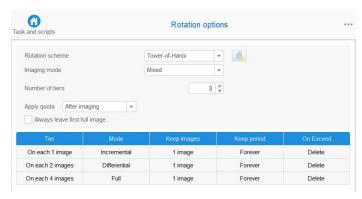
Keep Daily images	Specifies the number of days for which <b>R-Drive Image</b> will keep Daily
	image files. Then the files will be removed.
Keep Weekly images	Specifies the number of weeks for which <b>R-Drive Image</b> will keep Weekly
	image files. Then the files will be removed.
Keep Monthly images	Specifies the number of months for which R-Drive Image will keep Monthly
	image files. Then the files will be removed.
Maximum size of all image files	Specifies the total size of all files. If it is exceeded, the older files will be removed.

Apply quota	Before & After imaging: the settings will be applied before creating the image,
	but as if it's already been created. For example, if the number of files is set to
	3, and there are already 3 files, the oldest file will be deleted before creation
	of the new image file.
	After imaging: <b>R-Drive Image</b> will create the image file first, then deletes the
	oldest file.
Always leave first full image	If this option is selected, the very first image will always be kept.

**Rotation scheme outcome:** the first image will be a full one, then every day a incremental image, every week a differential image, every month a full image. All incremental images will be deleted when a differential image has been created. All differential images will be deleted when a monthly image has been created. The oldest full image and respective differential / incremental images will be deleted in 3 months.

# Tower-of-Hanoi

# Tower-of-Hanoi



# Tower-of-Hanoi schemes options

Number of tiers	Number of successive image creation steps/
Keep Monthly images	Specifies the number of months for which <b>R-Drive Image</b> will keep Monthly image files. Then the files will be removed.
Apply quota	<ul><li>Before &amp; After imaging: the settings will be applied before creating the image, but as if it's already been created. For example, if the number of files is set to 3, and there are already 3 files, the oldest file will be deleted before creation of the new image file.</li><li>After imaging: <b>R-Drive Image</b> will create the image file first, then deletes the oldest file.</li></ul>
Always leave first full image	If this option is selected, the very first image will always be kept.

**Rotation scheme outcome:** the first image will be a full one, the next image will be the differential one, then an incremental one. A full image will be created in 4 images. The the rest of the images will be deleted.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain <u>R-Drive Image Contact Information and Technical Support</u>

# 6.2.2 Custom Rotation Schemes

These scheme types are available only in the Corporate, Technician, Commercial, and OEM System Recovery Media versions.

It gives much more flexibility to you in controlling the outcome of the rotation scheme.

# **Custom rotation scheme**

Rotation	scheme		Disk_E_Monthly				
Maximun	n number of image file	s	10 🚖	On exceed			
Maximum size of all image files			500000 MB 🜲	Delete	-		
Apply que		•					
	ota After imaging ys leave first full image						
			Keep Images	K	eep period	On Exceed	1
Alway	ys leave first full image	3	Keep Images		eep period Day(s) 🛛 🔻		d T
Alway	ys leave first full image	Mode	6	\$ 6		Delete	

# Custom rotation schemes options

Rotation scheme	The name of the rotation scheme.
Maximum number of image files	Specifies the number of image files. If it is exceeded, the older files will be removed.
Maximum size of all image files	Specifies the total size of all files. If it is exceeded, the older files will be removed.
On exceed	Specifies the action that performs when the quota is exceeded. The following actions are available: No actions Delete Move Command
Apply quota	Before & After imaging: the settings will be applied before creating the image, but as if it's already been created. For example, if the number of files is set to 3, and there are already 3 files, the oldest file will be deleted before creation of the new image file. After imaging: <b>R-Drive Image</b> will create the image file first, then deletes the oldest file.
Always leave first full image	If this option is selected, the very first image will always be kept.

Note: when a full image file is deleted according to the specified options, **R-Drive Image** deletes all <u>differential/incremental</u> image files related to that full image.

**Rotation scheme outcome:** the first image will be a full one, then next 6 images will be incremental ones, then a differential image, the incremental images will be deleted. then next 6 incremental images and another differential image. A full image will be created once a month.

# 6.2.3 An example of a rotation scheme

# The scheme and settings

This scheme is shown on the <u>Simple Rotation Scheme</u> help page. It should create a full backup every Sunday and differential backups every other day. The task should start at 5:00 PM and 3 full backup images should always be kept.

It has the following parameters:

Rotation scheme Simple Imaging mode Differential Full image every 6 images Maximum 3 number of full images Maximum image 20 days files age 22 Maximum number of image files Maximum size of 500000 MB all image files Apply quota After imaging Always leave first No full image

# The setting should be the following:

# On the Rotation options panel

The following setting should be specified:

## Simple rotation scheme

On each 6 images	-		3 images		days	Dele	ete
On each 1 image	Differential	Unlimite	ed	Forever		No ac	tion
Tier	Mode	Keep ima	ages	Kee	period	When ex	ceede
Always keep firs	st full image						
	er imaging	*					
Maximum size of al	l image files		500000	MB ;			
Maximum number o	of image files			22			
Maximum age of ful	ll images		20 da	y(s)	* *		
Maximum number o			L				
Full image every			6 ima	ges :			
Imaging mode		Differen	ntial	7			
Rotation scheme		Simple	Simple 💌				
ask and scripts							
ask and scripts		Rot	ation optio	ns			
~							

#### On the Task execution schedule panel:

The following setting should be specified:

# Task execution schedule

Perform this task	Daily	-	Day schedule	
Task is Active			Day 1	
Wakeup computer to	o run this task			
Start time	5:00 PM			
Repeat task every	15 minutes			
Delay task for up to	15 minutes			
Start date	8/2/21	1993		
End date	8/11/21	1991		
Run under user accoun	t			
✓ Local system				
Jser name	Default			

And the task should be activated on Monday, say, August 2, 2021.

## File name convention:

```
Full backup:<FIleName>_<Date_of_First_Backup>_<Time_of_First_Backup>_1.rdrDifferential<FIleName>_<Date_of_First_Backup>_<Time_of_First_Backup>_1_N+1.rdrbackup:
```

 $\ensuremath{\mathbb{N}}$  is the number of differential backup

## The scheme outcome

# The files created

Date Day	Files created on the destination, the last is the newly created on;Comments
8/2/2021 Monday	<pre>Test_Image_08022021_05PM0000_1.rdr ;Full backup 1</pre>

0/2/2021	The state of the second st
8/3/2021	Test_Image_08022021_05PM0000_1.rdr ;Full backup 1
Tuesday	Test_Image_08022021_05PM0000_1_1.rdr ;Differential backup 1:1
8/4/2021	Test_Image_08022021_05PM0000_1.rdr ;Full backup 1
Wednesday	<pre>Test_Image_08022021_05PM0000_1_1.rdr ;Differential backup 1:1</pre>
··· • • • • • • • • • • • • • • • • • •	<pre>Test_Image_08022021_05PM0000_1_2.rdr ;Differential backup 1:2</pre>
8/5/2021	Test_Image_08022021_05PM0000_1.rdr ;Full backup 1
Thursday	Test_Image_08022021_05PM0000_1_1.rdr ;Differential backup 1:1
Thurbady	<pre>Test_Image_08022021_05PM0000_1_2.rdr ;Differential backup 1:2</pre>
	<pre>Test_Image_08022021_05PM0000_1_3.rdr ;Differential backup 1:3</pre>
8/6/2021 Friday	Test_Image_08022021_05PM0000_1.rdr ;Full backup 1
	<pre>Test_Image_08022021_05PM0000_1_1.rdr ;Differential backup 1:1</pre>
	<pre>Test_Image_08022021_05PM0000_1_2.rdr ;Differential backup 1:2</pre>
	Test_Image_08022021_05PM0000_1_3.rdr ;Differential backup 1:3
	<pre>Test_Image_08022021_05PM0000_1_4.rdr ;Differential backup 1:4</pre>
8/7/2021	Test_Image_08022021_05PM0000_1.rdr ;Full backup 1
Saturday	Test_Image_08022021_05PM0000_1_1.rdr ;Differential backup 1:1
	<pre>Test_Image_08022021_05PM0000_1_2.rdr ;Differential backup 1:2</pre>
	<pre>Test_Image_08022021_05PM0000_1_3.rdr ;Differential backup 1:3</pre>
	Test_Image_08022021_05PM0000_1_4.rdr ;Differential backup 1:4
	<pre>Test_Image_08022021_05PM0000_1_5.rdr ;Differential backup 1:5</pre>
8/8/2021 Sunday	Test_Image_08022021_05PM0000_1.rdr ;Full backup 1
	<pre>Test_Image_08022021_05PM0000_1_1.rdr ;Differential backup 1:1</pre>
	Test_Image_08022021_05PM0000_1_2.rdr ;Differential backup 1:2
	Test_Image_08022021_05PM0000_1_3.rdr ;Differential backup 1:3
	Test_Image_08022021_05PM0000_1_4.rdr ;Differential backup 1:4
	Test_Image_08022021_05PM0000_1_5.rdr ;Differential backup 1:5
0/0/2021	Test_Image_08082021_05PM0000_2.rdr ;Full backup 2
8/9/2021	Test_Image_08022021_05PM0000_1.rdr ;Full backup 1
Monday	Test_Image_08082021_05PM0000_2.rdr ;Full backup 2 Test Image 08082021 05PM0000 2 1.rdr ;Differential backup 2:1
0/10/2021	
8/10/2021	Test_Image_08042021_05PM0000_1.rdr ;Full backup 1
Tuesday	Test_Image_08082021_05PM0000_2.rdr ;Full backup 2 Test Image 08082021 05PM0000 2 1.rdr ;Differential backup 2:1
	Test Image 08082021 05PM0000 2 2.rdr ;Differential backup 2:1
0/11/2021	
8/11/2021	Test_Image_08042021_05PM0000_1.rdr ;Full backup 1 Test Image 08082021 05PM0000 2.rdr ;Full backup 2
Wednesday	Test Image 08082021 05PM0000 2 1.rdr ; Differential backup 2:1
	Test Image 08082021 05PM0000 2 2.rdr ;Differential backup 2:2
	Test Image 08082021 05PM0000 2 3.rdr ;Differential backup 2:3
	·····
	Test Image 08042021 05PM0000 1.rdr ;Full backup 1
8/14/2021	Test Image 08082021 05PM0000 2.rdr ;Full backup 1
Saturday	Test Image 08082021 05PM0000 2 1.rdr ;Differential backup 2:1
	Test Image 08082021 05PM0000 2 2.rdr ;Differential backup 2:2
	Test_Image_08082021_05PM0000_2_3.rdr ;Differential backup 2:3
	Test Image 08082021 05PM0000 2 4.rdr ;Differential backup 2:4
	Test Image 08082021 05PM0000 2 5.rdr ;Differential backup 2:5
8/15/2021	Test Image 08042021 05PM0000 1.rdr ;Full backup 1
	Test Image 08092021 05PM0000 2.rdr ;Full backup 2
Sunday	Test Image 08152021 05PM0000 3.rdr ;Full backup 3

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8/16/2021	Test Image 08042021 05PM0000 1.rdr ;Full backup 1					
	Test Image 08092021 05PM0000 2.rdr ;Full backup 2					
Monday	Test Image 08152021 05PM0000 3.rdr ;Full backup 3					
	Test Image 08152021 05PM0000 3 1.rdr ;Differential backup 3:1					
8/17/2021	Test Image 08042021 05PM0000 1.rdr ;Full backup 1					
Tuesday	Test Image 08092021 05PM0000 2.rdr ;Full backup 2					
Tuesuay	Test_Image_08152021_05PM0000_3.rdr ;Full backup 3					
	Test Image 08152021 05PM0000 3 1.rdr ;Differential backup 3:1					
	Test_Image_08152021_05PM0000_3_2.rdr ;Differential backup 3:2					
	····					
8/21/2021	Test_Image_08042021_05PM0000_1.rdr ;Full backup 1					
Saturday	Test_Image_08092021_05PM0000_2.rdr ;Full backup 2					
Suracia	Test_Image_08152021_05PM0000_3.rdr ;Full backup 3					
	<pre>Test_Image_08152021_05PM0000_3_1.rdr ;Differential backup 3:1</pre>					
	<pre>Test_Image_08152021_05PM0000_3_2.rdr ;Differential backup 3:2</pre>					
	<pre>Test_Image_08152021_05PM0000_3_3.rdr ;Differential backup 3:3</pre>					
	<pre>Test_Image_08152021_05PM0000_4_4.rdr ;Differential backup 3:4</pre>					
	<pre>Test_Image_08152021_05PM0000_5_5.rdr ;Differential backup 3:5</pre>					
8/22/2021	;Full backup 1 is deleted					
Sunday	Test_Image_08092021_05PM0000_2.rdr ;Full backup 2					
jj	Test_Image_08152021_05PM0000_3.rdr ;Full backup 3					
	Test_Image_08222021_05PM0000_4.rdr ;Full backup 4					
8/23/2021	Test_Image_08092021_05PM0000_2.rdr ;Full backup 2					
Monday	Test_Image_08152021_05PM0000_3.rdr ;Full backup 3					
111011111	Test_Image_08222021_05PM0000_4.rdr ;Full backup 4					
	<pre>Test_Image_08222021_05PM0000_4_1.rdr ;Differential backup 4:1</pre>					

# 6.3 Scripting and Command Line Operations

You may create scripts for frequently repeated or unattended disk actions and execute them from a command line or file. The same script commands may be executed directly from a command line.

Currently, **R-Drive Image** supports scripts for **creating a new image file**, **appending data to an existing one**, **restoring data from an image**, **check an image**, and **mount/unmount images as virtual logical disk**.

# To create a script

- Creating a script from R-Drive Image
- Creating a script manually

## To execute a script:

## 1 Type in the command line:

r-driveimagecl [/switches] cmd="<ScriptName>.rdi"

where <scriptName> is the script name and its path, if necessary,

# and press the Enter key

Note: if ScriptName contains no spaces, double quotes (") may be omitted. No characters in ScriptName should be escaped.

