# USER MANUAL

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# Contents

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# Product Overview

**Active@ Boot Disk** is a powerful set of tools engineered to help you in a number of data recovery and data security situations.

**Active@ Boot Disk** combines a number of powerful tools that let you recover lost data, reset *Windows* passwords, make computer system backups and securely erase data. **Active@ Boot Disk** starts when you start your computer from a bootable CD/DVD/BD Disc or USB Flash Media.

**Active@ Boot Disk** supports legacy BIOS boot mode as well as the latest UEFI secure boot on x64 (64-bit) architectures.

**Active@ Boot Disk** suggests a customizable user interface starting from version *13*. You can create shortcuts for the additional portable user's tools on the Desktop and in the Start menu the same way as you do it in *Windows Desktop* environment. These shortcuts can be saved to USB media and restored when you boot up the system the next time even on the different PC configuration. Network settings and current Display resolution can also be customized and stored to USB the same way.

When you use **Active@ Boot Disk**, you gain access to the drive's data on a physical level, and on a logical level, therefore bypassing the resident operating system. This allows you to lock selected volumes for your exclusive use. Locking a volume is important if you want to wipe the data residue from an unoccupied space on the drive, create a "clean" data backup or recover files or folders located on your system volumes.

When you boot from the local hard drive, the operating system is not capable of locking the existing volumes. The recovery operation must have exclusive access to the target location. Otherwise if a service or another application gains access to the target location, it might write over the files that you are trying to recover, rendering them unrecoverable.

Here are some other functions that you can perform with **Active@ Boot Disk** by booting from the CD/
DVD/USB:

### Full access to non-bootable PC

Ability to start non-bootable PC to get exclusive access to the local disks and system

### Backup and Restore

If you backup the system drive with *Windows* running from the same drive, when you restore the backup, it will start as though you are recovering from a loss of power since the boot up will start with system integrity checking. If you backup the system drive with *Windows* running from an external drive, the restored system will start without any pit stops.

### Multi-boot support

Multi-boot or dual-boot functionality (DOS + Windows/Linux)

### Loading from CD, DVD or USB flash drive

Starts from a CD, DVD, Blu-ray or USB flash drive (appropriate BIOS settings required)

### Removable Boot media

Boot media may be removed from the system after successfully booting the system

### Data recovery tools

Recovery utilities to recover deleted files or recover data from deleted/damaged partitions

### Wipe unused data from the system records and directories

From MFT (on NTFS), from unused clusters, from file slack space (see Active@ KillDisk). A "clean" wipe operation is not possible if the Windows is running from the same drive that you are trying to wipe the data from. If you wipe the data with the *Windows* booted from an external drive, it will be a "clean" wipe.

### Delete files

Deleting data with *Windows* running from the system drive can be unreliable, especially if the Volume Shadow Copy is running in the background. *Volume Shadow Copy* service may still be active, keeping the previous version of the file or even a snapshot of the whole disk. With this in mind, an intruder might try and retrieve your confidential data. By deleting your files using the other operating system from an external drive, you can rest assure that the deletion is permanent.

### Windows password recovery

Administrator password resetting tool for resetting Windows user passwords including Administrator account

### Disk health checking and monitoring

Disk monitoring utility controls hard disk temperature and disk S.M.A.R.T attributes

**Active@ Boot Disk** contains the following premium LSoft products:

### Active@ Disk Image

A disk image software that makes an exact copy of any hardware media drive or disk (HDD, SSD, USB, CD, DVD, Blu-ray etc.) and stores it into a file (image). The images may be used for backups,

PC upgrades or media duplication purposes. In case of computer failure, a backup image may be used to recover your computer system or find and restore any necessary files from within an image.

### Active@ Data CD/DVD/Blu-ray Burner

A dialog-style software to burn data CD/DVD/Blu-ray discs. Command line parameters are supported to automate the data burning process. To simplify the burning process all parameters you entered are stored as user's settings. Next time you run the software previous settings appear in the dialog. Collection of items in the file tree can be saved and loaded later on.

### Active@ Partition Recovery

A special toolkit that helps to recover deleted and damaged logical drives and partitions within *Windows*, Windows PE (recovery boot disk) and *Linux* (recovery *LiveCD*) environments.

Simple *QuickScan* easily detects and recovers recently deleted partitions, as long as they were not formatted / overwritten to after deletion.

Advanced low-level *SuperScan* may detect partitions which were deleted a long time ago, even if you have created new ones and even formatted them.

*Last Chance* recovery method detects and recovers files by their signatures on volumes having severely damaged file systems, where physical volume recovery isn't possible! Recovers NTFS/ReFS, ApFS, FAT/exFAT.

### Active@ File Recovery

Efficient and easy to use tool for restoring deleted or lost files, damaged or re-formatted volumes even if your PC doesn't boot.

Recovers data from *NTFS, ReFS, FAT, exFAT, HFS+, ApFS, XFS, JFS, UFS, Ext2/3/4, BtrFS*.

Includes advanced disk editor, Virtual RAID re-constructor (recover damaged RAID disk arrays) and File Organizer to re-organize and rename files detected by their signatures.

### Active@ Password Changer

A solution designed for resetting local user password and account attributes on *Windows XP, Vista, Server 2003 / 2008 / 2012 / 2016, Windows 7, Windows 8, Windows 10* systems in case of administrator's password is forgotten, lost or user account has been blocked, disabled or locked out.

You will not need to re-install and re-configure operating system in this case. With Active@ Password Changer you can log in as a particular user with an empty password.

### Active@ Disk Editor

An advanced tool for viewing and editing of raw data (sectors) on physical hard disks.

Inspect file structures and edit data directly in volumes, partitions and files with integrated support of *MBR, GPT, NTFS, FAT, exFAT, HFS+, ext2, ext3, ext4, UFS* and *LDM* structures.

Various colorful structure templates ease data inspection and navigation. As you edit data in Hex, ASCII or Unicode pane or in *Templates* window, modified data is fully synchronized between views.

### Active@ KillDisk

Powerful and portable software that allows you to destroy all data on Hard Disks, Solid State Disks (SSD), USB disks and Memory Cards excluding any possibility of deleted files and folders data recovery!

**Active@ KillDisk** is a disk sanitation and partition eraser utility, supporting U.S. DoD 5220.22-M and more than **20** international data sanitizing standards.

## Active@ Partition Manager

An advanced tool to help you manage storage devices, logical drives or partitions that they contain.

You may create, delete, format and name partitions on your computer without shutting down the system. Most configuration changes take effect immediately.

Supports the most popular file systems such as *FAT, NTFS, exFAT, ReFS, HFS+, Ext2/Ext3/ Ext4, BtrFS, UFS, XFS, JFS*.

## Active@ BCD Editor

A *Windows*-based utility that allows you to edit entries in BCD (*Boot Configuration Data*) store to make a *Windows* system partition bootable.

*BCD* is a database for boot-time configuration data. It is used by *Microsoft Windows Boot Manager* and replaces the *boot.ini* that was used by NTLDR. It carries a set of entries describing booting options and location of *Windows Boot Loader*, *Windows Resume* application and other important programs.

*BCD* was introduced along with *Windows Vista* and it is a replacement of older *boot.ini* format. *BCD* store is used by *Windows Vista, Windows 7, Windows 8, Windows Server 2008, Windows Server 2012* and *Windows 10*.

As well as mandatory utilities:

- Network operations utilities to help you map network drives, view network status, configure IP settings and *Windows* firewall and to help you connect and work with a server remotely
- Utilities to monitor the status of your hard disk, copy, move and delete files and folders, extract compressed archives, create text files, preview an image or graphics and search for and display registry details
- System utilities to create, delete, format and resize partitions, manage system tasks, run command prompt commands, check disk integrity and defragmented volumes, display system information, configure the display parameters and edit system boot configuration
- Internet tools: Web Browser and Mail Sender
- Console tools: Command Prompt, DiskPart, DiskRAID, FTP Client
- Professional Tools: PowerShell, BitLocker Manager & Repair tool, iSCSI Manager & SSH

- A whole set of manuals to support **Active@ Boot Disk** utilities:
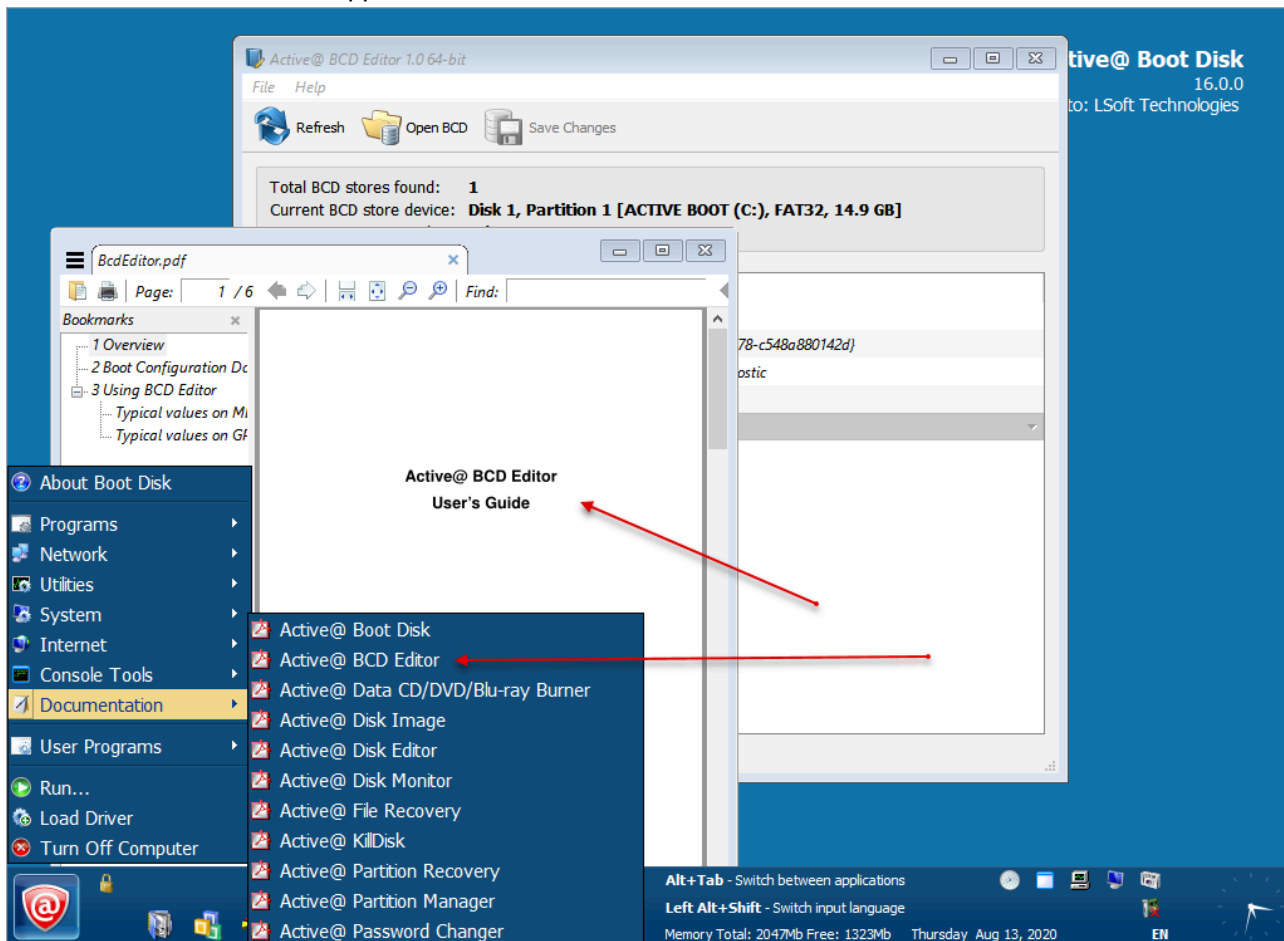


# Operating System

Because the **Active@ Boot Disk** ISO image has been created using the *Microsoft Windows PE* (Pre-installation Environment) **10** operating system, you have access to many new *Windows 10* (*ver. 6.3, build 18362*) features.

The bootable image contains a variety of plug-ins, drivers and other 64-bit applications.

Here are some features of *Windows PE*:

- You can use the new *Windows 10* style standard dialogs, like *File Open*, *Save As*, and so on.
- **PnP (Plug and Play) support:** Hardware devices can be detected and installed while *Windows PE* is running. This supports any in-box PnP device, including removable media and mass-storage devices. It means that you can plug in a mass-storage device to use for data recovery or data backup.
- **Automatic writable RAM volume:** When booting from the CD/DVD drive, *Windows PE* automatically creates a writable RAM disk (drive *X:*) and allocates 512 MB of the RAM disk for general-purpose storage. By using compressed NTFS, the 512 MB is addressable up to almost 1 GB. This drive space may be used to recover files or folders.

> **Note:** There are two **Active@ Boot Disk** packages being distributed. One is a public evaluation DEMO that can be also activated with a registration key. DEMO package contains a standard *WinPE 10* set of packages. This is a minimal size configuration. Another package has been supplied to clients after purchasing a registration key. This full package contains additional packages installed: *WinPE-NetFX* (.NET Framework version 4.5), *WinPE-Dot3Svc* (IEEE 802.X

authentication protocol on wired networks), *WinPE-RNDIS* (network support for devices that implement the Remote NDIS specification over USB), *WinPE-PowerShell* (PowerShell console), *WinPE-StorageWMI* (PowerShell cmd lets for storage management), *WinPE-Scripting* (multiple-language scripting environment for automating system administration tasks, such as batch file processing), *WinPE-WMI* (subset of the Windows Management Instrumentation providers that enable minimal system diagnostics), *WinPE-Secure Startup* (provisioning and management of BitLocker and the Trusted Platform Module - TPM), *WinPE-Enhanced Storage* (enables *Windows* to discover additional functionality for storage devices, such as encrypted drives, and implementations that combine *Trusted Computing Group* (**TCG**) and *IEEE 1667*). It requires ~150MB more disk storage space and consumes ~150MB more RAM when boot up than the smaller package.

⚠️ **Important:**  After the *Windows PE* operating system and **Active@ Boot Disk** have started, the boot CD/DVD/USB can be removed from the drive. A new CD/DVD can be inserted into the drive and you can read from it or burn data to it.

# Boot Disk Creator

**Boot Disk Creator** is an actual tool to create all the variety of bootable media:

**Windows-based Boot Disk**

Windows PE 10 OS, 64-bit profile with graphical interface for user convenience

**Linux-based LiveCD/LiveUSB**

openSUSE Linux-based OS, 64-bit profile with graphical interface for user convenience

**Console-based Boot Disk**

Tiny Core Linux-based OS, 32/64-bit profile with console user interface

**DOS**

FreeDOS DOS-based OS, 16/32-bit profile with console user interface

**Memory tester boot (for ISO images)**

A convenient boot profile for memory testing

## System Requirements

In order to use **Active@ Boot Disk Creator** you must have the following:

- 64-bit Intel or AMD processor (x64 architecture) for **16+** version
- 32-bit Intel or AMD processor (x32 architecture) for **9** version (WinPE 3.1-based)
- 1GB or more RAM
- A CD/DVD/Blu-Ray drive or a USB mass storage device to create a bootable media

In addition to the above, you must be able to start the computer where to run the **Active@ Boot Disk Creator**

## RAM Management

The ISO for **Active@ Boot Disk** was created with Windows PE (**P**re-installation **E**nvironment), a lighter version of *Windows 10*.

When booting from the CD/DVD drive or from a USB storage device, *Windows PE* creates a writable RAM volume (**X:**) and places itself in this drive for loading. While *Windows PE* shell is booting up, it loads itself into RAM. After *Windows* has started, the boot CD/DVD can be removed from the drive or the USB flash card may be removed from the USB port. Starting with 1GB of RAM, all that is left is about 500MB of available space to work with.

## Downloading Boot Disk Creator

You must perform these operations on a separate computer with a healthy hard drive and access to the Internet.

To download **Active@ Boot Disk**:

- Open your browser and navigate to http://www.boot-disk.com
- To download fully featured **Active@ Boot Disk**, click the  Buy  link, choose the desired version (32/64 bit, *v.16+* or *v.9* accordingly) and license(s). Follow the procedure for paying.
- To download the evaluation *Demo* version, click the  Download  link.
- After saving it to a local folder, run the installation executable. Setup wizard will lead you through pages in order to agree with the terms of the license and determine the destination (installation) folder.
- In the **Select Components** page, for assistance with writing **Active@ Boot Disk** to a bootable CD, DVD or USB mass storage device, select the **Active@ Boot Disk** check box.
- After **Active@ Boot Disk** has been successfully installed, select the  **Launch Active@ Boot Disk Creator**  check box and click  **Finish** .

# Registration

In order to work with different licenses or enabling a free evaluation version of **Active@ Boot Disk** you may proceed with the process of registration.

**1.** Click the **Registration** link at the left bottom corner on the starting **Boot Disk Creator** screen
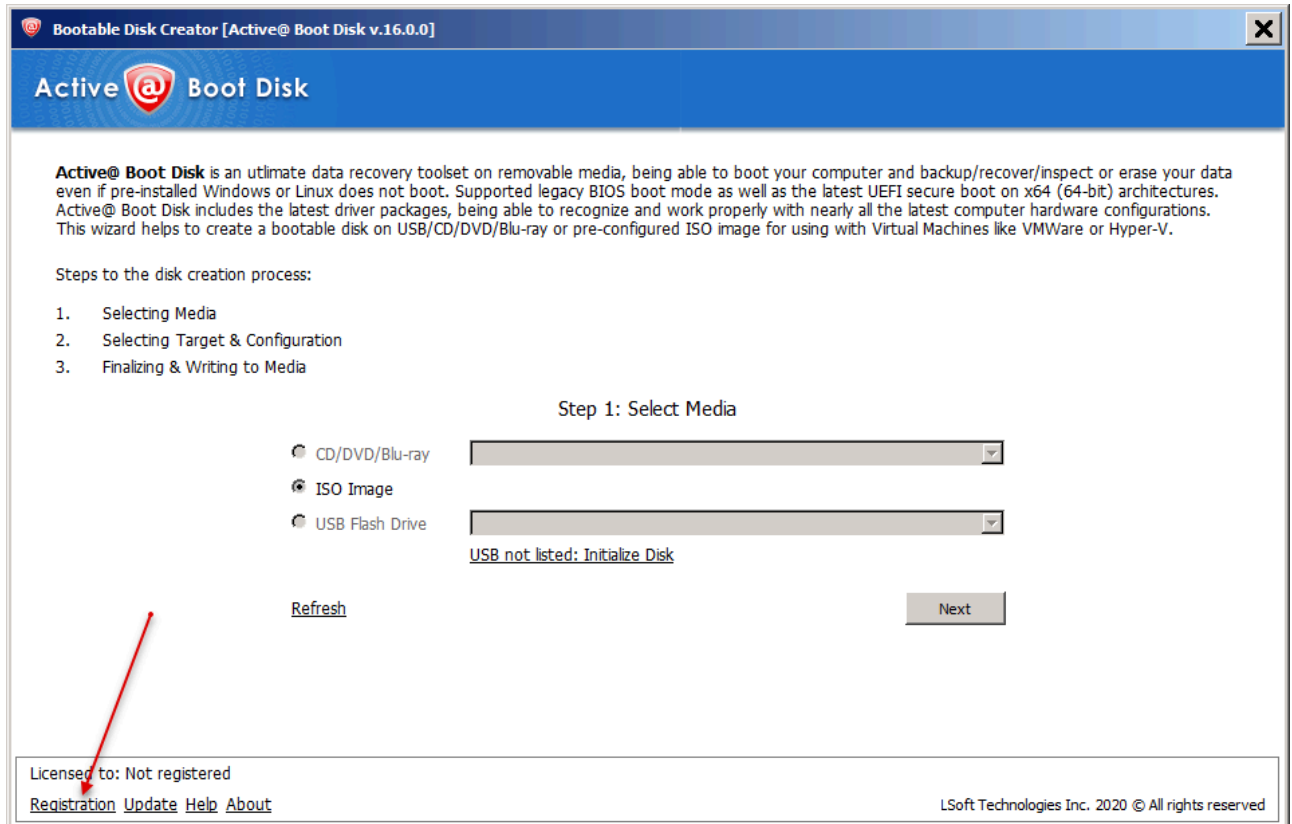


**2.** Unregistered **Active@ Boot Disk** shows the following dialog:
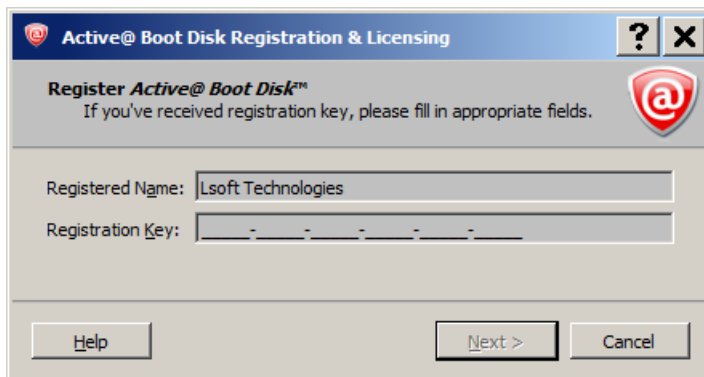


You should proceed with your license registration key.

**3.** In the case of already registered software, you must deactivate the registration first with a further re-registration with a new license:

**4.** Activation dialog:



⚠ **Important:** You should not save registration information to a file on a hard drive with damaged partitions.

## Software Updates

**Active@ Boot Disk Creator** has a built-in update client to ensure you always have an access to the latest version of the application. To update just click **Update** at the left bottom corner:
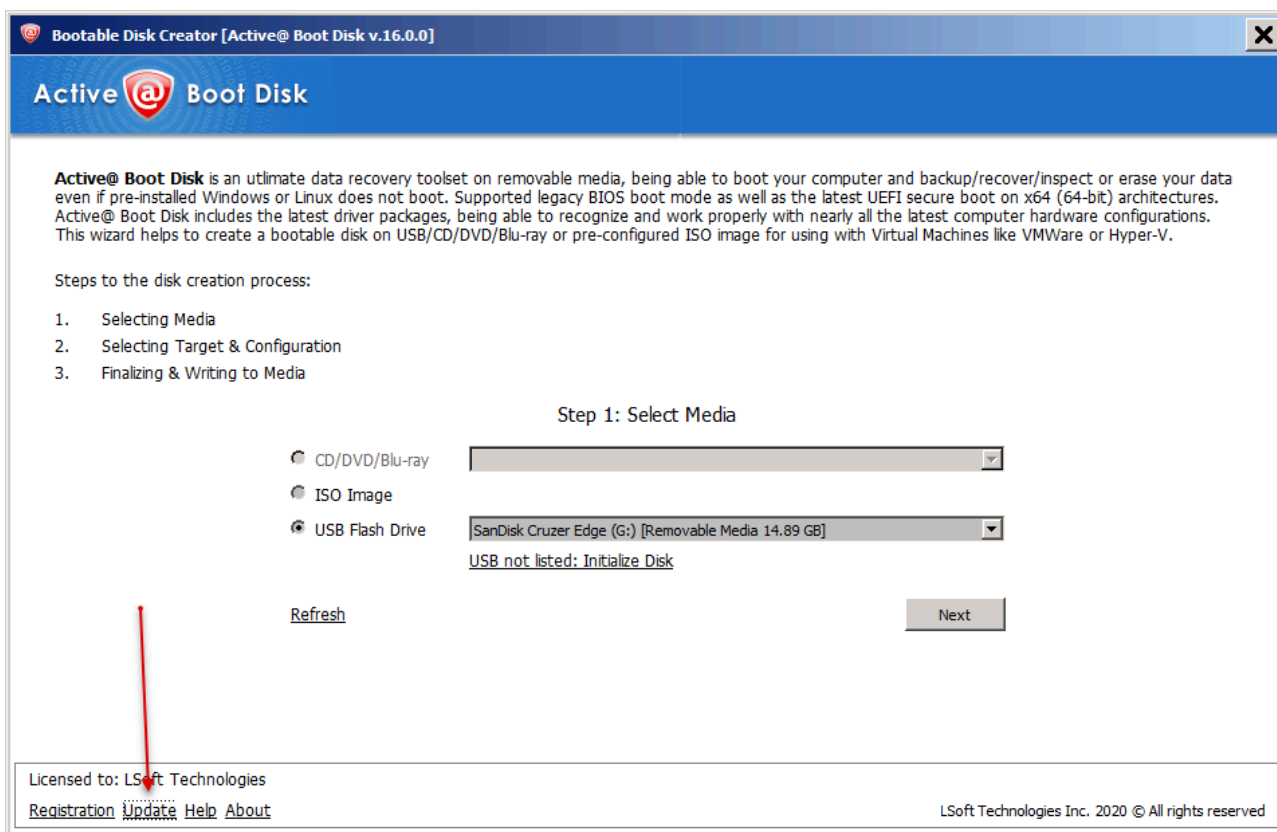
**Figure 1: Checking for updates**

Update dialog contains history of previously installed versions and updates:
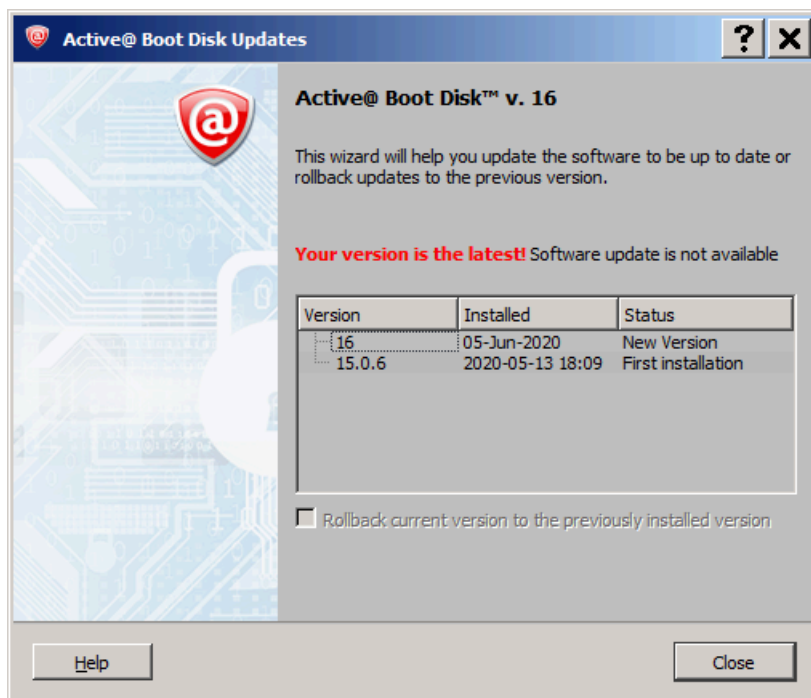


If a new version or update is detected it can be downloaded and installed on the next wizard steps.

> **Note:** **Active@ Boot Disk Creator** stores your previously installed versions so you may roll back to any of your older versions at any time.

## Using Boot Disk Creator

**Active@ Boot Disk Creator** helps you to prepare a bootable CD/DVD/Blu-ray disk, ready-to-go ISO image or USB Flash mass storage device that you can use to start a machine with a damaged hard drive and recover data, recover partitions, wipe or erase data, create a disk image or repair security access issues.

**Active@ Boot Disk Creator** includes the latest driver packages, being able to recognize and work properly with nearly all the latest computer hardware configurations.

In order to create a bootable media or ISO image:

1. On the **Active@ Boot Disk Creator** main page select the desired bootable media: CD/DVD/Blu-ray, USB Flash Drive or pre-configured ISO image file (can be used with virtual machines (*VM*s) like *VMWare Workstation* or *Hyper-V*, or can be burned to CD/DVD/BD later on):
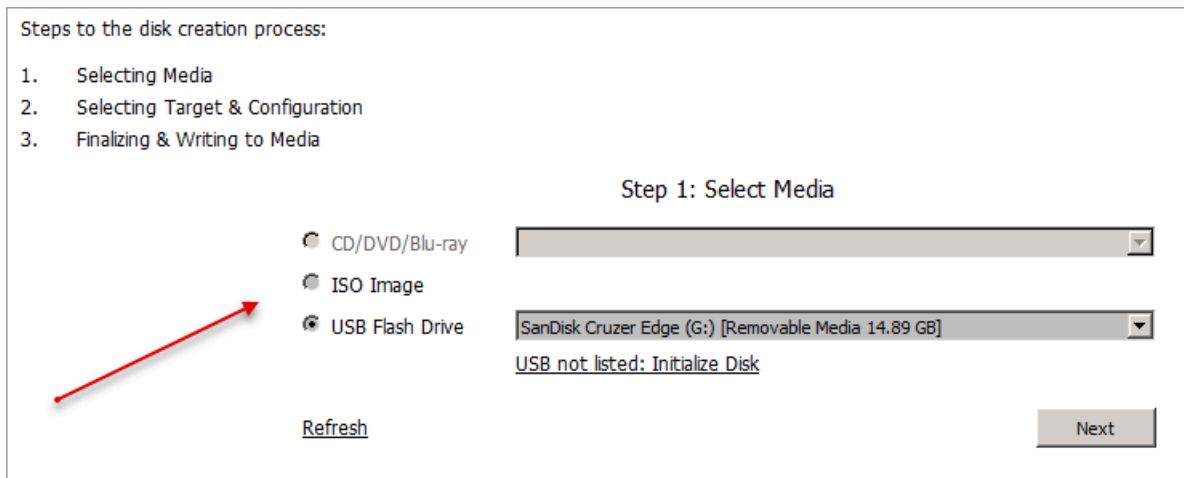


2. If more than one CD/DVD/Blu-ray burners are presented in the system or several USB drives are inserted, select a proper device from dropdown lists. If some USB drive is not displayed in a list, click the link below and initialize it properly:
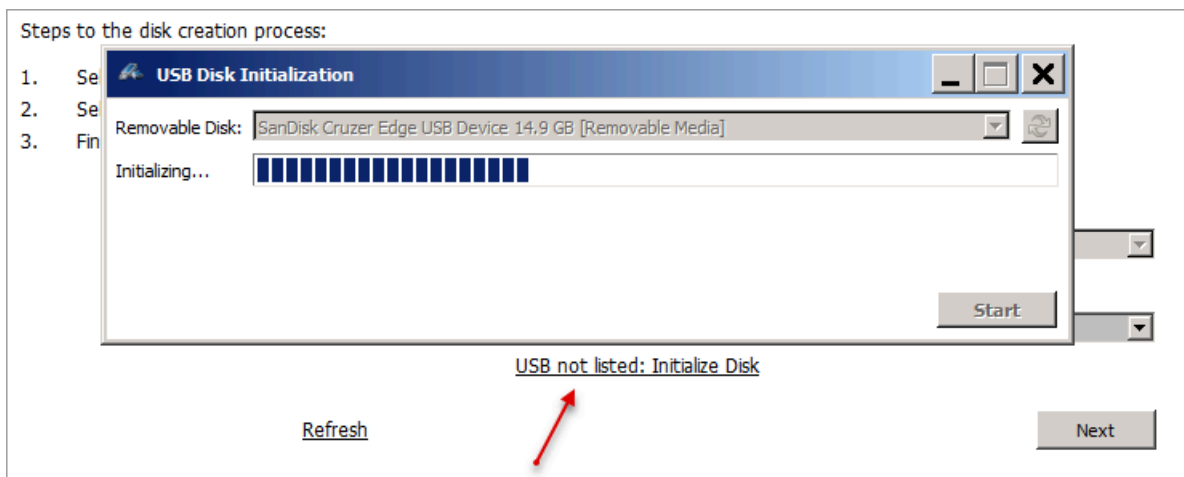


> ⚠️ **Important:** Only 32 GB or less size partitions are supported (for best compatibility with all types of BIOS and UEFI Secure Boot systems). So if you have 64 GB USB, initialize it with 32 GB partition.

> 📝 **Note:** If you have purchased commercial version of **Active@ Boot Disk**, click **Registration** link to register software on your name or on the name of your business. Registration eliminates DEMO version limitations and activates all features of commercial software.

**3.** By clicking `Next` you are getting to the target profile selection part:
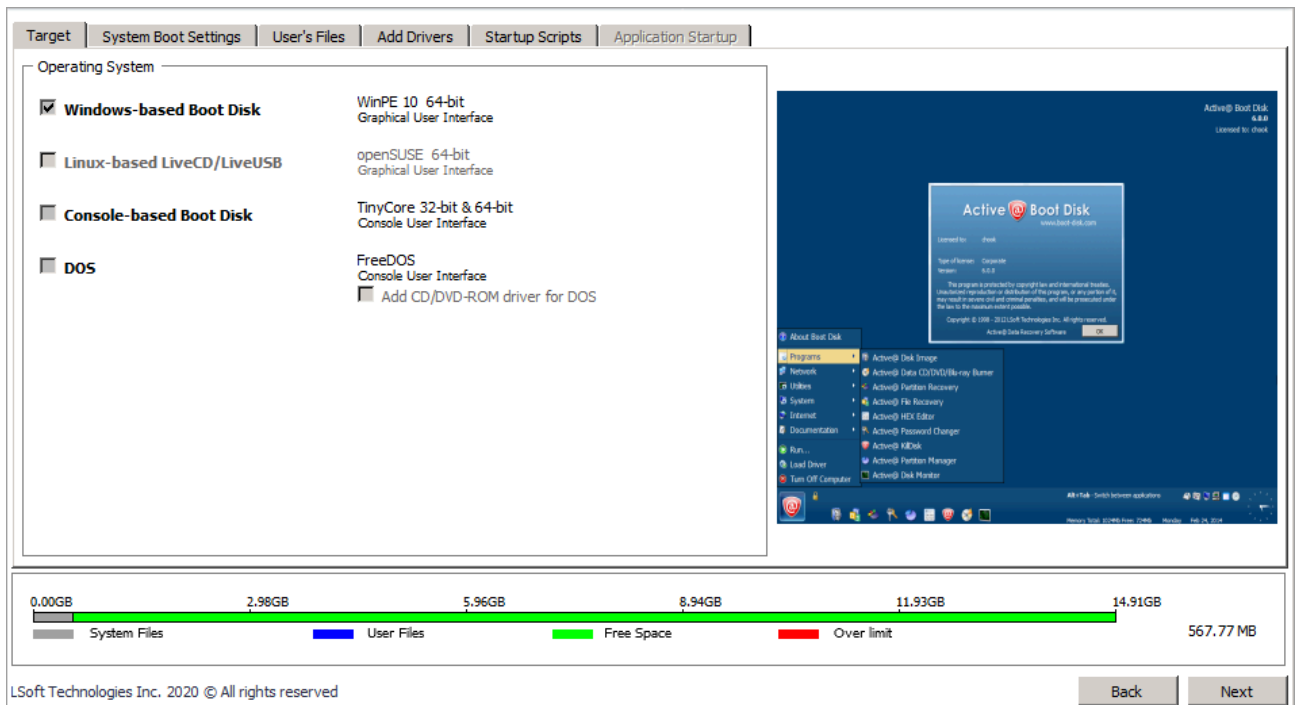


### Windows-based Boot Disk

Windows PE 10 OS, 64-bit profile with graphical interface for user convenience

### Linux-based LiveCD/LiveUSB

openSUSE Linux-based OS, 64-bit profile with graphical interface for user convenience

### Console-based Boot Disk

Tiny Core Linux-based OS, 32/64-bit profile with console user interface

### DOS

FreeDOS DOS-based OS, 16/32-bit profile with console user interface

### Memory tester boot (for ISO images)

A convenient boot profile for memory testing

**4.** Choose the desired profile and specify additional options (if applicable)

- To specify additional boot options click System Boot Settings tab. You can change default settings to be used: Time Zone , Additional Language and Keyboard support , Display Resolution , Default Application => Start and Time to Autostart => Seconds :



> 📝 **Note:** Most of these options you can change later after booting from created **Active@ Boot Disk** drive at the starting screen.

