

# User's Manual

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## R-Drive Image



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## I R-Drive Image

**R-Drive Image** is unique and powerful drive image software. It creates drive image 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 compression level to save free space. It also restores such images on the disks on-the-fly, except system partitions. **R-Drive Image** creates special startup floppy disks or CD to restore system partitions. It connects 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.

**Note:** The current version has a limited support for dynamic disks or other non-MBR partition layouts. See [Support for Various Non-MBR Partition Layouts](#) for details.

The [R-Drive Image Features](#) topic tells more about **R-Drive Image**.

The [Disk Actions](#) chapter explains disk actions such as:

- [Create an Image](#) of a partition, logical disk, or entire hard drive
- [Restore Data from an Image](#)
- [Copy Disk to Disk](#) to make an exact copy of one disk on another
- [Connect an Image as a Virtual Logical Disk \(read-only\)](#)
- [Disconnect Virtual Logical Disks](#)
- [Check an Image File](#) to check an existing image file

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions such as:

- [Create Startup Disk](#)
- [Restoring Data to a System or Other Locked Disk](#)
- [Create an Image Using the Startup Floppy Disks](#)
- [Disk to Disk Copy](#)

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

- [Scheduler and Unattended Actions](#)
- [Scripting and Command Line Operations](#)
- [Backup sets](#)

The [Technical Information](#) chapter gives technical information on

- [Creating consistent point-in-time backups](#)
- [Support for Various Non-MBR Partition Layouts](#)
- [Supported CD and DVD Recorders](#)
- [List of Hardware Devices Supported in the Startup Mode](#)

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

### 1.1 R-Drive Image Features

**R-Drive Image** is unique and powerful drive image software. It creates disk *images*: 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, Iomega Zip or Jazz disks, etc. At any time, data from such images may be restored on their original disks or on any other

partitions or even on drive's free space.

**Note:** The current version has a limited support for dynamic disks or other non-MBR partition layouts. See [Support for Various Non-MBR Partition Layouts](#) 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 connect 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 features:**

- A simple wizard interface – no in-depth computer management skills are required.
- 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
- Image data can be compressed to save free space.
- Image files can be stored on removable media. Support for USB 2.0 devices in the startup mode.
- 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.
- Support for various non-MBR partition layouts. See [Support for Various Non-MBR Partition Layouts](#) for details.
- 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 startup disks.
- Special startup disks (either 2 floppy disks or a startup CD) can be created to restore data to a system partition.
- The file system of the restored disk can be converted to another one (FAT16 to FAT32 and vice versa.).
- 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 on another one.
- An image can be connected as a read-only virtual drive and its content can be viewed and copied.
- An image can be checked for its integrity.
- 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.
- Support for backup sets. A backup set 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. 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.

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 1.2 Contact Information and Technical Support

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

Product Site: <http://www.r-tt.com>

Sales Department: [sales@r-tt.com](mailto:sales@r-tt.com)

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](mailto:support@r-tt.com)

You may send a Support Request Form directly from this help or from [http://www.r-tt.com/Support\\_request.html](http://www.r-tt.com/Support_request.html).

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

## 1.3 R-Drive Image Registration

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](#).

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 site](#).

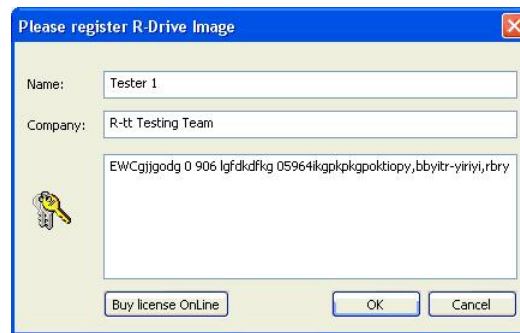
**To obtain a registration key,**

- go to the [Buy On Line](#) page at the [R-TT web site](#).

**To register with a registration key,**

- ① **Click the Register button on the Trial Version panel**

The **Please register R-Drive Image** message will appear.



- ② **Enter the registration information and click the OK button**

The panel will change its name to **Registered Version** and show the registration information.



The [Disk Actions](#) chapter explains basic disk actions.

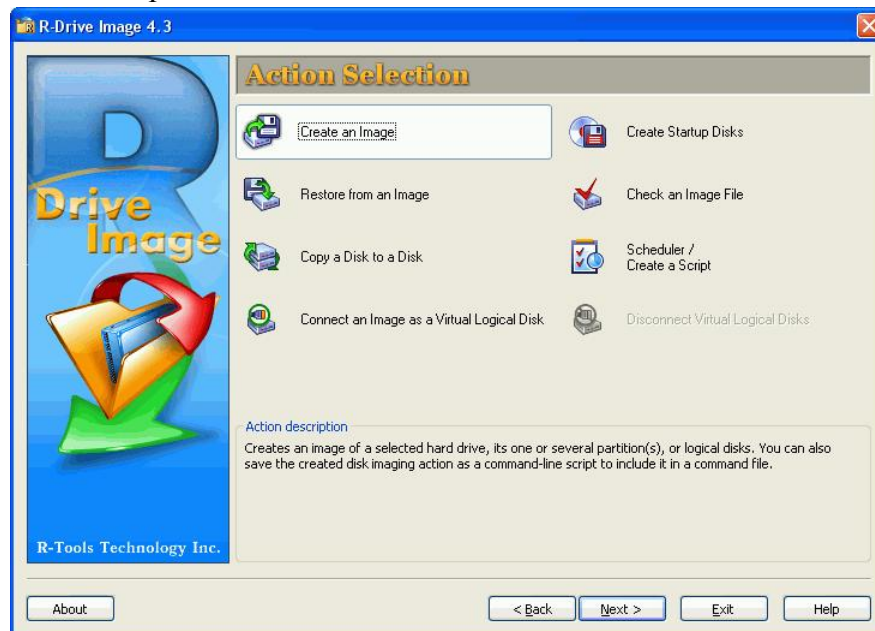
The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders](#) and [List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## II Disk Actions

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



To start a required action, select

- [Create an Image](#) to start creating an image of a partition, logical disk, or entire hard drive
- [Restore from an Image](#) to start restoring data from an image
- [Copy Disk to Disk](#) to make an exact copy of one disk on another

- [Connect an Image as a Virtual Logical Disk](#) to start connecting an image as a **read-only** virtual disk
- [Disconnect Virtual Logical Disks](#) to start disconnecting virtual logical disks
- [Check an Image File](#) to check an existing image file

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions such as:

- [Create Startup Disk](#)
- [Restoring Data to a System or Other Locked Disk](#)
- [Create an Image Using the Startup Floppy Disks](#)
- [Disk to Disk Copy](#)

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

- [Scheduler and Unattended Actions](#)
- [Scripting and Command Line Operations](#)
- [Backup sets](#)

The [Technical Information](#) chapter gives technical information on

- [Creating consistent point-in-time backups](#)
- [Support for Various Non-MBR Partition Layouts](#)
- [Supported CD and DVD Recorders](#)
- [List of Hardware Devices Supported in the Startup Mode](#)

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#).

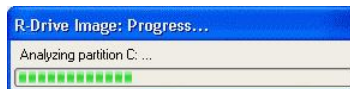
## 2.1 Create an Image

**Note:** The current version has a limited support for dynamic disks or other non-MBR partition layouts. See [Support for Various Non-MBR Partition Layouts](#) for details.

**To create an image:**

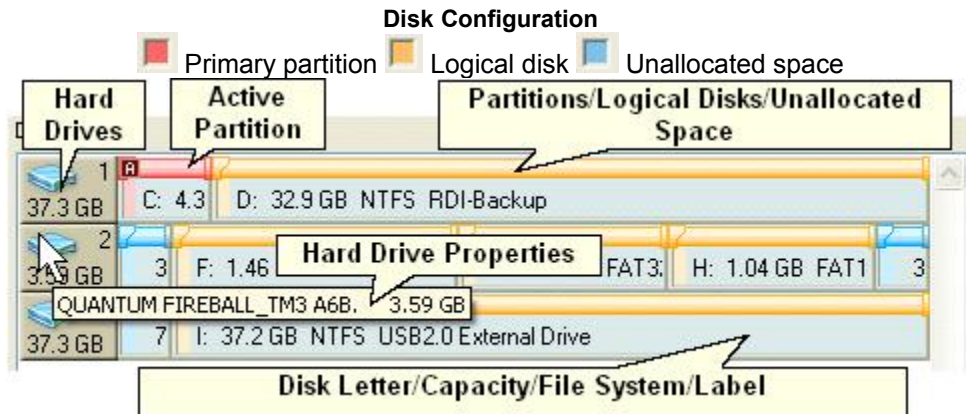
- ① **Click Create an Image on the Action Selection panel**

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



Then the **Partition Selection** panel will show the configuration.

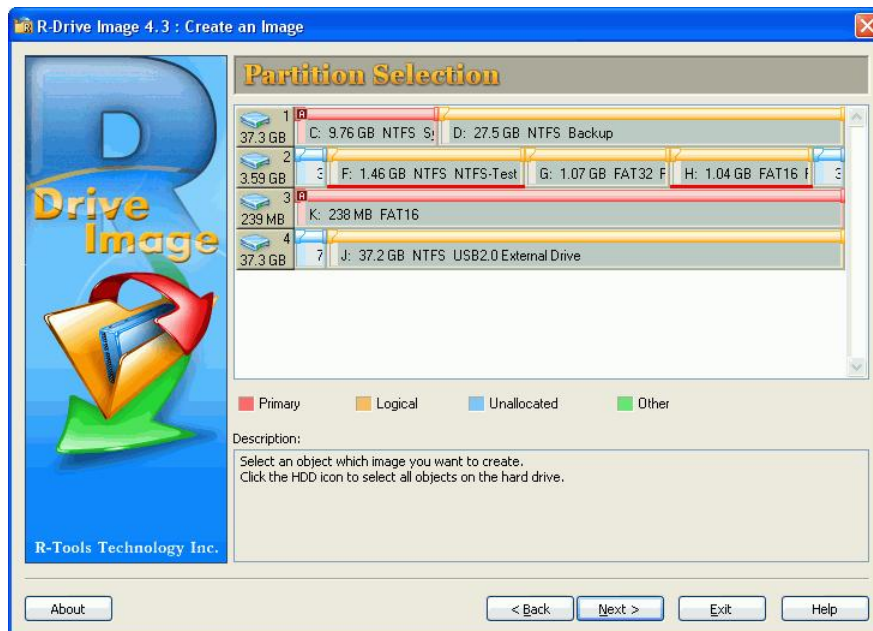
▣ **More information...**



**Note:** If other low-level disk software (including Windows internal services) is running, the **Error: Another partitioner is active** message may appear and **R-Drive Image** will not go to the next panel. Stop this low-level disk software or wait until Windows services stop this low-level disk access before proceeding further.

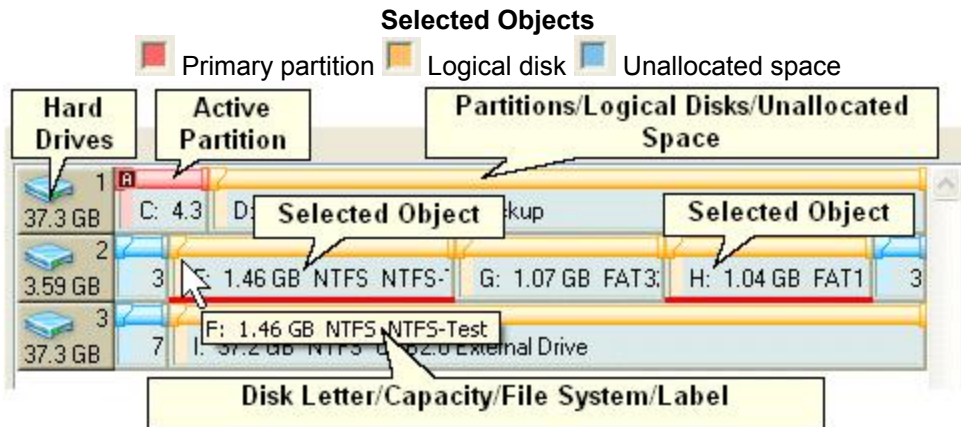


- ② **Select the objects you want to backup on the Partition Selection panel and click the Next button**

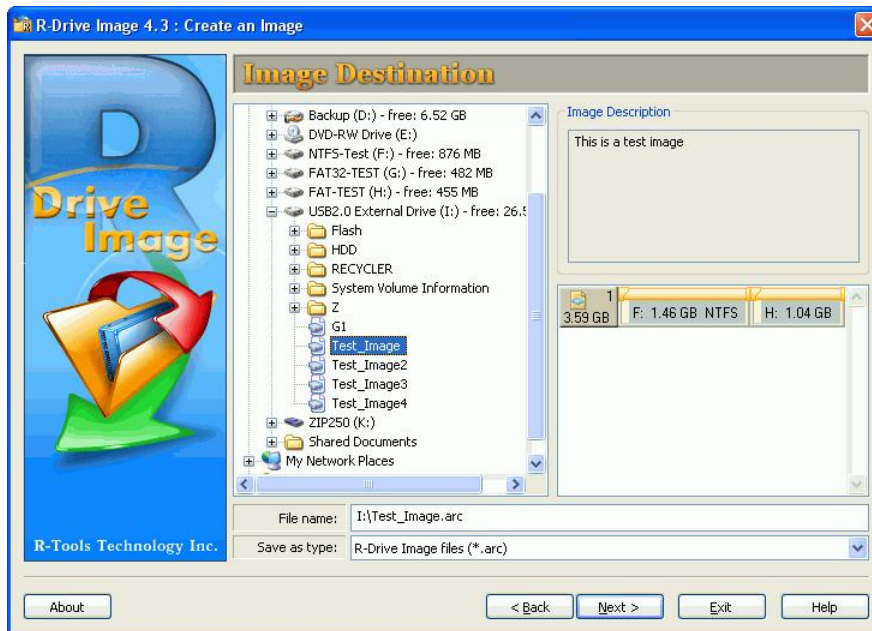


You may select all objects on a hard drive by clicking the hard drive icon.

More information...

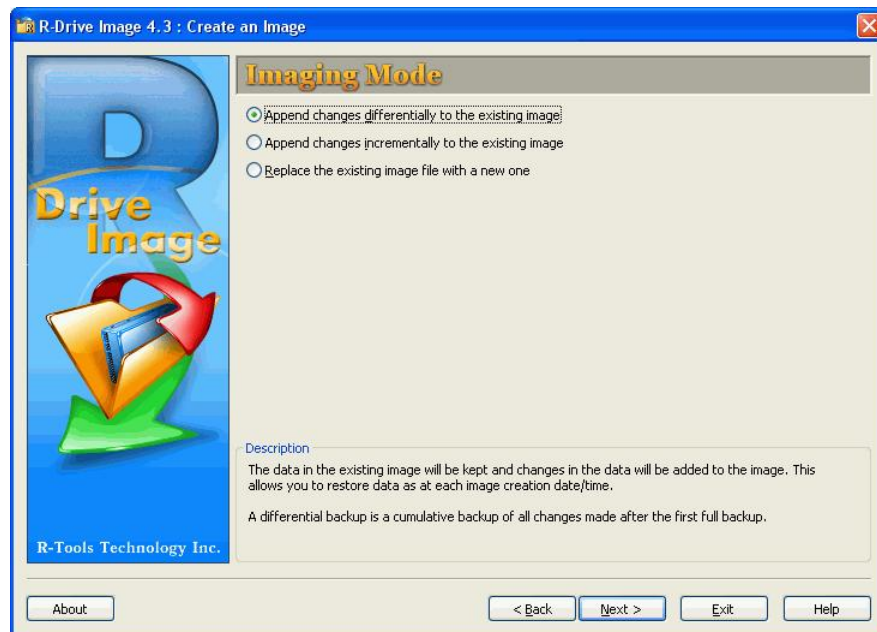


- ③ Select the place on the **Image Destination** panel to which the image files will be written, specify the file name, and click the **Next** button



You may select any place including connected network drives, [supported CD and DVD Recorders](#), or any other devices with removable storage.

