

Acronis



Acronis True Image for Western Digital

USER GUIDE

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1 Introduction

1.1 What is Acronis True Image for Western Digital?

Acronis True Image for Western Digital is an integrated software suite that ensures the security of all of the information on your PC. It can back up your documents, photos, email, and selected partitions, and even the entire disk drive, including operating system, applications, settings, and all of your data.

Backups allow you to recover your computer system should a disaster occur, such as losing data, accidentally deleting critical files or folders, or suffering a complete hard disk crash.

Key features:

- Backing up your computer (p. 13)
- Acronis bootable media (p. 83)
- Hard disk cloning (p. 75)
- Security and privacy tools (p. 83)

Getting started

Learn how to protect your computer with two simple steps: Protecting your system (p. 12).

1.2 Backups created in Acronis True Image

Acronis True Image introduced a new backup format - TIBX, which is even more reliable and convenient. The TIBX format is used for disk backups created to internal drives, external drives, network storage.

Backup file naming

With .tibx files, the file name has only the backup name and an incremental counter. It does not contain any additional information such as backup method, backup chain number, backup version number, or volume number, which were used with the TIB format.

A backup name may look like:

1. my_archive.tibx
2. my_archive_0001.tibx
3. my_archive_0002.tibx
4. my_archive_0003.tibx

Backup schemes

Backing up in the TIBX format supports all backup schemes. As opposed to the TIB format, which saves every backup version as a separate file, the TIBX format saves full and differential backup versions as separate files, while incremental backup versions are automatically merged into their base backups (full or differential).

Cleaning up TIBX format backups

If you'd like to clean up backup versions you do not need anymore, use automatic and manual cleanup methods.

In case automatic or manual cleanups are configured, some small auxiliary files may stay in the storage after the cleanup. Windows may show the size of these files bigger than the real one. You can see the physical size by checking Windows file properties.

Please do not delete any files manually!

Cleaning up local backups manually has the following scheme:

- Full backups can be deleted with the dependent versions only.
- Differential backup versions can be deleted independently of any other backup versions.
- Incremental backups:
 - If it is the last backup chain, then any incremental backup can be deleted to free up the space.
 - If it is not the last backup chain, any incremental backup version can be deleted only together with all other incremental versions of the same chain.

Which backups retain TIB format

The following backups continue to use the TIB format:

- File-level backups
- Nonstop backups
- Notarized backups
- Backups which use CD/DVD/Blu-ray, FTP, or Acronis Secure Zone as their destination

To compare naming of a .tibx archive with a .tib archive in detail, please refer to Backup file naming (p. 29).

Refer to Cleaning up backups, backup versions, and replicas for more details about automatic cleanup.

For more details about manual cleanup, refer to Cleaning up backup versions manually.

1.3 System requirements and supported media

1.3.1 Minimum system requirements

Acronis True Image for Western Digital requires the following hardware:

- At least one storage device by Western Digital hardware brands, including WD, SanDisk, and G-Tech, or a network attached storage by Western Digital.
- Processor Pentium 1 GHz
- 1 GB RAM
- 3.5 GB of free space on the system hard disk
- CD-RW/DVD-RW drive or an USB drive for bootable media creation (about 600 MB of free space is required)
- Screen resolution 1024 x 768
- Mouse or other pointing device (recommended)
- You need to have administrator privileges to run Acronis True Image for Western Digital.

Warning *Successful backup and recovery are not guaranteed for the installations on virtual machines.*

1.3.2 Supported operating systems

Acronis True Image for Western Digital has been tested on the following operating systems:

- Windows 10 (all editions, including November 2019 Update, except for Windows IoT edition and Windows 10 LTSB) *
- Windows 8.1 (except for Windows Embedded editions)
- Windows 8 (except for Windows Embedded editions)
- Windows 7 SP1 (all editions)
- Windows Home Server 2011

* Beta builds are not supported. For more information, refer to <https://kb.acronis.com/content/60589>

Warning! Successful recovery is only guaranteed for the supported operating systems. Other operating systems can be backed up using a sector-by-sector approach, but they may become unbootable after recovery.

1.3.3 Backing up all data on your PC

What is an Entire PC backup?

An Entire PC backup is the easiest way to back up the full contents of your computer. We recommend that you choose this option when you are not sure which data that you need to protect. If you want to back up your system partition only, refer to Backing up disks and partitions (p. 34) for details.

When you select Entire PC as a backup type, Acronis True Image for Western Digital backs up all your internal hard drives in disk mode. The backup contains the operating system, installed programs, system settings, and all your personal data including your photos, music, and documents.

The recovery from an Entire PC backup is also simplified. You only need to choose the date to which you want to revert your data. Acronis True Image for Western Digital recovers all data from the backup to the original location. Note that you cannot select specific disks or partitions to recover and you cannot change the default destination. If you need to avoid these limitations, we recommend that you back up your data with an ordinary disk-level backup method. Refer to Backing up disks and partitions (p. 34) for details.

You can also recover specific files and folders from an Entire PC backup. Refer to Backing up files and folders (p. 35) for details.

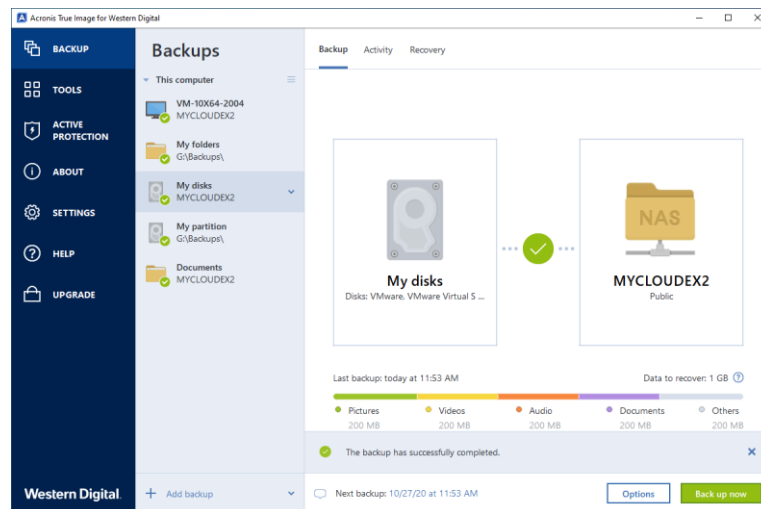
If an Entire PC backup contains dynamic disks, you recover your data in partition mode. This means that you can select partitions to recover and change recovery destination. Refer to About recovery of dynamic/GPT disks and volumes (p. 61) for details.

How do I create an Entire PC backup?

To back up the entire contents of your computer:

1. Start Acronis True Image for Western Digital.
2. On the sidebar, click **Backup**.
3. Click the plus sign at the bottom of the backup list.
4. Click the **Backup source** icon, and then select **Entire PC**.
5. Click the **Backup destination** icon, and then select a destination for the backup.

Refer to Deciding where to store your backups (p. 25) for details.



6. [optional step] Click **Options** to set the options for the backup, including Schedule (p. 36), Scheme (p. 39), and Password protection. For more information see Backup options (p. 36).
7. Click **Back up now**.

1.3.4 Supported file systems

- NTFS
- Ext2/Ext3/Ext4
- ReiserFS(3) *
- Linux SWAP *
- HFS+**/HFSX**
- FAT16/32/exFAT **

* File systems are supported only for disk or partition backup/recovery operations.

** Disk recovery, partition recovery, and cloning operations are supported without resizing.

If a file system is not supported or is corrupted, Acronis True Image for Western Digital can copy data using a sector-by-sector approach.

1.3.5 Supported storage media

- Hard disk drives (HDD)*
- Solid State Drives (SSD)
- Network attached storage (NAS) devices
 - My Cloud (Sequoia)
 - My Cloud (Glacier)
 - WD Cloud for Japan
 - My Cloud Mirror
 - My Cloud Mirror (Gen 2)
 - My Cloud EX2
 - My Cloud EX2 Ultra

- My Cloud EX2100
- My Cloud EX4
- My Cloud EX4100
- My Cloud DL2100
- My Cloud DL4100
- My Cloud PR2100
- USB 1.1 / 2.0 / 3.0, eSATA, FireWire (IEEE-1394), SCSI, and PC card storage devices

* Limitations on operations with dynamic disks:

- Recovery of a dynamic volume as a dynamic volume with manual resizing is not supported.
- "Clone disk" operation is not supported for dynamic disks.

The firewall settings of the source computer should have Ports 20 and 21 opened for the TCP and UDP protocols to function. The **Routing and Remote Access** Windows service should be disabled.

1.4 Installing Acronis True Image for Western Digital

Installing Acronis True Image for Western Digital

You cannot install Acronis True Image for Western Digital in the same system where Acronis True Image or any other Cyber Protection software by Acronis is already installed.

To install Acronis True Image for Western Digital:

1. Run the setup file. Before starting the setup process, Acronis True Image for Western Digital will check for a newer build on the website. If there is one, the newer version will be offered for installation.
2. Click **Install**.
Acronis True Image for Western Digital will be installed on your system partition (usually C:).
3. When the installation is complete, click **Start application**.
4. Read and accept the terms of the license agreements for Acronis True Image for Western Digital and Bonjour.
Bonjour software will be installed on your computer for advanced support of NAS devices. You can uninstall the software at any time.
You can also agree to participate in the Acronis Customer Experience Program. You can change this setting at any time.

The product will be automatically activated when it detects a Western Digital storage device.

Recovering from an error

If Acronis True Image for Western Digital ceased running or produced errors, its files might be corrupted. To repair this problem, you first have to recover the program. To do this, run Acronis True Image for Western Digital installer again. It will detect Acronis True Image for Western Digital on your computer and will ask you if you want to repair or remove it.

Removing Acronis True Image for Western Digital

Select **Start -> Settings -> Control panel -> Add or remove programs -> Acronis True Image for Western Digital -> Remove**. Then follow the instructions on the screen. You may have to reboot your computer afterwards to complete the task.

If you use Windows 10, click **Start -> Settings -> System -> Apps & features -> Acronis True Image for Western Digital -> Uninstall**.

If you use Windows 8, click the Settings icon, then select **Control Panel -> Uninstall a program -> Acronis True Image for Western Digital -> Uninstall**.

If you use Windows 7, click **Start -> Control Panel -> Uninstall a program -> Acronis True Image for Western Digital -> Uninstall**.

If you used the Acronis Nonstop Backup (p. 27), select in the window that appears what to do with the Nonstop Backup storages.

1.5 Activating Acronis True Image for Western Digital

Acronis True Image for Western Digital is activated automatically when a Western Digital storage device is detected on your system. The license is valid for 5 years after the activation date.

Checking the license expiration date

To check the date when your license expires, navigate to the **About** tab in Acronis True Image for Western Digital.

Extending the license for Acronis True Image for Western Digital

The license for Acronis True Image for Western Digital is valid for 5 years after the last addition of a storage device by Western Digital. You can prolong your license for Acronis True Image for Western Digital by adding a new storage device by Western Digital to your system.

To prolong your license expiration date:

1. On the sidebar, click **About**.
2. Click **Prolong** and follow the on-screen instructions.

1.6 Upgrading Acronis True Image for Western Digital

You can upgrade Acronis True Image for Western Digital to Acronis True Image 2021.

Your backups created with a previous version of Acronis True Image for Western Digital are completely compatible with the newer version of Acronis True Image. After you upgrade, all of your backups will automatically be added to your backup list.

We strongly recommend that you create a new bootable media after each product upgrade.

Purchasing the full version of Acronis True Image

1. Start Acronis True Image for Western Digital.
2. On the sidebar, click **About**, and then click **Upgrade**. The online store opens.
3. Click **Upgrade**.
4. Provide your payment information.

Updating Acronis True Image for Western Digital

To update Acronis True Image for Western Digital:

1. Start Acronis True Image for Western Digital.

2. On the sidebar, click **About**.

If there is a new version available, you will see the appropriate message next to the current build number.

3. Click **Download and install**.

Before you start downloading, please make sure that your firewall will not block the download process.

4. When the new version is downloaded, click **Install now**.

To check for updates automatically, go to the **Settings** tab, and then select the **Automatically check for updates at startup** check box.

1.7 Technical Support

Maintenance and Support Program

If you need assistance with Acronis True Image for Western Digital, please refer to the official support resources of Western Digital at <https://www.westerndigital.com/support> (<https://www.westerndigital.com/support>).

2 Getting started

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2.1 User interface language

Before you start, select a preferred language for the Acronis True Image for Western Digital user interface. By default, the language is set in accordance with your Windows display language.

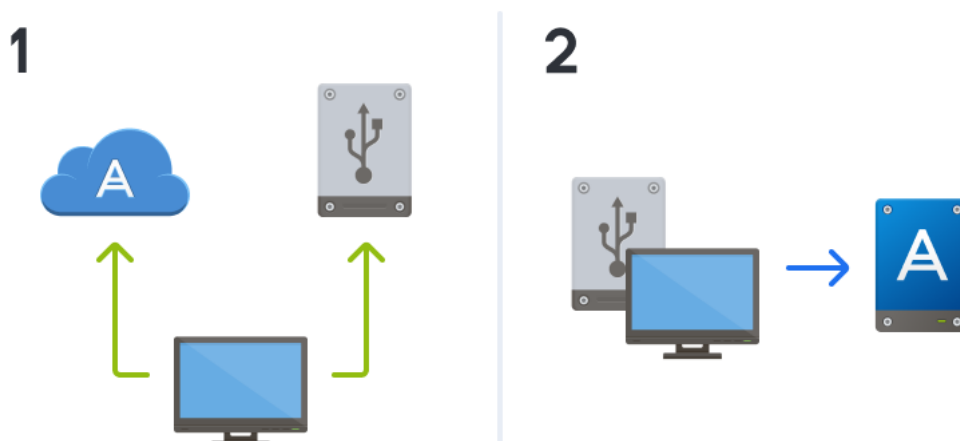
To change the user interface language:

1. Start Acronis True Image for Western Digital.
2. In the **Settings** section, select a preferred language from the list.

2.2 Protecting your system

To protect your system:

1. Back up your computer (p. 13).
2. Create Acronis bootable media (p. 14).



It is recommended to test the bootable media as described in Making sure that your bootable media can be used when needed (p. 89).

2.2.1 Backing up your computer

When should I back up my computer?

Create a new backup version after every significant event in your system.

Examples of these events include:

- You bought a new computer.
- You reinstalled Windows on your computer.
- You configured all system settings (for example, time, date, language) and installed all necessary programs on your new computer.
- Important system update.

To ensure you save a healthy state of a disk, it is a good idea to scan it for viruses before backing it up. Please use antivirus software for this purpose. Note this operation often takes a significant amount of time.

How do I create a backup of my computer?

You have two options to protect your system:

- **Entire PC backup (recommended)**

Acronis True Image for Western Digital backs up all your internal hard drives in disk mode. The backup contains the operating system, installed programs, system settings, and all your personal data including your photos, music, and documents. Refer to Backing up all data on your PC (p. 7) for details.

- **System disk backup**

You can choose to back up your system partition or the entire system drive. Refer to Backing up disks and partitions (p. 34) for details.

We do not recommend using nonstop backup as a primary way to protect your system, because the main purpose of this technology is protection of frequently changed files. For the safety of your system, use any other schedule. See examples in Examples of custom schemes (p. 43). Refer to Using Acronis Nonstop Backup (p. 27) for more details about the Nonstop Backup feature.

To back up your computer:

1. Start Acronis True Image for Western Digital.
2. On the sidebar, click **Backup**.
If this is your first backup, you will see the backup configuration screen. If you already have some backups in the backup list, then click **Add backup**.
3. Click the **Backup source** icon, and then select **Entire PC**.
If you want to back up your system disk only, then click **Disks and partitions**, and then select your system partition (usually C:) and the System Reserved partition (if any).
4. Click the **Backup destination** icon, and then select a storage place for the backup (see recommendation below).
5. Click **Back up now**.

Result: A new backup box appears in the backup list. To create a new version of the backup in future, select the backup box from the list, and then click **Back up now**.

Where do I store my disk backups?

You can store your backups on internal or external drives, and network attached storage (NAS) devices by western digital.

Refer to Deciding where to store your backups (p. 25) for details.

How many backup versions do I need?

In most cases, you need 2-3 backup versions of your entire PC contents or your system disk, with a maximum of 4-6 (see above for information about when to create backups). You can control the number of backup versions by using automatic cleanup rules. Refer to Custom schemes (p. 41) for details.

Remember, the first backup version (the full backup version) is the most important. It is the biggest one, because it contains all data stored on the disk. Further backup versions (the incremental and differential backup versions) may be organized in different schemes. These versions contain only data changes. That's why they are dependent on the full backup version and why the full backup version is so important.

By default, a disk backup is created by using the incremental scheme. This scheme is optimal, in most cases.

For advanced users: it is a good idea to create 2-3 full backup versions and store them on different storage devices. This method is much more reliable.

2.2.2 Creating Acronis bootable media

What is Acronis bootable media?

Acronis bootable media is a CD, DVD, USB flash drive, or other removable media from which you can run Acronis True Image for Western Digital when Windows cannot start. You can make a media bootable by using Acronis Media Builder.

How do I create Acronis bootable media?

1. Insert a CD/DVD or plug in a USB drive (USB flash drive, or an HDD/SSD external drive).
2. Start Acronis True Image for Western Digital.
3. On the sidebar, click **Tools**, and then click **Rescue Media Builder**.
4. On the first step, select **Simple**.
5. Select the device to use to create the bootable media.
6. Click **Proceed**.

How do I use Acronis bootable media?

Use Acronis bootable media to recover your computer when Windows cannot start.

1. Connect the bootable media to your computer (insert the CD/DVD or plug in the USB drive).
2. Arrange the boot order in BIOS so that your Acronis bootable media is the first device to be booted.

Refer to Arranging boot order in BIOS (p. 63) for details.

3. Boot your computer from the bootable media and select **Acronis True Image for Western Digital**.

Result: Once Acronis True Image for Western Digital is loaded, you can use it to recover your computer.

Refer to Acronis Media Builder (p. 84) for details.

2.3 Backing up your files

To protect files such as documents, photos, music files, and video files, there is no need to back up the entire partition containing the files. You can back up specific files and folders and save them to a local or network storage.

To back up files and folders:

1. Start Acronis True Image for Western Digital.
2. On the sidebar, click **Backup**.
3. Click the **Backup source** icon, and then select **Files and folders**.
4. In the opened window, select the check boxes next to the files and folders that you want to back up, and then click **OK**.
5. Click the **Backup destination** icon, and then select a destination for backup:
 - **Your external drive**—When an external drive is plugged into your computer, you can select it from the list.
 - **NAS**—Select a NAS from the list of discovered NAS devices. If you have only one NAS, Acronis True Image for Western Digital will suggest using it as a backup destination by default.
 - **Browse**—Select a destination from the folder tree.

Note This option is enabled only if you have an internal or external Western Digital storage device attached to your system.

6. Click **Back up now**.

Refer to Backing up files and folders (p. 35) for details.

2.4 Cloning your hard drive

This option is available only if you have an internal or external storage device by Western Digital attached to your system.

Why do I need it?

When you see that the free space on your hard drive is not enough for your data, you might want to buy a new, larger hard drive and transfer all your data to the new drive. The usual copy operation does not make your new hard drive identical to the old one. For example, if you open File Explorer and copy all files and folders to the new hard drive, Windows will not start from the new hard drive. The Clone disk utility allows you to duplicate all your data and make Windows bootable on your new hard drive.



Before you start

We recommend that you install the target (new) drive where you plan to use it and the source drive in another location, for example, in an external USB enclosure. This is especially important for laptops.

Note: It is recommended that your old and new hard drives work in the same controller mode (for example, IDE or AHCI). Otherwise, your computer might not start from the new hard drive.

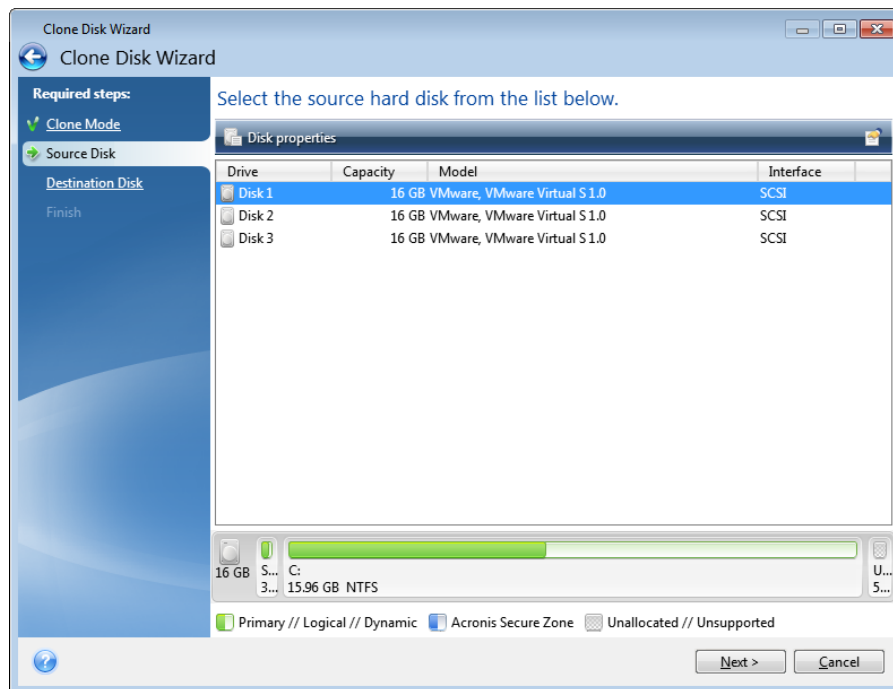
Using the Clone disk utility

To clone a disk:

1. On the sidebar, click **Tools**, and then click **Clone disk**.
2. On the **Clone Mode** step, we recommend that you choose the **Automatic** transfer mode. In this case, the partitions will be proportionally resized to fit your new hard drive. The **Manual** mode provides more flexibility. Refer to Clone Disk wizard (p. 75) for more details about the manual mode.

If the program finds two disks, one partitioned and another unpartitioned, it will automatically recognize the partitioned disk as the source disk and the unpartitioned disk as the destination disk. In this case, the next steps will be bypassed and you will be taken to the cloning Summary screen.

3. On the **Source Disk** step, select the disk that you want to clone.



4. On the **Destination Disk** step, select the destination disk for the cloned data.

If any disk is unpartitioned, the program will automatically recognize it as the destination and bypass this step.

5. On the **Finish** step, ensure that the configured settings suit your needs, and then click **Proceed**.

By default, Acronis True Image for Western Digital shuts down the computer after the clone process finishes. This enables you to change the position of master/subordinate jumpers and remove one of the hard drives.

2.5 Recovering your computer

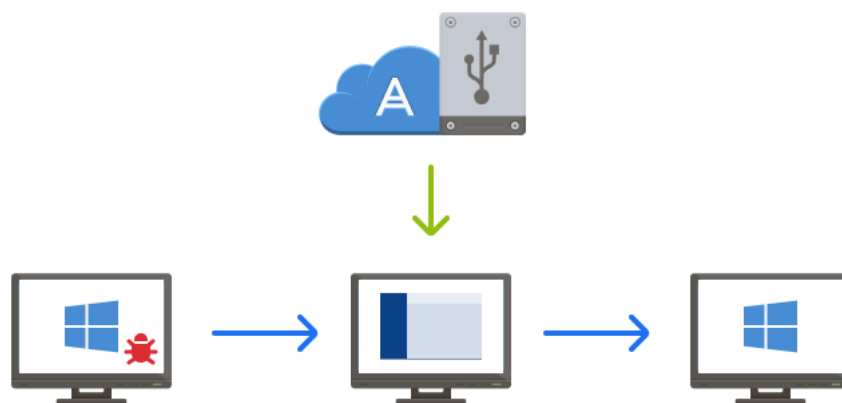
Please be aware that recovery of a system disk is an important operation. Before you start, we recommend that you read the detailed descriptions in the following Help topics:

- Trying to determine the crash cause (p. 51)
- Preparing for recovery (p. 51)
- Recovering your system to the same disk (p. 52)

Let's consider two different cases:

1. Windows works incorrectly, but you can start Acronis True Image for Western Digital.
2. Windows cannot start (for example, you turn on your computer and see something unusual on your screen).

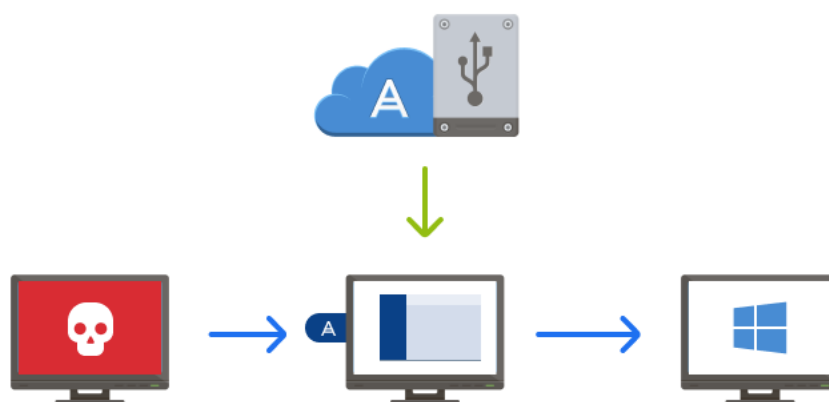
Case 1. How to recover computer if Windows works incorrectly?



1. Start Acronis True Image for Western Digital.
2. On the sidebar, click **Backup**.
3. From the backup list, select the backup that contains your system disk. The backup can be located on local or network storage.
4. On the right panel, click **Recovery**.
5. Depending on the backup type, click **Recover PC** or **Recover disks**.
6. In the opened window, select the backup version (the data state from a specific date and time).
7. Select the system partition and the System Reserved partition (if any) to be recovered.
8. Click **Recover now**.

To complete the operation, Acronis True Image for Western Digital must restart your system.

Case 2. How to recover computer if Windows cannot start?



1. Connect Acronis bootable media to your computer, and then run the special standalone version of Acronis True Image for Western Digital.
Refer to Step 2 Creating Acronis bootable media (p. 14) and Arranging boot order in BIOS (p. 63) for details.

2. On the Welcome screen, select **My disks** below **Recover**.
3. Select the system disk backup to be used for recovery. Right-click the backup and choose **Recover**.
When the backup is not displayed, click **Browse** and manually specify the path to the backup.

Note This option is enabled only if you have an internal or external Western Digital storage device attached to your system.

4. At the **Recovery method** step, select **Recover whole disks and partitions**.
5. Select the system partition (usually C) on the **What to recover** screen. Note that you may distinguish the system partition by the Pri, Act flags. Select the System Reserved partition (if any), as well.
6. You may leave all settings of the partitions without changes and click **Finish**.
7. Check the summary of operations, and then click **Proceed**.
8. When the operation finishes, exit the standalone version of Acronis True Image for Western Digital, remove the bootable media (if any), and boot from the recovered system partition. After making sure that you have recovered Windows to the state you need, restore the original boot order.

2.6 Recovering your files and folders

You can recover files and folders both from file-level and disk-level backups.

To recover files and folders:

1. Start Acronis True Image for Western Digital.
2. On the sidebar, click **Backup**.
3. From the backup list, select the backup which contains the files or folders that you want to recover.

The backup can be located on a local or a network storage.

4. On the right panel, click **Recovery**.
5. Select the backup version (the data state from a specific date and time).
6. Select the files and folders that you want to recover, and then click **Next**.
7. Select a destination on your computer for the recovered files/folders. You can recover data to its original location or choose a new one, if necessary. To choose a new location, click the **Browse** button.

Note This option is enabled only if you have an internal or external Western Digital storage device attached to your system.

8. To start the recovery process, click the **Recover now** button.

3 Basic concepts

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3.1 Basic concepts

This section provides general information about basic concepts which could be useful for understanding how the program works.

Backup and recovery

Backup refers to the making copies of data so that these additional copies may be used to **recover** the original after a data loss event.

Backups are useful primarily for two purposes:

- To recover an operating system when it is corrupted or cannot start (called disaster recovery). Refer to Protecting your system (p. 12) for more details about protecting your computer from a disaster.
- To recover specific files and folders after they have been accidentally deleted or corrupted.

Acronis True Image for Western Digital does both by creating disk (or partition) images and file-level backups respectively.

Recovery method:

- **Full recovery** can be performed to the original location or to a new one.
When the original location is selected, the data in the location is completely overwritten with the data from the backup. In case of a new location, the data is just copied to the new location from the backup.

Backup versions

Backup versions are the file or files created during each backup operation. The number of versions created is equal to the number of times the backup is executed. So, a version represents a point in time to which the system or data can be restored.

Backup versions represent full, incremental and differential backups - see Full, incremental and differential backups (p. 22).

The backup versions are similar to file versions. The file versions concept is familiar to those who use a Windows feature called "Previous versions of files". This feature allows you to restore a file as it existed on a particular date and time. A backup version allows you to recover your data in a similar way.

Disk cloning

This operation copies the entire contents of one disk drive to another disk drive. This may be necessary, for example, when you want to clone your operating system, applications, and data to a new larger capacity disk. You can do it two ways:

- Use the Clone disk utility.
- Back up your old disk drive, and then recover it to the new one.

Backup file format

Acronis True Image for Western Digital usually saves backup data in the proprietary tibx format using compression. The data from .tibx file backups can be recovered only through Acronis True Image for Western Digital, in Windows or in the recovery environment.

Acronis Nonstop Backup uses a special hidden storage for data and metadata. The backed up data is compressed and split into files of about 1 GB. These files also have a proprietary format and the data they contain can be recovered only with the help of Acronis True Image for Western Digital.

Backup validation

The backup validation feature allows you to confirm that your data can be recovered. The program adds checksum values to the data blocks being backed up. During backup validation, Acronis True Image for Western Digital opens the backup file, recalculates the checksum values and compares those values with the stored ones. If all compared values match, the backup file is not corrupted.

Scheduling

For your backups to be really helpful, they must be as "up-to-date" as possible. Schedule your backups to run automatically and on a regular basis.

Deleting backups

When you want to delete backups and backup versions you no longer need, please do it by using the tools provided by Acronis True Image for Western Digital. Refer to Deleting backups and backup versions for details.

Acronis True Image for Western Digital stores information on the backups in a metadata information database. Therefore, deleting unneeded backup files in File Explorer will not delete information about these backups from the database. This will result in errors when the program tries to perform operations on the backups that no longer exist.

3.2 The difference between file backups and disk/partition images

When you back up files and folders, only the files and folder tree are compressed and stored.

Disk/partition backups are different from file and folder backups. Acronis True Image for Western Digital stores an exact snapshot of the disk or partition. This procedure is called "creating a disk image" or "creating a disk backup" and the resulting backup is often called "a disk/partition image" or "a disk/partition backup".

What does a disk/partition backup contain?

A disk/partition backup contains all the data stored on the disk or partition:

1. Zero track of the hard disk with the master boot record (MBR) (applicable to MBR disk backups only).
2. One or more partitions, including:
 1. Boot code.
 2. File system meta data, including service files, file allocation table (FAT), and partition boot record.
 3. File system data, including operating system (system files, registry, drivers), user data and software applications.
3. System Reserved partition, if any.
4. EFI system partition, if any (applicable to GPT disk backups only).

What is excluded from disk backups?

To reduce image size and speed up image creation, by default Acronis True Image for Western Digital only stores the hard disk sectors that contain data.

Acronis True Image for Western Digital excludes the following files from a disk backup:

- pagefile.sys
- hiberfil.sys (a file that keeps RAM contents when the computer goes into hibernation)

You can change this default method by turning on the sector-by-sector mode. In this case, Acronis True Image for Western Digital copies all hard disk sectors, and not only those that contain data.