Two additional second level tabs: Network and Security allow you to pre-define *Network Settings*: network initialization, dynamic or static IP configuration and firewall state, as well as to set up your new boot drive password protection for boot up process to avoid unauthorized usage.
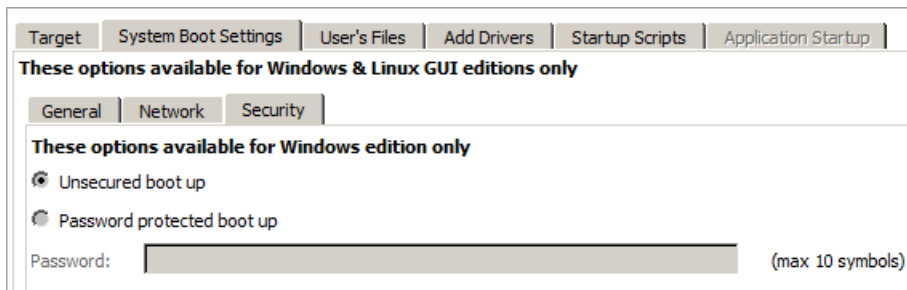
- To add your custom files to bootable media, click **User's Files** tab. Add files or folders using related buttons at the right side. Added items will be placed to *User_Files* root folder.
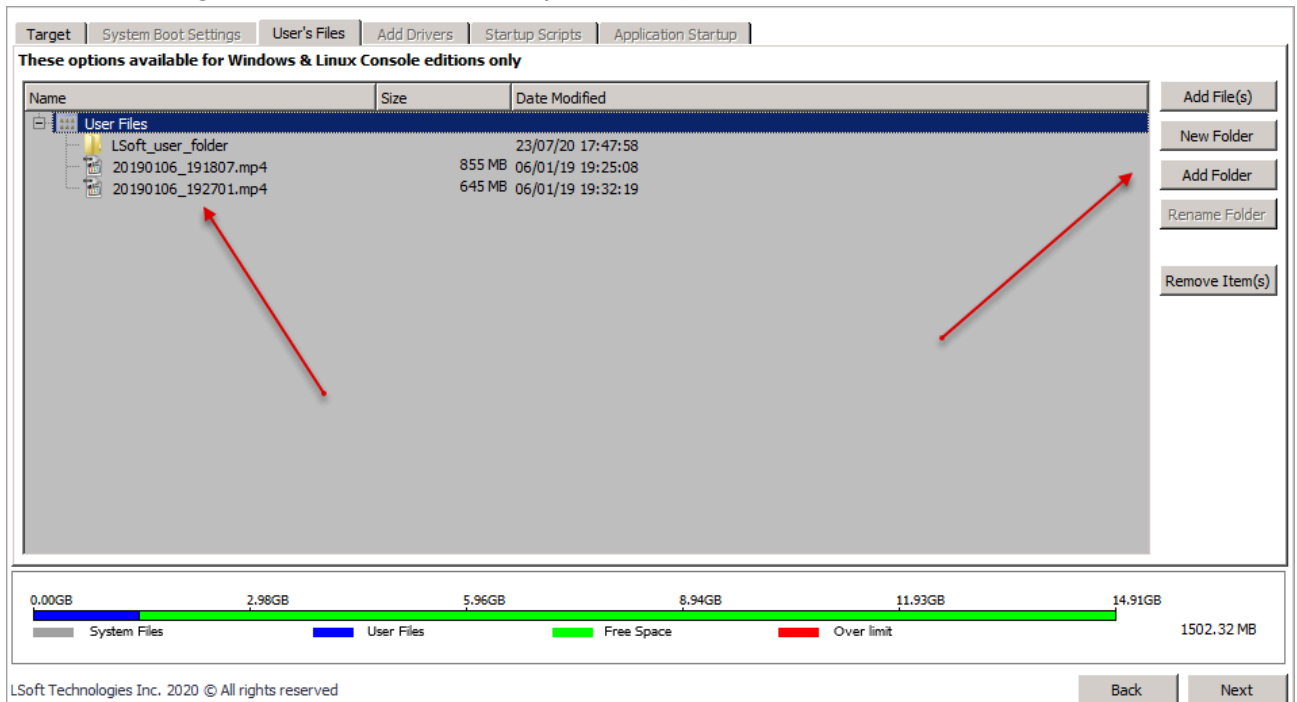


- To add specific drivers to be loaded automatically, click **Add Drivers** tab. Add all files for the particular driver (*.inf*, *.sys*, …). Added items will be placed into *BootDisk_Drivers* root folder. At boot time all *.inf* files located in this folder will be installed. Read here for more details.
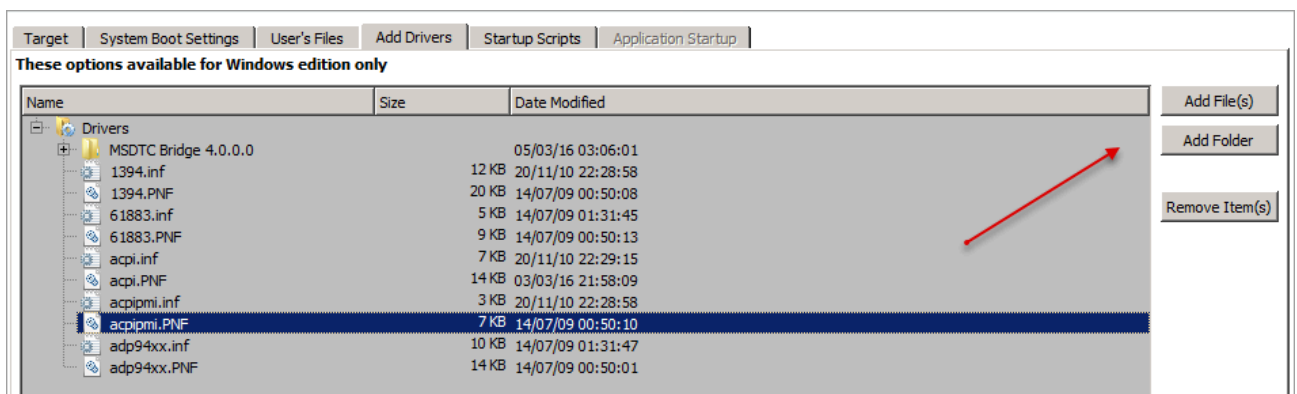


- To add specific scripts to be launched after **Active@ Boot Disk** is loaded, click **Startup Scripts** tab, add your scripts (*.cmd* files). Added files will be placed in *BootDisk_Scripts* root folder. At boot time all *.cmd* files located in this folder will be executed. Read here for more details.
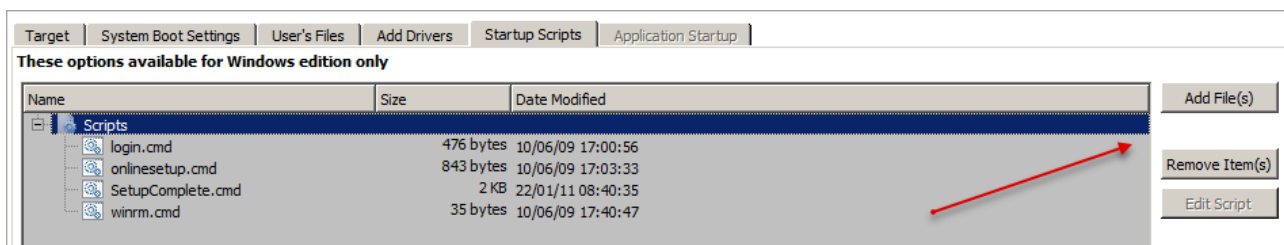
- To add startup command line or *ini*-syntax parameters use **Application Startup** tab.
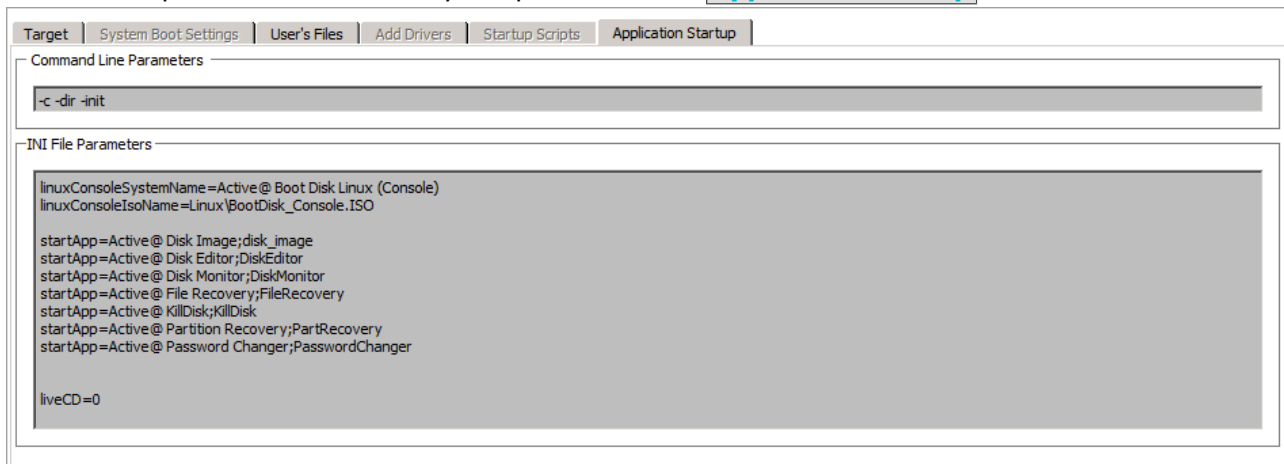


📝 **Note:** Available for Linux-based profiles

**5.** When you have completed all the necessary steps, click **Next**. Verify the selected *Operating System*, selected *Media*, *Sizes*, *Bootup Environment* and *Command Line Parameters (if applied)*. Temporary folder may be specified as well.



**Operating System**
Active@ Boot Disk Windows (based on WinPE 10 64-bit)
**Media**
SanDisk Cruzer Edge (G:). Total size: 15266.00 MB
**Size**

| | | |
|---|---|---|
| System size: | 567.77 MB | (595,351,552 bytes) |
| Driver files size: | 3.21 MB | (3,363,791 bytes) |
| Script files size: | 0.00 MB | (3,615 bytes) |
| Total size: | 570.98 MB | (598,718,958 bytes) |

**Bootup Environment**

| | |
|---|---|
| Additional Language: | IT (Italian) |
| Display Resolution: | Auto-detection |
| Time Zone: | (GMT-05:00) Eastern Time (US & Canada) |
| Time to Autostart: | 30 sec |
| Default Application Start: | Off |
| Initialize Network: | Off |

**Command Line Parameters**
-c -dir -init

Use Temporary Folder: C:\Users\LEHINS\AppData\Local\Temp\ ...

☐ Skip format media (Not recommended)

Back    Create

**6.** Click `Create` and confirm the procedure:

**Format media** ✕

> **?** **Warning!** All existing data on USB will be destroyed.
>
> Do you want to continue with formatting?
>
> Yes    Cancel
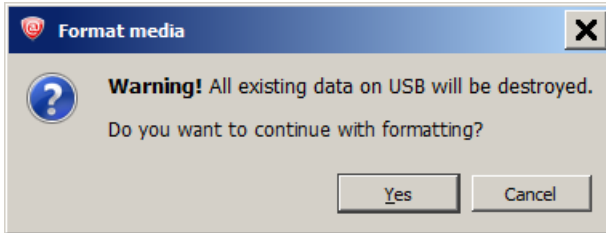
**7.** Observe the process of initializing and creating your new **Active@ Boot Disk** on selected media!

| 567.77 MB | (595,351,552 bytes) |
| 3.21 MB | (3,363,791 bytes) |
| 0.00 MB | (3,615 bytes) |
| 570.98 MB | (598,718,958 bytes) |

**Formatting - 21%** ✕

**Copying system files - 84%** ✕
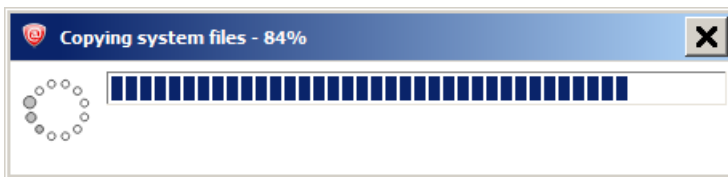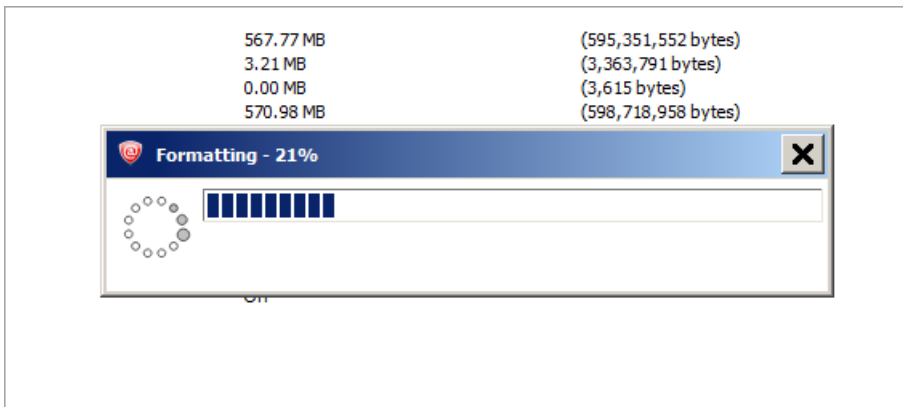
**8.** When the procedure of creating is done successfully the confirmation dialog appears. Click OK and Finish on main window if you want to close the **Active@ Boot Disk Creator** or click Back to continue working (creating more disks/USB or ISO images):
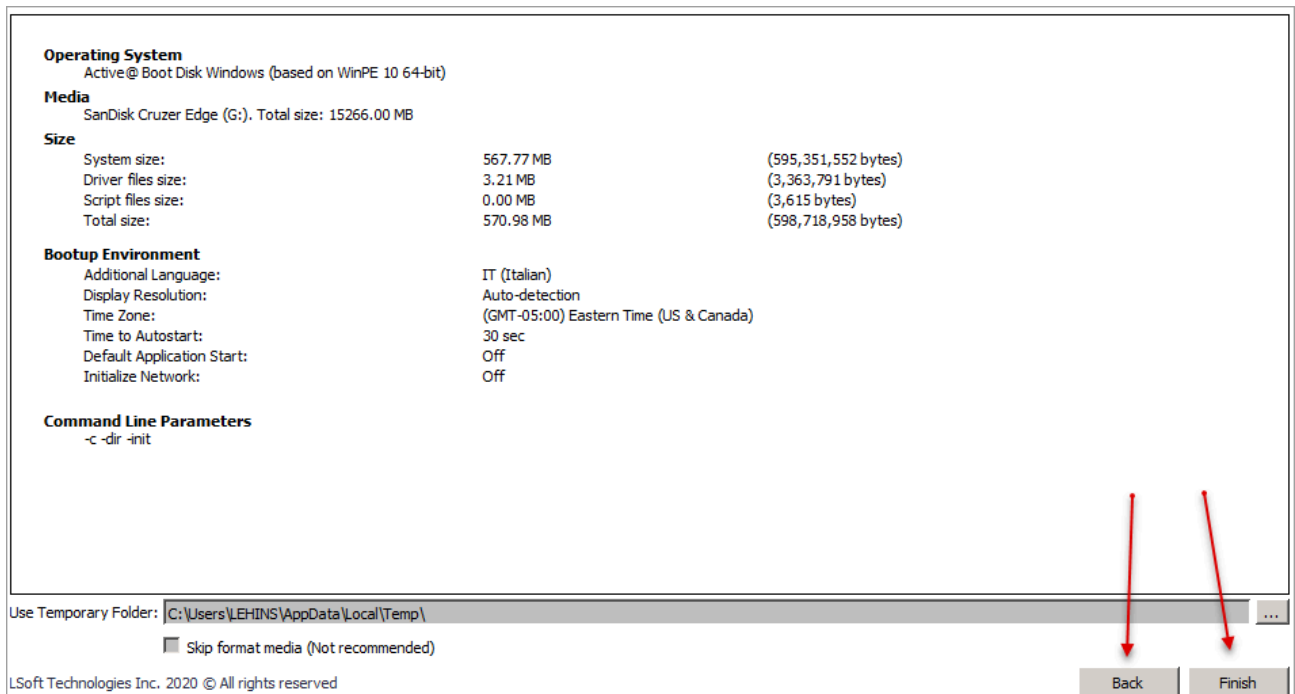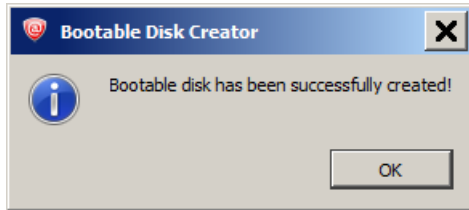


### Drivers and Scripts

You definitely can automate some functions using **Active@ Boot Disk**.

While **Active@ Boot Disk** is starting, you may install drivers and run scripts in order to reduce the amount of time required to perform maintenance functions on your data storage system.

If you suppose that your hard drive has damaged drivers or if you have older or uncommon *RAID* or *SCSI* type drivers, you have a possibility to create a folder named *BootDisk_Drivers* in the root of any logical drive and load drivers along with their configuration files into it. **Active@ Boot Disk** will detect these drivers and install them automatically during the boot process.

While created **Active@ Boot Disk** is loading the start-up utility searches for the *BootDisk_Drivers* folder in the root of all devices. That includes the floppy drive, an USB device, a working hard drive etc.

If **Active@ Boot Disk** finds *.inf* files inside a folder named *BootDisk_Drivers*, it tries to load them along with all other files required by the drivers provided.

Whether or not the utility loads drivers, **Active@ Boot Disk** will proceed in search of a folder named *BootDisk_Scripts* – again in the root of any logical drive.

> **Note:** **Active@ Boot Disk** runs any *\*.cmd* files assuming that they are scripts.

**Active@ Boot Disk Creator** helps you in configuring these folders (drivers and scripts).

## Booting from CD/DVD/USB

After successful creating a bootable media (CD/DVD/Blu-Ray or USB) you can proceed directly to the boot procedure.

> 📝 **Note:** If you created an ISO image it should be burnt to the medium first

> 📝 **Note:** Before using your new bootable media you should purchase a required license and obtain a registration key or use supplied evaluation DEMO key.

> ⚠️ **Important:** For instructions on setting boot sequence priority in the system BIOS see the appendix.

To boot from the **Active@ Boot Disk** drive:

1. To boot from CD/DVD/Blu-Ray put the bootable **Active@ Boot Disk** disk into the drive and turn on your computer
2. To boot from USB device plug the bootable **Active@ Boot Disk** USB device into a USB port and turn on your computer
3. If you want to cancel booting up the **Active@ Boot Disk** and load the operating system on the system hard drive, press any key on the keyboard

# Bootable Media Profiles

## Windows-based Boot Disk

**Windows-based Boot Disk** is a **Active@ Boot Disk Creator** profile to create a bootable media based on Windows PE 10, 64-bit operating system with the set of tools and utilities. This section describes the process of booting from media created with this profile and further working with its powerful and effective software.

**Note:** Right after the *Windows PE* start screen, computer's display may go dark for a period of time. Wait for the start page to load.
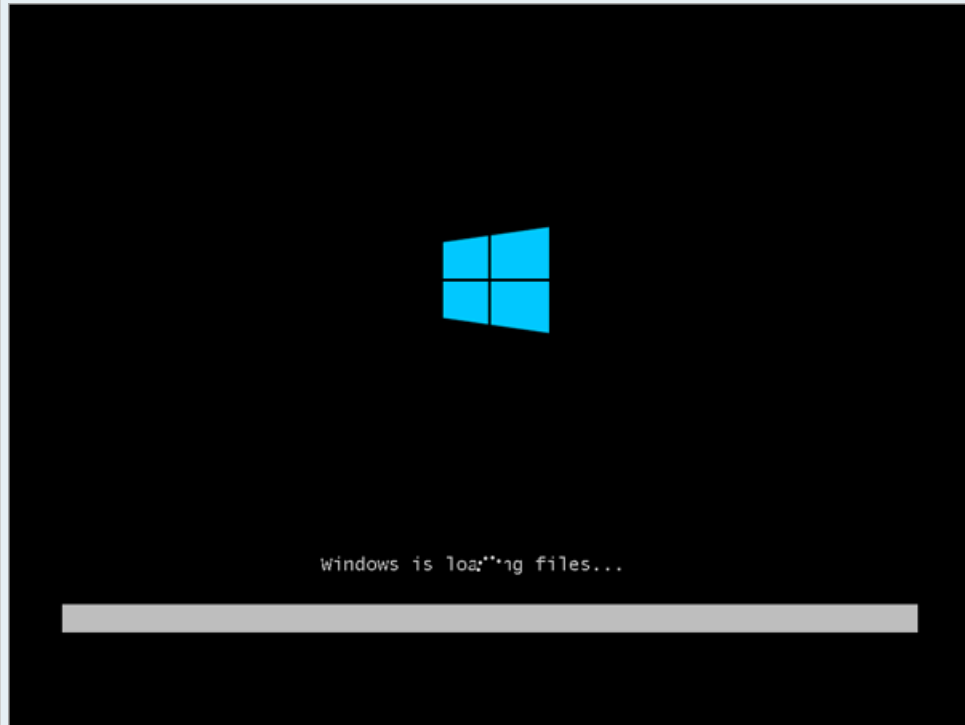
**1.** The **Active@ Boot Disk** start page appears:



> 📝 **Note:** If you stay idle on this page, after the 30-second period **Active@ Boot Disk** will automatically continue the boot process.

On this page you can change/add the following features:

**a.** Add a second language keyboard layout: select the **Additional Keyboard layout** check box and choose the language from the **Keyboard layout to install** drop-down list.

**b.** Change local time zone: choose the time zone from the **Time zone** drop-down list.

**c.** Change screen resolution: choose a setting from the **Screen resolution** drop-down list.

**d.** Initialize your network card and allow a network connection, select the **Initialize network interface** check box. The **Active@ Boot Disk** will detect and load hardware drivers and start the network connection. This may take a long time and the screen may have black flashes (showing *Command Prompt Console*).

**e.** Click **OK**.

**2.** The **Active@ Boot Disk** main taskbar appears:
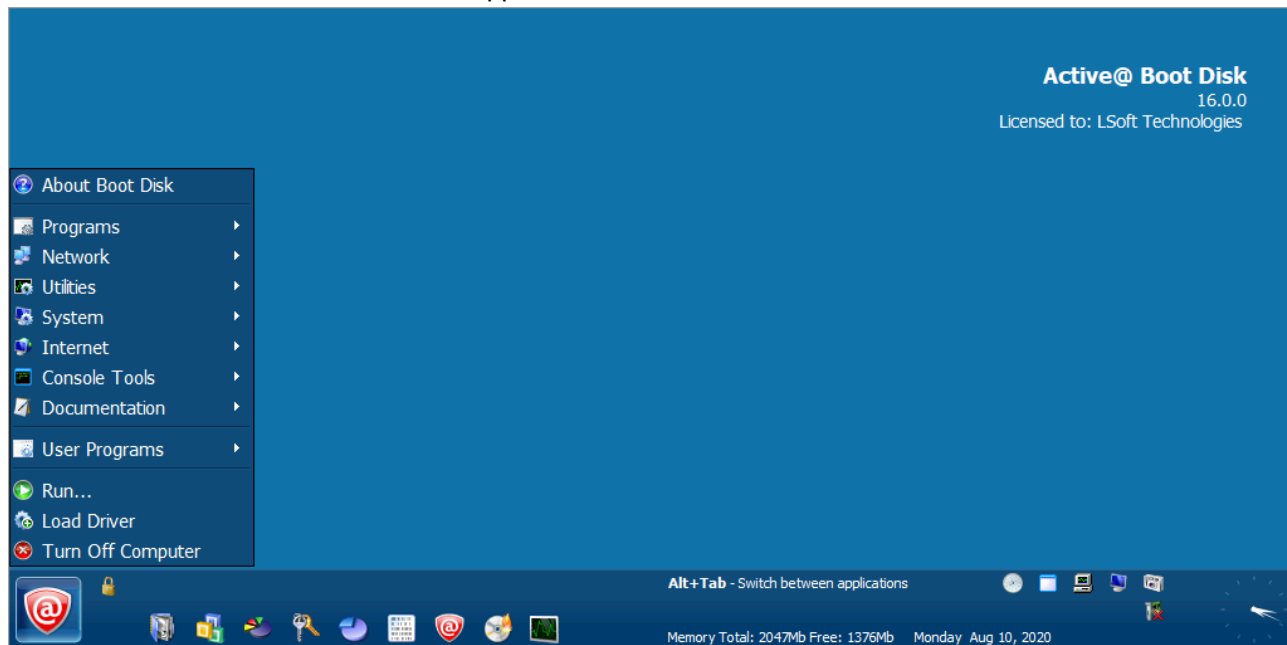


Now you are ready to use the **Active@ Boot Disk** utilities.

> ⚠️ **Important:** After starting the computer this way, you will have full and exclusive access to the system drive. With this kind of access, you can perform tasks that are not possible when *Windows* has been booted regularly from the hard drive. The only other way to get this type of exclusive access to your hard drive would be to physically remove it and install it on another computer.

> 📝 **Note:** If you have successfully booted from the CD, DVD or USB device and you do not see your *C:* drive because, for example, it is a *Stripe Array* (RAID 0) or if you are using an older or non-standard controller, see instructions in Start Button Menu > Load Driver.

## Start Button Main Menu

The **Active@ Boot Disk** *Start button* is the central launching point for applications, utilities and support

documentation. To access one of the applications or utilities, click the Start button 🔴. A menu will appear containing shortcuts to applications, utilities and documentation under the following headings:

### Programs

Data backup, data recovery and data security programs that allow you to:

- Backup or restore physical and logical hard drives, including folders, data files and installed applications. Use an *ISO* disk image or burn files to a *CD* or *DVD*. Protect your valuable data by regularly making backups
- Recover data from deleted or damaged partitions on attached or external drives, portable drives and memory cards
- Recover data from damaged or deleted files or folders
- Reset password and user accounts on your system
- View and edit disk sector content in raw format
- Securely erase data from hard drives in a way that it is impossible to restore the data
- Wipe data from unused clusters on a regular basis to make your drive's deleted or temporary data unavailable to intruders.
- Monitor the reliability status of your local hard drives to help prevent data loss due to hard drive failure.

### Network Tools

Network operations utilities to map network drives, view network status, renew your computer IP-address or connect to a remote desktop

### Utilities

Monitor the physical status of your hard drives, create, delete and format drive partitions; copy move and delete files and folders and edit registry parameters. Allow menus and dialogs to display in local languages and change the keyboard layout. Search for and display registry details. Also make calculations, notes and graphics about actions that you have done or need to do

### System

Run system utilities like *Windows Task Manager*, *Partition Manager* and *Check Disk*. Run commands in a DOS environment. View/edit *BCD* (Bootable Configuration Data) entries. Also, display system information, change the display resolution and color mode

### Internet Tools

Run *Internet* browser to explore the *Internet*, send emails and download files from a *FTP* site or use *Telnet* client to connect to a *Telnet* server

### Console Tools

Run command line tools, like *Command Prompt*, *DiskPart*, *FTP* Client and more...

### Documentation

User guides and manuals included with **Active@ Boot Disk**

### User Programs

Shortcuts created by users will be placed here as well as on a Desktop. If you store customized configuration to the USB disk while shutting down the system, the configuration will be restored with your next boot

**Additional Start Button Menu Features**

### About Boot Disk

To get information about your purchased license or the status of your DEMO install, click `Start` > `About Boot Disk`



### Run

Use `Run` to launch a program from a command line

To start a program using `Run`:

**1.** Click `Start` > `About Boot Disk`. The `Run` dialog box appears
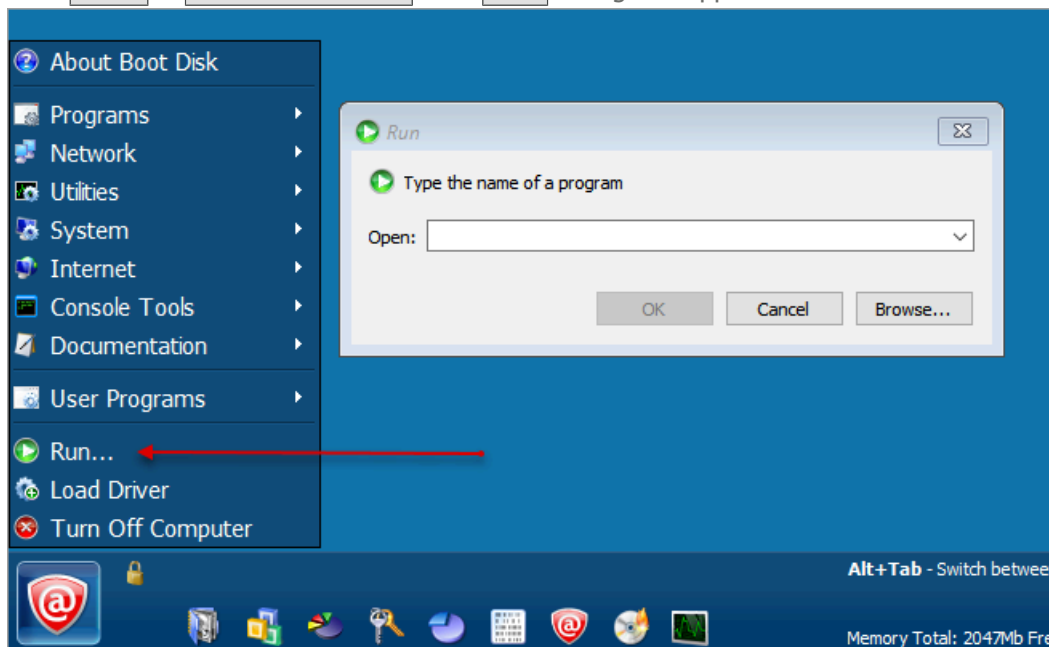


**2.** In `Open` field type the path to the program you want to open or click `Browse` to locate it

**3.** Click `OK`

The *Open* drop-down list displays programs you have opened recently.

### Load Driver

*Load Driver* feature really helps if you have SCSI drive controllers or an older or uncommon RAID type device. *Load Driver* also helps if you cannot find any other type of driver, for example, video driver, sound card driver etc.

To load a driver:

**1.** Click `Start` > `Load Driver`. The **Active@ Driver Installer** dialog box appears:
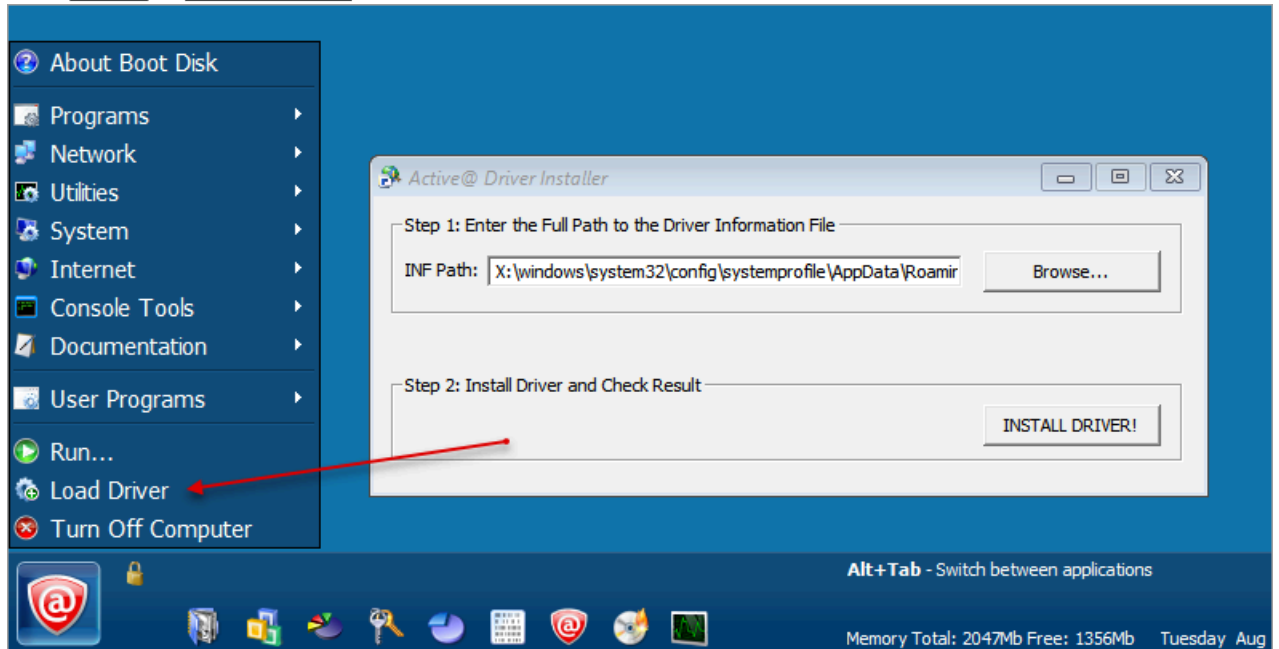


**2.** In `INF Path` field enter the path to the driver *information file* (*.inf) or click `Browse` to locate it
**3.** Click `INSTALL DRIVER!`

After the driver is installed, you should be able to locate the driver using `Utilities` > `Explore My Computer`. Similarly, the system should be able to locate and use the driver.