#### Incompatibilities with ver.3.x

Script name should be passed using the cmd key.					
Ver. 3.x	r-driveimagecl [/switches] <scriptname>.rdi</scriptname>				
Ver. 4.x	r-driveimagecl [/switches] cmd=" <scriptname>.rdi"</scriptname>				

Switc	Description			
h	1			
a	A non-interactive mode. R-Drive Image will not ask the user any questions. If it cannot perform			
	the action, it will generate an error.			
d	A debug mode. R-Drive Image will display all the information as it was performing the action,			
	but will not perform the actual action.			
f	If an error occurs, <b>R-Drive Image</b> will not exit the script and continue perform it from the			
	following command. Inapplicable to actions started from the command line			
i	Not functioning since version 4.7!			
	The s and d parameters will use disk indexes rather than disk numbers. Disk indexes are disk			
	serial numbers and can be seen either on the R-Drive Image Partition Selection panel or			
	Windows Disk Management.			
0	If a file with a specified filename exists, <b>R-Drive Image</b> will overwrite it quietly.			
off	will shut down the computer when it finishes the command.			

Switches set in the command lines also is used as default values for parameters in scripts.

## > R-Drive Image will start executing the script showing the operation parameters and progress.

When **R-Drive Image** completes the operation, the Commit OK message will appear in the command prompt.

You may include this command to a command file and automatically run such command file either manually or using any scheduling software for unattended disk actions.

# To perform an action from the command line:

#### 1 Type in the command line:

R-DriveImage [/<u>switches</u>] <u>command</u> <u><params></u> to start **R-Drive Image** application or r-driveimagecl [/<u>switches</u>] <u>command</u> <u><params></u> to start **R-Drive Image** console application **and press the Enter key**.

## > R-Drive Image will start executing the command showing the action's progress.

When **R-Drive Image** completes the action, the Commit OK message will appear in the command prompt. **Note:** the /f switch is not applicable to the actions performed from the command prompt.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information.

Follow this link to obtain **<u>R-Drive Image Contact Information and Technical Support</u>** 

# 6.3.1 Create a Script from R-Drive Image

You may create scripts directly from **R-Drive Image** the same way you set a regular action for creating an image of a disk, partition, or an entire hard drive.

## To create a script from a disk action

- 1 Click Create an Image on the Action Selection panel and specify all the options and parameters as it is described on the Create an Image topic.
- 2 Click the Script to Clipboard button on the **Processing** panel and paste the script to any text-processing utility
- 3 Save the script in a file

The default extension for **R-Drive Image** scripts is .rdi. Go to the <u>Scripting and Command Line Operation</u> topic to learn how to use scripts

## To create a script from an existing task

- 1 Click Scheduler/Create Script on the Action Selection panel The Scheduled Tasks panel will appear.
- 2 Right-click the task the Scheduled Tasks panel
- 3 Select Save as Script in the shortcut menu and specify the name of the script
- > R-Drive Image will save the script in the specified file

The default extension for **R-Drive Image** scripts is .rdi. Go to the <u>Scripting and Command Line Operation</u> topic to learn how to use scripts

# To create a new script from the Scheduler

- 1 Click Scheduler/Create Script on the Action Selection panel The Scheduled Tasks panel will appear.
- 2 Click the Create a Script button on the Scheduled Tasks panel
- 3 Select the objects you want to backup on the Select disk(s) to create image panel, image destination on the Choose destination of new image panel, specify necessary parameters on the Image options, Notification options, Backup options panels, and on the Rotation options panel.

Images can be replicated, that is, their copies may be saved to one or other different locations.

Go to the Create an Image topic for more details.

Please note that you may use <u>rotation schemes (backup sets)</u> for creating complex data backup tasks and maintaining data files.

- 4 Verify that the information on the Processing panel is correct and click the Save button You may also click the Script to Clipboard button to copy this script into the Clipboard and paste the script to any text-processing utility.
- > R-Drive Image will save the script in the specified file The default extension for R-Drive Image scripts is .rdi. Go to the <u>Scripting and Command Line Operation</u> <u>topic</u> to learn how to use scripts

# To create a script from a scheduled task

- 1 Click Scheduler/Create Script on the Action Selection panel The Scheduled Tasks panel will appear.
- 2 Right-click the task from which you want to create a script on the Scheduled Tasks panel
- 3 Select in the context menu either Save as script to save the script in a file or Script to Clipboard (Ctrl+C) to copy and paste the script to any text-processing utility.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information.

Follow this link to obtain **<u>R-Drive Image Contact Information and Technical Support</u>** 

# 6.3.2 Create a Script Manually

**R-Drive Image** has a very powerful and versatile script language that enables you to create scripts for all your needs. A script consists of commands and their parameters. All commands, parameter, and their values are case-sensitive.

#### Incompatibilities with ver.3.x

	Ver. 3.x	Ver. 4.x
File names with " Escaping of the " character has been changed		"
File names with $a$	ŵ	&

Escaping of the $\&$ character has been changed		
Partition list Several partitions should be set in one list	-s="part1" -s="part2" - s="part3"	-s="part1 part2 part3"

# General:

The default extension for R-Drive Image script files is .rdi.

Parameter values may be inclosed in single (') or double (") quotes. if the value does not contain spaces, the quotes may be omitted.

**R-Drive Image** ignores spaces in the beginning of a line. **R-Drive Image** treats multiple spaces as one space, except when they are in a parameter value enclosed in quotes.

Examples:

Below are equal lines:

```
create -a = "c:\archive.rdr"
    create -a = "c:\archive.rdr"
Below are not equal lines:
```

create -a = "c:\archive 1.rdr"
create -a = "c:\archive 1.rdr"

#### Comments:

**R-Drive Image** treats lines which the first non-space character is ; or the first non-space character is [ and the last one is ], as comments.

Examples:

```
; This is a comment line
[This is a comment line]
```

## Multiple lines:

If the last non-space character in a line is \, R-Drive Image appends the next line to it:

Example:

```
Lines:
```

```
create -a = "c:\archive.rdr" -s = "1:1" \
  c = "5"
are equal to the line:
```

```
create -a = "c:\archive.rdr" -s="1:1" c= "5"
```

## Disk size units

Values specifying disk sizes may be in units.

b	bytes	
Kb	kilobytes	2^10 = 1,024 b
Mb	megabytes	2^20 = 1,024
		Kb
Gb	gigabytes	2^30 = 1,024
		Mb

If the units are used, enclose the value in quotes. Default values are Mb (megabytes).

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#### Characters to substitute

If the following characters are to appear in the parameter values, they should be substituted by the following rules:

Character	String to substitute
"	"
T	'
æ	&
carriage	&cr
return	
new line	&nl

Note: This is the incompatibility with scripts created for the earlier versions of **R-Drive Image**.

## URL paths

For remote hosts, **R-Drive Image** supports URL of two types:

\\[[domain;]username[:password]@]hostname\share\path

smb://[[domain;]username[:password]@]hostname[:<port>].share/path

They can be used instead local paths.

## Script commands and parameters:

Command Its Parameters	Optional/ Mandatory	Description and examples	
list		Returns a partition list for local drives or an image file. If the drive contains an APFS container, the command will show both the APFS container and its APFS volumes.	
- a= <pathofnewa rchiveFile&gt;</pathofnewa 	Mandatory	Specifies a path (including its file name) to the image file. Examples: -a=C:\Images\Test.rdr or -a="C:\Image Files\Test 1.rdr"	
-p= <password></password>	Mandatory/Not used	Specifies an image password. Mandatory if the image file has been already encrypted. It there is a space in the password, the password should be in quotes. Examples: -p=Password or -p='My Password'	
- t= <timeslicen umber&gt;</timeslicen 	Optional	Specifies which incremental data will be used to list the partitions in the image. If the TimeSliceNumber is not specified, the first data in the image will be used1 specifies the last incremental data in the image. first: <b>R-Drive Image</b> will use the first incremental data in the image. last: <b>R-Drive Image</b> will use the last incremental data in the image. + <n>: <b>R-Drive Image</b> will use the last incremental data in the image. -<n>: <b>R-Drive Image</b> will use the n-th incremental data from the beginning in the image. Examples: -t="+2" specifies the second incremental data from the beginning in the image.</n></n>	

Example:

list -a=C:\Images\Test.rdr -p="mY pasSsworRrd"

This script command password my passs	-	rtitions stored in the C: $\Images\Test.rdr$ image file protected by the
sysdump	SWOTKTØ.	Creates a system dump that may be necessary to obtain technical support. An image file can be included into that system dump. In this case, the keys -a, -p, -t from the list command should be used.
- sysdump=" <sys DumpFile&gt;"</sys 	Mandatory	Specifies the filename for the system dump.
Example: sysdump -sysdu		-a=C:\Images\Test.rdr -p="mY pasSsworRrd"
-		n the system dump, its name is MySysDump. The system dump includes protected by the password my pasSsworRrd.
register		Registers <b>R-Drive Image</b> from the command line.
-reg- user=" <userna me&gt;"</userna 	Mandatory	Specifies the user name for registration.
-reg- key=" <registr ationKey&gt;"</registr 	Mandatory	Specifies the register key for registration.
-reg- company=" <use rCompany&gt;"</use 	Optional	Specifies the company for registration.
key="fafaasert	ghzfvasfje134" <b>1 registers R-Driv</b>	e Image for the user Tester 1 from the company R-TT Testing Team
is written in the order	isk descriptors <b>R-I</b> r of importance, fro identical disk desc	-d commands Drive Image uses to identify hard drives, logical disks, and partitions. It om the most important descriptor to the least important one. If there are criptors, <b>R-Drive Image</b> identifies them using the most important disk
hdd_vtype	HDD type.	<pre>real : a basic disk dynamic : a dynamic disk pure : disk objects like USB pendrives with only one logical disk on it. Example: hdd_vtype=real</pre>
hdd_size	HDD size	Disk size should be specified in bytes, no KB or MB are allowed. Example: hdd_size=40060403712
hdd_name	HDD name	Example: hdd_name=SAMSUNG SP0411NTW100-11 ( denotes a space)
hdd_serial	HDD serial number	Example: hdd_serial=S01JJ30X912841
hdd_bus_type	Type of the HDD bus	Canbe: none, ata, atapi, scsi, floppy, usb, firewire, ssa, fibre, raid, smart, abios, sata, sata2. Example: hdd_bus_type=ata

hdd_port_num	Port number for HDD	Example: hdd_port_num=0
hdd_target_id	Target ID for HDD	Example: hdd_target_id=1
hdd_num	Disk number, coincides with the disk number used in the old notations.	Example: hdd_num=1
part_free_spa ce	Free space mark	1 if this object is a disk free space, 0 if not. Example: part_free_space=1
part_ofs	Partition offset in bytes.	Partition offset should be specified in bytes, no KB or MB are allowed. Example: part_ofs=16778264576
part_size	Partition size	Partition size should be specified in bytes, no KB or MB are allowed. Example: part_size=23279435776
part_fs	Partition file system	Can be: none, ntfs, fat12, fat16, fat32, exfat, ext2fs, ext3fs, ext4fs, ufs1, ufs2, hfs ,hfsplus ,hfsx, iso9660 Example:part fs=ntfs
part label	Disk label	Example: part label=Test Data
part_mounted	Disk letter of folder	Example:part_mounted=G:\
part_num	Partition number, coincides with the partition number used in the old notations. Free space is considered as a partition.	Example:part_num=2
part_id	Partition identifier.	Example:part_id=2
vol_id	APFS volume identifier in an APFS container	Example: vol_id=3
used_id	Partition identifier when free space is omitted.	Example: used_id=2
unused_id	Free space identifier when	Example: unused_id=1

	partitions are omitted.		
A partition may be identified using its descriptors:			
hdd_size=40060403712+part_num=2+hdd_num=1+hdd_target_id=0+hdd_bus_type=ata+part_lab			
	fs=167782645764	+part_mounted=G:\+hdd_name=SAMSUNG	
SP0411NTW100-			
11+part_size=23: vtype=real	279435776+hdd_r	port_num=0+hdd_serial=S01JJ30X912831+part_fs=ntfs+hdd_	
create			
append		Differentially appends data to an existing image file. If such file does not exist, it will be created.	
- s= <sourcedisk &gt;</sourcedisk 	Mandatory	Specifies a source object to create the image or append to it. The <sourcedisk> parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value]. The disk descriptors are presented in the <u>Disk descriptors</u> section of this table. Old notation is also valid: Old notation examples: for hard drive 1: -s=1 for the second partition on hard drive 1 (empty space is treated as a partition): -s=1:2 for the second partition on hard drive 1 skipping empty spaces: - s=1:p2 for the first empty space on hard drive 1 skipping partitions: - s=1:f1 for a logical disk: -s=D: for several logical disks: -s="D: F:"</sourcedisk>	
- a= <pathofnewa rchiveFile&gt;</pathofnewa 	Mandatory	Specifies a path (including its file name) to the image file. Examples: -a=C:\Images\Test.rdr Or -a="C:\Image Files\Test 1.rdr"	
- c= <compressio nLevel&gt;</compressio 	Optional	Specifies <u>compression level</u> (111). Example: -c=3	
-u	Optional	Backups useful information only. May be used as a <u>Boolean</u> parameter.	
- v= <archivesiz e&gt;</archivesiz 	Optional	Specifies image split size. May be in the float-point format. Example: -v=650 or -v='4.5 Gb'	
-append-inc	Optional	Creates an incremental backup.	
-p= <password></password>	Mandatory/Not used	Specifies an image password. Mandatory if the append command is used and the image file has been already encrypted. It there is a space in the password, the password should be in quotes. Examples: -p=Password or -p='My Password'	
- r= <descriptio n of archive&gt;</descriptio 	Optional	Specifies an image description. It there is a space in the description, the description should be in quotes.	