3.3 Full, incremental and differential backups

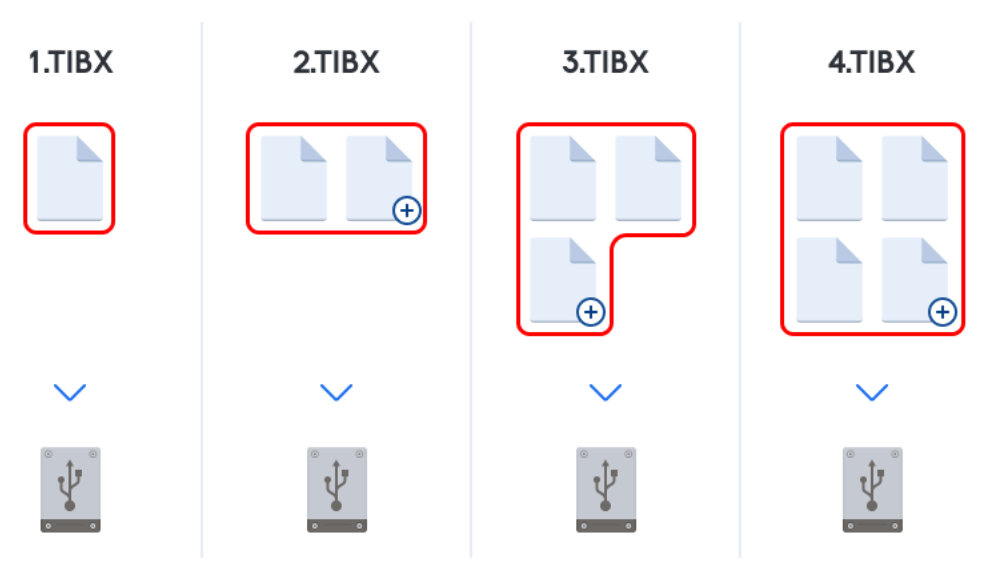
Acronis True Image for Western Digital offers three backup methods: full, incremental, and differential.

Full method

The result of a full method backup operation (also known as full backup version) contains all of the data at the moment of the backup creation.

Example: Every day, you write one page of your document and back it up using the full method. Acronis True Image for Western Digital saves the entire document every time you run backup.

1.tibx, 2.tibx, 3.tibx, 4.tibx—files of full backup versions.



Additional information

A full backup version forms a base for further incremental or differential backups. It can also be used as a standalone backup. A standalone full backup might be an optimal solution if you often roll back the system to its initial state or if you do not like to manage multiple backup versions.

Recovery: In the example above, to recover the entire work from the 4.tibx file, you need to have only one backup version—4.tib.

Incremental method

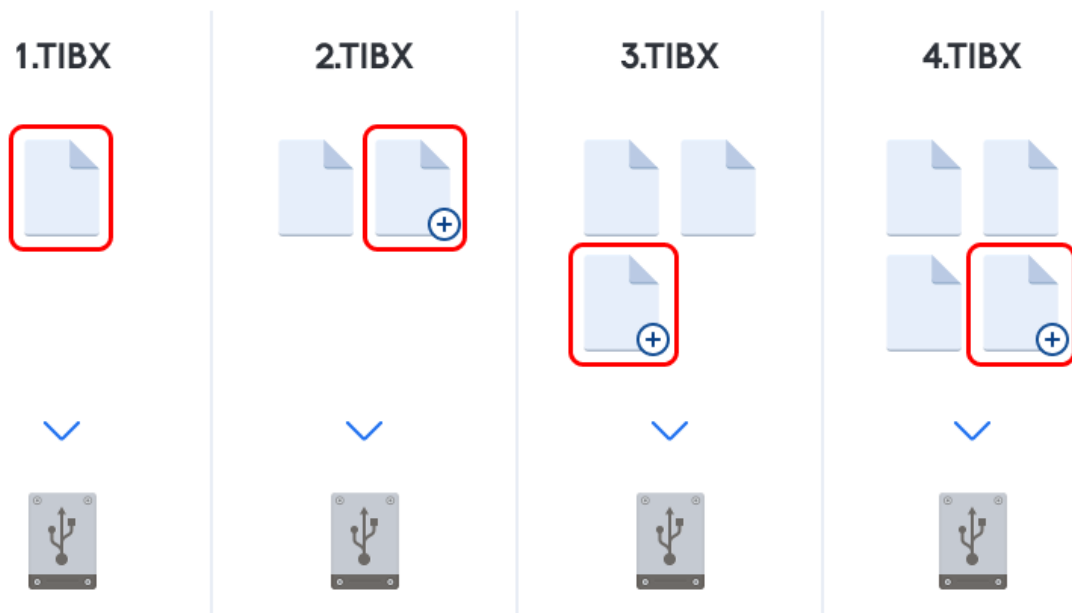
The result of an incremental method backup operation (also known as incremental backup version) contains only those files which have been changed since the LAST BACKUP.

Example: Every day, you write one page of your document and back it up using the incremental method. Acronis True Image for Western Digital saves the new page every time you run backup.

Note: The first backup version you create always uses full method.

- 1.tibx—file of full backup version.

- 2.tibx, 3.tibx, 4.tibx—files of incremental backup versions.



Additional information

Incremental method is the most useful when you need frequent backup versions and the ability to roll back to a specific point in time. As a rule, incremental backup versions are considerably smaller than full or differential versions. On the other hand, incremental versions require more work for the program to provide recovery.

Recovery: In the example above, to recover the entire work from the 4.tibx file, you need to have all the backup versions—1.tibx, 2.tibx, 3.tibx, and 4.tibx. Therefore, if you lose an incremental backup version or it becomes corrupted, all later incremental versions are unusable.

Differential method

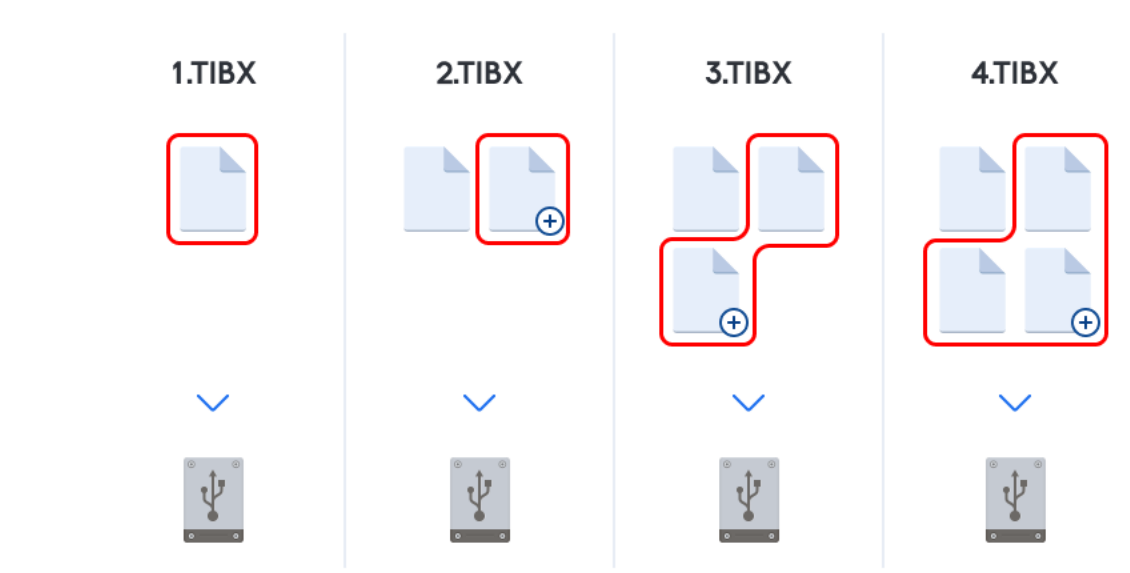
The result of a differential method backup operation (also known as differential backup version) contains only those files which have been changed since the LAST FULL BACKUP.

Example: Every day, you write one page of your document and back it up using the differential method. Acronis True Image for Western Digital saves the entire document except the first page stored in the full backup version.

Note: The first backup version you create always uses full method.

- 1.tibx—file of full backup version.

- 2.tibx, 3.tibx, 4.tibx—files of differential backup versions.



Additional information

Differential method is an intermediate between the first two approaches. It takes less time and space than "Full", but more than "Incremental". To recover data from a differential backup version, Acronis True Image for Western Digital needs only the differential version and the last full version. Therefore, recovery from a differential version is simpler and more reliable than recovery from an incremental one.

Recovery: In the example above, to recover the entire work from the 4.tibx file, you need to have two backup versions—1.tibx and 4.tibx.

To choose a desired backup method, you usually need to configure a custom backup scheme. For more information see Custom schemes (p. 41).

An incremental or differential backup created after a disk is defragmented might be considerably larger than usual. This is because the defragmentation program changes file locations on the disk and the backups reflect these changes. Therefore, it is recommended that you re-create a full backup after disk defragmentation.

Changed Block Tracker (CBT)

The CBT technology accelerates the backup process when creating local incremental or differential disk-level backup versions. Changes to the disk content are continuously tracked at the block level. When a backup starts, the changes can be immediately saved to the backup.

3.4 Deciding where to store your backups

Acronis True Image for Western Digital supports quite a few of storage devices. For more information, refer to Supported storage media.

The table below shows possible backup destinations for your data.

	HDD (internal or external)	SSD (internal or external)	USB flash drive	File server, NAS or NDAS	Network share	Memory card
MBR partitions or entire disks (HDD, SSD)	+	+	+	+	+	+
GPT/dynamic volumes or disks	+	+	+	+	+	+
Files and folders	+	+	+	+	+	+

Though backing up to your local hard drive is the simplest option, we recommend that you store your backups off-site because it enhances the security of your data.

Recommended storage media:

1. External drive

If you plan to use an external USB hard drive with your desktop PC, we recommend that you connect the drive to a rear connector by using a short cable.

2. Home file server, NAS, or NDAS

Please check whether Acronis True Image for Western Digital detects the selected backup storage, both in Windows and when booted from the bootable media.

To gain access to an NDAS-enabled storage device, in many cases you will need to specify the NDAS device ID (20 characters) and the write key (five characters). The write key allows you to use an NDAS-enabled device in write mode (for example, for saving your backups). Usually the device ID and write key are printed on a sticker attached to the bottom of the NDAS device or on the inside of its enclosure. If there is no sticker, you need to contact your NDAS device vendor to obtain that information.

3. Network share

See also: Authentication settings (p. 27).

3.4.1 Preparing a new disk for backup

A new internal or external hard drive may not be recognized by Acronis True Image for Western Digital. If this is the case, use the operating system tools to change the disk status to **Online** and then to initialize the disk.

To change a disk status to Online:

1. Open **Disk Management**. To do this, go to **Control Panel -> System and Security -> Administrative Tool**, start **Computer Management**, and then click **Disk Management**.
2. Find the disk marked as **Offline**. Right-click the disk and then click **Online**.
3. The disk status will be changed to **Online**. After that, you will be able to initialize the disk.

To initialize a disk:

1. Open **Disk Management**. To do this, go to **Control Panel -> System and Security -> Administrative Tool**, start **Computer Management**, and then click **Disk Management**.
2. Find the disk marked as **Not Initialized**. Right-click the disk and then click **Initialize Disk**.
3. Select a partition table for the disk - MBR or GPT, and then click **OK**.

4. [optional step] To create a volume on the disk, right-click the disk, click **New Simple Volume**, and then follow the wizard's steps to configure the new volume. To create one more volume, repeat this operation.

3.4.2 Authentication settings

If you are connecting to a networked computer, in most cases you will need to provide the necessary credentials for accessing the network share. For example, this is possible when you select a backup storage. The **Authentication Settings** window appears automatically when you select a networked computer name.

If necessary, specify the user name and password, and then click **Test connection**. When the test is successfully passed, click **Connect**.

Troubleshooting

When you create a network share that you plan to use as a backup storage, please ensure that at least one of the following conditions is met:

- Windows account has a password on the computer where the shared folder is located.
- Password-protected sharing is turned off in Windows.
You can find this setting at **Control Panel** —> **Network and Internet** —> **Network and Sharing Center** —> **Advanced sharing settings** —> Turn off password protected sharing.

Otherwise, you will not be able to connect to the shared folder.

3.5 Using Acronis Nonstop Backup

Acronis Nonstop Backup provides easy protection of your disks and files. It allows you to recover entire disks, individual files and their different versions.

The main purpose of Acronis Nonstop Backup is continuous protection of your data (files, folders, contacts, etc.), though you can use it to protect partitions as well. If you choose to protect an entire partition, you will be able to recover the partition as a whole using the image recovery procedure.

We do not recommend using nonstop backup as a primary way to protect your system. For the safety of your system, use any other schedule. Refer to Examples of custom schemes (p. 43) for examples and details.

Nonstop Backup limitations

- You can create only one nonstop backup.
- Windows libraries (Documents, Music, etc.) can be protected with a disk-level nonstop backup only.
- You cannot protect data stored on external hard drives.
- Nonstop Backup and Try&Decide cannot work simultaneously.

How it works

Once you start Acronis Nonstop Backup, the program will perform an initial full backup of the data selected for protection. Acronis Nonstop Backup will then continually monitor the protected files (including open ones). Once a modification is detected, the changed data is backed up. The shortest interval between the incremental backup operations is five minutes. This allows you to recover your system to an exact point in time.

Acronis Nonstop Backup checks file changes on the disk, not in the memory. If, for instance, you are working in Word and do not use the "Save" operation for a long time, your current changes in the Word document will not be backed up.

You may think that at these backup rates the storage will fill in no time. Do not worry as Acronis True Image for Western Digital will back up only so called "deltas". This means that only differences between old and new versions will be backed up and not whole changed files. For example, if you use Microsoft Outlook or Windows Mail, your pst file may be very large. Furthermore, it changes with each received or sent E-mail message. Backing up the entire pst file after each change would be an unacceptable waste of your storage space, so Acronis True Image for Western Digital backs up only its changed parts in addition to the initially backed up file.

Retention rules

Local backups

Acronis Nonstop Backup keeps all backups for the last 24 hours. The older backups will be consolidated in such a way that Nonstop Backup will keep daily backups for the last 30 days and weekly backups until all Nonstop Backup data destination space is used.

The consolidation will be performed every day between midnight and 01:00 AM. The first consolidation will take place after the Nonstop Backup has been working for at least 24 hours. For example, you have turned on the Nonstop Backup at 10:00 AM on July 12. In this case the first consolidation will be performed between 00:00 and 01:00 AM on July 14. Then the program will consolidate the data every day at the same time. If your computer is turned off between 00:00 and 01:00 AM, the consolidation will start when you turn the computer on. If you turn off Nonstop Backup for some time, the consolidation will start after you turn it on again.

All other versions are automatically deleted. The retention rules are pre-set and cannot be changed.

3.5.1 Acronis Nonstop Backup data storage

Acronis Nonstop Backup data storage can be created on local hard disk drives (both internal and external).

In many cases an external hard disk will be the best choice for Nonstop Backup data storage. You can use an external disk with any of the following interfaces: USB (including USB 3.0), eSATA, FireWire, and SCSI.

You can also use an NAS as the storage, but with one limitation - it must be accessible with the SMB protocol. It does not matter whether an NAS share you want to use for the storage is mapped as a local disk or not. If the share requires login, you will need to provide the correct user name and password. For more information see Authentication settings (p. 27). Acronis True Image for Western Digital remembers the credentials and the subsequent connections to the share do not require login.

When an external hard disk or NAS is unavailable, the Nonstop Backup destination can be an internal disk, including a dynamic one. Please note that you cannot use a partition to be protected as a Nonstop Backup storage..

Before creating Acronis Nonstop Backup data storage, Acronis True Image for Western Digital checks whether the selected destination has enough free space. It multiplies the volume of data to be protected by 1.2 and compares the calculated value with the available space. If the free space on the destination satisfies this minimum storage size criterion, the destination can be used for storing Nonstop Backup data.

3.5.2 Nonstop Backup - Frequently asked questions

Why does Acronis Nonstop Backup pause on its own? - This is the designed behavior of Acronis Nonstop Backup. When the system load rises to a critical level, Acronis Nonstop Backup receives the overload alarm from Windows and pauses itself. This is done to aid Windows relieve the load caused by other applications. The overload can be caused by running resource-intensive applications (for example, performing a deep system scan with your antivirus software).

In such a case Nonstop Backup automatically pauses and you cannot restart it. After pausing, Acronis Nonstop Backup gives the system one hour to relieve the load and then attempts to restart.

The automatic restart count for Acronis Nonstop Backup is 6. This means that after the first automatic restart Acronis Nonstop Backup will attempt to restart five more times with intervals of exactly one hour between attempts.

After the sixth unsuccessful attempt, Acronis Nonstop Backup will wait for the next calendar day. On the next day the automatic restart count will automatically reset. When not interfered with, Acronis Nonstop Backup performs six restart attempts per day.

The restart attempt count can be reset by doing any of the following:

- Restarting Acronis Nonstop Backup service;
- Rebooting the computer.

Restarting Acronis Nonstop Backup service will only reset the restart count to 0. If the system is still overloaded, Acronis Nonstop Backup will pause again. An Acronis Support Knowledge Base article at <https://kb.acronis.com/content/14708> describes the procedure for restarting the Acronis Nonstop Backup service.

Rebooting the computer will reset the load and the restart count. If the system overloads again, Acronis Nonstop Backup will pause.

Why does Acronis Nonstop Backup sometimes cause a high CPU load? - This is the expected behavior of Acronis Nonstop Backup. This may happen on restart of a paused Acronis Nonstop Backup if a considerable amount of protected data has been modified during the pause.

For example, if you manually pause the Acronis Nonstop Backup that you use for protecting your system partition and then install a new application. When you restart Acronis Nonstop Backup, it loads the CPU for some time. However, the process (afcdpsrv.exe) then goes back to normal.

This happens because Acronis Nonstop Backup needs to check the backed up data against the data that have been modified during the pause to ensure protection continuity. If there was a considerable amount of data modified, the process may load CPU for some time. After the check is done and all the modified data is backed up, Acronis Nonstop Backup goes back to normal.

Can I have Acronis Nonstop Backup storage on an FAT32 partition of a local hard disk? - Yes, FAT32 and NTFS partitions can be used as the storage.

Can I set up Acronis Nonstop Backup storage on a network share or NAS? - Yes, Acronis Nonstop Backup supports network shares, mapped drives, NAS and other network attached devices with one limitation - they must use the SMB protocol.

3.6 Backup file naming

Depending on the version by which a backup was created, its name will differ.

Naming convention for backup files created by Acronis True Image for Western Digital

A backup file name has only the backup name and an incremental counter. It does not contain any additional information such as backup method, backup chain number, backup version number, or volume number.

A backup name may look like:

1. **my_documents.tibx**
2. **my_documents_0001.tibx**
3. **my_documents_0002.tibx**
4. **my_documents_0003.tibx**

Full and differential backups are stored in separate files and incremental backups are automatically merged into full backups.

The following backups use the TIB format and naming convention:

- File-level backups for all destinations.
- Nonstop backups

A TIB backup file name has the following attributes:

- Backup name
- Backup method (full, inc, diff: full, incremental, differential)
- Number of backup chain (in the form of b#)
- Number of backup version (in the form of s#)
- Number of volume (in the form of v#)

For example, this attribute changes when you split a backup into several files. Refer to Backup splitting (p. 46) for details.

Thus a backup name may look the following way:

1. **my_documents_full_b1_s1_v1.tib**
2. **my_documents_full_b2_s1_v1.tib**
3. **my_documents_inc_b2_s2_v1.tib**
4. **my_documents_inc_b2_s3_v1.tib**

If you are creating a new backup, and there is already a file with the same name, the program does not delete the old file, but adds to the new file the "-number" suffix, for example, **my_documents_inc_b2_s2_v1-2.tib**.

3.7 Integration with Windows

During installation Acronis True Image for Western Digital provides closer integration with Windows. Such merging allows you to get the most out of your computer.

Acronis True Image for Western Digital integrates the following components:

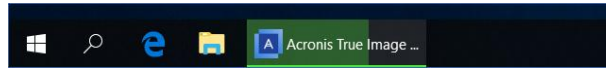
- Acronis items on the Windows **Start** menu
- Acronis True Image for Western Digital button on the taskbar
- Shortcut menu commands

Windows Start menu

The **Start** menu displays Acronis commands, tools and utilities. They give you access to Acronis True Image for Western Digital functionality, without having to start the application.

Acronis True Image for Western Digital button on the taskbar

The Acronis True Image for Western Digital button on the Windows taskbar shows the progress and result of Acronis True Image for Western Digital operations.



Tray Notification Center

When Acronis True Image for Western Digital is open, you can see the status of any operation in it. However, since some operations can take quite a while, such as a backup, there is no need to keep Acronis True Image for Western Digital to learn its result.

The Tray Notification Center contains latest notifications in one place, lets you see important operation statuses without opening Acronis True Image for Western Digital at the moment when you need them. The following notifications are shown in Acronis Tray Notification Center: personal offers, information on the results of backup operations, and other important notifications from Acronis True Image for Western Digital. The Tray Notification Center is minimized and hidden under Acronis True Image for Western Digital in the tray.

Shortcut menu commands

To access shortcut menu commands, open File Explorer, right-click selected items, point to **Acronis True Image for Western Digital**, and then select a command.

- To create a new file-level backup, select **New file backup**.
- To create a new disk-level backup, select **New disk backup**.
- To mount a disk-level backup (.tib file), select **Mount**.
- To validate a backup (.tib file), select **Validate**.

File-level recovery in File Explorer

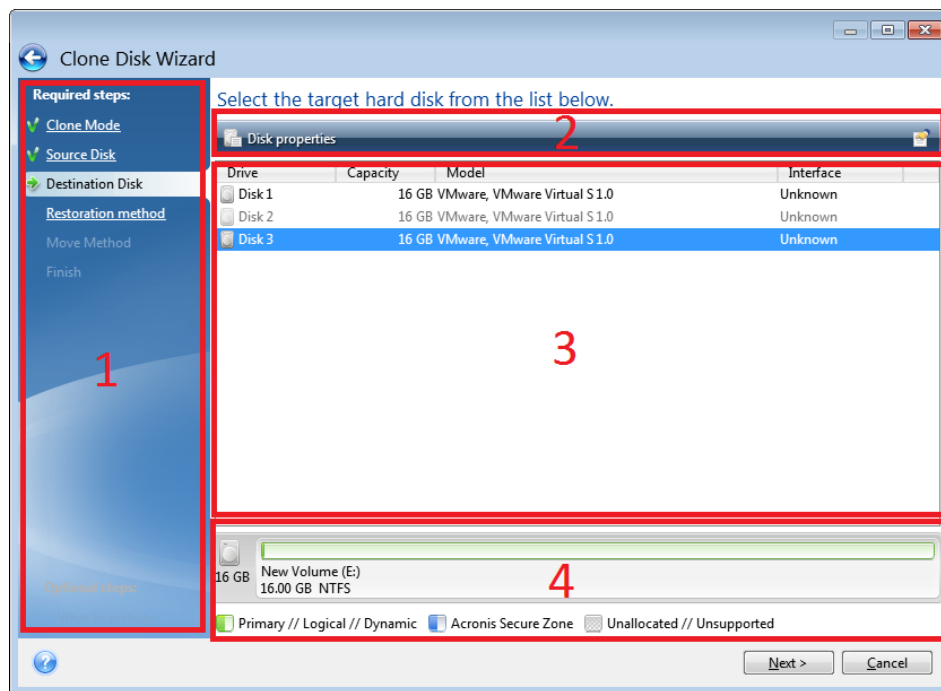
To recover files and folders:

1. In File Explorer, double-click the backup file (.tib file) that contains the data to recover.
2. Copy or drag the files and folders to any location on your computer, as if they were stored on an ordinary disk.

3.8 Wizards

When you use the available Acronis True Image for Western Digital tools and utilities, the program will in many cases employ wizards to guide you through the operations.

For example, see the screen shot below.



A wizard window usually consists of the following areas:

1. This is the list of steps to complete the operation. A green checkmark appears next to a complete step. The green arrow indicates the current step. When complete all the steps, the program displays the Summary screen in the **Finish** step. Check the summary and click **Proceed** to start the operation.
2. This toolbar contains buttons to manage objects you select in area 3.
For example:
 - **Details** - displays the window that provides detailed information about the selected backup.
 - **Properties** - displays the selected item properties window.
 - **Create new partition** - displays the window where you can configure a new partition settings.
 - **Columns** - allows you to choose which table columns to display and in which order.
3. This is the main area where you select items and change settings.
4. This area displays additional information about the item you select in area 3.

3.9 FAQ about backup, recovery and cloning

- **I have a 150GB system partition, but the occupied space on that partition is only 80GB. What will Acronis True Image for Western Digital include in a backup?** - By default, Acronis True Image for Western Digital copies only the hard disk sectors that contain data, so it will include only 80GB in a backup. You can also choose the sector-by-sector mode. Note that such a backup mode is required only in special cases. For more information, see Image creation mode (p. 46). While creating a sector-by-sector backup, the program copies both used and unused hard disk sectors and the backup file will usually be significantly larger.
- **Will my system disk backup include drivers, documents, pictures, etc.?** - Yes, such a backup will contain the drivers, as well as the contents of the My documents folder and its subfolders, if you

kept the default location of the My documents folder. If you have just a single hard disk in your PC, such a backup will contain all of the operating system, applications and data.

- **I have an old hard disk drive which is almost full in my notebook. I purchased a new bigger HDD. How can I transfer Windows, programs and data to the new disk?** - You can either clone the old hard disk on the new one or back up the old hard disk and then recover the backup to a new one. The optimum method usually depends on your old hard disk partitions layout.
- **I want to migrate my old system hard disk to an SSD. Can this be done with Acronis True Image for Western Digital?** - Yes, Acronis True Image for Western Digital provides such a function. For procedure details, see Migrating your system from an HDD to an SSD (p. 80)
- **What is the best way to migrate the system to a new disk: cloning or backup and recovery?** - The backup and recovery method provides more flexibility. In any case, we strongly recommend to make a backup of your old hard disk even if you decide to use cloning. It could be your data saver if something goes wrong with your original hard disk during cloning. For example, there were cases when users chose the wrong disk as the target and thus wiped their system disk. In addition, you can make more than one backup to create redundancy and increase security.
- **What should I back up: a partition or the whole disk?** - In most cases, it is better to back up the whole disk. However, there may be some cases when a partition backup is advisable. For example, your notebook has a single hard disk with two partitions: system (disk letter C) and the data (disk letter D). The system partition stores your working documents in the My documents folder with subfolders. The data partition stores your videos, pictures, and music files. Such files are already compressed and backing them up using Acronis True Image for Western Digital would not give you significant reduction of the backup file size. However, we recommend creating at least one whole disk backup if your backup storage has enough space.
- **Could you tell me how to clone: in Windows or after booting from the Acronis bootable media?** Even when you start cloning in Windows, the computer will reboot into the Linux environment the same as when booting from the Acronis bootable media. Because of this, it is better to clone under Acronis bootable media. For example, there may be a case when your hard disk drives are detected in Windows and not detected in Linux. If this is the case, the cloning operation will fail after reboot. When booting from the bootable media, you can make sure that Acronis True Image for Western Digital detects both the source and target disks before starting the cloning operation.
- **Can I clone or back up and recover a dual boot machine?** Yes, this is possible when both operating systems are Windows. If your systems are installed in separate partitions of the same physical hard disk drive, cloning or recovery usually proceeds without any problems. If the systems are on different physical hard disk drives, there may be some problems with bootability after recovery.
- **Does Acronis True Image for Western Digital support RAID?** - Acronis True Image for Western Digital supports hardware RAID arrays of all popular types. Support of software RAID configurations on dynamic disks is also provided. Acronis bootable media supports most of the popular hardware RAID controllers. If the standard Acronis bootable media does not "see" the RAID as a single volume, the media does not have the appropriate drivers. In this case you can try to create WinPE-based media. This media may provide the necessary drivers.

4 Backing up data

In this section

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4.1 Backing up disks and partitions

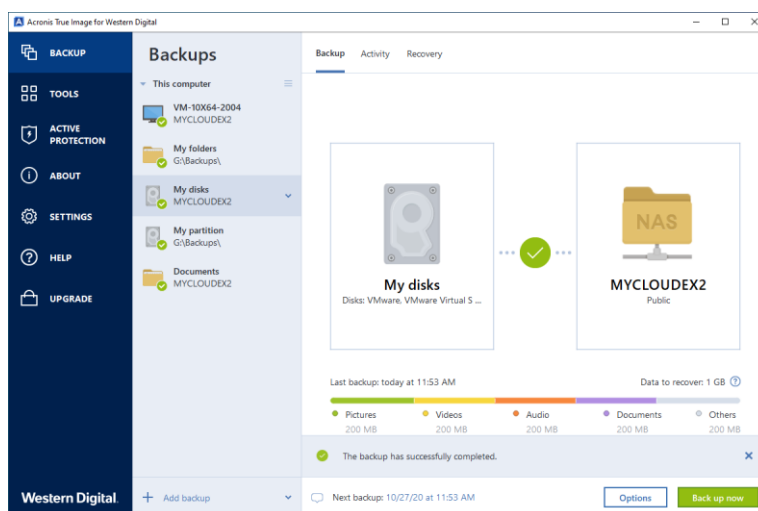
As opposed to file backups, disk and partition backups contain all the data stored on the disk or partition. This backup type is usually used to create an exact copy of a system partition of the whole system disk. Such backup allows you to recover your computer when Windows works incorrectly or cannot start.

To back up partitions or disks:

1. Start Acronis True Image for Western Digital.
2. On the sidebar, click **Backup**.
3. Click **Add backup**.
4. [Optional] To rename the backup, click the arrow next to the backup name, click **Rename**, and then enter a new name.
5. Click the **Backup source** area, and then select **Disks and partitions**.
6. In the opened window, select the check boxes next to the partitions and disks that you want to back up, and then click **OK**.

To view hidden partitions, click **Full partition list**.

To back up dynamic disks you can use only the partition mode.



7. Click the **Backup destination** area, and then select a destination for backup:
 - **Your external drive**—When an external drive is plugged into your computer, you can select it from the list.
 - **NAS**—Select an NAS from the list of found NAS devices. If you have only one NAS, Acronis True Image for Western Digital will suggest using it as a backup destination by default.

- **Browse**—Select a destination from the folder tree. This option is enabled only if you have an internal or external Western Digital storage device attached to your system.

If possible, avoid storing your system partition backups on dynamic disks, because the system partition is recovered in the Linux environment. Linux and Windows work with dynamic disks differently. This may result in problems during recovery.

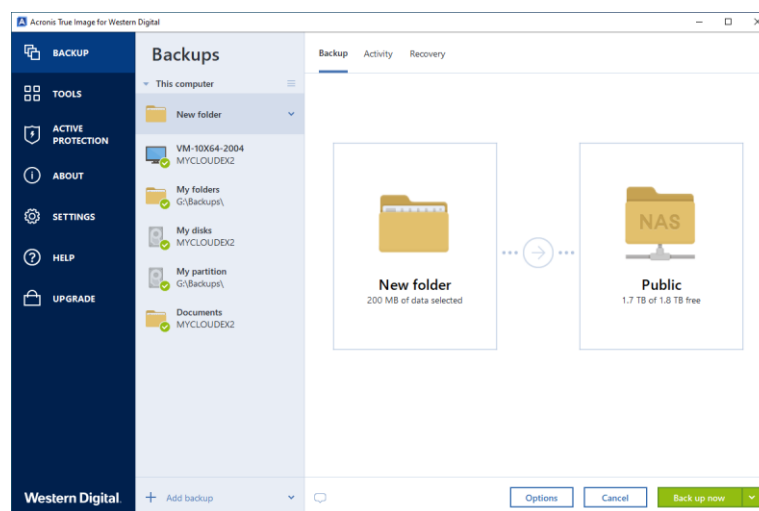
8. [optional step] Click **Options** to set the options for the backup, including Schedule (p. 36), Scheme (p. 39), and Password protection. For more information see Backup options (p. 36).
9. [optional step] Click the **Add a comment** icon, and then type a comment to the backup version. Backup comments will help you to find the necessary version later, when recovering your data.
10. Perform one of the following:
 - To run the backup immediately, click **Back up now**.
 - To run the backup later or on a schedule, click the arrow to the right of the **Back up now** button, and then click **Later**.

4.2 Backing up files and folders

To protect files such as documents, photos, music files, video files, there is no need to back up the entire partition containing the files. You can back up specific files and folders.

To back up files and folders:

1. Start Acronis True Image for Western Digital.
2. On the sidebar, click **Backup**.
3. Click **Add backup**.
4. [Optional] To rename the backup, click the arrow next to the backup name, click **Rename**, and then enter a new name.
5. Click the **Backup source** area, and then select **Files and folders**.
6. In the opened window, select the check boxes next to the files and folders that you want to back up, and then click **OK**.



7. Click the **Backup destination** area, and then select a destination for backup:
 - **Your external drive**—When an external drive is plugged into your computer, you can select it from the list.
 - **NAS**—Select an NAS from the list of found NAS devices. If you have only one NAS, Acronis True Image for Western Digital will suggest using it as a backup destination by default.