If you try to overwrite an existing image file, the **Imaging Mode** panel will appear. You may either overwrite the file or add to the existing image.



#### ▣ Imaging Mode Options

Append changes differentially to the existing image	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.
Append changes incrementally to the existing image	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.
Replace the existing image file with a new one	All data in the image file will be replaced with the current ones

If you choose to overwrite the file, the **You are about to overwrite an existing image file...** warning will appear on the **Imaging Mode** panel. You may either overwrite the file or select another file name for the image.

If you try to append data to a password-protected image file, the **Password prompt...** message will appear. Enter the password and click the **OK** button.



- ④ **Specify image options on the Image Options panel and click the Next button**  
You may specify image options on this panel.



### Image options

Options	
Image name:	Shows the file name for the image. You cannot change the file name on this panel.
Image compression ratio	You may compress the data in the image to save space.
Backup type	You may store in the image either the exact Sector by sector backup copy of the object or Backup useful information only, that is, you do not have to store empty space of the object in image files.
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> This feature provides a relatively moderate protection against conventional unauthorized access.
Image description	You may attach a text description to the image for annotation. Maximum length of the description is 255 characters.

#### ⑤ Specify backup options on the Backup Options panel and click the Next button

You may specify backup options on this panel. They are used to create consistent point-in-time backups.



### Backup Options

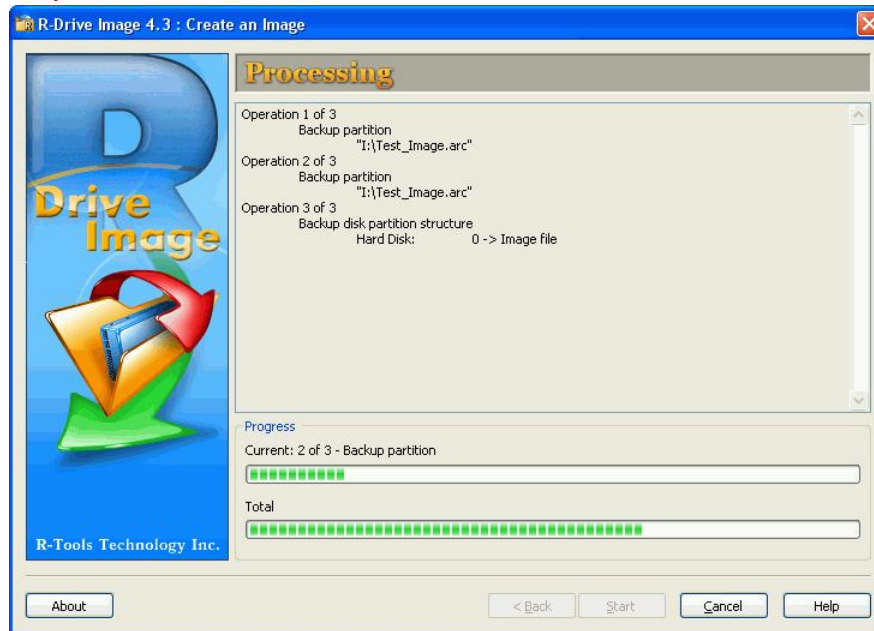
<a href="#">Snapshot provider</a>	A snapshot provider is a service <b>R-Drive Image</b> uses to read the disk content while creating its image. <b>R-Drive Image</b> uses the snapshot providers in the order specified on the tab. If it fails to use the first one selected, it tries to use the second one, 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.
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.
<a href="#">Backup AUX applications</a>	<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 application, you may use a command file.
After	An application <b>R-Drive Image</b> starts after the backup operations completes. If you need to start several application, you may use a command file.
<a href="#">Snapshot AUX applications</a>	<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.

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.
Save as default	Click this button to make the current settings default.
Reset	Click this button to reset the current settings default.
Restore defaults	Click this button to restore default settings.

See [Creating consistent point-in-time backups](#) for more details.

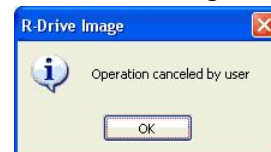
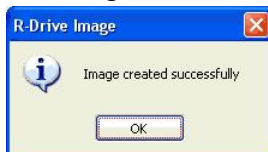
⑥ **Verify that the information on the Processing panel is correct and click the Start button**

You may also create a [script](#) 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)**

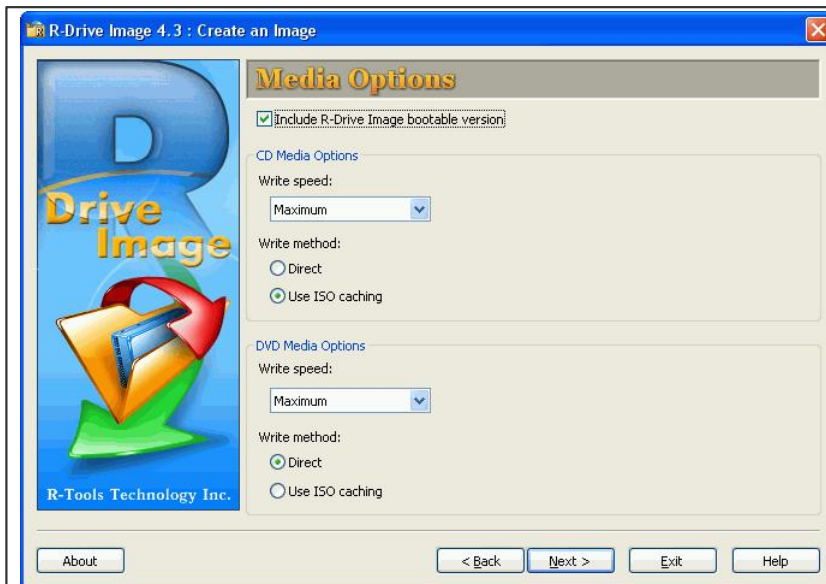
The [Progress](#) bar will show the progress of the current operation and overall process. When the image is created, the **Image created successfully.** message will appear. You may cancel the current operation by clicking the **Cancel** button. The **Operation canceled by user** message will appear.



▣ **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



Select **Include R-Drive Image bootable version** to make the first disc startup thus avoiding creation a special startup disc.

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

Usually, a CD-R/RW drive requires some time to analyze the inserted CD disc. Sometimes, another program (including Windows itself) may try to access the CD-R/RW drive on which the image is being written. You will see the **Device is busy** message in this case. Close this program, or wait until the CD-R/RW drive stops analyzing the CD disc, or Windows stops accessing the CD-R/RW drive, and click the **OK** button to continue writing the image on CD-R/RW discs.

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.](#)

#### **Other devices with removable storage**

When the removable disk in the device is full, the **Disk is full...** message will appear. Change the disk and click the **OK** button. Follow the device instructions on how to change its disks.

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

If you specify the `filename.arc` file name for the image file, **R-Drive Image** will create the following disk/file structure:

Disc	File name
The first disk	filename1.arc
The second disk	filename2.arc
The third disk	filename3.arc
...	...

It is recommended that you mark the disk accordingly. You will start restoring the data from the last disk. Go to the [Restore Data from an Image](#) topic for more details.



The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 2.2 Restore Data from an Image

**Note:** The current version has a limited support for dynamic disks or other non-MBR partition layouts. See [Support for Various Non-MBR Partition Layouts](#) for details.

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

**Note:** Go to the [Restoring Data to a System or Other Locked Disk](#) topic if you want to learn how to restore data to system disks.

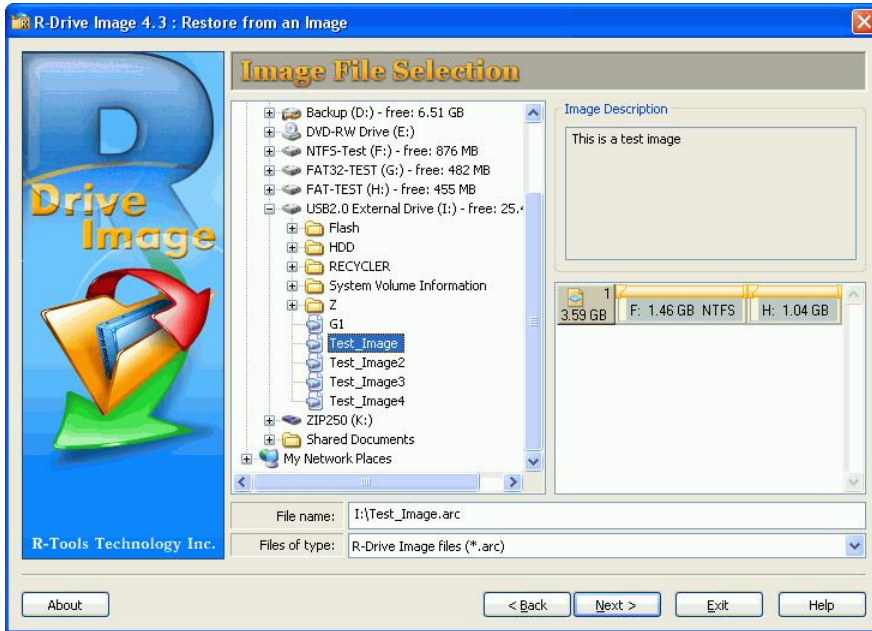
**To restore data from an image:**

① **Click Restore from an 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 **Image File Selection** panel with the disks/folder structure.

**Note:** If other low-level disk software (including Windows internal services) is running, the **Error: Another partitioner is active** message may appear and **R-Drive Image** will not go to the next panel. Stop this low-level disk software or wait until Windows services stop this low-level disk access before proceeding further.

- ② Select the file with the image on the **Image File Selection** panel and click the **Next** button



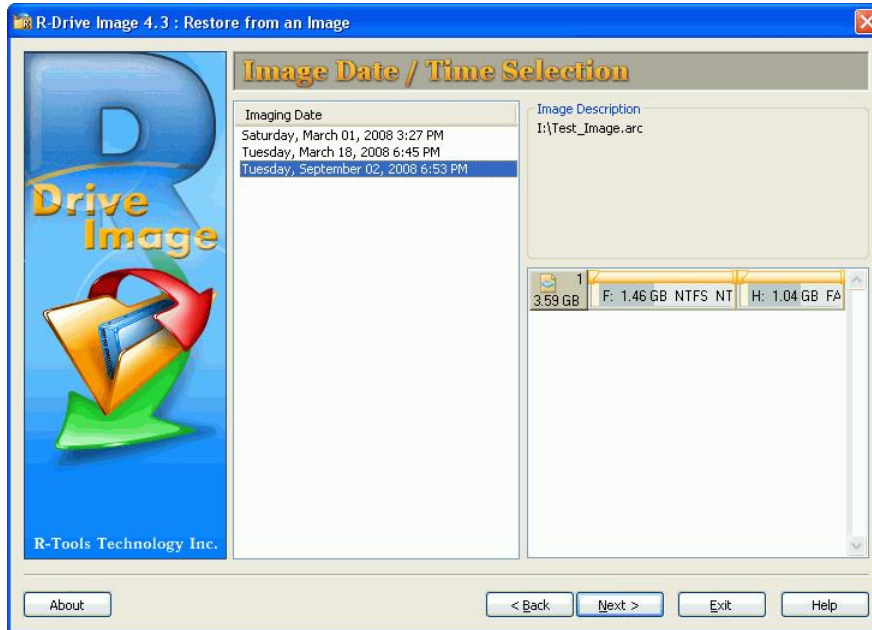
When you click the file, you may view its content in the right panel.

**More information...**

Objects in Image Files	
<input type="checkbox"/> Primary partition <input type="checkbox"/> Logical disk <input type="checkbox"/> Unallocated space	
Image with one logical disk	
Image with two logical disks on one hard drive	
Image with two logical disks on two hard drives	

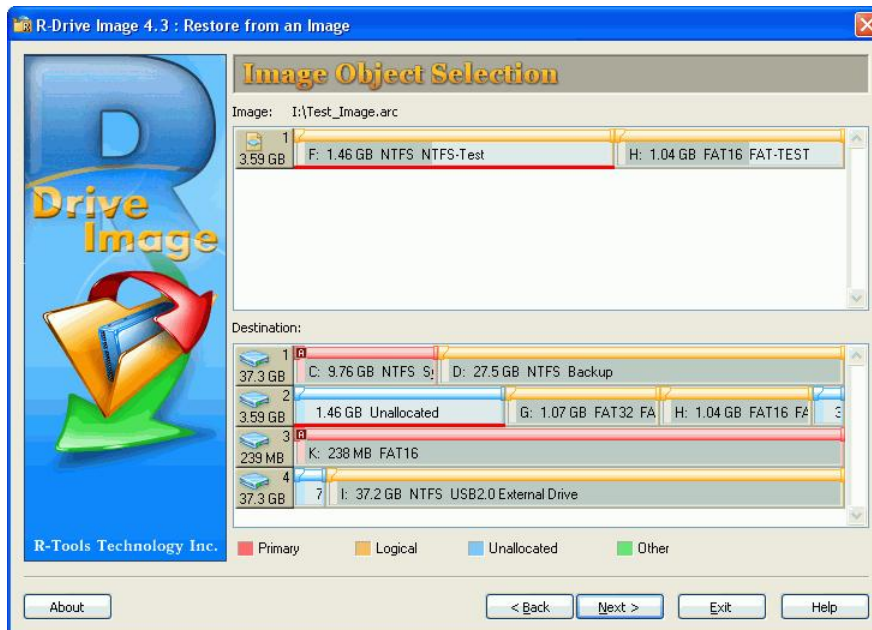
If you select an image with incremental data backup, the **Image Date/Time Selection** panel will

appear. Select the date and time of image creation and click the **Next** button.

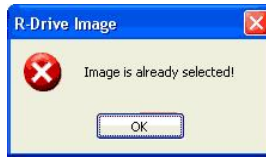


If the image file is password-protected, the **Password prompt...** message will appear. Enter the password and click the **OK** button.

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



You may select only one object at a time, and you need to specify the destination to proceed further. After selecting an object, you cannot go back to previous panels. Clicking the **Back** button will show the **Image is already selected** message.



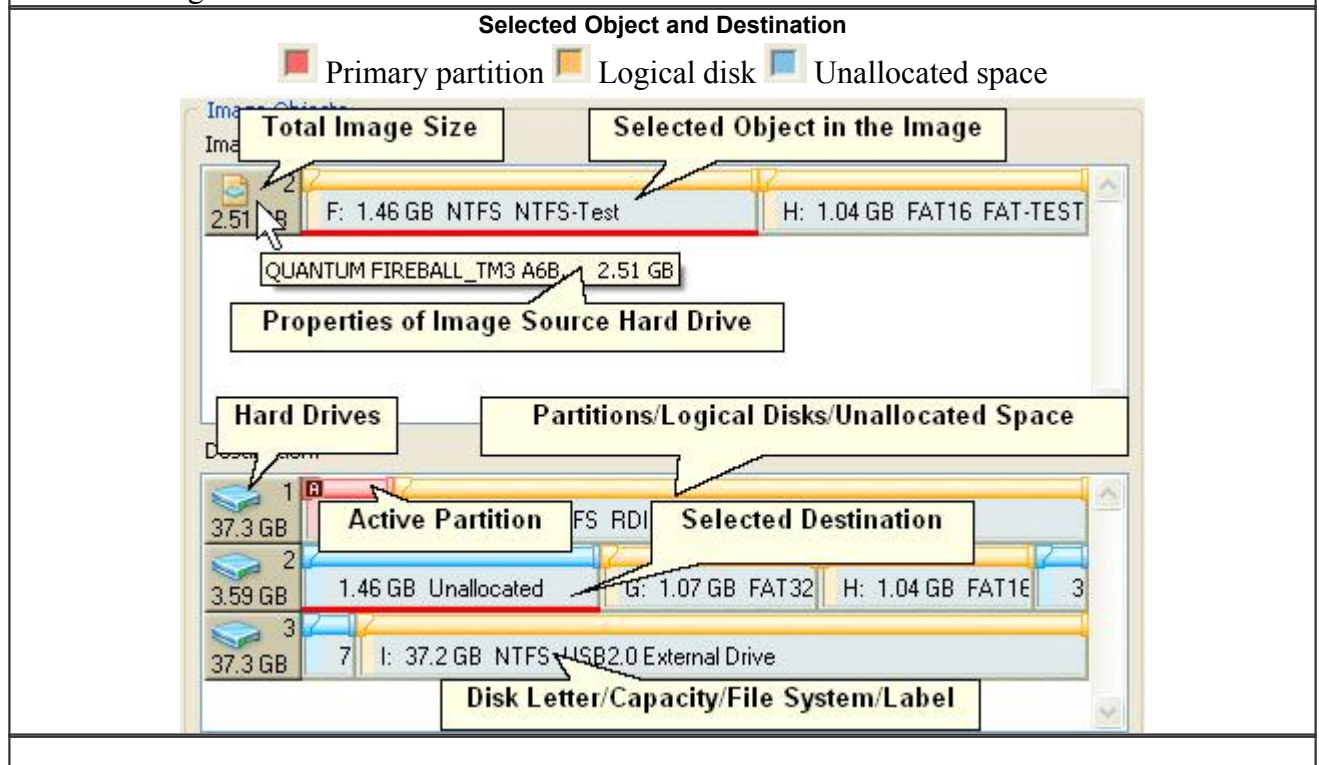
**Note:** If you want to restore data from the image of an entire hard drive, you may do this only if the destination hard drive is of the same model.