> **Note:**
>
> If you do not have the driver *information file* on the current drive, do one of the following:
>
> - Load a CD or DVD disk with the correct drivers into the CD/DVD drive or plug a USB device with the correct drivers into a USB port.
> - Close **Active@ Driver Installer**. Use *Internet Browser* or another *Internet* utility to download a proper driver and save it to your hard drive. Start this procedure again from Step 1.

> **Important:** You can load drivers automatically at boot time. For more information, see Boot Disk Drivers and Scripts.

### Turn Off Computer

When you turn off the **Active@ Boot Disk**, you have the option to shut down your computer, restart it or cancel the exit turn off procedure
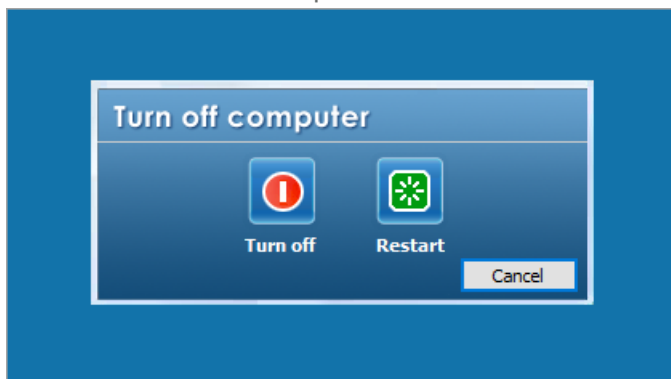


## Quick Launch Icons

Several permanent icons appear to the right of the **Active@ Boot Disk** start button. To see a "*hover box*" with additional information about a quick launch icon, hold your mouse pointer over the icon:
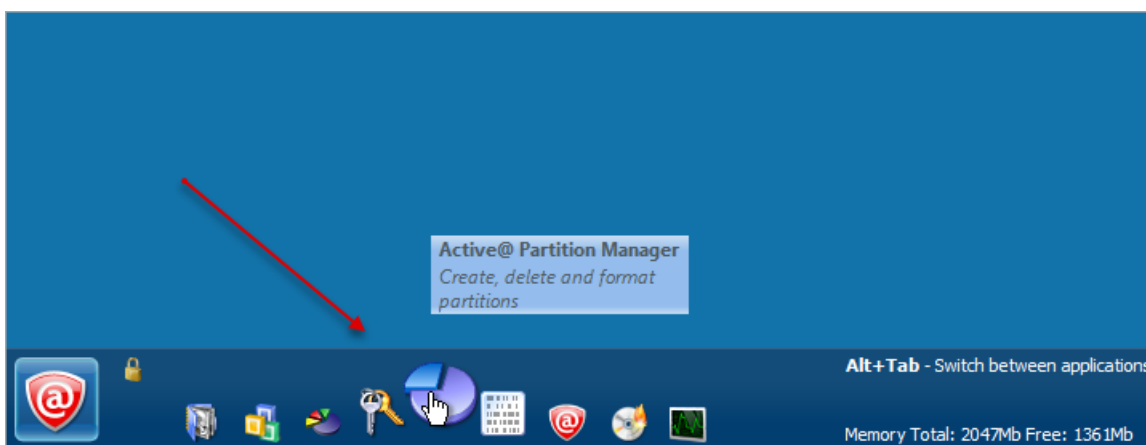


Use these icons to conveniently open the following **Active@** programs:

- Active@ Disk Image
- Active@ File Recovery
- Active@ Partition Recovery
- Active@ Password Changer
- Active@ Partition Manager
- Active@ Disk Editor
- Active@ KillDisk
- Active@ Data CD/DVD/Blu-ray Burner
- Active@ Disk Monitor

**Note:** To allow the taskbar to hide automatically, click the lock icon to unlock it. The taskbar hides until you hold the mouse pointer over the bottom

of the screen. To lock the taskbar in place, click the lock icon to lock it:
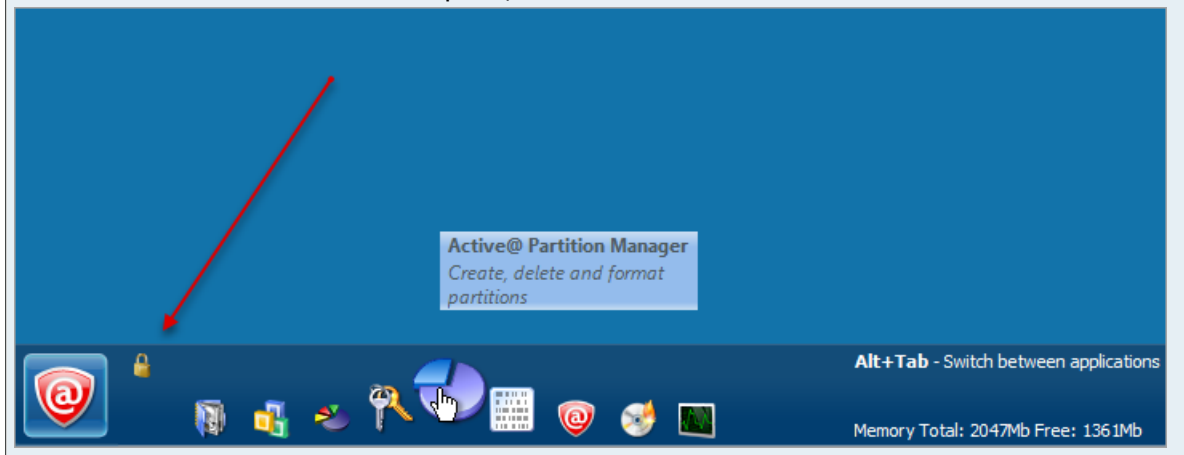


## System Utility Icons

At the bottom right corner of the taskbar, a system tray is placed with a clock showing the system time and date. In the middle of the screen you can watch the system memory (RAM) usage information and its availability.
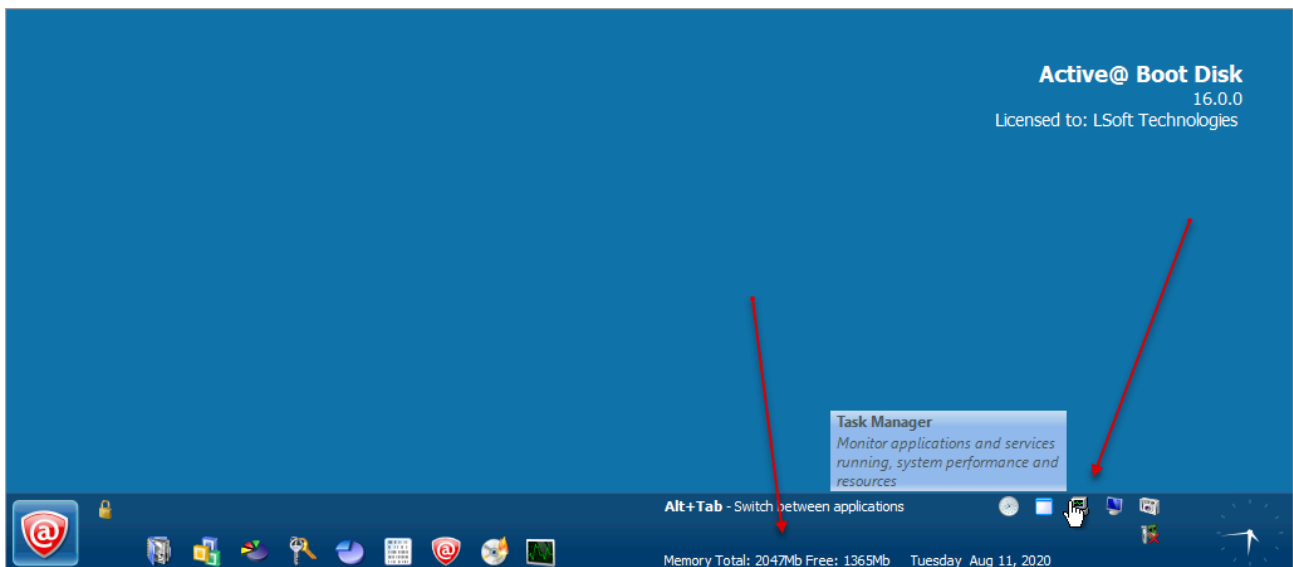


As well, several icons provide quick access to system utilities. To see a "hover box" with additional information about a system utility icon, hold the mouse pointer over one of the icons.

Use these icons to conveniently open these utilities:

- Date, Time & Zone (You may also double-click the clock at bottom right corner)
- Display Settings
- Task Manager
- Boot Disk Explorer
- Screenshot Utility
- Network Configurator

If a network is installed, the *Network connection* icon displays full configuration details such as operational status, IP address, DNS server address, firewall status, and so on.

If a second language is installed, the current language is displayed, along with a hint about how to change the active language.

After you have successfully started **Active@ Boot Disk**, click Utilities > **Explore My Computer**. The *Boot Disk Explorer* will appear. You should see all the physical and logical devices associated with your computer along with the RAM drive Boot (*X:*).

### Date, Time & Zone

The straight forward utility to change/adjust your computer's date, time and time zone

When you set display configuration options for date and time in the operating system, these settings affect the Date dialog box and other operating system windows. The Date & Time changer also adopts the settings as you enter dates and times.

To open the Date & Time changer, click `Start` > `System` > `Date, Time& Zone` or double-click the clock at bottom right corner.

> **Note:** If you create records that are date and time dependent, they are stored in the current time zone. If you change the time zone setting, records in the database are not changed to reflect the new time zone setting.

To set the date and time:

1. Click the `Date & Time` tab.
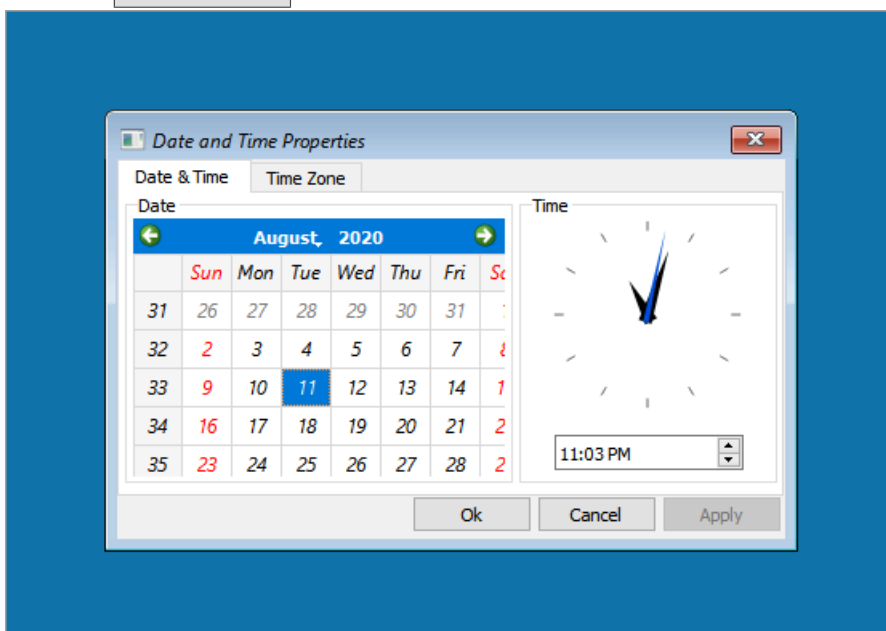


2. Use the calendar to pick the current date.
3. In the digital time box click the hour, minute or second.
4. Use the spinner control to change the digit forward or backward.
5. Click `Apply`.

To set the time zone:

1. Click the `Time Zone` tab.
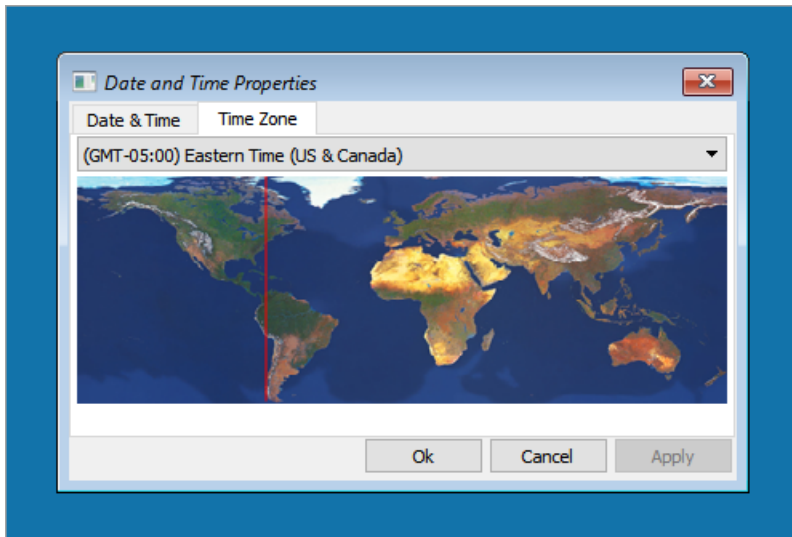
1. From the drop-down list, set your time zone, relative to *GMT* (Greenwich Mean Time).
2. Click **Apply**.

### Display Settings

Convenient tool to change screen resolution and number of colors on fly.

To use **Display Settings** configurator:

- In the **Active@ Boot Disk** shell, click `Start` > `System` > `Check Local Disks`. The `List All Modes` list appears with a list of all valid modes.

**List All Modes**

List of valid modes

640 by 480, True Color (32 bit), 64 Hertz
800 by 600, True Color (32 bit), 64 Hertz
1024 by 768, True Color (32 bit), 64 Hertz
1152 by 864, True Color (32 bit), 64 Hertz
1280 by 960, True Color (32 bit), 64 Hertz
1280 by 1024, True Color (32 bit), 64 Hertz
1400 by 1050, True Color (32 bit), 64 Hertz
1600 by 1200, True Color (32 bit), 64 Hertz
1792 by 1344, True Color (32 bit), 64 Hertz
1856 by 1392, True Color (32 bit), 64 Hertz
1920 by 1440, True Color (32 bit), 64 Hertz
1366 by 768, True Color (32 bit), 64 Hertz
1680 by 1050, True Color (32 bit), 64 Hertz
1920 by 1200, True Color (32 bit), 64 Hertz
2048 by 1536, True Color (32 bit), 64 Hertz
854 by 480, True Color (32 bit), 64 Hertz
1280 by 720, True Color (32 bit), 64 Hertz
1920 by 1080, True Color (32 bit), 64 Hertz
1280 by 800, True Color (32 bit), 64 Hertz
1440 by 900, True Color (32 bit), 64 Hertz
720 by 480, True Color (32 bit), 64 Hertz
720 by 576, True Color (32 bit), 64 Hertz
800 by 480, True Color (32 bit), 64 Hertz
1280 by 768, True Color (32 bit), 64 Hertz

Apply    Cancel

- Click a mode to select. The `Apply` button is enabled.
- Click `Apply`.

The display mode is changed.

**Task Manager**

The main tool to track/troubleshoot working applications, running processes and services, monitor system and network load (performance)
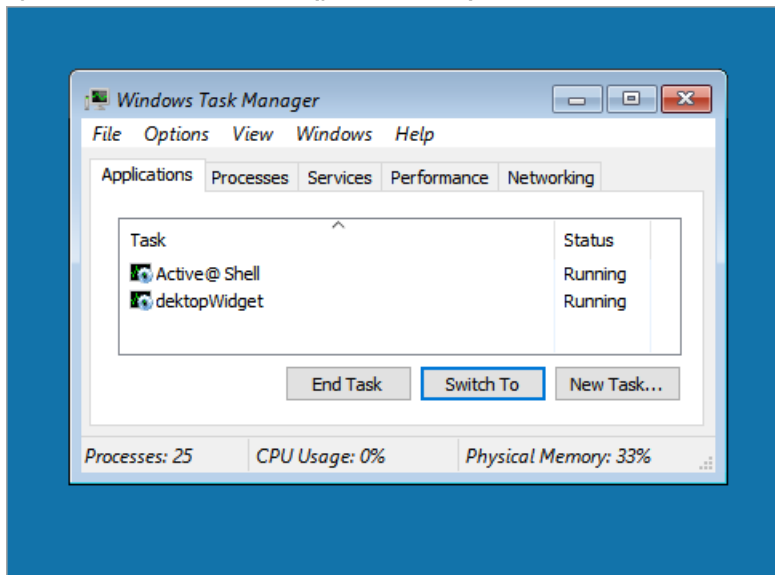


To open **Task Manager** click `Start` > `System` > `Task Manager`. You may also use the familiar key combination `Ctrl+Alt+Del` to open **Task Manager**.

The `Applications` tab displays the status of the programs that are running on the computer.

The `Processes` tab displays information about the processes that are running on the computer. A process can be an application that you start or subsystems and services that are managed by the operating system.

Similarly, the `Services` tab displays information about the services that are running on the computer.

Click the `Performance` tab to view a dynamic overview of the performance of your computer. You can monitor, for example, memory available for the current tasks.

## Boot Disk Explorer

**Boot Disk Explorer** is a fast, small, compact and innovative file manager, similar to *Windows Explorer*.
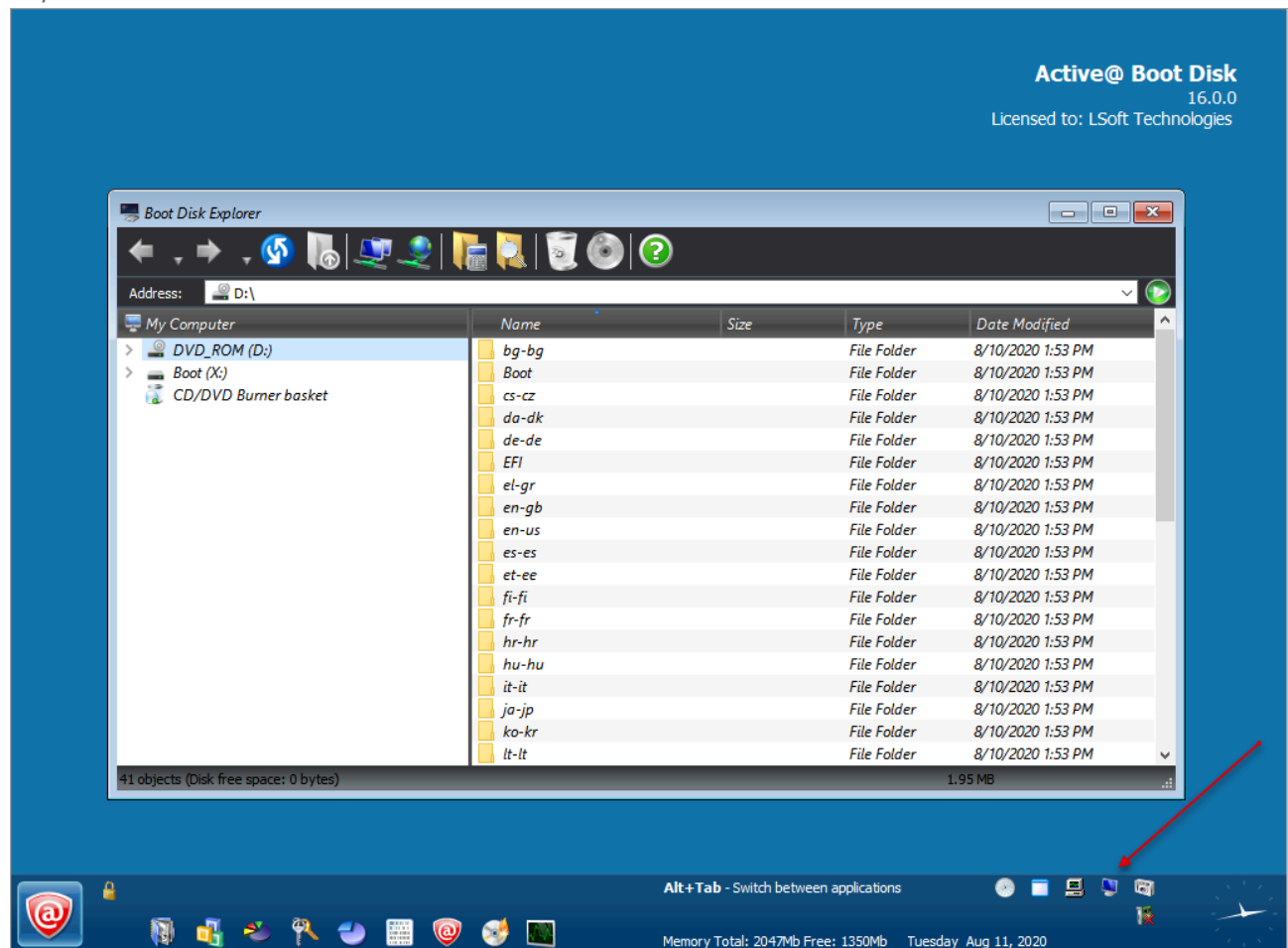


**Boot Disk Explorer** has some additional features that can't be found in *Windows Explorer*:

- Displays the total size of each folder
- Allows you to browse folders from a tree-view or list-view interface
- You can map an *FTP* server as a drive letter, the same way that you would map a network drive using buttons on the toolbar
- When you copy a file, the progress bar will provide you with the information about the ongoing process
- Using ZDelete toolbar button, you can permanently destroy selected files and folders permanently
- Using **Burn Disk** toolbar button, you can burn data files and folders from *CD/DVD Burner basket*

### Screenshot Utility

This utility is an easy-to-use, flexible way to take a snapshot of on-screen details in the **Active@ Boot Disk** environment.

To use *Screenshot Utility*:

- Open any **Active@ Boot Disk** application.

- Click the *Screenshot* icon. The *Screenshot* workspace will appear as a semi-transparent overlay.
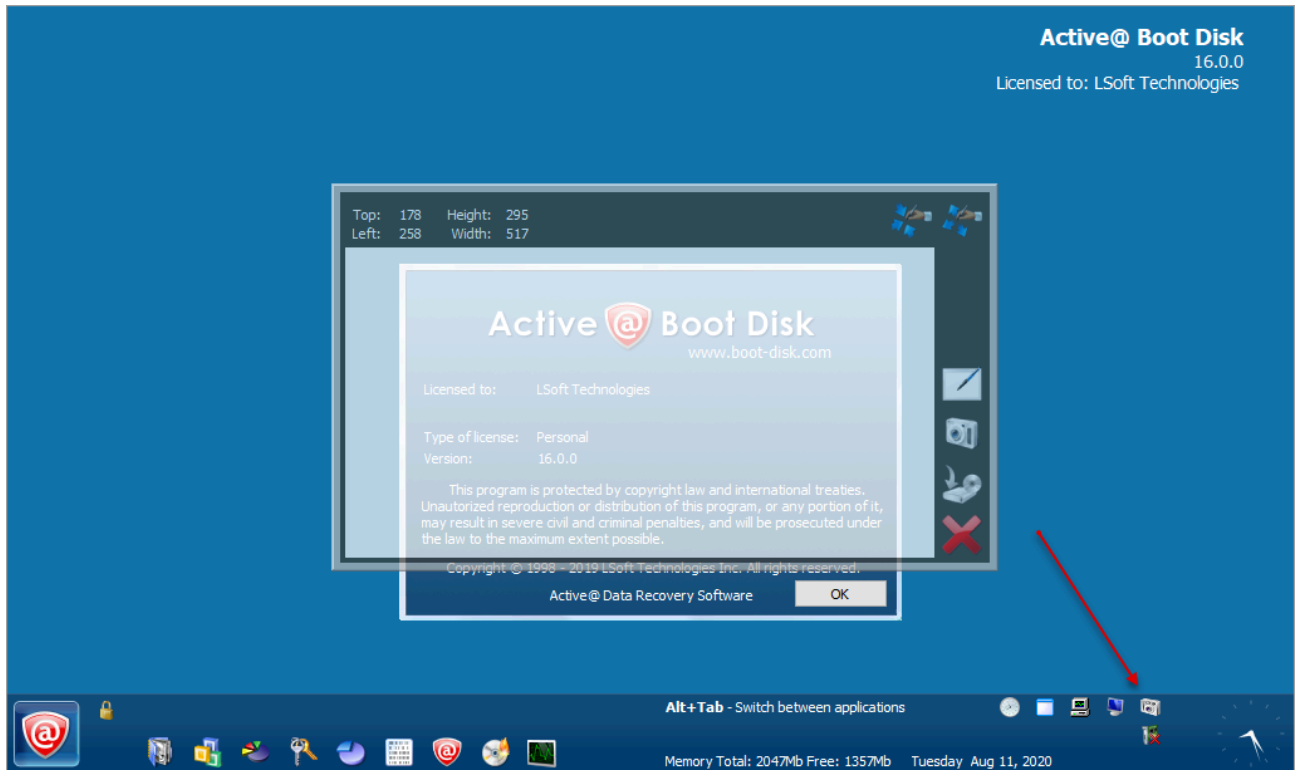


- Change the size and location of the workspace. The area that is covered is the area that will be captured

- When you change the size and the location of the workspace, the **Top** and **Left** values change to identify the location of the top left corner of the workspace. At the same time, the **Height** and **Width** values change to reflect any change in the size of the workspace

- To change the size of the *Screenshot* workspace, click and drag an edge or a corner of the workspace

- To change the location of the workspace, click anywhere on *Screenshot* and drag to a different location

- To fill the entire screen, click  **Maximize**
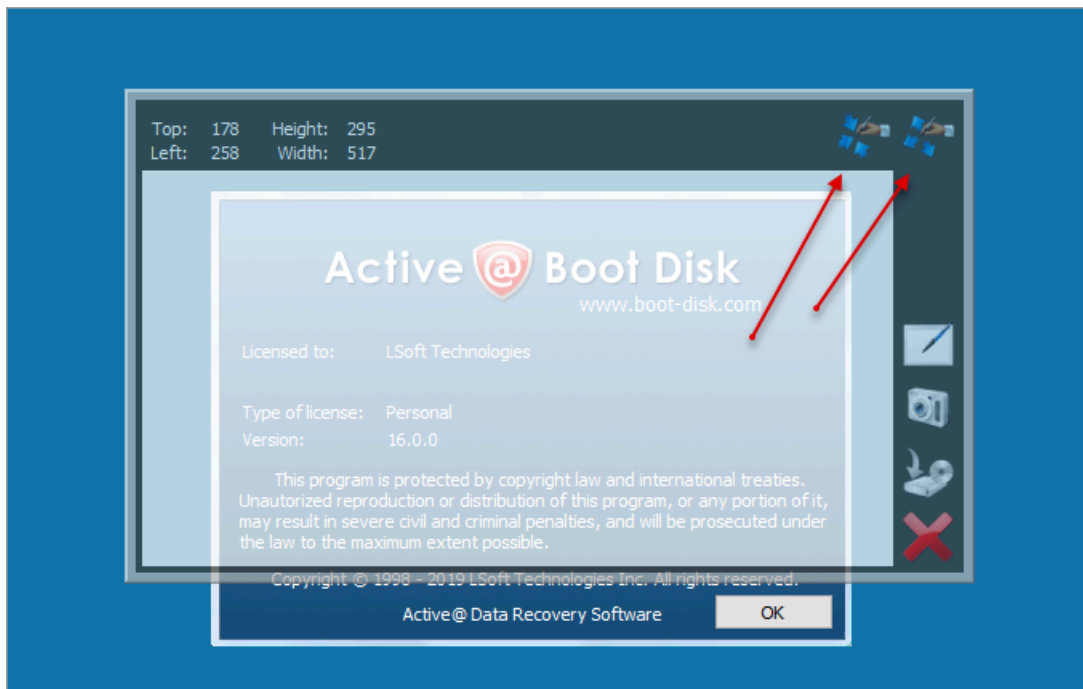
- To return to the initial capture size, click **Default size**
- With the *Screenshot* workspace in place, you can return to the original application using **Alt+Tab** keyboard combination
- You can also click the original application to return to it, however if you click an area of the application that is covered by the *Screenshot* workspace, the focus will return to *Screenshot*
- To capture the screen image, in *Screenshot*, click **Grab** and a semi-transparent image of the screen will appear on the desktop
- To clear the existing screen image, click **Clear**
- To save the screen image, click **Save** and navigate to the folder where you want to save the image. You can save the image as *PNG* or *BMP*

### Network Configurator

This utility works only on computers with adapters that are configured to obtain an IP address automatically. It renews *DHCP* configuration for all adapters.
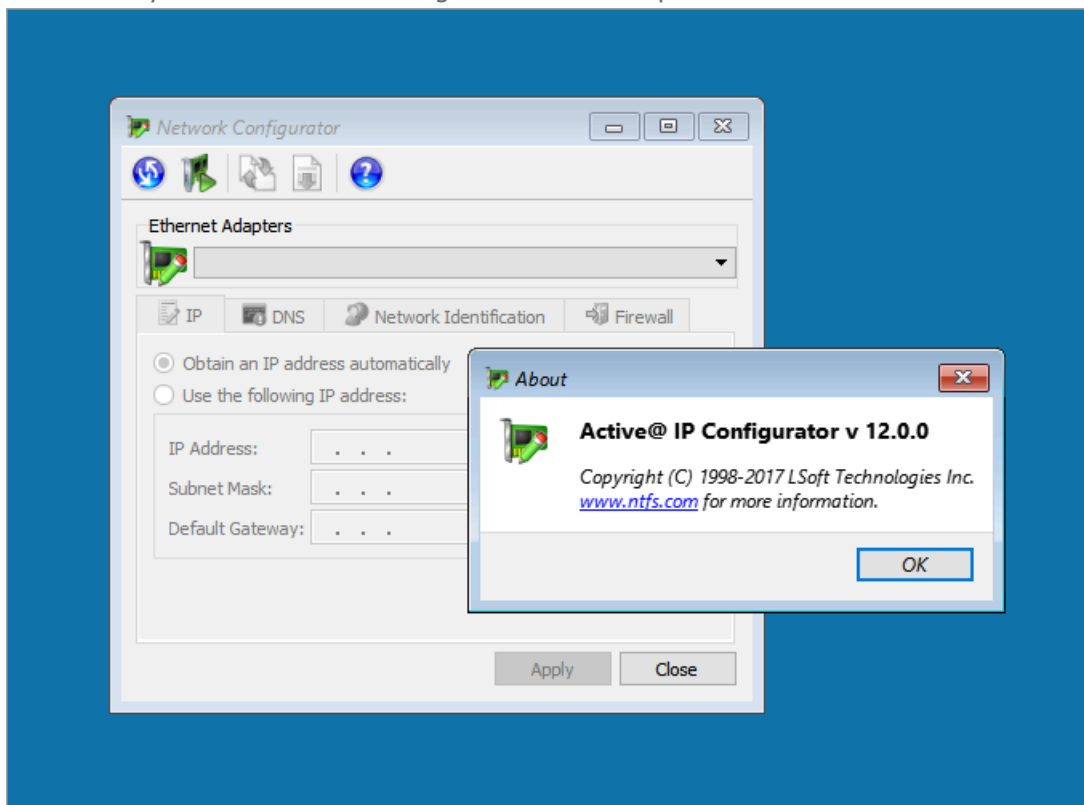


To configure the IP address:

- From the **Active@ Boot Disk** shell, click `Start` > `Network` > `Network Configurator`. Or click the `Network Configurator` icon at the bottom right corner of the taskbar:
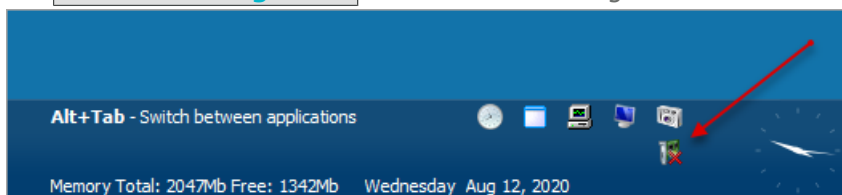


The *Network Configurator* dialog box appears.

- If network service has not been started at boot up time, start it by clicking toolbar button `Initialize Network`
- Select an adapter from the `Ethernet Adapters` drop-down list
- To view details about the selected adapter, hover the mouse over the `Ethernet Adapters` field. A drop-down text screen will appear.
- In the IP tab, do the following:

- To get an IP address automatically from the network server, select the `Obtain an IP address automatically` radio button.
- To use a specific IP address, select the `Use the following IP address` radio button and type the information in the fields below.
- In the DNS tab, do the following:

- To get a DNS automatically from the network server, select the `Obtain DNS Server address automatically` radio button.

- To use a specific DNS address, select the Use the following DNS Server address radio button and type the information in the fields below.
- In the Network Identification tab, to specify a workgroup for group access, type the workgroup name in the Workgroup field and click Set.
- In the Firewall tab, you can set the status of the firewall in the Firewall status drop-down list:

  - To turn the firewall on, choose On.
  - To turn the firewall off, choose Off.

## Desktop Shortcuts and Labels

**Active@ Boot Disk** allows to customize the user interface. You can create shortcuts for the additional portable user's tools on the Desktop and in the Start menu the same way as you do it in Windows Desktop environment. These shortcuts can be saved to USB media and restored when you boot up the system the next time even on the different PC configuration. You can store customized settings to USB even if you boot from CD/DVD.