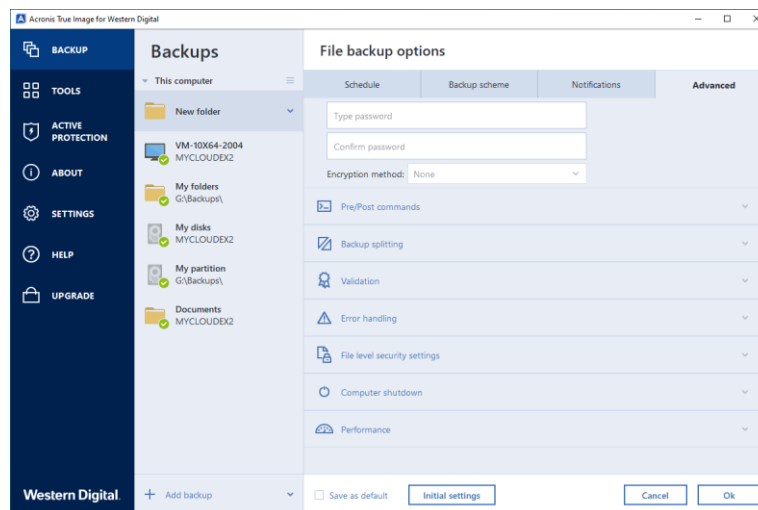
- **Browse**—Select a destination from the folder tree. This option is enabled only if you have an internal or external Western Digital storage device attached to your system.
8. [optional step] Click **Options** to set the options for the backup, including Schedule (p. 36), Scheme (p. 39), and Password protection. For more information see Backup options (p. 36).
 9. [optional step] Click the **Add a comment** icon, and then type a comment to the backup version. Backup comments will help you to find the necessary version later, when recovering your data.
 10. Perform one of the following:
 - To run the backup immediately, click **Back up now**.
 - To run the backup later or on a schedule, click the down arrow to the right of the **Back up now** button, and then click **Later**.

4.3 Backup options

When you create a backup, you can change additional options and fine-tune the backup process. To open the options window, select a source and destination for a backup, and then click **Options**.

Note that options of each backup type (disk-level backup, file-level backup, online backup, nonstop backup) are fully independent and you should configure them separately.

After you have installed the application, all options are set to the initial values. You can change them for your current backup operation only or for all backups that will be created in future. Select the **Save as default** check box to apply the modified settings to all further backup operations by default.



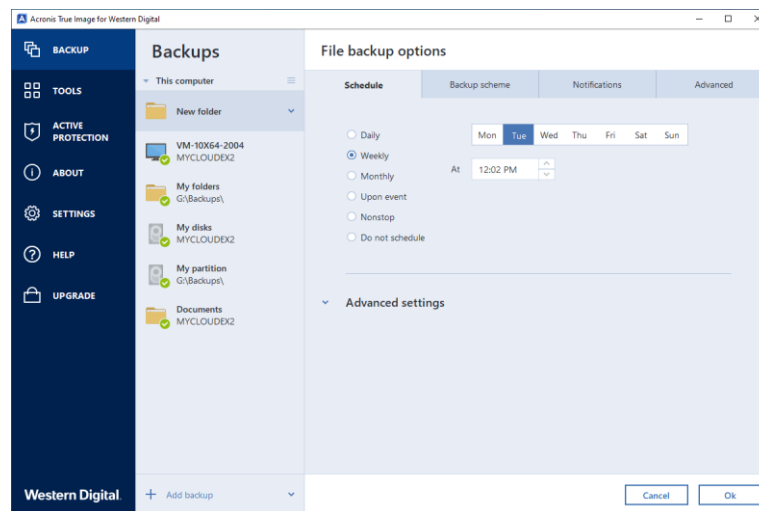
If you want to reset all the modified options to the values that were set after the product installation initially, click the **Reset to initial settings** button. Note that this will reset the settings for the current backup only. To reset the settings for all further backups, click **Reset to initial settings**, select the **Save the settings as default** check box, and then click **OK**.

Additionally, watch the English-language video instructions at <https://goo.gl/bKZyaG>.

4.3.1 Scheduling

Location: **Options > Schedule**

The **Schedule** tab allows you to specify the backup and validation schedule settings.



You can choose and set up one of the following backup or validation frequencies:

- **Nonstop** (p. 27)—The backup will run every five minutes.
- **Daily** (p. 38)—The operation will be executed once a day or more frequently.
- **Weekly** (p. 38)—The operation will be executed once a week or several times a week on the selected days.
- **Monthly** (p. 38)—The operation will be executed once a month or several times a month on the selected dates.
- **Upon event** (p. 38)—The operation will be executed upon an event.
- **Do not schedule**—The scheduler will be turned off for the current operation. In this case the backup or validation will run only when you click **Back up now** or **Validate** respectively in the main window.

Advanced settings

Clicking **Advanced settings** allows you to specify the following additional settings for backup and validation:

- To postpone a scheduled operation until the next time the computer is not in use (a screen saver is displayed or computer is locked), select the **Run the backup only when the computer is idle** check box. If you schedule validation, the check box will change to **Run the validation only when the computer is idle**.
- If you want to wake up the sleeping/hibernating computer to perform the scheduled operation, select the **Wake up the sleeping/hibernating computer** check box.
- When a backup takes a long time, it may be interrupted if the computer goes into sleep or hibernation mode. To eliminate this situation, select the **Prevent the computer from going to sleep/hibernate** check box.
- If the computer is switched off when the scheduled time comes, the operation won't be performed. You can force the missed operation to run at the next system startup. To do so, select the **Run missed operations at the system startup with delay (in minutes)** check box. Additionally, you can set a time delay to start backup after the system startup. For example, to start backup 20 minutes after system startup, type 20 in the appropriate box.
- If you schedule a backup to a USB flash drive or validation of a backup that is located on a USB flash drive, one more check box appears: **When an external device is connected**. Selecting the

check box will let you perform a missed operation when the USB flash drive is attached if it was disconnected at the scheduled time.

4.3.1.1 Daily execution parameters

You can set up the following parameters for daily operation execution:

- **Start time or periodicity**
 - The operation starts once or twice a day at the specified time. Enter hours and minutes manually, or set the desired start time using the up and down buttons.
 - If you select **Every**, choose daily operation periodicity from the dropdown list (for example, every 2 hours).

Description of the **Advanced settings** see in Scheduling (p. 36).

4.3.1.2 Weekly execution parameters

You can set up the following parameters for weekly operation execution:

- **Week days**

Select the days on which to execute the operation by clicking on their names.
- **Start time**

Set the operation's start time. Enter hours and minutes manually, or set the desired start time using the up and down buttons.

Description of the **Advanced settings** see in Scheduling (p. 36).

4.3.1.3 Monthly execution parameters

You can set up the following parameters for monthly operation execution:

- **Periodicity or dates**
 - If you select **Every**, choose a numeral and the day of the week from the dropdown lists (example: First Monday - the operation will be performed on the first Monday of every month)
 - If you select **On**, choose the date(s) for operation execution (example: you may want the operation to be run on the 10th, 20th, and last day of the month)
- **Start time**

Set the operation's start time. Enter hours and minutes manually, or set the desired start time using the up and down buttons.

Description of the **Advanced settings** see in Scheduling (p. 36).

4.3.1.4 Upon event execution parameters

You can set up the following parameters for the Upon event operation execution:

- **Event**
 - **When an external device is connected** – the operation will be executed each time the same external device (USB flash drive or an external HDD) you previously used as a backup destination is plugged into your computer. Note that Windows should recognize this device as external.
 - **User login** – the operation will be executed each time the current user logs on to the OS.

- **User logoff** – the operation will be executed each time the current user logs off the OS.
- **System startup with delay (in minutes)** – the operation will be executed at every OS startup with the delay time you specified.
- **System shutdown or restart** – the operation will be executed at every computer shutdown or reboot.
- **Additional condition**
 - If you want to run an operation only at the first occurrence of the event on the current day, select the **Once a day only** check box.

Description of the **Advanced settings** see in Scheduling (p. 36).

4.3.2 Backup schemes

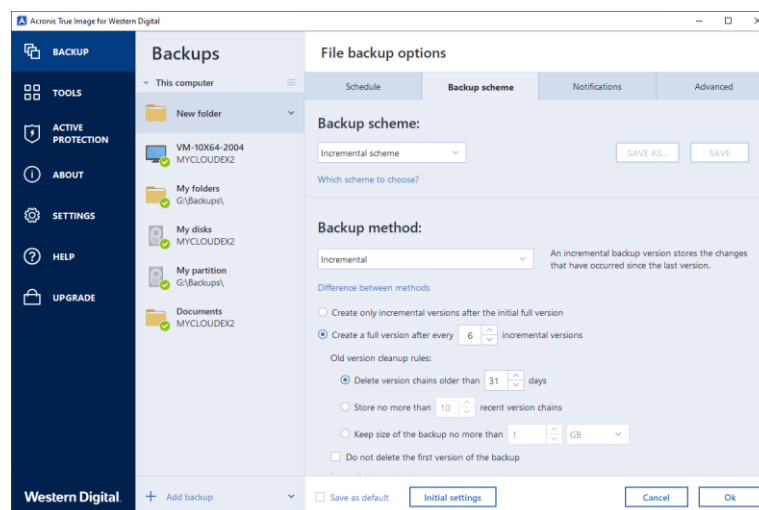
Location: **Options > Backup scheme**

Backup schemes along with the scheduler help you set up your backup strategy. The schemes allow you to optimize backup storage space usage, improve data storage reliability, and automatically delete the obsolete backup versions.

For online backups, the backup scheme is preset and cannot be changed. After the initial full backup, only incremental versions are created.

The backup scheme defines the following parameters:

- Backup methods (p. 22) that will be used to create backup versions (full, differential or incremental)
- Sequence of the backup versions created using different methods
- Version cleanup rules



Acronis True Image for Western Digital allows you to choose from the following backup schemes:

- **Single version** (p. 40) - select this scheme if you want to use the smallest backup storage.
- **Version chain** (p. 40) - this may be the optimal scheme in many cases.
- **Incremental** - select to create a full version after every five incremental versions. This is the default scheme.
- **Differential** - select to create only differential backups after an initial full backup.
- **Custom** (p. 41) - select to set up a backup scheme manually.

You can easily change the backup scheme for a pre-existing backup. This will not affect the integrity of the backup chains, so you will be able to recover your data from any previous backup version.

You cannot change the backup scheme when backing up to optical media such as a DVD/BD. In this case, Acronis True Image for Western Digital by default uses a custom scheme with only full backups. This is because the program cannot consolidate backups stored on optical media.

4.3.2.1 Single version scheme

This backup scheme is the same for both disk backup and file backup types (except scheduler settings).

The program creates a full backup version and overwrites it every time according to the specified schedule or when you run the backup manually. In this process, the old version is deleted only after a new version is created.

The very first file will remain for auxiliary purposes, without your data in it. Please do not delete it!

Backup scheduler setting for disk backup: monthly.

Backup scheduler setting for file backup: daily.

Result: you have a single up-to-date full backup version.

Required storage space: minimal.

4.3.2.2 Version chain scheme

This backup scheme differs for disk backup and file backup types.

Disk backup version chain

At first the program creates the 1st full backup version. The version will be kept until you delete it manually. After that, according to the specified schedule (or when you run backup manually) the program creates: 1 full and 5 differential backup versions, then again 1 full and 5 differential backup versions and so on. The versions will be stored for 6 months. After the period the program analyzes if the oldest backup versions (except the 1st full version) may be deleted. It depends on the minimum number of versions (eight) and version chains consistency. The program deletes the oldest versions one by one after creating new versions with the same backup method (for example, the oldest differential version will be deleted after creation of the newest differential version). First of all the oldest differential versions will be deleted, then - the oldest full version.

Backup scheduler setting: monthly.

Result: you have monthly backup versions for the last 6 months plus the initial full backup version that may be kept for a longer period.

Required storage space: depends on the number of versions and their sizes.

File backup version chain

According to the specified schedule (or when you run backup manually) the program creates: 1 full and 6 incremental backup versions, then again 1 full and 6 incremental versions and so on. The versions will be stored for 1 month. After the period the program analyzes if the oldest backup versions may be deleted. It depends on the version chain consistency. To keep the consistency, the

program deletes the oldest versions by chains "1 full + 6 incremental backup versions" after creating a new analogous version chain.

Backup scheduler setting: daily.

Result: you have backup versions for every day of the last month.

Required storage space: depends on the number of versions and their sizes.

4.3.2.3 Custom schemes

With Acronis True Image for Western Digital you also can create your own backup schemes. Schemes can be based on the pre-defined backup schemes. You can make changes in a selected pre-defined scheme to suit your needs and then save the changed scheme as a new one.

You cannot overwrite existing pre-defined backup schemes.

In addition, you can create custom schemes from scratch based on full, differential or incremental backup versions.

So first of all select one of the backup methods in the appropriate box.

- **Full (p. 22)**
Select this method if you want to create only full backup versions.
- **Differential (p. 22)**
Select this method if you want to create backup chains containing only full and differential backup versions.
You can configure the scheme by using one of the following options:
 - **Create only differential versions after the initial full version** - select this item to create only one backup version chain. Automatic cleanup is not available for this option.
 - **Create a full version after every [n] differential versions** - select this item to create several backup version chains. This is a more reliable but more space-consuming backup scheme.
- **Incremental (p. 22)**
Select this method if you want to create backup chains containing only full and incremental backup versions.
You can configure the scheme by using one of the following options:
 - **Create only incremental versions after the initial full version** - select this item to create only one backup version chain. Automatic cleanup is not available for this option.
 - **Create a full version after every [n] incremental versions** - select this item to create several backup version chains. This is a more reliable but more space-consuming backup scheme.

Automatic cleanup rules

To delete obsolete backup versions automatically, you can set one of the following cleanup rules:

- **Delete versions older than [defined period]** (available for full method only) - Select this option to limit the age of backup versions. All versions that are older than the specified period will be automatically deleted.
- **Delete version chains older than [defined period]** (available for incremental and differential methods only) - Select this option to limit the age of backup version chains. The oldest version chain will be deleted only when the most recent backup version of this chain is older than the specified period.

- **Store no more than [n] recent versions** (available for full method only) - Select this option to limit the maximum number of backup versions. When the number of versions exceeds the specified value, the oldest backup version will be automatically deleted.
- **Store no more than [n] recent version chains** (available for incremental and differential methods only) - Select this option to limit the maximum number of backup version chains. When the number of version chains exceeds the specified value, the oldest backup version chain will be automatically deleted.
- **Keep size of the backup no more than [defined size]** (not available for local backups) - Select this option to limit the maximum size of the backup. After creating a new backup version, the program checks whether the total backup size exceeds the specified value. If it's true, the oldest backup version will be deleted.

The first backup version option

Often the first version of any backup is one of the most valuable versions. This is true because it stores the initial data state (for example, your system partition with recently installed Windows) or some other stable data state (for example, data after a successful virus check).

Do not delete the first version of the backup - Select this check box to keep the initial data state. The program will create two initial full backup versions. The first version will be excluded from the automatic cleanup, and will be stored until you delete it manually.

If you select incremental or differential method, the first backup chain will start from the second full backup version. And only the third version of the backup will be incremental or differential one.

Note that when the check box is selected, the **Store no more than [n] recent versions** check box will change to **Store no more than 1+[n] recent versions**.

Managing custom backup schemes

If you change anything in an existing backup scheme, you can save the changed scheme as a new one. In this case you need to specify a new name for that backup scheme.

- You can overwrite existing custom schemes.
- You cannot overwrite existing pre-defined backup schemes.
- In a scheme name, you can use any symbols allowed by OS for naming files. The maximum length of a backup scheme name is 255 symbols.
- You can create not more than 16 custom backup schemes.

After creating a custom backup scheme, you can use it as any other existing backup scheme while configuring a backup.

You can also use a custom backup scheme without saving it. In this case, it will be available only for the backup where it was created and you will be unable to use it for other backups.

If you do not need a custom backup scheme anymore, you can delete it. To delete the scheme, select it in the backup schemes list, click **Delete**, and then click **Delete scheme** in the confirmation window.

The pre-defined backup schemes cannot be deleted.

Examples of custom schemes

1. Entire PC backup “Two full versions”

Case: You want to protect all data on your computer with two full versions and you want to update the backup once a month. Let's see how you can do it by using a custom backup scheme.

1. Start configuring an entire PC backup. Refer to Backing up all data on your PC (p. 7) for details.
2. Make sure Entire PC is selected as the backup source.
3. Click **Options**, open the **Schedule** tab, click **Monthly**, and then specify a day of the month (for example, the 20-th). This will result in a backup version being created on a monthly basis, on the day you specify. Then, specify a start time for the backup operation.
4. Open the **Backup scheme** tab, and then choose **Custom scheme** instead of **Incremental scheme**.
5. In the **Backup method** box, select **Full** from the drop-down list.
6. To limit the number of versions, click **Store no more than [n] recent versions**, and type or select "2", and click **OK**.

In this case, the program will create a new full version every month, on the 20-th day. After creating the third version, the oldest version will be automatically deleted.

7. Check that all settings are correct and click **Back up now**. If you want your first backup to be run only at the time you specified in the Scheduler, click the down arrow to the right of the **Back up now** button and select **Later** in the drop-down list.

2. File backup “Daily incremental version + weekly full version”

Case: You have files and/or folders you work with every day. You need to save your daily work results and want to be able to recover data state to any date for the last three weeks. Let's see how you can do this using a custom backup scheme.

1. Start configuring a file backup. Refer to Backing up files and folders for details.
2. Click **Options**, open the **Schedule** tab, click **Daily**, and then specify a start time for the backup operation. For example, if you finish your everyday work at 8 PM, specify this time or a little later (8.05 PM) as the start time.
3. Open the **Backup scheme** tab, and then choose **Custom scheme** instead of **Incremental scheme**.
4. In the **Backup method** box, select **Incremental** from the drop-down list.
5. Click **Create a full version after every [n] incremental versions**, and type or select "6".

In that case, the program will first create the initial full backup version (no matter how you set up a backup process, the first backup version will always be the full one), and then six incremental versions day by day. Then, it will create one full version and six incremental versions again and so on. So every new full version will be created in exactly a week's time.

6. To limit the storage time for the versions, click **Turn on automatic cleanup**.
7. Click **Delete version chains older than [n] days**, type or select "21", and click **OK**.
8. Check that all settings are correct and click **Back up now**. If you want your first backup to run only at the time you specified in the Scheduler, click the down arrow to the right of the **Back up now** button and select **Later** in the drop-down list.

3. Disk backup “Full version every 2 months + differential version twice a month”

Case: You need to back up your system partition twice a month and create a new full backup version every two months. In addition, you want to use no more than 100 GB of disk space to store the backup versions. Let's see how you can do it using a custom backup scheme.

1. Start configuring a disk backup. Refer to Backing up disks and partitions (p. 34).

2. Select your system partition (usually C:) as the backup source.
 3. Click **Options**, open the **Schedule** tab, click **Monthly**, and then specify, for example, the 1st and 15th days of the month. This will result in a backup version in about every two weeks. Then, specify a start time for the backup operation.
 4. Open the **Backup scheme** tab, and then choose **Custom scheme** instead of **Incremental scheme**.
 5. In the **Backup method** box, select **Differential** from the drop-down list.
 6. Click **Create a full version after every [n] differential versions**, and type or select "3".
In that case the program will first create the initial full backup version (no matter how you set up a backup process, the first backup version will always be the full one), and then three differential versions, each one in about two weeks. Then again a full version and three differential versions and so on. So every new full version will be created in two months.
 7. To limit storage space for the versions, click **Turn on automatic cleanup**.
 8. Click **Keep size of the backup no more than [defined size]**, type or select "100" "GB", and click **OK**.
-
- When the total backup size exceeds 100 GB, Acronis True Image for Western Digital will clean up the existing backup versions to make the remaining versions satisfy the size limit. The program will delete the oldest backup chain consisting of a full backup version and three differential backup versions.*
-
9. Check that all settings are correct and click **Back up now**. If you want your first backup to be run only at the time you specified in the Scheduler, click the down arrow to the right of the **Back up now** button and select **Later** in the drop-down list.

4.3.3 Notifications for backup operation

Location: **Options > Notifications**

Sometimes a backup or recovery procedure can last an hour or longer. Acronis True Image for Western Digital can notify you when it is finished via email. The program can also duplicate messages issued during the operation or send you the full operation log after operation completion.

By default, all notifications are disabled.

Free disk space threshold

You may want to be notified when the free space on the backup storage becomes less than the specified threshold value. If after starting a backup Acronis True Image for Western Digital finds out that the free space in the selected backup location is already less than the specified value, the program will not begin the actual backup process and will immediately inform you by displaying an appropriate message. The message offers you three choices - to ignore it and proceed with the backup, to browse for another location for the backup or to cancel the backup.

If the free space becomes less than the specified value while the backup is being run, the program will display the same message and you will have to make the same decisions.

To set the free disk space threshold:

- Select the **Show notification message on insufficient free disk space** check box
- In the **Size** box, type or select a threshold value and select a unit of measure

Acronis True Image for Western Digital can monitor free space on the following storage devices:

- Local hard drives
- USB cards and drives

- Network shares (SMB/NFS)

The message will not be displayed if the **Do not show messages and dialogs while processing (silent mode)** check box is selected in the **Error handling** settings.

This option cannot be enabled for FTP servers and CD/DVD drives.

Email notification

You can specify an email account that will be used to send you email notifications.

To configure the email notifications:

1. Select the **Send email notifications about the operation state** check box.
2. Configure email settings:
 - Enter the email address in the **To** field. You can enter several addresses, separated by semicolons.
 - Enter the outgoing mail server (SMTP) in the **Outgoing mail server (SMTP)** field.
 - Set the port of the outgoing mail server. By default, the port is set to 25.
 - If required, select the **SMTP authentication** check box, and then enter the user name and password in the corresponding fields.
3. To check whether your settings are correct, click the **Send test message** button.

If the test message sending fails, perform the following:

1. Click **Show extended settings**.
2. Configure additional email settings:
 - Enter the sender's email address in the **From** field. If you are not sure what address to specify, then type any address you like in a standard format, for example *aaa@bbb.com*.
 - Change the message subject in the **Subject** field, if necessary.
To simplify monitoring a backup status, you can add the most important information to the subject of the email messages. You can type the following text labels:
 - %BACKUP_NAME%—the backup name
 - %COMPUTER_NAME%—name of the computer where the backup was started
 - %OPERATION_STATUS%—result of the backup or other operation
 For example, you can type: *Status of backup %BACKUP_NAME%: %OPERATION_STATUS% (%COMPUTER_NAME%)*
 - Select the **Log on to incoming mail server** check box.
 - Enter the incoming mail server (POP3) in the **POP3 server** field.
 - Set the port of the incoming mail server. By default, the port is set to 110.
3. Click the **Send test message** button again.

Additional notification settings:

- To send a notification concerning a process completion, select the **Send notification upon operation's successful completion** check box.
- To send a notification concerning a process failure, select the **Send notification upon operation failure** check box.
- To send a notification with operation messages, select the **Send notification when user interaction is required** check box.

- To send a notification with a full log of operations, select the **Add full log to the notification** check box.

Note that email notifications you configure work for a particular backup. If you want to receive notifications about all of your backups, you can set up email notifications in the Online Dashboard. Refer to Email notifications for details. Both methods work independently from each other and can be used simultaneously.

4.3.4 Image creation mode

Location: **Options > Advanced > Image creation mode**

You can use these parameters to create an exact copy of your whole partitions or hard disks, and not only the sectors that contain data. For example, this can be useful when you want to back up a partition or disk containing an operating system that is not supported by Acronis True Image for Western Digital. Please note that this mode increases processing time and usually results in a larger image file.

- To create a sector-by-sector image, select the **Back up sector-by-sector** check box.
- To include all unallocated disk space into the backup, select the **Back up unallocated space** check box.

This check box is available only when the **Back up sector-by-sector** check box is selected.

4.3.5 Backup splitting

Location: **Options > Advanced > Backup splitting**

Acronis True Image for Western Digital cannot split already existing backups. Backups can be split only when being created.

Large backups can be split into several files that together make up the original backup. A backup can also be split for burning to removable media.

The default setting - **Automatic**. With this setting, Acronis True Image for Western Digital will act as follows.

When backing up to a hard disk:

- If the selected disk has enough space and its file system allows the estimated file size, the program will create a single backup file.
- If the storage disk has enough space, but its file system does not allow the estimated file size, the program will automatically split the image into several files.
- If you do not have enough space to store the image on your hard disk, the program will warn you and wait for your decision as to how you plan to fix the problem. You can try to free some additional space and continue or select another disk.

Alternatively, you may select the desired file size from the drop-down list. The backup will then be split into multiple files of the specified size. This is useful when you store a backup to a hard disk in order to burn the backup to CD-R/RW, DVD-R/RW, DVD+R/RW or BD-R/RE later on.

4.3.6 Backup validation option

Location: **Options > Advanced > Validation**

You can specify the following settings:

- **Validate backup each time after it is completed** - Select to check the integrity of the backup version immediately after backup. We recommend that you enable this option when you back up your critical data or system disk.
 - **Validate the latest diverse backup only** - A quick validation of the last backup slice.
 - **Validate entire backup**
- **Validate backup on schedule** - Select to schedule validation of your backups to ensure that they remain "healthy".
 - **The latest diverse backup version when it is completed**
 - **Entire backup when it is completed**

The default settings are as follows:

- **Frequency:** once a month.
- **Day:** the date when the backup was started.
- **Time:** the moment of backup start plus 15 minutes.

You can also configure start of the validation manually from the backup context menu.

To do this, right-click the backup and choose:

- **Validate all versions**
- **Validate last version**

Example: You start a backup operation on July 15, at 12.00. The backup version is created at 12.05. Its validation will run at 12.15 if your computer is in the "screen saver" state at the moment. If not, then the validation will not run. In a month, August 15, at 12.15, the validation will start again. As before, your computer must be in the "screen saver" state. The same will occur on September 15, and so on.

You can change the default settings and specify your own schedule. For more information see Scheduling (p. 36).

4.3.7 Backup reserve copy

Location: **Options > Advanced > Backup reserve copy**

This option is not available for local backups.

Backup reserve copy is an independent full backup version created immediately after a normal backup. Even when you create an incremental or differential backup version containing only data changes, the reserve copy will contain all the data selected for the normal backup. You can save reserve copies of your backups on the file system, a network drive, or a USB flash drive.

Please, be aware that CD/DVDs are not supported as locations for reserve copies.

To make a reserve copy:

1. Select the **Create a reserve copy of my backups** check box.
2. Specify a location for the backup copies.
3. Select the reserve copy format. You can create it as an Acronis backup (.tib files) or just copy the source files to the selected location as is, without any modification.
4. [Optional step] Protect the reserve copy with a password.
All other backup options will be inherited from the source backup.

4.3.8 Error handling

Location: **Options > Advanced > Error handling**

When the program encountered an error while performing backup, it stops the backup process and displays a message, waiting for a response on how to handle the error. If you set an error handling policy, the program will not stop the backup process, but will simply handle the error according to the set rules and continue working.

You can set the following error handling policy:

- **Do not show messages and dialogs while processing (silent mode)** - Enable this setting to ignore errors during backup operations. This is useful when you cannot control the backup process.
- **Ignore bad sectors** - This option is available only for disk and partition backups. It lets you successfully complete a backup even if there are bad sectors on the hard disk.

We recommend that you select this check box when your hard drive is failing, for example:

- Hard drive is making clicking or grinding noises during operation.
- The S.M.A.R.T. system has detected hard drive issues and recommends that you back up the drive as soon as possible.

When you leave this check box cleared, the backup may fail because of possible bad sectors on the drive.

- **Repeat attempt if a backup fails** - This option allows you to automatically repeat a backup attempt if the backup fails for some reason. You can specify number of attempts and time interval between attempts. Note that if the error interrupting the backup persists, then the backup will not be created.

4.3.9 Computer shutdown

Location: **Options > Advanced > Computer shutdown**

You can configure the following options:

- **Stop all current operations when I shut down the computer**

When you turn off your computer while Acronis True Image for Western Digital is performing a long operation, for example a disk backup to the cloud, this operation prevents the computer from shutdown. When this check box is selected, Acronis True Image for Western Digital automatically stops all its current operations before shutdown. This may take about two minutes. The next time you run Acronis True Image for Western Digital, it will restart the stopped backups.

- **Shut down the computer after the backup is complete**

If you know that the backup process you are configuring may take a long time, you may select the **Shut down the computer after the backup is complete** check box. In this case, you will not have to wait until the operation completion. The program will perform the backup and turn off your computer automatically.

This option is also useful when you schedule your backups. For example, you may want to perform backups every weekday in the evening to save all your work. Schedule the backup and select the check box. After that you may leave your computer when you finish your work knowing that the critical data will be backed up and the computer will be turned off.

4.3.10 Performance of backup operation

Location: **Options > Advanced > Performance**

Compression level

You can choose the compression level for a backup:

- **None** - the data will be copied without any compression, which may significantly increase the backup file size.
- **Normal** - the recommended data compression level (set by default).
- **High** - higher backup file compression level, takes more time to create a backup.
- **Maximum** - maximum backup compression, but takes a long time to create a backup.

The optimal data compression level depends on the type of files stored in the backup. For example, even maximum compression will not significantly reduce the backup size, if the backup contains essentially compressed files, like .jpg, .pdf or .mp3.

You cannot set or change the compression level for a pre-existing backup.

Operation priority

Changing the priority of a backup or recovery process can make it run faster or slower (depending on whether you raise or lower the priority), but it can also adversely affect the performance of other running programs. The priority of any process running in a system, determines the amount of CPU usage and system resources allocated to that process. Decreasing the operation priority will free more resources for other CPU tasks. Increasing backup or recovery priority may speed up the process by taking resources from the other currently running processes. The effect will depend on total CPU usage and other factors.

You can set up the operation priority:

- **Low** (enabled by default) - the backup or recovery process will run slower, but the performance of other programs will be increased.
- **Normal** - the backup or recovery process will have the equal priority with other processes.
- **High** - the backup or recovery process will run faster, but the performance of other programs will be reduced. Be aware that selecting this option may result in 100% CPU usage by Acronis True Image for Western Digital.

Snapshot for backup

This option is for advanced users only. Do not change the default setting if you are not sure which option to choose.

During a disk or partition backup process, which often takes a long time, some of the backed-up files may be in use, locked, or being modified in one way or another. For example, you may work on a document and save it from time to time. If Acronis True Image for Western Digital backed up files one by one, your open file would likely be changed since the backup start, and then saved in the backup to a different point in time. Therefore, the data in the backup would be inconsistent. To eliminate it, Acronis True Image for Western Digital creates a so-called snapshot that fixes the data to back up to a particular point in time. This is done before the backup starts and guarantees that the data is in consistent state.

Select a backup snapshot type from the list:

- **No snapshot**
A snapshot will not be created. The files will be backed up one by one as an ordinary copy operation.
- **VSS**

Warning! This is the only recommended option for backing up your system. Your computer may not start after recovery from a backup created with a different snapshot type.

This option is default for disk-level and the Entire PC backups, and guarantees data consistency in the backup.

- **Acronis snapshot**

A snapshot will be created with the Acronis driver used in previous versions of Acronis True Image for Western Digital.

- **VSS without writers**

This option is default for file-level backups.

VSS writers are special VSS components for notifying applications that a snapshot is going to be created, so that the applications prepare their data for the snapshot. The writers are needed for applications that perform large number of file operations and require data consistency, for example databases. Because such applications are not installed on home computers, there is no need to use writers. In addition, this reduces the time required for file-level backups.

4.3.11 Laptop power settings

Location: **Settings > Battery power saving**

This setting is only available on computers with batteries (laptops, computers with UPS).

Long-term backups may consume the battery power quite fast. When you work on your laptop and there is no power supply around you or when your computer has switched to UPS after a blackout, it's reasonable to save the battery charge.

To save the battery charge:

- On the sidebar, click **Settings > Battery power saving**, select the **Do not back up when battery power is less than** check box, and then use the slider to set the exact battery level for the charge saving to start.

When this setting is turned on, if you unplug your laptop power adapter or use a UPS for your computer after a blackout, and the remaining battery charge is equal or below the level in the slider, all current backups are paused and scheduled backups will not start. Once you plug the power adapter back in or the power supply is restored, the paused backups will be resumed. The scheduled backups that have been missed because of this setting will be started as well.

This setting does not block backup functionality completely. You can always start a backup manually.

Local mobile backups do not depend on this setting. Your mobile data is backed up to local storage on your computer as usual.

5 Recovering data

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5.1 Recovering disks and partitions

5.1.1 Recovering your system after a crash

When your computer fails to boot, it is advisable to at first try to find the cause using the suggestions given in Trying to determine the crash cause (p. 51). If the crash is caused by corruption of the operating system, use a backup to recover your system. Make the preparations described in Preparing for recovery (p. 51) and then proceed with recovering your system.