		Examples: -r=Description or -r="Image Description"	
-s-xw	Optional	Makes <b>R-Drive Image</b> not to use the Windows snapshot provider.	
-s-xr	Optional	Makes <b>R-Drive Image</b> not to use the R-TT snapshot provider.	
-s-n	Optional	Notifies system application that a snapshot is being taken.	
-s-		Specifies an application that will start before the backup operation	
b0= <appbefore< td=""><td>Optional</td><td>starts. The application should return a 0 exit code.</td></appbefore<>	Optional	starts. The application should return a 0 exit code.	
Back>		Example:-s-b0="C:\commands\start.exe"	
-s-		Specifies an application that will start after the backup operation	
b1= <appafterb< td=""><td>Optional</td><td>completes. The application should return a 0 exit code.</td></appafterb<>	Optional	completes. The application should return a 0 exit code.	
ack>		Example:-s-b1="C:\commands\end.exe"	
-s-		Specifies an application that will start before the snapshot is taken.	
s0= <appbefore< td=""><td>Optional</td><td>The application should return a 0 exit code.</td></appbefore<>	Optional	The application should return a 0 exit code.	
SnapShot>		<pre>Example: -s-s0="C:\commands\startsnapshot.exe"</pre>	
-s-		Specifies an application that will start after the snapshot is taken. The	
s1= <appafters< td=""><td>Optional</td><td>application should return a 0 exit code.</td></appafters<>	Optional	application should return a 0 exit code.	
napShot>		<pre>Example:-s-s1="C:\commands\endsnapshot.exe"</pre>	
		Specifies a command line that will start an application if R-Drive	
-		Image fails to perform the specified action. If there is a space in the	
xe= <appiferro< td=""><td>Optional</td><td>command line, the command line should be in quotes.</td></appiferro<>	Optional	command line, the command line should be in quotes.	
r>		<b>Examples:</b> -xe=error.exe or -xe="winamp C:	
		\sounds\error.mp3"	
		Specifies a command line that will start an application if <b>R-Drive</b>	
-		<b>Image</b> successfully performs the specified action. If there is a space in	
xs= <appifsucc &gt;</appifsucc 	Optional	the command line, the command line should be in quotes.	
		Examples: -xs=success.exe or -xs="winamp C:	
		\sounds\success.mp3" Specifies that R-Drive Image will use rotation schemes (backup	
-bs	Optional	sets).	
		May be used only if the $-bs$ is set. Specifies the total size in MB on	
-bs-		the disk allocated for the backup set. If it is exceeded, the backup set	
size=" <quota_< td=""><td>Optional</td><td>(all its files) will be removed.</td></quota_<>	Optional	(all its files) will be removed.	
in_MB>"		Example: -bs-size="20000"	
		May be used only if the -bs is set. Specifies the number of rotation	
-bs-num-		schemes (backup sets) If it is exceeded, the older rotation schemes	
b=" <number_of< td=""><td>Optional</td><td>(backup sets) (all their files) will be removed.</td></number_of<>	Optional	(backup sets) (all their files) will be removed.	
_backs>"		Example: -bs-num-b="10"	
		May be used only if the -bs is set. Specifies the number of files in all	
-bs-num-	Out 1	rotation schemes (backup sets). If it is exceeded, the older rotation	
f=" <number_of files&gt;"</number_of 	Optional	schemes (backup sets) (all their files) will be removed.	
		Example: -bs-num-f="30"	
		May be used only if the -bs is set. Specifies the number of days for	
-bs-	Optional	which <b>R-Drive Image</b> will keep the backup set. Then the backup set	
age=" <days>"</days>		will be removed.	

-cd-cache	Optional	Used when an image file is written to CD discs. R-Drive Image
		creates an ISO image of the CD disc and then copies it to the CD
		disc. Without it <b>R-Drive Image</b> writes data directly to the CD disc.
		Used when an image file is written to CD discs. Specifies burning
-cd-	opeed= <speed> Optional</speed>	speed in KB/sec.
speed- <speed></speed>		Example: -cd-speed="1200"
-dvd-cache		Used when an image file is written to DVD discs. R-Drive Image
	Optional	creates an ISO image of the DVD disc and then copies it to the DVD
	_	disc. Without it <b>R-Drive Image</b> writes data directly to the DVD disc.
-dvd-speed		Used when an image file is written to DVD discs. Specifies burning
	Optional	speed in KB/sec.
		Example: -dvd-speed="3324"

#### Example:

create -

s="hdd\_size=40060403712+part\_num=1+hdd\_num=2+hdd\_target\_id=0+hdd\_bus\_type=ata+part \_label=Part1+part\_ofs=1048576+part\_mounted=F:\+hdd\_name=SAMSUNG SP0411NTW100-11+part\_size=16777216000+hdd\_port\_num=0+hdd\_serial=S01JJ30X912831+part\_fs=ntfs+hdd \_vtype=real,hdd\_size=40060403712+part\_num=2+hdd\_num=2+hdd\_target\_id=0+hdd\_bus\_type =ata+part\_label=Part2+part\_ofs=16778264576+part\_mounted=H:\+hdd\_name=SAMSUNG SP0411NTW100-

11+part\_size=23279435776+hdd\_port\_num=0+hdd\_serial=S01JJ30X912831+part\_fs=ntfs+hdd
\_vtype=real" -a="I:\Test Image.rdr" -c=3 -u = true -p="My Password" -r="This is a
test image" -xe="winamp C:\sounds\error.mp3" -xs="winamp C:\sounds\success.mp3"

This script command creates an image of logical disks F: and H: on the Samsung HDD. The path and filename for this image file is I:\Test Image.rdr, with compression level 3, and only useful information on this disk will be written to the image. This image is protected with the password "My Password", and its description is "This is a test image". If the script action has been performed successfully, the winamp application will play the success.mp3 file, and if an error occurs, it will play the error.mp3 file.

restore		Restores data from an image to a specified disk place
сору		Copies a disk to a disk.
- s= <sourcedisk &gt;</sourcedisk 	Mandatory	<pre>Specifies a source object to copy. The <sourcedisk> parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value]. The disk descriptors are presented in the <u>Disk descriptors</u> section of this table. Old notation is also valid: Old notation examples: for hard drive 1: -s=1 for the second partition on hard drive 1 (empty space is treated as a partition): -s=1:2 for the second partition on hard drive 1 skipping empty spaces: - s=1:p2 for the first empty space on hard drive 1 skipping partitions: - s=1:f1 for a logical disk: -s=D: for several logical disks: -s="D: F:"</sourcedisk></pre>

- d= <destinatio nDisk&gt;</destinatio 	Mandatory	Specifies a destination disk:partition on which the data is to be restored. The <destinationdisk> parameter consists of one or several disk descriptors written in the form descriptor_name1=value[+descriptor_name1=value]. The disk descriptors are presented in the <u>Disk descriptors</u> section of this table. Old notation is also valid: Old notation examples: for hard drive 1: -d=1 for the second partition on hard drive 1 (empty space is treated as a partition): -s=1:2 for the second partition on hard drive 1 skipping empty spaces: - s=1:p2 for the first empty space on hard drive 1 skipping partitions: - s=1:f1 for a logical disk: -d=D:</destinationdisk>
- a= <pathofarch iveFile&gt;</pathofarch 	Mandatory	Applicable to restore only. Specifies a path (including its file name) to the image file from which data is to be restored. It there is a space in the path, the path should be in quotes. Examples: -a=C:\Images\Test.rdr or -a="C:\Image Files\Test.rdr"
- k=<"Partition Status">	Optional	<ul> <li>Specifies a status (primary/active) for a partition to be restored.</li> <li>Settings:</li> <li>+p is a primary partition -p is a secondary partition</li> <li>+a is an active partition -a is a non-active partition</li> <li>Please note that the combination "-p +a" is invalid. If this parameter is not specified, the data from the image will be used.</li> <li>Examples:</li> <li>-k="+p+a" the partition will be primary and active.</li> <li>-k="+p" the partition will be primary. Information in the image will be used to make the partition either active or non-active.</li> </ul>
-ou	Optional	Copy/restore useful information only. May be used as a Boolean parameter.
- t= <timeslicen umber&gt;</timeslicen 	Optional	Applicable to restore only. Specifies which incremental data will be used to restore data from the image. If the TimeSliceNumber is not specified, the first data in the image will be used1 specifies the last incremental data in the image. first: R-Drive Image will use the first incremental data in the image. last: R-Drive Image will use the last incremental data in the image. + <n>: R-Drive Image will use the n-th incremental data from the beginning in the image. -<n>: R-Drive Image will use the n-th incremental data from the end in the image.</n></n>

		Examples: $-t="+2"$ specifies the second incremental data from the beginning in the image will be used to restore data.
- lr= <diskletter &gt;</diskletter 	Optional	Specifies a disk letter. This parameter is case-insensitive. Examples: -lr="K" or -lr=K.
- sz= <partitions ize&gt;</partitions 	Optional	Specifies a partition size. May be in the float-point format. The following predefined values may be used: min: shrink the partition to the minimum possible size, max: expand the partition to the maximum size. Example: -sz=512 or -sz='0.5 Gb'
- of= <partitiono fset&gt;</partitiono 	Optional	Specifies an offset from the beginning of the destination. May be in the float-point format. Default is 0. Example: -of=512 or -of='0.5 Gb'
-bs- use=" <paramet er&gt;"</paramet 	Optional	Applicable to restore only. Specifies the backup set R-Drive Image will use to restore data. Parameter may be: first: R-Drive Image will use the first backup set. last: R-Drive Image will use the last backup set. + <n>: R-Drive Image will use the n-th backup set from the beginning. -<n>: R-Drive Image will use the n-th backup set from the end. <date>: R-Drive Image will use the n-th backup set from the date in its name. Examples: -bs-use="+3": R-Drive Image will use the 3-rd backup set from the beginning. -bs-use="20080521": R-Drive Image will use the backup set from the backup set from the backup set from the backup set from the beginning.</date></n></n>
-p= <password></password>	Mandatory / Not used	Applicable to restore only. Mandatory for password-protected files. Specifies a password for the archive. Example: -p="my password"
-hdd- mode=" <modety pe&gt;"</modety 	Optional	Applicable to copy/restore entire hard drives only. Specifies an HDD copy mode when copying entire hard drives. Parameter may be: 0: The default method 1: Raw disk copy 2: Copy all partitions onto original places 19: One partition after another 20: One partition after another (Fixed active partition) 51: Expand/Shrink partition to whole disk 52: Expand/Shrink partition to whole disk (Fixed active partition)
Example:		

restore -a="I:\Test Image.rdr" s="hdd\_size=40060403712+part\_num=1+hdd\_num=1+hdd\_target\_id=0+hdd\_bus\_type=ata+part
\_label=Part2
+part\_ofs=16778264576+part\_mounted=G:\+hdd\_name=SAMSUNG SP0411NTW10011+part\_size=23279435776+hdd\_port\_num=0+hdd\_serial=S01JJ30X912831+part\_fs=ntfs+hdd
\_vtype=real"
d="hdd\_size=40060403712+part\_num=2+hdd\_num=1+hdd\_target\_id=0+hdd\_bus\_type=ata+part
\_label=Part2+part\_ofs=16778264576+part\_mounted=G:\
+hdd\_name=SAMSUNG SP0411NTW10011+part\_size=23279435776+hdd\_port\_num=0+hdd\_serial=S01JJ30X912831+part\_fs=ntfs+hdd
\_vtype=real"
-p="My Password" -xe="winamp C:\sounds\error.mp3" -xs="winamp C:
\sounds\success.mp3"

This script command restores data to the logical disk G: on the Samsung HDD, the source image is stored in the "I:\Test Image.rdr", the data is taken from the first partition in the image. This image is protected with the password "My Password". If the script action has been performed successfully, the winamp application will play the success.mp3 file, and if an error occurs, it will play the error.mp3 file.

restorefiles		Restores individual files from images to a specified destination
- s=" <sourcedis k&gt;"</sourcedis 	Mandatory	Specifies a source object to restore. The <sourcedisk> parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value]. The disk descriptors are presented in the <u>Disk descriptors</u> section of this table. Old notation is also valid: Old notation examples: for hard drive 1:-s=1 for the second partition on hard drive 1:-s=1:2 for a logical disk:-s=D:</sourcedisk>
- a=" <pathofarc hiveFile&gt;"</pathofarc 	Mandatory	Specifies a path (including its file name) to the image file from which data is to be restored. It there is a space in the path, the path should be in quotes. Examples: -a=C:\Images\Test.rdr or -a="C:\Image Files\Test.rdr"
- filelist=" <li stOfFilesToRe store&gt;"</li 	Mandatory	Specifies list of files from the image that should be restored. Example: -filelist="MyPhoto/*,Photo/Picture 001.jpg,Photo/Picture 003.jpg"
- outdir=" <outp utFolder&gt;"</outp 	Mandatory	Specifies the folder to which files will be restored. Example: -outdir="D:\1111"

#### Example:

```
restorefiles -
s="hdd_size=7509196800+part_num=1+hdd_num=1+hdd_target_id=0+hdd_bus_type=ata+part
_label=NTFS-Test+part_ofs=64512+part_mounted=F:\+hdd_name=WDC WD75DA-
00AWA107.21L07
+part_size=3141991936+hdd_port_num=0+hdd_serial=WD-
WMA1J1262876+part_fs=ntfs+hdd_vtype=real"
-a="I:\Test Image.rdr" -t="+1" -filelist="MyPhoto/*,Photo/Picture 001.jpg,
```