To create a Shortcut:

**1.** Right-click the Desktop and click Create Shortcut context menu item
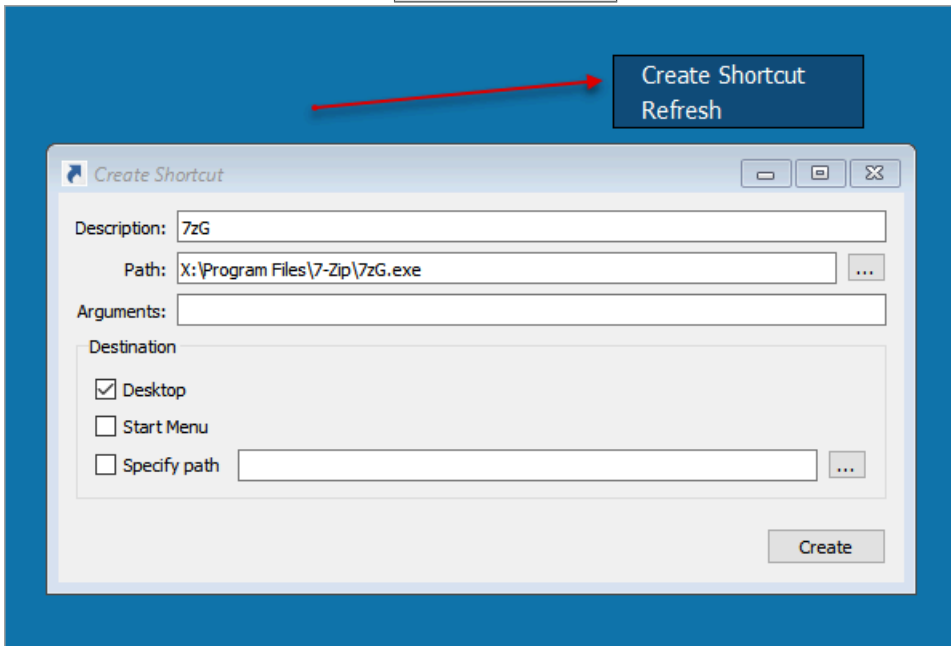


**2.** Select path to the application executable in the Path: field and type shortcut title in the Description: area
**3.** Select where you want shortcut to be stored:

  **a.** On the **Desktop**
  **b.** In the **User Programs** sub-menu of *Start* menu
  **c.** In the specific folder, select full path to the desired location

**4.** Click `Create` button
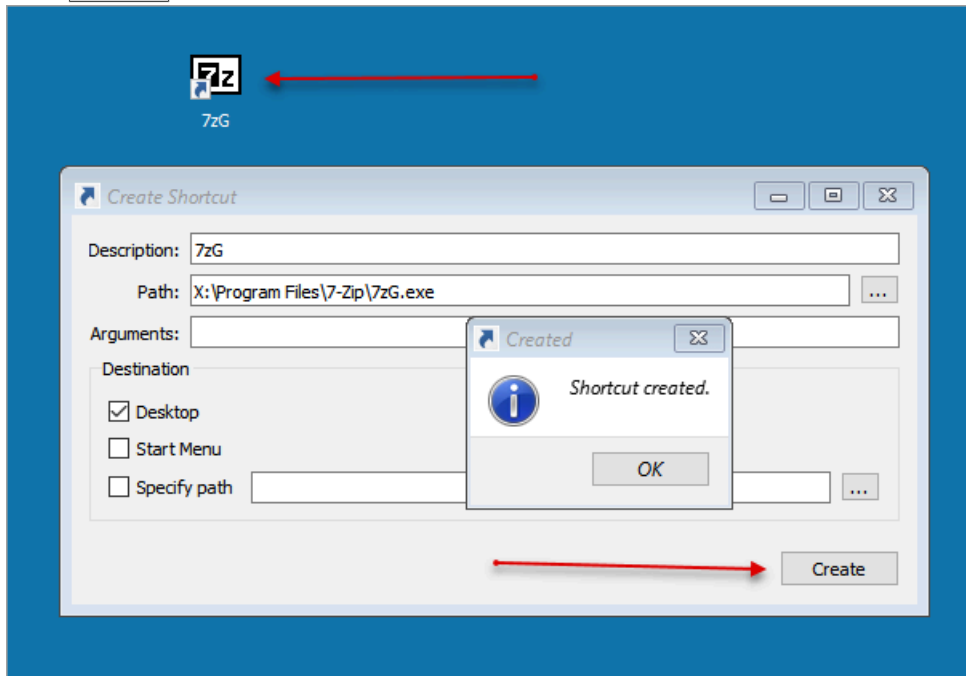


To store customized settings including shortcuts to USB:

**1.** Click `Turn Off Computer` from the *Start* menu

**2.** Select settings you want to save. Settings not being changed are grayed out

Select `USB volume` to save settings to

- Click `Save` button and proceed with Shut Down or system Reboot

## Console-based Boot Disk (TinyCore)

**Console-based Boot Disk** is a **Active@ Boot Disk Creator** profile to create a bootable media based on TinyCore Linux operating system with the set of tools and utilities. This section describes the process of booting from media created with this profile and further working with its effective software.

After loading all the necessary drivers and starting system services, the **Active@ Boot Disk** main page appears:

```
Active@ Boot Disk Console Professional v.1.0.508

 Local System Devices            Properties of 'VMware, VMware Virtual S'

-VMware, VMware Virtual S
 └─► Unallocated Space
-SanDisk  Cruzer Edge                Device:              /dev/sda
   ├─► Unallocated Space
   ├─► ACTIVE BOOT (FAT32)           Media Type:          Fixed Disk
   └─► Unallocated Space             Rotation Rate:       Unknown
                                     Partition Style:     Raw (not partitioned)
                                     Has LDM/LVM/WSS:     No

                                     Controler Raw Data:
                                         Product:         VMware, VMware Virtual S
                                         Revision:        1.0
                                         Serial No:       erV riutlaS .1 0? ?

                                     Physical Geometry:
                                         Total Sectors:      41943040
                                         Tracks per Cylinder: 255
 Launch App for selected disk           Sectors per Track:   63
                                         Bytes per Sector:    512
                                         Total Disk Size:     20.0 GB

    ┌──────────────────────┐        Disk Hidden Areas:
    │  Password Changer     │            HPA Sectors:      not supported
    └──────────────────────┘            DCO Sectors:      not supported

    ┌──────────────────────┐        S.M.A.R.T. support:   No
    │  Hex Editor           │
    └──────────────────────┘

    ┌──────────────────────┐
    │  File Recovery        │
    └──────────────────────┘

    ┌──────────────────────┐
    │  Partition Recovery   │
    └──────────────────────┘

    ┌──────────────────────┐
    │  Disk Image           │
    └──────────────────────┘

    ┌──────────────────────┐
    │  KillDisk             │
    └──────────────────────┘
                                                          ═[ F1 - Menu ]═
```
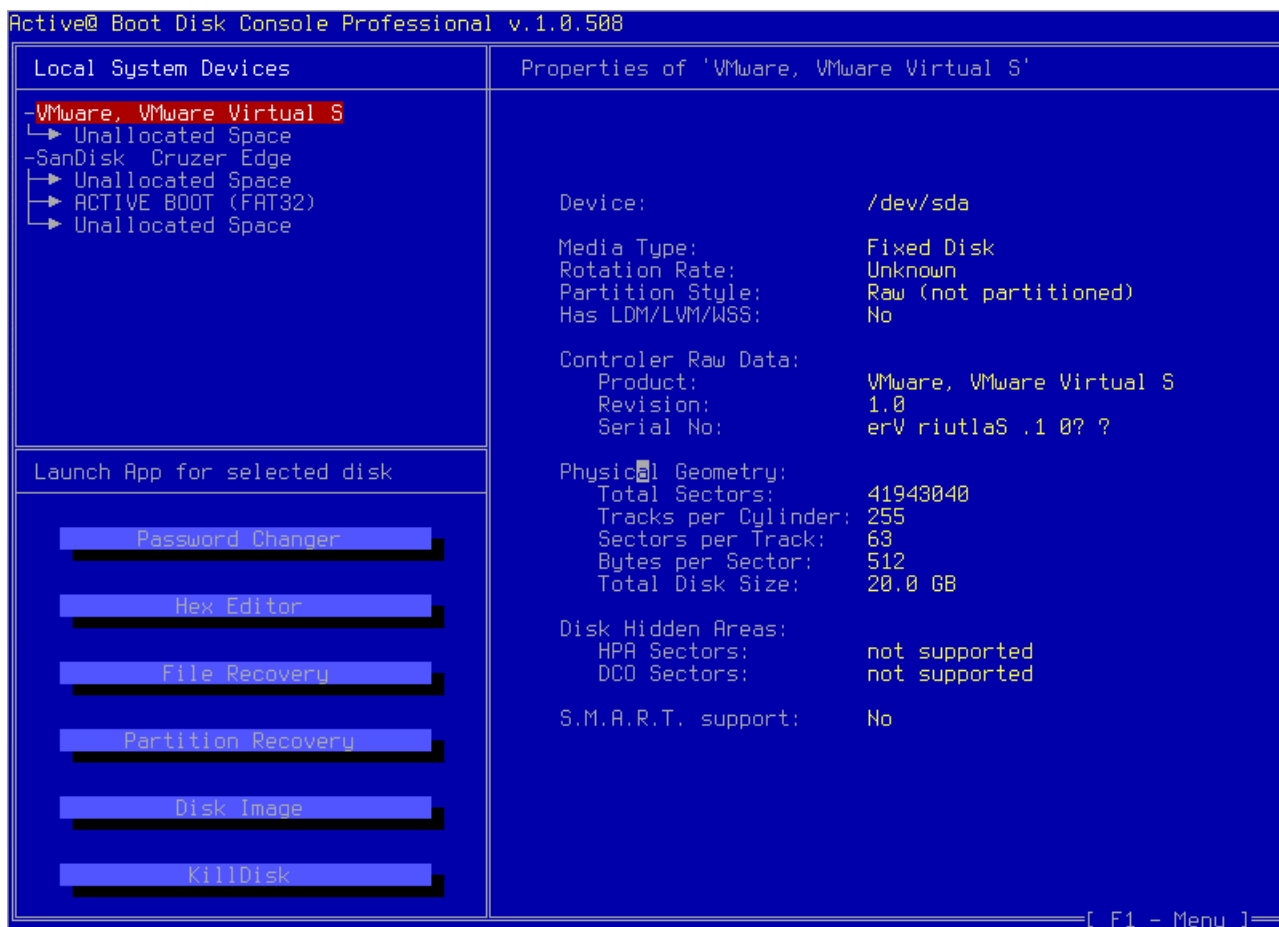
On this page you have an access to *Linux*-versions of LSoft premium products for data restoring and secure erasing, working with disk images and partitions, resetting SAM-passwords etc. **Console-based Boot Disk** is very compact and can be considered as a "*swiss knife*" solution for fast and easy software engineering. Available products are:

### Active@ Password Changer

Recovers user accounts with forgotten or damaged user passwords (SAM)

### Active@ HEX-Editor

To edit disk's raw data, analyze and repair the MBR (Master Boot Record) and other important files. Advanced search capabilities and templates for viewing MBR, Boot Sectors, LDM, MFT records are available

### Active@ File Recovery

Recovers files that have been damaged, destroyed by a virus or if the file directory has been destroyed

### Active@ Partition Recovery

Recovers deleted or damaged partitions located on data volumes, attached hard drives, as well as on external USB drives and Memory Cards (SunDisk, MemoryStick, CompactFlash, etc.)

### Active@ Disk Image

Creates an exact image of the data stored in selected partitions of a hard disk or an image of the entire hard disk

**Active@ KillDisk**

> Destroys data permanently from any computer. Also, wipe deleted data, securely removing all data in unoccupied sectors

In order to run a particular program (product) use keyboard/mouse. Click the actual product and confirm the process with the `Start App...` button:
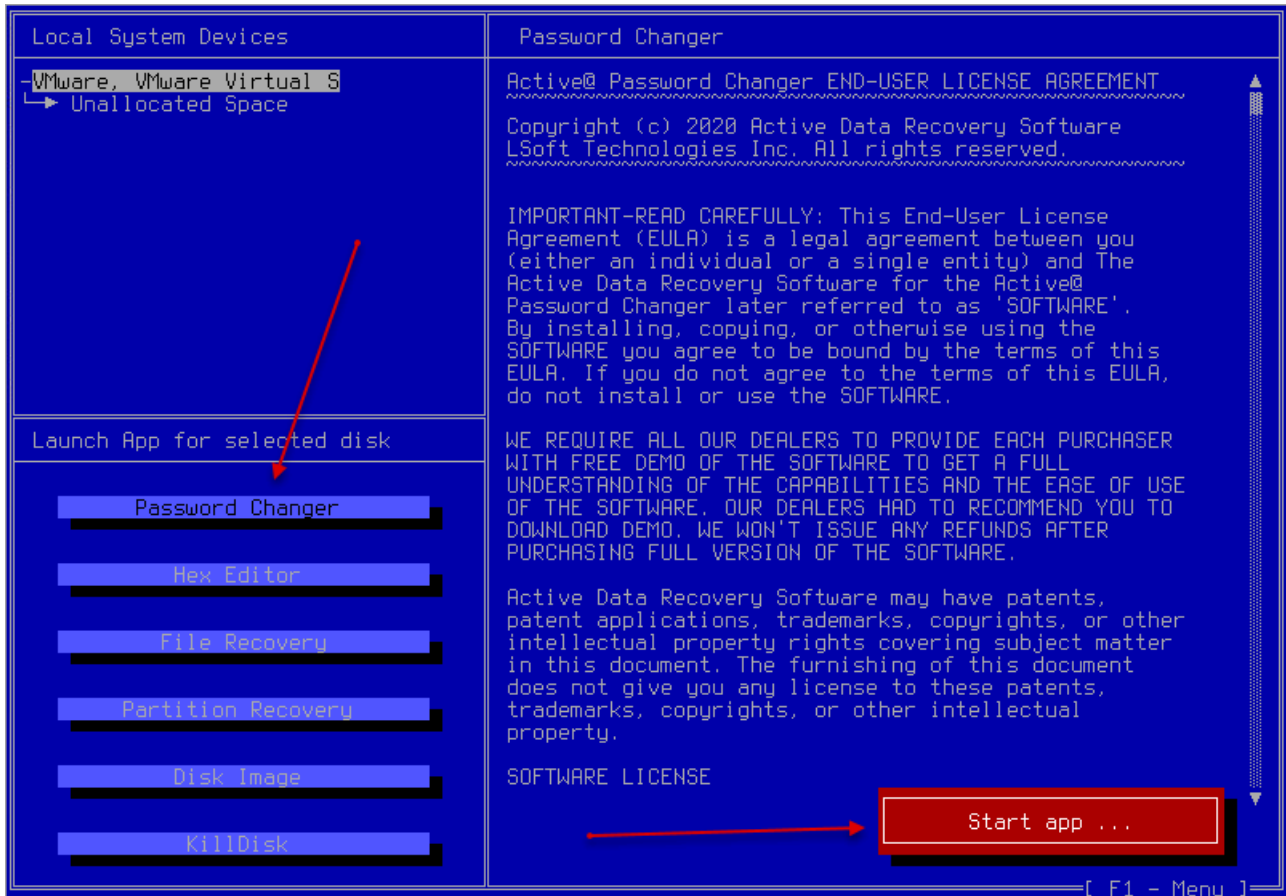


To call a **Console-based Boot Disk** main menu just press `F1` or click `F1 - Menu` at the right bottom corner:
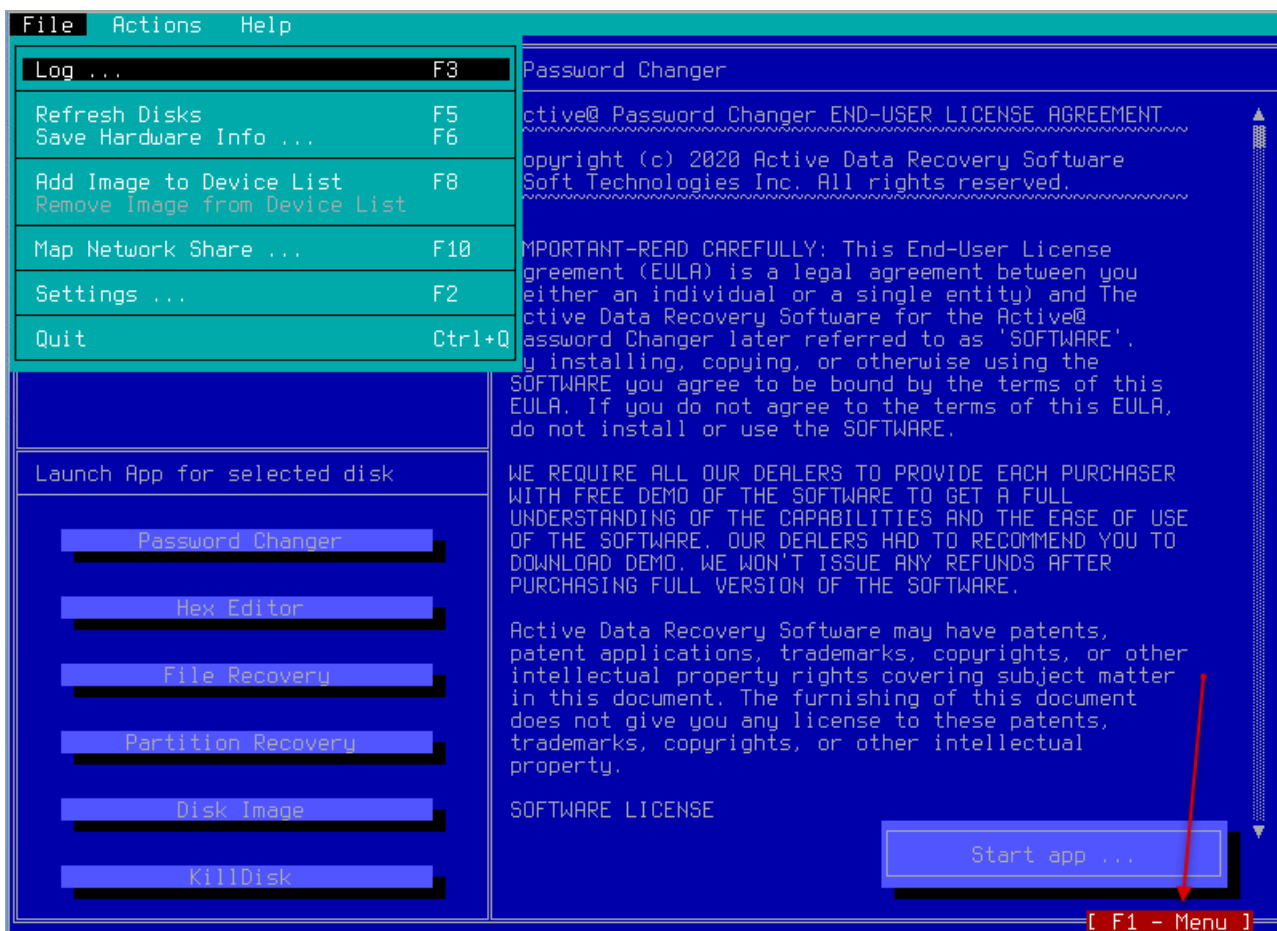
**Main Menu**

For **File** submenu:

**Log** `F3`

This log contains all the history of the current `Active@ Boot Disk` session:

```
                                    [X]
                         Log

Date/Time             Event

2020-08-17 10:48:54   OS: Linux 4.8.17-tinycore (#1 SMP Sun Aug 6 20:03:59 +05 2017)
2020-08-17 10:48:54   Initialized Active@ Boot Disk Console v.1.0.508
2020-08-17 10:48:54   Kernel v.10.05.08
2020-08-17 10:48:54   Kernel initialization started
2020-08-17 10:48:54   (Platform) GetVolumeInformation => 62 ('blkid_do_safeprobe(/dev/sda)'...
2020-08-17 10:48:54   (Internal) Invalid signature in sector 0 on a device Fixed Disk 0 (/d...
2020-08-17 10:48:54   Kernel initialization completed
2020-08-17 11:23:50   ==> Active@ Password Changer started
2020-08-17 11:58:56   ==> Active@ Password Changer finished
2020-08-17 11:59:08   ==> Active@ Hex Editor - Fixed Disk 0 (/dev/sda) started
2020-08-17 12:07:15   ==> Active@ Hex Editor - Fixed Disk 0 (/dev/sda) finished
2020-08-17 13:01:40   Kernel v.10.05.08
2020-08-17 13:01:40   Kernel initialization started
2020-08-17 13:01:40   (Platform) GetVolumeInformation => 62 ('blkid_do_safeprobe(/dev/sda)'...
2020-08-17 13:01:40   (Internal) Invalid signature in sector 0 on a device Fixed Disk 0 (/d...
2020-08-17 13:01:40   Kernel initialization completed
2020-08-17 15:14:10   ==> Active@ Disk Image started
2020-08-17 15:14:26   ==> Active@ Disk Image finished
2020-08-17 15:14:31   ==> Active@ Partition Recovery - Fixed Disk 0 (/dev/sda) started
2020-08-17 15:14:35   ==> Active@ Partition Recovery - Fixed Disk 0 (/dev/sda) finished




                                      Clear Log          Save Log to File (F2)
```

Use `Clear Log` or `Save Log to File (F2)` to manage the content

**Refresh Disks** `F5`

Refreshes the `Local System Devices` list on the main View

## Save Hardware Info F6

Opens a dialog for saving the workstation's *Hardware Information* in XML-format:

```
Local System Devices          Properties of 'Unallocated Space'

-VMware, VMware Virtual S
  ↳  Unallocated Space
                            ┌──────────────────────────────────────[X]┐
                            │          Save Hardware info              │
                            │ Current path: /home/tc                   │
                            │ ┌──────────────────────────────────────┐ │
                            │ │[..]                                  │ │
                            │ │                                      │ │
                            │ │                                      │ │
 Launch App fo              │ │                                      │ │
                            │ │                                      │ │
      Passw                 │ │                                      │ │
                            │ │                                    d │ │
       He                   │ │                                      │ │
                            │ │                                      │ │
       Fil                  │ │                                      │ │
                            │ └──────────────────────────────────────┘ │
     Partit                 │ File name:  bootdisk_hardware_2020_08_17_15_38_40.xml  [ Save ]   │
                            │ Files of type: HD Info (*.xml)        ▼ [ Cancel ] │
       Di                   └──────────────────────────────────────────┘

    KillDisk
                                                                  [ F1 - Menu ]
```
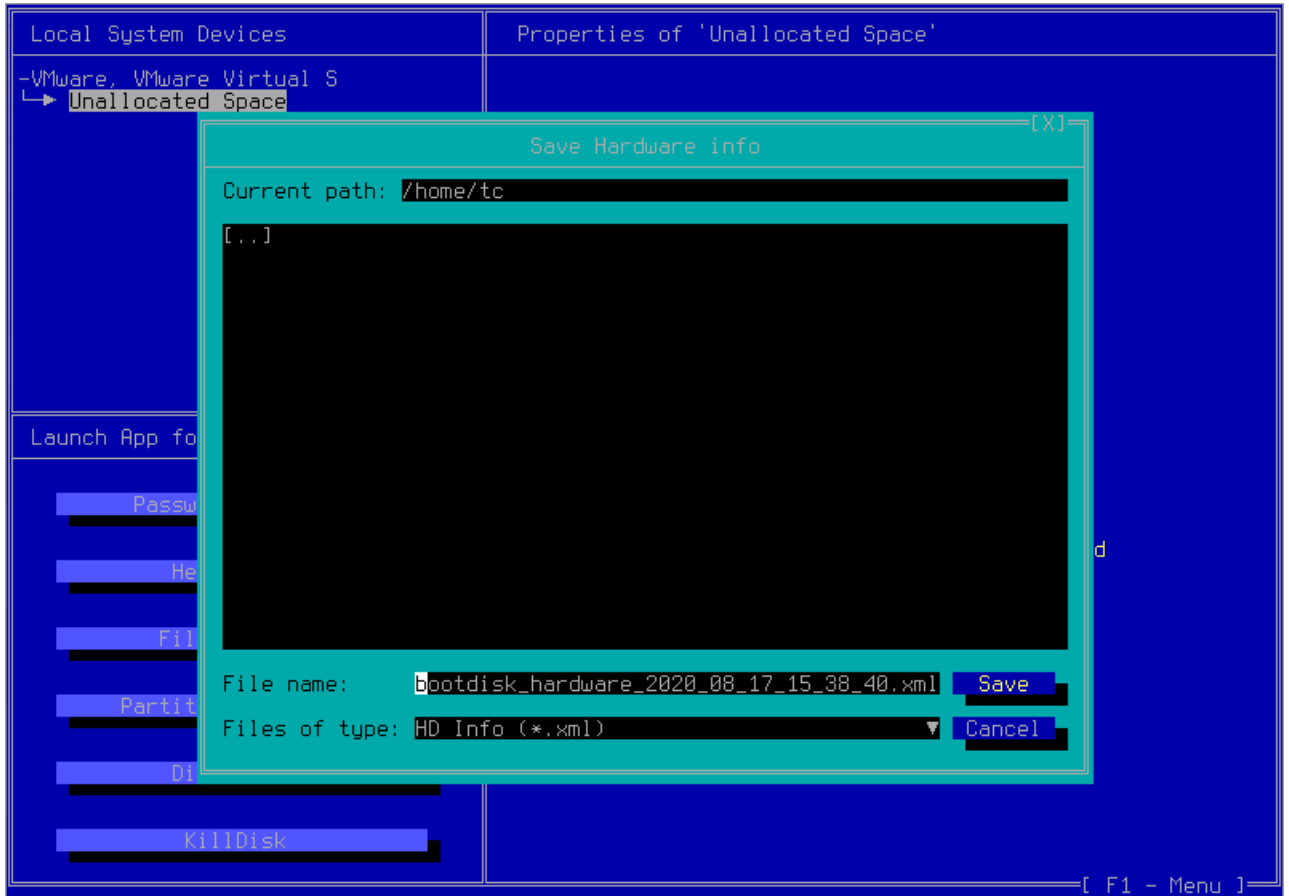
**Add Image to Device List** `F8`

Opens a dialog for adding a *Disk Image* of different types to the  `Local System Devices`  list on the
main View:

```
 Local System Devices          │ Properties of 'Unallocated Space'
                               │
-VMware, VMware Virtual S      │
  └→ Unallocated Space         │
                               │
                        ═[X]═
        Add Image
                                                          3040
        Image Type:            Media Type:      Sector:
                               Fixed Disk   ▼   512  ▼
        ┌──────────────────────────────┐              Add      GB
        │RAW Data (Binary) Disk Image  │
        │LSoft Disk Image              │
        │Virtual PC Disk Image         │              ▲▲▲
 Launch │Virtual Machine (VMware) ...  │
 App for│                              │              ▼▼▼
        │                              │
   Password                           │              Del     located
        │                              │
   Hex Ed│                            │
        └──────────────────────────────┘
   File Re Sectors per Track:   63  ↕
          Tracks per Cylinder:  255 ↕    Ok      Cancel
   Partition Recovery

   Disk Image

   KillDisk
                                                    ═[ F1 - Menu ]═
```

**Map Network Share** `F10`

```
Local System Devices            Properties of 'Unallocated Space'

-VMware, VMware Virtual S
  ⌐► Unallocated Space




                            ═[X]═
                     Network Share

                     Specify the mount point for the connection    41943040
                     and the folder that you want to connect to:   512
                                                                   20.0 GB
                     Mount Point:   ▌
Launch App for selecte   Network Folder:                           No
                                                                   Yes
     Password Chang   Username:                                    0
                                                                   0
                       Password:                                  Unallocated
       Hex Editor
                            Ok              Cancel

      File Recovery

   Partition Recovery

      Disk Image

       KillDisk
                                                          ═[ F1 - Menu ]═
```

- In `Mount Point` combo specify the mount point for the connection to be assigned
- In `Folder` field type the server name and share the name of computer (or folder) For example: "\ \\*servername*\\*sharename*"
- If it is necessary to change the username in order to map the selected drive, do the following:

- Enter the domain name and the username that has a permission to connect to the selected computer or folder
- Enter the password for the user named above
- Click `Ok`

> **Note:** Mapped drives are available only when the host computer is available. Network drives are assigned letters from Z to A, and local drives (your hard drive and removable storage devices) are assigned letters from A to Z. You can assign a computer or shared folder to a different drive letter by disconnecting from the drive and then reassigning it to a new drive letter.

**Settings** `F2`

Calls the dialog with the `Active@ Boot Disk` programs' settings:
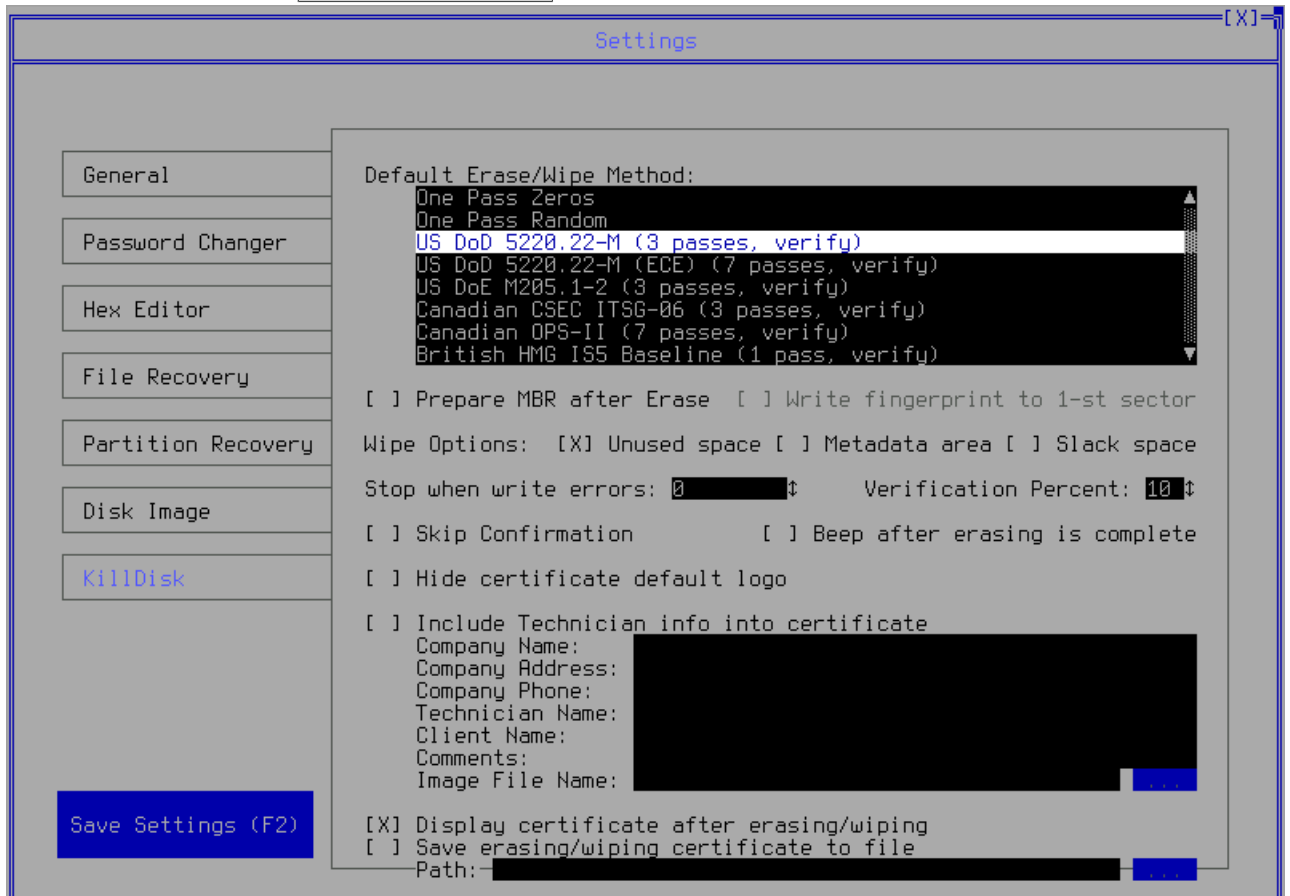


**Figure 2: KillDisk settings**

**Quit** `Ctrl` **>** `Q`

Is used for closing the **Active@ Boot Disk** shell

The `Actions` submenu contains a list of shortcuts of **Active@ Boot Disk** programs:
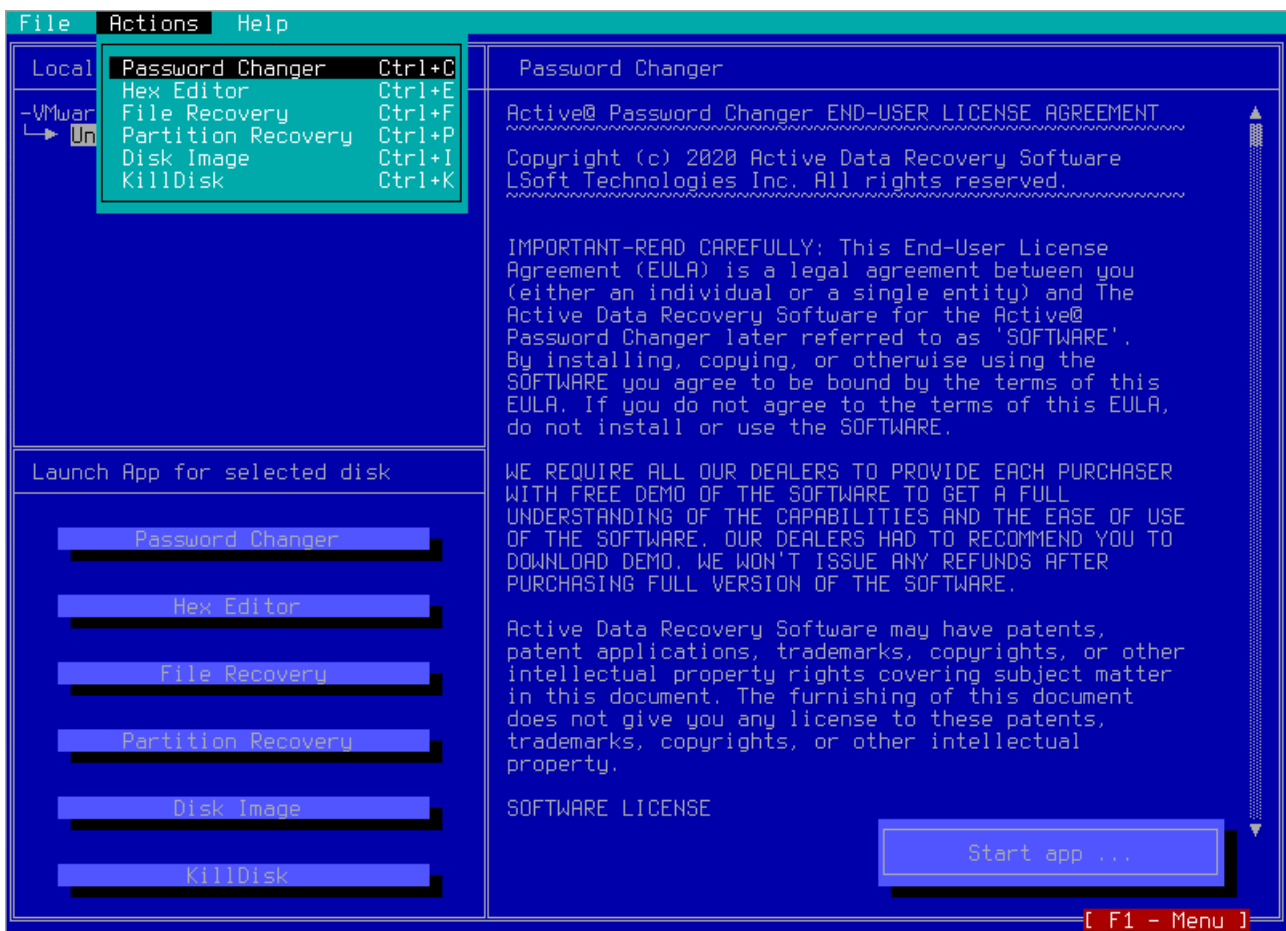
# Utilities And Tools
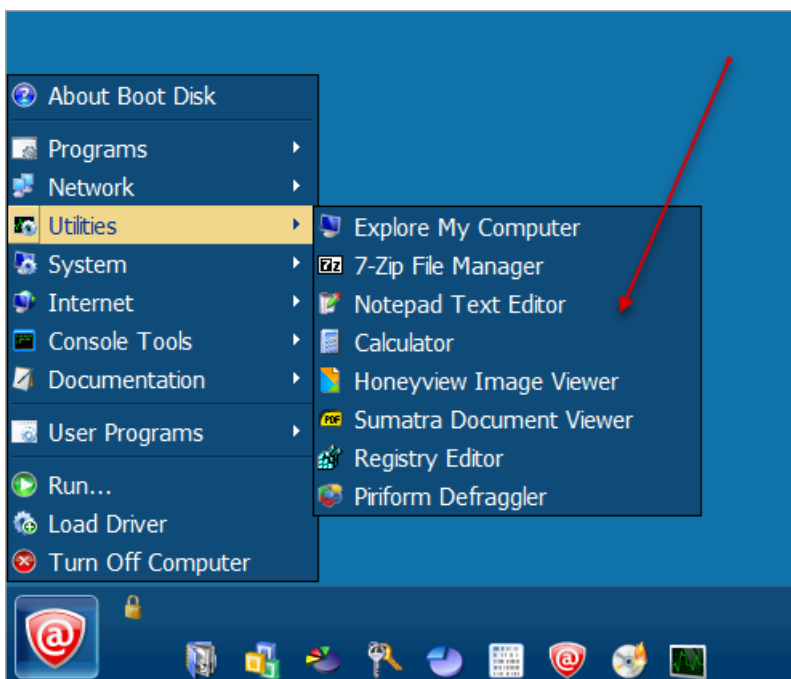
Use these utilities to perform different maintenance tasks:

**Explore My Computer (Boot Disk Explorer)**

Use **Boot Disk Explorer** to access the file system. Browse, copy, move and secure erase of files and folders. Burn data to CD/DVD discs

**7-Zip File Manager**

Powerful file manager. Supports access to nearly all file archives. Packing and unpacking: *7z, XZ, BZIP2, GZIP, TAR, ZIP* and *WIM*. Unpacking only: *ARJ, CAB, CHM, CPIO, CramFS, DEB, DMG, FAT, HFS, ISO, LZH, LZMA, MBR, MSI, NSIS, NTFS, RAR, RPM, SquashFS, UDF, VHD, WIM, XAR* and *Z* file formats

**Notepad Text Editor**

When you are performing maintenance on a hard drive or if you are repairing or recovering lost or damaged data on a drive, you might need to record technical information before making changes. This information can prove to be helpful if you need to remember the original configuration when restoring data after a system crash or when contacting technical support

**Calculator**

A calculation application included with *Microsoft Windows*

**Honeyview Image Viewer**

Is a very fast image viewer supporting various picture formats (*BMP, JPG, GIF, PNG, PSD, DDS, JXR, WebP, J2K, JP2, TGA, TIFF, PCX, PNM, PPM, BPG*), including camera raw images (*DNG, CR2, CRW, NEF, NRW, ORF, RW2, PEF, SR2, RAF*)

**SumatraPDF Document Reader**

Is a fast, minimalistic *PDF, XPS, DjVu, CHM, CBZ* and *CBR* document reader with no external dependencies

**Registry Editor**

View and edit registry information in the current operating system

## 7-Zip File Manager

**7-Zip** is a file archiver with a highest compression ratio. Usually, **7-Zip** compresses to *7z* format 30-70% better than to *zip* format.