5.1.1.1 Trying to determine the crash cause

A system crash can be due to two basic factors:

- **Hardware failure**

In this scenario, it is better to let your service center handle the repairs. However, you may want to perform some routine tests. Check the cables, connectors, power of external devices, etc. Then, restart the computer. If there is a hardware problem, the Power-On Self Test (POST) will inform you about the failure.

If the POST does not reveal a hardware failure, enter BIOS and check whether it recognizes your system hard disk drive. To enter BIOS, press the required key combination (**Del**, **F1**, **Ctrl+Alt+Esc**, **Ctrl+Esc**, or some other, depending on your BIOS) during the POST sequence. Usually the message with the required key combination is displayed during the startup test. Pressing this combination takes you to the setup menu. Go to the hard disk autodetection utility which usually comes under "Standard CMOS Setup" or "Advanced CMOS setup". If the utility does not detect the system drive, it has failed and you need to replace the drive.

- **Operating system corruption (Windows cannot start up)**

If the POST correctly detects your system hard disk drive, then the cause of the crash is probably a virus, malware or corruption of a system file required for booting. In this case, recover the system using a backup of your system disk or system partition. Refer to Recovering your system (p. 52) for details.

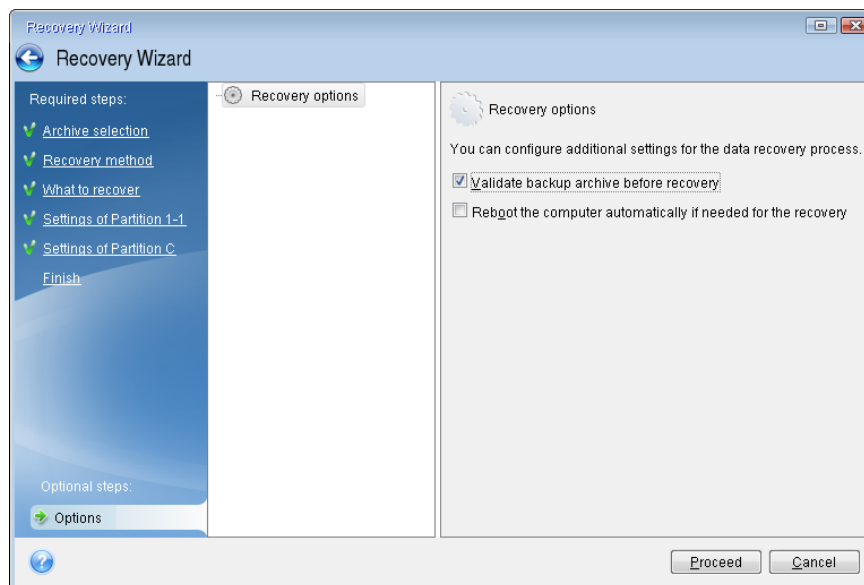
5.1.1.2 Preparing for recovery

We recommend that you perform the following actions before recovery:

- Scan the computer for viruses if you suspect that the crash occurred due to a virus or malware attack.
- Under bootable media, try a test recovery to a spare hard drive, if you have one.
- Validate the image under bootable media. A backup that can be read during validation in Windows, **may not always be readable in a Linux environment.**

Under bootable media, there are two ways to validate a backup:

- To validate a backup manually, on the **Recovery** tab, right-click a backup and select **Validate Archive**.
- To validate a backup automatically before recovery, on the **Options** step of the **Recovery Wizard**, select the **Validate backup archive before recovery** check box.



- Assign unique names (labels) to all partitions on your hard drives. This will make finding the disk containing your backups easier.

When you use the Acronis bootable media, it creates disk drive letters that might differ from the way Windows identifies drives. For example, the D: disk identified in the bootable media might correspond to the E: disk in Windows.

5.1.1.3 Recovering your system to the same disk

Before you start, we recommend that you complete the procedures described in Preparing for recovery (p. 51).

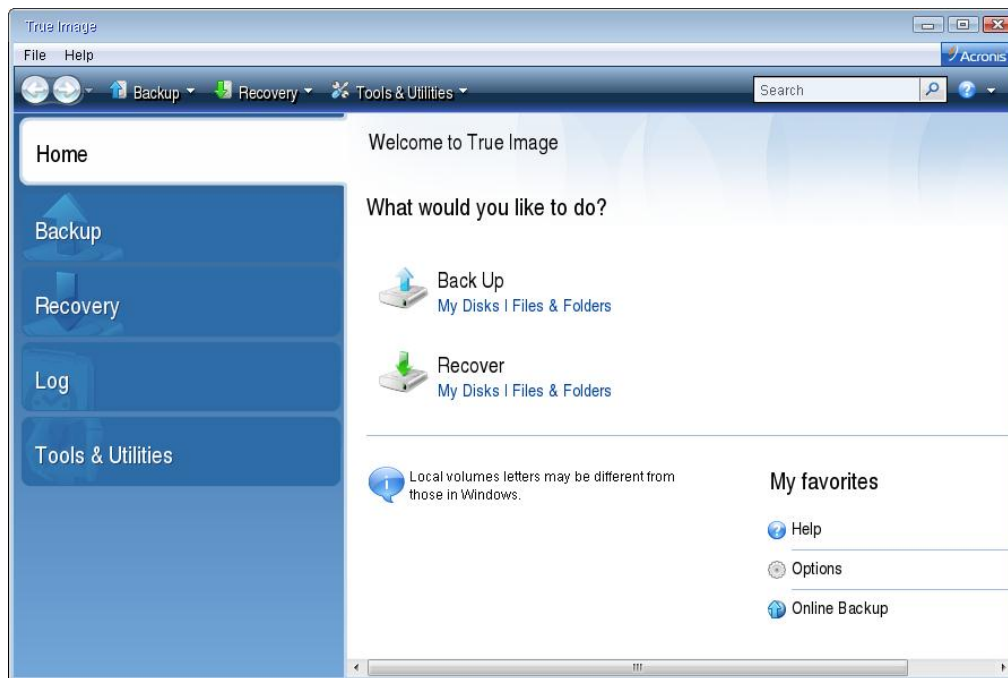
To recover your system:

1. Attach the external drive if it contains the backup to be used for recovery and make sure that the drive is powered on.
2. Arrange the boot order in BIOS so as to make your rescue media device (CD, DVD or USB drive) the first boot device. See Arranging boot order in BIOS or UEFI BIOS (p. 63).

If you use an UEFI computer, please pay attention to the boot mode of the bootable media in UEFI BIOS. It is recommended that the boot mode matches the type of the system in the backup. If the backup contains a BIOS system, then boot the bootable media in BIOS mode; if the system is UEFI, then ensure that UEFI mode is set.

3. Boot from the rescue media and select **Acronis True Image for Western Digital**.

4. On the **Home** screen, select **My disks** below **Recover**.

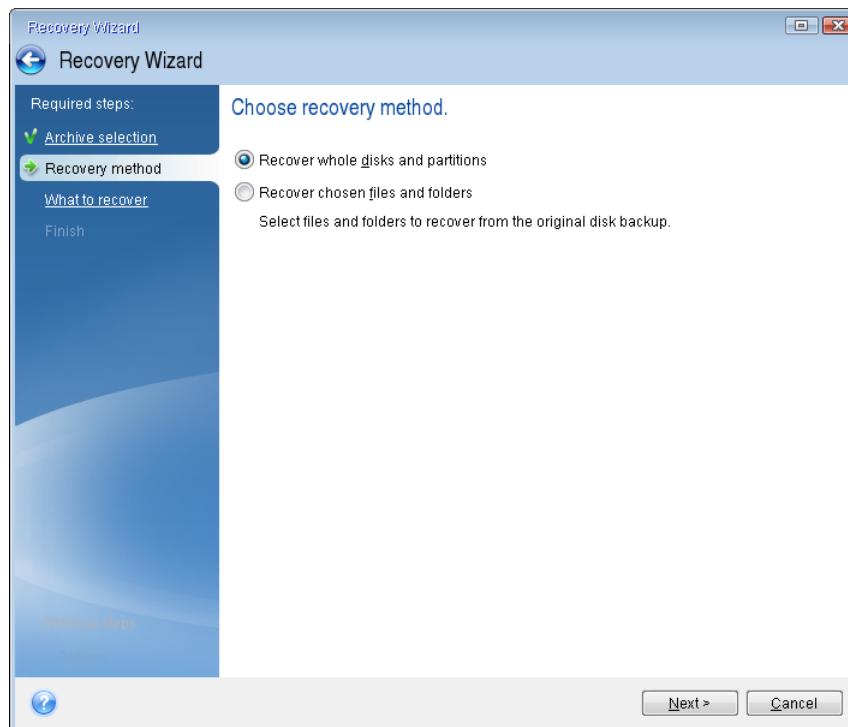


5. Select the system disk or partition backup to be used for recovery.

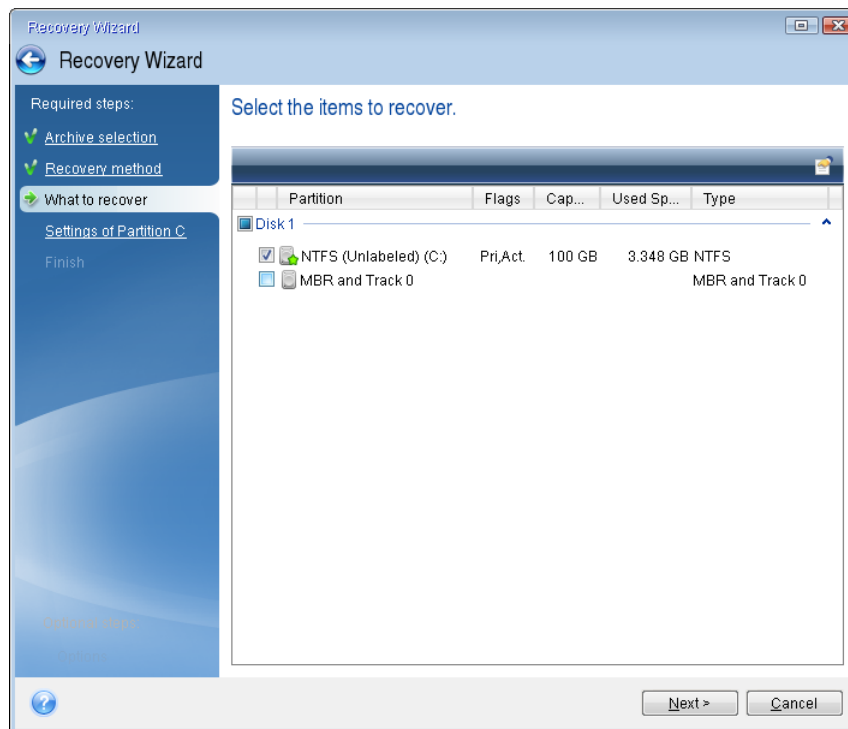
When the backup is not displayed, click **Browse** and specify path to the backup manually.

If the backup is located on a USB drive, and the drive is not recognized correctly, check the USB port version. If it is a USB 3.0 or USB 3.1, try connecting the drive to a USB 2.0 port.

6. Select **Recover whole disks and partitions** at the **Recovery method** step.

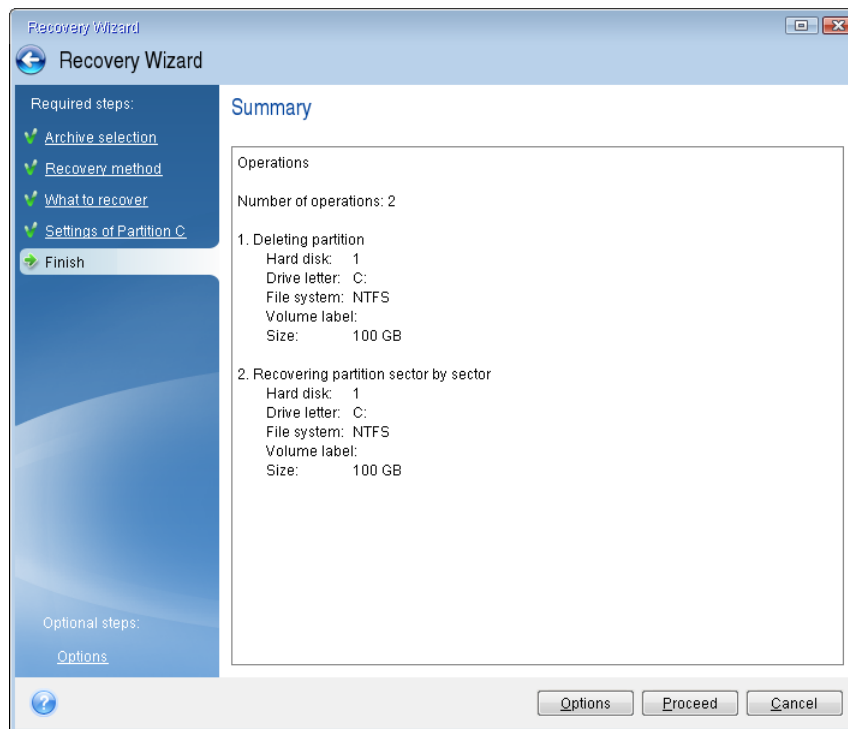


7. Select the system partition (usually C) on the **What to recover** screen. If the system partition has a different letter, select the partition using the **Flags** column. It must have the **Pri, Act** flags. If you have the System Reserved partition, select it, too.



8. At the "Settings of partition C" (or the letter of the system partition, if it is different) step check the default settings and click **Next** if they are correct. Otherwise, change the settings as required before clicking **Next**. Changing the settings will be needed when recovering to the new hard disk of a different capacity.

- Carefully read the summary of operations at the **Finish** step. If you have not resized the partition, the sizes in the **Deleting partition** and **Recovering partition** items must match. Having checked the summary click **Proceed**.



- When the operation finishes, exit the standalone version of Acronis True Image for Western Digital, remove the rescue media and boot from the recovered system partition. After making sure that you have recovered Windows to the state you need, restore the original boot order.

5.1.1.4 Recovering your system to a new disk under bootable media

Before you start, we recommend that you complete the preparations described in Preparing for recovery (p. 51). You do not need to format the new disk, as this will be done in the process of recovery.

Note: It is recommended that your old and new hard drives work in the same controller mode (for example, IDE or AHCI). Otherwise, your computer might not start from the new hard drive.

To recover your system to a new disk:

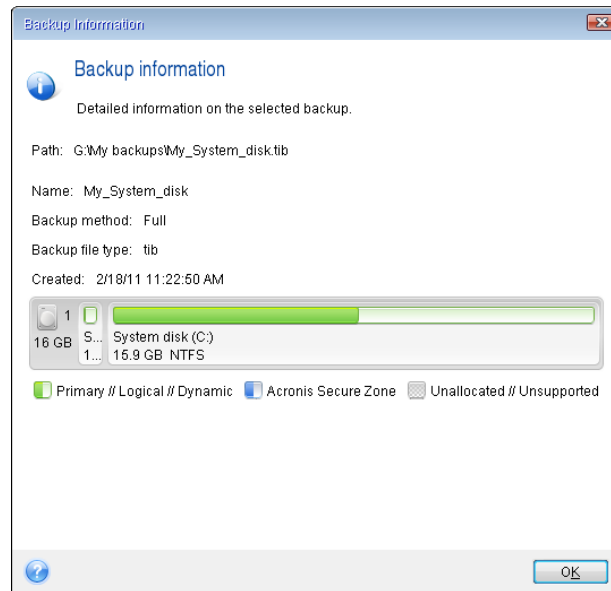
- Install the new hard drive to the same position in the computer and use the same cable and connector that was used for the original drive. If this is not possible, install the new drive to where it will be used.
- Attach the external drive if it contains the backup to be used for recovery and make sure that the drive is powered on.
- Arrange the boot order in BIOS so as to make your bootable media (CD, DVD or USB stick) the first boot device. See Arranging boot order in BIOS or UEFI BIOS (p. 63).

If you use an UEFI computer, please pay attention to the boot mode of the bootable media in UEFI BIOS. It is recommended that the boot mode matches the type of the system in the backup. If the backup contains a BIOS system, then boot the bootable media in BIOS mode; if the system is UEFI, then ensure that UEFI mode is set.
- Boot from the bootable media and select **Acronis True Image for Western Digital**.
- On the **Home** screen, select **My disks** below **Recover**.

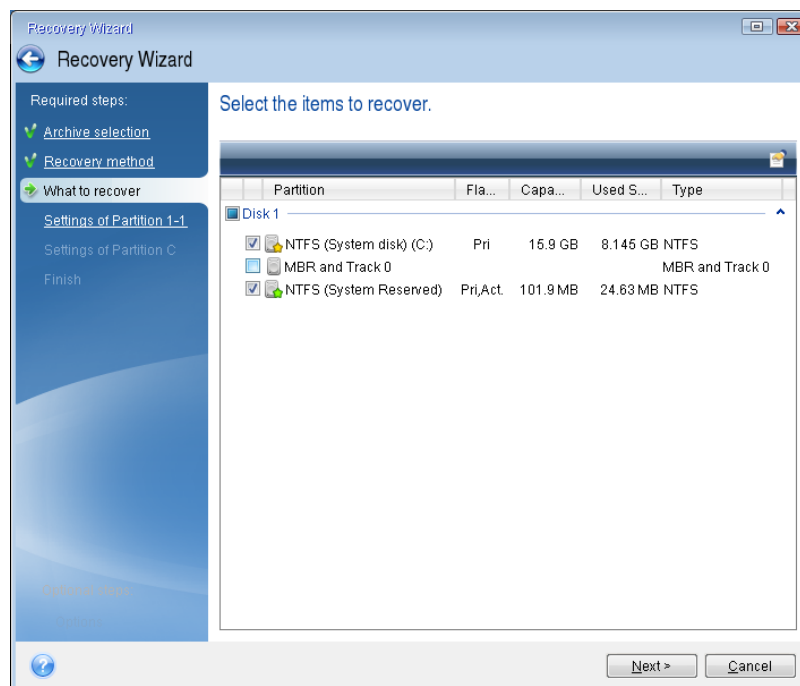
6. Select the system disk or partition backup to be used for recovery. When the backup is not displayed, click **Browse** and specify path to the backup manually.

If the backup is located on a USB drive, and the drive is not recognized correctly, check the USB port version. If it is a USB 3.0 or USB 3.1, try connecting the drive to a USB 2.0 port.

7. If you have a hidden partition (for example, the System Reserved partition or a partition created by the PC manufacturer), click **Details** on the wizard's toolbar. Please remember the location and size of the hidden partition, because these parameters need to be the same on your new disk.



8. Select **Recover whole disks and partitions** at the **Recovery method** step.
 9. On the **What to recover** step, select the boxes of the partitions to be recovered.
- If you select an entire disk, MBR and Track 0 of the disk will also be recovered.

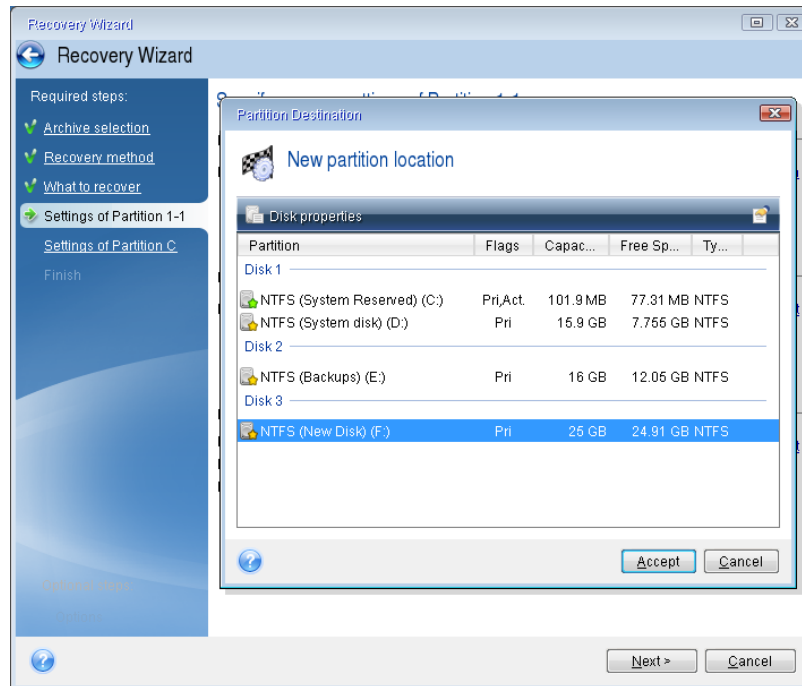


Selecting partitions leads to appearance of the relevant steps "Settings of partition ...". Note that these steps start with partitions which do not have an assigned disk letter (as usually is the case

with hidden partitions). The partitions then take an ascending order of partition disk letters. This order cannot be changed. The order may differ from the physical order of the partitions on the hard disk.

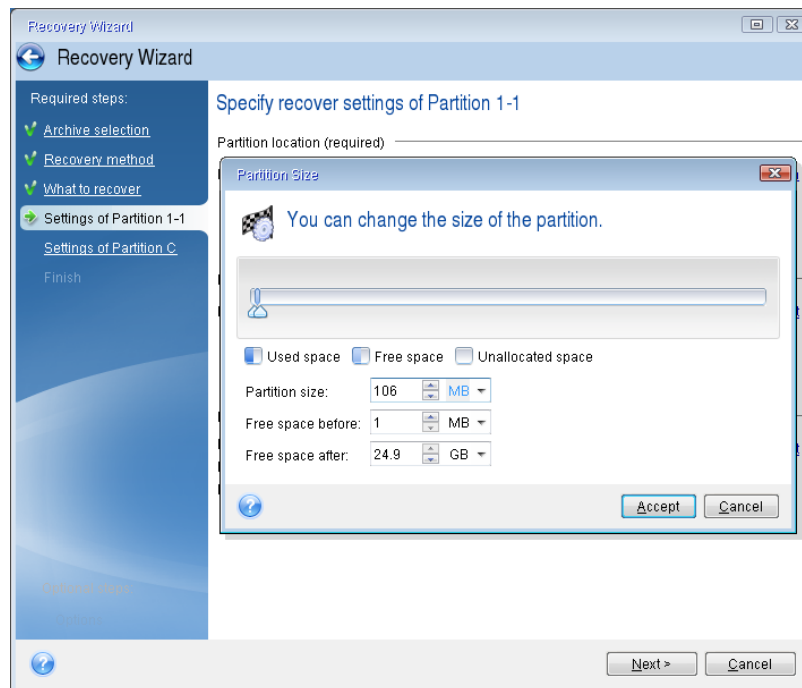
10. On the Settings of the hidden partition step (usually named Settings of Partition 1-1), specify the following settings:

- **Location.** Click **New location**, select your new disk by either its assigned name or capacity, and then click **Accept**.



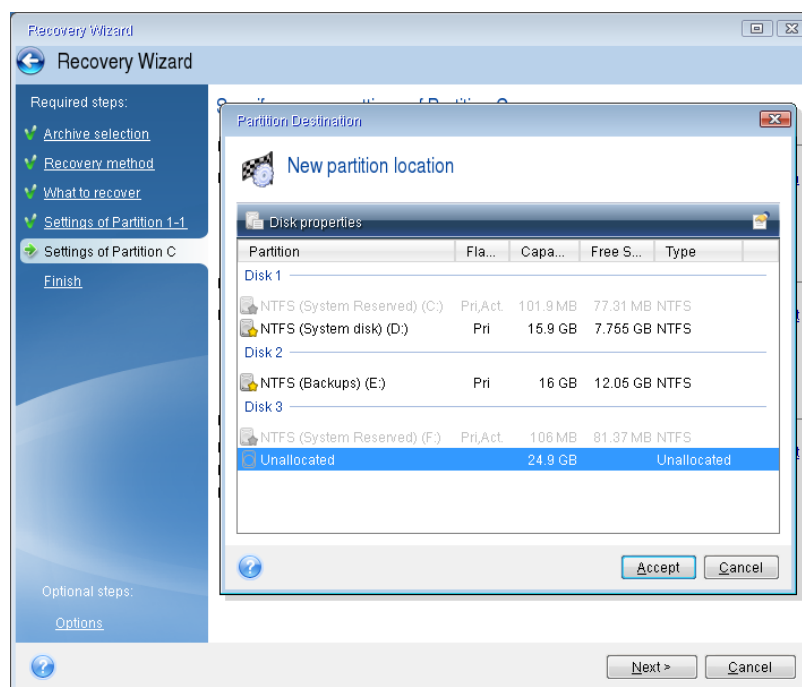
- **Type.** Check the partition type and change it, if necessary. Ensure that the System Reserved partition (if any) is primary and marked as active.

- **Size.** Click **Change default** in the Partition size area. By default the partition occupies the entire new disk. Enter the correct size in the Partition size field (you can see this value on the **What to recover** step). Then drag this partition to the same location that you saw in the Backup Information window, if necessary. Click **Accept**.



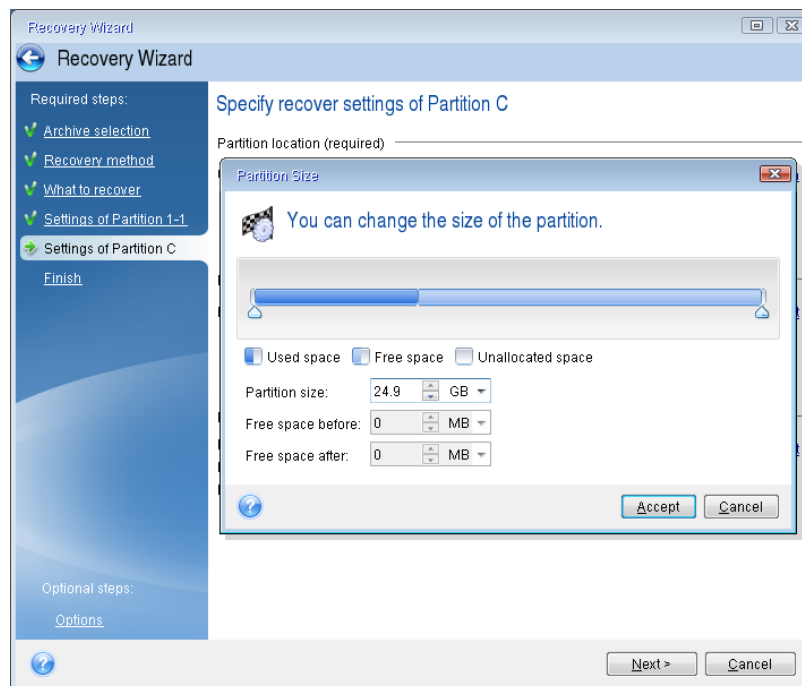
11. On the **Settings of Partition C** step, specify the settings for the second partition, which in this case is your system partition.

- Click **New location**, and then select unallocated space on the destination disk that will receive the partition.



- Change the partition type, if necessary. The system partition must be primary.

- Specify the partition size, which by default equals the original size. Usually there is no free space after the partition, so allocate all the unallocated space on the new disk to the second partition. Click **Accept**, and then click **Next**.



12. Carefully read the summary of operations to be performed and then click **Proceed**.

When the recovery is complete

Before you boot the computer, please disconnect the old drive (if any). If Windows "sees" both the new and old drive during the boot, this will result in problems booting Windows. If you upgrade the old drive to a larger capacity new one, disconnect the old drive before the first boot.

Remove the bootable media and boot the computer to Windows. It may report that new hardware (hard drive) is found and Windows needs to reboot. After making sure that the system operates normally, restore the original boot order.

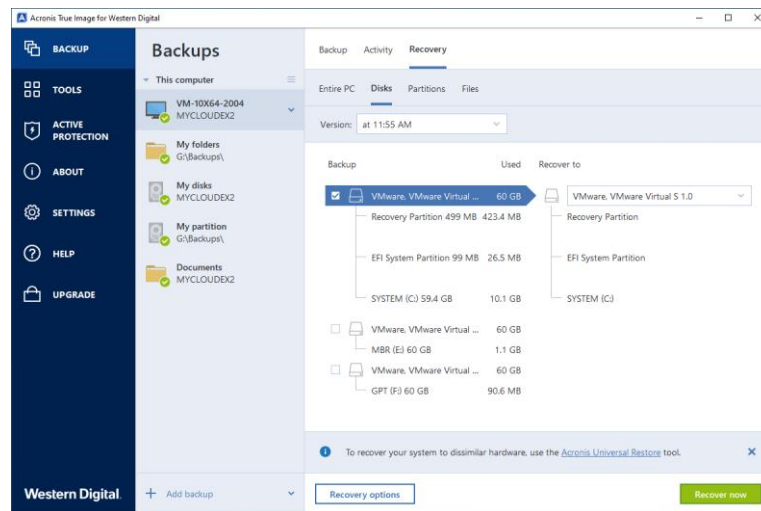
5.1.2 Recovering partitions and disks

You can recover your disks from backups located on local or network storages.

To recover partitions or disks:

1. Start Acronis True Image for Western Digital.
2. In the **Backup** section, select the backup which contains the partitions or disks you want to recover, then open the **Recovery** tab, and then click **Recover disks**.

3. In the **Backup version** list, select the backup version you want to recover by its backup date and time.



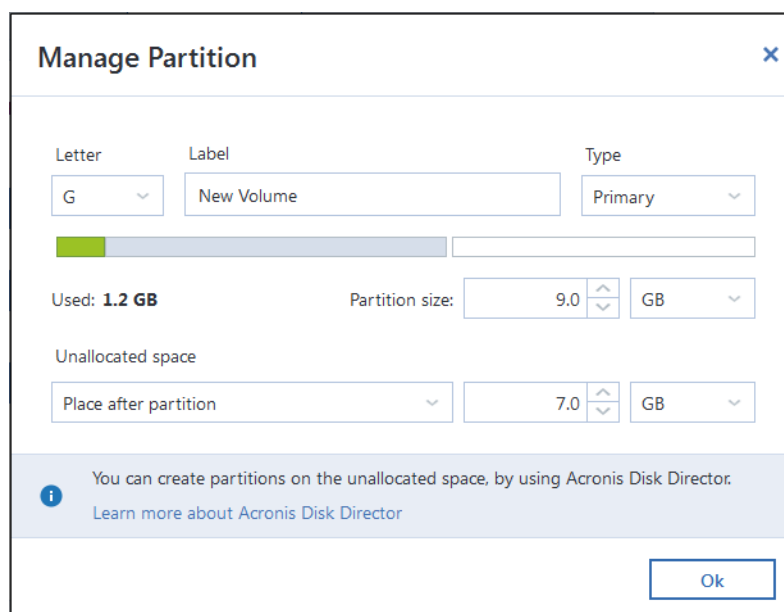
4. Select the **Disks** tab to recover disks or **Partitions** tab to recover specific partitions. Choose objects you need to recover.
5. In the recovery destination field below the partition name, select the destination partition. Unsuitable partitions are marked by a red border. Note that all data on the destination partition will be lost because it is replaced by the recovered data and file system.

*To recover to the original partition, at least 5 % of the partition space must be free. Otherwise, the **Recover now** button will be unavailable.*

6. [optional step] To set up additional parameters for the disk recovery process, click **Recovery options**.
7. After you finish with your selections, click **Recover now** to start recovery.

5.1.2.1 Partition properties

When you recover partitions to a basic disk, you can change properties of these partitions. To open the **Partition Properties** window, click **Properties** next to the selected target partition.



You can change the following partition properties:

- **Letter**
- **Label**
- **Type**
You can make the partition primary, primary active, or logical.
- **Size**
You can resize the partition by dragging the right-side border with your mouse, on the horizontal bar on the screen. To assign the partition a specific size, enter the appropriate number into the **Partition size** field. You can also select the position of unallocated space—before or after the partition.

5.1.3 About recovery of dynamic/GPT disks and volumes

Recovery of dynamic volumes

You can recover dynamic volumes to the following locations on the local hard drives:

- **Dynamic volume.**

Manual resizing of dynamic volumes during recovery to dynamic disks is not supported. If you need to resize a dynamic volume during recovery, it should be recovered to a basic disk.

 - **Original location (to the same dynamic volume).**
The target volume type does not change.
 - **Another dynamic disk or volume.**
The target volume type does not change. For example, when recovering a dynamic striped volume over a dynamic spanned volume the target volume remains spanned.
 - **Unallocated space of the dynamic group.**
The recovered volume type will be the same as it was in the backup.
- **Basic volume or disk.**
The target volume remains basic.
- **Bare-metal recovery.**
When performing a so called "bare-metal recovery" of dynamic volumes to a new unformatted disk, the recovered volumes become basic. If you want the recovered volumes to remain dynamic, the target disks should be prepared as dynamic (partitioned and formatted). This can be done using third-party tools, for example, Windows Disk Management snap-in.