#### More information...

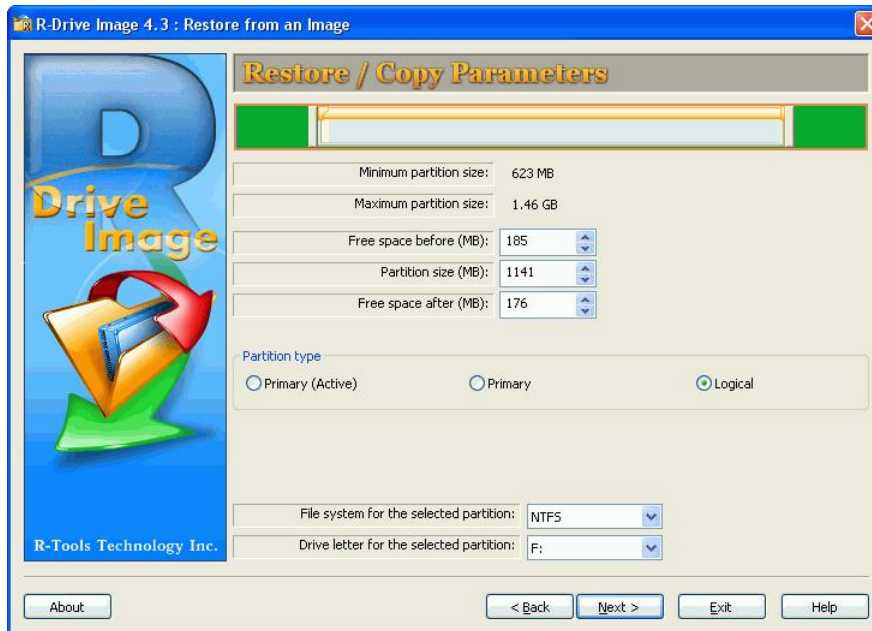
If the chosen destination is smaller than the selected image, **R-Drive Image** will show the **Image selected is larger than destination** message and you will need to select another destination.

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 free space.


**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.



- ④ Specify restore parameters on the **Restore/Copy Parameters** panel and click the **Next** button

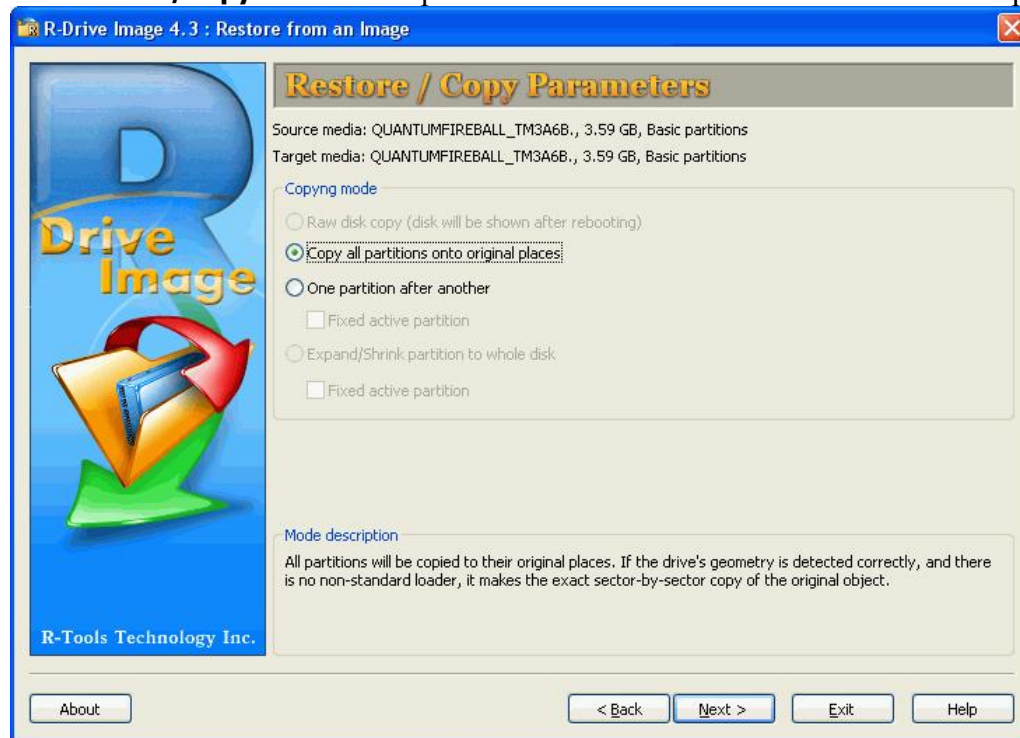


#### Restore parameters

Restore Options	
	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.
Minimum partition size	Minimum partition size that may be allocated for the data in the image. Depends on how much free space is in the data in the image and its file system.
Maximum partition size	Maximum partition size that may be allocated for the data in the image. Depends on the file system of the selected object.
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.
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 for the selected partitions	You may select the file system for the partition to be restored.
Drive letter for the selected partition	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.

- ☐ 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:



### Restore/Copy parameters

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 original places	<b>R-Drive Image</b> copies all partitions to their original places. If <b>R-Drive Image</b> detects the drive's geometry correctly, and there is no non-standard loader, it makes the same result as during Raw disk copy.
One partition after another	If there are empty (not-used) places between the partitions, <b>R-Drive Image</b> copies them one after another preserving their original sizes. Otherwise it is similar to Copy all partitions onto original places.
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.
One partition after another (Fixed active partition)	The same as One partition after another but preserving the original offset/size of the active partition (in case the loader has links to it).
Expand/Shrink partition to whole disk (Fixed active)	The same as Expand/Shrink partition to whole disk but preserving the original offset/size of the active partition (in case the loader has links to it).

partition)

See [Support for Various Non-MBR Partition Layouts](#) for details.

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.



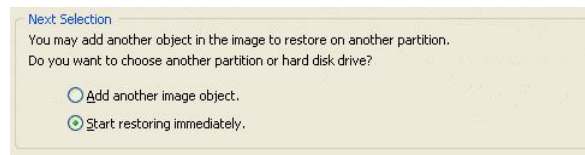
☐ **To continue restoring you may:**

- If you restore data to your system disk, select Restart computer (recommended) to continue restoring the data in the **R-Drive Image** startup mode. Read carefully the [Restoring Data to a System Disk](#) 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.

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

You may add other objects from the same image and restore data to several partitions in one process. Select **Add another image object** in the [Next Selection](#) on the **Processing** panel and click the **Next** button.



➤ **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.arc`, **R-Drive Image** creates the following disk/file structure:

Disk	File name
The first disk	<code>filename1.arc</code>
The second disk	<code>filename2.arc</code>
The third disk	<code>filename3.arc</code>
...	...

You should start restoring the data from the **last** disk. If you insert another disk, the **File is not found** message will appear. Insert the necessary disk and click the **OK** button.

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.



The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders](#) and [List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 2.3 Copy a Disk to a Disk

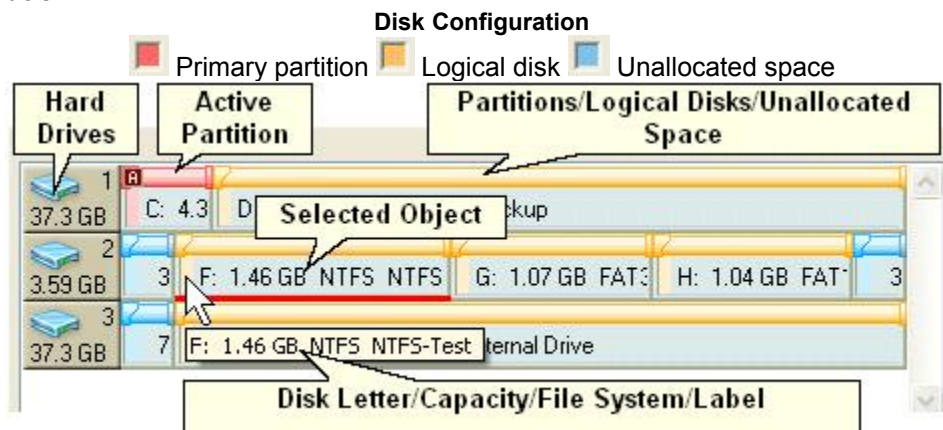
**Attention:** All previous data on the destination disk will be completely deleted

To copy an entire disk to another one:

- ① Click **Copy Disk to Disk** on the **Action Selection** panel

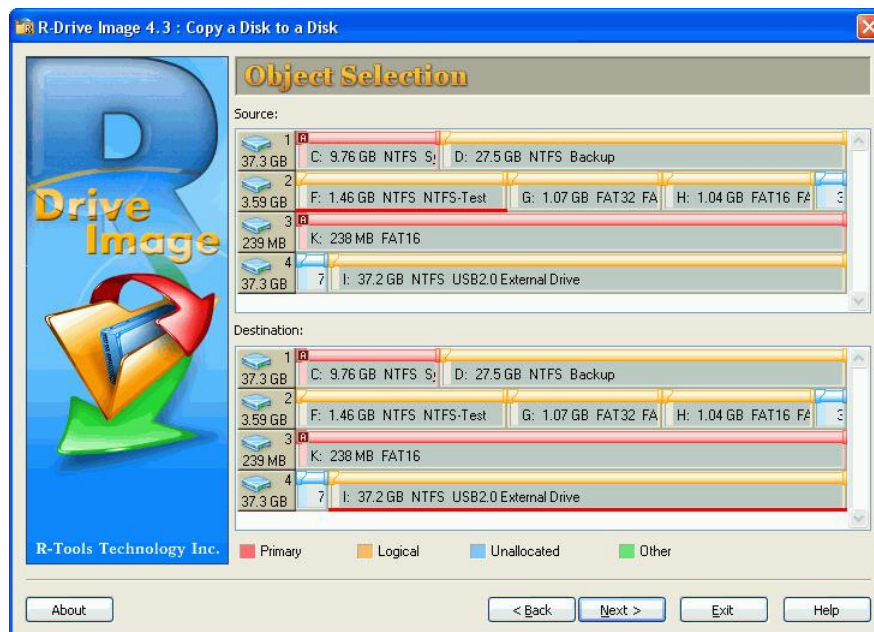
**R-Drive Image** will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then the **Object Selection** panel will show the configuration.

More information...



**Note:** If other low-level disk software (including Windows internal services) is running, the **Error: Another partitioner is active** message may appear and **R-Drive Image** will not go to the next panel. Stop this low-level disk software or wait until Windows services stop this low-level disk access before proceeding further.

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



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

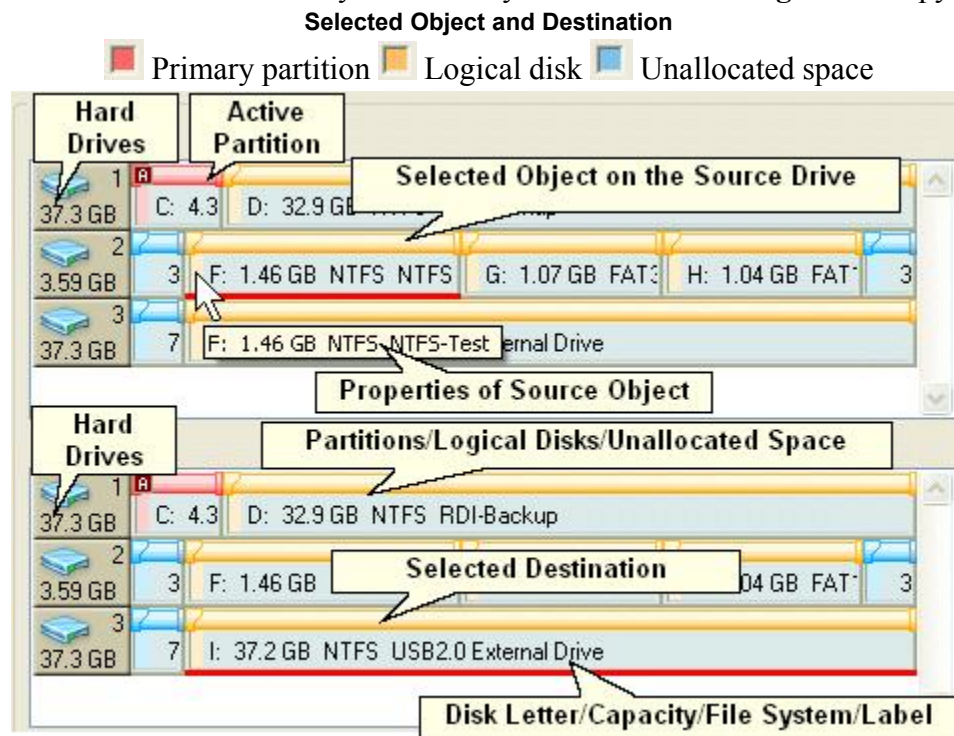
**Note:** If you want to copy an entire hard drive to another hard drive, you may do this only if they are of the same model.

More information...

If the destination is smaller than the selected object, **R-Drive Image** will show the **Source is larger than Destination** 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 free space.

**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.



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](#) 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.

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

☐ **Restore parameters**

[Restore Options](#)

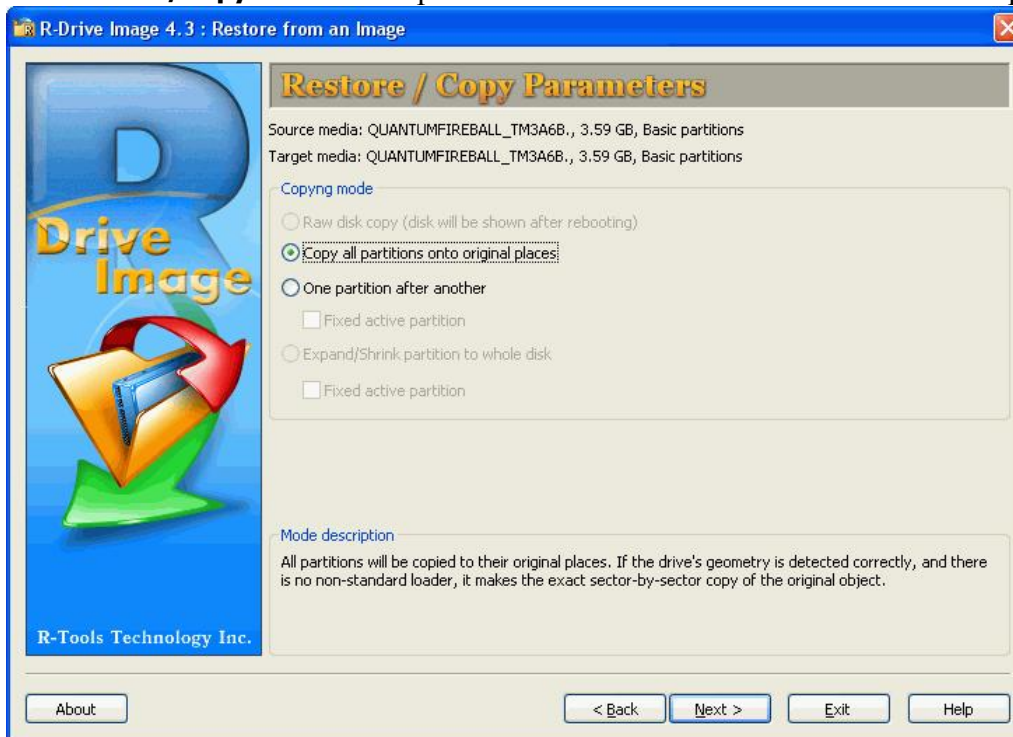


You may visually adjust the location and size of the object to be restored. All other restore options will be adjusted accordingly. Also, when you adjust one or several restore options directly, these changes will be shown visually. Green marks available space.