**7-Zip File Manager** – two panel file manager, being able to browse, preview, copy, move, rename and delete files and folders, as well as create and de-compress file archives of different formats.

It is an open source software, most of the source code is under the GNU LGPL license.
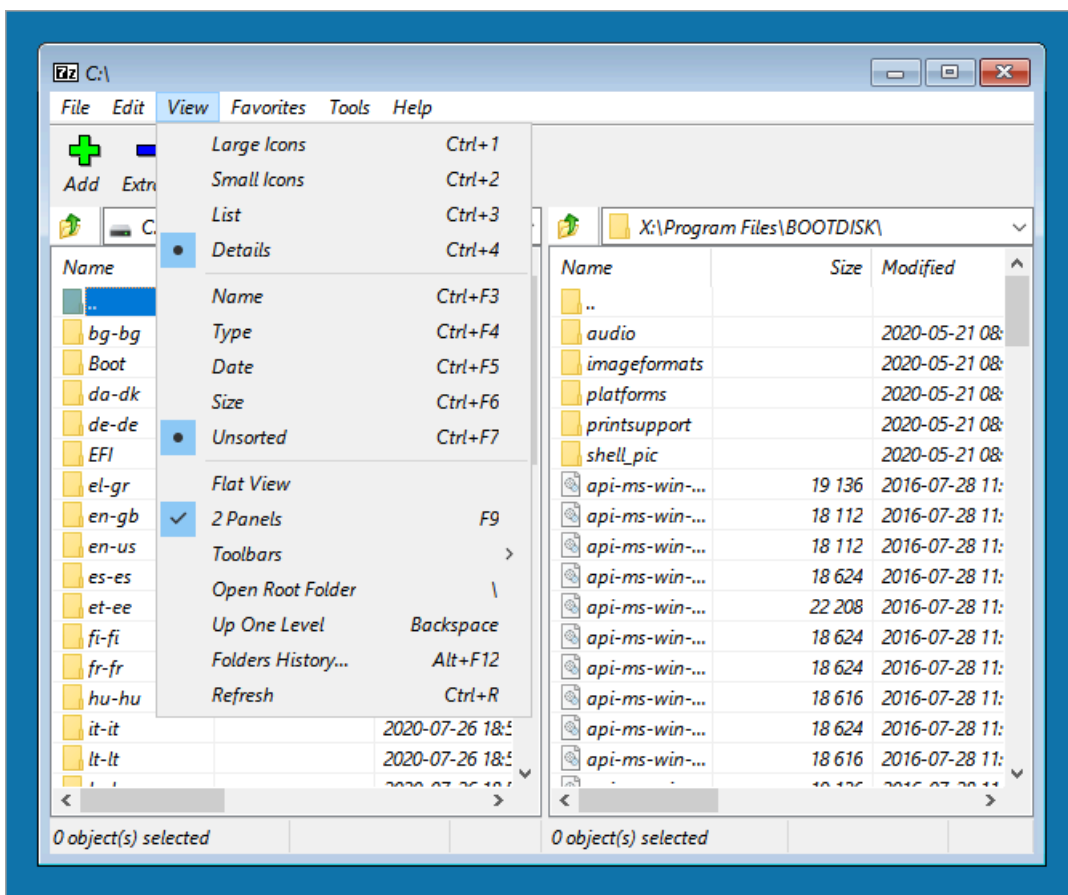
Main features:

- High compression ratio in *7z* format with *LZMA* and *LZMA2* compression
- Supported formats:

- Packing / unpacking: *7z, XZ, BZIP2, GZIP, TAR, ZIP* and *WIM*
- Unpacking only: *ARJ, CAB, CHM, CPIO, CramFS, DEB, DMG, FAT, HFS, ISO, LZH, LZMA, MBR, MSI, NSIS, NTFS, RAR, RPM, SquashFS, UDF, VHD, WIM, XAR and Z.*
- For *ZIP* and *GZIP* formats, **7-Zip** provides a compression ratio that is 2-10 % better than the ratio provided by *PKZip* and *WinZip*
- Strong AES-256 encryption in *7z* and *ZIP* formats
- Self-extracting capability for *7z* format
- Integration with *Windows Shell*
- Powerful File Manager
- Powerful command line version

To launch **7-Zip** from the **Active@ Boot Disk** shell, click `Start` > `Utilities` > `7-Zip File Manager`

# Notepad Text Editor

**Notepad** is a simple text editor for *Microsoft Windows* and a basic text-editing program that you can use to create and edit documents.

```
pm_log - Notepad
File  Edit  Format  View  Help
3:44:59 PM          Application starts.
3:44:59 PM          Default location 'X:/Program Files/BOOTDISK'
3:44:59 PM          Log file opened 'X:\Program Files\BOOTDISK\pm_log.txt
3:44:59 PM          Configuration file opened 'X:/Program Files/BOOTDISK,
3:44:59 PM          Version: 6.0.15
3:44:59 PM          Operating System: Windows 10 Ultimate
                        Platform..............................64-bit
                        Kernel Version.........................10.0.18362
                        Service Pack(s).......................... (Build 920
                        Processors.............................2
                        Processor Type..........................x64 (AMD o)
3:44:59 PM    OK    User Rights: Administrator Group
3:44:59 PM    OK    Recover Kernel Version 7.09.29
3:44:59 PM          Session state has been recently changed
3:44:59 PM          Initialization started
3:44:59 PM          KDGB [2] in file 'Implementation\Platform.cpp', line
3:44:59 PM          KDGB [3] in file 'Implementation\Platform.cpp', line
3:44:59 PM          KDGB [2] in file 'Implementation\Platform.cpp', line
3:44:59 PM          KDGB [3] in file 'Implementation\Platform.cpp', line
3:44:59 PM          KDGB [2] in file 'Implementation\Platform.cpp', line
3:44:59 PM          KDGB [3] in file 'Implementation\Platform.cpp', line
3:44:59 PM          KDGB [2] in file 'Implementation\Platform.cpp', line
3:44:59 PM          KDGB [3] in file 'Implementation\Platform.cpp', line

                Ln 1, Col 1          100%   Windows (CRLF)   UTF-8
```

**Notepad** is a common text-only (plain text) editor. The resulting files (typically saved with the *.txt* extension) have no format tags or styles, making the program suitable for editing system files to use in a DOS environment and, occasionally, source code for later compilation or execution, usually through a command prompt. It is also useful for its negligible use of system resources; making for quick load time and processing time, especially on under-powered hardware. Notepad supports both left-to-right and right-to-left based languages. **Notepad** does not treat new lines in *Unix-* or *Mac*-style text files correctly. **Notepad** offers only the most basic text manipulation functions, such as finding and replacing text.

To launch **Notepad** from the **Active@ Boot Disk** shell, click `Start` > `Utilities` > `Notepad`

## Calculator

**Calculator** is a software calculator included in all versions of *Windows*
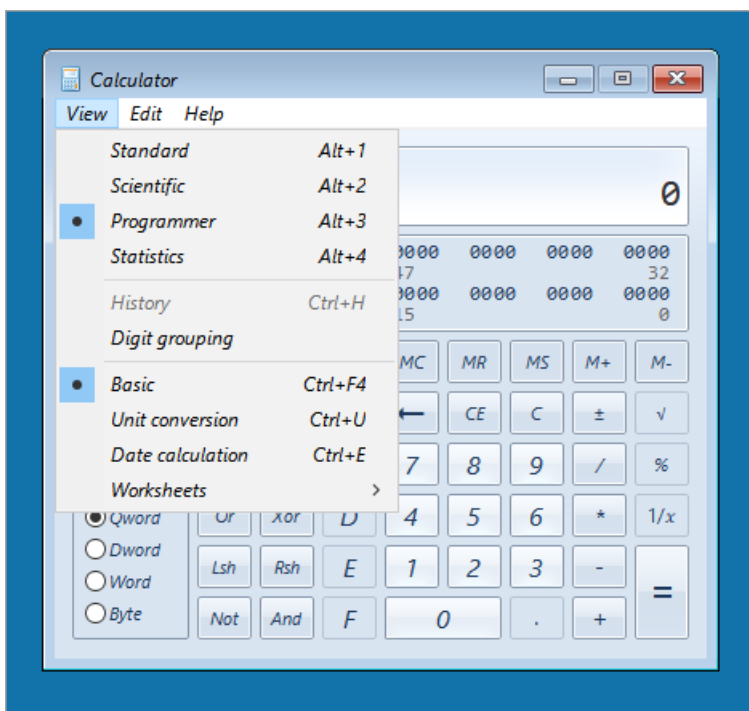
When **Calculator** runs in *standard mode*, it resembles a four-function calculator. More advanced functions are available in *scientific mode*, including logarithms, numerical base conversions, some logical operators, operator precedence, radian, degree and radians support as well as simple single-variable statistical functions. Separate programmer, statistics, unit conversion, date calculation and worksheets modes were also added to help different types of users solving specific tasks.

To launch **Calculator** from the **Active@ Boot Disk** shell, click `Start` > `Utilities` > `Calculator`

# Honeyview Image Viewer

**Honeyview Image Viewer** provides ultrafast rendering with optimized image processing
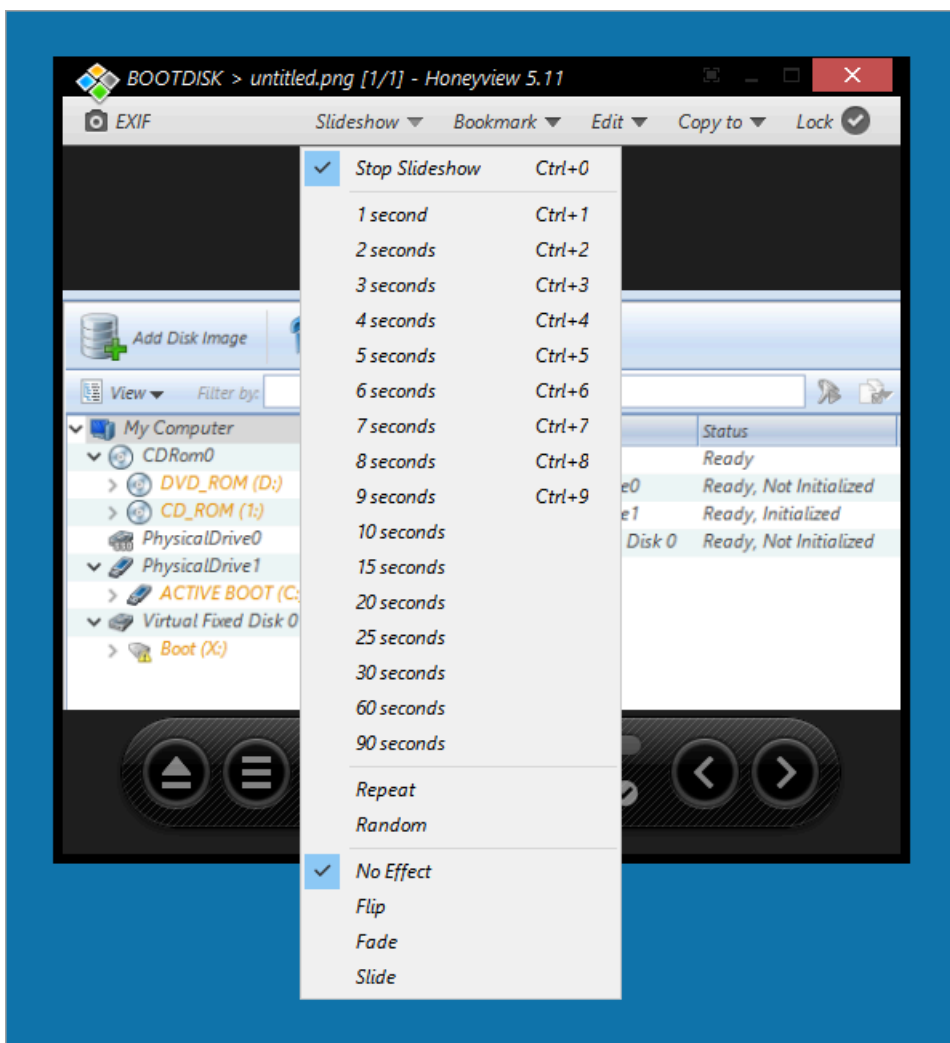
Features:

- Support for Various Image Formats - *BMP, JPG, GIF/Animation GIF, TIFF, PNG, TGA, PSD, JPEG 2000(JP2, J2K), JPEG XR/HD Photo (JXR, WDP, HDP)*, *Adobe Digital Negative (DNG), DDS, WebP* and *PCX* formats are supported.
- *Direct View* for Compressed Files - images can be viewed without extracting (but with memory decompressing) compressed files (*ZIP/CBZ, RAR/CBR, ALZ, EGG, LZH, TAR, 7Z, HV3, CAB* and *ISO*).
- EXIF View - Click the EXIF button in the upper-left corner to display *EXIF* information along with the file information.
- GPS View - Many smartphone photos (taken by *iPhone* or *Android*) include GPS information. It displays GPS information of a photo on *Google Maps*.
- Slideshow View - Click the Slideshow button on the top of the window to start a slideshow with the currently displayed pictures at a certain interval (1–90 sec).
- Add/Edit Bookmarks - Click the Bookmark button on the top of the window to go to frequently viewed images.
- Copy/Move to Photo folder - Click the Photo folder button in the upper-right corner to copy/move the currently displayed photo to Photo folder 1 or Photo folder 2 .
- Support for Keyboard Shortcuts - **Honeyview** supports many keyboard shortcuts for user convenience.
- Support for Sound & Shot Files - **Honeyview** supports Sound & Shot files and the audio file to which image and sound is simultaneously recorded.

- Fast Image Processing - Optimized image processing provides faster image loading and filtering than competitors
- Support for *Unicode - Unicode* is supported to fully display Chinese, Russian, Japanese etc.
- Auto Image Rotation - With *EXIF* information, **Honeyview** automatically rotates a picture to the correct position.
- Support for 64-bit OSes - **Honeyview** fully supports 64-bit OSes for faster processing.

To launch **Honeyview** from the **Active@ Boot Disk** shell, click `Start` > `Utilities` > `Honeyview Image Viewer`

## SumatraPDF Document Viewer

**SumatraPDF** is an open source *PDF* reader for *Microsoft Windows*. The program also opens *Open XML* Paper Specification, *DjVu, EPUB, XPS, FB2, CHM, CB7 CBR CBT CBZ, MOBI* and *PRC* files.
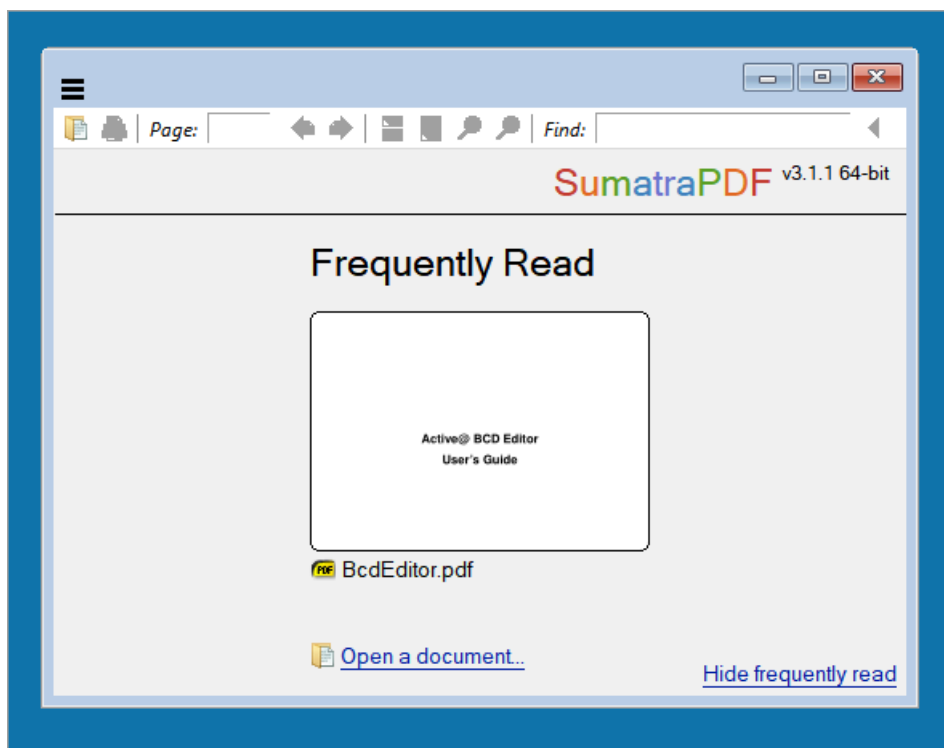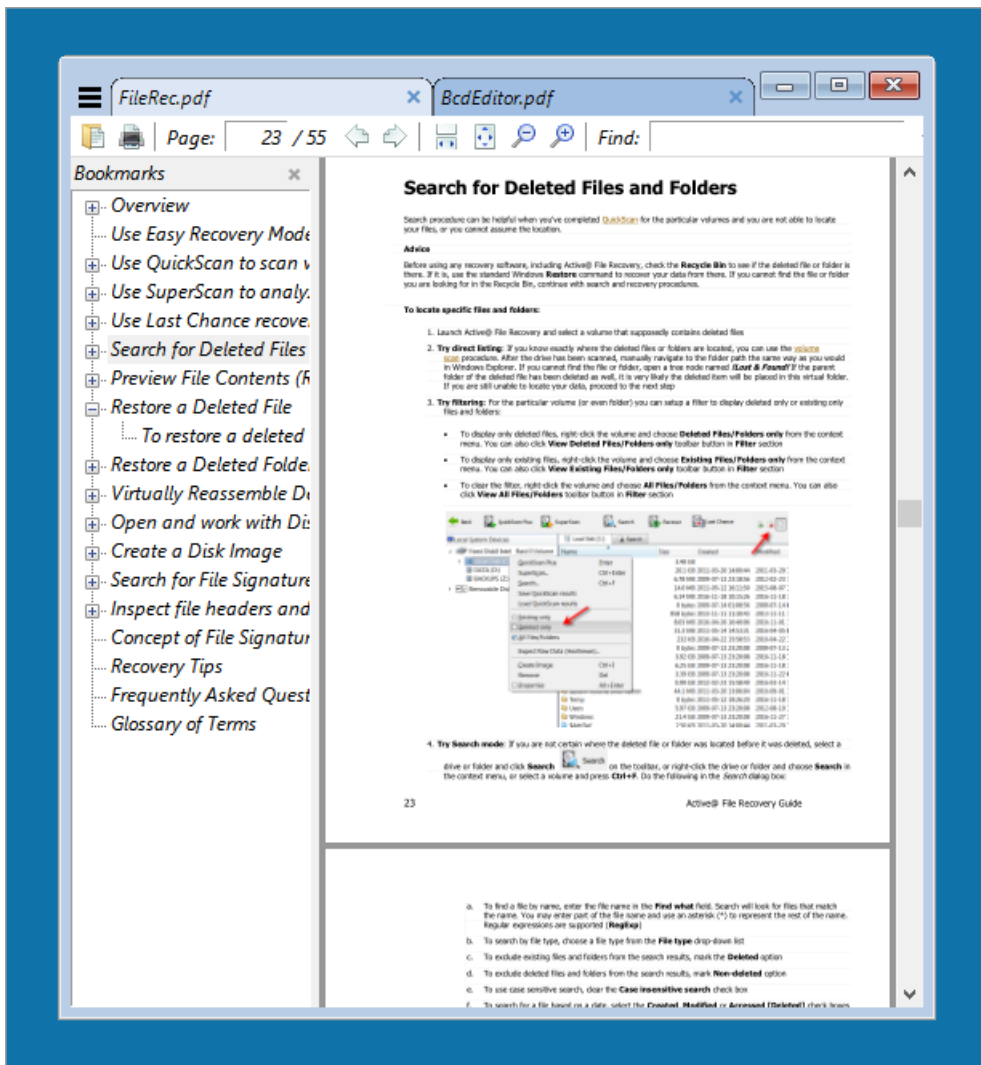
**Sumatra** has a minimalistic design, with its simplicity attained at the expense of extensive features. For rendering *PDF*s it uses the *MuPDF* library. Sumatra was designed for portable use, as it consists of one single file with no external dependencies, making it usable from an external *USB* drive.

When re-opening a document, the rotation, zoom, window size, page, etc. are remembered from the last time that document was opened, making it behave more like an e-book reader than some other *PDF* viewers.

Sumatra does not lock the *PDF* file. Without closing the *PDF* file, a user can save over the *PDF* and then press the `R` key to refresh the *PDF* document. For example, a user could find this feature useful when, after recompiling the altered *TeX* source code, simply pressing `R` and view the altered document.

To launch **SumatraPDF** from the **Active@ Boot Disk** shell, click `Start` > `Utilities` > `SumatraPDF Document Viewer`

## Registry Editor

You can review and change local registry parameters after loading a registry hive from any partition that is detected by **Active@ Boot Disk** utilities. If your computer cannot complete a boot-up and if the boot failure is related to registry parameters of a driver or another bootable configuration, you may still be able to fix it by changing registry parameters using this **Registry Editor**.
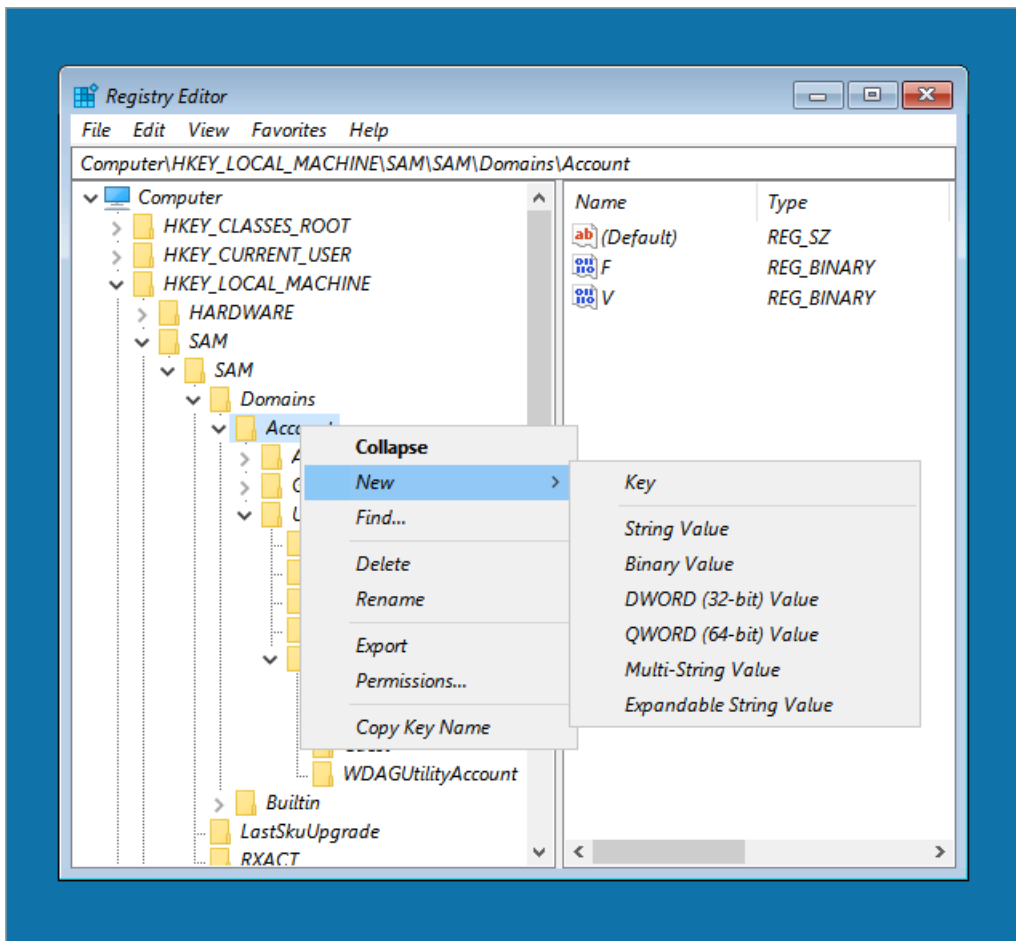
To use **Registry Editor**:

**1.** In order to launch **Registry Editor** from the **Active@ Boot Disk** shell click on `Start` > `Utilities` > `Registry Editor`.

**2.** In the registry hierarchy list, choose either `HKEY_LOCAL_MACHINE` or `HKEY_USERS` hive.

**3.** From the `File` menu choose `Load Hive...`

**4.** The `Load Hive` dialog box appears.

**5.** Browse to the primary logical drive (for example, C:) and navigate to *Windows\System32\config* where you will find the contents of the `config` folder.

**6.** Choose a registry hive. For example choose one of:

- *SYSTEM*
- *COMPONENTS*
- *SOFTWARE*

**7.** Click `Open`, which will open the `Load Hive` dialog box.

**8.** In `Key Name`, type a custom name for the hive that you are loading. For example
`MY_SOFTWARE_HIVE`.
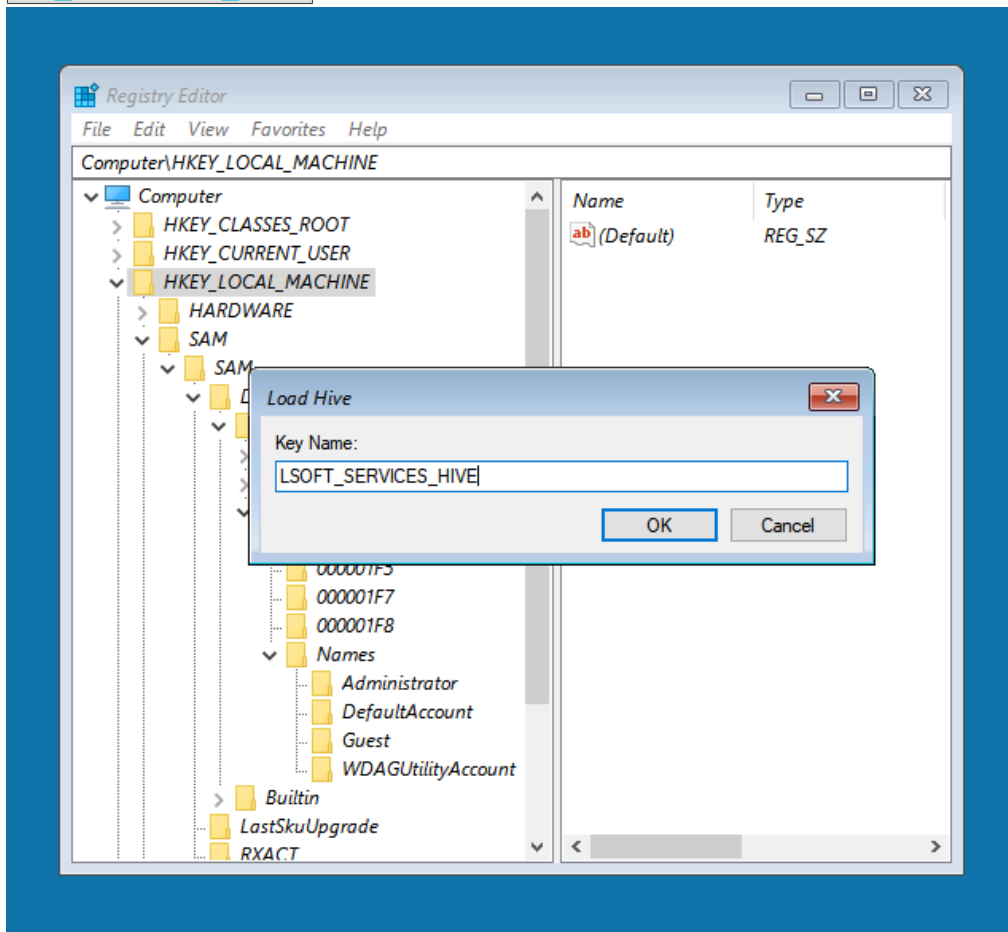


**9.** Click `OK`. The new hive will appear in the registry hierarchy under the root level that you have
previously selected in step 2.

**10.** Open the loaded hive in order to view and edit registry values, create and delete new entries or keys.

**11.** After you have completed all the changes in the loaded hive, close the **Registry Editor**. All changes
are written to the registry hive that was previously attached.

**12.** Exit **Active@ Boot Disk** and restart the computer.

## System

Many of these utilities are familiar *Windows* functions. With **Active@ Boot Disk** you can access them
even if your hard drive is damaged.
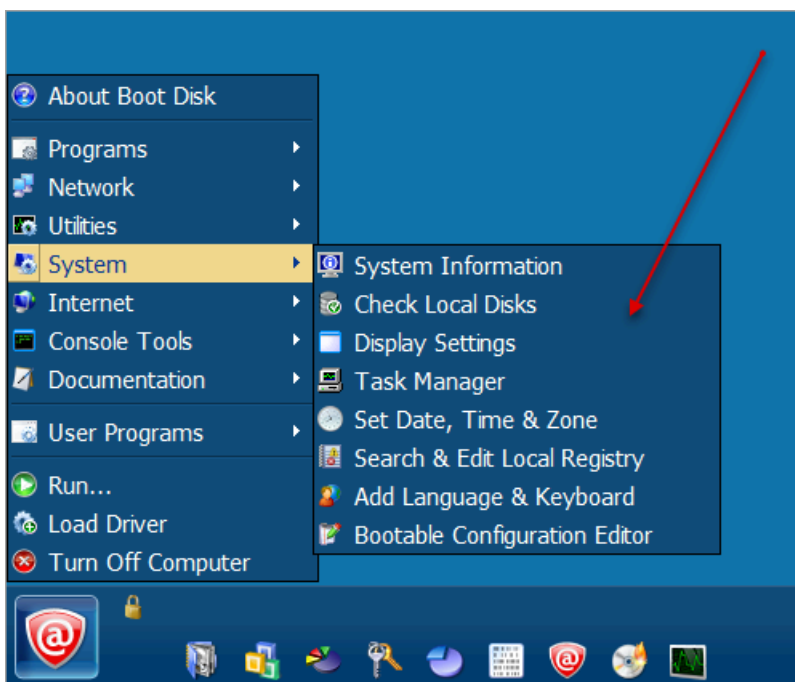
## System Information

Displays system information about your local machine

## Check Local Disks

An applet that helps you create and display a status report for your hard drive

## Display Settings

Choose the resolution and number of colors displayed

## Task Manager

Get information about computer performance and details about running applications, processes, network activity, user and system services. View or modify currently running services. View the full name of a process. Monitor applications and services running system performance and resources

## Set Date, Time and Zone

Change your computer's date, time and time zone

## Search & Edit Local Registry

Search for and display specified registry details or create a custom registry hive. After you find the registry hive that you are looking for, you can edit it with Registry Editor

## Add Language and Keyboard

Add language support for a second language. This includes special keyboard layout and the ability to display language characters on the screen. You can use a different language for a file name or when recording notes about changes made to the system

## Bootable Configuration Editor

View and edit entries in *BCD* (Boot Configuration Data) store to make a *Windows* system partition bootable

## System Information

This utility displays in-depth details about your local system.