		Picture 005.jpg,Photo/Picture 007.jpg,Photo/Picture	
009.jpg,Photo/Picture 010.jpg,Photo/Picture 011.jpg,			
Photo/Picture 013.jpg,Photo/Picture 015.jpg,Photo/Picture 016.jpg,Photo/Picture			
017.jpg,Photo/Picture 018.jpg,Photo/Picture 019.jpg,Photo/Picture 020.jpg,			
Photo/Picture 021.jpg,Photo/Picture 022.jpg,Photo/Picture 023.jpg,			
Photo/Picture 024.jpg,Photo/Picture 025.jpg,Photo/Picture 026.jpg,Photo/Picture			
027.jpg,Photo/	027.jpg,Photo/Picture 028.jpg" -outdir="D:\1111"		
This script command	l restores the speci	fied files to the destination path D: \1111 from the source image of the	
first partition of the h	ard drive stored in	the file I:\Test Image.rdr.	
check		Checks consistency of the archive	
		Specifies a path (including its file name) to the image which integrity is	
_		to be checked. It there is a space in the path, the path should be in	
a= <pathofarch< td=""><td>Mandatory</td><td></td></pathofarch<>	Mandatory		
iveFile>	iviandator y	quotes.	
TAGLITGN		Examples: -a=C:\Images\Test.rdr or -a="C:\Image	
		Files\Test.rdr"	
Example:			
check -a="I:\T			
This script command	checks the image	file I:\Test Image.rdr for its consistency.	
mount		Mounts an image file as a read-only virtual disk.	
		Specifies a path (including its file name) to the image file.	
-		Examples:	
a= <pathofnewa< td=""><td>Mandatory</td><td>-</td></pathofnewa<>	Mandatory	-	
rchiveFile>		-a=C:\Images\Test.rdr Or -a="C:\Image Files\Test	
		1.rdr"	
		Specifies an object in the image to mount. The <sourcedisk></sourcedisk>	
		parameter consists of one or several disk descriptors written in the	
		form: descriptor name1=value[+descriptor name1=value]. The	
-		disk descriptors are presented in the <b>Disk descriptors</b> section of this	
s= <sourcedisk< td=""><td>Mandatory</td><td>table. Old notation is also valid:</td></sourcedisk<>	Mandatory	table. Old notation is also valid:	
>			
		Old notation examples:	
		for the second partition on hard drive $1:-s=1:2$	
		for a logical disk: $-s=D$ :	
-			
lr= <diskletter< td=""><td>Mandatory</td><td>Specifies a disk letter. This parameter is case-insensitive.</td></diskletter<>	Mandatory	Specifies a disk letter. This parameter is case-insensitive.	
>		Examples: -lr="K" or -lr=K.	
		Specifies which incremental data in the image will be used to mount a	
		disk. If the TimeSliceNumber is not specified, the first data in the	
		-	
		image will be used1 specifies the last incremental data in the image.	
		first: R-Drive Image will use the first incremental data in the	
		image.	
-		last: <b>R-Drive Image</b> will use the last incremental data in the image.	
t= <timeslicen< td=""><td>Optional</td><td><b>e</b></td></timeslicen<>	Optional	<b>e</b>	
umber>		+ <n>: <b>R-Drive Image</b> will use the n-th incremental data from the</n>	
		beginning in the image.	
		- <n>: <b>R-Drive Image</b> will use the n-th incremental data from the end</n>	
		in the image.	
		Examples: $-t="+2"$ specifies the second incremental data from the	
		beginning in the image will be used to mount a disk.	

-bs- use=" <paramet er&gt;"</paramet 	Optional	Specifies the backup set <b>R-Drive Image</b> will use to mount as a logical disk. Parameter may be: first: <b>R-Drive Image</b> will use the first backup set. last: <b>R-Drive Image</b> will use the last backup set. + <n>: <b>R-Drive Image</b> will use the n-th backup set from the beginning. -<n>: <b>R-Drive Image</b> will use the n-th backup set from the end. <date>: <b>R-Drive Image</b> will use the backup set from the end. <date>: <b>R-Drive Image</b> will use the backup set containing the date in its name. Examples: -bs-use="+3": <b>R-Drive Image</b> will use the 3-rd backup set from the beginning.</date></date></n></n>
Example:		-bs-use="20080521": <b>R-Drive Image</b> will use the backup set containing the "20080521" string in its name.
Example:	Last Tmaga ada"	-s=1:2 lr=F: -t=-1
		ad partition of the first hard drive contained in the image file $I:\Test$
Image.rdr. The vir		
unmount		Unmounts a mounted virtual disk.
- lr= <diskletter< td=""><td>Mandatory</td><td>Specifies a disk letter. This parameter is case-insensitive. Examples: -lr="K" or -lr=K.</td></diskletter<>	Mandatory	Specifies a disk letter. This parameter is case-insensitive. Examples: -lr="K" or -lr=K.
>		
Example: unmount lr=F:		
This script command	unmounts the virtu	al logical disk F:
activate		Sets a specified partition active. The required partition should be specified
- s= <sourcedisk &gt;</sourcedisk 	Mandatory	Specifies the partition on the disk to set active. The <sourcedisk> parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value]. The disk descriptors are presented in the <u>Disk descriptors</u> section of this table. Old notation is also valid: Old notation examples: for the second partition on hard drive 1:-s=1:2 for a logical disk:-s=D:</sourcedisk>
Example:		
activate -s=1:		and fall a free thread the section
This script command	i set the first partition	on of the first hard drive active.
delete		Deletes a partition on a drive The required partition should be specified
- s= <sourcedisk &gt;</sourcedisk 	Mandatory	Specifies a partition to delete. The <sourcedisk> parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value]. The disk descriptors are presented in the <u>Disk descriptors</u> section of this table. Old notation is also valid:</sourcedisk>

		Old notation examples:
		for the second partition on hard drive $1:-s=1:2$
		for a logical disk: $-s=D$ :
Example:		
delete -s=F:		
This script command	l deletes the logical	disk F:.
clear		Deletes all partitions on a drive
- s= <sourcedisk &gt;</sourcedisk 	Mandatory	Specifies the hard drive where all partitions should be deleted. The <sourcedisk> parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value]. The disk descriptors are presented in the <u>Disk descriptors</u> section of this table. Old notation is also valid: Old notation examples: for hard drive 1: -s=1</sourcedisk>
		Specifies a partitioning scheme type to be created on the hard drive.
-part-		<partitiontype> may be:</partitiontype>
type= <partiti< td=""><td>Optional/Mandat</td><td>0</td></partiti<>	Optional/Mandat	0
onType>	ory	gpt: <b>R-Drive Image</b> will create the GPT schemes.
		If omitted, the existing partitioning schemes table will be cleared.
		Mandatory if no partitioning schemes exists on the hard drive.
Example:		
clear -s=2	l deletes ell nontition	as on the second hand drive
fixmbr	Optional	ns on the second hard drive. Installs a default boot loader on a hard drive
	Optional	
- s= <sourcedisk< td=""><td>Mandatory</td><td>Specifies the hard drive where the boot loader will be installed. Example:</td></sourcedisk<>	Mandatory	Specifies the hard drive where the boot loader will be installed. Example:
>	Mandatory	for hard drive $1: -s=1$
Evenuela		
Example: fixmbr -s=1		
	l installs the default	boot loader to the first hard drive.
mail	Optional	Specifies all mail options globally for the entire script
Example:		
-	.example.com -m	a=rtt1@example.com -mr=rtt2@example.com -
ml=rtt1:password -me -mx -mz=ssl		
This script command sends e-mails confirming success or error of the action from rttl@example.com to		
rtt2@example.com via the mail.example.com SMTP server using the default (25) port with the rtt1 login		
and password pass	word. The SSL opt	tion is SSL.
Parameters applic	able to all comma	unds
These parameters can be used in all commands		
- log=" <logoptio ns&gt;"</logoptio 	Optional	Controls the way <b>R-Drive Image</b> logs its command-line activity. By default, it outputs its activity into WinNT event log if started from Windows scheduler, but can create its own xml-type log files. LogOptions may be: #nodefault: disables the default log output into syslog
		"near and a show and a show and a show and a show a

		<pre><filename>: writes the log to the specified file name and path. Example: c:\mylogs\mylog.txt. The "," character in the file name should be doubled. <filepath>: writes the log files (a separate one to each session) to the specified folder. Each file name will have the following filename: date_time.rdl. Examples: c:\mydir file name: 20081003_215302.rdl. #syslog: output logs into WinNT event log. #sysdir: outputs logs into C:\Documents and Settings\All Users\Application Data\R-TT\R-Drive Image\Logs\. Example:log="#nodefault,c:\mylog.txt,c: \mydir#sysdir" This will make R-Drive Image write its logs to the c:\mylog.txt file, and to the c:\mydir\ and C:\Documents and Settings\All Users\Application Data\R-TT\R-Drive Image\Logs\ folders without writing to WinNT event log.</filepath></filename></pre>
mail options	Optional	Sends e-mail messages if the action fails or succeeds and specifies e- mail parameters. If a personal firewall is installed on your computer, you should allow the r-driveimagecl.exe application to get access to the e-mail server.
-me	Optional	Sends an e-mail message when <b>R-Drive Image</b> fails to perform the specified action. May be used as a <u>Boolean parameter</u> .
-mx	Optional	Sends an e-mail message when <b>R-Drive Image</b> successfully performs the specified action. May be used as a <u>Boolean parameter</u> .
- ms= <smtpserve r[:port]&gt;</smtpserve 	Mandatory/Not used	Mandatory if the -me or/and -mx option is used. Specifies an SMTP server and port (optional). Examples: -ms=mail.example.com or - ms=mail.example.com:25
- ma= <senderema il&gt;</senderema 	Mandatory/Not used	Mandatory if the -me or/and -mx option is used. Specifies a sender's e-mail address. Example: -ma=rttl@example.com
- mr= <recepient Email&gt;</recepient 	Mandatory/Not used	Mandatory if the -me or/and -mx option is used. Specifies a recipient's e-mail address or addresses. Example: -ma=rtt2@example.com
- ml= <login:pas sword&gt;</login:pas 	Optional	Specifies a login and password at the SMTP server. Example: -ml=rtt1:password
- mz= <ssloption s&gt;</ssloption 	Optional	Specifies the SSL options. Can be auto, no, ssl, tls. Default is auto Example: -mz=ssl
- mn= <sendernam e&gt;</sendernam 	Optional	Specifies the sender name. Example: -mn="Jhon Smith"
- mc= <mailsubje ct&gt;</mailsubje 	Optional	Specifies the mail subject Example: -mc="Backup Result"

#### **Boolean parameters**

Those are parameters that may have Boolean values:

true, 1, yes, false, 0, no.

They may be used as keys (example: -u) or as parameters with values (example: -u=true).

#### **Entities or Variables.**

Entities may be used as variables to create various text strings. They are start with & and end with ; .

#### Version Entities.

In the examples below, the **R-Drive Image** version is assumed as 4.1.67

Entity	Description
&rdi.ver	The <b>R-Drive Image</b> version. Example: "4.1"
&rdi.ver.build	The <b>R-Drive Image</b> build. Example: "4167"
;	
&rdi.ver.major	The <b>R-Drive Image</b> major version. Example: "4"
;	
&rdi.ver.minor	The <b>R-Drive Image</b> minor version. Example: "1"
;	
&rdi.ver.submi	The R-Drive Image sub-minor version. Example: "67"
nor;	

#### **Result Entities**

Entity	Description
	Returns the last result of R-Drive Image operation. May be undefined, success,
lt;	failed.

#### Time Entities.

In the examples below, the system time is assumed as 11:10:04 AM

Entity	Description
&sys.time	System time in the locale format. Example: "11:10:04". Please note that it is impossible
	to use this entity in file names because it contains an invalid character :.
&sys.time.m	Minutes
&sys.time.h	Hours in the 24 h format
&sys.time.h12	Hours in the 12 h format
&sys.time.h24	Hours in the 24 h format
&sys.time.s	Seconds
&sys.timem	PM or AM

#### Date Entities.

In the examples below, the system date is assumed as February 1, 2007, Thursday

Entity	Description
&sys.date	System date in the locale format. Example: "29/01/07". Please note that it is not
	recommended to use this entity in file names because that will create a chunk of folders.
&sys.date.d	Month day. Example: "01"
&sys.date.m	Month. Example: "02"
&sys.date.y	Short year. Example: "07"

&sys.date.yyyy	Long year. Example: "2007"
;	
&sys.date.m.na	Month name. Example: "February"
me;	
&sys.date.m.nm	Short month name. Example: "Feb"
;	-
&sys.date.wd	Week day number, starting from Sunday. Example: "5"
&sys.date.wd.n	Week day name. Example: "Thursday"
ame;	
&sys.date.wd.n	Short week day name. Example: "Th"
m;	

#### **Enumeration Entities**

Entity	Description	
&rdi.enum	Defines the number of calls to this entity. Starts from 0.	
&rdi.enum. <num< td=""><td>Defines the number of calls to this entity. Starts from 0. Num specifies the format of the</td></num<>	Defines the number of calls to this entity. Starts from 0. Num specifies the format of the	
>;	number. Example: &rdi.enum.3 will return 001 for the second calls to this entity.	

#### User-defined entities

You may create your own entities using the set command. Example:

set creat\_date = "&sys.date.m.name;-&sys.date.d;-&sys.date.y;"

You may use this entity, for instance, set a command creating files with their date of creation as the file name:

create -a="D:\archive\&creat date;.rdr" -s="c:"

If the date when the script has been run is February 1, 2007, Thursday, this command will create an image of the logical disk C: and write it to the D:\archive\February-01-07.rdr file.

Please note that the set command defines the entities rather than specifies their value. The actual value of an entity will be determined each time the entity is used. Example:

```
set creat_time = "&sys.time.h24;-&sys.time.m;-&sys.time.s;"
```

and the creat time entity is used in two commands in a script:

```
create -a="D:\archive\&creat_time;.rdr" -s="c:"
```

create -a="D:\archive\&creat\_time;.rdr" -s="c:"

R-Drive Image will create two different files with different file names, each representing the time of file creation.