Minimum partition size	Minimum partition size that may be allocated for the data in the image. Depends on how much free space is in the data in the image and its file system.
Maximum partition size	Maximum partition size that may be allocated for the data in the image. Depends on the file system of the selected object.
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.
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 for the selected partitions	You may select the file system for the partition to be restored.
Drive letter for the selected partition	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.

☐ **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:



**Restore/Copy parameters**

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 original places	<b>R-Drive Image</b> copies all partitions to their original places. If <b>R-Drive Image</b> detects the drive's geometry correctly, and there is no non-standard loader, it makes the same result as during Raw disk copy.
One partition after another	If there are empty (not-used) places between the partitions, <b>R-Drive Image</b> copies them one after another preserving their original sizes. Otherwise it is similar to Copy all partitions onto original places.
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.
One partition after another (Fixed active partition)	The same as One partition after another but preserving the original offset/size of the active partition (in case the loader has links to it).
Expand/Shrink partition to whole disk (Fixed active partition)	The same as Expand/Shrink partition to whole disk but preserving the original offset/size of the active partition (in case the loader has links to it).

See [Support for Various Non-MBR Partition Layouts](#) for details.

④ **Verify that the information on the Processing panel is correct and click the Start button**

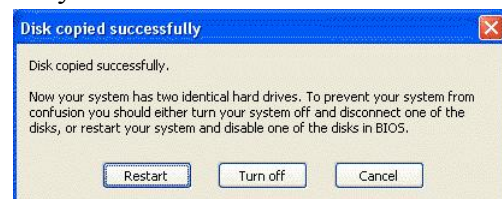
You may add other objects and copy data to several destinations in one process. Select **Add another object to copy** in the [Next Selection](#) on the **Processing** panel and click the **Next** button.

➤ **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. Even if you decide to click the **Cancel** button, the target disk will not appear until system restart.



The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders](#)

and [List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 2.4 Connect an Image as a Virtual Logical Disk

**Note:** You can connect images only as **read-only** disks.

**To connect an image as a Virtual Logical Disk:**

- ① **Click Connect an Image as a Virtual Logical Disk on the Action Selection panel**  
R-Drive Image will show you the **Image File Selection** panel with the disks/folders structure.
- ② **Select the file with the image on the Image File Selection panel and click the Next button**  
When you click the file, you may view its content on the right pane.

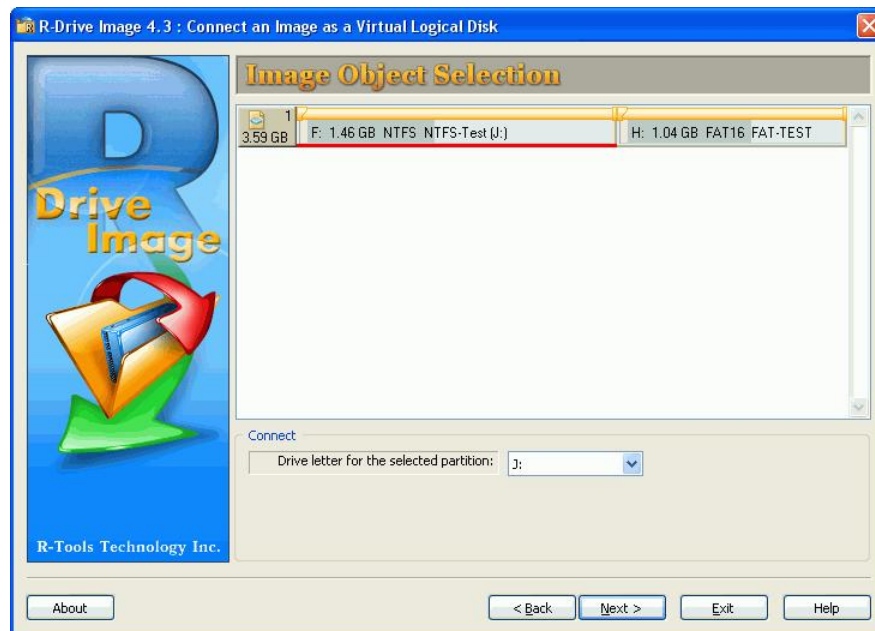
### More information...

Objects in Image Files	
<span style="color: red;">■</span> Primary partition <span style="color: orange;">■</span> Logical disk <span style="color: blue;">■</span> Unallocated space	
Image with one logical disk	
Image with two logical disks on one hard drive	
Image with two logical disks on two hard drives	

If you select an image with incremental data backup, the **Image Date/Time Selection** panel will appear. Select the date and time of image creation and click the **Next** button.

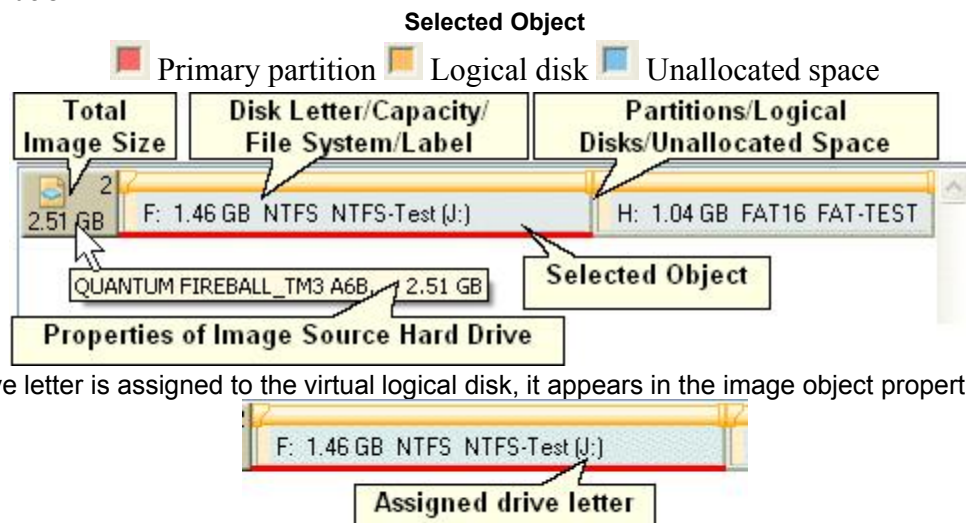
If the image file is password-protected, the **Password prompt...** message will appear. Enter the password and click the **OK** button.

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

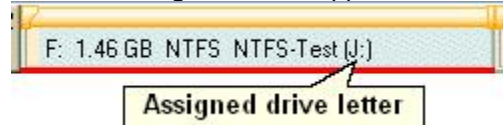


You may select only one object at a time, and you need to specify its drive letter to proceed further.

▣ **More information...**

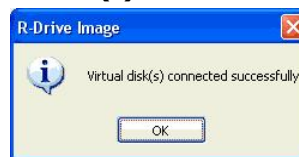


When a drive letter is assigned to the virtual logical disk, it appears in the image object properties:



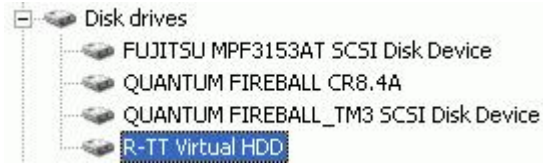
- ④ Verify that the information on the **Processing** panel is correct and click the **Start** button
- ➡ **R-Drive Image** will start connecting the selected object as a virtual logical disk.

When the disk is connected, the **Virtual disk(s) connected successfully** message will appear.



▣ **More information...**

**A connected virtual logical disk appears in Windows Device Manager as an R-TT Virtual HDD:**



▣ **Connecting images on devices with removable storage**

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

**Note:** While **R-Drive Image** is connecting 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 [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders](#) and [List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

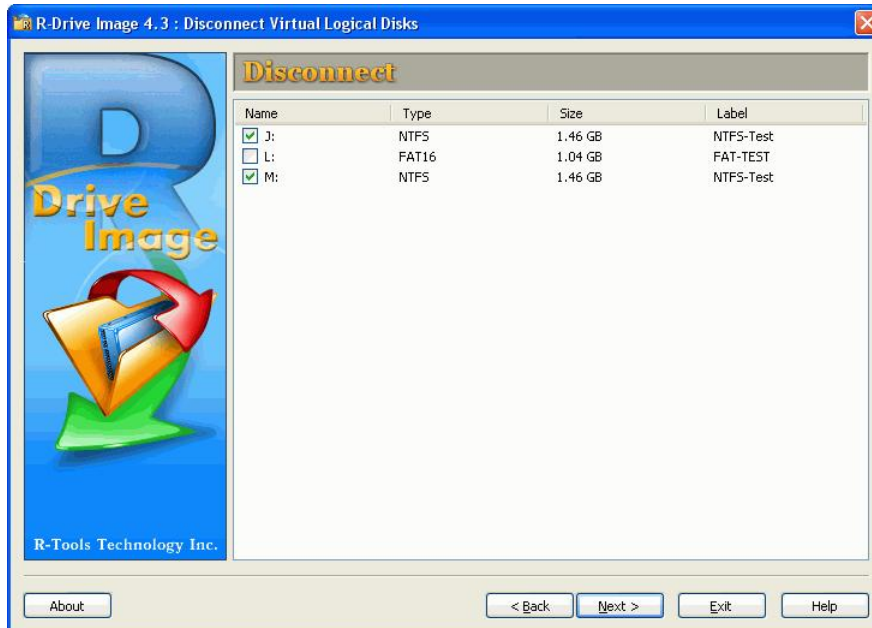
Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 2.5 Disconnect Virtual Logical Disks

To disconnect Virtual Logical Disks:

- ① **Click Disconnect Virtual Logical Disks on the Action Selection panel**

**R-Drive Image** will show you the list of virtual disks on the **Connected Virtual Logical Disks** panel.



 **More information...**

### Connected Virtual Logical Disks

Name	Type	Size	Label
<input type="checkbox"/> M:	FAT16	1.04 GB	FAT-TEST
<input type="checkbox"/> L:	FAT32	1.07 GB	FAT32-TEST
<input type="checkbox"/> J:	NTFS	1.46 GB	NTFS-Test

② **Mark the disks on the Connected Virtual Logical Disks panel and click the Next button**

 **More information...**

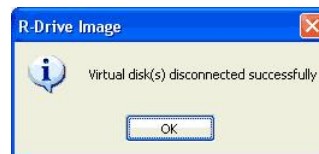
### Marked Connected Virtual Logical Disks

Name	Type	Size	Label
<input checked="" type="checkbox"/> M:	FAT16	1.04 GB	FAT-TEST
<input type="checkbox"/> L:	FAT32	1.07 GB	FAT32-TEST
<input checked="" type="checkbox"/> J:	NTFS	1.46 GB	NTFS-Test

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

➔ **R-Drive Image will start disconnecting the selected virtual logical disks**

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



The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders](#) and [List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 2.6 Check an Image File

**To check an image file:**

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

**R-Drive Image** will show you the **Image File Selection** panel with the disks/folder structure.

② **Select the file with the image on the Image File Selection panel and click the Next button**

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

 **More information...**

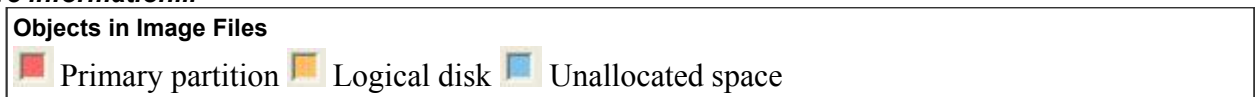





Image with one logical disk	
Image with two logical disks on one hard drive	
Image with two logical disks on two hard drives	

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**

➤ **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 [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

### III Advanced Disk Actions

This chapter explains how to perform advanced disk actions such as:

- [Create Startup Disk](#)

- [Restoring Data to a System or Other Locked Disk](#)
- [Create an Image Using the Startup Floppy Disks](#)
- [Disk to Disk Copy](#)

The [Disk Actions](#) chapter explains disk actions such as:

- [Create an Image](#) of a partition, logical disk, or entire hard drive
- [Restore Data from an Image](#)
- [Copy Disk to Disk](#) to make an exact copy of one disk on another
- [Connect an Image as a Virtual Logical Disk](#) (read-only)
- [Disconnect Virtual Logical Disks](#)
- [Check an Image File](#) to check an existing image file

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

- [Scheduler and Unattended Actions](#)
- [Scripting and Command Line Operations](#)
- [Backup sets](#)

The [Technical Information](#) chapter gives technical information on

- [Creating consistent point-in-time backups](#)
- [Support for Various Non-MBR Partition Layouts](#)
- [Supported CD and DVD Recorders](#)
- [List of Hardware Devices Supported in the Startup Mode](#)

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#).

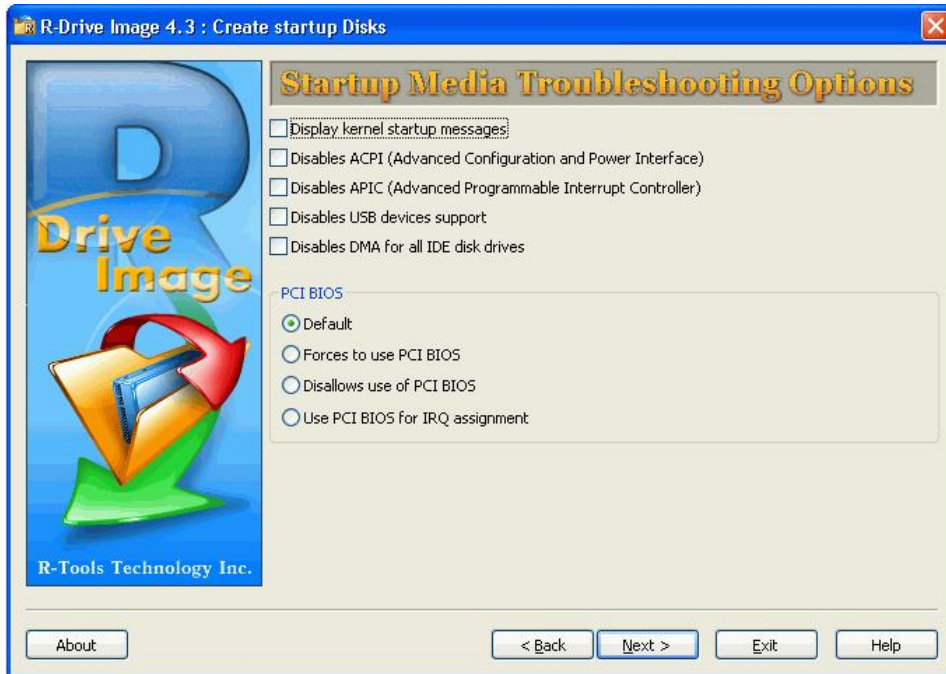
### 3.1 Create Startup Disks

You need to create either 2 special startup floppy disks or a startup CD disc to restore data to a system disk. You may also create an ISO image of a startup CD disc and write it using your favorite CD writing software.