Recovery of basic volumes and disks

- When recovering a basic volume to an unallocated space of the dynamic group, the recovered volume becomes dynamic.
- When recovering a basic disk to a dynamic disk of a dynamic group consisting of two disks, the recovered disk remains basic. The dynamic disk to which the recovery is performed becomes "missing" and a spanned/striped dynamic volume on the second disk becomes "failed".

Partition style after recovery

The target disk's partition style depends on whether your computer supports UEFI and on whether your system is BIOS-booted or UEFI-booted. See the following table:

	My system is BIOS-booted (Windows or Acronis Bootable Media)	My system is UEFI-booted (Windows or Acronis Bootable Media)
My source disk is MBR and my OS does not support UEFI	The operation will not affect neither partition layout nor bootability of the disk: partition style will remain MBR, the destination disk will be bootable in BIOS.	After operation completion, the partition style will be converted to GPT style, but the operating system will fail booting from UEFI, since your operating system does not support it.
My source disk is MBR and my OS supports UEFI	The operation will not affect neither partition layout nor bootability of the disk: partition style will remain MBR, the destination disk will be bootable in BIOS.	The destination partition will be converted to GPT style that will make the destination disk bootable in UEFI. See Example of recovery to UEFI system (p. 62).
My source disk is GPT and my OS supports UEFI	After operation completion, the partition style will remain GPT, the system will fail booting on BIOS, because your operating system cannot support booting from GPT on BIOS.	After operation completion, the partition style will remain GPT, the operating system will be bootable on UEFI.

Example of recovery procedure

See Example of recovery to a UEFI system (p. 62).

5.1.3.1 Example of recovery to a UEFI system

Here is an example for transferring a system with the following conditions:

- The source disk is MBR and the OS supports UEFI.
- The target system is UEFI-booted.
- Your old and new hard drives work in the same controller mode (for example, IDE or AHCI).

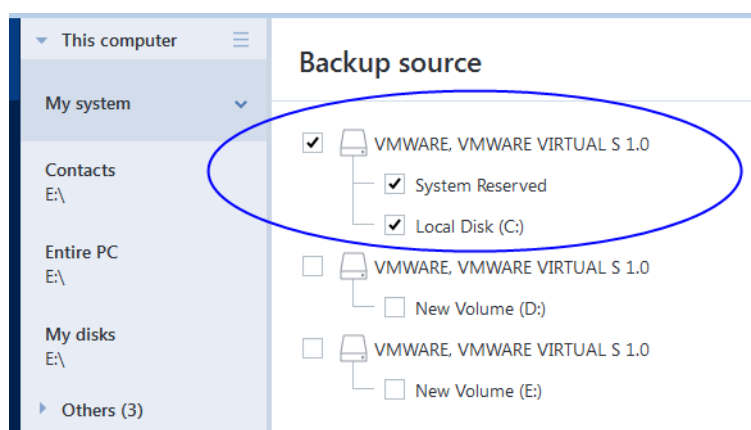
Before you start the procedure, please ensure that you have:

- **Acronis bootable media.**

Refer to Creating Acronis bootable media (p. 14) for details.

- **Backup of your system disk created in disk mode.**

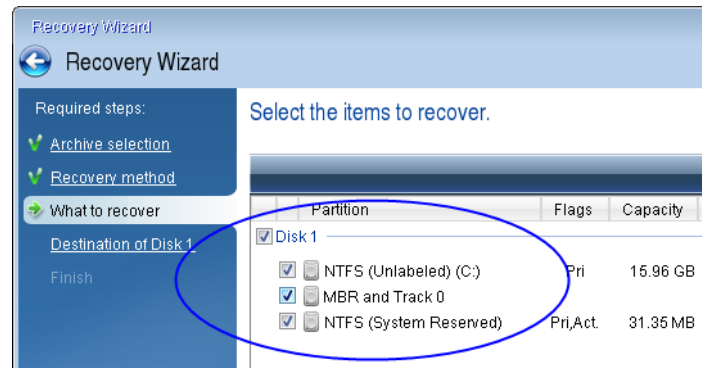
To create this backup, switch to disk mode, and then select the hard drive that contains your system partition. Refer to Backing up disks and partitions (p. 34) for details.



To transfer your system from an MBR disk to a UEFI-booted computer:

1. Boot from the Acronis bootable media in UEFI mode and select Acronis True Image.
2. Run the **Recovery wizard** and follow the instructions described in Recovering your system (p. 52).
3. On the **What to recover** step, select the check box next to the disk name to select the entire system disk.

In the example below, you need to select the **Disk 1** check box:



4. On the **Finish** step, click **Proceed**.

When the operation finishes, the destination disk is converted to GPT style so that it is bootable in UEFI.

After the recovery, please ensure that you boot your computer in UEFI mode. You may need to change the boot mode of your system disk in the user interface of the UEFI boot manager.

5.1.4 Arranging boot order in BIOS or UEFI BIOS

To boot your computer from Acronis bootable media, you need to arrange boot order so the media is the first booting device. The boot order is changed in BIOS or UEFI BIOS, depending on your computer firmware interface. The procedure in both cases is very similar.

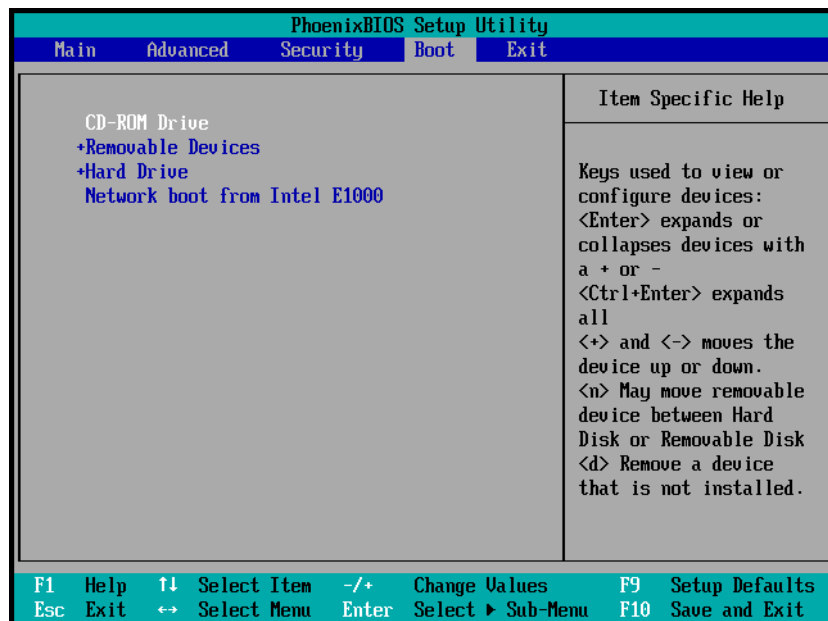
To boot from Acronis bootable media:

1. If you use a USB flash drive or external drive as a bootable media, plug it into the USB port.
2. Turn your computer on. During the Power-On Self Test (POST), you will see the key combination that you need to press in order to enter BIOS or UEFI BIOS.
3. Press the key combination (such as, **Del**, **F1**, **Ctrl+Alt+Esc**, **Ctrl+Esc**). The BIOS or UEFI BIOS setup utility will open. Note that utilities may differ in appearance, sets of items, names, etc.

*Some motherboards have a so-called boot menu opened by pressing a certain key or key combination, for instance, **F12**. The boot menu allows selecting the boot device from a list of bootable devices without changing the BIOS or UEFI BIOS setup.*

4. If you use a CD or DVD as a bootable media, insert it in the CD or DVD drive.
5. Make your bootable media (CD, DVD or USB drive) device the first booting device:
 1. Navigate to the Boot order setting by using the arrow keys on your keyboard.

- Place the pointer on the device of your bootable media and make it the first item in the list. You can usually use the Plus Sign and the Minus Sign keys to change the order.



- Exit BIOS or UEFI BIOS and save the changes that you made. The computer will boot from Acronis bootable media.

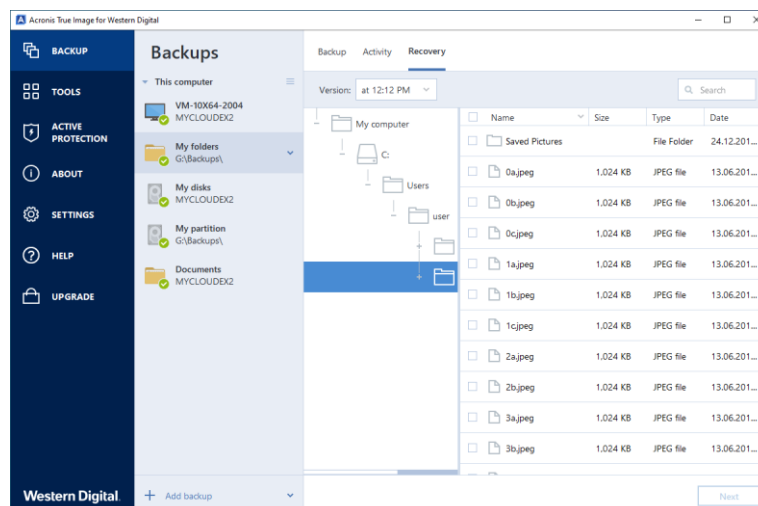
If the computer fails to boot from the first device, it tries to boot from the second device in the list, and so on.

5.2 Recovering files and folders

You can recover files and folders both from file-level and disk-level backups.

To recover files and folders:

- Start Acronis True Image for Western Digital.
- On the sidebar, click **Backup**.
- From the backup list, select the backup which contains the files or folders that you want to recover, and then open the **Recovery** tab.
- Select backup version (data state on specific date and time).
- Select the files and folders that you want to recover, and then click **Next**.



6. Select a destination on your computer to where you want to recover selected files/folders. You can recover data to its original location or choose a new one, if necessary. To choose a new location, click the **Browse** button.

When you choose a new location, the selected items will be recovered by default without recovering the original, absolute path. You may also wish to recover the items with their entire folder hierarchy. In this case select the **Keep the original folder structure** check box.

7. When needed, set the options for the recovery process (recovery process priority, file-level security settings, etc.). To set the options, click **Recovery options**. The options you set here will be applied only to the current recovery operation.
8. To start the recovery process, click the **Recover now** button.

You can stop the recovery by clicking **Cancel**. Please keep in mind that the aborted recovery may still cause changes in the destination folder.

Recovering files in File Explorer

To recover files and folders directly from File Explorer:

1. Double-click the corresponding .tib file, and then browse to the file or folder that you want to recover.
2. Copy the file or folder to a hard disk.

Note: The copied files lose the "Compressed" attribute. If you need to keep this attributes it is recommended to recover the backup.

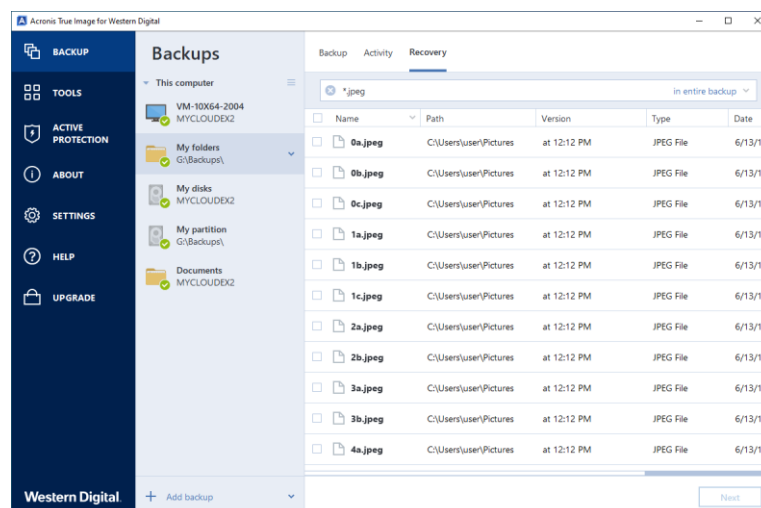
5.3 Searching backup content

While recovering data from local backups, you can search for specific files and folders stored in the selected backup.

To search for files and folders:

1. Start recovering data as described in Recovering partitions and disks (p. 59) or Recovering files and folders (p. 64).
2. When selecting files and folders to recover, enter the file or folder name into the **Search** field. The program shows search results.

You can also use the common Windows wildcard characters: * and ?. For example, to find all files with extension .exe, enter *.exe. To find all .exe files with names consisting of five symbols and starting with "my", enter My???.exe.



3. By default, Acronis True Image for Western Digital searches the folder selected on the previous step. To include the entire backup in the search, click the down arrow, and then click **in entire backup**.

To return to the previous step, delete the search text, and then click the cross icon.

4. After the search is complete, select the files that you want to recover, and then click **Next**.

Note: Pay attention to the Version column. The files and folders that belong to different backup versions cannot be recovered at the same time.

5.4 Recovery options

You can configure options for the disk/partition and file recovery processes. After you installed the application, all options are set to the initial values. You can change them for your current recovery operation only or for all further recovery operations as well. Select the **Save the settings as default** check box to apply the modified settings to all further recovery operations by default.

Note, that disk recovery options and file recovery options are fully independent, and you should configure them separately.

If you want to reset all the modified options to their initial values that were set after the product installation, click the **Reset to initial settings** button.

5.4.1 Disk recovery mode

Location: **Recovery options > Advanced > Disk recovery mode**

With this option you can select the disk recovery mode for image backups.

- **Recover sector-by-sector** - select this check box if you want to recover both used and unused sectors of disks or partitions. This option will be effective only when you choose to recover a sector-by-sector backup.

5.4.2 Pre/Post commands for recovery

Location: **Recovery options > Advanced > Pre/Post commands**

You can specify commands (or even batch files) that will be automatically executed before and after the recovery procedure.

For example, you may want to start/stop certain Windows processes, or check your data for viruses before recovery.

To specify commands (batch files):

- Select a command to be executed before the recovery process starts in the **Pre-command** field. To create a new command or select a new batch file, click the **Edit** button.
- Select a command to be executed after the recovery process ends in the **Post-command** field. To create a new command or select a new batch file, click the **Edit** button.

Please do not try to execute interactive commands, i.e. commands that require user input (for example, "pause"). These are not supported.

5.4.2.1 Edit user command for recovery

You can specify user commands to be executed before or after recovery:

- In the **Command** field type-in a command or select it from the list. Click ... to select a batch file.
- In the **Working directory** field type-in a path for command execution or select it from the list of previously entered paths.
- In the **Arguments** field enter or select command execution arguments from the list.

Disabling the **Do not perform operations until the command execution is complete** parameter (enabled by default), will permit the recovery process to run concurrently with your command execution.

The **Abort the operation if the user command fails** (enabled by default) parameter will abort the operation if any errors occur in command execution.

You can test the command you entered by clicking the **Test command** button.

5.4.3 Validation option

Location: **Recovery options > Advanced > Validation**

- **Validate backup before recovery**—Enable this option to check the backup integrity before recovery.
- **Check the file system after recovery**—Enable this option to check the file system integrity on the recovered partition.

Only FAT16/32 and NTFS file systems can be checked.

The file system will not be checked if a reboot is required during recovery, for example, when recovering the system partition to its original place.

5.4.4 Computer restart

Location: **Recovery options > Advanced > Computer restart**

If you want the computer to reboot automatically when it is required for recovery, select the **Restart the computer automatically if needed for the recovery** check box. This may be used when a partition locked by the operating system has to be recovered.

5.4.5 File recovery options

Location: **Recovery options > Advanced > File recovery options**

You can select the following file recovery options:

- **Recover files with their original security settings** - if the file security settings were preserved during backup (see File-level security settings for backup), you can choose whether to recover them or let the files inherit the security settings of the folder where they will be recovered to. This option is effective only when recovering files from file/folder backups.
- **Set current date and time for recovered files** - you can choose whether to recover the file date and time from the backup or assign the files the current date and time. By default the file date and time from the backup will be assigned.

5.4.6 Overwrite file options

Location: **Recovery options > Advanced > Overwrite file options**

Choose what to do if the program finds a file in the target folder with the same name as in the backup.

This option is available only while restoring files and folders (not disks and partitions).

Select the **Overwrite existing files** check box if you want to overwrite the files on the hard disk with the files from the backup. If the check box is cleared, the more recent files and folders will be kept on the disk.

If you do not need to overwrite some files:

- Select the **Hidden files and folders** check box to turn off overwriting of all hidden files and folders. This option is available for file-level backups to local destinations and network shares.
- Select the **System files and folders** check box to turn off overwriting of all system files and folders. This option is available for file-level backups to local destinations and network shares.
- Select the **More recent files and folders** check box to turn off overwriting of new files and folders.
- Click **Add specific files and folders** to manage the list of custom files and folders that you do not want to overwrite. This option is available for file-level backups to local destinations and network shares.
 - To turn off overwriting of specific files, click the plus sign to create an exclusion criterion.
 - While specifying the criteria, you can use the common Windows wildcard characters. For example, to preserve all files with extension **.exe**, you can add ***.exe**. Adding **My???.exe** will preserve all .exe files with names consisting of five symbols and starting with “my”.

To delete a criterion, select it in the list, and then click the minus sign.

5.4.7 Performance of recovery operation

Location: **Recovery options > Advanced > Performance**

You can configure the following settings:

Operation priority

Changing the priority of a backup or recovery process can make it run faster or slower (depending on whether you raise or lower the priority), but it can also adversely affect the performance of other running programs. The priority of any process running in a system, determines the amount of CPU usage and system resources allocated to that process. Decreasing the operation priority will free more resources for other CPU tasks. Increasing backup or recovery priority may speed up the process by taking resources from the other currently running processes. The effect will depend on total CPU usage and other factors.

You can set up the operation priority:

- **Low** (enabled by default) - the backup or recovery process will run slower, but the performance of other programs will be increased.
- **Normal** - the backup or recovery process will have the equal priority with other processes.
- **High** - the backup or recovery process will run faster, but the performance of other programs will be reduced. Be aware that selecting this option may result in 100% CPU usage by Acronis True Image for Western Digital.

5.4.8 Notifications for recovery operation

Location: **Recovery options > Notifications**

Sometimes a backup or recovery procedure can last an hour or longer. Acronis True Image for Western Digital can notify you when it is finished via e-mail. The program can also duplicate messages issued during the operation or send you the full operation log after operation completion.

By default all notifications are disabled.

Free disk space threshold

You may want to be notified when the free space on the backup storage becomes less than the specified threshold value. If after starting a backup Acronis True Image for Western Digital finds out that the free space in the selected backup location is already less than the specified value, the program will not begin the actual backup process and will immediately inform you by displaying an appropriate message. The message offers you three choices - to ignore it and proceed with the backup, to browse for another location for the backup or to cancel the backup.

If the free space becomes less than the specified value while the backup is being run, the program will display the same message and you will have to make the same decisions.

To set the free disk space threshold:

- Select the **Show notification message on insufficient free disk space** check box
- In the **Size** box, type or select a threshold value and select a unit of measure

Acronis True Image for Western Digital can monitor free space on the following storage devices:

- Local hard drives
- USB cards and drives
- Network shares (SMB/NFS)

*The message will not be displayed if the **Do not show messages and dialogs while processing (silent mode)** check box is selected in the **Error handling** settings.*

This option cannot be enabled for FTP servers and CD/DVD drives.

E-mail notification

You can specify an email account that will be used to send you email notifications.

To configure the email notifications:

1. Select the **Send e-mail notifications about the operation state** check box.
2. Configure email settings:
 - Enter the email address in the **To** field. You can enter several email addresses in a semicolon-delimited format.
 - Enter the outgoing mail server (SMTP) in the **Outgoing mail server (SMTP)** field.
 - Set the port of the outgoing mail server. By default the port is set to 25.
 - If required, select the **SMTP authentication** check box, and then enter the user name and password in the corresponding fields.
3. To check whether your settings are correct, click the **Send test message** button.

If the test message sending fails, then perform the following:

1. Click **Show extended settings**.

2. Configure additional email settings:

- Enter the e-mail sender address in the **From** field. If you are not sure what address to specify, then type any address you like in a standard format, for example *aaa@bbb.com*.
- Change the message subject in the **Subject** field, if necessary.
- Select the **Log on to incoming mail server** check box.
- Enter the incoming mail server (POP3) in the **POP3 server** field.
- Set the port of the incoming mail server. By default the port is set to 110.

3. Click the **Send test message** button again.

Additional notification settings:

- To send a notification concerning process completion, select the **Send notification upon operation's successful completion** check box.
- To send a notification concerning process failure, select the **Send notification upon operation failure** check box.
- To send a notification with operation messages, select the **Send notification when user interaction is required** check box.
- To send a notification with full log of operations, select the **Add full log to the notification** check box.

6 Acronis Active Protection

Acronis Active Protection is a technology that protects your data from ransomware and your computer from illicit cryptomining.

What is ransomware?

Ransomware is malicious software that blocks access to some of your files or your entire system, and then demands a ransom for unblocking. The software shows you a window informing you that your files are locked and that you have to pay urgently, otherwise you will not be able to access the files anymore. The message may also be disguised as an official statement from authorities, for example, the police. The purpose of the message is to frighten a user and make them pay without asking for help from an IT specialist or the authorities. Moreover, there is no guarantee that you will regain control over your data after paying the ransom.

Your computer can be attacked by ransomware when you visit unsafe websites, open email messages from unknown people, or when you click suspicious links in social networks or instant messages.

Ransomware can block your access to:

- **Entire computer**
You cannot use Windows or do anything on your computer. As a rule, ransomware does not encrypt your data in this case.
- **Specific files**
Usually, this is your personal data, such as documents, photographs, and videos. Ransomware encrypts the files and demands money for the encryption key, which is the only way to decrypt your files.
- **Applications**
Ransomware blocks some of your programs so that you cannot run them. It most often attacks your web browser.

What is illicit cryptomining?

Illicit cryptomining is the unauthorized use of someone else's computer to mine cryptocurrency. When you normally use your PC, the embedded cryptomining malware works in the background, performs calculations, and sends data to the cryptomining sites. The cryptomining malware does not change or encrypt your files, but its use of CPU resources may cause slower performance or lags in execution.

Your computer can be attacked by cryptomining malware when you visit unsafe websites, open email messages from unknown people, or when you click suspicious links in social networks or instant messages.

How Acronis True Image for Western Digital protects your data

To protect your computer from malicious software, Acronis True Image for Western Digital uses the Acronis Active Protection technology. Based on a heuristic approach, this technology monitors processes running on your computer by using the real-time mode. When it detects a third-party process that tries to encrypt your files, inject malicious code into a healthy process, or uses the CPU for mining cryptocurrency, it informs you about it and asks if you want to allow the process to keep running or to block the process. Refer to Protecting your computer from malware (p. 72) for details.

A heuristic approach is widely used in modern antivirus software as an effective way to protect data from malware. As opposed to the signature-based approach which can detect only one sample, heuristics detects malware families that include samples with similar behavior. Another advantage of this approach is an ability to detect new kinds of malware that do not have a signature yet.

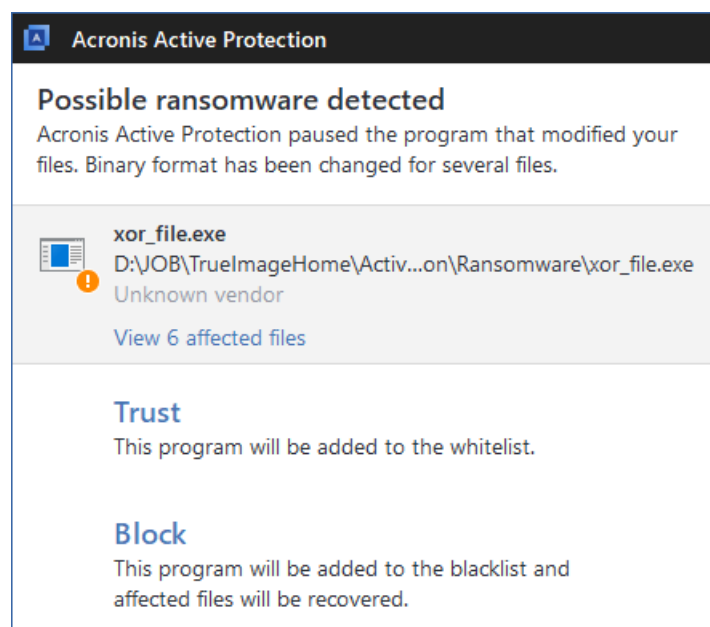
Acronis Active Protection uses behavioral heuristics and analyzes chains of actions done by a program, which is then compared with the chain of events in a database of malicious behavior patterns. Since this method is not precise, it admits so-called false positives, when a trusted program is detected as malware. To eliminate such situations, Acronis Active Protection asks you if you trust the detected process, so you can add it to the permission list and set the default action for this process by marking it as trusted or blocked. If you do not trust the process, you will be able to blacklist it. In this case, that process will be blocked every time it tries to resume the malicious activity.

To collect as many as possible different patterns, Acronis Active Protection uses Machine Learning. This technology is based on mathematical processing of big data received through telemetry. It is a self-learning approach, because the more data is processed, the more precisely a process may be detected as ransomware or not.

In addition to your files, Acronis Active Protection protects the application files of Acronis True Image for Western Digital, your backups, archives, and Master Boot Record of your hard drive.

6.1 Protecting your computer from malware

When the Acronis Active Protection service is on, it monitors the processes running on your computer by using the real-time mode. When it detects a third-party process that tries to encrypt your files or mine cryptocurrency, the service informs you about it and asks if you want to allow the process to continue or block the process.



To allow the process to continue the activity, click **Trust**. The process will be added to the whitelist. If you are not sure if the process is safe and legal, we recommend that you click **Block**. After this, the process will be blacklisted and blocked every time it tries to modify files on your computer or mine cryptocurrency. You can manage both the whitelist and blacklist in **Manage processes** tab.

In case of ransomware, you can view the list of files that the process is going to modify, before you make your decision.

After blocking the process, we recommend that you check if your files have been encrypted or corrupted in any way. If this is the case, click **Recover modified files**. Acronis True Image for Western Digital will search the latest file versions and recover the files from one of the following:

- Temporary file copies that were preliminarily created during the process verification
- Local backups

To make this action the default, select the **Automatically recover files after blocking a process** check box.

Additionally, watch the English-language video instructions at <https://goo.gl/wUNo6t>.

6.2 Managing Acronis Active Protection

When the Acronis Active Protection service is on, it monitors the processes running on your computer by using the real-time mode. When it detects a third-party process that tries to encrypt your files or mine cryptocurrency, the service informs you about it and asks if you want to allow the process to continue or block the process. Refer to Acronis Active Protection (p. 71) for details.

You can configure Acronis Active Protection settings and control the protection process from several places:

- Acronis Active Protection dashboard
- Acronis Active Protection settings page

You can turn Acronis Active Protection on or off only in Acronis True Image for Western Digital. You cannot stop the process manually through Task Manager or any other external tool.

Acronis Active Protection dashboard

The dashboard represents a number of statistical data on the protection process and allows you to configure the main Acronis Active Protection settings, such as the permission lists and exclusions.

To open the dashboard, start Acronis True Image for Western Digital, and then click **Active Protection** on the sidebar.

The dashboard allows you to:

- Turn the Acronis Active Protection service on and off
- Manage the permission processes list
This list allows you to trust or block applications.
- Manage the monitored processes list
View this list and specify permissions for the monitored processes.
- See in real-time mode the current number of monitored and total processes
- View summary information on the service operation
- Read the data protection-related articles

Acronis Active Protection settings page

To configure Acronis Active Protection:

1. Start Acronis True Image for Western Digital.

2. On the sidebar, click **Active Protection**, and then click **Settings**.
3. The page contains the following settings:
 - **Automatically recover files after blocking a process**—When you block a process, there is still possibility that your files were modified. If this check box is selected, Acronis True Image for Western Digital recovers the files from their temporary copies or your backups, after blocking a process.
 - **Protect Acronis True Image files from ransomware**—Acronis True Image for Western Digital will protect its own processes, and your backups and archives, from ransomware.
 - **Ask to move potential threats to quarantine (experimental)**—When a suspicious process is detected and you decide to block it, Acronis True Image for Western Digital will suggest moving the application file to quarantine. Refer to Ransomware quarantine (p. 74) for details.
 - **Protect network shares and NAS**—Acronis True Image for Western Digital will monitor and protect network shares and NAS devices you have an access to. You can also specify a recovery location for files affected by a ransomware attack.
 - **Protect your computer from illicit cryptomining**—Select this check box to defend your computer from cryptomining malware.
 - **Manage exclusions**—Click to manage the list of items to be excluded from Acronis Active Protection monitoring. You can specify folders or individual files.

6.3 Ransomware quarantine

Quarantine is a special storage that is used to isolate blocked applications from your computer and data. When you place an application file in quarantine, the risk of potential harmful actions from the blocked application is minimized.

Initially, there is no quarantine folder on your computer. Acronis True Image for Western Digital creates it when you sequentially perform the following steps:

1. Select the **Ask to move potential threats to quarantine (experimental)** check box in the Active Protection settings.
Refer to Managing Acronis Active Protection (p. 73) for details.
2. When Acronis True Image for Western Digital detects a suspicious process and informs you about it, you decide whether to place the corresponding application in quarantine.
Refer to Protecting your computer from malware (p. 72) for details.

A quarantine is created in the root folder of the partition where the attacked files were stored, for example *C:\Acronis Active Protection Storage\Quarantine*. When you place a file in the quarantine, you can still operate it as an ordinary file—move it to another location, copy, or delete it. Be aware, that Acronis True Image for Western Digital moves files to quarantine—it does not copy them. When you delete a file from quarantine, you delete it permanently, and it cannot be restored. If you place an application file in quarantine by mistake, you can still copy or move the file to its original location on your computer. The application will continue working normally.

7 Disk cloning and migration

This operation copies the entire contents of one disk drive to another disk drive. This may be necessary, for example, when you want to clone your operating system, applications, and data to a new, larger capacity disk. You can do it two ways:

- Use the Clone disk utility (p. 75).
- Back up your old disk drive, and then recover it to the new one (p. 55).

In this section

Disk cloning utility	75
Migrating your system from an HDD to an SSD	80

7.1 Disk cloning utility

The Clone disk utility allows you to clone your hard disk drive by copying the partitions to another hard disk.

Note The Clone disk utility is available only when a Western Digital brand storage device is attached to your system.

Please read before you start:

- When you want to clone your system to a higher-capacity hard disk, we recommend that you install the target (new) drive where you plan to use it and the source drive in another location, e.g. in an external USB enclosure. This is especially important for laptops.

Note It is recommended that your old and new hard drives work in the same controller mode (for example, IDE or AHCI). Otherwise, your computer might not start from the new hard drive.

Note If you clone a disk with Windows to an external USB hard drive, you might not be able to boot from it. We recommend cloning to an internal SSD or HDD instead.

- The Clone disk utility does not support multiboot systems.
- On program screens, damaged partitions are marked with a red circle and a white cross inside in the upper left corner. Before you start cloning, you should check such disks for errors and correct the errors by using the appropriate operating system tools.
- We strongly recommend that you create a backup of the entire original disk as a safety precaution. It could be your data saver if something goes wrong with your original hard disk during cloning. For information on how to create such a backup, see Backing up partitions and disks (p. 34). After creating the backup, make sure that you validate it.

7.1.1 Clone Disk wizard

Before you start, we recommend that you read general information about Disk cloning utility (p. 75).

If you use an UEFI computer and you decided to start the cloning procedure under bootable media, please pay attention to the boot mode of the bootable media in UEFI BIOS. It is recommended that the boot mode matches the type of the system in the backup. If the backup contains a BIOS system, then boot the bootable media in BIOS mode; if the system is UEFI, then ensure that UEFI mode is set.

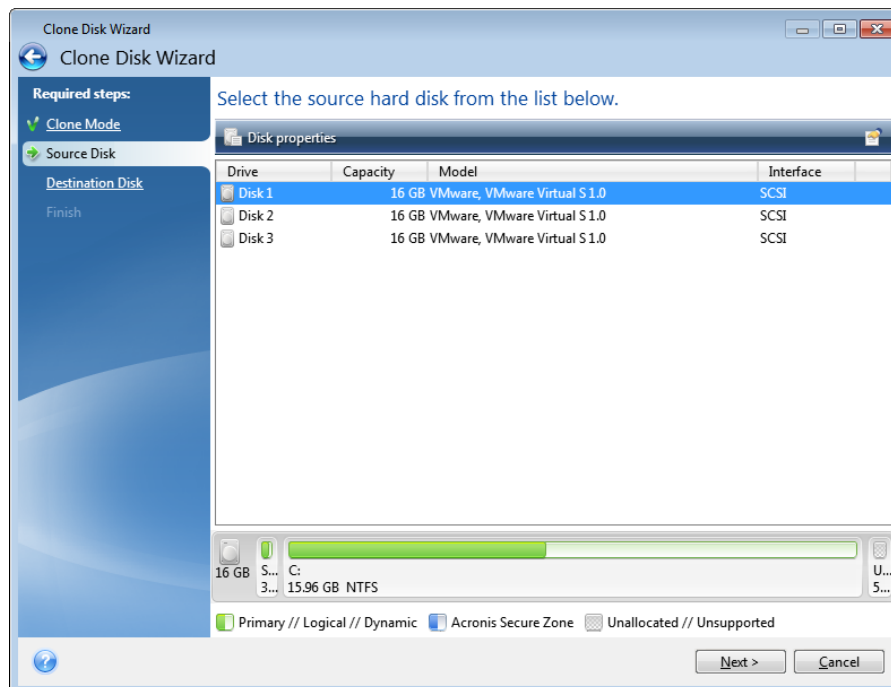
To clone a disk:

1. Start Acronis True Image for Western Digital.

2. On the sidebar, click **Tools**, and then click **Clone disk**.
3. On the **Clone Mode** step, choose a transfer mode.
 - **Automatic**—Recommended in most cases.
 - **Manual**—Manual mode will provide more data transfer flexibility. Manual mode can be useful if you need to change the disk partition layout.