The unset command deletes entities. Example:

```
unset creat_date creat_time
```

After this command the creat\_date and creat\_time entities cannot be used and cause **R-Drive Image** to generate an error if they appear further in the script.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

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### VII Technical Information

This chapter gives technical information on

- Updates
- <u>Cloud Services</u>
- Image Replications
- Logging
- <u>Creating consistent point-in-time backups</u>
- Support for Various Disk Partition Schemes and File Systems
- Supported Virtual Disk and Disk Image Formats:
- Disk Wiping Algorithms
- Supported CD and DVD Recorders
- List of Hardware Devices Supported in the Startup Mode

The **Disk Actions** chapter explains disk actions such as:

- Create an Image of a partition, logical disk, or entire hard drive
- Create an Image from Files
- <u>Copy Files to a Folder</u>
- <u>Restore Data from an Image</u>
- Copy Disk to Disk to make an exact copy of one disk on another
- Manage partition and logical disks
- Mount an Image as a Virtual Logical Disk (read-only)
- <u>Unmount Virtual Logical Disks</u>
- Check an Image File to check an existing image file

The **<u>RAIDs</u>**, and Various Disk and Volume Managers chapter explains how to perform disk actions with various compound volumes such as:

- Hardware RAIDs
- <u>BitLocker Drive Encryption</u>
- Windows Software RAIDs, Spanned, and Other Volumes
- <u>Windows Storage Spaces</u>
- Apple RAIDs
- <u>Apple CoreStorage/File Vault/Fusion Drive Volumes</u>
- Linux mdadm RAIDs
- Linux Logical Volume Manager Volumes

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- <u>Create Startup Disk</u>
- Load Computer into Startup Mode
- <u>Restore Data From an Image</u>
- <u>Create an Image</u>

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- Disk to Disk Copy
- Create an Image from Files
- <u>Partition Manager</u>
- Check an Image File
- Network Drives

The <u>Scheduled Actions</u>, <u>Command Line Operations</u>, and <u>Scripting</u> chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- <u>Scheduler and Unattended Actions</u>
- <u>Scripting and Command Line Operations</u>
- Rotation schemes (backup sets)

The <u>**R-Drive Image OEM kit</u>** chapter explains how computer system integrators can create system recovery disks for their systems</u>

- Create a Master Image
- <u>Create Startup Media</u>

Follow this link to obtain **R-Drive Image Contact Information and Technical Support** 

### 7.1 Updates

#### Automatic update

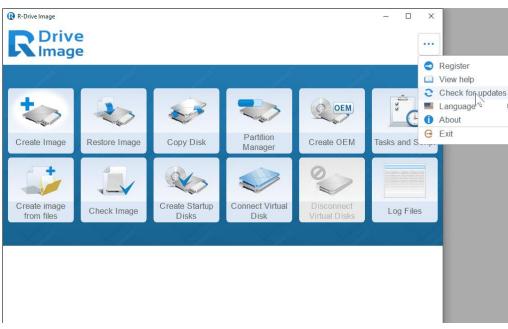
**R-Drive Image** may automatically check for available updates. When it finds an update it shows a widget on its panel. You may start updating by clicking this widget.

#### R-Drive Image Action selection panel



#### Manual update

You may manually update **R-Drive Image** either on the **About R-Drive Image** dialog box, or on the **Action** selection panel.



R-Drive Image Action selection panel

### 7.2 Cloud Services

**Please note:** Because **R-Drive Image** software uses cloud storage provider APIs, **R-Tools Technology, Inc** cannot be held responsible for any issues related to the APIs and any services provided by cloud storage companies.

**R-Drive Image** can save images in cloud services and restore them from those services. The following services are currently supported:

- Google Drive<sup>®</sup> (Note that for this cloud service, **R-Drive Image** can view, delete, and download only those files that it has created. If you upload an **R-Drive Image** file to your Google Drive account by yourself, **R-Drive Image** will not be able to see it and download.)
- Microsoft OneDrive®
- Dropbox<sup>®</sup>.

You need to connect to the service before you'll be able to use the service. We'll show how to do that using Google Drive as an example.

### To connect to the Google Drive:

1 Click the **Connection to cloud button** 

#### Connect to cloud

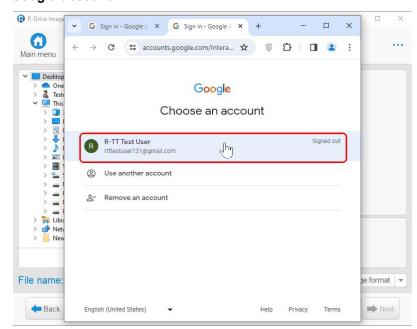
R-Drive Image - Create Image	- 0
Main menu	Select the destination for the new image
Desktop       > ● OneDrive       > ■ This PC       > ■ Desktop       > ■ Desktop       > ■ Desktop       > ■ Documents       > ■ Documents       > ■ Dictures       > ■ Videos       > ■ System (C:)       > ■ Data (D:)       > ■ NTFS-Test (E:)	Existing image details
<ul> <li>FAT32-TEST (F:)</li> <li>FAT3-TEST (G:)</li> <li>FAT3-TEST (G:)<!--</td--><td>Imaging mode Create a new full image</td></li></ul>	Imaging mode Create a new full image
ile name: Enter filename	R-Drive Image format
<b>H</b> Back	Options 1 Disk Selected Next

2 Select the service you want to connect to and double-click it Connect to cloud window

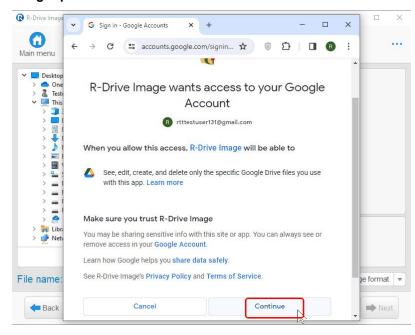
Desktop	Connect to cloud ×	
<ul> <li>Lester 1</li> <li>This PC</li> <li>JD Objects</li> <li>Desktop</li> <li>Documents</li> <li>Downloads</li> </ul>	Google Drive	
>         ♪         Music           >         ■         Pictures           >         ■         Videos           >         ■         Data (D:)           >         ■         Data (D:)           >         ■         NTFS-Test (C)           >         ■         FAT-TEST (G)           >         ■         Libraries           >         ■         Libraries	😝 Dropbox	image
> New folder		mage

A default browser window will appear.

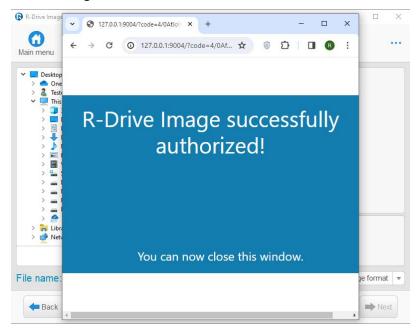
3 Select your Google account and log in to it Google account



4 Review the permissions for R-Drive Image and click Continue Google permissions



5 Make sure that R-Drive Image successfully authorized and close the browser R-Drive Image authorized



> R-Drive Image will connect to GoogleDrive GoogleDrive connection

	re Image - Create Image	- 0 :
Main m		ion for the new image ···
*	Desktop OneDrive Tester 1 This PC → 3 D0 Objects → Desktop → Downloads → Music > ■ Pictures → Pictures > ■ Videos > ■ System (C) > ■ Data (D;) > ■ Data (D;) > ■ NTFS-Test (E;) > ■ FAT3EST(F)	Existing image details MBR 7.02GB H: (FAT-TEST) 2GB FAT16 Dates of included archives 2/1/2024 10:50:28 AM
	<ul> <li>FAT-TEST (G:)</li> <li>GOOGLE_DRIVE: (Google Drive)</li> <li>H-image.rdr</li> <li>Libraries</li> <li>Connect to cloud</li> </ul>	Imaging mode Differential
File n	ame: google_drive:///H-image.rdr	Replications R-Drive Image format
-	Back	Options 1 Disk Selected ► Next

> Now you may save/download image files on/from the cloud service as it was a local drive These connections will be automatically re-activated upon a new **R-Drive Image** start.

You may manage cloud service connection in Connection Manager.

You may delete existing and create new connections, and deactivate active connections.

#### **Connection manager**

_		Connection manager			×
	esktop OneDrive Tester 1 This PC	Add connection*	XDisconnect		
>	3D Ot	Provider	Connected as	Connected at	
	Boca	<ul> <li>Google Drive</li> <li>Microsoft OneDrive</li> </ul>	rttlestuser131@gmail.com raptorbck@gmail.com	1/16/2024 1:40:29 PN 2/7/2024 10:54:51 AN	
	me: E				lose pe format

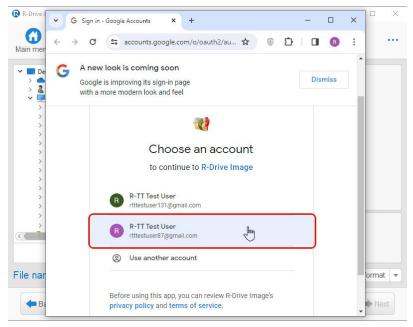
You may create another account in the same cloud service using **Connection manager**.

1 Click the Add connection button and select the service you want to connect to Add connection window

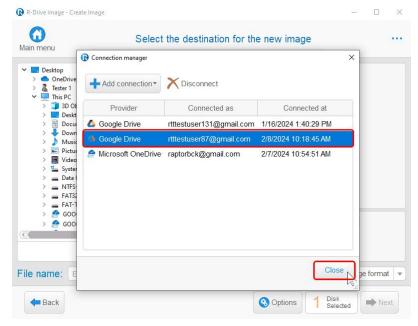
R-Drive Image - Creat     Main menu     Desktop     OneDrive     3     Tester 1	Select the	destination for the	e new image	- ×	- ×
▼         This PC           >         3 D OL           >         Deskt           >         Docu           >         Docu           >         Docu           >         Docu           >         Docu           >         Docu           >         Wisit           >         Evicture           >         Dotat           >         Evicture           >         Evicture	<ul> <li>▲ Google Drive</li> <li>▲ Microsoft OneDrive</li> <li>➡ Dropbox</li> </ul>	Connected as stuser131@gmail.com orbck@gmail.com	Connected 1/16/2024 1:40:29 2/7/2024 10:54:5	9 PM	
File name:			S Options	Close  Disk Selected	ge format 🔻

1 Log in to another Google account

#### Another Google account



Another connection will appear in Connection manager
 Connection manager with two Google accounts

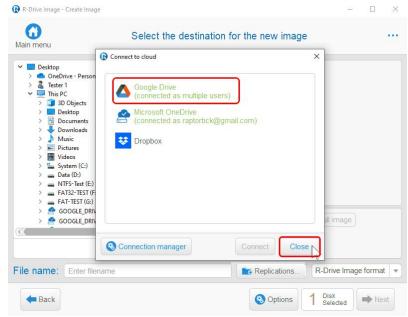


Then you may close Connection manager

Connection to cloud will also show multiple connections Connection to cloud window with multiple Google accounts

V Desktop	Connect to cloud X	
OneDrive - Person     Tester 1     Tis PC     Destop     Destop     Documents     Documents     Music     Dictores     Tis PC contents     Wideos     Tis Pictures     Tis Pictures     Tis Pictures     Data (D)     ATIS-Test (E)     ATIS-TEst (E)     AFAT-TEST (G)     GOOGLE_DRN	Google Drive (connected as multiple users)             Microsoft OneDrive (connected as raptorbck@gmail.com)             Wicrosoft Drepbox	ıll image
<u>()</u> (	Connection manager Connect Close	

Connection to cloud will also show multiple connections
 Connection to cloud window with multiple Google accounts



Now you may chose the cloud service and the account to save/load images.

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#### Accounts of cloud services

Main menu	Select the destinat	ion for the new image
	Music Pictures Videos System (C:) Data (D:) NTF5-Test (E:) FAT32-TEST (F:) FAT32-TEST (F:) FAT-TEST (G:) GOOGLE_DRIVE: (Google Drive, rtttestuser131@gmail.o GOOGLE_DRIVE_2: (Google Drive, rtttestuser87@gmail.c G-image.rdr GOUSLE_DRIVE_2: (Google Drive, rtttestuser87@gmail.c	Existing image details MBR 7.02GB G: (FAT-TEST) 2GB FAT16 Dates of included archives 2/8/2024 10:21:59 AM
> > = Lil > 💣 N	ONE_DKIVE: (Microsoft UneUrive, raptorbck@gmail.co Documents Pictures raries raries w folder	Imaging mode Differential •
File name	Sonnect to cloud	G-ima Replications R-Drive Image format

Google Drive® is a trademark of Google Inc. Use of this trademark is subject to Google Permissions. Microsoft OneDrive® is a trademarks of the Microsoft group of companies. Dropbox® is a trademark of Dropbox, Inc.

### 7.3 Image Replications

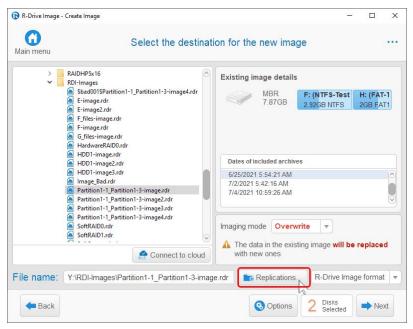
**R-Drive Image** can save several copies of the same image during one single imaging process. Such process is called "replication". This greatly increases safety of the imaged data. Image replicas can be saved in various locations: in other folders on the same disk (not very safe!), on other local disks, on network drives, or <u>cloud</u> <u>services</u>.

**R-Drive Image** first creates the main image file in the Main copy folder and then replicates in to other specified places. That is why it's important to create the main image on the fastest location, like a local disk.

#### To create image replicas:

1 Click the Replications button

#### Replications



2 Specify folders to save image replicas on the **Replications** tab. Replications options

Options		
Image options	Main image file File name: D:\RDI-Images\F-image.rdr	
Notifications	+ Add replication	
Backup options	Replicate to folder: D:\Backups	
Replications	Replicate to folder: D:\Backups1	
		Ok Cance
		Calle

#### > R-Drive Image will save image replicas in these folders.

Replications options tab for differential file copy has another look:

Replications options for differential file copy

Options 0			
Image options	Main image file		
inage options	File name: D:\Ba	ckups\E_files-image.rdr	
Notifications	+ Add replication		
Backup options	Replicate to folder:	D:\Backups1	··· ) 🗙
Replications	Replicate to folder:	D:\Backups2	🗙

Replications options tab for rotation schemes has additional items.

#### Replications options for rotation schemes

Options		
Image options	Main image file       File name:     D:\111\H-image.rdr	
Notifications	+ Add replication	
Backup options	Replicate to folder: D:\Backups >	
Replications	✓ Replicate whole rotation Delete extraneous image files from destination path	

Replicate whole rotation	If this checkbox is selected, <b>R-Drive Image</b> will replicate all images included in the rotation. If it's clear, it will replicate the last full image and all its differential / incremental images.
Delete extraneous image files from destination path	If this checkbox is selected, <b>R-Drive Image</b> will delete those image files in the destination folder which have been removed/deleted among those that are set for replication.