To open System Information (**Sysinfo**):

- In the **Active@ Boot Disk** shell click `Start` > `System` > `System Information`. The **Sysinfo** display box appears:
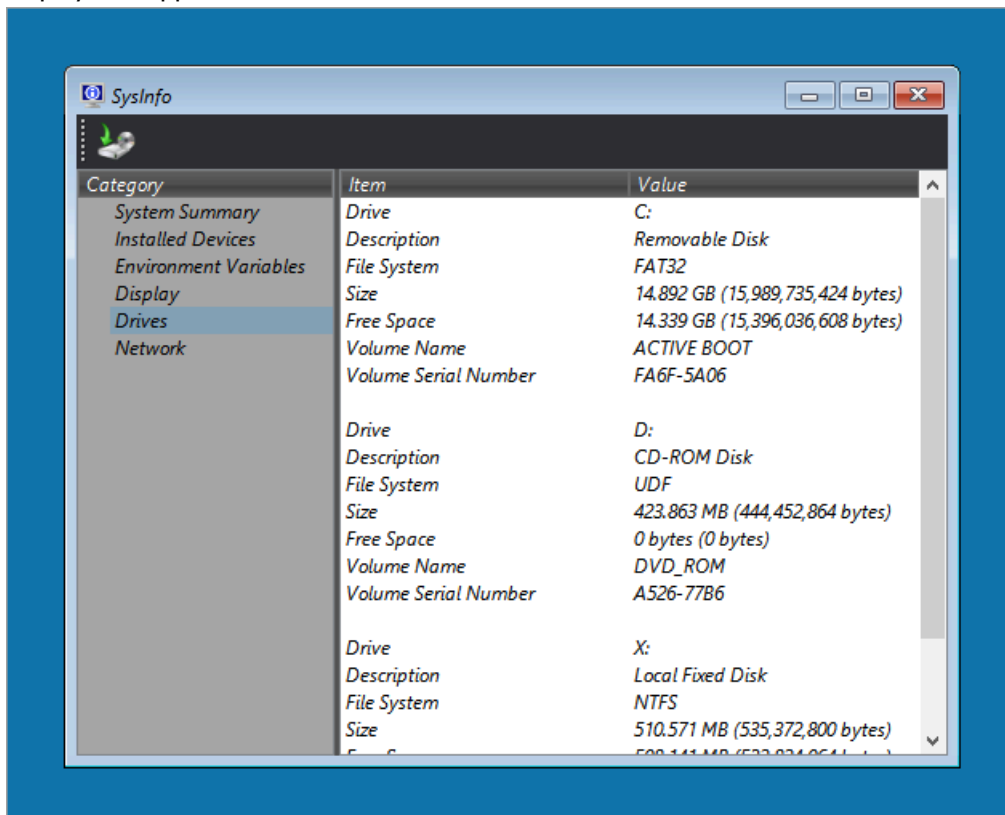


System information details presented in 6 categories:

- System Summary - Operating system, BIOS, Processor, RAM and more.
- Installed Devices - All classes of devices, including batteries, drives, human interface devices, controllers etc.
- Environment Variables - Processor architecture, revision number, as well as paths to various tools and operating system utilities.
- Display - Current and available display resolutions.
- Drives - Information about local fixed disks, including amount of free space.
- Network - IP configuration and specifications for LAN adaptor.

To save all system information to an *HTML* file:

**1.** Click <span style="background:cyan">**Save SysInfo to file**</span>. The *Save* dialog box appears:
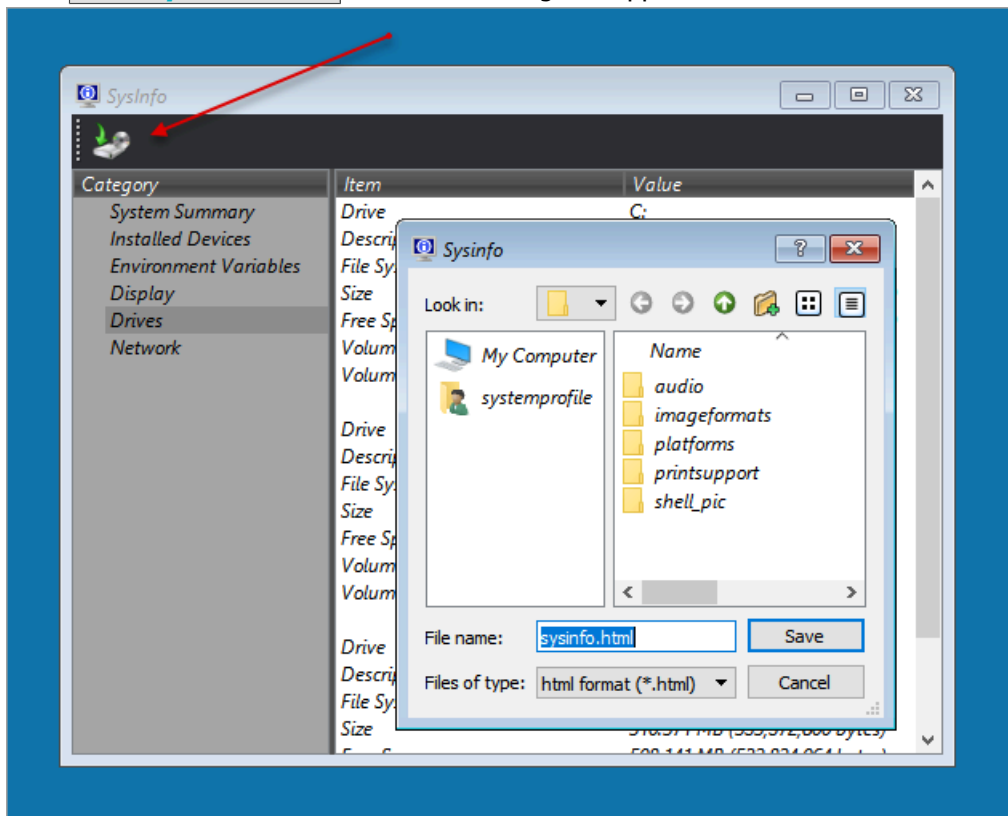


**2.** Navigate to the folder where you want to save the information.

**3.** Name the file in <span style="background:cyan">**File name**</span> field and click <span style="background:cyan">**Save**</span>.

## Check Local Disks

**Check Local Disks** (**Check Disk Applet**) is an applet that will help you create and display a status report for your hard drive. The applet also lists and corrects error on the disk.

Similar to *Windows CHKDSK*, **Check Disk** has a list of parameters that help you perform various functions on your hard drive.

To use **Check Disk**:

1. In the **Active@ Boot Disk** shell click  Start  >  System  >  Check Local Disks .

- The **Check Disk Applet** workspace will appear with a list of all hard drives in the  Local Disks  list.
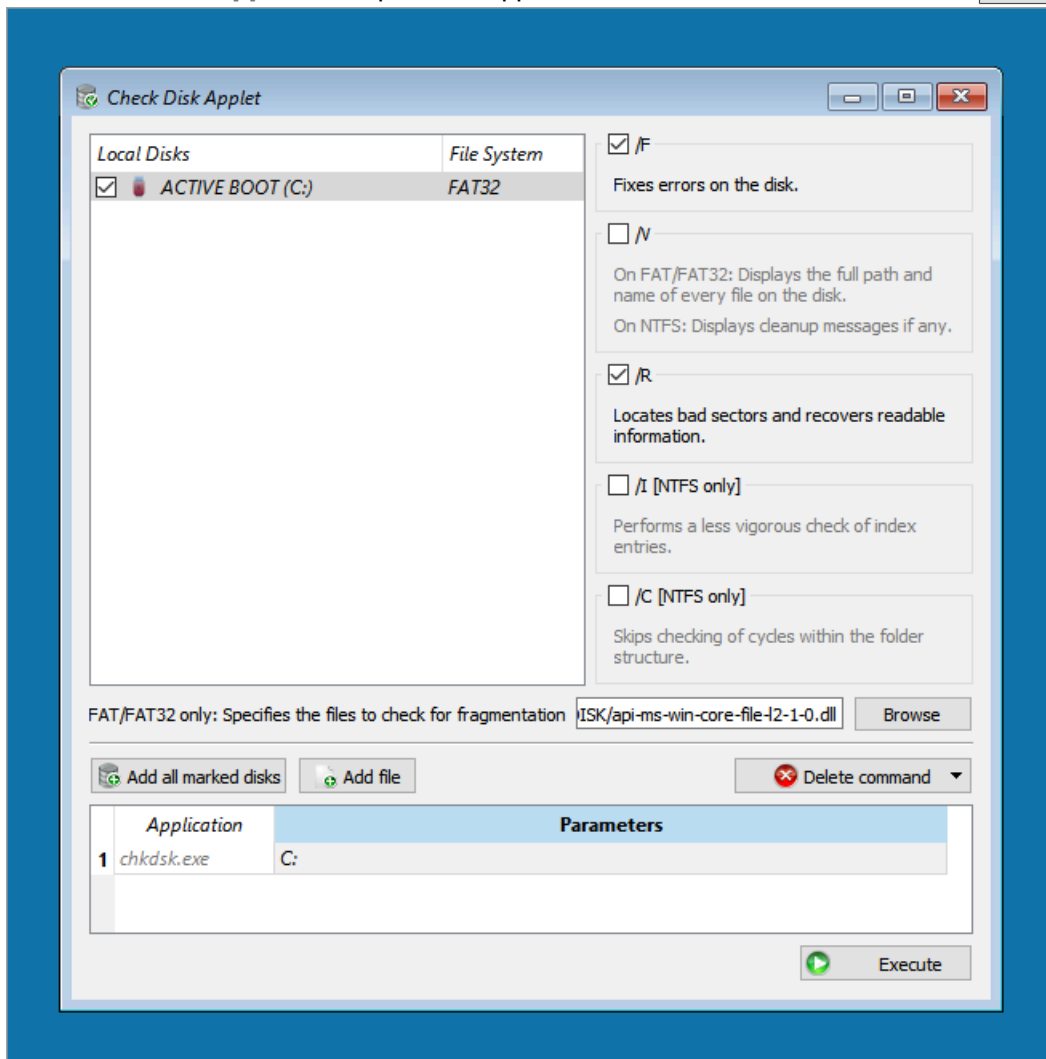


2. To select a hard drive use the check box next to the drive's name.
3. You can add parameters to the command:

- `/F` - if an error is encountered, **Check Disk** will fix the issue that causes the error.
- `/V` - on a FAT or FAT32 file system, the full path and name of every file is displayed. On NTFS file system, only cleanup messages are displayed.
- `/R` - locates bad sectors and recovers readable information.
- `/I` [NTFS only] – performs a less vigorous check of indexes.
- `/C` [NTFS only] – skips checking of cycles within the folder structure.

    On a *FAT* or *FAT32* file system you may specify an individual file to check. To do this click  Browse  and choose the file from the  Select File  dialog box.

4. After you have selected a drive and parameters, click  **Add all marked disks** . The *chkdsk.exe* command appears in the  Command  list along with the drive letter and all parameters.
5. To add another drive repeat steps 2 to 4.
6. To remove a drive from the  Command  list, select it and click  Delete command  >  Delete Current .
7. To remove all drives from the  Command  list, click  Delete command  >  Delete All .
8. To run all commands in the  Command  list, click  Execute . A console session appears.
9. Watch as the functions proceed.

After the command is completed the console session closes.

## Search & Edit Local Registry Utility

This utility searches for registry hives in the local drives and attaches them to the Registry Editor for viewing or editing.

This section describes the steps required to recover from the *Windows* registry hive corruption in a case where the file table is still intact.

To recognize the situations when you have a *Windows* registry hive corruption while trying to start *Windows*, you might get a message similar to this:

```
Windows could not start because the following file is missing or corrupt:
 \WINDOWS\SYSTEM32\CONFIG\SYSTEM
```

or

```
\WINDOWS\SYSTEM32\CONFIG\SOFTWARE
```

When you boot with **Active@ Boot Disk**, Windows PE mounts the unfunctional drive and assign it a different drive letter in order to have an exclusive access to it.

To repair the broken registry hive do the following:

**1.** From the **Active@ Boot Disk** shell click Start > Utilities > Search & Edit Local Registry .
**2.** The Attach and edit local Registry dialog box appears:
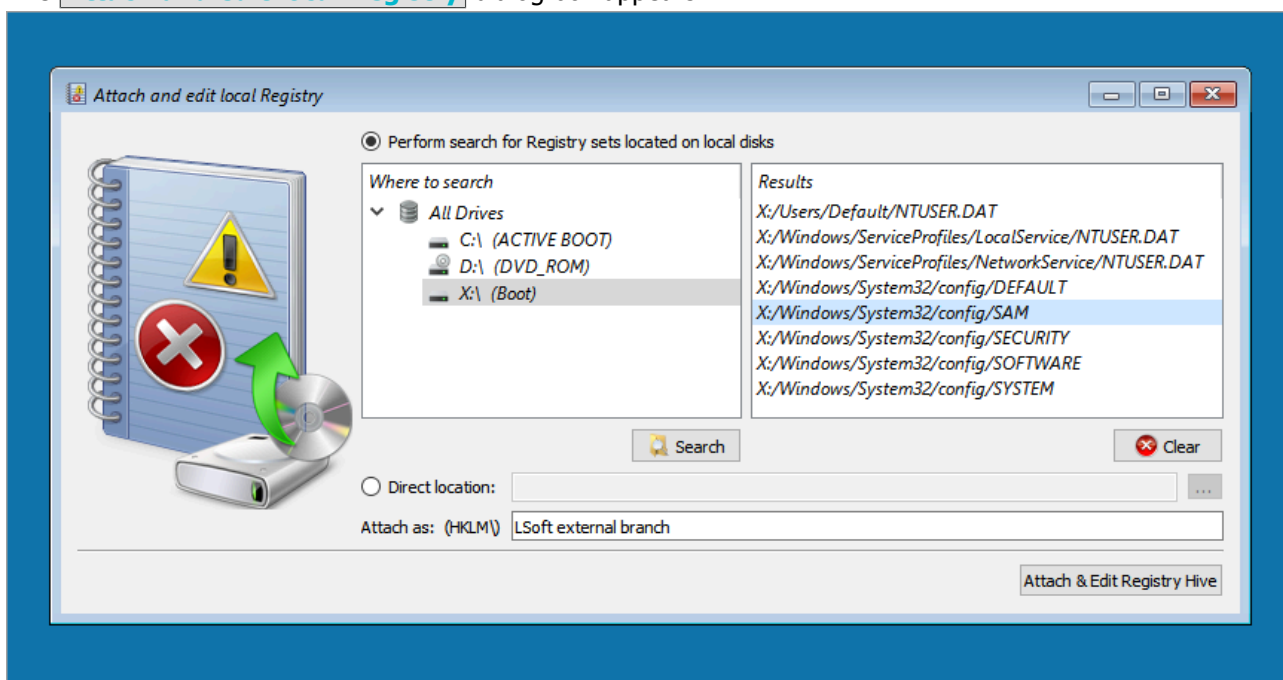


**3.** To search local drives, do the following:

- Click the Perform search for Registry sets located on local disks radio button.
- Choose the local drive folder that was mentioned in the error message.
- Click Search . Drive and folder names will appear below the search button as they are being searched.
- Results of the search appear in the Results list.
- Select the broken hive in the Results list. The Attach as box is enabled.

**4.** To browse directly to the broken hive, do the following:

- Click the Direct location radio button. Controls in the lower area are enabled.
- Click the ellipsis button (…) and browse to the broken hive.

**5.** In the `Attach as` box type a custom hive name. This is a temporary name, so the actual name does not matter.

**6.** Click `Attach & Edit Registry Hive`. The Registry Editor appears with the custom hive selected:
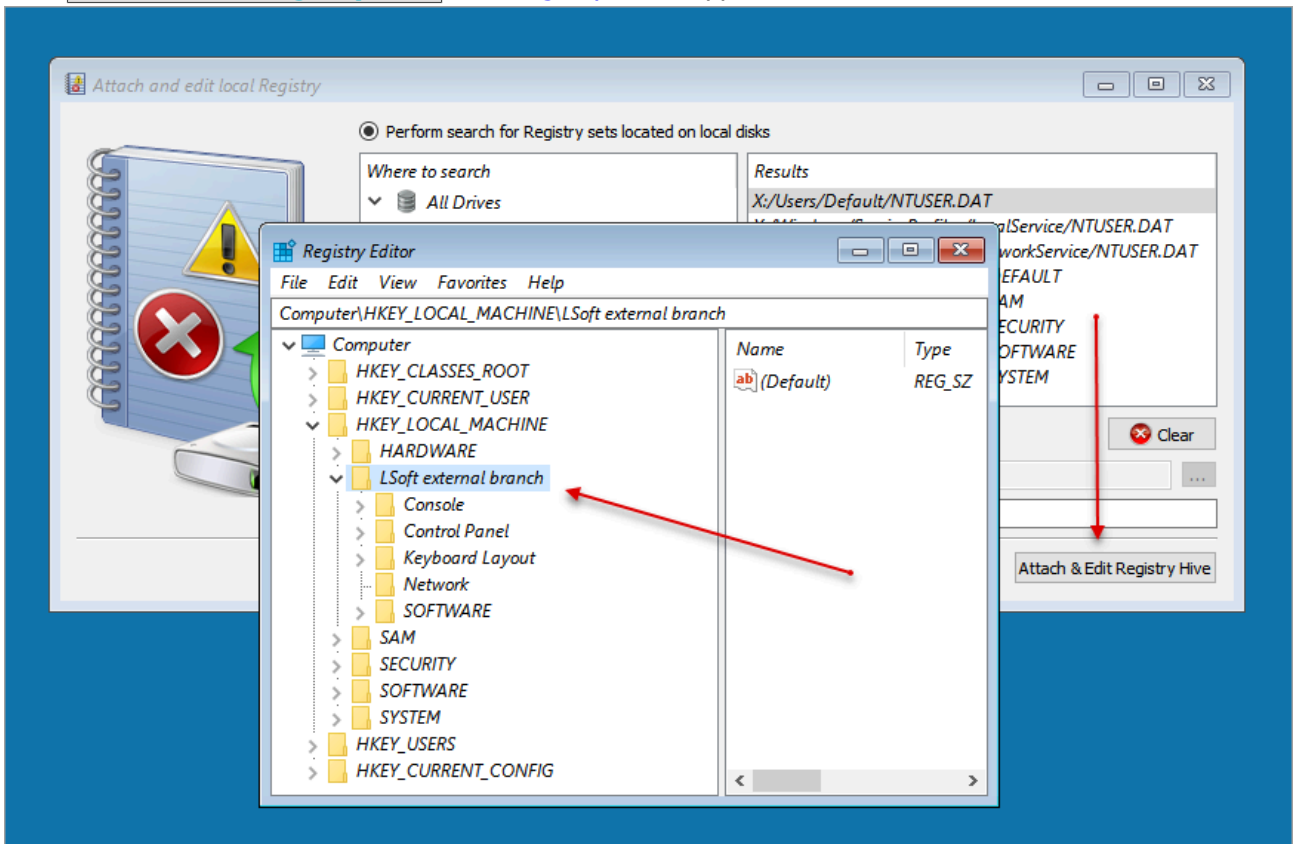


If you are repairing a broken hive Registry Editor will display a message that says "One or more files containing the registry were corrupt and had to be recovered by use of log files. The recovery was successful."

**1.** In Registry Editor select the temporary hive that you just created. From the `File` menu, choose `Unload Hive`.

**2.** Dialogue box asking for your confirmation will appear. Click `Yes`. The temporary hive is unloaded.

## Add Language & Keyboard Layout

The default language for **Active@ Boot Disk** is English. You can add an alternate language keyboard functional layout in order to give a file a descriptive name or when recording notes about changes made to the system.

A typical English keyboard layout (called *QWERTY*) may be suitable for many Latin-based languages. With the French keyboard layout (*AZERTY*) the key associations produce a different result on the screen.

You must be familiar with the different key associations to use a different language keyboard layout.

To add a new keyboard layout:

- From the **Active@ Boot Disk** shell click `Start` > `Utilities` > `Add Keyboard Layout`. The `Add Keyboard Layout` dialog box appears.
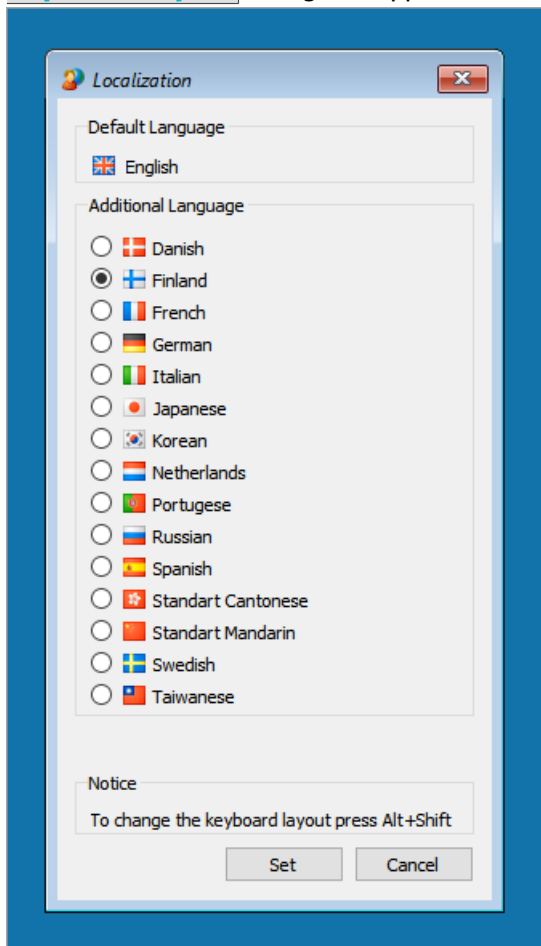


- Choose the radio button for the alternate keyboard layout that you want to use.
- Click `Set`. A short form for the current keyboard layout will appear in the system tray area.

The alternate keyboard layout has been set.

To toggle between the default keyboard layout and the alternate keyboard layout, press `Left ALT` > `SHIFT` on the keyboard.

> ⚠️ **Important:** You should be able to type in (**Notepad**, **Mail Sender**, **Web Browser** etc.) in order to switch the layout
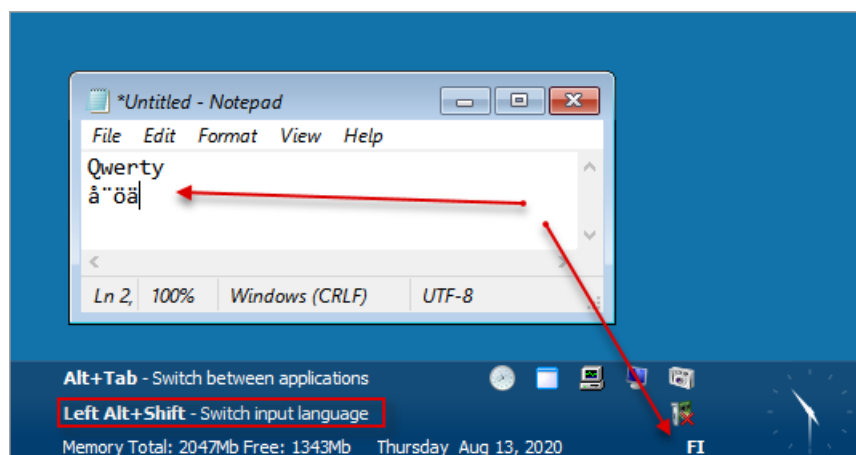
## Bootable Configuration Editor (BCD)

**Active@ BCD Editor** is a *Windows*-based utility that allows you to edit entries in BCD (Boot Configuration Data) store to make a *Windows* system partition bootable

*Boot Configuration Data* is a database for boot-time configuration data. It is used by *Microsoft's Windows Boot Manager* and replaces the *boot.ini* that was used by NTLDR. It carries a set of entries describing booting options and location of *Windows Boot Loader*, *Windows Resume* application and other important programs. *BCD* was introduced along with *Windows Vista* and it is a replacement of older boot.ini format. *BCD* store is used by *Windows Vista*, *Windows 7*, *Windows 8*, *Windows Server 2008*, *Windows Server 2012* and *Windows 10*.

From the **Active@ Boot Disk** shell click  Start  >  Utilities  >  Bootable Configuration Editor .
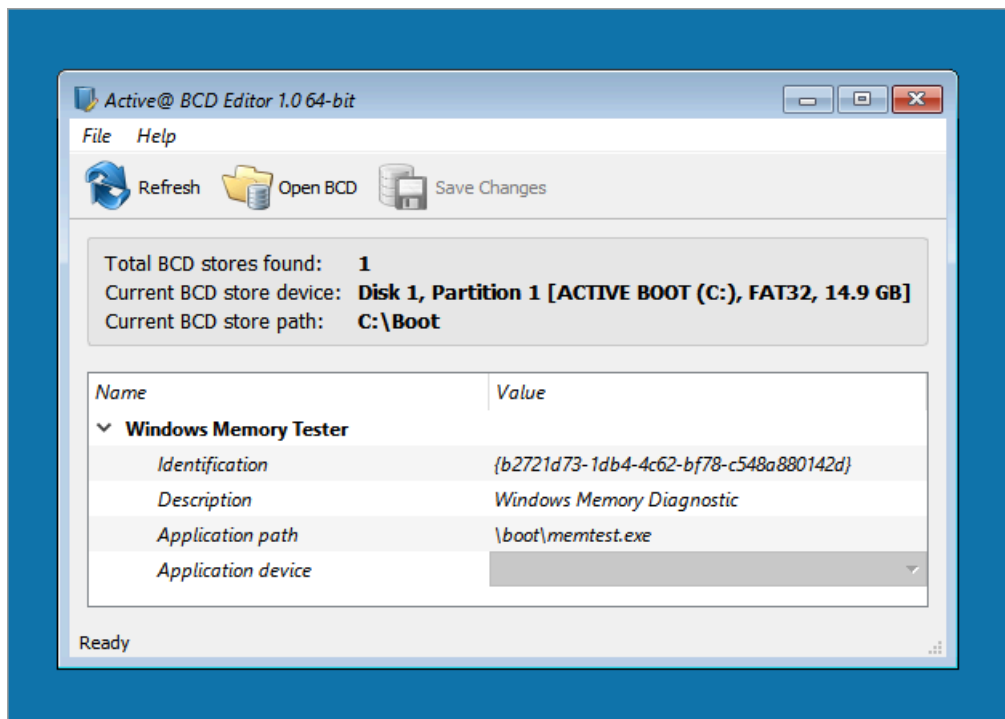


After the launch **Active@ BCD Editor** scans all disks in the system and looks for *BCD* stores which could be more than one if there are disks presented containing boot configuration from another machine. The first *BCD* store is open and available to edit. Before making changes make sure that you use a correct *BCD* store. Use  Open BCD  command to change the current *BCD* store. The main screen contains a list of all *BCD* store entries and their parameters. Out of those parameters only  Application device  and  OS device  fields are intended to be changed, all other data is shown for information only. The main task of **Active@ BCD Editor** is to assign a correct device for each application in *BCD* store, so *Windows* would be booted correctly.

For more information, read **Active@ BCD Editor** documentation:
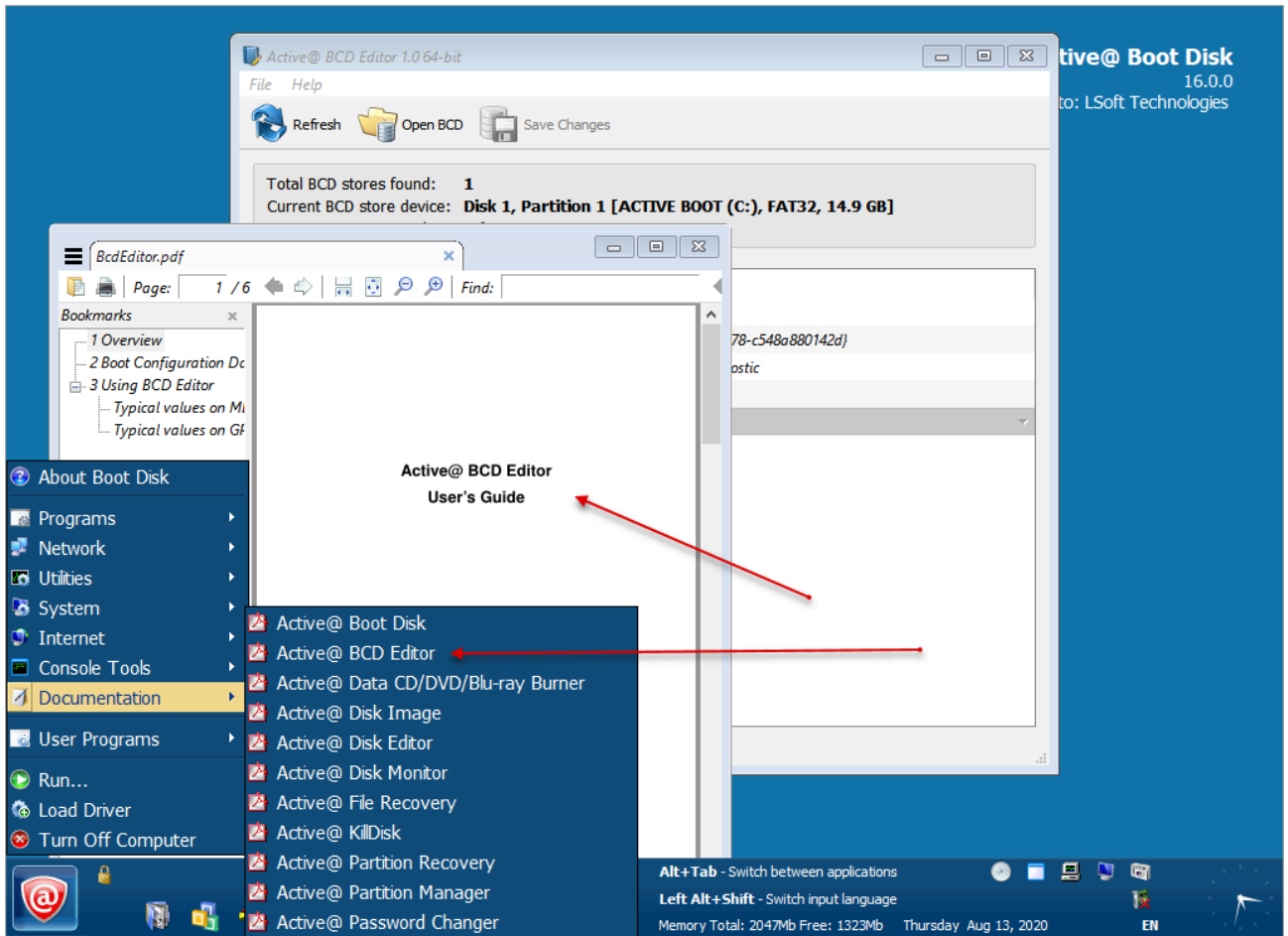
## Console Tools
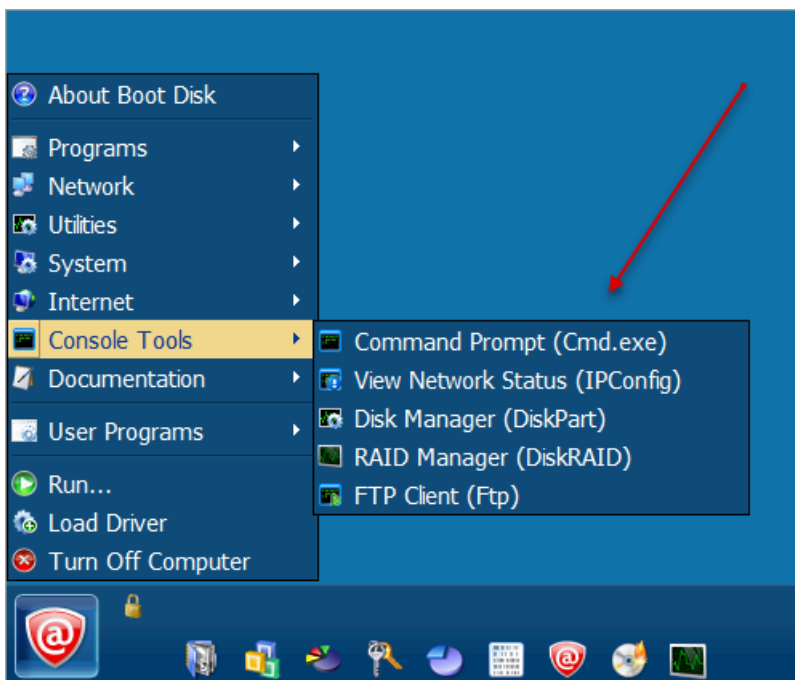
The **Active@ Boot Disk** console utilities include:

**Command Prompt**

> Run command prompt utility (*cmd.exe*) to create and run batch files or perform other DOS commands

**View Network Status**

> *ipconfig* (IP Configuration) in *Windows* is a utility to print the local computer's current network configuration

**Disk Manager (DiskPart.exe)**

> Command line tool to create, delete, format and resize basic partitions and logical partitions, and manage dynamic volumes

**RAID Manager (DiskRAID.exe)**

> Command line tool to create, delete, format and resize basic partitions and logical partitions, and manage dynamic RAIDs

**FTP Client**

> A console utility to help you download or upload files from an FTP site

## Command Prompt

To open the DOS-like command line interpreter (*Cmd.exe*) click Start > System > Command Prompt.

```
Administrator: X:\Windows\System32\cmd.exe

09/25/2016   02:03 AM              193,536 Qt5Xml.dll
03/21/2018   01:44 PM              154,624 RunTask.exe
10/02/2017   08:58 AM              103,936 screenshot.exe
10/02/2017   08:58 AM              187,392 setDt.exe
10/02/2017   08:59 AM               98,304 SetLang.exe
01/14/2010   05:41 AM            1,505,376 StarBurn.dll
08/23/2018   09:04 AM               51,200 start_scripts.exe
10/02/2017   09:00 AM              133,120 SysInfo.exe
07/28/2016   11:45 AM              997,056 ucrtbase.dll
08/25/2016   10:06 PM               87,880 vcruntime140.dll
11/30/2007   10:06 AM                   22 VIEWIP.CMD
05/21/2020   08:42 AM    <DIR>          audio
05/21/2020   08:42 AM    <DIR>          imageformats
05/21/2020   08:42 AM    <DIR>          platforms
05/21/2020   08:42 AM    <DIR>          printsupport
05/21/2020   08:42 AM    <DIR>          shell_pic
08/10/2020   04:08 PM                   20 start_s.cmd
08/11/2020   03:45 PM                3,412 pm_log.txt
08/11/2020   03:45 PM                2,286 pm_settings.ini08/1
2/2020  10:17 PM                       18 taskslist.txt
08/12/2020   05:25 PM                  139 DM_f.log
08/12/2020   05:25 PM                  407 DiskMonitor.ini08/1
2/2020  05:25 PM                      132 settings.ini
08/13/2020   08:30 AM                4,224 he_log.txt
08/13/2020   08:30 AM              450,710 untitled.png
08/13/2020   08:30 AM                1,696 he_settings.ini
             108 File(s)     91,304,034 bytes
               7 Dir(s)     531,009,536 bytes free

X:\Program Files\BOOTDISK>
```

In this environment, you may run character-based applications and utilities. You can use command prompt to create and edit batch files to automate routine tasks. This can make you more efficient than if you were doing these tasks using Boot Disk Explorer.