**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 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.

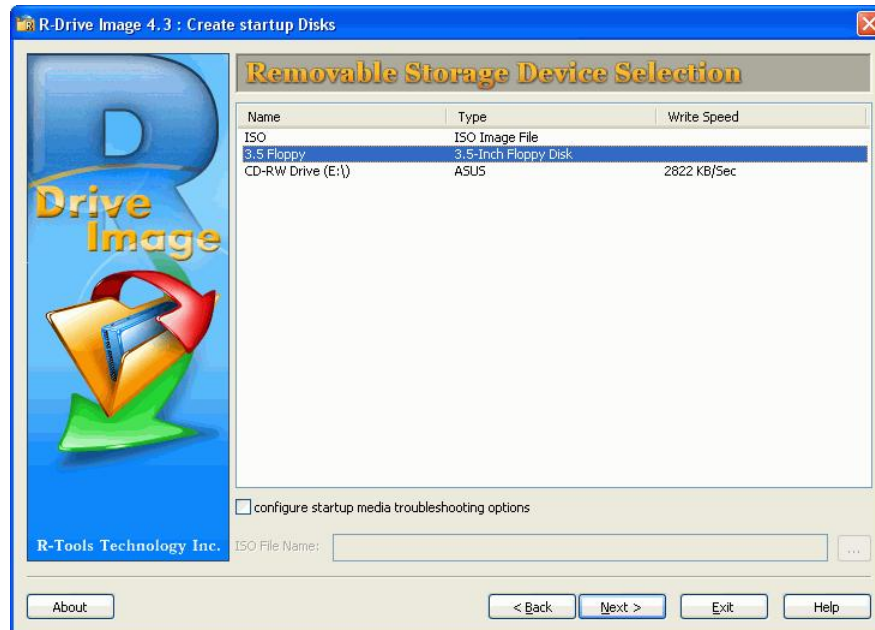
Those options will help you if you have problems with starting you computer up from the **R-Drive Image** startup disks. Please, contact the [R-Drive Image Technical Support Team](#) for more information.



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.
Disables ACPI Disables APIC	Select these checkboxes when your system detects some hardware incorrectly during <b>R-Drive Image</b> startup and displays messages like: <code>hda: lost interrupt</code>
Disables USB devices support	Select these checkbox if your system experiences problems with USB 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.
PCI BIOS	Select an appropriate option if your system experiences problems with PCI cards.

To create 2 floppy disks:

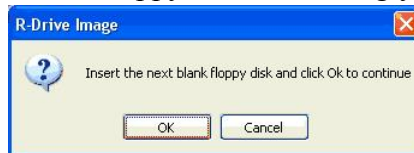
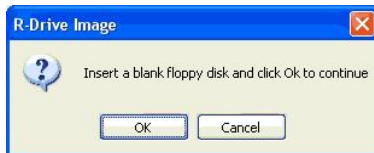
- ① Select **Create Startup Disks** on the **Action Selection** panel and click the **Next** button
- ② Select the floppy disk drive in the list of supported startup devices with removable storage on the **Removable Storage Device Selection** panel and click the **Next** button



- ③ Click the **Start** button on the **Processing** panel
- **R-Drive Image** will start creating the startup disks

The **Insert a blank floppy disk** message will appear. Insert a blank floppy disk and click the **OK** button. Then the **Insert the next blank floppy disk...** message will appear. Insert the second floppy disk and click the **OK** button. When **R-Drive Image** finishes creating the startup floppy disks, the **Startup disks created successfully** message will appear.

**Note:** It is recommended that you mark the floppy disks accordingly.



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
- ② Select the CD-recorder in the list of supported startup devices with removable storage on the **Removable Storage Device Selection** 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.

Usually, a CD-R/RW drive requires some time to analyze the inserted CD disc. Sometimes, another program (including Windows itself) may try to access the CD-R/RW drive on which the image is being written. You will see the **Device is busy** message in this case. Close this program, or wait until the CD-R/RW drive stops analyzing the CD disc, or Windows stops accessing the CD-R/RW drive, and click the **OK** button to continue writing the image on CD-R/RW discs.

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 Removable Storage Device Selection 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 ISO-image 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.

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders](#) and [List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 3.2 Restore Data to a System or Other Locked Disk

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 [disk\(s\)](#).

**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.

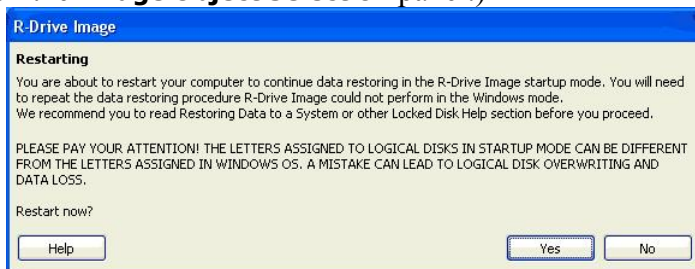
If the motherboard in your computer supports the Serial ATA (SATA) devices, but IDE disks are also present, only the SATA devices should be set to the Enhanced Mode in BIOS.

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

#### ① Restart R-Drive Image in its startup mode

- **From the R-Drive Image Graphical User Interface**

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 [Restore Data from an Image](#) 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.)



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

```
Please select the operating system to start:
```

```
R-DriveImage Autopart v.2.0
Microsoft Windows XP Professional
```

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 floppy disks**

1. Make sure that the first startup device in the system BIOS is A (Floppy). Refer to your system documentation for details.
2. Insert the first startup floppy disk and start your computer.

The following text will appear on the screen:

```
Loading.....
.....
Uncompressing R-Drive Image... OK, starting the kernel
VFS: Insert the second R-Drive Image boot disk and press ENTER
```

3. Insert the second disk and press ENTER.

- **using the R-Drive Image startup CD disc**

1. Make sure that the first startup device in the system BIOS is the CD drive. Refer to your system documentation for details.

2. Insert the CD disc and start your computer.

**R-Drive Image** will start in the startup 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.

- ② **Select Restore from an Image on the Action Selection panel and press the N key**

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**

<b>R/O</b>	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.

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

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**

Use the arrow keys to switch between the target objects.

<b>H</b>	Hard drive
<b>P</b>	Primary partition
<b>L</b>	Logical disk
<b>U</b>	Unallocated space

- ⑦ **Specify restore parameters on the Copy/restore options panel and press the N key**

**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 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 original places	<b>R-Drive Image</b> copies all partitions to their original places. If <b>R-Drive Image</b> detects the drive's geometry correctly, and there is no non-standard loader, it makes the same result as during Raw disk copy.
One partition after another	If there are empty (not-used) places between the partitions, <b>R-Drive Image</b> copies them one after another preserving their original sizes. Otherwise it is similar to <a href="#">Copy all partitions onto original places</a> .
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 <a href="#">Copy all partitions onto original places</a> .
One partition after another (Fixed active partition)	The same as <a href="#">One partition after another</a> but preserving the original offset/size of the active partition (in case the loader has links to it).
Expand/Shrink partition to whole disk (Fixed active partition)	The same as <a href="#">Expand/Shrink partition to whole disk</a> but preserving the original offset/size of the active partition (in case the loader has links to it).

See [Support for Various Non-MBR Partition Layouts](#) for details.

- 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.

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

### 3.3 Create an Image Using the Startup Disks

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

**Note:** The current version can write images only on FAT(16 or 32) disks

**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.

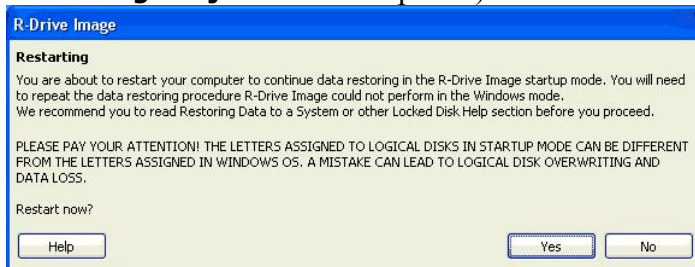
#### ① Restart R-Drive Image in its startup mode

- **From the R-Drive Image Graphical User Interface**

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 [Restore Data from an Image](#) 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.

- When you click the **Next** button on the **Image Object Selection** panel, the **Disk not locked** message will appear.
- 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.)



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

```
Please select the operating system to start:
```

```
R-DriveImage Autopart v.2.0
Microsoft Windows XP Professional
```

- 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 floppy disks**

- Make sure that the first startup device in the system BIOS is A (Floppy). Refer to your system documentation for details.
- Insert the first startup floppy disk and start your computer.

The following text will appear on the screen:

```
Loading.....
.....
Uncompressing R-Drive Image... OK, starting the kernel
VFS: Insert the second R-Drive Image boot disk and press ENTER
```

- Insert the second disk and press ENTER.

- **using the R-Drive Image startup CD disc**

- Make sure that the first startup device in the system BIOS is the CD drive. Refer to your system documentation for details.
- Insert the CD disc and start your computer.

**R-Drive Image** will start in the startup 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.

② **Select Create an Image on the Action Selection panel and press the N key**

Use the arrow keys to switch between the options.

**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.

<b>H</b>	Hard drive
<b>P</b>	Primary partition
<b>L</b>	Logical disk
<b>U</b>	Unallocated space

- ③ **Select an object of which you want to create an image on the **Select an object you want to archive/backup/copy** panel and press the N key**

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

- 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**

<b>R/O</b>	Read-only disk. You cannot create images on such disks
------------	--

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

- ⑤ **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 [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

### 3.4 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:** The current version can write images only on FAT(16 or 32) disks

**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.

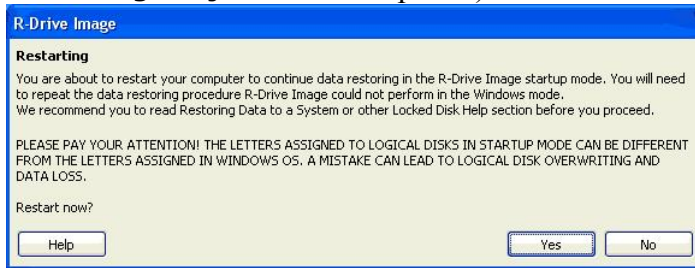
If the motherboard in your computer supports the Serial ATA (SATA) devices, but IDE disks are also present, only the SATA devices should be set to the Enhanced Mode in BIOS.

- ① **Restart R-Drive Image in its startup mode**

• **From the R-Drive Image Graphical User Interface**

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 [Restore Data from an Image](#) 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.)



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

```
Please select the operating system to start:
```

```
R-DriveImage Autopart v.2.0
Microsoft Windows XP Professional
```

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 floppy disks**

1. Make sure that the first startup device in the system BIOS is A (Floppy). Refer to your system documentation for details.

2. Insert the first startup floppy disk and start your computer.

The following text will appear on the screen:

```
Loading.....
.....
Uncompressing R-Drive Image... OK, starting the kernel
VFS: Insert the second R-Drive Image boot disk and press ENTER
```

3. Insert the second disk and press **ENTER**.

- **using the R-Drive Image startup CD disc**

1. Make sure that the first startup device in the system BIOS is the CD drive. Refer to your system documentation for details.

2. Insert the CD disc and start your computer.

**R-Drive Image** will start in the startup 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.

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.

<b>H</b>	Hard drive
<b>P</b>	Primary partition
<b>L</b>	Logical disk
<b>U</b>	Unallocated space

Use the arrow keys to switch between the options.

- ③ **Select an object which you want to copy on the Select an object you want to archive/backup/copy panel and press the N key**  
Use the arrow keys to switch between the objects.
- ④ **Select the destination for the data on the Select a target for copy/restore operation panel and press the N key**  
Use the arrow keys to switch between the target objects.
- ⑤ **Specify restore parameters on the Copy/restore options panel and press the N key**

**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 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 original places	<b>R-Drive Image</b> copies all partitions to their original places. If <b>R-Drive Image</b> detects the drive's geometry correctly, and there is no non-standard loader, it makes the same result as during Raw disk copy.
One partition after another	If there are empty (not-used) places between the partitions, <b>R-Drive Image</b> copies them one after another preserving their original sizes. Otherwise it is similar to Copy all partitions onto original places.
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.
One partition after another (Fixed active partition)	The same as One partition after another but preserving the original offset/size of the active partition (in case the loader has links to it).
Expand/Shrink partition to whole disk (Fixed active partition)	The same as Expand/Shrink partition to whole disk but preserving the original offset/size of the active partition (in case the loader has links to it).

See [Support for Various Non-MBR Partition Layouts](#) for details.

- 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 [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## IV 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.

- [Scheduler and Unattended Actions](#)
- [Scripting and Command Line Operations](#)
- [Backup sets](#)

The [Disk Actions](#) chapter explains disk actions such as:

- [Create an Image](#) of a partition, logical disk, or entire hard drive
- [Restore Data from an Image](#)
- [Copy Disk to Disk](#) to make an exact copy of one disk on another
- [Connect an Image as a Virtual Logical Disk](#) (read-only)
- [Disconnect Virtual Logical Disks](#)
- [Check an Image File](#) to check an existing image file

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions such as:

- [Create Startup Disk](#)
- [Restoring Data to a System or Other Locked Disk](#)
- [Create an Image Using the Startup Floppy Disks](#)
- [Disk to Disk Copy](#)

The [Technical Information](#) chapter gives technical information on

- [Creating consistent point-in-time backups](#)
- [Support for Various Non-MBR Partition Layouts](#)
- [Supported CD and DVD Recorders](#)
- [List of Hardware Devices Supported in the Startup Mode](#)

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#).

## 4.1 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](#)

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders](#) and [List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

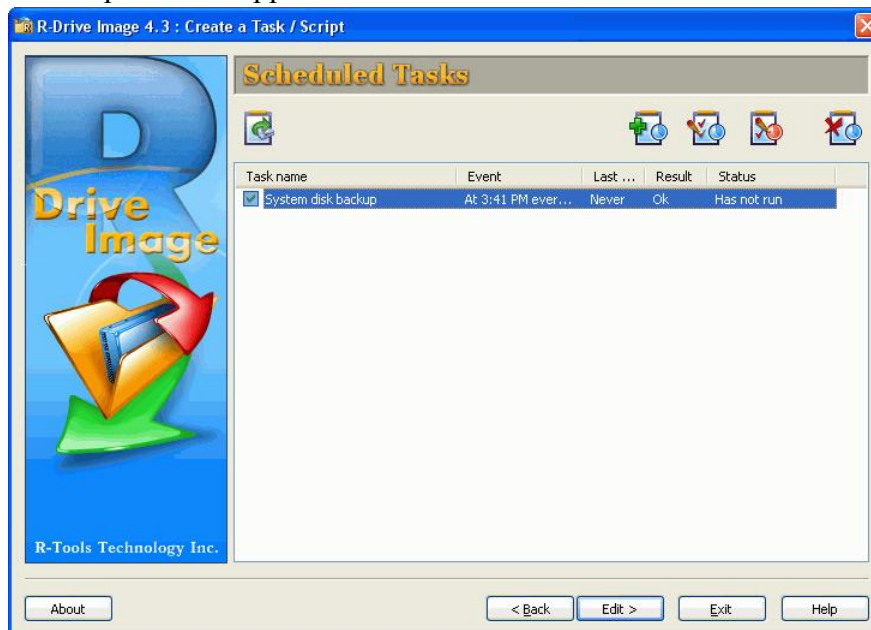
### 4.1.1 Create a Task

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.