If you set file deletion by various limits on the **Rotation options** tab and want those files deleted in the replications, you need to select both these checkboxes.

### 7.4 Logging

R-Drive Image stores logs of several last actions. You may see them on the Executed operation(s) log panel.

When **R-Drive Image** finishes its work it can show you a brief descriptions and result of the performed operations.

Click the Open logs button and the Operation details window will appear.

Type         Date/time         Message         pt ▼           ① Application         7/2/21 8:42 AM         List of operations: Append to an Image: Y:RDI- Images\Partition1-1_Partition1-3-image.rdr Backup partition [QUANTUM FIREBALL CR8.4A (7.87GB #1)] F: NTFS-Test (NTFS 2.92GB #1) H: FAT-TEST (FAT16 2GB #3)Backup disk partition         Image: Partition 1-2 - Partition
Append to an Image: Y'RDI- Images\Partition1_Partition1-3-image.rdr Backup partition [QUANTUM FIREBALL CR8.4A (7.876B #1)] F: NTFS-Test (NTFS 2.926B #1) H: FAT-TEST (FAT16 2GB #3)Backup disk partition         Debug       7/2/21 8:42 AM       Before backup operation       Image: Comparison of the second se
Image: Second
Application 7/2/21 8:48 AM 1 file has been added to the image, currently the i 5)     Application 7/2/21 8:48 AM 930.8GB free of 1.81TB on volume Y:     Application 7/2/21 8:48 AM Operation completed successfully
Application 7/2/21 8:48 AM 930.8GB free of 1.81TB on volume Y:     Application 7/2/21 8:48 AM Operation completed successfully
Application 7/2/21 8:48 AM Operation completed successfully
•
P
В)

You may save the log, print the log, or send it somewhere via email.

R-Drive Image keeps a log of all performed operations on the Executed operation(s) log panel.

You may turn on saving the log into a file.

#### To turn logging on:

- 1 Click the About button
- 2 Select Logging and specify a log file name and its path on the About R-Drive Image dialog box.



### 7.5 Creating Consistent Point-in-Time Backups

Some programs may write some data on the disk while **R-Drive Image** is creating a data backup. To avoid data inconsistency, **R-Drive Image** uses two mechanisms for creating consistent point-in-time backups.

#### Windows XP, Windows Server 2003, Windows Vista, and later

**R-Drive Image** uses Microsoft Volume Shadow Copy Service (VSS) to notify other applications supporting this service that it is going to start a data backup process in order for them to flash all necessary data to the disk. Most applications like Microsoft Exchange Server, Microsoft SQL Server, and Oracle software support this service.

Options Windows Volume Snapshot Service and Notify system application on the **Backup Options** panel enable/disable the use of this service.

If a software that does not support VSS runs on your computer, you may use Backup AUX applications and Snapshot AUX applications on the **Backup Options** panel (and their respective commands/parameters in <u>scripts</u>) to send special commands to your application that will make that application flush its data to the disk before the backup process starts.

#### Windows 2000 and earlier

**R-Drive Image** uses its own driver to create a file system snapshot but it does not notify other applications that it is going to start a backup process. Therefore, if an application stores some of its data in memory, they will not be saved in the backup file. To avoid data inconsistency, we recommend you to use Backup AUX applications and Snapshot AUX applications on the Backup Options panel (and their respective commands/parameters in <u>scripts</u>) to send special commands to your application that will make that application flush its data to the disk before the backup process starts.

Option R-TT Volume Snapshot Service on the **Backup Options** panel enables/disables the use of this service.

Backup Options	
Snapshot provider	A snapshot provider is a service <b>R-Drive Image</b> uses to read the disk content while creating its image. <b>R-Drive Image</b> uses the snapshot providers in the order specified on the tab. If it fails to use the first one selected, it tries to use the second one, and so on.
Windows Volume Snapshot Service	If this check box is selected, <b>R-Drive Image</b> will try to use the Windows native snapshot provider. This snapshot provider is able to notify system applications that a snapshot is being taken. If this option is selected, pagefile.sys and hibernate.sys files are excluded from the image of the system disk.
R-TT Volume Snapshot Service	If this check box is selected, <b>R-Drive Image</b> will try to use R-TT snapshot provider. This snapshot provider is not able to notify system applications that a snapshot is being taken.
Notify system applications	If this check box is selected, the snapshot provider, if it supports this feature, notifies system applications that a snapshot is being taken.
Limit I/O rate	Specifies the rate limits for reading/writing data from/to disks
Limit read	The rate limit for reading from the source disk
Limit write	The rate limit for writing to the destination disk
Process priority	These options specify how much computer resources <b>R-Drive Image</b> will consume during a backup process.

#### Backup Options

Priority     Task       Use CPU cores     Spe       proof     Ignore disk read errors	ecifies the priority of the backup process. Similar to that specified in Windows k Manager. ecifies how many processor cores <b>R-Drive Image</b> will use for the backup
Ignore disk read errors If th	
	cess.
<ul> <li>R-I</li> <li>If</li> <li>If</li> <li>an</li> <li>se</li> <li>ze</li> <li>pn</li> <li>Plea</li> <li>funct</li> <li>data</li> </ul>	his check box is selected, <b>R-Drive Image</b> will ignore possible read errors en it tries to read data from bad sectors. <b>Drive Image</b> works with disks with bad sectors in the following way: eads a certain part of disk (predefined by Windows) and f read errors are ignored, the entire part with bad sectors will be filled with eros. Fread errors are not ignored, <b>R-Drive Image</b> reads that part sector by sector nd shows a warning message for every bad sector with two options: skip the ector or try to read it again. In this case only the bad sectors will be filled with eros, but all that requires manual actions and extremely slows the imaging rocess. ase note that <b>R-Drive Image</b> is developed for the work with normally ctioning disks. If you need to image a malfunctioning disk, use <u><b>R-Studio</b></u> , a a recovery utility. It has more controls for imaging, and can create <b>R-Drive</b> <b>age</b> -compatible images even in its demo mode, that is, without registering.
Backup AUX R-I applications ope	<b>Drive Image</b> is able to make applications run before and after all backup erations. Please note that those application should return a 0 exit code. Leave se fields blank if in doubt.
need	application <b>R-Drive Image</b> starts before the backup operations starts. If you d to start several applications, you may use a command file.
After An you	application <b>R-Drive Image</b> starts after the backup operations completes. If need to start several applications, you may use a command file. umple: "cmd.exe /c example.bat"
applications snap	<b>Drive Image</b> is able to make applications run before and after taking the pshot of one or several volumes. Please note that those application should rrn a 0 exit code. Leave these fields blank if in doubt.
seve file.	application <b>R-Drive Image</b> starts before it takes the snapshot of one or eral volumes. If you need to start several application, you may use a command umple: "cmd.exe /c example.bat"
	application <b>R-Drive Image</b> starts after it takes the snapshot of one or several umes. If you need to start several application, you may use a command file. umple: "cmd.exe /c example.bat"

If any of Backup AUX applications and Snapshot AUX applications are executed, the following environment variables are set:

R_CALLBACK_UID	A unique digital backup id used in all calls for external commands pertaining to that	
	backup process.	
R_CALLBACK_STAGE	Takes the following values:	

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	BEFORE_BACKUP
	AFTER_BACKUP
	BEFORE_SNAPSHOT
	AFTER_SNAPSHOT
R_VOLUME_NAMES	A comma-separated name list of partitions to be processed.
R_VOLUME_GUIDS	A comma-separated GUID list of partitions to be processed

Therefore, the same command may be used for all the fields provided it will determine using R CALLBACK STAGE in which context it is called.

Below is an example of the variables when disks c: and D: are being backed up:

```
R CALLBACK UID=2008
R CALLBACK STAGE=BEFORE BACKUP
R VOLUME NAMES=C:, D:
R VOLUME GUIDS={d5f570a1-2978-11dc-83bf-005056c00008},{9636e065-f75e-11dc-981a-
829328f78201}
R CALLBACK UID=2008
R CALLBACK STAGE=BEFORE SNAPSHOT
R VOLUME NAMES=C:
R VOLUME GUIDS={d5f570a1-2978-11dc-83bf-005056c00008}
R CALLBACK UID=2008
R CALLBACK STAGE=AFTER SNAPSHOT
R VOLUME NAMES=C:
R VOLUME GUIDS={d5f570a1-2978-11dc-83bf-005056c00008}
R CALLBACK UID=2008
R CALLBACK STAGE=BEFORE SNAPSHOT
R VOLUME NAMES=D:
R VOLUME GUIDS={9636e065-f75e-11dc-981a-829328f78201}
R CALLBACK UID=2008
R CALLBACK STAGE=AFTER SNAPSHOT
R VOLUME NAMES=D:
R VOLUME GUIDS={9636e065-f75e-11dc-981a-829328f78201}
R CALLBACK UID=2008
R CALLBACK STAGE=AFTER BACKUP
R VOLUME NAMES=C:,D:
R VOLUME GUIDS={d5f570a1-2978-11dc-83bf-005056c00008},{9636e065-f75e-11dc-981a-
829328f78201}
```

## **Note:** If the system settings permit, several disks may appear in one snapshot. Then the following calls will appear:

```
R_CALLBACK_UID=2008
R_CALLBACK_STAGE=BEFORE_BACKUP
R_VOLUME_NAMES=?:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008},{9636e065-f75e-11dc-981a-
829328f78201}
R_CALLBACK_UID=2008
```

```
R_CALLBACK_STAGE=BEFORE_SNAPSHOT
```

```
R_VOLUME_NAMES=?:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008}, {9636e065-f75e-11dc-981a-
829328f78201}
R_CALLBACK_UID=2008
R_CALLBACK_STAGE=AFTER_SNAPSHOT
R_VOLUME_NAMES=?:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008}, {9636e065-f75e-11dc-981a-
829328f78201}
R_CALLBACK_UID=2008
R_CALLBACK_STAGE=AFTER_BACKUP
R_VOLUME_NAMES=?:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008}, {9636e065-f75e-11dc-981a-
829328f78201}
```

### 7.6 Support for Various Disk Partitioning Schemes and File Systems

**R-Drive Image** supports various non-MBR/GPT disk partition schemes: Dynamic disk, BSD Slice, Apple Partition Map with the following restrictions:

- Changes in disk partitioning schemes are supported for basic (regular) and dynamic MBR/GPT disks. **R-Drive Image** can change partitioning schemes (the number of partitions and their sizes) while restore the data.
- The other partitioning schemes may be backed up and then restored only on their original places or other partitions of the same size. For example, a backup of dynamic disk D: may be restored on disk D:, or on any other dynamic partition provided that its size matches exactly that of disk D:.
- A basic partition may be restored on another partition of another scheme with the above limitation, and a partition of another scheme may be restored as a basic one without limitations.

File system	Imaging/Copy	Restore	Partition Resizing*	Virtual Disk Mount
FAT (16/32), NTFS	Byte-by-byte and Useful Information Only	Entire partition and Selected folders and files.	Yes.	Yes
exFAT, ReFS	Byte-by-byte and Useful Information Only	Entire partition and Selected folders and files.	No	Yes (if the Windows version supports)
HFS/HFS+	Byte-by-byte and Useful Information Only	Entire partition and Selected folders and files	Yes	No (Yes, if third- party file system drivers are installed)
APFS	Byte-by-byte and Useful Information Only	Entire partition and Selected folders and files	No	No (Yes, if third- party file system drivers are installed)

Partitions with various file systems are supported by **R-Drive Image** differently:

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Little and Big Endian variants of UFS1/UFS2 and Ext2/Ext3/Ext4 FS (Linux)		Entire partition and Selected folders and files.	No	No (Yes, if third- party file system drivers are installed)
Unknown	Byte-by-byte	Entire partition	No	No

\* For non-MBR/GPT disk partition schemes, partition resizing can be done within existing disk partitioning schemes.

### 7.7 Supported Virtual Disk and Disk Image Formats

Along with file formats used for purely disk backup and imaging purposes, there are file formats for virtual disks. Virtual disks are software components that emulates data storage devices in virtual machines. A the same time, virtual disks can be used for disk backup and imaging, too. That is why it's expedient for disk backup and imaging software to support various file formats for virtual disks. This is especially important for system interoperability, when it's necessary to use disk backup/image files on other machines where the disk backup and imaging software isn't installed.

Currently **R-Drive Image** supports the following virtual disk and disk image formats:

**RDR:** A proprietary disk image format developed by **R-Tools Technology**, **Inc (R-TT)**. It is the main format in **R-Drive Image**, **R-Studio**, **R-Linux**, and **R-Undelete**. RDR files are interchangeable, that is, any **R-TT** program may load and process, within its capabilities, any rdr file created in another **R-TT** program.

VHD/VHDX: A virtual disk file format built into Windows. It's a native virtual hard drive for Hyper-V, the Windows virtual machine. You may read more about these file formats in Wikipedia: <u>VHD (file format)</u>. **R**-**Drive Image** creates a special file with some metadata for the VHD file format, its extension is vhr. The VHDX file format contains this metadata within its main file.

**VMDK:** A virtual disk file format for the most virtual machines like VMware Workstation, VirtualBox, Parallels Desktop for Mac, etc. You may read more about these file format in our Glossary: <u>What is a VMDK Virtual Disk</u>.

**VDI:** A virtual disk file format for the VirtualBox virtual machine. **R-Drive Image** creates a special file with some metadata for the VDI file format, its extension is vdr. You may read more about these file format in Wikipedia: <u>VDI</u>.

Features	RDR	VHD/VHDX	VMDK	VDI
<u>Compression</u>	Yes	No	Yes	No
Encryption	Yes	No	No	No
Image Split	Yes	No	Yes	No
Native mounting on Windows	No	Yes	No	No
Mounting on Windows using R-Drive Image	Yes	Yes	Yes	Yes

The main features of these file formats are presented in the table below:

	1 ,	
Licenses	Description	Extensions
All	Apple Disk Image	dmg
Commercial and OEM System Recovery Media	Expert Witness File Format	e01/(ewf)
Commercial and OEM System Recovery Media	Advanced Forensic Format	aff

#### Additional file formats that can be opened "read-only"

### 7.8 Disk Wiping Algorithms

Data wiping is necessary only for files stored on conventional hard drives. Data stored on SSD storage devices cannot be effectively <u>wiped</u> out due to the principles of operation of these devices.