If the program finds two disks, one partitioned and another unpartitioned, it will automatically recognize the partitioned disk as the source disk and the unpartitioned disk as the destination disk. In such case, the next steps will be bypassed and you will be taken to the cloning Summary screen.

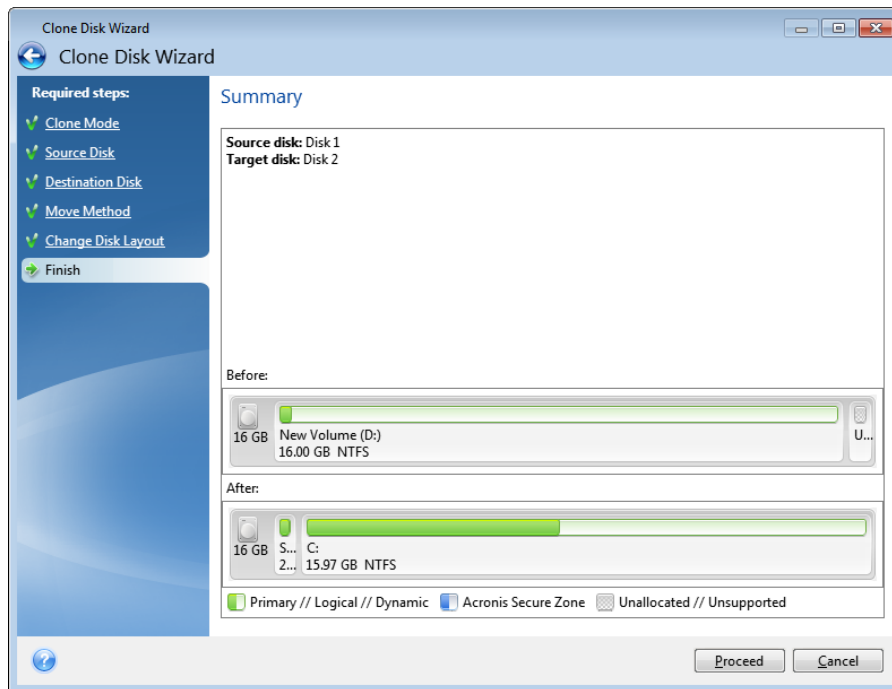
4. On the **Source Disk** step, select the disk that you want to clone.



Acronis True Image for Western Digital does not support cloning of dynamic disks.

5. On the **Destination Disk** step, select the destination disk for the cloned data.
 If the selected destination disk contains partitions, you will need to confirm deletion of the partitions. Note that the real data destruction will be performed only when you click **Proceed** on the last step of the wizard.
-
- If any disk is unpartitioned, the program will automatically recognize it as the destination and bypass this step.*
-
6. [This step is only available in the manual cloning mode]. On the **Move method** step, choose a data move method.
 - **As is**—a new partition will be created for every old one with the same size and type, file system and label. The unused space will become unallocated.
 - **Proportional**—the new disk space will be proportionally distributed between cloned partitions.
 - **Manual**—you will specify a new size and other parameters yourself.
 7. [This step is only available in the manual cloning mode]. On the **Change disk layout** step, you can edit settings of the partitions that will be created on the destination disk. Refer to Manual partitioning (p. 78) for details.

8. [Optional step] On the **What to exclude** step, you can specify files and folders that you do not want to clone. Refer to Excluding items from cloning (p. 79) for details.
9. On the **Finish** step, ensure that the configured settings suit your needs, and then click **Proceed**.

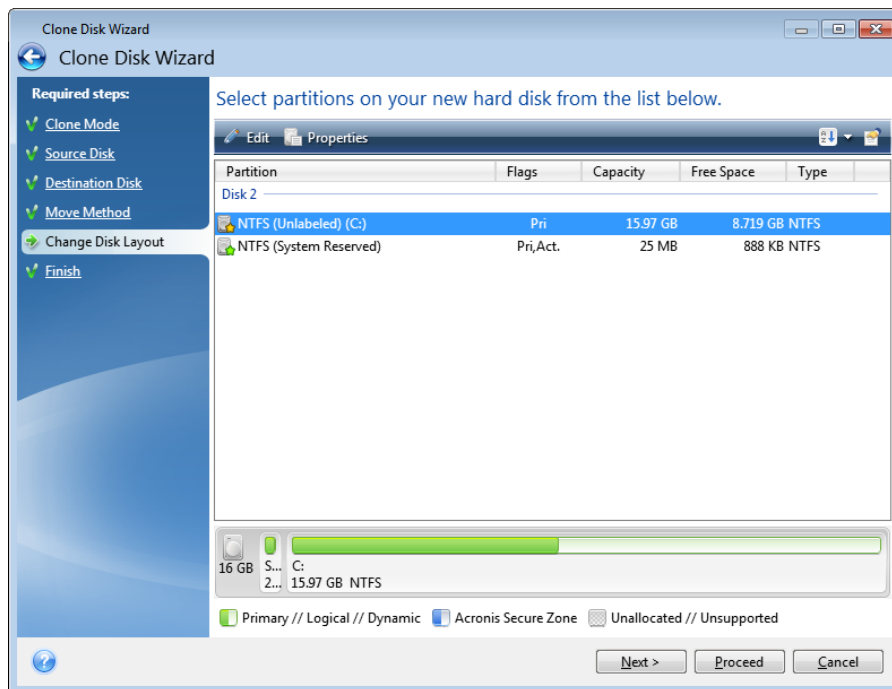


If the cloning operation is stopped for some reason, you will have to configure and start the procedure again. You will not lose your data, because Acronis True Image for Western Digital does not alter the original disk and data stored on it during cloning.

By default, Acronis True Image for Western Digital shuts down the computer after the clone process finishes. This enables you to change the position of master/subordinate jumpers and remove one of the hard drives.

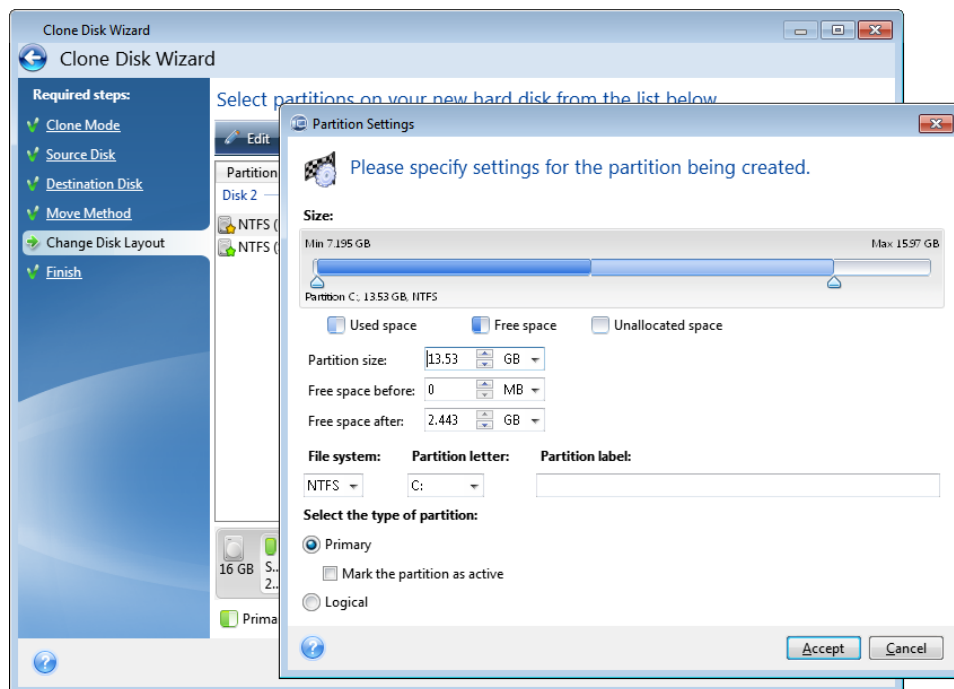
7.1.2 Manual partitioning

The manual transfer method enables you to resize partitions on the new disk. By default, the program resizes them proportionally.



To edit a partition:

1. Select the partition, and then click **Edit**. This will open the Partition Settings window.



2. Specify the following settings for the partition:
 - Size and position
 - File system

- Partition type (available only for MBR disks)
- Partition letter and label

Refer to Partition settings (p. 96) for details.

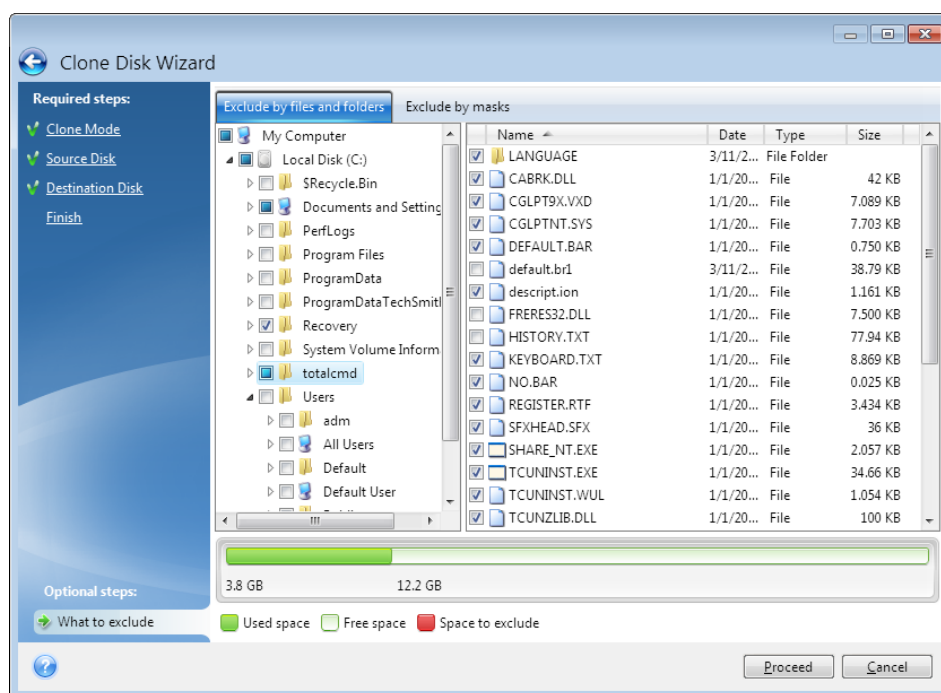
3. Click **Accept**.

 **Be careful!** Clicking any previous wizard step on the sidebar in this window will reset all size and location changes that you've selected, so you will have to specify them again.

7.1.3 Excluding items from cloning

If you do not want to clone specific files from a source disk (for example, when your target disk is smaller than the source one), you can opt to exclude them in the **What to exclude** step.

We do not recommend excluding hidden and system files when cloning your system partition.



You have two ways to exclude files and folders:

- **Exclude by files and folders** - this tab allows you to select specific files and folders from the folder tree.
- **Exclude by masks** - this tab allows you to exclude a group of files by mask or an individual file by name or path.

To add an exclusion criterion, click **Add**, type a file name, a path or a mask, and then click **OK**. You can add as many files and masks as you like.

Examples of exclusion criteria:

- You can enter explicit file names:
 - `file.ext` - all such files will be excluded from cloning.
 - `C:\file.ext` - the file.ext file on the C: disk will be excluded.
- You can use wildcard characters (* and ?):
 - `*.ext` - all files with a .ext extension will be excluded.

- *??name.ext* - all files with a .ext extension, having six letters in their names (starting with any two symbols (??) and ending with *name*), will be excluded.
- You can enter path to a folder:
 - *C:\my pictures - my pictures* folder on the C: disk will be excluded.

You can edit and remove exclusion criteria using the corresponding buttons on the right pane.

7.2 Migrating your system from an HDD to an SSD

First of all, make sure that Acronis True Image for Western Digital detects your new SSD both in Windows and under the Acronis bootable media. If there is a problem, see What to do if Acronis True Image for Western Digital does not recognize your SSD (p. 80).

SSD size

As SSDs usually have less capacity than HDDs, the occupied space on your old hard disk may exceed the size of your SSD. If this is the case, migration is not possible.

To reduce amount of data on your system disk, try the following:

- Move your data files from the old hard disk to another location, such as another hard disk drive, internal or external.
- Create .zip archives of data files (for example, your documents, pictures, audio files, etc.), and then delete the original files.
- Clean up the hard disk using the Windows Disk Cleanup utility.

Note that for stable operation, Windows needs to have several GB of free space on the system partition.

Which migration method to choose

If your system disk consists of a single partition (not counting the hidden System Reserved partition), you can try to migrate to the SSD using the Clone tool. For more information see Cloning a hard disk (p. 75).

However, we recommend to use the backup and recovery method in most cases. This method provides more flexibility and control over migration. See Migrating to an SSD using the backup and recovery method (p. 81).

7.2.1 What to do if Acronis True Image for Western Digital does not recognize your SSD

Sometimes Acronis True Image for Western Digital may not recognize an SSD.

In such a case, check whether the SSD is recognized in BIOS.

If the BIOS of your computer does not show the SSD, verify that the power and data cables are properly connected. You may also try to update the BIOS and SATA drivers. If these suggestions do not help, contact the Support of your SSD manufacturer.

If the BIOS of your computer does show the SSD, you can try the following procedure:

Depending on your operating system, type **cmd** in the Search field or in the Run field, and then press **Enter**.

At the command line prompt type:

diskpart

list disk The screen will show the disks connected to your computer. Find out the disk number for your SSD. Use its size as the reference.

select disk N Here N is the disk number of your SSD.

clean This operation removes all information from the SSD and overwrites the MBR with the default one.

exit

exit

Start Acronis True Image for Western Digital and check whether it detects the SSD. If it detects the SSD, use the Add new disk tool to create a single partition on the disk occupying the entire disk space. When creating a partition, check that the free space before partition is 1 MB. For more information, see Adding a new hard disk (p. 94).

The next step is to check whether your Acronis bootable media recognizes the SSD.

1. Boot from the Acronis bootable media.
2. Select **Tools & Utilities -> Add New Disk** in the main menu and the **Disk selection** screen will show the information about all hard disks in your system. Use this for checking whether the SSD is detected in the recovery environment.
3. If the screen shows your SSD, just click **Cancel**.

If the bootable media does not recognize the SSD and the SSD controller mode is AHCI, you can try to change the mode to IDE (or ATA in some BIOS brands) and see whether this solves the problem.

Attention! Do not start Windows after changing the mode; it may result in serious system problems. You must return the mode to AHCI before starting Windows.

If after changing the mode the bootable media detects the SSD, you may use the following procedure for recovery or cloning under bootable media:

1. Shut down the computer.
2. Boot to BIOS, change the mode from AHCI to IDE (or ATA in some BIOS brands).
3. Boot from Acronis bootable media.
4. Recover or clone the disk.
5. Boot to BIOS and change IDE back to AHCI.
6. Start Windows.

What to do if the above suggestions do not help

You can try to create a WinPE-based media. This may provide the necessary drivers. For more information, see Creating Acronis bootable media (p. 85).

7.2.2 Migrating to SSD using the backup and recovery method

You can use the following procedure for all supported operating systems. First, let's consider a simple case: your system disk consists of a single partition. Note that for Windows 7 and later, the system disk may have a hidden System Reserved partition.

We recommend that you migrate your system to an empty SSD that does not contain partitions (the disk space is unallocated). Note that if your SSD is new and has never been used before, it does not contain partitions.

To migrate your system to an SSD:

1. Start Acronis True Image for Western Digital.
2. Create Acronis bootable media, if you do not have it yet. To do this, in the **Tools** section, click **Create bootable media** and follow the instructions on the screen.
3. Back up your entire system drive (in the disk backup mode) to a hard disk other than your system hard disk and the SSD.
4. Switch off the computer and remove your system hard disk.
5. Mount the SSD into the slot where the hard disk was.

For some SSD brands you may need to insert the SSD into a PCI Express slot.

6. Boot from your Acronis bootable media.
7. Validate the backup to make sure that it can be used for recovery. To do this, click **Recovery** on the left pane and select the backup. Right-click, select **Validate Archive** in the shortcut menu and then click **Proceed**.
8. After the validation finishes, right-click the backup and select **Recover** in the shortcut menu.
9. Choose **Recover whole disks and partitions** at the Recovery method step and then click **Next**.
10. Select the system disk at the What to recover step.
11. Click **New location** and then select the SSD as the new location for your system disk, then click **Accept**.
12. At the next step click **Proceed** to start recovery.
13. After the recovery is complete, exit the standalone version of Acronis True Image for Western Digital.
14. Try to boot from the SSD and then make sure that Windows and applications work correctly.

If your system hard disk also contains a hidden recovery or diagnostic partition, as is quite often the case with notebooks, the procedure will differ. You will usually need to resize the partitions manually during recovery to the SSD. For instructions see Recovering a disk with a hidden partition (p. 55).

8 Tools

Acronis Tools and utilities include protection tools, mounting tools, clone disk utility, security and privacy utilities, and disk management utilities.

Protection tools

- **Rescue Media Builder** (p. 84)
Allows you to create a bootable media with Acronis products (or their specified components) installed on your computer.

Disk cloning

- **Clone disk** (p. 75)
Use Clone disk wizard if you need to clone your hard disk drive by copying the partitions to another hard disk.

Security and privacy

- **Acronis DriveCleanser** (p. 98)
Acronis DriveCleanser utility provides for secure destruction of data on your hard disk.
- **System Clean-up** (p. 101)
With the System Clean-up utility, you can clean up components (folders, files, registry sections, etc.), related to general system tasks. These Windows components retain evidence of user PC activity, so they too should be thoroughly wiped to maintain confidentiality.
- **Acronis Active Protection** (p. 71)
Acronis Active Protection protects your computer from ransomware. When this service detects a suspicious third-party process that tries to encrypt your files, you can block the process and recover the affected files.

Disk management

- **Add new disk** (p. 94)
Add new disk wizard helps you to add a new hard disk drive to your computer. You will be able to prepare the new hard disk drive by creating and formatting new partitions on this hard disk.

Image mounting

- **Mount image** (p. 108)
With this tool, you can explore a previously created image. You will be able to assign temporary drive letters to the partition images and easily access these images as ordinary, logical drives.
- **Unmount image** (p. 109)
With this tool, you can unmount the temporary logical drives you have created to explore an image.

8.1 Creating bootable rescue media

You can run Acronis True Image for Western Digital from a bootable media on a bare-metal system or a crashed computer that cannot boot. You can even back up disks on a non-Windows computer, copying all its data into the backup by imaging the disk in the sector-by-sector mode. To do so, you need bootable media that has a copy of the standalone Acronis True Image for Western Digital version installed on it.

How you can obtain bootable media:

- Use the installation CD, DVD, or USB flash drive of the boxed product.
 - Make a media bootable with Acronis Media Builder (p. 84):
 - Blank CD
 - Blank DVD
 - USB flash drive
- Note: The data it may contain will not be modified.
- Create an .iso image file to burn it afterwards onto a CD or DVD.
 - Create WinPE-based media with the Acronis plug-in.

8.2 Acronis Media Builder

Acronis Media Builder allows you to make a USB flash drive, external drive, or a blank CD/DVD bootable. In case Windows cannot start, use the bootable media to run a standalone version of Acronis True Image for Western Digital and recover your computer.

You can create several types of bootable media:

- **Acronis bootable media**
This type is recommended for most users.
- **WinPE-based media with the Acronis plug-in**
Running Acronis True Image for Western Digital in the preinstallation environment may provide better compatibility with your computer's hardware because the preinstallation environment uses Windows drivers.
We recommend that you create this type of media, when Acronis bootable media did not help you boot your computer.
To use this option, you need one of the following components to be installed:
 - Windows Automated Installation Kit (AIK).
This component is required for creating WinPE 3.0.
 - Windows Assessment and Deployment Kit (ADK).
This component is required for creating WinPE 4.0, WinPE 5.0, and WinPE 10.0.
- **WinRE-based media with the Acronis plug-in**
This type of bootable media is similar to WinPE-based media, but it has an important advantage—you do not need to download WADK or WAIK from the Microsoft website. Windows Recovery Environment is already included in Windows Vista and later versions of Windows. Acronis True Image for Western Digital uses these files from your system to create WinRE-based media. Similar to WinPE-based media, you can add your drivers for better compatibility with your hardware. However, WinRE-based media can be used only on the computer where it was created or on a computer with the same operating system.

Notes

- We recommend that you create a new bootable media after each Acronis True Image for Western Digital update.
- If you use non-optical media, the media must have a FAT16 or FAT32 file system.
- Acronis Media Builder supports only x64 WinPE 3.0, WinPE 4.0, WinPE 5.0, and WinPE 10.0.
- Your computer must have:
 - For WinPE 3.0—at least 256 MB RAM

- For WinPE 4.0—at least 512 MB RAM
- For WinPE 5.0—at least 1 GB RAM
- For WinPE 10.0—at least 512 MB RAM
- If Acronis Media Builder does not recognize your USB flash drive, you can try using the procedure described in the Acronis Knowledge Base article at <https://kb.acronis.com/content/1526>.
- When booting from the bootable media, you cannot perform backups to disks or partitions with Ext2/Ext3/Ext4, ReiserFS, and Linux SWAP file systems.
- When booting from the bootable media and using a standalone version of Acronis True Image for Western Digital, you cannot recover files and folders encrypted with the encryption available in Windows XP and later operating systems. For more information, see File-level security settings for backup. However, backups encrypted using the Acronis True Image for Western Digital encryption feature can be recovered.

8.2.1 Creating Acronis bootable media

To create Acronis bootable media:

1. Plug in a USB flash drive, or an external drive (HDD/SSD), or insert a blank CD or DVD.
2. Start Acronis True Image for Western Digital.
3. In the **Tools** section, click **Rescue Media Builder**.
4. Choose a creation method:
 - **Simple**—This is the easiest option. Acronis True Image for Western Digital will choose the optimal media type for your computer. If you use Windows 7 or a later version, WinRE-based media will be created.
 - **Advanced**—This option allows you to choose a media type. This means you can create the bootable media not only for your computer, but for a computer running a different Windows version. Refer to Acronis Media Builder (p. 84) for details.

If you select a Linux-based media, choose Acronis components to be placed on the media. Please ensure that the components that you select are compatible with the target computer architecture. Refer to Removable media settings for details.

If you select a WinRE-based or WinPE-based media, then:

- Select an architecture type of the media—32-bit or 64-bit. Note that 32-bit bootable media can work only on 32-bit computers, and 64-bit media is compatible with both 32-bit and 64-bit computers.
- Select a toolkit that you want to be used for creating the bootable media. If you choose WAIK or WADK and you do not have the selected kit installed on your computer, then you first need to download it from the Microsoft website, and then install the required components—Deployment Tools and Windows Preinstallation Environment (Windows PE).

If you already have WinPE files on your computer and they are stored in a non-default folder, then just specify their location and the Acronis plug-in will be added to the existing WinPE image.

- For better compatibility with your hardware, you can select drivers to be added to the media.
5. Select a destination for the media:
 - **CD**
 - **DVD**

- **External drive**
- **USB flash drive**

If your drive has an unsupported file system, Acronis True Image for Western Digital will suggest formatting it to FAT file system.

Warning! *Formatting permanently erases all data on a disk.*

- **ISO image file**

You will need to specify the .iso file name and the destination folder.

When the .iso file is created, you can burn it onto a CD or DVD. For example, in Windows 7 and later, you can do this by using a built-in burning tool. In File Explorer, double-click the created ISO image file, and then click **Burn**.

- **WIM image file** (available only for WinPE-based media)

Acronis True Image for Western Digital adds the Acronis plug-in to the .wim file from Windows AIK or Windows ADK. You will need to specify a name for the new .wim file and the destination folder.

To create a bootable media by using a .wim file, you first need to convert it to an .iso file. Refer to Creating an .iso file from a .wim file (p. 88) for details.

6. Click **Proceed**.

8.2.2 Acronis bootable media startup parameters

Here, you can set Acronis bootable media startup parameters in order to configure the media boot options for better compatibility with different hardware. Several options are available (nousb, nomouse, noapic, etc.). These parameters are provided for advanced users. If you encounter any hardware compatibility problems while testing boot from the Acronis bootable media, it may be best to contact Acronis Technical Support.

To add startup parameters:

- Enter a command into the **Parameters** field. You can type several commands, separated by spaces.
- Click **Next** to continue.

Additional parameters that can be applied prior to booting Linux kernel

Description

The following parameters can be used to load Linux kernel in a special mode:

- **acpi=off**

Disables ACPI and may help with a particular hardware configuration.

- **noapic**

Disables APIC (Advanced Programmable Interrupt Controller) and may help with a particular hardware configuration.

- **nousb**

Disables loading of USB modules.

- **nousb2**

Disables USB 2.0 support. USB 1.1 devices still work with this option. This option allows using some USB drives in USB 1.1 mode, if they do not work in USB 2.0 mode.

- **quiet**

This parameter is enabled by default and the startup messages are not displayed. Deleting it will result in the startup messages being displayed as the Linux kernel is loaded and the command shell being offered prior to running the Acronis program.

- **nodma**

Disables DMA for all IDE disk drives. Prevents kernel from freezing on some hardware.

- **nofw**

Disables FireWire (IEEE1394) support.

- **nopcmcia**

Disables PCMCIA hardware detection.

- **nomouse**

Disables mouse support.

- **[module name]=off**

Disables the module (e.g. **sata_sis=off**).

- **pci=bios**

Forces to use PCI BIOS, and not to access the hardware device directly. For instance, this parameter may be used if the machine has a non-standard PCI host bridge.

- **pci=nobios**

Disallows use of PCI BIOS; only direct hardware access methods are allowed. For instance, this parameter may be used if you experience crashes upon boot-up, probably caused by the BIOS.

- **pci=biosirq**

Uses PCI BIOS calls to get the interrupt routing table. These calls are known to be buggy on several machines and they hang the machine when used, but on other computers it is the only way to get the interrupt routing table. Try this option, if the kernel is unable to allocate IRQs or discover secondary PCI buses on your motherboard.

- **vga=ask**

Gets the list of the video modes available for your video card and allows selecting a video mode most suitable for the video card and monitor. Try this option, if the automatically selected video mode is unsuitable for your hardware.

8.2.3 Adding drivers to an existing .wim image

Sometimes a basic WinPE disk with Acronis Plug-in does not have drivers for your specific hardware, for example, for storage device controllers. The easiest way to add them is to select the Advanced mode in Rescue Media Builder (p. 85) and specify the drivers to add. You can add the drivers manually to an existing .wim file before creating an ISO file with Acronis Plug-in.

Attention! You can only add drivers which have the .inf filename extension.

The following procedure is based on an MSDN article that can be found at [https://technet.microsoft.com/en-us/library/dd799244\(WS.10\).aspx](https://technet.microsoft.com/en-us/library/dd799244(WS.10).aspx)

To create a custom Windows PE image, proceed as follows:

1. If you don't have the .wim file with the Acronis plug-in, start **Rescue Media Builder** and create it by choosing **WIM file** as a destination for the WinPE-based media. Refer to Creating Acronis bootable media (p. 85) for details.
2. Depending on your version of Windows AIK or Windows ADK, do one of the following:
 - In the **Start** menu, click **Microsoft Windows AIK**, right-click **Windows PE Tools Command Prompt**, and then select **Run as administrator**.
 - In the **Start** menu, click **Microsoft Windows AIK**, right-click **Deployment Tools Command Prompt**, and then select **Run as administrator**.
 - In the **Start** menu, click **Windows Kits**, click **Windows ADK**, right-click **Deployment and Imaging Tools Environment**, and then select **Run as administrator**.
3. Run the Copype.cmd script to create a folder with Windows PE files. For example, from a command prompt, type:


```
copype amd64 C:\winpe_x64
```
4. Copy your .wim file, for example, to folder C:\winpe_x64\. By default, this file is named AcronisBootablePEMedia.wim.
5. Mount the base image to a local directory by using the DISM tool. To do this, type:


```
Dism /Mount-Wim /WimFile:C:\winpe_x64\AcronisBootablePEMedia.wim /index:1 /MountDir:C:\winpe_x64\mount
```
6. Add your hardware driver, by using the DISM command with the Add-Driver option. For example, to add the Mydriver.inf driver located in folder C:\drivers\, type:


```
Dism /image:C:\winpe_x64\mount /Add-Driver /driver:C:\drivers\mydriver.inf
```
7. Repeat the previous step for each driver that you need to add.
8. Commit the changes by using the DISM command:


```
Dism /Unmount-Wim /MountDir:C:\winpe_x64\mount /Commit
```
9. Create a PE image (.iso file) from the resulting .wim file. Refer to Creating an .iso file from a .wim file for details.

8.2.4 Creating an .iso file from a .wim file

To create a bootable media by using a .wim file, you need to convert it to an .iso file first.

To create a PE image (.iso file) from the resulting .wim file:

1. Depending on your version of Windows AIK or Windows ADK, do one of the following:
 - In the **Start** menu, click **Microsoft Windows AIK**, right-click **Windows PE Tools Command Prompt**, and then select **Run as administrator**.
 - In the **Start** menu, click **Microsoft Windows AIK**, right-click **Deployment Tools Command Prompt**, and then select **Run as administrator**.
 - In the **Start** menu, click **Windows Kits**, click **Windows ADK**, right-click **Deployment and Imaging Tools Environment**, and then select **Run as administrator**.
2. Run the Copype.cmd script to create a folder with Windows PE files. For example, from a command prompt, type:


```
copype amd64 C:\winpe_x64
```
3. Replace the default boot.wim file in your Windows PE folder with the newly created .wim file (for example, AcronisBootablePEMedia.wim). If the AcronisBootablePEMedia.wim file is located on c:\, then:
For WinPE 3.0, type:


```
copy c:\AcronisBootablePEMedia.wim c:\winpe_x64\ISO\sources\boot.wim
```

For WinPE 4.0, WinPE 5.0 or WinPE 10.0, type:

```
copy "c:\AcronisBootablePEMedia.wim" c:\winpe_x64\media\sources\boot.wim
```

4. Use the **Oscdimg** tool. To create an .iso file, type:

```
oscdimg -n -bc:\winpe_x64\etfsboot.com c:\winpe_x64\ISO  
c:\winpe_x64\winpe_x64.iso
```

Alternatively, to make the media bootable on both BIOS and UEFI computers, type:

```
oscdimg -m -o -u2 -udfver102  
-bootdata:2#p0,e,bc:\winpe_x64\fwfiles\etfsboot.com#pEF,e,bc:\winpe_x64\fwfiles  
\efisys.bin c:\winpe_x64\media c:\winpe_x64\winpe_x64.iso
```

5. Burn the .iso file to a CD by using a third-party tool, and you will have a bootable Windows PE disc with Acronis True Image for Western Digital.

8.3 Making sure that your bootable media can be used when needed

To maximize the chances of your computer's recovery, you must test that your computer can boot from the bootable media. In addition, you must check that the bootable media recognizes all of your computer's devices, such as the hard drives, mouse, keyboard, and network adapter.