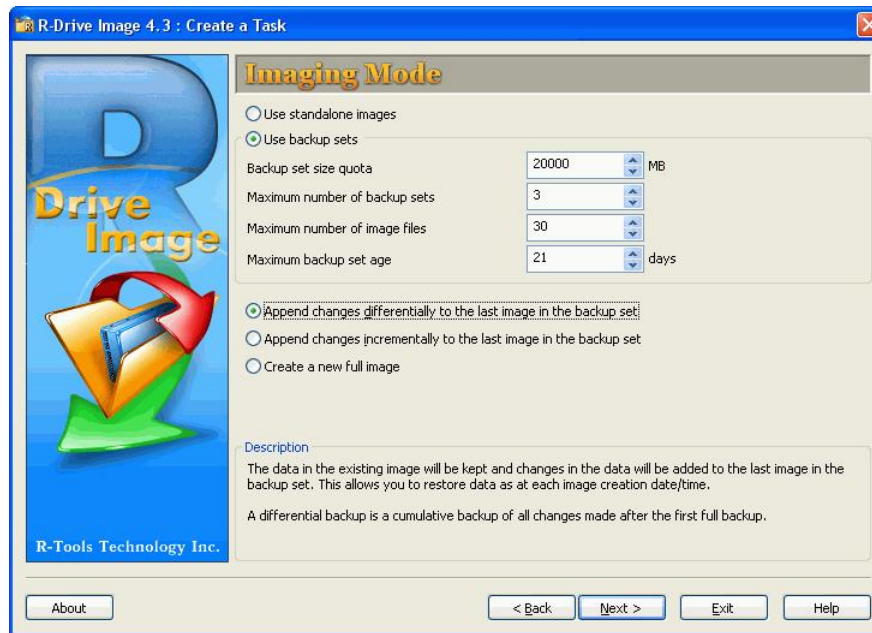


- ② Click the **Create a Task** button on the **Scheduled Tasks** panel
- ③ Select the objects you want to backup on the **Partition Selection** panel, image destination on the **Image Destination** panel, imaging mode on the **Imaging Mode** panel, image options on the **Image Options** panel, and backup options on the [Backup Options](#) panel.

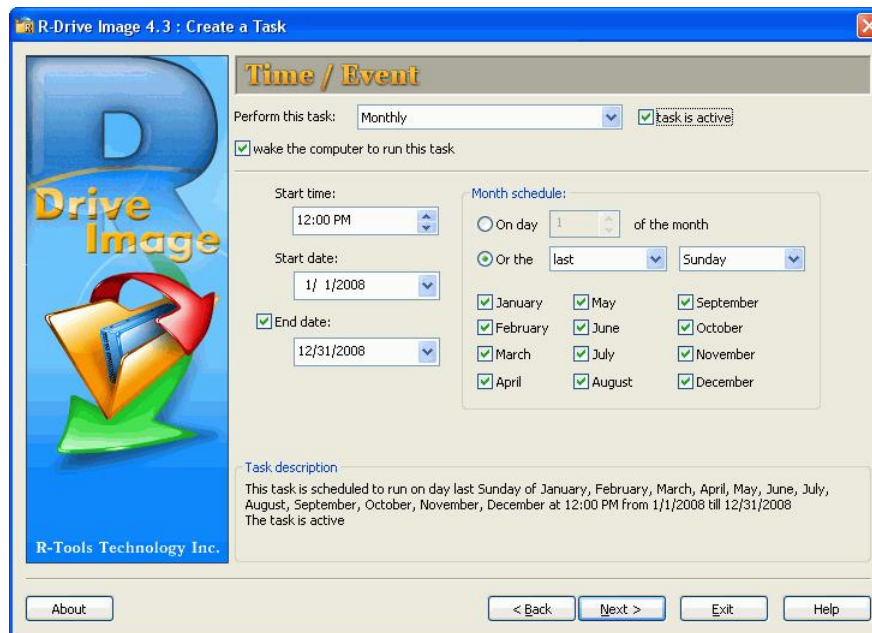
Go to the [Create an Image](#) topic for more details.

Please note that you may use [backup sets](#) for creating complex data backup tasks and maintaining

data files.



- ④ Specify the time or event at which the task should start on the **Time/Event** panel and click the **Next** button



You may specify time/event options on this panel.

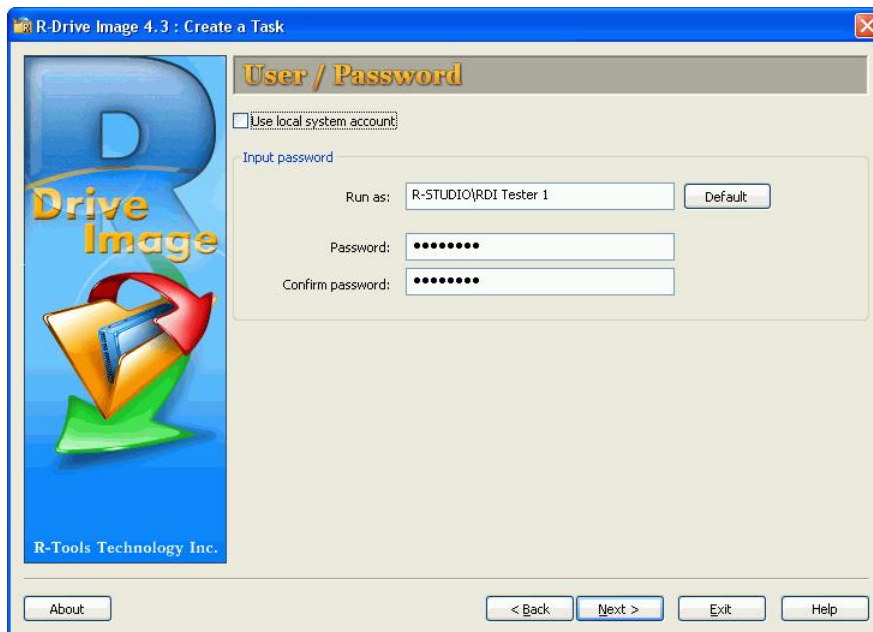
#### **Time/event options**

task is active	If this options is not selected, the task will not start at its scheduled time/event
Perform this task:	
Daily	The task will start repeatedly on a daily time interval
Start time:	Time at which the task will start
Start date:	Date from which the task will start

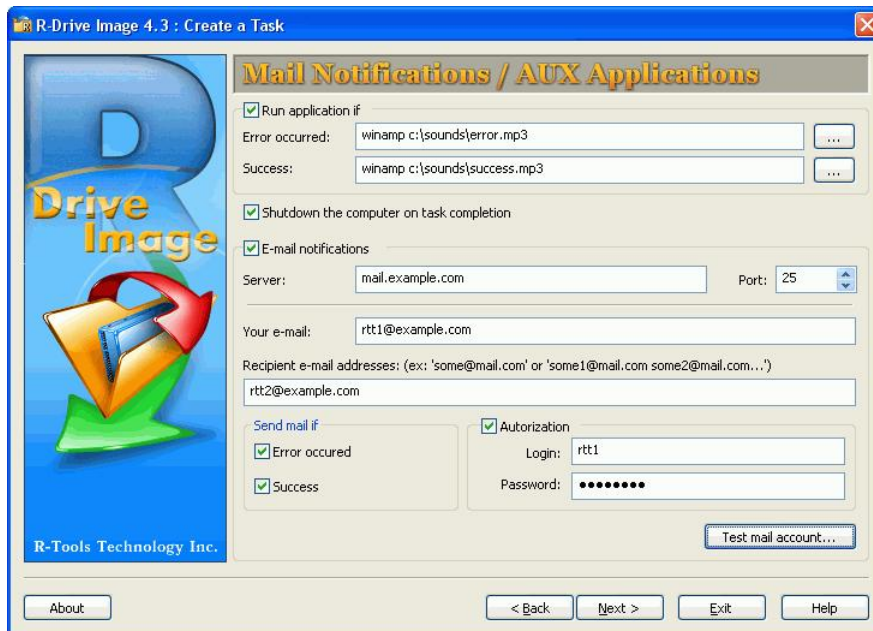
Run this task every:	Time interval in days in which the task will regularly start
End date: (optional)	Date from which the task will not start anymore
Weekly	The task will start repeatedly on a weekly time interval
Start time:	Time at which the task will start
Start date:	Date from which the task will 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
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
Start time:	Time at which the task will start
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
wake the computer to run this task	If this checkbox is selected, your computer will automatically start up to perform this task

- ⑤ **Specify a user name and password of a user from the Administrators user group on the User/Password panel and click the Next button**

Click the **Default** button to make **R-Drive Image** to run as your default user.



- ⑥ Specify mail notification options (optional) and applications you want to run when the task will end successfully or failed (optional) on the **Mail Notification/Aux Applications** panel and click the **Next** button



These options are not mandatory and you may leave this panel empty.

#### More information...

##### Applications

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.

##### Shutdown the computer on task completion

If this checkbox is selected, **R-Drive Image** will shut your computer down when completed the task.

#### **Test mail account**

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

- ⑦ **Verify that the information on the Processing panel is correct and click the Save button**
- ➡ **A new task will appear on the Scheduled Tasks panel**

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

### **4.1.2 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 from which you want to create a script 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 **Time/Event** 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 Time/Event panel and click the Next button**  
Go to the [Create a Task](#) topic for details
- ④ **Click the Next button several times until you go to the Processing panel**
- ⑤ **Verify that the information on the Processing panel is correct and click the Save button**
- ➡ **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 **Image Destination** panel, imaging mode on the **Imaging Mode** panel, and image options on the **Image Options** panel.

Go to the [Create an Image](#) topic for more details.

- ④ Edit the time or event at which the task should start on the **Time/Event** panel, the user name and password of a user from the Administrators user group on the **User/Password** panel, mail notification options (optional) and applications you want to run when the task will end successfully or failed (optional) on the **Mail Notification/Aux Applications** panel, and click the **Next** button

Go to the [Create a Task](#) topic for more details.

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

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

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

### 4.1.3 Delete a Task

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

#### To delete a scheduled task:

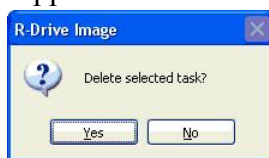
- ① Click **Scheduler/Create Script** on the **Action Selection** panel

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 [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 4.2 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**, and **restoring data from an image**.

### 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
Ver. 4.x	r-driveimagecl [/switches] cmd="<ScriptName>.rdi"

Switch	Description
a	A non-interactive mode. <b>R-Drive Image</b> will not ask the user any questions. If it cannot perform the action, it will generate an error.
d	A debug mode. <b>R-Drive Image</b> 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	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 <b>R-Drive Image Partition Selection</b> panel or Windows Disk Management.
o	If a file with a specified filename exists, <b>R-Drive Image</b> will overwrite it quietly.

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-driveimagecl [/switches] create <params>
r-driveimagecl [/switches] append <params>
r-driveimagecl [/switches] restore <params>
```

**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 [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

#### 4.2.1 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 the Create an Image action (without Mail Notification and Aux Applications)

- ➊ 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.
- ➋ Click the **Script to Clipboard** button on the **Processing** panel and paste the script to any text-processing utility
- ➌ **Save the script in a file**  
The default extension for **R-Drive Image** scripts is `.rdi`. Go to the [Scripting and Command Line Operation](#) topic to learn how to use scripts

##### To create a script from an existing task

- ➊ Click **Scheduler/Create Script** on the **Action Selection** panel  
The **Scheduled Tasks** panel will appear.
  - ➋ **Right-click** the task the **Scheduled Tasks** panel
  - ➌ **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 [Scripting and Command Line Operation](#) topic to learn how to use scripts

##### To create a new script from the Scheduler

- ➊ Click **Scheduler/Create Script** on the **Action Selection** panel  
The **Scheduled Tasks** panel will appear.
- ➋ Click the **Create a Script** button on the **Scheduled Tasks** panel
- ➌ **Select** the objects you want to backup on the **Partition Selection** panel, image destination on the **Image Destination** panel, imaging mode on the **Imaging Mode** panel, image options on the **Image Options** panel, and backup options on the [Backup Options](#) panel.

Go to the [Create an Image](#) topic for more details.

Please note that you may use [backup sets](#) for creating complex data backup tasks and maintaining data files.

- ④ **Specify mail notification options (optional) and applications you want to run when the task will end successfully or failed (optional) on the Mail Notification/Aux Applications panel and click the Next button**

These options are not mandatory and you may leave this panel empty.

▣ **More information...**

**Applications**

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.

**Shutdown the computer on task completion**

If this checkbox is selected, **R-Drive Image** will shut your computer down when completed the task.

**Test mail account**

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

- ⑤ **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 [Scripting and Command Line Operation topic](#) 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 and paste the script to any text-processing utility.**

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 4.2.2 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 "	"	&quot;
Escaping of the " character has	"	&quot;

been changed		
File names with & Escaping of the & character has been changed	&	&amp;
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.arc"
create -a = "c:\archive.arc"
```

Below are not equal lines:

```
create -a = "c:\archive 1.arc"
create -a = "c:\archive 1.arc"
```