Currently R-Drive Image supports 5 wiping algorithms:

#### Wipe an object panel

Wipe an object	×
You have selected to wipe the	following disk:
WDC WD3200BEV	F-08A23T1 298GB
All existing data on this disk Are you want to proceed?	will be overwritten and lost!
Wiping algorithm	
O Zeroes (1 pass. Fast)	
Pseudo-random (1 pass.	Fast)
ODD 5220.22.M (3 passe	es. Slow. Secure)
O DOD 5200 28 STD (7 pag	sses. Very slow. Very secure)
0 000 0200.20.010 (i pa	
~	s. Very slow. Very secure)

#### **⊟Wiping algorithms**

Zeroes	The disk is filled with zeroes through 1 pass. The fastest but the least secure
	algorithm. Also it does not conceal the fact that the disk or file has been wiped.
Pseudo-random	The disk is filled with pseudo-random numbers through 1 pass. A slower but little bit
numbers	more secure algorithm than the Zeroes algorithm and it also conceals to some degree
	the fact that the disk or file has been wiped.
DoD 5220.22-	The disk is wiped using Department of Defense standard 5220.22-M(3). Provides
M(3)	high-grade data wiping filling the unused space or file with a special digital pattern
	through 3 passes This algorithm is very secure, but slow.
DoD 5200.28-	The disk is wiped using Department of Defense standard 5200.28-STD(7). Provides
<b>STD(7)</b>	high-grade data wiping filling the unused space or file with a special digital pattern
	through 7 passes. This algorithm is very secure, but very slow.
Bruce	The disk is wiped using the Bruce Schneier's algorithm. Provides high-grade data
Schneier(7)	wiping filling the unused space or file with a special digital pattern through 7 passes.
	This algorithm is very secure, but very slow.

Peter Gutmann	The disk is wiped using the Peter Gutmann's algorithm. Provides high-grade data
(35)	wiping filling the unused space or file with a special digital pattern through 35 passes.
	This algorithm is military-level secure, but horribly slow.

What algorithm is to choose, depends on your specific needs. All of these wiping algorithms make recovery of wiped data with any software-based data recover utility impossible. So if you want to protect your information from a casual snooper, you may safely choose either the **Zeroes** or **Pseudo-random numbers** algorithm. The latter also conceals the fact that you wiped the data.

If you want more security, you need to know the following:

There are some techniques for recovery of wiped data. These techniques are based on the fact that magnetic medium on the hard drive's platters "store" some information about previously written data. Such information cannot be completely removed. Wiped data may be recovered even from mechanically damaged platters. So the only safe way to completely remove data from a hard drive is to mechanically grind the magnetic medium off the drive platters or dissolve them in special chemical solvents.

But in order to recover the wiped data using one of these techniques, a hard drive must be disassembled, its platters placed in a precise magnetic field measurement system, and the results of such measurement statistically processed. All that is very expensive and requires a very qualified and experienced personnel and a specially developed equipment. Only a very advanced organization such as a law enforcement or intelligence agency of a developed nation, or a special high-tech firm can afford this. Moreover, each successive wiping pass makes such data recovery much and much harder. So, the **DoD 5220.22-M(3)** clearing and sanitizing standard overwriting the data with a special pattern through 3 passes is a rather reliable and safe choice for this case.

If you need the ultimate security, use the **DoD 5220.22-M(7)** clearing and sanitizing standard, or even the **Peter Gutmann (35)** wiping algorithm. They render data almost unrecoverable, but they are extremely slow.

### 7.9 Supported CD and DVD Recorders

#### Supported CD recorders

All IDE/SCSI/USB/FireWire (IEEE1394) CD recorders compatible with the MMC specification.

#### Supported DVD recorders

Any DVD+R/RW or DVD-R/RW drives for which packet (UDF) record software is installed (DirectCD/InCD/DLA). DVD discs should be <u>formatted</u>.

The **Disk Actions** chapter explains basic disk actions.

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup** Version.

The <u>Technical Information</u> chapter gives technical information on <u>Supported CD and DVD Recorders</u> and <u>List of Hardware Devices Supported in the Startup Mode</u> and another useful technical information. Follow this link to obtain R-Drive Image Contact Information and Technical Support

### 7.10 List of Hardware Devices Supported in the Startup Mode

In the startup mode, **R-Drive Image** supports the following hardware devices:

#### Data Storage Devices

#### **Networking Devices**

Serial ATA and Parallel ATA drivers	3Com 3c574 PCMCIA
ACPI firmware driver for PATA	3Com 3c589 PCMCIA
ACard AHCI variant (ATP 8620)	3c501 `EtherLink`
AHCI SATA	3c503 `EtherLink II`
ALiPATA	3c505 `EtherLink Plus`
AMD/NVidia PATA	3c507 `EtherLink 16`
ARTOP 6210/6260 PATA	3c509/3c529 (MCA)/3c579 `EtherLink III`
ARTOP/Acard ATP867X PATA	3c515 ISA `Fast EtherLink`
ATI PATA	3c590/3c900 series (592/595/597)
CMD / Silicon Image 680 PATA	`Vortex/Boomerang`
CMD640 PCI PATA	3cr990 series 'Typhoon'
CMD64x PATA	AMD 8111 (new PCI LANCE)
CS5510/5520 PATA	AMD LANCE and PCnet (AT1500 and NE2100)
CS5530 PATA	AMD PCnet32 PCI
CS5535 PATA	AT1700/1720
CS5536 PATA	Adaptec Starfire/DuraLAN
Compaq Triflex PATA	Alteon AceNIC/3Com 3C985/NetGear GA620
Cypress CY82C693 PATA	Gigabit
EFAR SLC90E66	Ansel Communications EISA 3200
Generic ATA	Apricot Xen-II on board Ethernet
HPT 343/363 PATA	Asix AX88190 PCMCIA
HPT 366/368 PATA	Atheros L1C Gigabit Ethernet
HPT 370/370A/371/372/374/302 PATA	Atheros L1E Gigabit Ethernet
HPT 371N/372N/302N PATA	Atheros L2 Fast Ethernet
IT8211/2 PATA	Atheros/Attansic L1 Gigabit Ethernet
IT8213 PATA	Broadcom 440x/47xx ethernet
Initio 162x SATA	Broadcom CNIC
Intel ESB, ICH, PIIX3, PIIX4 PATA/SATA	Broadcom NetXtremeII
Intel PATA MPIIX	Broadcom NetXtremeII 10Gb
Intel PATA old PIIX	Broadcom Tigon3
Intel SCH PATA	Brocade 1010/1020 10Gb Ethernet Driver
JMicron PATA	CS89x0
Legacy ISA PATA	Cabletron E21xx
Marvell PATA support via legacy mode	Chelsio 10Gb Ethernet
Marvell SATA	Chelsio Communications T3 10Gb Ethernet
NETCELL Revolution RAID	Chelsio Communications T4 Ethernet
NVIDIA SATA	Chelsio Communications T4 Virtual Function Ethernet
Nat Semi NS87410 PATA	Cisco VIC Ethernet NIC Support
Nat Semi NS87415 PATA	DECchip Tulip (dc2114x) PCI
Ninja32/Delkin Cardbus ATA	DL2000/TC902x-based Gigabit Ethernet
-	Dave ethernet support (DNET)

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**OPTI** FireStar PATA OPTI621/6215 PATA Older Promise PATA controller PCMCIA PATA Pacific Digital ADMA Pacific Digital SATA QStor Platform AHCI SATA Promise PATA 2027x Promise SATA SX4 Promise SATA TX2/TX4 **QDI VLB PATA** RADISYS 82600 PATA **RDC PATA** SC1200 PATA SERVERWORKS OSB4/CSB5/CSB6/HT1000 PATA ServerWorks Frodo / Apple K2 SATA SiS 964/965/966/180 SATA SiS PATA Silicon Image 3124/3132 SATA Silicon Image SATA Toshiba Piccolo ULi Electronics SATA VIA PATA VIA SATA VITESSE VSC-7174 / INTEL 31244 SATA Winbond SL82C105 PATA Winbond W83759A VLB PATA SCSI low-level drivers 3ware 5/6/7/8xxx ATA-RAID

Sware 5/0/7/8xxx ATA-RAID
3ware 97xx SAS/SATA-RAID
3ware 9xxx SATA-RAID
7000FASST SCSI
ACARD SCSI
ARECA (ARC11xx/12xx/13xx/16xx)
SATA/SAS RAID Host Adapter
Adaptec AACRAID
Adaptec AHA152X/2825
Adaptec AHA1542
Adaptec AIC79xx U320

Davicom DM910x/DM980x Early DECchip Tulip (dc2104x) PCI EtherExpress 16 EtherExpressPro support/EtherExpress 10 (i82595) Exar X3100 Series 10GbE PCIe Server Adapter Exar Xframe 10Gb Ethernet Adapter Fujitsu FMV-J18x PCMCIA Generic DECchip & DIGITAL EtherWORKS PCI/EISA HP 10/100VG PCLAN (ISA, EISA, PCI) HP PCLAN (27245 and other 27xxx series) HP PCLAN+ (27247B and 27252A) ICL EtherTeam 16i/32 IP1000 Gigabit Ethernet Intel(R) 10GbE PCI Express adapters Intel(R) 82575/82576 PCI-Express Gigabit Ethernet Intel(R) 82576 Virtual Function Ethernet Intel(R) PRO/100+ Intel(R) PRO/1000 Gigabit Ethernet Intel(R) PRO/1000 PCI-Express Gigabit Ethernet Intel(R) PRO/10GbE JMicron(R) PCI-Express Gigabit Ethernet LP486E on board Ethernet Marvell Yukon 2 Marvell Yukon Gigabit Ethernet Mellanox Technologies 10Gbit Ethernet Micrel KS8851 MLL Micrel KSZ8841/2 PCI Myricom Myri-10G Ethernet Myson MTD-8xx PCI Ethernet NE2000 compatible PCMCIA NE2000/NE1000 NI5210 NI6510 National Semiconductor DP8381x series PCI Ethernet National Semiconductor DP83820 NetXen Multi port (1/10) Gigabit Ethernet NIC New Media PCMCIA OKI SEMICONDUCTOR IOH(ML7223/ML7831) GbE

Adaptec AIC7xxx Adaptec AIC7xxx Fast -> U160 Adaptec AIC94xx SAS/SATA Adaptec I2O RAID AdvanSys SCSI Always IN2000 SCSI BusLogic SCSI DMX3191D SCSL DTC3180/3280 SCSI EATA ISA/EISA/PCI (DPT and generic EATA/DMA-compliant boards) Emulex LightPulse Fibre Channel Support Future Domain 16xx SCSI/AHA-2920A Generic NCR5380/53c400 SCSI MMIO Generic NCR5380/53c400 SCSI PIO HP Smart Array SCSI driver HighPoint RocketRAID 3xxx/4xxx Controller IBM Power Linux RAID adapter IBM ServeRAID Initio 9100U(W) Initio INI-A100U2W Intel(R) C600 Series Chipset SAS Controller Intel/ICP (former GDT SCSI Disk Array) RAID Controller LSI Logic Legacy MegaRAID Driver LSI Logic Management Module LSI Logic MegaRAID Driver LSI Logic MegaRAID SAS RAID Module LSI MPT Fusion SAS 2.0 Device Driver Marvell 88SE64XX/88SE94XX SAS/SATA Microsoft Hyper-V virtual storage driver NCR53c406a SCSI PAS16 SCSI PMC SIERRA Linux MaxRAID adapter PMC-Sierra SPC 8001 SAS/SATA Based Host Adapter driver Promise SuperTrak EX Series QLogic ISP4XXX and ISP82XX host adapter family QLogic QLA2XXX Fibre Channel Support Qlogic FAS SCSI

OpenCores 10/100 Mbps Ethernet MAC PCI NE2000 and clones support (see help) QLOGIC QLCNIC 1/10Gb Converged Ethernet NIC Support QLogic QLA3XXX Network Driver Support QLogic QLGE 10Gb Ethernet Driver Support RDC R6040 Fast Ethernet Adapter RealTek RTL-8129/8130/8139 PCI Fast Ethernet Adapter RealTek RTL-8139 C+ PCI Fast Ethernet Adapter Realtek 8169 gigabit ethernet Realtek PCIe GBE Family Ethernet Adapter SEE08005 SMC 9194 SMC 91Cxx PCMCIA SMC EtherPower II SMC Ultra SMSC LAN9420 PCI ethernet adapter STMicroelectronics 10/100/1000 Ethernet driver ServerEngines' 10Gbps NIC - BladeEngine SiS 900/7016 PCI Fast Ethernet Adapter SiS190/SiS191 gigabit ethernet Silan SC92031 PCI Fast Ethernet Adapter driver Solarflare SFC4000/SFC9000-family Sun Cassini Sun GEM Sun Happy Meal 10/100baseT Sun Neptune 10Gbit Ethernet Sundance Alta TI ThunderLAN Tehuti Networks 10G Ethernet ULi M526x controller VIA Rhine VIA Velocity WD80\*3 Winbond W89c840 Ethernet Xircom 16-bit PCMCIA Zenith Z-Note nForce Ethernet

Qlogic QLA 1240/1x80/1x160 SCSI SYM53C8XX Version 2 SCSI Symbios 53c416 SCSI Tekram DC390(T) and Am53/79C974 SCSI Tekram DC395(U/UW/F) and DC315(U) SCSI Trantor T128/T128F/T228 SCSI UltraStor 14F/34F UltraStor SCSI VMware PVSCSI driver Workbit NinjaSCSI-32Bi/UDE iSCSI Boot Sysfs Interface