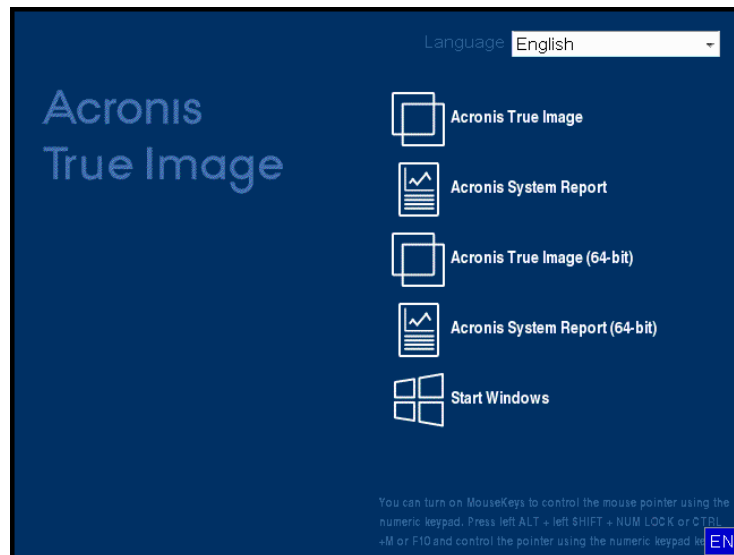
If you purchased a boxed version of the product that has a bootable CD and you did not update Acronis True Image for Western Digital, you can test this CD. Otherwise, please create a new bootable media. Refer to Creating Acronis bootable media (p. 85) for details.

To test the bootable media

If you use external drives for storing your backups, you must attach the drives before booting from the bootable CD. Otherwise, the program might not detect them.

1. Configure your computer to enable booting from the bootable media. Then, make your bootable media device (CD-ROM/DVD-ROM or USB drive) the first boot device. Refer to Arranging boot order in BIOS (p. 63) for details.
2. If you have a bootable CD, press any key to start booting from the CD, when you see the "Press any key to boot from CD" prompt. If you do not press a key within five seconds, you will need to restart the computer.
3. After the boot menu appears, choose **Acronis True Image for Western Digital**.

If your wireless mouse does not work, try replacing it with a wired one. The same recommendation applies to the keyboard.



4. When the program starts, we recommend that you try recovering some files from your backup. A test recovery allows you to make sure that your bootable CD can be used for recovery. In addition, you can make sure that the program detects all of the hard drives you have in your system.

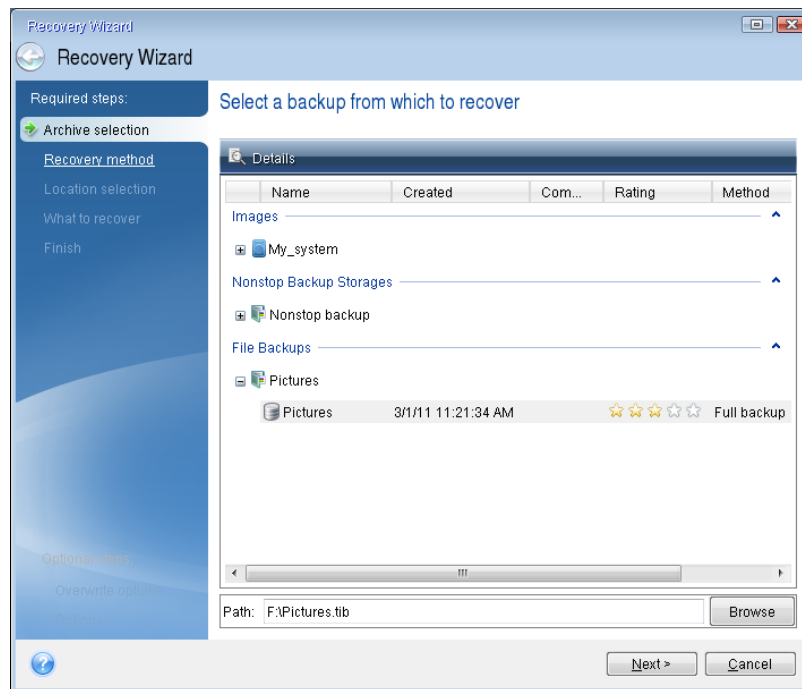
If you have a spare hard drive, we strongly recommend that you try a test recovery of your system partition to this hard drive.

How to test recovery, as well as check the drives and network adapter

1. If you have file backups, start Recovery Wizard by clicking **Recovery** -> **File Recovery** on the toolbar.

*If you have only disk and partition backup, Recovery Wizard also starts and the recovery procedure is similar. In such a case, you need to select **Recover chosen files and folders** at the **Recovery Method** step.*

2. Select a backup at the **Archive location** step, and then click **Next**.

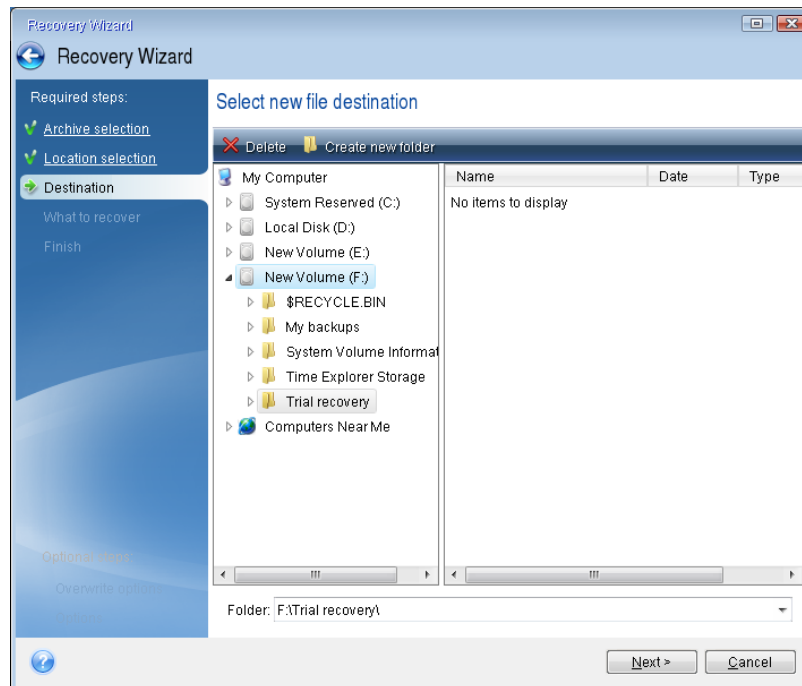


3. When recovering files with the bootable CD, you are able to select only a new location for the files to be recovered. Therefore, just click **Next** at the **Location selection** step.
4. After the **Destination** window opens, check that all of your drives are shown under **My Computer**.

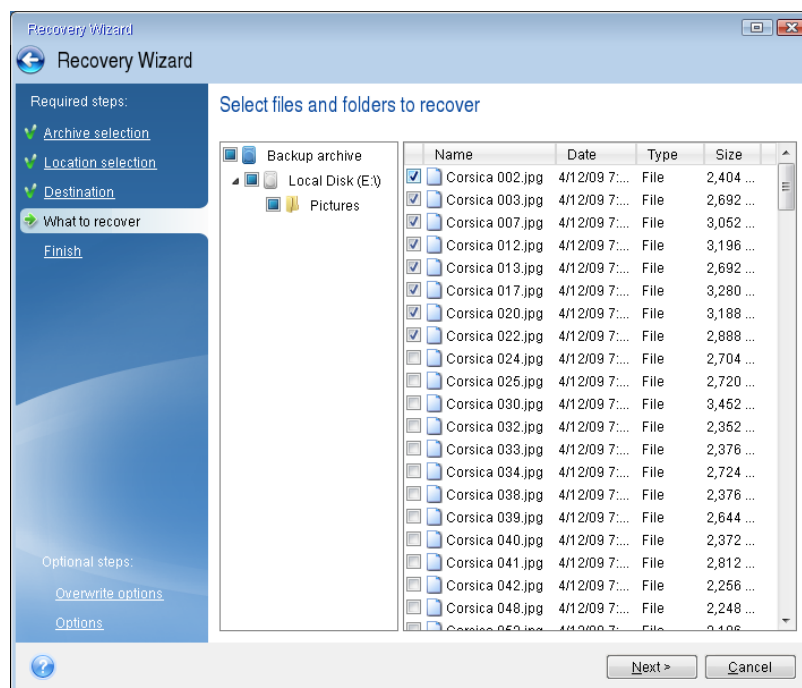
If you store your backups on the network, verify that you can access the network.

*If no computers are visible on the network, but the **Computers Near Me** icon is found under **My Computer**, specify the network settings manually. To do this, open the window available at **Tools & Utilities** → **Options** → **Network adapters**.*

If the **Computers Near Me** icon is not available under **My Computer**, there may be problems either with your network card or with the card driver provided with Acronis True Image for Western Digital.



5. Select the destination for the files, and then click **Next**.
6. Select several files for recovery by selecting their check boxes and then click **Next**.



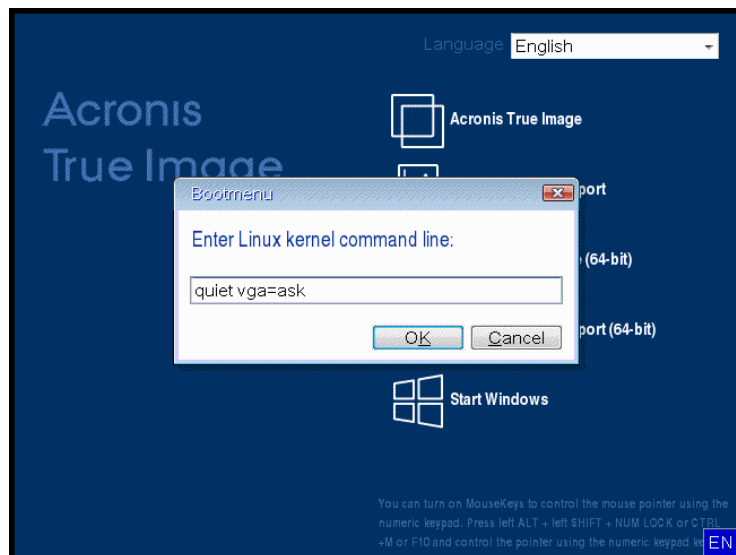
7. Click **Proceed** on the Summary window to start recovery.
8. After the recovery finishes, exit the standalone Acronis True Image for Western Digital.

Now, you can be reasonably sure that your bootable CD will help you when you need it.

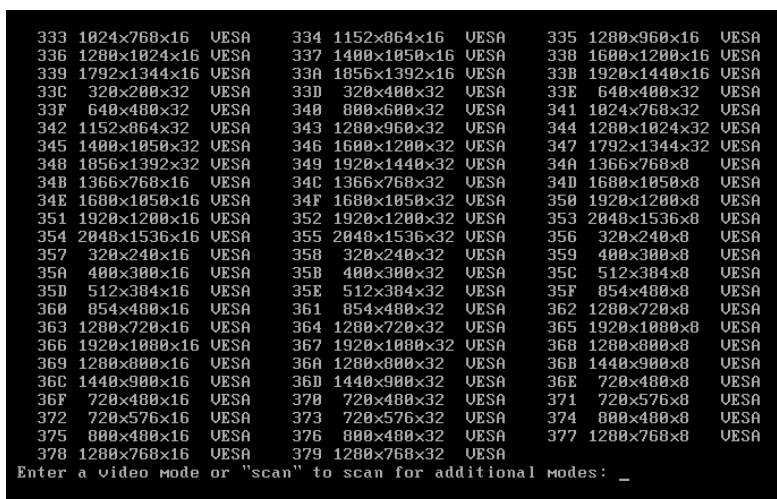
8.3.1 Selecting video mode when booting from the bootable media

When booting from the bootable media the optimal video mode is selected automatically depending on the specifications of your video card and monitor. However, sometimes the program can select the wrong video mode, which is unsuitable for your hardware. In such case you can select a suitable video mode as follows:

1. Start booting from the bootable media. When the boot menu appears, hover the mouse over **Acronis True Image for Western Digital** item and press the F11 key.
2. When the command line appears, type "vga=ask" (without quotes) and click **OK**.



3. Select **Acronis True Image for Western Digital** in the boot menu to continue booting from the bootable media. To see the available video modes, press the Enter key when the appropriate message appears.
4. Choose a video mode you think best suitable for your monitor and type its number in the command line. For instance, typing 338 selects video mode 1600x1200x16 (see the below figure).



5. Wait until Acronis True Image for Western Digital starts and make sure that the quality of the Welcome screen display on your monitor suits you.

To test another video mode, close Acronis True Image for Western Digital and repeat the above procedure.

After you find the optimal video mode for your hardware, you can create a new bootable media that will automatically select that video mode.

To do this, start Acronis Media Builder, select the required media components, and type the mode number with the "0x" prefix (0x338 in our instance) in the command line at the "Bootable media startup parameters" step, then create the media as usual.

8.4 Adding a new hard disk

If you do not have enough space for your data, you can either replace the old disk with a new higher-capacity one, or add a new disk only to store data, leaving the system on the old disk.

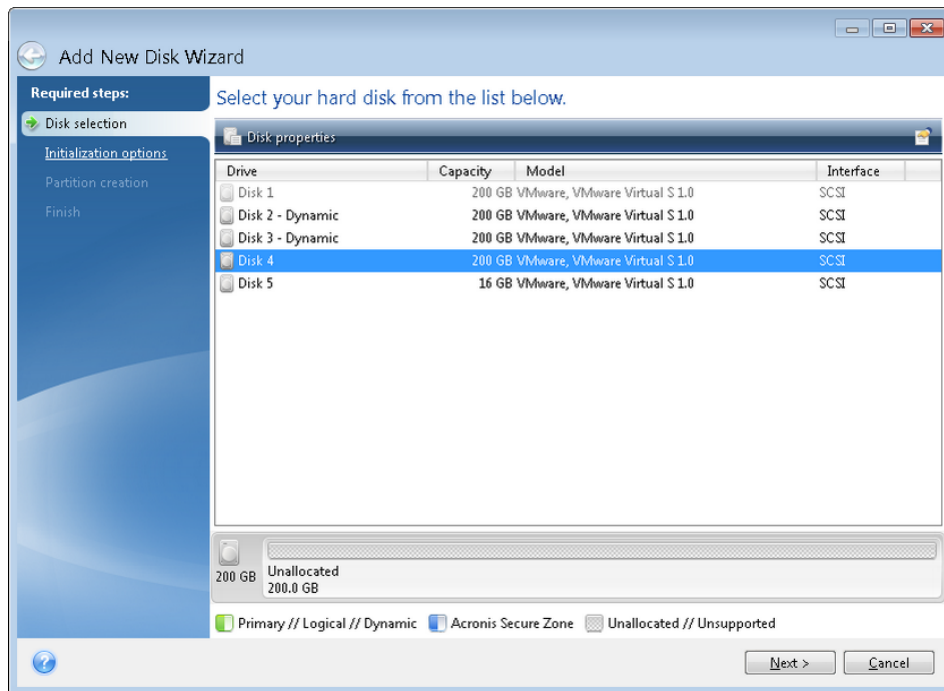
To add a new hard disk:

1. Shut down your computer, and then install the new disk.
2. Turn on your computer.
3. Click the **Start** button —> **Acronis** (product folder) —> **Acronis True Image for Western Digital** —> **Tools and Utilities** —> **Add New Disk**.
4. Follow the wizard steps.
5. On the **Finish** step, ensure that the configured disk layout suits your needs, and then click **Proceed**.

8.4.1 Selecting a hard disk

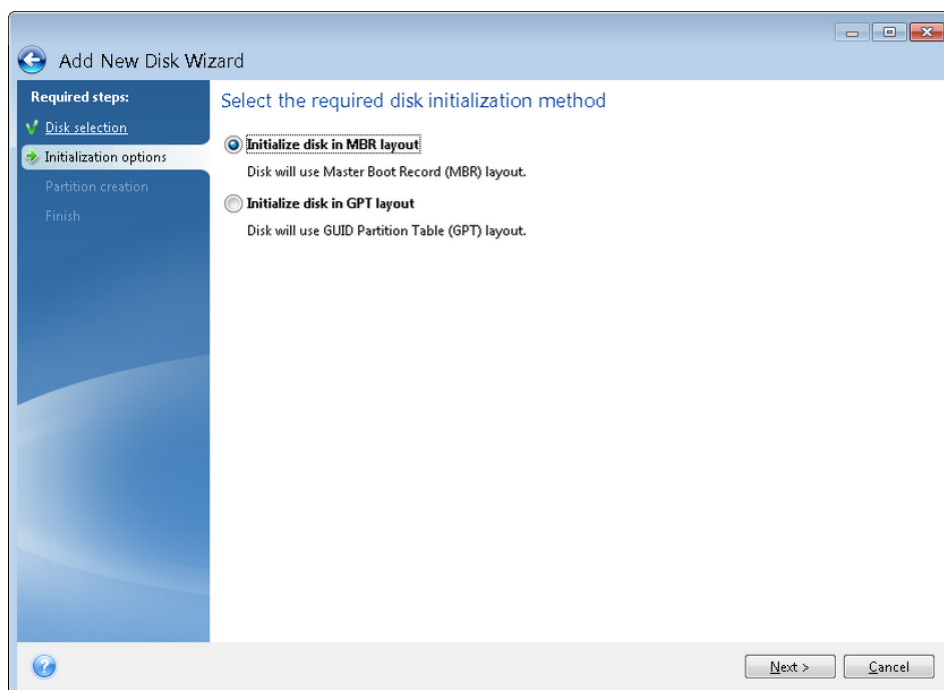
Select the disk that you have added to the computer. If you have added several disks, select one of them and click **Next** to continue. You can add the other disks later by restarting the Add New Disk Wizard.

If there are any partitions on the new disk, Acronis True Image for Western Digital will warn you that these partitions will be deleted.



8.4.2 Selecting initialization method

Acronis True Image for Western Digital supports both MBR and GPT partitioning. GUID Partition Table (GPT) is a new hard disk partitioning method providing advantages over the old MBR partitioning method. If your operating system supports GPT disks, you can select the new disk to be initialized as a GPT disk.



- To add a GPT disk, click **Initialize disk in GPT layout**.

- To add an MBR disk, click **Initialize disk in MBR layout**.

After selecting the required initialization method click **Next**.

8.4.3 Creating new partitions

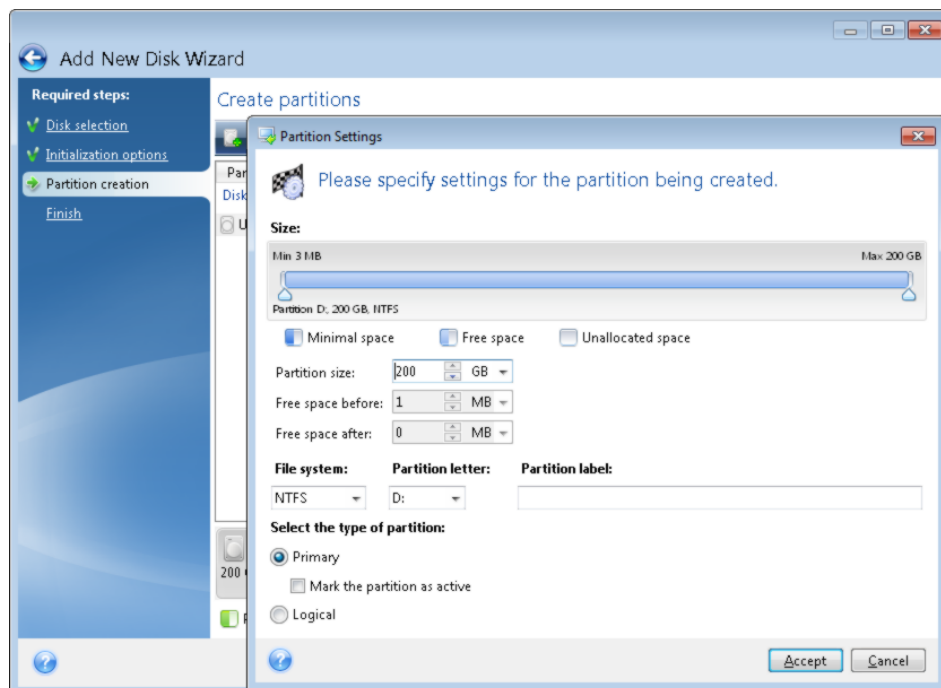
To use the space on a hard disk, it must be partitioned. Partitioning is the process of dividing the hard disk's space into logical divisions which are called partitions. Each partition may function as a separate disk with an assigned drive letter, its own file system, etc.

To create a new partition:

1. On the **Partition creation** step of the wizard, select the unallocated space, and then click **Create new partition**.
2. Specify the following settings for the partition being created:
 - Size and position
 - File system
 - Partition type (available only for MBR disks)
 - Partition letter and label

Refer to Partition settings (p. 96) for details.

3. Click **Accept**.



8.4.3.1 Partition settings

Size

To resize the partition, perform one of the following:

- Point to the partition border. When the pointer becomes a double-headed arrow, drag the pointer to enlarge or reduce the partition size.
- Type the desired partition size in the **Partition Size** field.

To relocate the partition, perform one of the following:

- Drag the partition to a new position.
- Type the desired size in either the **Free space before** or **Free space after** field.

When you create partitions, the program may reserve some unallocated space for system needs in front of the created partitions.

File System

You can either leave the partition unformatted, or choose between the following file system types:

- **NTFS** is a native file system for Windows NT, Windows 2000, Windows XP, and later operating systems. Choose it if you use these operating systems. Note, that Windows 95/98/Me and DOS cannot access NTFS partitions.
- **FAT 32** is an improved 32-bit version of the FAT file system that supports volumes up to 2 TB.
- **FAT 16** is a DOS native file system. Most operating systems recognize it. However, if your disk drive is more than 4 GB, it is not possible to format it in FAT16.
- **Ext2** is a Linux native file system. It is fast enough, but it is not a journaling file system.
- **Ext3** – officially introduced with Red hat Linux version 7.2, Ext3 is a Linux journaling file system. It is forwards and backwards compatible with Linux Ext2. It has multiple journaling modes, as well as broad, cross platform compatibility in both 32-bit and 64-bit architectures.
- **Ext4** is a new Linux file system. It has improvements in comparison to ext3. It is fully backward compatible with ext2 and ext 3. However, ext3 has only partial forward compatibility with ext4.
- **ReiserFS** is a journaling file system for Linux. Generally it is more reliable and faster than Ext2. Choose it for your Linux data partition.
- **Linux Swap** is a swap partition for Linux. Choose it if you want to add more swap space using Linux.

Partition letter

Select a letter to be assigned to the partition. If you select **Auto**, the program assigns the first unused drive letter in alphabetical order.

Partition label

Partition label is a name, assigned to a partition so that you can easily recognize it. For example, a partition with an operating system could be called System, a data partition — Data, etc. Partition label is an optional attribute.

Partition type (these settings are available only for MBR disks)

You can define the new partition as primary or logical.

- **Primary** - choose this parameter if you are planning to boot from this partition. Otherwise, it is better to create a new partition as a logical drive. You can have only four primary partitions per drive, or three primary partitions and one extended partition.
Note: If you have several primary partitions, only one will be active at a time, the other primary partitions will be hidden and won't be seen by the OS.
 - **Mark the partition as active** - select this check box if you are planning to install an operating system on this partition.
- **Logical** - choose this parameter if you don't intend to install and start an operating system from the partition. A logical drive is part of a physical disk drive that has been partitioned and allocated as an independent unit, but functions as a separate drive.

8.5 Security and Privacy Tools

8.5.1 Acronis DriveCleanser

Acronis DriveCleanser allows you to permanently destroy all data on selected hard disks and partitions. For the destruction, you can use one of the preset algorithms or create your own. Refer to Algorithm selection (p. 99) for details.

Why do I need it?

When you format your old hard drive before throwing it away, the information is not destroyed permanently and it can still be retrieved. This is a way that your personal information can end up in the wrong hands. To prevent this, we recommend that you use Acronis DriveCleanser when you:

- Replace your old hard drive with a new one and do not plan to use the old drive any more.
- Give your old hard drive to your relative or friend.
- Sell your old hard drive.

How to use Acronis DriveCleanser

To permanently destroy data on your disk:

1. Click the **Start** button —> **Acronis** (product folder) —> **Acronis True Image for Western Digital** —> **Tools and Utilities** —> **DriveCleanser**.

The Acronis DriveCleanser wizard opens.

2. On the **Source selection** step, select the disks and partitions that you want to wipe. Refer to Source selection (p. 98) for details.
3. On the **Algorithm selection** step, select an algorithm that you want to use for the data destruction. Refer to Algorithm selection (p. 99) for details.
4. [optional step] You can create your own algorithm. Refer to Creating custom algorithm for details.
5. [optional step] On the **Post-wiping actions** step, choose what to do with the partitions and disk when the data destruction is complete. Refer to Post-wiping actions (p. 101) for details.
6. On the **Finish** step, ensure that the configured settings are correct. To start the process, select the **Wipe the selected partitions irreversibly** check box, and then click **Proceed**.

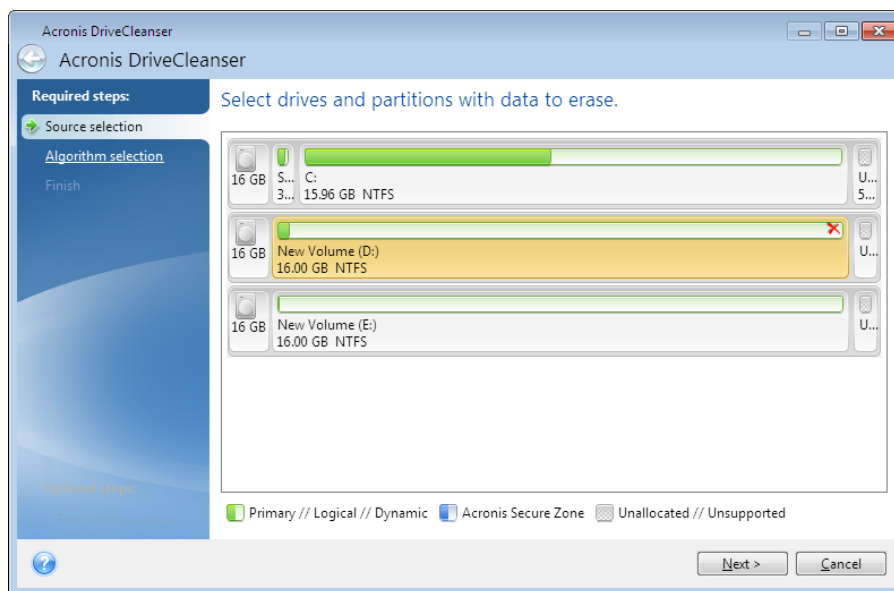
Be aware that, depending on the total size of selected partitions and the selected data destruction algorithm, the data destruction may take many hours.

8.5.1.1 Source selection

On the **Source selection** step, select partitions and disks where you want to destroy data:

- To select partitions, click the corresponding rectangles. The red mark () indicates that the partition is selected.

- To select an entire hard disk, click the disk icon ().

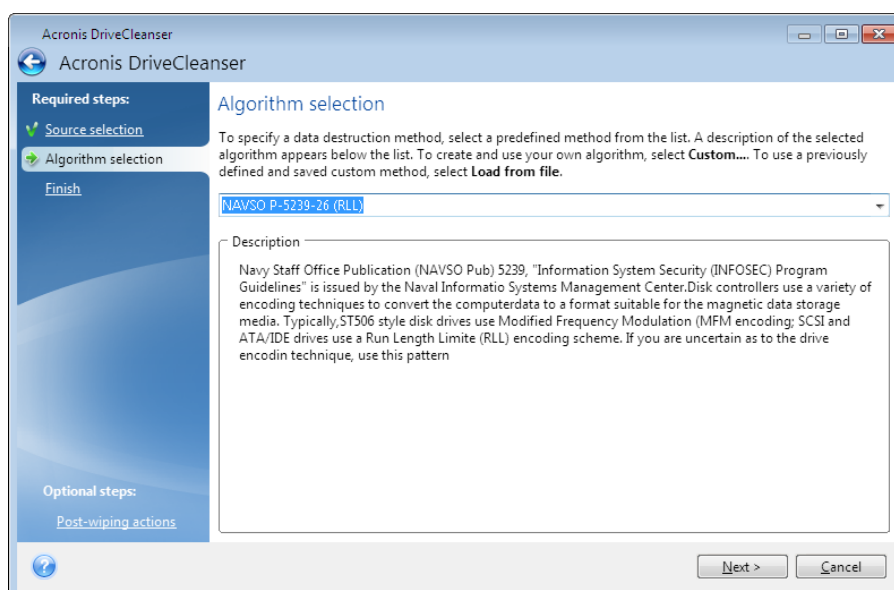


Acronis DriveCleanser cannot wipe partitions on dynamic and GPT disks, so they will not be shown.

8.5.1.2 Algorithm selection

On the **Algorithm selection** step, perform one of the following:

- To use one of the preset algorithms, select the desired algorithm. Refer to Hard Disk Wiping Methods (p. 107) for details.
- [For advanced users only] To create a custom algorithm, select **Custom**. Then continue creating on the **Algorithm definition** step. Afterwards, you will be able to save the created algorithm to a file with *.alg extension.
- To use a previously saved custom algorithm, select **Load from file** and select the file containing your algorithm.



Creating custom algorithm

Algorithm definition

The **Algorithm definition** step shows you a template of the future algorithm.

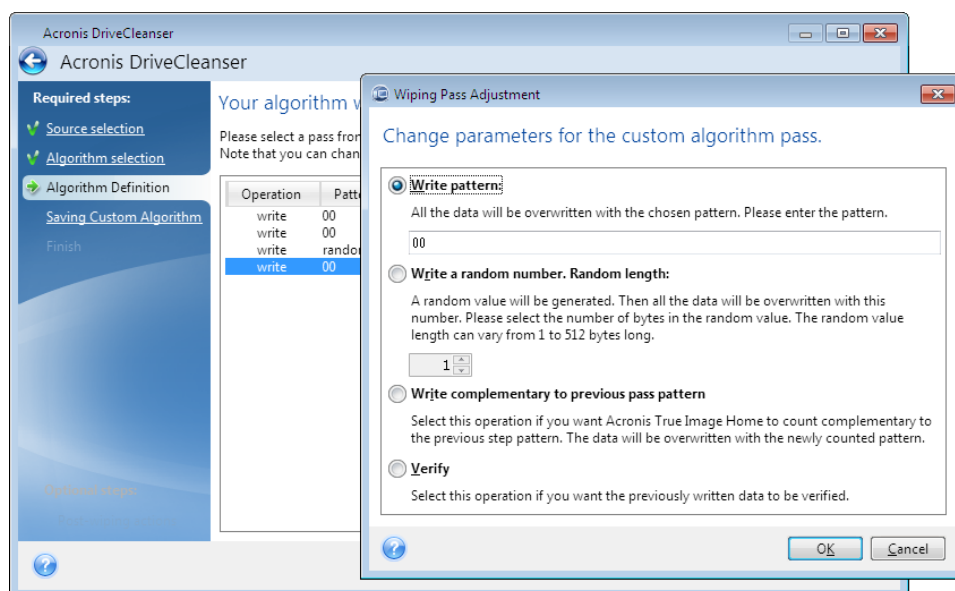
The table has the following legend:

- The first column contains the type of operation (to write a symbol to disk; and to verify written).
- The second column contains the pattern of data to be written to disk.

Each line defines an operation that will be performed during a pass. To create your algorithm, add as many lines to the table that you think will be enough for secure data destruction.

To add a new pass:

1. Click **Add**. The Wiping Pass Adjustment window opens.



2. Choose an option:

- **Write pattern**

Enter a hexadecimal value, for example, a value of this kind: 0x00, 0xAA, or 0xCD, etc. These values are 1 byte long, but they may be up to 512 bytes long. Except for such values, you may enter a random hexadecimal value of any length (up to 512 bytes).

If the binary value is represented by the 10001010 (0x8A) sequence, then the complementary binary value will be represented by the 01110101 (0x75) sequence.

- **Write a random number**

Specify the length of the random value in bytes.

- **Write complementary to previous pass pattern**

Acronis True Image for Western Digital adds a complementary value to the one written to disk during the previous pass.

- **Verify**

Acronis True Image for Western Digital verifies the values written to disk during the previous pass.

3. Click **OK**.

To edit an existing pass:

1. Select the corresponding line, and then click **Edit**.

The Wiping Pass Adjustment window opens.

Note: When you select several lines, the new settings will be applied to all of the selected passes.