Read here for more information about command line console commands.

## View Network Status

This utility works only on computers with network adapters.

The **ipconfig** utility displays current TCP/IP network configuration values, updates, or releases, DHCP (Dynamic Host Configuration Protocol) allocated leases, and display, register, or flush DNS (Domain Name System) names.

To see all **ipconfig** commands and syntax:

```
ipconfig /?
```

```
Administrator: X:\Windows\System32\cmd.exe                    [_] [□] [✕]
X:\Program Files\BOOTDISK>ipconfig /?

USAGE:
    ipconfig [/allcompartments] [/? | /all |
                                 /renew [adapter] | /release [adapter] |
                                 /renew6 [adapter] | /release6 [adapter] |
                                 /flushdns | /displaydns | /registerdns |
                                 /showclassid adapter |
                                 /setclassid adapter [classid] |
                                 /showclassid6 adapter |
                                 /setclassid6 adapter [classid] ]

where
    adapter            Connection name
                       (wildcard characters * and ? allowed, see examples)

    Options:
        /?             Display this help message
        /all           Display full configuration information.
        /release       Release the IPv4 address for the specified adapter.
        /release6      Release the IPv6 address for the specified adapter.
        /renew         Renew the IPv4 address for the specified adapter.
        /renew6        Renew the IPv6 address for the specified adapter.
        /flushdns      Purges the DNS Resolver cache.
        /registerdns   Refreshes all DHCP leases and re-registers DNS names
        /displaydns    Display the contents of the DNS Resolver Cache.
        /showclassid   Displays all the dhcp class IDs allowed for adapter.
        /setclassid    Modifies the dhcp class id.
        /showclassid6  Displays all the IPv6 DHCP class IDs allowed for adapter.
        /setclassid6   Modifies the IPv6 DHCP class id.
```

Launch *FTP* Client from the **Active@ Boot Disk** shell, click **Start** > **Console Tools** > **View Network Status**
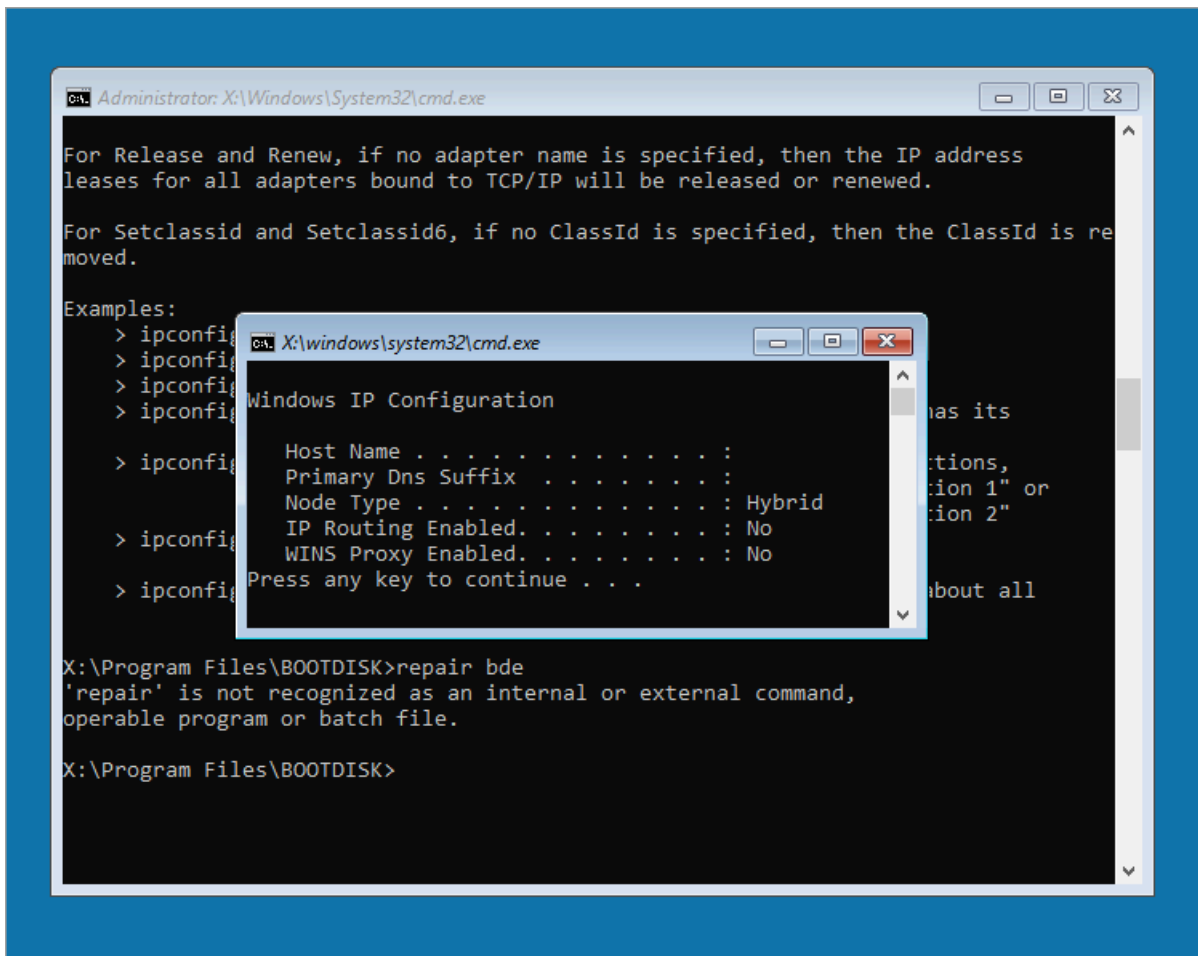
## Disk Manager (DiskPart)

**DiskPart** is a text-mode command interpreter. This tool enables you to manage objects (disks, partitions, or volumes) by using scripts or direct input at a command prompt.

**DiskPart** enables a superset of the actions that are supported by the Disk Management Control Panel snap-in. The Disk Management snap-in prohibits you from inadvertently performing actions that may result in data loss. It is recommended that you use the **DiskPart** utility cautiously because **DiskPart** enables explicit control of partitions and volumes.

You can use **DiskPart** to convert a basic disk to a dynamic disk and backward. The basic disk can either be empty or contain either primary partitions or logical drives. The basic disk can be a data disk or system or boot drive.

You can use **DiskPart** to create a partition at an explicit disk offset. The Disk Management snap-in places the partition at the end of any occupied area or on the first sufficiently large area. On master boot record (MBR) disks, the partition offset and the size are rounded to preserve the required cylinder alignment. Offsets are rounded to the closest valid value, and the size is always rounded up to the next valid value. **DiskPart** does not assign a drive letter to a newly created partition. Use the assign command to assign either a mount point or a drive letter.

**DiskPart** permits certain partition deletion operations that are blocked by the snap-in. For example, you can use **DiskPart** to delete MBR OEM partitions. However, these partitions often contain files that are important to the platform operation. **DiskPart** blocks the deletion of the current system, boot, or paging volumes and partitions. Also, **DiskPart** blocks deletion of the partitions that underlie dynamic disks.

**DiskPart** causes disk signatures, GUID partition table (GPT) disk globally unique identifiers (GUIDs), and GPT partition GUIDs to be generated.

The **DiskPart** utility includes support for the new disk partition scheme called GPT. You cannot use GPT disks on any *x86*-based *Windows XP*-based or *Windows 2000*-based computers. **DiskPart** enables the conversion of GPT partitioning to MBR partitioning only for empty disks.

You can use **DiskPart** to delete missing dynamic disks. Dynamic disks contain a shared database; all of the dynamic disks on a computer have knowledge of all other dynamic disks on that computer. When dynamic disks are moved, the original computer considers these disks as "missing".

Drive letters are not automatically assigned when you use **DiskPart**. To ensure that a given partition or volume has a drive letter, you must explicitly assign a drive letter. You can either assign the drive letter or allow the next available drive letter to be allocated.

**DiskPart** commands

Before you can use **DiskPart** commands on a disk, partition, or volume, you must first list and then select an object to give it focus. When an object has focus, any **DiskPart** command that you input will affect that particular object.

You can list the available objects and determine an object's number or drive letter by using the list disk, list volume, and list partition commands. The list disk and list volume commands display all disks and volumes in the computer. However, the list partition command displays only partitions on the disk that have focus. When you use the list commands, an asterisk (*) appears next to the object with focus. You select an object by its number or drive letter, such as disk 0, partition 1, volume 3, or volume *C*.

When you select an object, the focus remains on that object until you select a different object. For example, if the focus is set on disk 0, and you select volume 8 as on disk 2, the focus shifts from disk 0 to disk 2, volume 8. Some commands automatically change the focus. For example, when you create a new partition, the focus automatically changes to the new partition.

You can give focus only to a partition on the selected disk. When a partition has focus, the related volume (if any) will also have focus. When a volume has focus, the related disk and partition also have focus if the volume maps to a single specific partition. If this is not the case, then focus on the disk and partition is lost.

Run:

```
DiskPart.exe ?
```

to see all **DiskPart** commands and syntax.

```
X:\Windows\System32\diskpart.exe

Microsoft DiskPart version 10.0.18362.1

Copyright (C) Microsoft Corporation.
On computer: MININT-559VLC3

DISKPART> ?

Microsoft DiskPart version 10.0.18362.1

ACTIVE      - Mark the selected partition as active.
ADD         - Add a mirror to a simple volume.
ASSIGN      - Assign a drive letter or mount point to the selec
ted volume.
ATTRIBUTES  - Manipulate volume or disk attributes.
ATTACH      - Attaches a virtual disk file.
AUTOMOUNT   - Enable and disable automatic mounting of basic vo
lumes.
BREAK       - Break a mirror set.
CLEAN       - Clear the configuration information, or all infor
mation, off the
              disk.
COMPACT     - Attempts to reduce the physical size of the file.

CONVERT     - Convert between different disk formats.
```

**DiskPart** Scripting

By using the **DiskPart** Command-Line Options command-line tool, you can create scripts to automate disk-related tasks, such as creating volumes or converting disks to dynamic disks. Scripting these tasks is useful if you deploy *Windows* by using unattended Setup or the *Sysprep* tool, which do not support creating volumes other than the boot volume.

To start a **DiskPart** script, at the command prompt, type:

```
DiskPart.exe /s scriptname.txt
```

…where *scriptname* is the name of the text file that contains your script.

Read here more detailed information on **DiskPart** usage.

## RAID Manager (DiskRAID)

**DiskRAID** is a command-line tool that enables you to configure and manage redundant array of independent (or inexpensive) disks (RAID) storage subsystems.

A hardware *RAID* subsystem distinguishes physically addressable storage units from one another by using a *Logical Unit Number* (LUN). A *LUN* object must have at least one plex, and can have any number of additional plexes. Each plex contains a copy of the data on the *LUN* object. Plexes can be added to and removed from a *LUN* object.

Most **DiskRAID** commands operate on a specific host bus adapter (*HBA*) port, initiator adapter, initiator portal, provider, subsystem, controller, port, drive, *LUN*, target portal, target, or target portal group. You use the SELECT command to select an object. The selected object is said to have focus. Focus simplifies common configuration tasks, such as creating multiple *LUN*'s within the same subsystem.

Example:

To select subsystem 0, type the following at the **DiskRAID** prompt:

```
DISKRAID> select subsystem 0
```

Press ENTER . Output similar to the following is displayed:

```
Subsystem 0 is now the selected subsystem.
```

To list all drives in the system, type:

```
DISKRAID> list drives
```

| Drive # | Status | Health | Size | Free | Bus | Slot | Flags |
|---------|---------|---------|--------|--------|-----|------|-------|
| Drive 0 | Online | Healthy | 107 GB | 107 GB | 0 | 1 | |
| Drive 1 | Offline | Healthy | 29 GB | 29 GB | 1 | 0 | |
| Drive 2 | Online | Healthy | 107 GB | 107 GB | 0 | 2 | |
| Drive 3 | Not Ready | Healthy | 19 GB | 19 GB | 1 | 1 | |

Read here more detailed information on **DiskRAID** usage.

## FTP Client

Use *Microsoft FTP* Client (console) to transfer files to and from your computer running anFTP (*File Transfer Protocol*) server service such as *Internet Information Service*. *FTP* can be used interactively or in batch mode by processing ASCII text files.

To see the list of commands available and the syntax:

- Launch *FTP* Client from the Active@ Boot Disk shell, click Start > Console Tools > FTP Client
- If you choose console then type: `ftp /?` to see the list of commands available and the actual syntax.

  **Examples:**

- To anonymously log on to the FTP server named ftp.example.microsoft.com, type the following command: `ftp -A ftp.example.microsoft.com`
- To log on to the FTP server named ftp.example.microsoft.com and run the ftp commands contained in a file named Resynch.txt, type the following command: `ftp -s:resynch.txt ftp.example.microsoft.com`

Read here more detailed information about FTP client usage.

## Network Tools

Use these utilities to perform different network maintenance tasks
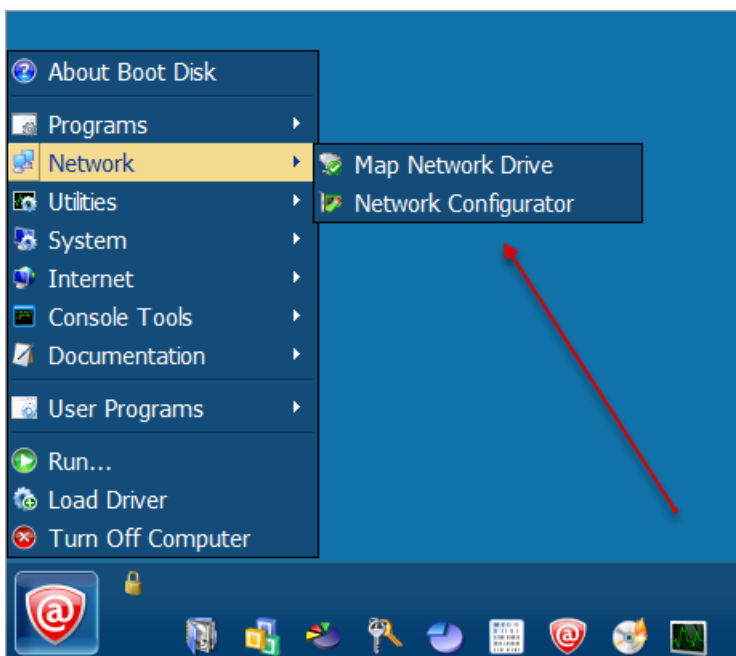
**Map Network Drive**

A Mapped Drive is typically a place on a network's server hard drive that has been created or designated as a shared folder and assigned a local drive letter. The drive has been awarded with specific permissions of use as the folder will store information for particular users or groups

**Network Configurator**

In computer networking, the *ARP* (Address Resolution Protocol) is the method for finding the host's hardware address when only its network layer address is known. Use the **Network Configurator** utility to configure TCP/IP and Windows firewall settings.

## Map Network Drive

To map a network drive:

- From the **Active@ Boot Disk** shell click Start > Network > Map Network Drive .The **Map Network Drive** dialog box appears.
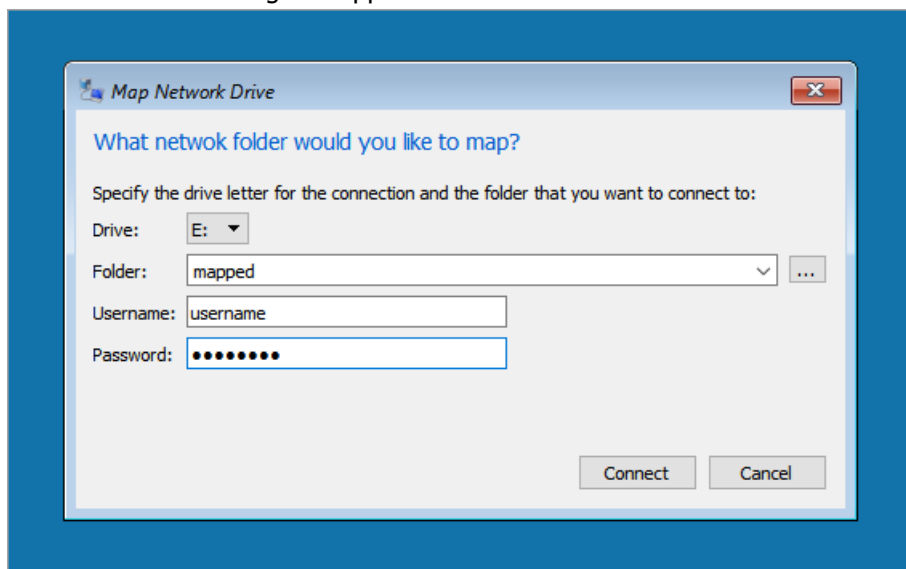
- In Drive combo select a drive letter to be assigned
- In Folder field type the server name and share the name of computer (or folder). For example: "\\servername\sharename"
- To search for the computer or folder click *browse* button [...]
- If it is necessary to change the username in order to map the selected drive, do the following:

- a. Enter the domain name and the username that has a permission to connect to the selected computer or folder
- b. Enter the password for the user named above
- Click Connect

> **Note:** Mapped drives are available only when the host computer is available. Network drives are assigned letters from Z to A, and local drives (your hard drive and removable storage devices) are assigned letters from A to Z. You can assign a computer or shared folder to a different drive letter by disconnecting from the drive and then reassigning it to a new drive letter.

## Internet Tools

The Active@ Boot Disk Internet tools include:

**Web Browser**

Fast, customizable, portable and lightweight web browser for the *Windows* platform

**Mail Sender**

Send an email message with attachments quickly and easily
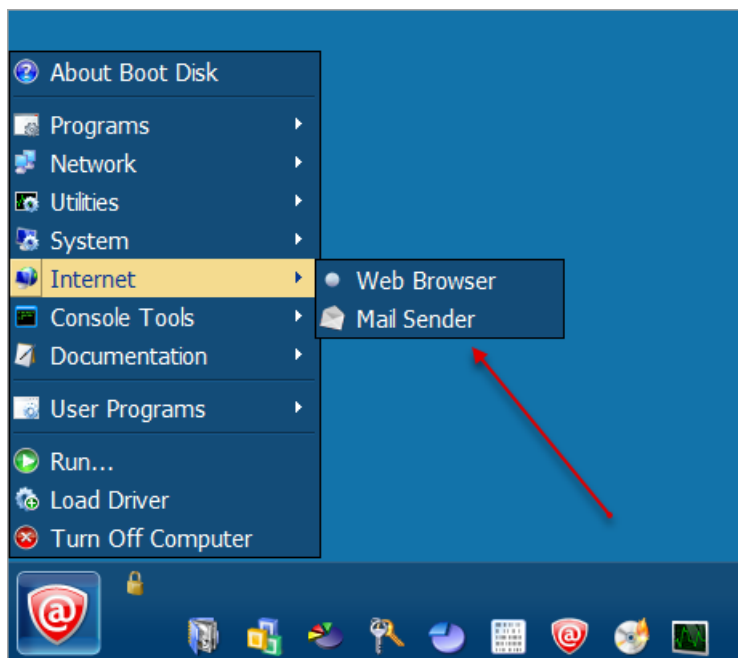


### Web Browser

You may access Internet information quickly and easily using **Active@ Boot Disk** portable **Web Browser**.

From the **Active@ Boot Disk** shell click Start > Internet > Web Browser.
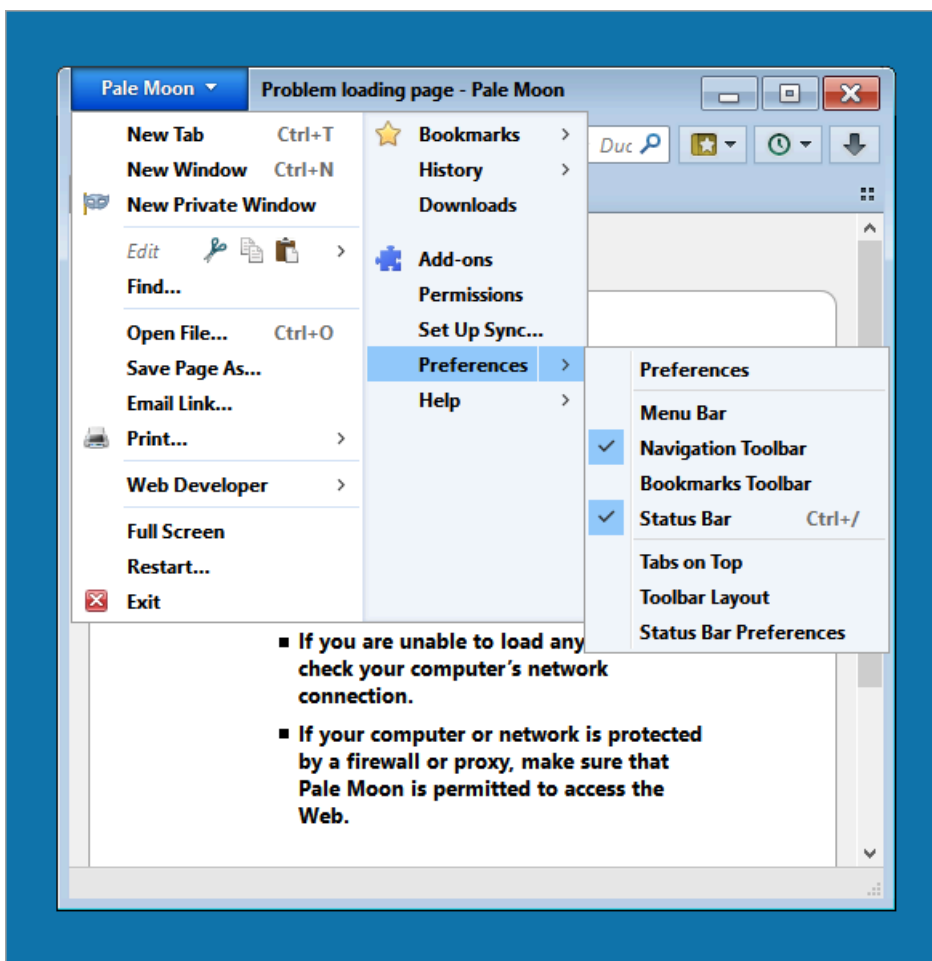
Here are some features in **Active@ Boot Disk Web Browser**:

- When you start a new browser session, you may choose to restore the settings and tabs from the last session. This option is useful if you accidentally closed the browser
- Turn on *Private Browsing* mode and you will not leave any traces of your activities on your computer. When you visit a web page, a *JSON* is sent to identify such things as the application name, version, host operating system, and language. With *Private Browsing*, even this information is masked
- Supports *SSL* (*Secure Sockets Layer*) for secure communications on *Internet* websites
- Supports configuration of *POP3 & IMAP* mail accounts to receive emails, and *SMTP* accounts to send emails
- Supports configuration of *Newsgroups & Chat* (*IRC*) accounts
- Optimized for modern processors
- Safe: forked from mature Mozilla code and regularly updated with the latest security patches
- Secure: Additional security features and security-aware development
- Familiar, efficient, fully customizable interface
- Support for full themes: total freedom for any element's design
- Support for easily-created lightweight themes (skins)
- Smooth and speedy page drawing and script processing
- Superior gradients and fonts
- Increased stability: experience fewer browser crashes
- Support for many "*legacy*" Firefox extensions
- Support for a growing number of exclusive extensions
- Extensive and growing support for existing web standards

## Mail Sender

Use a simple **Mail Sender** to send an email message to ask for support or to make any other kind of contact.

To use **Mail Sender**:

1. From the **Active@ Boot Disk** shell click `Start` > `Internet` > `Mail Sender`. The **Mail Sender** dialog box will appear:
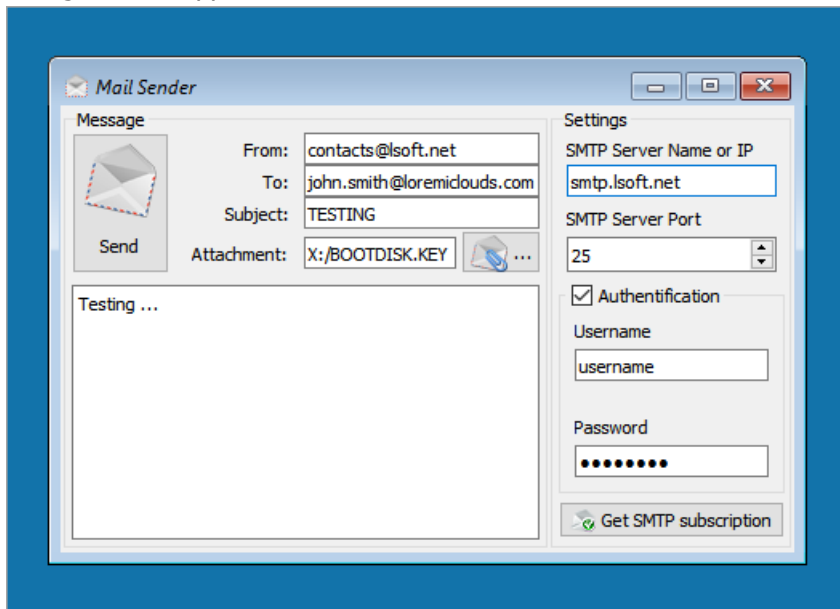


2. In `From` field type the email address that the recipient can reply to
3. In `To` field type the destination email address where you want the message sent
4. In `Subject` field type the subject of the email
5. To add an attachment click the `Attachment` button and navigate to the file that you want to attach.
6. To use your existing email service provider in `Settings` do the following:

   - In `Server Name` field type the outgoing mail server (SMTP) address in the format "*servername.hostname.extension*". This is the mail server that will accept the email message from the application and forward it to the destination email address.
   - In `Port` field select a port number using the scroll field (Usually 25)
   - If your email server requires authentication, select the `Authentication` check box and provide the username and password.

7. Click `Send`.

> **Note:** You cannot receive emails with this simple **Mail Sender** client

## Professional Tools

The **Active@ Boot Disk Professional Tools** included in the *Professional* (commercial) package:

### Windows PowerShell

Is a task automation and configuration management framework from *Microsoft*, consisting of a command-line shell and associated scripting language built on the *.NET Framework*. *PowerShell* provides full access to *COM* and *WMI*, enabling administrators to perform administrative tasks on both local and remote *Windows* systems as well as *WS-Management* and *CIM* enabling management of remote *Linux* systems and network devices

**BitLocker Manager**

This tool can be used to turn on or turn off *BitLocker*, specify unlock mechanisms, update recovery methods and unlock *BitLocker*-protected data drives

**BitLocker Repair**

This tool is used to recover access to *BitLocker*-protected drives that have been damaged or corrupted when access cannot be restored by using the recovery console

**iSCSI Manager**

This is a command-line tool for managing iSCSI device connections and security

**WMI Console**

Command-line interface to *WMI* called Windows Management Instrumentation Command-line (WMIC)

**SSH Client**

*Secure Shell Client* library allows to connect to and control remote computers via secure channel using simple scripting language

## Windows PowerShell

**Windows PowerShell** is a task automation and configuration management framework from Microsoft, consisting of a command-line shell and associated scripting language built on the *.NET Framework*. **PowerShell** provides full access to *COM* and *WMI*, enabling administrators to perform administrative tasks on both local and remote *Windows* systems as well as WS-Management and *CIM* enabling management of remote *Linux* systems and network devices.
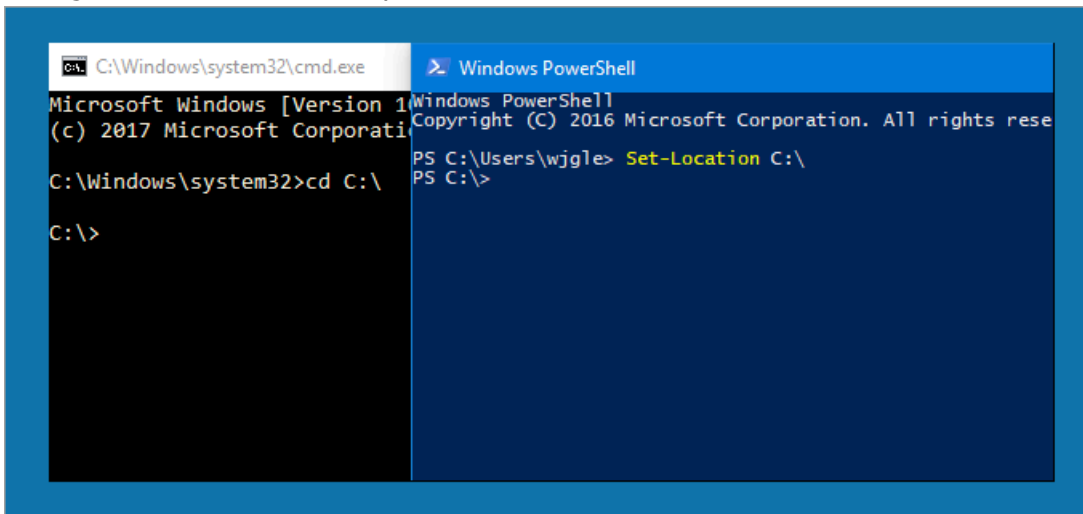


In **PowerShell**, administrative tasks are generally performed by *cmdlets* which are specialized *.NET* classes implementing a particular operation. Sets of *cmdlets* may be combined into scripts, executables (which are standalone applications), or by instantiating regular *.NET* classes (or *WMI/COM* Objects). These work by accessing data in different data stores, like the file system or registry, which are made available to the **PowerShell** runtime via *Windows PowerShell* providers.

**Windows PowerShell** also provides a hosting API with which the **Windows PowerShell** runtime can be embedded inside other applications. These applications can then use *Windows PowerShell* functionality to implement certain operations, including those exposed via the graphical interface. Different *Microsoft* applications, for example *Microsoft SQL Server 2008* also expose their management

interface via **PowerShell** *cmdlets*. With **PowerShell**, graphical interface-based management applications on *Windows* are layered on top of **Windows PowerShell**.

**Windows PowerShell** includes its own extensive, console-based help, similar to man pages in Unix shells, via the *Get-Help cmdlet*.

Examples:

This example lists all services registered on the machine and prints their current status:

```
Get-Service | Foreach {$_.name + " Status:-" + $_.status}
```

This example finds all *Windows* Log Files with 'Error' inside:

```
Clear-Host
 $Directory = "C:\Windows\"
 $Phrase = "Error"
 $Files = Get-Childitem $Directory -recurse -Include *.log `
 -ErrorActionSilentlyContinue
 $Files | Select-String $Phrase -ErrorActionSilentlyContinue `
 | Group-Object filename | Sort-Object count -descending
```

Read more detailed information on **PowerShell** usage here

## BitLocker Manager

**BitLocker Manager** - a tool being used to turn on or turn off *BitLocker*, specify unlock mechanisms, update recovery methods, and unlock BitLocker-protected data drives. This tool can be used in place of the *BitLocker* Drive Encryption Control Panel item.

**BitLocker Drive Encryption** (*BitLocker*) is a component of Windows Vista and later versions of Windows that helps to protect data by encrypting the entire volume and checking the integrity of early startup components.

Examples:

To unlock *BitLocker-encrypted* D: drive using the password:

```
manage-bde –unlock D: -rp<recovery password>
```

To unlock *BitLocker-encrypted* D: drive using the recovery key stored in the file:

```
manage-bde –unlock D: -rkC:\<recovery-key-file name>
```

Read more detailed information on *BitLocker* command-line tool usage here

## BitLocker Repair

The **BitLocker Repair** tool can be used to access encrypted data on a severely damaged hard disk if the drive was encrypted by using **BitLocker**. **Repair-bde** can reconstruct critical parts of the drive and salvage recoverable data as long as a valid recovery password or recovery key is used to decrypt the data. If the **BitLocker** metadata data on the drive has become corrupt, you must be able to supply a backup key package in addition to the recovery password or recovery key. With this key package and either the recovery password or recovery key, you can decrypt portions of a **BitLocker**-protected drive if the disk is corrupted. Each key package will work only for a drive that has the corresponding drive identifier.

The **Repair-bde** command-line tool is intended for use when the operating system does not start or when you cannot start the **BitLocker Recovery Console**. You should use **Repair-bde** if the following conditions are true:

1. You have encrypted the drive by using **BitLocker** Drive Encryption.
2. Windows does not start, or you cannot start the **BitLocker** recovery console.
3. You do not have a copy of the data that is contained on the encrypted drive.

Example:

To recover damaged **BitLocker** volume C: and store all partition's information into the image file on volume D:

```
repair-bde C: D:\imagefile.img
```

Read more detailed information on **BitLocker** repair command-line tool usage here

## iSCSI Manager

**iSCSI Manager** (*iscsicli.exe* command) allows you to use the Microsoft iSCSI initiator without the *GUI*. Making it the perfect tool for scripting the *iSCSI* connections (*Hyper-V Server* shared storage). If you know the ip-address of your *iSCSI* storage and the *IQN* of the *LUN* you want to use (though it can be found with the command), you are all set to set up the connection and use your shared storage.

Examples:

To list all available iSCSI targets:

```
iscsicli.exe ListTargets
```

To login to the particular target:

```
iscsicli.exe QloginTarget [target-iqn]
```

Read more detailed information on *iscsicli.exe* command-line tool usage here

## WMI Console

**WMI Console** is a command-line interface to *WMI* called *Windows Management Instrumentation Command-line* (WMIC).

In *Microsoft* computer systems, *Windows Management Instrumentation* (*WMI*) consists of a set of extensions to the Windows Driver Model that provides an operating system interface through which instrumented components provide information and notification. *WMI* is *Microsoft's* implementation of the *Web-Based Enterprise Management* (*WBEM*) and *Common Information Model* (CIM) standards from the *Distributed Management Task Force* (*DMTF*).