#### USB support

CF/PCMCIA support for SL811HS HCD ChipIdea Highspeed Dual Role Controller Cypress C67x00 HCD Datafab Compact Flash Reader Freecom USB/ATAPI Bridge ISD-200 USB/ATA Bridge **ISP 1760 HCD** ISP116X HCD ISP1362 HCD Lexar Jumpshot Compact Flash Reader OXU210HP HCD Olympus MAUSB-10/Fuji DPC-R1 R8A66597 HCD SL811HS HCD SSB usb host driver SanDisk SDDR-09 (and other SmartMedia, including DPCM) SanDisk SDDR-55 SmartMedia **USB 2.0 USB** Mass Storage **USB** Monitor USBAT/USBAT02-based storage xHCI HCD (USB 3.0)

#### Block devices

Compaq SMART2 Compaq Smart Array 5xxx Mylex DAC960/DAC1100 PCI RAID Controller Normal floppy disk

#### **USB Network Adapters**

ASIX AX88xxx Based USB 2.0 Ethernet Adapters CDC EEM CDC Ethernet support (smart devices such as cable modems) CDC NCM Conexant CX82310 USB ethernet port Davicom DM9601 based USB 1.1 10/100 ethernet devices GeneSys GL620USB-A based cables Host for RNDIS and ActiveSync devices Intellon PLC based usb adapter MosChip MCS7830 based Ethernet adapters NetChip 1080 based cables (Laplink, ...) **Option USB High Speed Mobile Devices** Prolific PL-2301/2302/25A1 based cables SMSC LAN75XX based USB 2.0 gigabit ethernet devices SMSC LAN95XX based USB 2.0 10/100 ethernet devices Samsung Kalmia based LTE USB modem Sharp Zaurus (stock ROMs) and compatible Simple USB Network Links (CDC Ethernet subset) USB CATC NetMate-based Ethernet device USB KLSI KL5USB101-based ethernet device USB Pegasus/Pegasus-II based ethernet device USB RTL8150 based ethernet device

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Promise SATA SX8

#### IEEE 1394 (FireWire) support

Legacy alternative FireWire driver stack

Storage devices (SBP-2 protocol)

#### Other devices

Microsoft Hyper-V Utilities driver

Microsoft Hyper-V client drivers

Microsoft Hyper-V virtual block driver

Microsoft Hyper-V virtual network driver

Microsoft Hyper-V virtual storage driver

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### VIII R-Drive Image OEM kit

#### Available in the System Recovery Media Creator version.

**R-Drive Image OEM** kit allows system integrators, consultants, and computer assemblers to create special system recovery disks/devices and include them with their fully assembled computer systems. The license for **R-Drive Image OEM** kit allows its licensee to distribute unlimited number of those system recovery devices with its computers provided that a an unregistered copy of **R-Drive Image OEM** is pre-installed on each distributed computer and the **R-Drive Image** software icon is placed on the end-user desktop.

The end user of such computer systems can use those system recovery disks to restore the system files, registry keys, installed programs, etc., to a state the computer system or hardware was initially set up (a fresh setup).

**R-Drive Image OEM kit** is intended only to restore the original <u>system disk</u> configuration as part of a service or maintenance procedure. Use of this kit to install software on any other computer or system is strictly prohibited.

R-Drive Image OEM kit consists of three components:

#### R-Drive Image System Recovery Media Creator (R-Drive Image SRMC)

It can create a special **R-Drive Image System Recovery OEM** media device, that is, startup disk(s) that may be used to restore a computer system after a complete failure when it requires a complete fresh setup (system recovery disks). It may be a CD/DVD/USB disk, ZIP drive or any other removable media device.

#### R-Drive Image System Recovery OEM

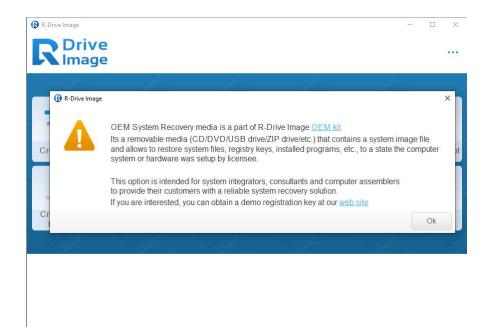
Actually, **R-Drive Image System Recovery OEM** is a startup device containing a special **R-Drive Image** startup version with a master disk image. This **R-Drive Image** startup version restores data from a master image only to a hard drive or logical disk of a target system.

#### **R-Drive Image OEM**

This is a **R-Drive Image** version similar in its functionality to a conventional **R-Drive Image**.

**Note:** You need to obtain an OEM license to activate the OEM functionality in **R-Drive Image**. You may obtain a free demo key on the <u>R-Drive Image site</u> to test that functionality. **OEM System Recovery Media** created in the demo mode will perform all the required operations but without actual data recovery. If you want to disable the OEM functionality after tests, simply enter that free demo key once again. The the OEM functionality will disappear.

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When you enter the OEM registration key, this message disappears and the OEM recovery system can be created.

#### **R-Drive Image SRMC Features:**

- The master image can be placed on the startup disk(s) or on a separate device.
- Flexible data restoring: **R-Drive Image** may automatically find the disk to restore data to, or the user can manually select places for data recovery.
- Creating OEM System Recovery Media consists of two steps:
  - 1. Creating the master image of the system
  - 2. Creating the startup media

When the user will start the system up with such disk(s), **R-Drive Image** will either restore the system automatically, or ask the user to specify the source and target for system requirement, depending on the options specified during the disk creation.

The **Disk Actions** chapter explains disk actions such as:

- Create an Image of a partition, logical disk, or entire hard drive
- Create an Image from Files
- Copy Files to a Folder
- <u>Restore Data from an Image</u>
- Copy Disk to Disk to make an exact copy of one disk on another
- Manage partition and logical disks
- Mount an Image as a Virtual Logical Disk (read-only)
- Unmount Virtual Logical Disks
- Check an Image File to check an existing image file

The <u>Startup Version</u> chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- <u>Create Startup Disk</u>
- Load Computer into Startup Mode
- <u>Restore Data From an Image</u>
- Create an Image
- Disk to Disk Copy
- Create an Image from Files
- Partition Manager
- <u>Check an Image File</u>
- Network Drives

The <u>Scheduled Actions, Command Line Operations, and Scripting</u> chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- <u>Scheduler and Unattended Actions</u>
- <u>Scripting and Command Line Operations</u>
- Rotation schemes (backup sets)

The **<u>R-Drive Image Features</u>** topic tells more about **R-Drive Image**.

Follow this link to obtain **<u>R-Drive Image Contact Information and Technical Support</u></u>.** 

### 8.1 Create a Master Image

A master image is the image of the hard drive/logical disk or partition which you will used to restore the system. The safest way to create a master image for a system rescue disk is to set the system up, turn it off, then start it up with the <u>R-Drive Image startup version</u> and <u>write the master image file</u> either to a network drive or to a USB disk. Please note that you have to connect the USB disk before you start up the system.

If you are going to create the master image in the same way as a <u>regular image</u>, it is necessary to understand how **OEM System Recovery Media** searches for the target drives/partitions to restore data to.

Hard drives: OEM System Recovery Media identifies drives by their identity info (vendor+model+revision). So, when creating the master image, avoid connecting the source drive to a non-standard drive controller. It may change the drive name and/or size, making it impossible for OEM System Recovery Media to identify the target drive correctly when restoring data.

**Partitions: OEM System Recovery Media** identifies partitions by their offset+size and, with lesser priority, by their file system information (file system type and label). if **OEM System Recovery Media** find one object which properties coincide with those in the master image, it believes that it has found the target partition. If there are several same partitions on different drives, **OEM System Recovery Media** selects the target partition by its HDD identity info.

**Note:** When creating the master image, specify the Image split size option on the **Image Options** panel according to the requirements of the target where you want to store the master image and do not pay attention to the size requirements of the media type you plan to use. When producing the startup disk, **R-Drive Image** will split the image accordingly.

### 8.2 Create Startup Media

When the master image of the system is created, you may create the startup data recovery disk(s).

To create a startup data recovery disk(s):

- 1 Click Create OEM System Recovery Media on the Action Selection panel
- 2 Select the file with the master image on the Master image file panel and click the Next button

Mast	er image file ···
Main menu	
Last used images a g-drive:// Igmail.com@/G-image.rdr D:VMAGESVRDIVF_H-image.rdr	Image details           MBR         [2] (1)         C:         Prin           238.4GB         [5] MII         237.9GB NT         508A
Image_Bad.rdr     Partition1-1_Partition1-3-image.rdr     Partition1-1_Partition1-3-image2.rdr     Partition1-1_Partition1-3-image3.rdr     Partition1-1_Partition1-3-image4.rdr     R-DriveImage=7000.iso     SoftRAIDD.rdr     SoftRAID1.rdr     SoftRAID1.rdr	
SystemDisk.rdr	Dates of included archives
<ul> <li>UEFISystemPartitionGPT2-2-image.rdr</li> <li>Windows_10.rdr</li> <li>Recycle Bin</li> </ul>	7/28/2021 4:56:28 PM
🔗 Connect to cloud	1
ile name: Y:\RDI-Images\SystemDisk.rdr	All supported images

When you click the file, you may view its content below.

3 Select the device you want to use to create the the system recovery disks on the Create OEM System Recovery Media panel and click the Next button

R-Drive Image - Create OEM		- 0
Main menu	Create OEM System Recovery M	1edia ·
Name	Туре	Burn speed
ISO	ISO Image File	
Removable (E:)	14.9GB (RDI)	
•	uld be already connected, formatted as a FAT/FAT32 di	sk and has enough amount of free space
A USB startup device sho		sk and has enough amount of free space

If you have problems with starting the computers up from the **R-Drive Image** startup disks, select **configure startup media troubleshooting options**. Then the **Startup Media Troubleshooting Options** panel will appear. You may configure these options to eliminate those problems.

Those options will help you if you have problems with starting you computer up from the **R-Drive Image** startup disks.

	Sicclocally optione
Bootable media type	You may select either a Linux-based or WindowsPE based startup version.
Display kernel startup messages	if this checkbox is enabled, <b>R-Drive Image</b> displays all startup messages. That may be useful to locate the source of the problem when your system hangs during <b>R-Drive Image</b> startup.
Trace drivers loading	Select this checkbox when you want to see loading drivers to find which one may lock the system.
Disables ACPI Disables APIC	Select these checkboxes when your system detects some hardware incorrectly during <b>R-Drive Image startup and displays messages like:</b> hda: lost interrupt
Disables USB devices support	Select these checkbox if your system experiences problems with USB devices during <b>R-Drive Image</b> startup.
Disables SCSI devices support	Select these checkbox if your system experiences problems with SCSI devices during <b>R-Drive Image</b> startup.
Disables PATA devices support	Select these checkbox if your system experiences problems with Parallel ATA devices during <b>R-Drive Image</b> startup.
Disables PCMCIA devices support	Select these checkbox if your system experiences problems with PCMCIA devices during <b>R-Drive Image</b> startup.
Disables DMA for all IDE disk drives	Select these checkbox if your system experiences problems with IDE disks during <b>R-Drive Image</b> startup.
IRQ polling mode	Select this checkbox if <b>R-Drive Image</b> does not recognize a device although it is in the supported device list.
Default clocksource	Select this checkbox to select computer default clocksource.
PCI BIOS	Select an appropriate option if your system experiences problems with computer hardware.
ACPI OSI	An option informing the computer BIOS which OS type is going to start. Default is Linux, but it may cause the computer BIOS to drop support for some computer hardware. Change this option if the startup version cannot recognize some computer hardware, or it malfunctions.
Disable specified drivers	Enter the drivers that may cause system lock. Driver names should be separated by a space or comma.

Startup Media Troubleshooting Options

4 Specify the options for the system recovery disks on the **OEM System Recovery Media Options** panel and click the Next button

R-Drive Image - Create OEM			-		>
ain menu	OEM Syst	em Recovery Media Options			
Master image file: Destination (Remo		s\SystemDisk.rdr			
Options					
Create media in demo mode Raw disk copy/restore Automatically reboot on succ Perform restoration without co GUI mode User select		<ul> <li>Don't copy the master image</li> <li>Client will search image on all disks</li> <li>Disable target (and source) disk selection</li> <li>Disable source disk selection</li> </ul>			
<b>H</b> Back				➡ N	ext

#### **OEM System Recovery Media Options**

Media:	Select.the media type you would like to have. <b>R-Drive Image</b> will automatically split the data accordingly.
Options	
If this check box is selected	
Create media in demo mode	<b>R-Drive Image</b> will create a demo recovery disk. During the recovery process, it will be possible to perform all the required operations without actual data recovery. The license count will not be decremented.
Don't copy the master image	<b>R-Drive Image</b> will create the startup version only without copying the master image to the media. Select this option if you want to store the master image separately from the <b>R-Drive Image</b> startup version. The master image may be stored on a hidden partition of the hard drive.
Client will search image on all disks	<b>R-Drive Image</b> will search for the master image on all disks (in their root only) in the system rather than on the startup disk only.
Disable target (and source) disk selection	the user will not be able to specify the target object to which the data will be restored if <b>R-Drive Image</b> could not find the target for data recovery automatically. If this option is clear, the user could click the <b>Back</b> button on the <b>Confirm Operation</b> panel and manually select the target to which the data will be restored. When this option is selected, the Disable source disk selection option will also be selected.
Disable source disk selection	the user will not be able to select the source disk/partition in the master image manually. If this option is clear, the user could click the <b>Back</b> button on the <b>Confirm Operation</b> panel and manually select the source for data recovery in the image.

Raw disk copy/restore	<b>R-Drive Image</b> will enforce the Raw disk copy/restore as the first option during data restoring.
Automatically reboot on successful restore	<b>R-Drive Image</b> will open the disk tray for the data recovery CD disc, and restart the system automatically upon data recovery.
Perform restoration without confirmation	<b>R-Drive Image</b> will not require action confirmation from the user. If <b>R-Drive Image</b> finds the drive/disk corresponding to the master image, it will start data recovery automatically. If not, either an error message will appear, or the user will be asked about the target for data recovery, depending on the Disable target disk selection option.
GUI mode	<b>R-Drive Image</b> will start in the following GUI mode: GUI, GUI/Safe, GUI/SVGA, TUI

If you want to start data recovery automatically, select the two last check boxes.

- 5 Click the Start button on the **Processing** panel
- > R-Drive Image will start creating the startup data recovery disk(s)

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