2. Change the settings, and then click **OK**.

Saving algorithm to a file

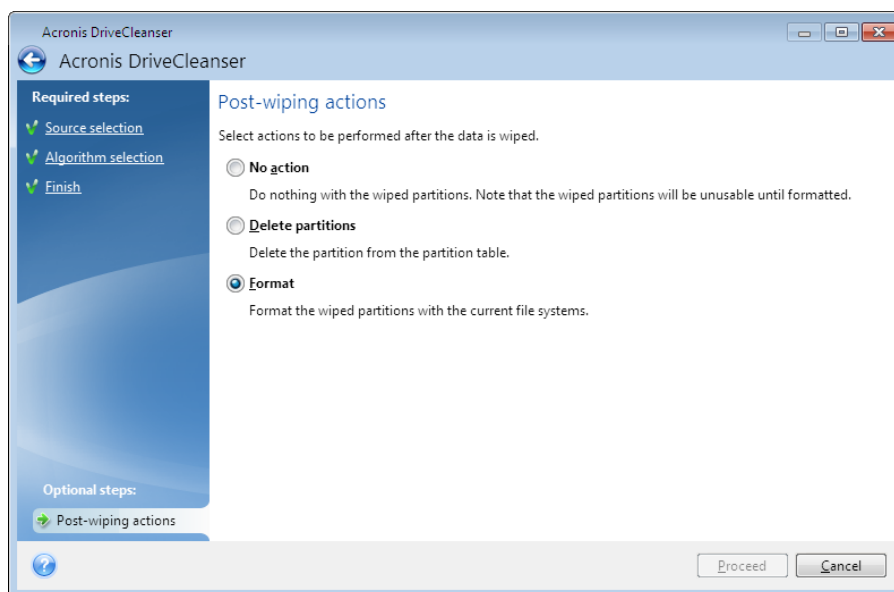
To save the created algorithm to a file in order to use this algorithm afterwards:

1. On the **Saving custom algorithm** step, select **Save to a file**, and then click **Next**.
2. In the window that opens, specify the file name and location, and then click **OK**.

8.5.1.3 Post-wiping actions

In the Post-wiping actions window, you can select actions to be performed on the partitions selected for data destruction. Acronis DriveCleanser offers you three options:

- **No action** — just destroy data using the algorithm selected below
- **Delete partition** — destroy data and delete partition
- **Format** — destroy data and format partition (default).



8.5.2 System Clean-up

The System Clean-up wizard enables you to securely remove all traces of your PC actions, including user names, passwords, and other personal information.

It can carry out the following operations:

- Securely destroy data in the **Windows Recycle Bin**
- Remove **temporary files** from appropriate Windows folders
- Clean up **hard disk free space** of any traces of information previously stored on it
- Remove traces of **file and computer searches** on connected disks and computers in the local area network
- Clean the **recently used documents** list

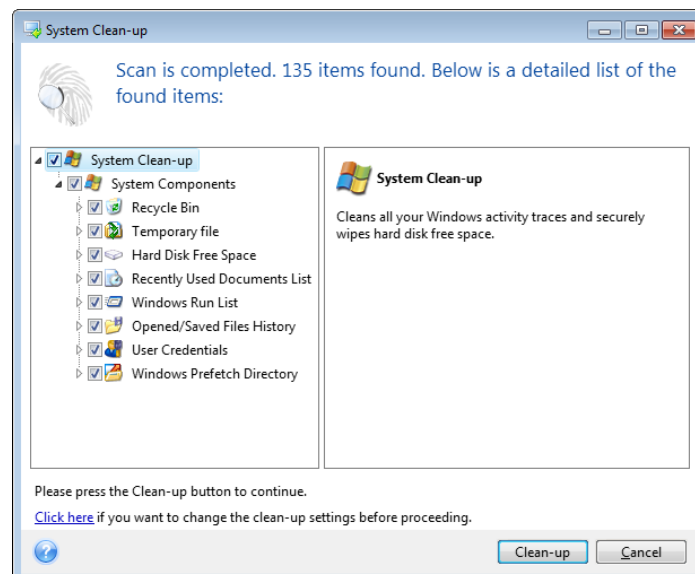
- Clean the **Windows Run** list
- Clean the **opened/saved files** history
- Clean the list of network places to which the user has connected using **network credentials**
- Clean the **Windows prefetch directory**, where Windows stores information about programs you have executed and run recently

Windows 7 and later operating systems do not store information on file and computer searches. Furthermore, information on opened/saved files is stored differently in the registry, so the wizard shows this information in a different way.

Please, be aware that Windows stores passwords until the session ends, so cleaning the list of network user credentials will not take effect until you end the current Windows session by logging out or by rebooting the computer.

To start the System Clean-up wizard, click the **Start** button —> **Acronis** (product folder) —> **Acronis True Image for Western Digital** —> **Tools and Utilities** —> **System Clean-up**.

After you start the wizard, it will search for any traces of user actions stored by Windows. When the search is finished, its results will be available at the top of the wizard window.



You can view the search results and manually select the items you wish to remove.

If you want to change the default system clean-up settings, click the corresponding link in the first window of the System Clean-up wizard.

Click **Clean-up** to launch removing the found items.

8.5.2.1 Clean-up settings

In the clean-up settings window you can change the clean-up settings for every system component. Some of these settings apply to all components.

To change the clean-up settings for a component:

- Expand the **System Components** item in the tree and select the component clean-up settings which you need to change. You can enable or disable scanning of the component by the Clean-up wizard. To do this, select or clear the **Enable** check box.

If required, you can also expand a component and customize the desired data destruction method, files to clean, clean-up registry search strings you have used for finding computers in the local network, etc. To do this, click the triangle near the component, select an option from the list and specify the settings.

- After you set the desired components' properties, click **OK** to save your settings. These settings will be used as default next time you launch the Clean-up wizard.

If you have already changed the clean-up settings before, you can always return to the program defaults by clicking the **Restore Defaults** button.

System components:

- Recycle Bin
- Temporary files
- Hard disk free space
- Find Computer list
- Find File list
- Recently Used Documents list
- Windows Run List
- Opened/saved files history
- User Credentials
- Windows Prefetch Directory

8.5.2.2 Default clean-up options

The default clean-up options are available by clicking the **Click to change this setting...** link on the **Data Destruction Method** option page.

To change the default clean-up options:

- Choose on the tree the component clean-up settings which you need to change.
- After you change the options, click **OK** to save your settings.

If you have already changed the clean-up settings before, you can always return to the program defaults by clicking the **Restore Defaults** button.

General

By default, the summary dialog window is displayed after each clean-up procedure ends (the **Show summary** check box is selected). If you do not need this window to be displayed, uncheck the box.

Clean-up options

System Clean-up utilizes a number of the most popular data destruction methods. Here, you can select the common data destruction method which will be used by default for all other components.

The data destruction methods are described in detail in Hard Disk Wiping Methods (p. 107) of this guide.

8.5.2.3 Specific clean-up options

You can customize the following clean-up options:

- Data destruction method
- Default options
- Files
- Drive free space
- Computers
- Commands
- Network places filter

Data destruction method

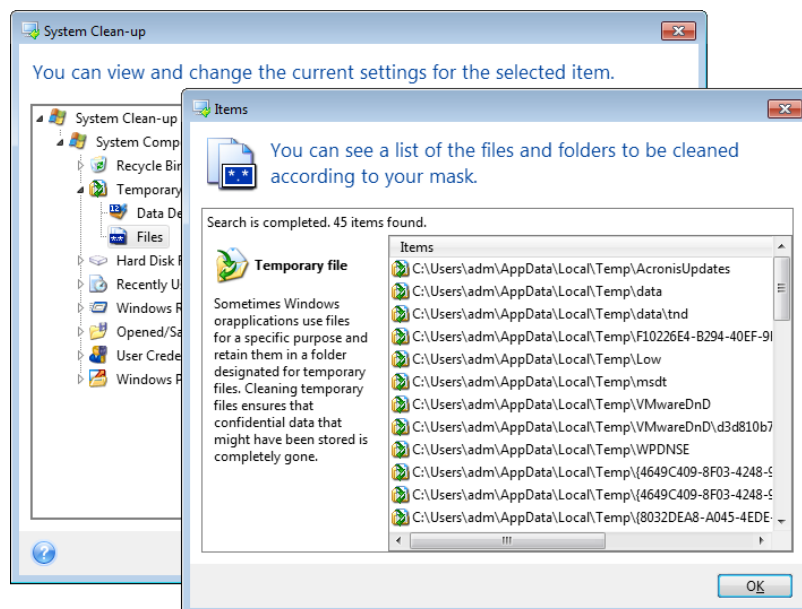
System Clean-up utilizes a number of the most popular data destruction methods. Here, you need to select the desired data destruction method.

- **Use common method** - if you leave this parameter selected, the program will use the default method (the initial setting is Fast method).
If you need another destruction method to be set as a default, click on the corresponding link.
- **Use custom method for this component** - selecting this parameter allows you to choose one of the preset data destruction methods from the drop-down list.

The data destruction methods are described in detail in Hard Disk Wiping Methods (p. 107) of this guide.

Files

The Files setting defines the names of files to clean with System Clean-up wizard and can be used with a search string.



Under the Windows operating system, a search string can represent a full or partial filename. A search string can contain any alphanumeric symbols, including commas and Windows wildcard symbols, and can have values similar to the following:

- *.* – to clean all files with any file names and extensions.
- *.doc – to clean all files with a specific extension – Microsoft document files in this case .
- read*.* – to clean all files with any extensions, and names beginning with "read".

- `read?.*` – to clean all files having five-letter names and any extensions, names beginning with "read"; the fifth letter is random.

The last search string, for example, will result in the removal of `read1.txt`, `ready.doc` files, but `readyness.txt` will remain with its longer name (excluding the extension)

You can enter several different search strings separated by semicolons; for example:

`*.bak;*.tmp;*.~~~` (without spaces between the search strings)

All files with names corresponding to at least one of the search strings will be cleaned.

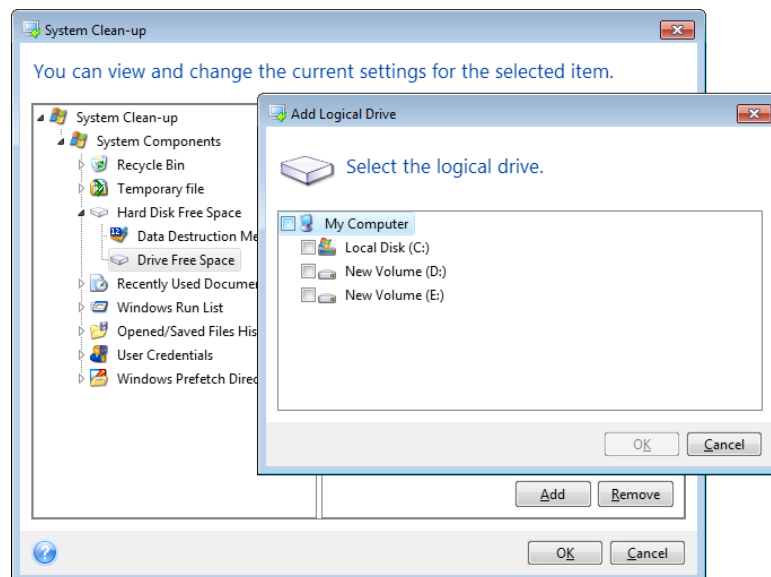
Upon entering the **Files** setting value, you can browse the files matching the search strings. To do this, click **Show Files**. You will see a window with the names of the found files. These files will be cleaned.

Drive free space

Here you can manually specify physical and/or logical drives to clean up free space on. By default, System Clean-up cleans up free space on all available drives.

If you want to change the settings of this parameter, you can use the **Remove** button to delete from the list the drives you don't need to clean free space on.

If you wish to add these drives to the list again, use the **Add** button.



Computers

The **Computers** setting is used for cleaning up the registry search strings you have used for finding computers in the local network. These strings keep information on what has interested you in the network. These items should also be deleted to maintain confidentiality.

The **Computers** setting is similar to the **Files** setting. It is a string that can contain any number of full or partial computer names separated by semicolons. The deletion of computer search strings is based on a comparison with the **Computers** setting value according to Windows rules.

If you simply need to delete all local network computer search strings (suitable in most cases), just leave the default value of this setting. To restore the default settings:

- Select the **Find Computer List** component

- Make sure the **Enable** check box is selected
- Select the **Computers** setting; make sure its text box is clear.

As a result, all computer search strings will be deleted from the registry.

After entering the **Computers** setting value, you can browse the search strings found by the System Clean-up Wizard in the registry. To do so, click **Show Computers**. You will see the window with full and partial computer names searched for in the network. These items will be deleted.

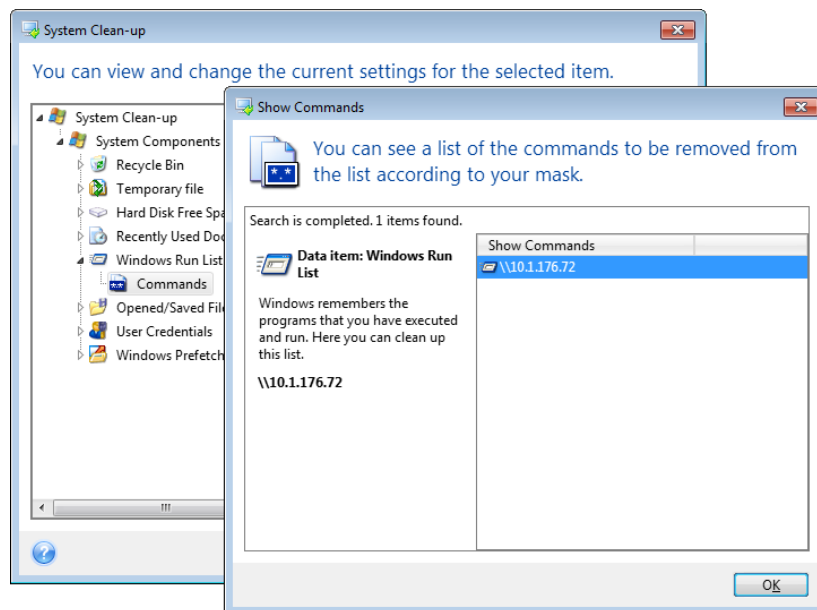
"Commands" setting

Here you can select the commands to remove during **Windows Run List** clean-up.

This template can contain any command names or their parts separated by semicolons, e.g.:

help; cmd; reg

This will result in removing commands with names corresponding to or containing any of the names or parts of names you entered.



Network places filter

Here you can enter (separated by semicolons) any hostnames or IP addresses of network places, servers, FTP servers, network shares, etc. to which you have made connection by supplying network credentials (a user name and password). While entering hostnames and IP addresses you can use * and ? wildcards.

Click **Show network places** to view the list of network places that you visited using the credentials you want to delete.

8.5.2.4 Preview

When the scanning is finished, its results will be available in the upper part of the wizard window. By default, all system components are scanned for clean-up. If you want to customize which of the system components should be scanned and which should not, change the default clean-up settings.

You can view the search results and manually select/unselect the items you wish to clean up/keep. In order to help you with making the right choice, all the components are provided with brief descriptions. Just click on the component's name and its description will be displayed in the right side of the window.

To select/unselect a component

- Expand the **System Components** item in the System Clean-up tree and make sure that the component you wish to clean up is selected. If you do not want to clean up a component, simply clear its check box.
- If required, you can dig deeper by expanding a component and selecting/unselecting its contents.

Having specified the components for clean-up, click the **Clean-up** button to continue.

Windows 7 and later operating systems do not store information on file and computer searches. Furthermore, information on opened/saved files is stored in the registry differently, so the wizard shows this information in a different way.

8.5.2.5 Clean-up progress

The operation status window reports about the state of the current operation.

The progress bar indicates the level of completion of the selected operation.

In some cases, the operation may take a long time to be completed. If this is the case, select the **Shutdown the computer after completion** check box. When the operation finishes, Acronis True Image for Western Digital will turn the computer off.

8.5.3 Hard Disk Wiping methods

What is the problem?

Information removed from a hard disk drive by non-secure means (for example, by simple Windows delete) can easily be recovered. Utilizing specialized equipment, it is possible to recover even repeatedly overwritten information.

Leakage mechanism

Data is stored on a hard disk as a binary sequence of 1 and 0 (ones and zeros), represented by differently magnetized parts of a disk.

Generally speaking, a 1 written to a hard disk is read as 1 by its controller, and 0 is read as 0. However, if you write 1 over 0, the result is conditionally 0.95 and vice versa – if 1 is written over 1 the result is 1.05. These differences are irrelevant for the controller. However, using special equipment, one can easily read the «underlying» sequence of 1's and 0's.

Information wiping methods used by Acronis

The detailed theory of guaranteed information wiping is described in an article by Peter Gutmann. Please see "Secure Deletion of Data from Magnetic and Solid-State Memory" at https://www.cs.auckland.ac.nz/~pgut001/pubs/secure_del.html.

No.	Algorithm (writing method)	Passes	Record
1.	United States Department of Defense 5220.22-M	4	1 st pass – randomly selected symbols to each byte of each sector, 2 – complementary to written during the 1 st pass; 3 – random symbols again; 4 – writing

No.	Algorithm (writing method)	Passes	Record
			verification.
2.	United States: NAVSO P-5239-26 (RLL)	4	1 st pass – 0x01 to all sectors, 2 – 0x27FFFFFF, 3 – random symbol sequences, 4 – verification.
3.	United States: NAVSO P-5239-26 (MFM)	4	1 st pass – 0x01 to all sectors, 2 – 0x7FFFFFFF, 3 – random symbol sequences, 4 – verification.
4.	German: VSITR	7	1 st – 6 th – alternate sequences of: 0x00 and 0xFF; 7 th – 0xAA; i.e. 0x00, 0xFF, 0x00, 0xFF, 0x00, 0xFF, 0xAA.
5.	Russian: GOST P50739-95	1	Logical zeros (0x00 numbers) to each byte of each sector for 6 th to 4 th security level systems. Randomly selected symbols (numbers) to each byte of each sector for 3 rd to 1 st security level systems.
6.	Peter Gutmann's method	35	Peter Gutmann's method is very sophisticated. It's based on his theory of hard disk information wiping (see Secure Deletion of Data from Magnetic and Solid-State Memory).
7.	Bruce Schneier's method	7	Bruce Schneier offers a seven-pass overwriting method in his Applied Cryptography book. 1 st pass – 0xFF, 2 nd pass – 0x00, and then five times with a cryptographically secure pseudo-random sequence.
8.	Fast	1	Logical zeros (0x00 numbers) to all sectors to wipe.

8.6 Mounting an image

Mounting images as virtual drives lets you access them as though they were physical drives. You can mount local backups that contain partitions or entire disk drives, and then select which partitions to mount. After mounting:

- A new disk appears in your system for every mounted partition.
- You can view the image contents in File Explorer and other file managers in read-only mode.

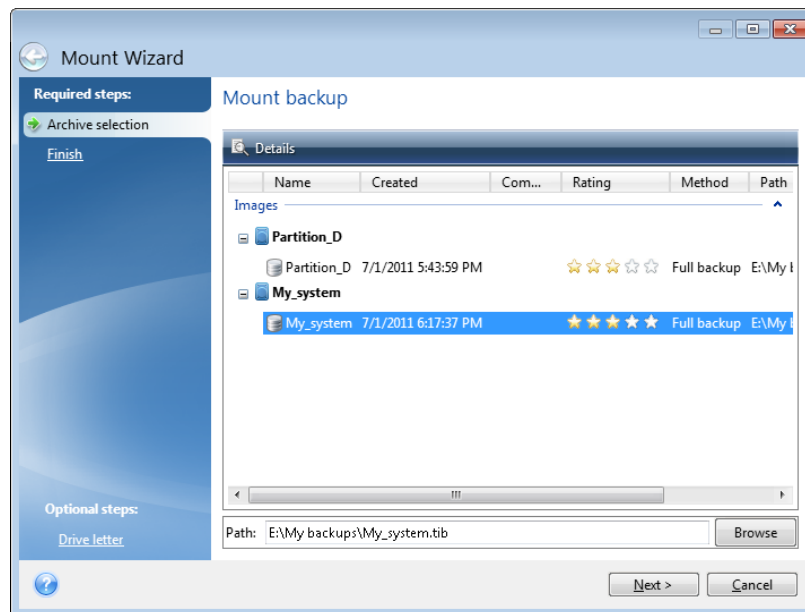
The operations described in this section are supported only for the FAT and NTFS file systems.

You cannot mount a disk backup, if it is stored on an FTP server.

How to mount an image

1. In File Explorer, right-click the image file that you want to mount, and then click **Mount image**.
The Mount wizard opens.

2. Select the backup for mounting by its creation date/time. Thus, you can explore the data state at a certain moment.



3. [optional step] On the **Drive letter** step, select a letter to be assigned to the virtual disk from the **Mount letter** drop-down list. If you do not want to mount a partition, select **Do not mount** in the list or clear the partition's check box.
4. Click **Proceed**.
5. After the image is connected, the program will run File Explorer, showing its contents.

8.7 Unmounting an image

We recommend that you unmount the virtual disk after all necessary operations are finished, as maintaining virtual disks takes considerable system resources.

To unmount an image, perform one of the following:

- In File Explorer, right-click the disk icon and click **Unmount**.
- Restart or shut down your computer.

8.8 Working with .vhd(x) files

Acronis backups (.tib files) of disks or partitions can be converted to virtual hard disks (.vhd(x) files).

How to use .vhd(x) files

- You can boot your computer from the converted .vhd(x) file to test whether the backup is valid and can be recovered to a bootable operating system.
- You can keep a converted .vhd(x) file for emergency situations. For example, if your computer cannot start and you need to run it right away, you can boot from the .vhd(x) file.
- In Windows 7, you can mount a .vhd(x) file as an additional drive. The .vhd(x) file may contain any partitions – system or non-system.
- You can run a converted .vhd(x) file as a virtual machine.

Limitations and additional information

- A file backup cannot be converted to a .vhd(x) file.

- To boot from a converted .vhd(x) file, it must contain:
 - System partition of the same computer. You cannot boot other computers using the same .vhd(x) file.
 - Windows 7 or later operating system.
- Any changes you make to a booted or mounted .vhd(x) file are saved to it. If you boot from a .vhd(x) file and make changes to the data that was not backed up, these changes will affect your live system.
- The standalone versions of Acronis True Image for Western Digital that start when booting from the bootable media do not support conversion operations.
- Acronis True Image for Western Digital cannot convert .tib files that contain dynamic volumes which were originally located on more than one disk drive (for example, spanned or striped dynamic volumes).

8.8.1 Converting Acronis backup

Users of the Enterprise and Ultimate editions of Windows 7 and later Windows versions can convert a .tib image of the system partition into the .vhd(x) format if they want to use the converted .vhd(x) file for booting the operating system. Or, they may want to get the ability to mount images without using Acronis True Image for Western Digital.

To convert an Acronis disk image (.tib file) to a Windows backup (.vhd(x) file):

1. Start Acronis True Image for Western Digital.
2. Go to the **Backup** section.
3. In the backup list, click the down arrow icon next to the backup that you want to convert, and then click **Convert to VHD**.
If the backup is password-protected, Acronis True Image for Western Digital will ask for it. Note that the resulting .vhd(x) file will lose password protection.
4. Select the backup version that you want to convert.
Converting an incremental backup requires all the previous incremental backups and the original full backup. Converting a differential backup requires the original full backup. The result of conversion is always a full backup.
5. Specify the path to the file to be created.
The file can be directed to any local storage supported by Acronis True Image for Western Digital (except the Acronis Secure Zone and CD/DVD). In addition, it can be directed to an SMB share.
6. [Optional step] While the backup is being converted, you can select the **Start virtual machine after completion** check box. If it is selected, Acronis True Image for Western Digital will restart your computer and run Hyper-V virtual machine by using the created .vhd(x) file.

When a .tib image selected for conversion contains partitions, for example, from two physical hard disk drives, the program will create two .vhd(x) files corresponding to those physical drives.

8.9 Importing and exporting backup settings

Acronis True Image for Western Digital allows you to import and export the settings of your backups. This may be desirable if you need to transfer the settings to a new PC after installing Acronis True Image for Western Digital on that computer. Saving the settings may also be useful if you later decide to upgrade to the next Acronis True Image for Western Digital version.

Such transfer will make configuring backups on the new PC much easier. You only need to export the settings and then import them to the other PC. The settings are exported in the form of script files.

The settings content can be different depending on a backup type. In case of "classic" disk and file type backups the settings consist of the following items:

- list of items for backup
- backup options
- backup location
- schedule
- backup scheme
- automatic clean-up rules
- backup version naming rules

The settings of nonstop backup are as follows:

- list of items for nonstop protection
- Nonstop Backup data storage location (a list of locations, if there are several)

You cannot import online backup settings from one computer to another.

To export the backup settings:

1. Start Acronis True Image for Western Digital.
2. On the sidebar, click **Settings > Backup settings transfer**, click **Save settings to file**, and then browse for the destination to save the script files with the settings.

To import the backup settings:

1. Start Acronis True Image for Western Digital on another computer.
2. On the sidebar, click **Settings > Backup settings transfer**, click **Import settings from file**, and then show the path to the script files with the settings.

After importing the settings you may need to change some of them to suit the new environment. For example, it may be necessary to change the list of items for backup, backup destination, etc.

If you want to copy some of your backups to another computer, it is recommended to export the settings of those backups too. Thus you will not lose some of the copied backup's functionality.

9 Troubleshooting

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9.1 Resolving the most frequent issues

Here is the list of the most frequent issues that users encounter in Acronis True Image for Western Digital. You can read the corresponding solutions in the Acronis Knowledge Base.

Files and folders are not shown when browsing backups in File Explorer

A typical scenario:

1. You want to browse backup contents in File Explorer, either for recovery purposes or to check what is inside a particular backup.
2. You locate the corresponding .tib file and double-click it.
3. The backup opens, but the files and folders are not displayed.

How to resolve

Error "Plug in external drive"

A typical scenario:

1. You have a backup configured to be saved on a USB drive. You plug in the USB drive to your computer, and then start the backup.
2. The backup does not start, pauses or fails. The following error appears: "Plug in external drive <drive_letter>."

How to resolve

Blue Screen of Death (BSOD) after recovery to new hardware and error "Stop 0x0000007B" due to missing drivers

A typical scenario:

1. You recover your computer to dissimilar hardware and apply Acronis Universal Restore.
2. The process completes successfully, but the recovered computer goes to BSOD and the following error appears: "Stop 0x0000007B."

How to resolve

See the full list of popular solutions at <https://kb.acronis.com/true-image-known-solutions>.

See also troubleshooting information about recovery fails at <https://kb.acronis.com/content/46340>.

9.2 Technical Support

Maintenance and Support Program

If you need assistance with Acronis True Image for Western Digital, please refer to the official support resources of Western Digital at <https://www.westerndigital.com/support> (<https://www.westerndigital.com/support>).

9.3 Acronis System Report

The Generate system report tool creates a system report that contains all the necessary technical information and allows you to save the information to a file. When it's necessary, you can attach the created file to your problem description and send it to the Western Digital support. This will simplify and speed up the search for a solution.

To generate a system report, perform one of the following:

- On the sidebar, click **Help**, and then click **Generate system report**.
- On the Windows **Start** menu, click **All Programs -> Acronis -> Acronis True Image for Western Digital -> Tools and Utilities -> Acronis System Report**.
- Press **CTRL+F7**. Note that you can use this key combination even when Acronis True Image for Western Digital is performing any other operation.

After the report is generated:

- To save the generated system report, click **Save** and in the opened window specify a location for the created file.
- To exit to the main program window without saving the report, click **Cancel**.

You can place the tool on your bootable media as a separate component to generate a system report when your computer cannot boot. After you boot from the media, you can generate the report without running Acronis True Image for Western Digital. Simply plug in a USB flash drive and click the **Acronis System Report** icon. The generated report will be saved on the USB flash drive.

To place the Acronis System Report tool on a bootable media:

- Select the **Acronis System Report** check box on the **Rescue Media Content Selection** page of the **Acronis Media Builder** wizard.
- Click **Next** to continue.

Creating a system report from the command line prompt

1. Run Windows Command Processor (cmd.exe) as an administrator.
2. Change the current directory to the Acronis True Image for Western Digital installation folder. To do so, enter:

```
cd C:\Program Files (x86)\Acronis\TrueImageHome
```

3. To create the system report file, enter:

```
SystemReport
```

The file SystemReport.zip will be created in the current folder.

If you want to assign a custom name to the report file, type the new name instead of <file name>:

```
SystemReport.exe /filename:<file name>
```

To generate a system report under bootable media:

1. Create Acronis bootable media, if you do not have it. Refer to Acronis Media Builder (p. 84) for details.
2. Arrange the boot order in BIOS so that your bootable media device (CD, DVDs or USB drive) is the first boot device. Refer to Arranging boot order in BIOS (p. 63) for details.
3. Boot from the Acronis bootable media and select **Acronis True Image for Western Digital**.

*Instead of clicking **Acronis True Image for Western Digital**, you can plug in a USB flash drive and click **Acronis System Report**. In this case, the program generates a report and automatically saves it to the flash drive.*

4. Click the arrow next to the Help icon () , and then select **Generate system report**.
5. After the report is generated, click **Save** and in the opened window specify a location for the created file.

The program will archive the report into a zip file.

9.4 Acronis Smart Error Reporting

When an issue is caused by an error in the program's operation, Acronis True Image for Western Digital displays an appropriate error message. The error message contains an event code and a short description of the error.

When you have an Internet connection

To view the Acronis Knowledge Base article suggesting a solution(s) for correcting the error, click the **Knowledge Base** button.

This will open a confirmation window that lists the information to be sent via Internet to the Acronis Knowledge Base. Click **OK** to permit sending the information.

If in future you would like to send such information without confirmation, select the **Always send without confirmation** check box.

When you do not have an Internet connection

1. In the error message window, please click **More details** and write down the event code. The code may look like this:
 - 0x000101F6 - example of an ordinary event code.
 - 0x00970007+0x00970016+0x00970002 - example of a composite event code. A code of this kind may appear when an error occurred in a low-level program module and then propagated to higher-level modules, resulting in errors in those modules as well.
1. When you establish Internet connection or if you can use another computer where Internet connection is available, enter the event code at: <https://kb.acronis.com/errorcode/>.

If the event code is not recognized in the Knowledge Base, the base does not yet contain an article to resolve the issue. In such cases, please open a trouble ticket with Acronis Customer Central.

9.5 How to collect crash dumps

Because a crash of Acronis True Image for Western Digital or Windows can be caused by different reasons, each crash case must be investigated separately. Acronis Customer Central would appreciate if you could provide the following information:

If Acronis True Image for Western Digital crashes, please provide the following information:

1. A description of the exact sequence of steps performed before you encountered the issue.
2. A crash dump. For information on how to collect such a dump, see the Acronis Support Knowledge Base (KB) article at <https://kb.acronis.com/content/27931>.

If Acronis True Image for Western Digital causes a Windows crash:

1. A description of the exact sequence of steps performed before you encountered the issue.
2. A Windows dump file. For information on how to collect such a dump see the Acronis Support KB article at <https://kb.acronis.com/content/17639>.

If Acronis True Image for Western Digital hangs:

1. A description of the exact sequence of steps performed before you encountered the issue.
2. A userdump of the process. See the Acronis Support KB article at <https://kb.acronis.com/content/6265>.
3. The Procmon log. See the Acronis Support KB article at <https://kb.acronis.com/content/2295>.

If you cannot access the information, contact Acronis Customer Central for an FTP link for uploading files.

This information will speed up the process of finding a solution.

9.6 Acronis Customer Experience Program

Acronis Customer Experience Program (CEP) is a new way to allow Acronis customers to contribute to the features, design and development of Acronis products. This program enables our customers to provide us with various information, including information about the hardware configuration of your host computer and/or virtual machines, the features you use most (and least), and the nature of the problems you face. Based on this information, we will be able to improve the Acronis products and the features you use most often.

To make a decision:

1. On the sidebar, click **Settings**.
2. To leave the program, clear the **Participate in the Acronis Customer Experience Program** check box.

If you choose to participate, the technical information will be automatically collected every 90 days. We will not collect any personal data, like your name, address, phone number, or keyboard input. Participation in the CEP is voluntary, but the end results are intended to provide software improvements and enhanced functionality to better meet the needs of our customers.

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Acronis patented technologies

Technologies, used in this product, are covered and protected by one or more U.S. Patent Numbers: 7,047,380; 7,246,211; 7,275,139; 7,281,104; 7,318,135; 7,353,355; 7,366,859; 7,383,327; 7,475,282; 7,603,533; 7,636,824; 7,650,473; 7,721,138; 7,779,221; 7,831,789; 7,836,053; 7,886,120; 7,895,403; 7,934,064; 7,937,612; 7,941,510; 7,949,635; 7,953,948; 7,979,690; 8,005,797; 8,051,044; 8,069,320; 8,073,815; 8,074,035; 8,074,276; 8,145,607; 8,180,984; 8,225,133; 8,261,035; 8,296,264; 8,312,259; 8,347,137; 8,484,427; 8,645,748; 8,732,121; 8,850,060; 8,856,927; 8,996,830; 9,213,697; 9,400,886; 9,424,678; 9,436,558; 9,471,441; 9,501,234; and patent pending applications.