**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.arc" -s = "1:1" \
c = "5"
```

are equal to the line:

```
create -a = "c:\archive.arc" -s="1:1" c= "5"
```

**Disk size units**

Values specifying disk sizes may be in units.

b	bytes	
Kb	kilobytes	2 <sup>10</sup> = 1,024 b
Mb	megabytes	2 <sup>20</sup> = 1,024 Kb
Gb	gigabytes	2 <sup>30</sup> = 1,024 Mb

If the units are used, enclose the value in quotes.

Default values are Mb (megabytes).

**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
"	&quot;;
'	&apos;;
&	&amp;;
carriage return	&cr;;
new line	&nl;;

**Note:** This is the incompatibility with scripts created for the earlier versions of **R-Drive Image**.

#### Script commands and parameters:

Command Its Parameters	Optional / Mandat ory	Description and examples
create	Mandat ory	Creates an image file. If such file already exists, <b>R-Drive Image</b> will ask whether the file should be overwritten. If the a <a href="#">switch</a> is used, <b>R-Drive Image</b> will not overwrite the file.
append	Mandat ory	Incrementally appends data to an existing image file. If such file does not exist, it will be created.
-s=<ImageSource>	Mandat ory	Specifies an image source. Examples: for hard drive 1: -s=1 for the second partition on hard drive 1: -s=1:2 for a logical disk: -s=D: for several logical disks: -s="D: F:"
-a=<PathOfNewArchiveFile>	Mandat ory	Specifies a path (including its file name) to the image file. Examples: -a=C:\Images\Test.arc      or      -a="C:\Image Files\Test 1.arc"
-c=<CompressionLevel>	Optiona l	Specifies compression level (1...11). Example: -c=3
-u	Optiona l	Backups useful information only. May be used as a <a href="#">Boolean parameter</a> .
-v=<ArchiveSize>	Optiona l	Specifies image split size. May be in the float-point format. Example: -v=650 or -v='4.5 Gb'
-p=<Password>	Optiona l/ Mandat ory	Specifies an image password. Mandatory if the append command is used and the image file has been already encrypted. If there is a space in the password, the password should be in quotes. Examples: -p=Password or -p='My Password'
-r=<Description of archive>	Optiona l	Specifies an image description. If there is a space in the description, the description should be in quotes. Examples: -r=Description      or      -r="Image Description"
-s-xw	Optiona	Makes <b>R-Drive Image</b> not to use the Windows

	1	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-b0=<AppBeforeBack>	Optional	Specifies an application that will start before the backup operation starts. The application should return a 0 exit code. Example: -s-b0="C:\commands\start.exe"
-s-b1=<AppAfterBack>	Optional	Specifies an application that will start after the backup operation completes. The application should return a 0 exit code. Example: -s-b1="C:\commands\end.exe"
-s-s0=<AppBeforeSnapShot>	Optional	Specifies an application that will start before the snapshot is taken. The application should return a 0 exit code. Example: -s-s0="C:\commands\startsnapshot.exe"
-s-s1=<AppAfterSnapShot>	Optional	Specifies an application that will start after the snapshot is taken. The application should return a 0 exit code. Example: -s-s1="C:\commands\endsnapshot.exe"
-xe=<AppIfError>	Optional	Specifies a command line that will start an application if <b>R-Drive Image</b> fails to perform the specified action. If there is a space in the command line, the command line should be in quotes. Examples: -xe=error.exe or -xe="winamp C:\sounds\error.mp3"
-xs=<AppIfSucc>	Optional	Specifies a command line that will start an application if <b>R-Drive Image</b> successfully performs the specified action. If there is a space in the command line, the command line should be in quotes. Examples: -xs=success.exe or -xs="winamp C:\sounds\success.mp3"
-bs	Optional	Specifies that <b>R-Drive Image</b> will use <a href="#">backup sets</a> .
-bs-size="<Quota_in_MB>"	Optional	May be used only if the -bs is set. Specifies the total size in MB on the disk allocated for the backup set. If it is exceeded, the backup set (all its files) will be removed. Example: -bs-size="20000"
-bs-num-b="<Number_of_backs>"	Optional	May be used only if the -bs is set. Specifies the number of backup sets. If it is exceeded, the older backup sets (all their files) will be removed. Example: -bs-num-b="10"

<code>-bs-num-f="&lt;Number_of_files&gt;"</code>	Optional	May be used only if the <code>-bs</code> is set. Specifies the number of files in all backup sets. If it is exceeded, the older backup sets (all their files) will be removed. Example: <code>-bs-num-f="30"</code>
<code>-bs-age="&lt;Days&gt;"</code>	Optional	May be used only if the <code>-bs</code> is set. Specifies the number of days for which <b>R-Drive Image</b> will keep the backup set. Then the backup set will be removed. Example: <code>-bs-age="14"</code>
<code>-bs-use="&lt;Parameter&gt;"</code>	Optional	May be used only if the <code>-bs</code> is set. Specifies the backup set <b>R-Drive Image</b> will use. <code>Parameter</code> 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. <code>&lt;n&gt;</code> : <b>R-Drive Image</b> will use the <code>n</code> -th backup set from the beginning. <code>-&lt;n&gt;</code> : <b>R-Drive Image</b> will use the <code>n</code> -th backup set from the end. <code>&lt;date&gt;</code> : <b>R-Drive Image</b> will use the backup set containing the <code>date</code> in its name. Examples: <code>-bs-use="+3"</code> : <b>R-Drive Image</b> will use the 3-rd backup set from the beginning. <code>-bs-use="20080521"</code> : <b>R-Drive Image</b> will use the backup set containing the " 20080521" string in its name.
<p>Example:</p> <pre>create -s="F: H:" -a="I:\Test Image.arc" -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"</pre> <p>This script creates an image of logical disks F: and H:. The path and filename for this script is I:\csys.arc, 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.</p>		
restore	Mandatory	Restores data from an image to a specified disk place
<code>-s=&lt;ImageSource&gt;</code>	Mandatory	Specifies an image source. Examples: for hard drive 1: <code>-s=1</code> for the second partition on hard drive 1: <code>-s=1:2</code> for a logical disk: <code>-s=D:</code> for several logical disks: <code>-s="D: F:"</code>
<code>-d=&lt;ImageDestination&gt;</code>	Mandatory	Specifies a destination disk:partition on which the data is to be restored. Examples: for hard drive 1: <code>-d=1</code> for the second partition on hard drive 1: <code>-d=1:2</code> for a logical disk: <code>-d=D:</code>

-a=<PathOfArchiveFile>	Mandatory	<p>Specifies a path (including its file name) to the image file from which data is to be restored. If there is a space in the path, the path should be in quotes.</p> <p>Examples: -a=C:\Images\Test.arc or -a="C:\Image Files\Test.arc"</p>
-k=<"PartitionStatus">	Optional	<p>Specifies a status (primary/active) for a partition to be restored.</p> <p>Settings:</p> <ul style="list-style-type: none"> <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> </ul> <p>Please note that the combination "-p +a" is invalid. If this parameter is not specified, the data from the image will be used.</p> <p>Examples:</p> <ul style="list-style-type: none"> <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>
-t=<TimeSliceNumber> -t="<Parameter>"	Optional	<p>Specifies which incremental data will be used to restore the data from the image. If the TimeSliceNumber is not specified or specified, the first data in the image will be used. -1 specifies the last incremental data in the image.</p> <p>Examples: -t="2" specifies the second incremental data in the image will be used to restore data.</p> <p>Parameter may be:</p> <ul style="list-style-type: none"> <li>first: <b>R-Drive Image</b> will use the first backup set.</li> <li>last: <b>R-Drive Image</b> will use the last backup set.</li> <li>+&lt;n&gt;: <b>R-Drive Image</b> will use the n-th backup set from the beginning.</li> <li>-&lt;n&gt;: <b>R-Drive Image</b> will use the n-th backup set from the end.</li> <li>&lt;date&gt;: <b>R-Drive Image</b> will use the backup set containing the date in its name.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>-t="+3": <b>R-Drive Image</b> will use the 3-rd backup set from the beginning.</li> <li>-t="20080521": <b>R-Drive Image</b> will use the backup set containing the "20080521" string in its name.</li> </ul>
-lr=<DiskLetter>	Optional	<p>Specifies a disk letter. This parameter is case-insensitive.</p> <p>Examples: -lr="k" or lr=k.</p>
-sz=<PartitionSize>	Optional	<p>Specifies a partition size. May be in the float-point format.</p> <p>Example: -sz=512 or -sz='0.5 Gb'</p>
-of=<PartitionOffset>	Optional	<p>Specifies an offset from the beginning of the</p>

	l	destination. May be in the float-point format. Default is 0. Example: -of=512 or -of='0.5 Gb'
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 <a href="#">Boolean parameter</a> .
-mx	Optional	Sends an e-mail message when <b>R-Drive Image</b> successfully performs the specified action. May be used as a <a href="#">Boolean parameter</a> .
-ms=<SMTPServer[:port]>	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=<SenderEmail>	Mandatory/Not used	Mandatory if the -me or/and -mx option is used. Specifies a sender's e-mail address. Example: -ma=rtt1@example.com
-mr=<ReceipientEmail>	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:Password>	Optional	Specifies a login and password at the SMTP server. Example: -ml=rtt1:password
-p=<password>	Mandatory / Not used	Mandatory for password-protected files. Specifies a password for the archive. Example: -p="my password"
check	Mandatory/Optional	Checks consistency of the archive
-a=<PathOfArchiveFile>	Mandatory	Specifies a path (including its file name) to the image which integrity is to be checked. If there is a space in the path, the path should be in quotes. Examples: -a=C:\Images\Test.arc or -a="C:\Image Files\Test.arc"
mail	Optional	Specifies all mail options globally for the entire script
<p>Example:</p> <pre>mail -ms=mail.example.com -ma=rtt1@example.com -mr=rtt2@example.com -ml=rtt1:password -me -mx</pre> <p>This script sends e-mails confirming success or error of the action from rtt1@example.com to rtt2@example.com via the mail.example.com SMTP server using the default (25) port with the rtt1 login and password password.</p>		
list	Optional	Returns a partition list for a local disk

	1	
<code>list -a="archive_name"</code> <code>[-t="time_slice" -p="password"]</code>	Optiona 1	Returns a partition list for an image file
<code>-log="&lt;LogOptions&gt;"</code>	Optiona 1	<p>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.</p> <p>LogOptions may be:</p> <p>#nodefault: disables the default log output into syslog</p> <p>&lt;filename&gt;: writes the log to the specified file name and path. Example: <code>c:\mylogs\mylog.txt</code>. The ", " character in the file name should be doubled.</p> <p>&lt;filepath&gt;: writes the log files (a separate one to each session) to the specified folder. Each file name will have the following filename: <code>date_time.rxl</code>.</p> <p>Examples:            <code>c:\mydir\</code>,            file            name: 20081003_215302.rxl.</p> <p>#syslog: output logs into WinNT event log.</p> <p>#sysdir: outputs logs into <code>C:\Documents and Settings\All Users\Application Data\R-TT\R-Drive Image\Logs\</code>.</p> <p>Example: <code>-log="#nodefault,c:\mylog.txt,c:\mydir\,#sysdir"</code></p> <p>This will make <b>R-Drive Image</b> write its logs to the <code>c:\mylog.txt</code> file, and to the <code>c:\mydir\</code> and <code>C:\Documents and Settings\All Users\Application Data\R-TT\R-Drive Image\Logs\</code> folders without writing to WinNT event log.</p>

### 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
<code>&amp;rdi.ver;</code>	The <b>R-Drive Image</b> version. Example: "4.1"
<code>&amp;rdi.ver.build;</code>	The <b>R-Drive Image</b> build. Example: "4167"
<code>&amp;rdi.ver.major;</code>	The <b>R-Drive Image</b> major version. Example: "4"
<code>&amp;rdi.ver.minor;</code>	The <b>R-Drive Image</b> minor version. Example: "1"

<code>&amp;rdi.ver.subminor;</code>	The <b>R-Drive Image</b> sub-minor version. Example: "67"
-------------------------------------	---

**Result Entities**

Entity	Description
<code>&amp;rdi.last_result;</code>	Returns the last result of <b>R-Drive Image</b> operation. May be undefined, success, failed.

**Time Entities.**

In the examples below, the system time is assumed as 11:10:04 AM

Entity	Description
<code>&amp;sys.time;</code>	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 :.
<code>&amp;sys.time.m;</code>	Minutes
<code>&amp;sys.time.h;</code>	Hours in the 24 h format
<code>&amp;sys.time.h12;</code>	Hours in the 12 h format
<code>&amp;sys.time.h24;</code>	Hours in the 24 h format
<code>&amp;sys.time.s;</code>	Seconds
<code>&amp;sys.time._m;</code>	PM or AM

**Date Entities.**

In the examples below, the system date is assumed as February 1, 2007, Thursday

Entity	Description
<code>&amp;sys.date;</code>	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.
<code>&amp;sys.date.d;</code>	Month day. Example: "01"
<code>&amp;sys.date.m;</code>	Month. Example: "02"
<code>&amp;sys.date.y;</code>	Short year. Example: "07"
<code>&amp;sys.date.yyyy;</code>	Long year. Example: "2007"
<code>&amp;sys.date.m.name;</code>	Month name. Example: "February"
<code>&amp;sys.date.m.nm;</code>	Short month name. Example: "Feb"
<code>&amp;sys.date.wd;</code>	Week day number, starting from Sunday. Example: "5"
<code>&amp;sys.date.wd.name;</code>	Week day name. Example: "Thursday"
<code>&amp;sys.date.wd.nm;</code>	Short week day name. Example: "Th"

**Enumeration Entities**

Entity	Description
<code>&amp;rdi.enum;</code>	Defines the number of calls to this entity. Starts from 0.
<code>&amp;rdi.enum.&lt;Num&gt;;</code>	Defines the number of calls to this entity. Starts from 0. Num specifies the format of the number. Example: <code>&amp;rdi.enum.3;</code> 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;.arc" -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.arc` 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;.arc" -s="c:"
create -a="D:\archive\&creat_time;.arc" -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 [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 4.3 Backup Sets

A backup set 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. Backup sets may be used when a number of tasks/scripts are used to create images of the same objects with the same filenames but with different parameters. Backup sets 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.

You may do that on the **Imaging Mode** panel.

### **Backup sets parameters**

**Note:** **R-Drive Image** will keep at least one backup set, regardless of the parameters specified.

Zero parameter value disables the parameter.

Backup set size quota	Specifies the total size on the disk in MB allocated for the backup set. If it is exceeded, the older backup set (all its files) will be removed when a new backup set is created.
Maximum number of backup sets	Specifies the number of backup sets. If it is exceeded, the older backup sets (all their files) will be removed when a new backup set is created.
Maximum number of image files	Specifies the number of files in all backup sets. If it is exceeded, the older backup sets (all their files) will be removed when a new backup set is created.
Maximum backup set age	Specifies the number of days for which <b>R-Drive Image</b> will keep the oldest backup set. Then the backup set will be removed when a new backup set is created.

**Backup set example**

For example, you want to create an image file of your disk with the following conditions:

- A full backup of a disk once a week (Friday, 8:00 PM) and incremental backups on other days at the same time.
- The total size on the disk that may be used to store the image files is 20 GB.
- The number of backup sets is 3, the total number of files not exceeding 30.
- The oldest backup set should be removed in 21 days when a new backup set is created.

The you need to create two tasks: one for the full data backup on Friday, the second one for the incremental data backup at 8:00 PM on all days except Friday.

**The setting should be the following:**

**On the Image Destination panel****For the both task:**

File name: I:\Test\_Image.arc

**On the Imaging Mode panel:****For the both task:**

Use backup sets Selected  
Backup size quota 20000  
Maximum number of backup sets 3  
Maximum number of image files 30  
Maximum backup set age 21

**For the full data backup task**

Create a new full image Selected

**For the incremental backup task**

Append changes incrementally to the last image in the backup set Selected

**On the Time/Event panel:****For the full data backup task**

Perform the task Weekly  
Run this task every 1 week(s)  
On the days Friday  
Start time 8:00 PM  
Start Date: 4/4/2008

**For the incremental backup task**

Perform the task Weekly  
Run this task every 1 week(s)  
On the days Sunday, Monday, Tuesday, Wednesday, Thursday, Saturday  
Start time 8:00 PM  
Start Date: 4/4/2008

**File name convention:**

Full backup: &lt;FileName&gt;\_&lt;Date&gt;\_&lt;Time&gt;\_1.arc

Incremental backup: &lt;FileName&gt;\_&lt;Date&gt;\_&lt;Time&gt;\_N+1.arc

N is the number of incremental backup

**The files created**

Date Day	Files created on the destination;Comments
4/4/2008 Friday	Test_Image_04042008_200000_1.arc ;Full backup 1
4/5/2008 Saturday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1
4/6/2008 Sunday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2
4/7/2008 Monday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3
4/8/2008 Tuesday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4
4/9/2008 Wednesday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5
4/10/2008 Thursday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5 Test_Image_04042008_200000_7.arc ;Incremental backup 1:6
4/11/2008 Friday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5 Test_Image_04042008_200000_7.arc ;Incremental backup 1:6 Test_Image_11042008_200000_1.arc ;Full backup 2
4/12/2008 Saturday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5 Test_Image_04042008_200000_7.arc ;Incremental backup 1:6 Test_Image_11042008_200000_1.arc ;Full backup 2 Test_Image_11042008_200000_2.arc ;Incremental backup 2:1
4/13/2008 Sunday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3

	Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5 Test_Image_04042008_200000_7.arc ;Incremental backup 1:6 Test_Image_11042008_200000_1.arc ;Full backup 2 Test_Image_11042008_200000_2.arc ;Incremental backup 2:1 Test Image 11042008 200000 3.arc ;Incremental backup 2:2
.....	.....
4/17/2008 Thursday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5 Test_Image_04042008_200000_7.arc ;Incremental backup 1:6 Test_Image_11042008_200000_1.arc ;Full backup 2 Test_Image_11042008_200000_2.arc ;Incremental backup 2:1 Test_Image_11042008_200000_3.arc ;Incremental backup 2:2 Test_Image_11042008_200000_4.arc ;Incremental backup 2:3 Test_Image_11042008_200000_5.arc ;Incremental backup 2:4 Test_Image_11042008_200000_6.arc ;Incremental backup 2:5 Test Image 11042008 200000 7.arc ;Incremental backup 2:6
4/18/2008 Friday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5 Test_Image_04042008_200000_7.arc ;Incremental backup 1:6 Test_Image_11042008_200000_1.arc ;Full backup 2 Test_Image_11042008_200000_2.arc ;Incremental backup 2:1 Test_Image_11042008_200000_3.arc ;Incremental backup 2:2 Test_Image_11042008_200000_4.arc ;Incremental backup 2:3 Test_Image_11042008_200000_5.arc ;Incremental backup 2:4 Test_Image_11042008_200000_6.arc ;Incremental backup 2:5 Test_Image_11042008_200000_7.arc ;Incremental backup 2:6 Test Image 18042008 200000 1.arc ;Full backup 3
4/19/2008 Saturday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5 Test_Image_04042008_200000_7.arc ;Incremental backup 1:6 Test_Image_11042008_200000_1.arc ;Full backup 2 Test_Image_11042008_200000_2.arc ;Incremental backup 2:1 Test_Image_11042008_200000_3.arc ;Incremental backup 2:2 Test_Image_11042008_200000_4.arc ;Incremental backup 2:3 Test_Image_11042008_200000_5.arc ;Incremental backup 2:4 Test_Image_11042008_200000_6.arc ;Incremental backup 2:5 Test_Image_11042008_200000_7.arc ;Incremental backup 2:6 Test_Image_18042008_200000_1.arc ;Full backup 3 Test Image 18042008 200000 2.arc ;Incremental backup 3:1
4/20/2008 Sunday	Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5 Test_Image_04042008_200000_7.arc ;Incremental backup 1:6 Test_Image_11042008_200000_1.arc ;Full backup 2

	Test_Image_11042008_200000_2.arc ;Incremental backup 2:1 Test_Image_11042008_200000_3.arc ;Incremental backup 2:2 Test_Image_11042008_200000_4.arc ;Incremental backup 2:3 Test_Image_11042008_200000_5.arc ;Incremental backup 2:4 Test_Image_11042008_200000_6.arc ;Incremental backup 2:5 Test_Image_11042008_200000_7.arc ;Incremental backup 2:6 Test_Image_18042008_200000_1.arc ;Full backup 3 Test_Image_18042008_200000_2.arc ;Incremental backup 3:1 Test_Image_18042008_200000_3.arc ;Incremental backup 3:2
4/24/2008 Thursday	..... ..... Test_Image_04042008_200000_1.arc ;Full backup 1 Test_Image_04042008_200000_2.arc ;Incremental backup 1:1 Test_Image_04042008_200000_3.arc ;Incremental backup 1:2 Test_Image_04042008_200000_4.arc ;Incremental backup 1:3 Test_Image_04042008_200000_5.arc ;Incremental backup 1:4 Test_Image_04042008_200000_6.arc ;Incremental backup 1:5 Test_Image_04042008_200000_7.arc ;Incremental backup 1:6 Test_Image_11042008_200000_1.arc ;Full backup 2 Test_Image_11042008_200000_2.arc ;Incremental backup 2:1 Test_Image_11042008_200000_3.arc ;Incremental backup 2:2 Test_Image_11042008_200000_4.arc ;Incremental backup 2:3 Test_Image_11042008_200000_5.arc ;Incremental backup 2:4 Test_Image_11042008_200000_6.arc ;Incremental backup 2:5 Test_Image_11042008_200000_7.arc ;Incremental backup 2:6 Test_Image_18042008_200000_1.arc ;Full backup 3 Test_Image_18042008_200000_2.arc ;Incremental backup 3:1 Test_Image_18042008_200000_3.arc ;Incremental backup 3:2 Test_Image_18042008_200000_4.arc ;Incremental backup 3:3 Test_Image_18042008_200000_5.arc ;Incremental backup 3:4 Test_Image_18042008_200000_6.arc ;Incremental backup 3:5 Test_Image_18042008_200000_7.arc ;Incremental backup 3:6
4/25/2008 Friday	;Full backup 1 is deleted (All its files) Test_Image_11042008_200000_1.arc ;Full backup 2 Test_Image_11042008_200000_2.arc ;Incremental backup 2:1 Test_Image_11042008_200000_3.arc ;Incremental backup 2:2 Test_Image_11042008_200000_4.arc ;Incremental backup 2:3 Test_Image_11042008_200000_5.arc ;Incremental backup 2:4 Test_Image_11042008_200000_6.arc ;Incremental backup 2:5 Test_Image_11042008_200000_7.arc ;Incremental backup 2:6 Test_Image_18042008_200000_1.arc ;Full backup 3 Test_Image_18042008_200000_2.arc ;Incremental backup 3:1 Test_Image_18042008_200000_3.arc ;Incremental backup 3:2 Test_Image_18042008_200000_4.arc ;Incremental backup 3:3 Test_Image_18042008_200000_5.arc ;Incremental backup 3:4 Test_Image_18042008_200000_6.arc ;Incremental backup 3:5 Test_Image_18042008_200000_7.arc ;Incremental backup 3:6 Test_Image_25042008_200000_1.arc ;Full backup 4
4/26/2008 Saturday	Test_Image_11042008_200000_1.arc ;Full backup 2 Test_Image_11042008_200000_2.arc ;Incremental backup 2:1 Test_Image_11042008_200000_3.arc ;Incremental backup 2:2 Test_Image_11042008_200000_4.arc ;Incremental backup 2:3 Test_Image_11042008_200000_5.arc ;Incremental backup 2:4 Test_Image_11042008_200000_6.arc ;Incremental backup 2:5 Test_Image_11042008_200000_7.arc ;Incremental backup 2:6 Test_Image_18042008_200000_1.arc ;Full backup 3 Test_Image_18042008_200000_2.arc ;Incremental backup 3:1 Test_Image_18042008_200000_3.arc ;Incremental backup 3:2 Test_Image_18042008_200000_4.arc ;Incremental backup 3:3 Test_Image_18042008_200000_5.arc ;Incremental backup 3:4 Test_Image_18042008_200000_6.arc ;Incremental backup 3:5

	Test_Image_18042008_200000_7.arc ;Incremental backup 3:6
	Test_Image_25042008_200000_1.arc ;Full backup 4
	Test Image 18042008 200000 2.arc ;Incremental backup 4:1
.....	.....

Please note, that the oldest backup set would be deleted if the total size exceeds 20 GB or the number of all files from all backup sets exceeds 30.

## V Technical Informaiton

This chapter gives technical information on

- [Creating consistent point-in-time backups](#)
- [Support for Various Non-MBR Partition Layouts](#)
- [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
- [Restore Data from an Image](#)
- [Copy Disk to Disk](#) to make an exact copy of one disk on another
- [Connect an Image as a Virtual Logical Disk \(read-only\)](#)
- [Disconnect Virtual Logical Disks](#)
- [Check an Image File](#) to check an existing image file

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions such as:

- [Create Startup Disk](#)
- [Restoring Data to a System or Other Locked Disk](#)
- [Create an Image Using the Startup Floppy Disks](#)
- [Disk to Disk Copy](#)

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

- [Scheduler and Unattended Actions](#)
- [Scripting and Command Line Operations](#)
- [Backup sets](#)

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#).

### 5.1 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 flush 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 [scripts](#)) 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 [scripts](#)) 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

<a href="#">Snapshot provider</a>	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.
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.
<a href="#">Backup AUX applications</a>	<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 application, you may use a command file.
After	An application <b>R-Drive Image</b> starts after the backup operations completes. If you need to start several application, you may use a command file.
<a href="#">Snapshot AUX applications</a>	<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.
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.
Save as default	Click this button to make the current settings default.

Reset	Click this button to reset the current settings default.
Restore defaults	Click this button to restore default settings.

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: 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}

```

## 5.2 Support for Various Non-MBR Partition Layouts

**R-Drive Image** supports various non-MBR partition layouts: Dynamic disk, BSD Slice, Apple Partition Map, GPT with the following restrictions:

- Changes are supported for basic (regular) disks. That is, only when a basic partition is being restored, its size may be changed.
- The other partition layouts may be backed up and then restored only on their original places. 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 layout with the above limitation, and a partition of another layout may be restored as a basic one without limitations.

## 5.3 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 formatted.

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders](#) and [List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

## 5.4 List of Hardware Devices Supported in the Startup Mode

In the startup mode, **R-Drive Image** supports the following hardware devices:

(\*: Only in the CD version)

### Data Storage Devices

#### Block devices

- Normal floppy disk
- Compaq SMART2
- Compaq Smart Array 5xxx

Mylex DAC960/DAC1100 PCI RAID Controller \*  
Promise SATA SX8 \*

**USB support**

USB 2.0  
USB Mass Storage

**ATA/ATAPI/MFM/RLL**

Generic ATA/ATAPI/MFM/RLL/ATA-2  
OPTi 82C621 chipset enhanced \*  
AEC62XX chipset \*  
ALI M15x3 chipset \*  
AMD and nVidia IDE  
ATI IXP chipset IDE \*  
CMD64{3|6|8|9} chipset \*  
Compaq Triflex IDE \*  
CY82C693 chipset \*  
Cyril CS5510/20 MediaGX chipset \*  
Cyril/National Semiconductor CS5530 MediaGX chipset \*  
HPT34X chipset \*  
HPT36X/37X chipset \*  
National SCx200 chipset \*  
Intel PIIXn chipsets  
NS87415 chipset \*  
PROMISE PDC202 {46|62|65|67}  
PROMISE PDC202 {68|69|70|71|75|76|77}  
ServerWorks OSB4/CSB5/CSB6 chipsets \*  
Silicon Image chipset  
SiS5513 chipset \*  
SLC90E66 chipset \*  
Tekram TRM290 chipset \*  
VIA82CXXX chipset \*

**SCSI low-level drivers**

3ware 5/6/7/8xxx ATA-RAID \*  
3ware 9xxx SATA-RAID \*  
7000FASST SCSI \*  
ACARD SCSI \*  
Adaptec AHA152X/2825 \*  
Adaptec AHA1542 \*  
Adaptec AACRAID  
Adaptec AIC7xxx Fast -> U160  
Adaptec AIC7xxx \*  
Adaptec AIC79xx U320  
Adaptec I2O RAID \*  
Always IN2000 SCSI \*  
LSI Logic Management Module \*  
LSI Logic MegaRAID Driver \*  
AHCI SATA \*

ServerWorks Frodo / Apple K2 SATA \*

Intel PIIX/ICH SATA \*

NVIDIA SATA \*

Promise SATA TX2/TX4 \*

Pacific Digital SATA QStor \*

Promise SATA SX4 \*

Silicon Image SATA \*

SiS 964/180 SATA \*

ULi Electronics SATA \*

VIA SATA \*

VITESSE VSC-7174 SATA \*

BusLogic SCSI

DMX3191D SCSI \*

DTC3180/3280 SCSI \*

EATA ISA/EISA/PCI (DPT and generic EATA/DMA-compliant boards) \*

EATA-PIO (old DPT PM2001, PM2012A) \*

Future Domain 16xx SCSI/AHA-2920A \*

Intel/ICP (former GDT SCSI Disk Array) RAID Controller \*

Generic NCR5380/53c400 SCSI PIO \*

Generic NCR5380/53c400 SCSI MMIO \*

IBM ServeRAID \*

Initio 9100U(W) \*

Initio INI-A100U2W \*

NCR53c406a SCSI \*

SYM53C8XX Version 2 SCSI

IBM Power Linux RAID adapter \*

PAS16 SCSI \*

PSI240i \*

Qlogic FAS SCSI \*

Qlogic ISP SCSI

Qlogic ISP FC SCSI

Qlogic QLA 1240/1x80/1x160 SCSI

QLogic ISP2100 host adapter family \*

QLogic ISP2200 host adapter family \*

QLogic ISP2300 host adapter family \*

QLogic ISP2322 host adapter family \*

QLogic ISP63xx host adapter family \*

Symbios 53c416 SCSI \*

Tekram DC395(U/UW/F) and DC315(U) SCSI \*

Tekram DC390(T) and Am53/79C974 SCSI

Trantor T128/T128F/T228 SCSI \*

UltraStor 14F/34F \*

UltraStor SCSI \*

Workbit NinjaSCSI-32Bi/UDE

**IEEE 1394 (FireWire)**

SBP-2 support (Harddisks etc.) \*

**Networking Devices****Ethernet (10 or 100Mbit)**

Sun Happy Meal 10/100baseT \*  
Sun GEM \*  
3c501 `EtherLink` \*  
3c503 `EtherLink II` \*  
3c505 `EtherLink Plus` \*  
3c507 `EtherLink 16` \*  
3c509/3c529 (MCA)/3c569B (98)/3c579 `EtherLink III` \*  
3c515 ISA `Fast EtherLink` \*  
3c590/3c900 series (592/595/597) `Vortex/Boomerang` \*  
3cr990 series `Typhoon` \*  
AMD LANCE and PCnet (AT1500 and NE2100) \*  
WD80\*3 \*  
SMC Ultra \*  
SMC 9194 \*  
NI5210 \*  
NI6510 \*  
Early DECchip Tulip (dc2104x) PCI \*  
DECchip Tulip (dc2114x) PCI \*  
Generic DECchip & DIGITAL EtherWORKS PCI/EISA \*  
Winbond W89c840 Ethernet \*  
Davicom DM910x/DM980x \*  
AT1700/1720/RE1000Plus(C-Bus) \*  
DEPCA, DE10x, DE200, DE201, DE202, DE422 \*  
HP 10/100VG PCLAN (ISA, EISA, PCI) \*  
Cabletron E21xx \*  
EtherExpress 16 \*  
EtherExpressPro support/EtherExpress 10 (i82595) \*  
HP PCLAN+ (27247B and 27252A) \*  
HP PCLAN (27245 and other 27xxx series) \*  
LP486E on board Ethernet \*  
ICL EtherTeam 16i/32 \*  
NE2000/NE1000 \*  
Zenith Z-Note \*  
SEEQ8005 \*  
AMD PCnet32 PCI \*  
AMD 8111 (new PCI lance) \*  
Adaptec Starfire/DuraLAN \*  
Ansel Communications EISA 3200 \*  
Apricot Xen-II on board Ethernet \*  
Broadcom 4400 ethernet \*  
Reverse Engineered nForce Ethernet \*  
CS89x0 \*  
Digi Intl. RightSwitch SE-X \*  
EtherExpressPro/100 \*

Intel(R) PRO/100+ \*  
Myson MTD-8xx PCI Ethernet \*  
National Semiconductor DP8381x series PCI Ethernet \*  
PCI NE2000 and clones support (see help) \*  
RealTek RTL-8139 C+ PCI Fast Ethernet Adapter \*  
RealTek RTL-8139 PCI Fast Ethernet Adapter \*  
SiS 900/7016 PCI Fast Ethernet Adapter \*  
SMC EtherPower II \*  
Sundance Alta \*  
TI ThunderLAN \*  
VIA Rhine \*  
AT-LAN-TEC/RealTek pocket adapter \*  
D-Link DE600 pocket adapter \*  
D-Link DE620 pocket adapter \*

**Ethernet (1000 Mbit)**

Alteon AceNIC/3Com 3C985/NetGear GA620 Gigabit \*  
D-Link DL2000-based Gigabit Ethernet \*  
Intel(R) PRO/1000 Gigabit Ethernet \*  
National Semiconduct DP83820 \*  
Packet Engines Hamachi GNIC-II \*  
Packet Engines Yellowfin Gigabit-NIC \*  
Realtek 8169 gigabit ethernet \*  
Marvell Yukon Chipset / SysKonnnect SK-98xx Support \*  
VIA Velocity \*  
Broadcom Tigon3 \*

**Ethernet (10000 Mbit)**

Intel(R) PRO/10GbE \*  
S2IO 10Gbe XFrame NIC \*

**Token Ring devices**

IBM Tropic chipset based adapter \*  
IBM Olympic chipset PCI adapter \*  
IBM Lanstreamer chipset PCI adapter \*  
3Com 3C359 Token Link Velocity XL adapter \*  
SMC ISA/MCA adapter \*

**Wireless LAN**

STRIP (Metricom starmode radio IP) \*  
Aironet Arlan 655 & IC2200 DS \*  
AT&T/Lucent old WaveLAN & DEC RoamAbout DS ISA \*  
Cisco/Aironet 34X/35X/4500/4800 ISA and PCI cards \*  
Hermes chipset 802.11b support (Orinoco/Prism2/Symbol) \*  
Hermes in PLX9052 based PCI adaptor support (Netgear MA301 etc.) \*  
Hermes in TMD7160 based PCI adaptor \*  
Prism 2.5 PCI 802.11b adaptor \*  
Atmel at76c50x chipset 802.11b \*  
Atmel at76c506 PCI cards \*

**USB Network Adapters**

- USB CATC NetMate-based Ethernet device \*
- USB KLSI KL5USB101-based ethernet device \*
- USB Pegasus/Pegasus-II based ethernet device \*
- USB RTL8150 based ethernet device \*

The [Disk Actions](#) chapter explains basic disk actions.

The [Advanced Disk Actions](#) chapter explains how to perform advanced disk actions.

The [Technical Information](#) chapter gives technical information on [Supported CD and DVD Recorders and List of Hardware Devices Supported in the Startup Mode](#) and another useful technical information.

Follow this link to obtain [R-Drive Image Contact Information and Technical Support](#)

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