*WMI* allows scripting languages (such as *VBScript* or Windows PowerShell) to manage *Microsoft Windows* personal computers and servers, both locally and remotely.

Examples:

To list all processes:

```
wmic > process list
```

To list all logical disks, their filesystem, name, size and description:

```
wmic > logicaldisk get filesystem, name, size, description
```

Read more detailed information on *WMI* & *WMIC* syntax:

http://en.wikipedia.org/wiki/Windows_Management_Instrumentation

https://technet.microsoft.com/en-us/library/cc779482(v=ws.10).aspx

## SSH Client

**Secure Shell Client** Library (SSH.NET) allows to connect to and control remote computers via secure channel using simple scripting language.

Features:

- Execution of *SSH* command using both synchronous and asynchronous methods
- Return command execution exit status and other information
- Provide *SFTP* functionality for both synchronous and asynchronous operations.

- Provides SCP functionality.
- Provide status report for upload and download sftp operations to allow accurate progress bar implementation
- Remote, dynamic and local port forwarding
- Shell/Terminal implementation.
- Specify key file pass phrase
- Use multiple key files to authenticate
- Supports diffie-hellman-group-exchange-sha256, diffie-hellman-group-exchange-sha1, diffie-hellman-group14-sha1 and diffie-hellman-group1-sha1 key exchange methods.
- Supports 3des-cbc, aes128-cbc, aes192-cbc, aes256-cbc, aes128-ctr, aes192-ctr, aes256-ctr, blowfish-cbc, cast128-cbc, arcfour and twofish encryptions.
- Supports hmac-md5, hmac-sha1, hmac-ripemd160, hmac-sha2-256, hmac-sha2-256-96, hmac-md5-96 and hmac-sha1-96 hashing algorithms.
- Supports publickey, password and keyboard-interactive authentication methods
- Supports RSA and DSA private key
- Supports DES-EDE3-CBC, DES-EDE3-CFB, DES-CBC, AES-128-CBC, AES-192-CBC and AES-256-CBC algorithms for private key encryption.
- Supports two-factor or higher authentication
- Supports SOCKS4, SOCKS5 and HTTP Proxy

Examples:

To read help on registered with PowerShell functions, type:

>get-help *ssh*

To register a new SSH session to remote SSH-compatible host, type:

> New-SshSession [hostname] [username]

To invoke a SSH command **ls** on a target host having opened session, type:

> Invoke-Ssh Command [hostname] –Command 'ls'

Read more detailed information on SSH.NET & usage with PowerShell:

https://sshnet.codeplex.com/

http://www.powershelladmin.com/wiki/SSH_from_PowerShell_using_the_SSH.NET_library

# Programs

This chapter provides detailed descriptions of all the programs and utilities included with **Active@ Boot Disk** for *Windows*-based systems.

**Note:** For *Console Linux*-based  versions' descriptions please proceed to this section.

Applications are listed in this chapter in the order that they appear in the **Active@ Boot Disk** start menu.
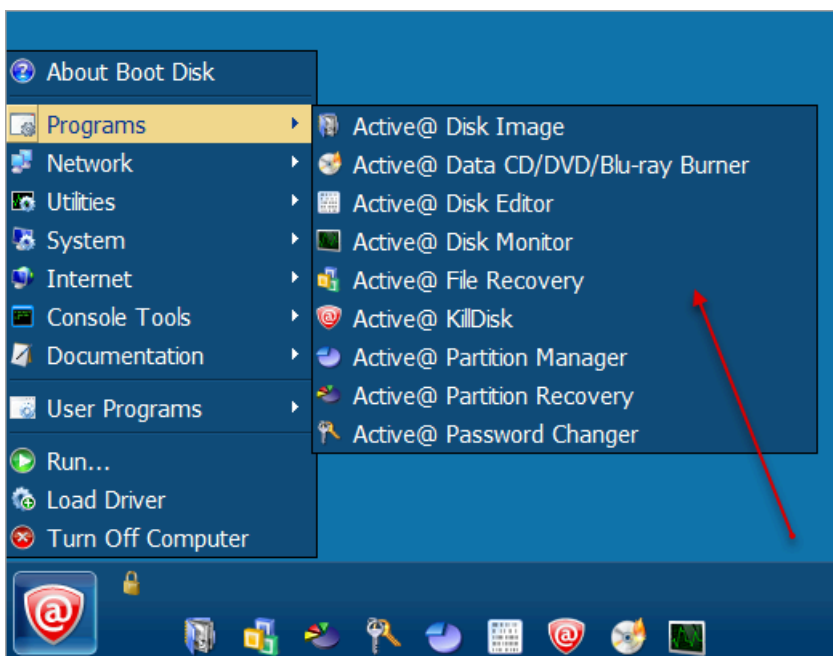
### Active@ Disk Image

Creates an exact image of the data stored in selected partitions of a hard disk or an image of the entire hard disk

### Active@ Data CD/DVD/Blu-ray Burner

Writes/burns files and folders onto CD-R, DVD-R, DVD+R, CD-RW, DVD-RW, DVD+RW and Blu-ray.

### Active@ Disk Editor

To edit disk's raw data, analyze and repair the MBR (Master Boot Record) and other important files. Advanced search capabilities and templates for viewing MBR, Boot Sectors, LDM, MFT records are available

### Active@ Disk Monitor

Monitors the reliability status of your local hard disk drives to help prevent data loss due to hard drive failure

### Active@ File Recovery

Recovers files that have been damaged, destroyed by a virus or if the file directory has been destroyed

### Active@ KillDisk

Destroys data permanently from any computer. Also, wipe deleted data, securely removing all data in unoccupied sectors

### Active@ Partition Manager

Perform maintenance tasks on hard drive partitions

### Active@ Partition Recovery

Recovers deleted or damaged partitions located on data volumes, attached hard drives, as well as on external USB drives and Memory Cards (SunDisk, MemoryStick, CompactFlash, etc.)

**Active@ Password Changer**

Recovers user accounts with forgotten or damaged user passwords (SAM)

# Active@ Disk Image

**Active@ Disk Image** is an ultimate solution that allows you to create an exact image of the data stored in selected partitions of a hard disk or an image of the entire hard disk. You can protect your valuable data by regularly making a disk image and keeping it in a safe place. If you have trouble with data corruption, or if you want to refer to an archived version of a file, you can easily restore the data.

The application provides many tools when it comes to backing up data on your hard disk:

**Disk to Image**
Choosing this option will open the Disk to Image Wizard. It will help you in creating a regular type of the disk image archive of an entire disk or of selected partitions in the system

**Image to Disk**
This option features Image to Disk Wizard which will enable you to restore data from a disk image archive that you have previously created

**Explore Image**
Enables you to browse through files and folders in a disk image as though it was a hard drive. You can select folders or individual files and restore them

**Verify Image**
Verify Image Wizard is there to checking the integrity of the disk image archive file

**Create Raw Image**
With its Create Raw Image Wizard this application will guide you in creating a raw type disk image of only one partition or the entire disk

**Clone Disk**
Enables you in transfering a sector-by-sector copy from one disk (partition) to another

**Partition Manager**
A tool that helps you create, delete, format or show properties of partitions on all devices in your system

> **Note:** This guide describes only the *Disk to Image* tool. For a description of the other tools, see the **Active@ Disk Image** User's Guide document in the *Documentation* tab of the **Active@ Boot Disk** shell.

**Creating a Disk or Partition Image**

The Disk to Image Wizard steps you through the process of creating a disk image for a whole disk or a number of partitions.

To create a disk or partition image:

**1.** To open **Active@ Disk Image** in the **Active@ Boot Disk** shell click Start > Programs > Active@ Disk Image.

**2.** To open the *Disk to Image Wizard* (in the *Disk Operations Panel*) choose  Disk to Image :
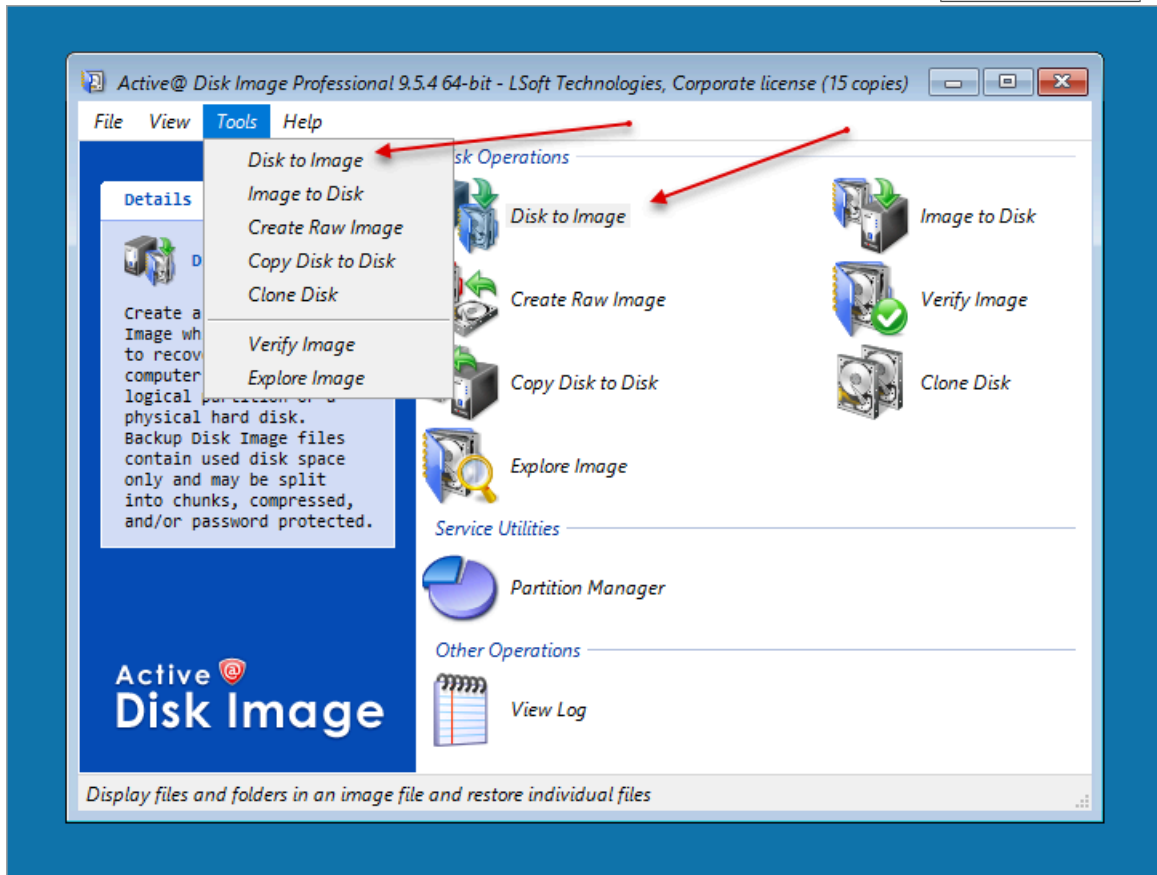
**3.** The wizard will ask you to choose one from three available backup types:
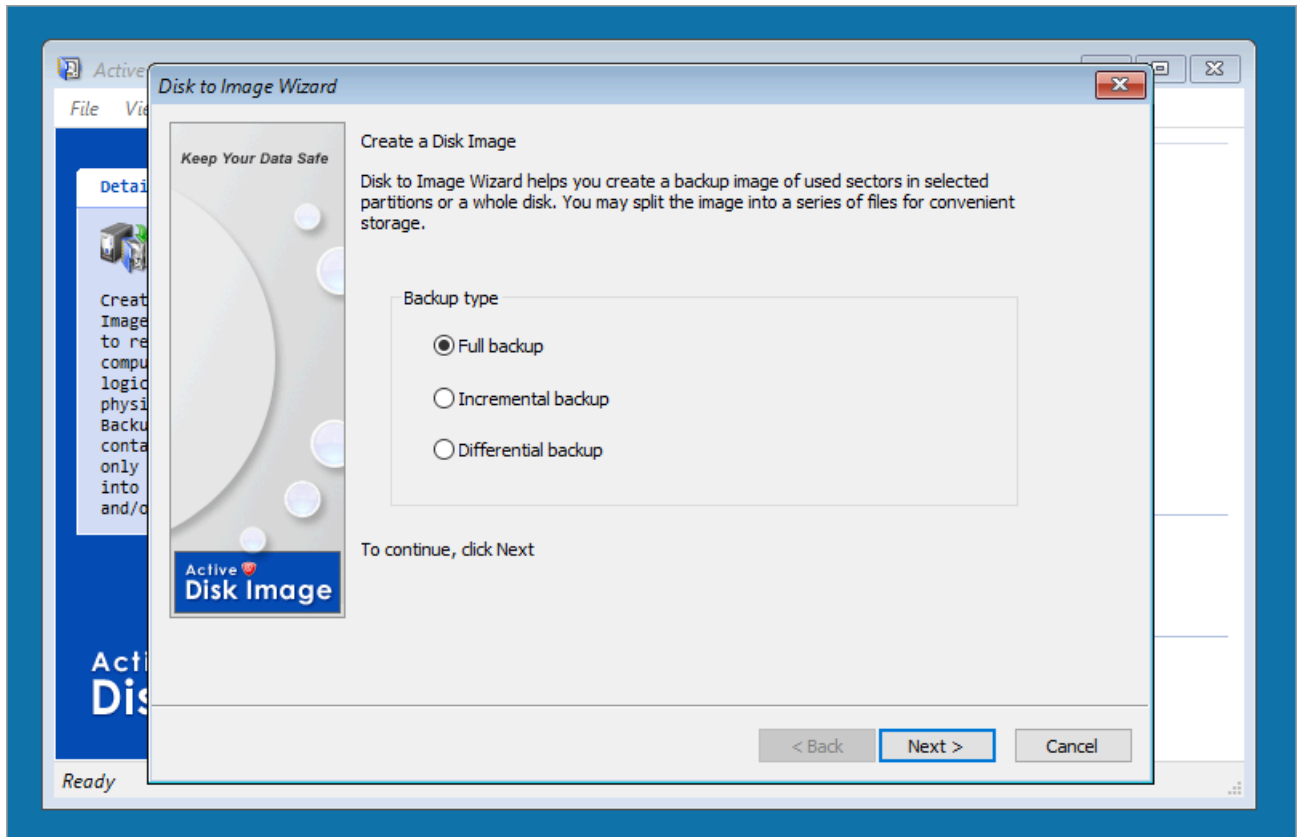


**Full Backup**
Represents an ordinary backup. If this is your first backup it doesn't matter which option you choose, the first backup is always Full Backup.

**Incremental Backup**
It's made out of Full Backup and other incremental backups. It contains differences and changes between these two backups, and the main characteristic of the Incremental Backup is that it doesn't require a lot of space but it does require the information from all of the previous incremental backups in order to be functional

**Differential Backup**
Requires only the first (Full Backup) and the last backup. There is no difference between Incremental and Differential backups if they only have two backups (Full Backup+ another backup), the difference becomes noticeable over longer periods of time when Incremental backup generates more of its backups.

**4.** Click **Next** to open **Select Disks and Partitions** window:
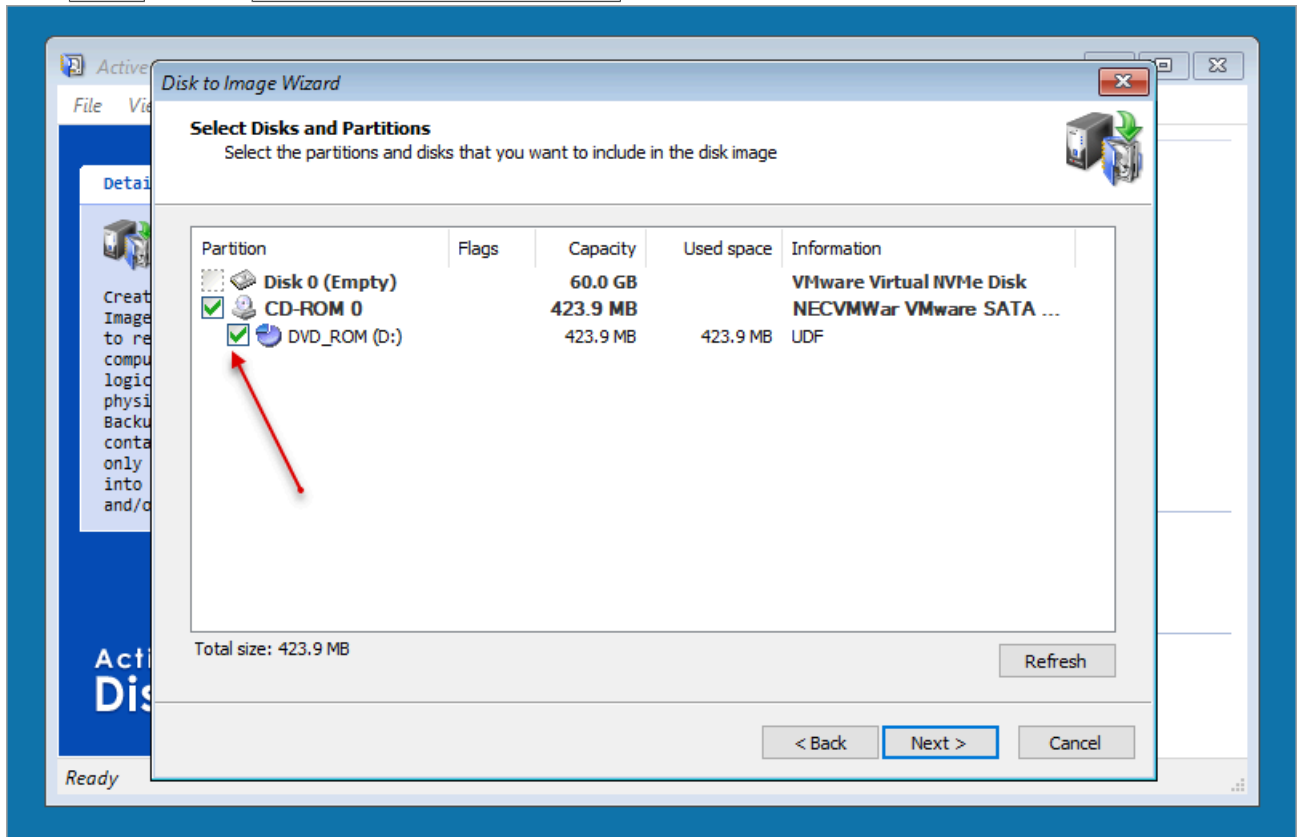


**5.** Select a check box next to a disk or partition that you want to be included in the disk image. You can see at the bottom of the list the total size for the selected partitions being displayed.

**6.** Click Next and the **Indicate Backup Location** page will appear:
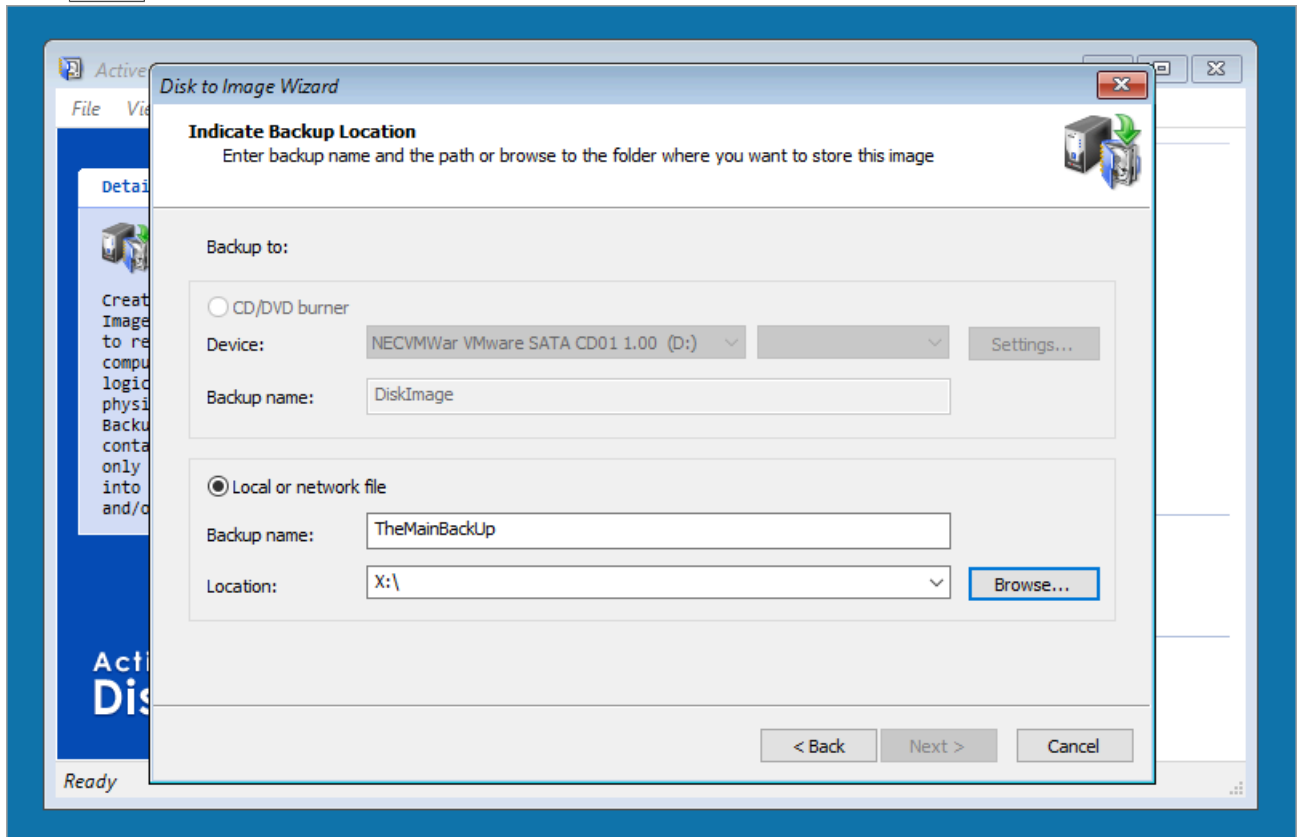


**7.** Do the following:

- If a CD/DVD burner is available, select the CD/DVD radio button, select a device from the Device drop-down list and type an appropriate disk image name into the Backup name field.
- To save the disk image to a hard disk, select the Local or network file radio button and click Browse... and navigate to the location where you want to save the disk image.

**8.** Click Next . The Image Options page appears:
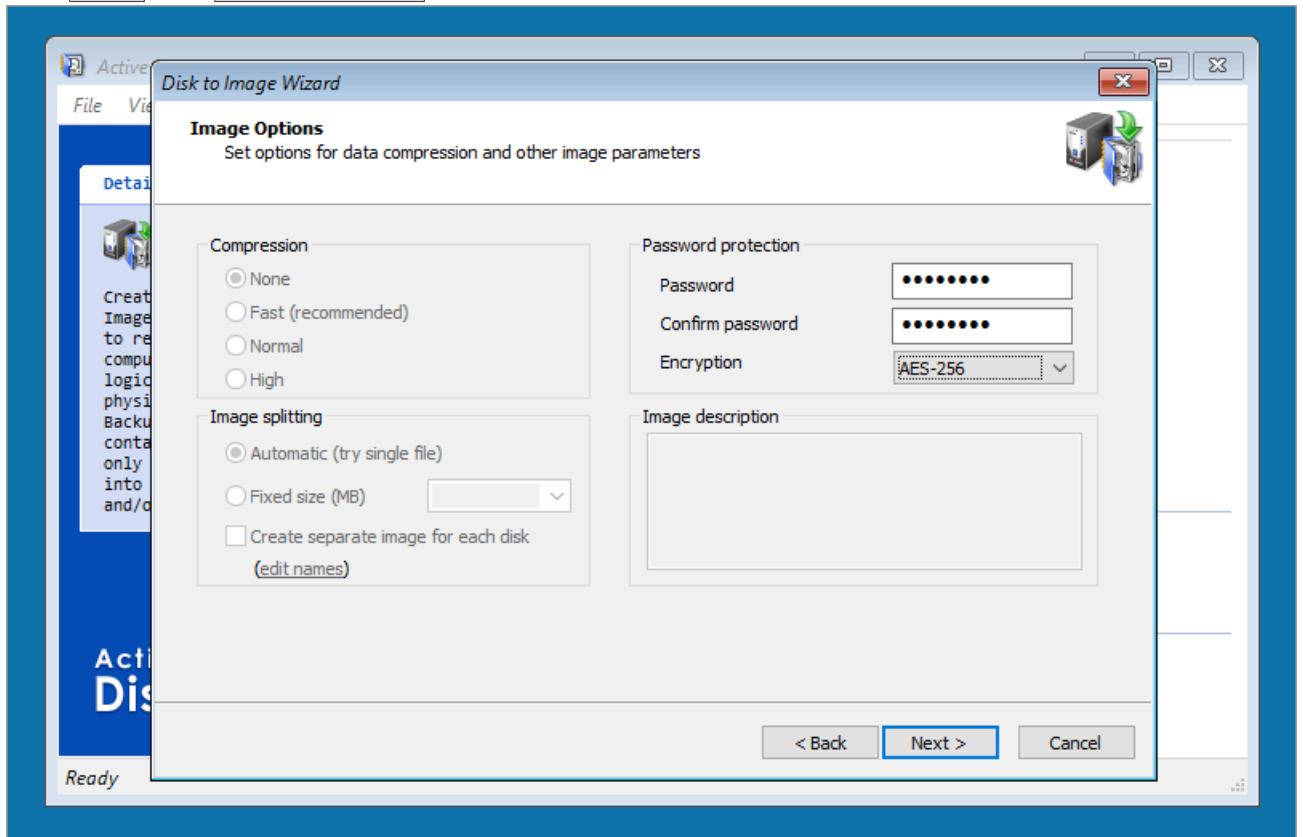


**9.** Do the following:

- To set the compression ratio, select one of the three options:
- None give you fast results and a larger file size.
- Normal (recommended) is a compromise between a smaller file size and a faster operation speed.
- High provides the smallest file size and takes the longest time to complete.
- To try saving the disk image to a single file, in the Image Splitting area, select the Automatic (try single file) option. If the system runs out of free disk space on the disk where you are saving the backup - or if you are storing an image file on disk with a FAT file system - **Active@ Disk Image** automatically will split the archive into multiple files and prompt you to add another path in order to continue writing the rest of the file.
- To manually indicate how to split the disk image, in the Image Splitting area, select the Fixed size (MB) option and type a file size in megabytes or choose a size from the drop-down list.
- To protect sensitive data on a disk image, in Password field type a password (maximum 16 characters) and type the same password in Confirm field.
- Optionally, type a short description of your disk image (maximum 1,024 characters) into the Image description text box.

**10.** Click `Next`, which will take you to `Create Another` window. **Active@ Disk Image** also supports creating of multiple image files simultaneously:
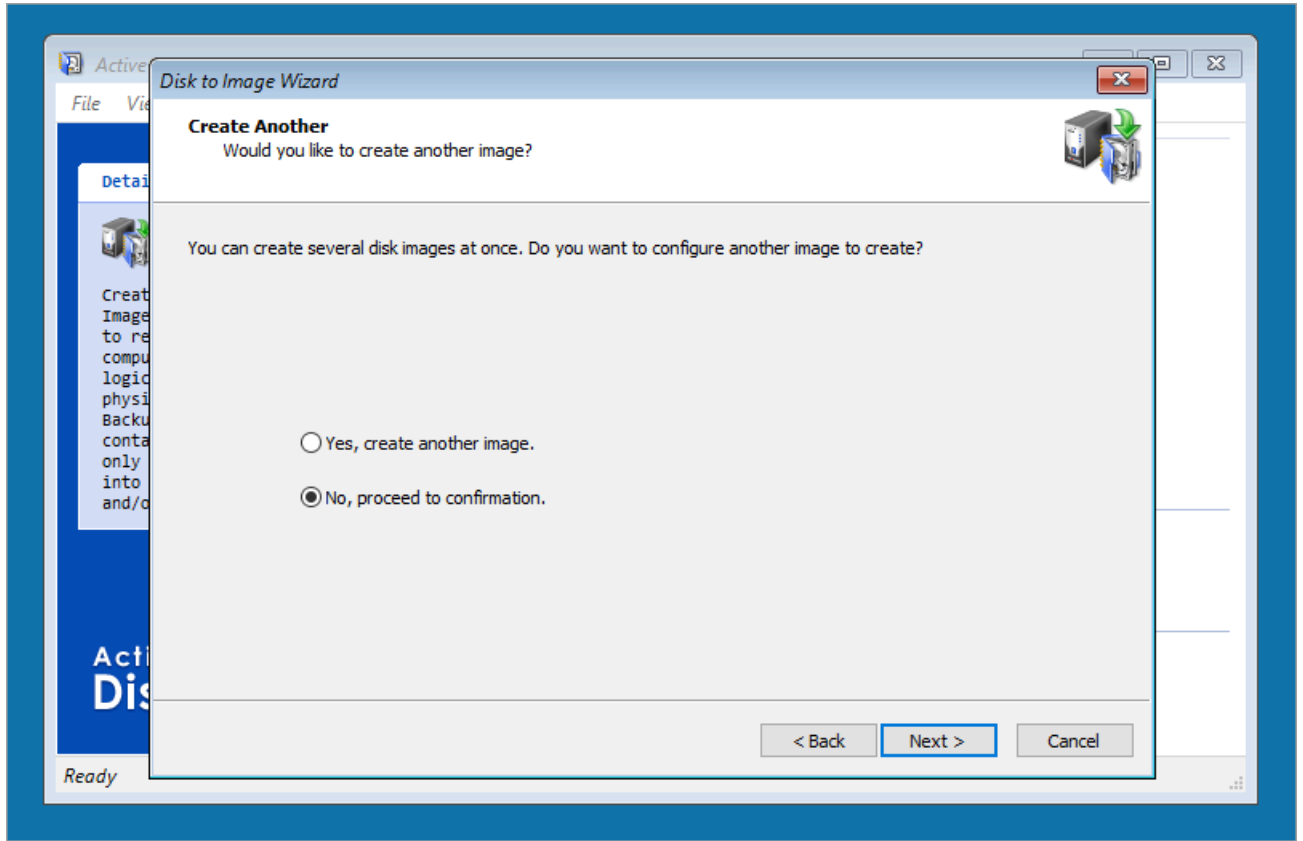


**11.** To create an additional image file check `Yes, create another image`. This will open another wizard where you will need to choose the settings (select Backup type, choose drive and partitions, etc ) for this image file from the beginning.

**12.** In order to create Raw image check `Yes, create another Raw image`. New wizard will start asking you pick the drive you want backup in Raw Image format. Later you will need to choose Backup location, set Image options etc. Basically, you will need to repeat previously explained steps (5-8)

**13.** If you do not want to create any additional images you just click `Next`, since `No, Proceed to confirmation` is selected by default.

**14** After clicking on `Next` the *Confirm Operation Details* page will show up:
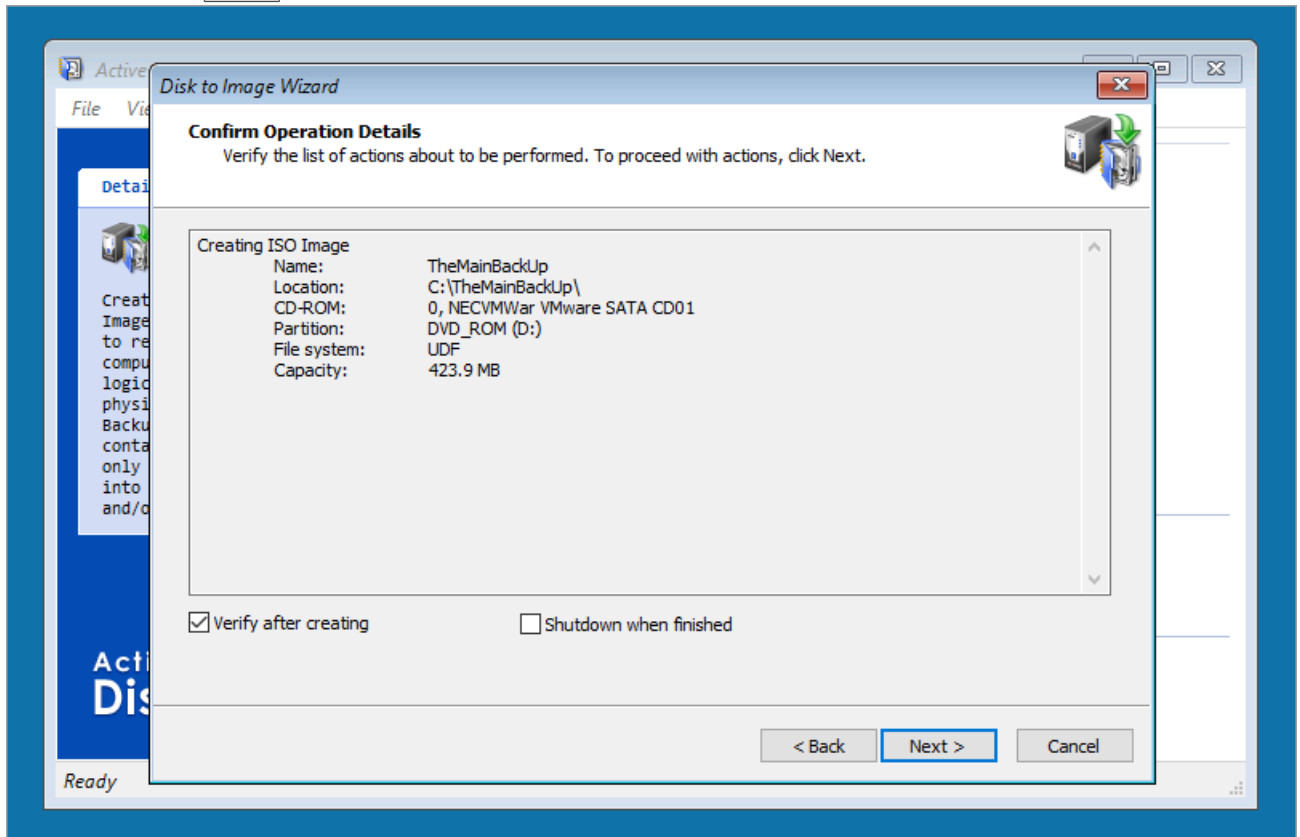


**15** Do the following:

- Review the details in the summary.
- `Verify after creating` is checked by default.
- `Shut down when finished` - choose this option if you plan to create an image during the night or while you are away
- `Minimize in tray` - checking this will minimize **Active@ Disk Image** in system tray, freeing your *Taskbar* and *Desktop*

**16.** By clicking on Next you will initialize the image file creation and open the Progress Status page:
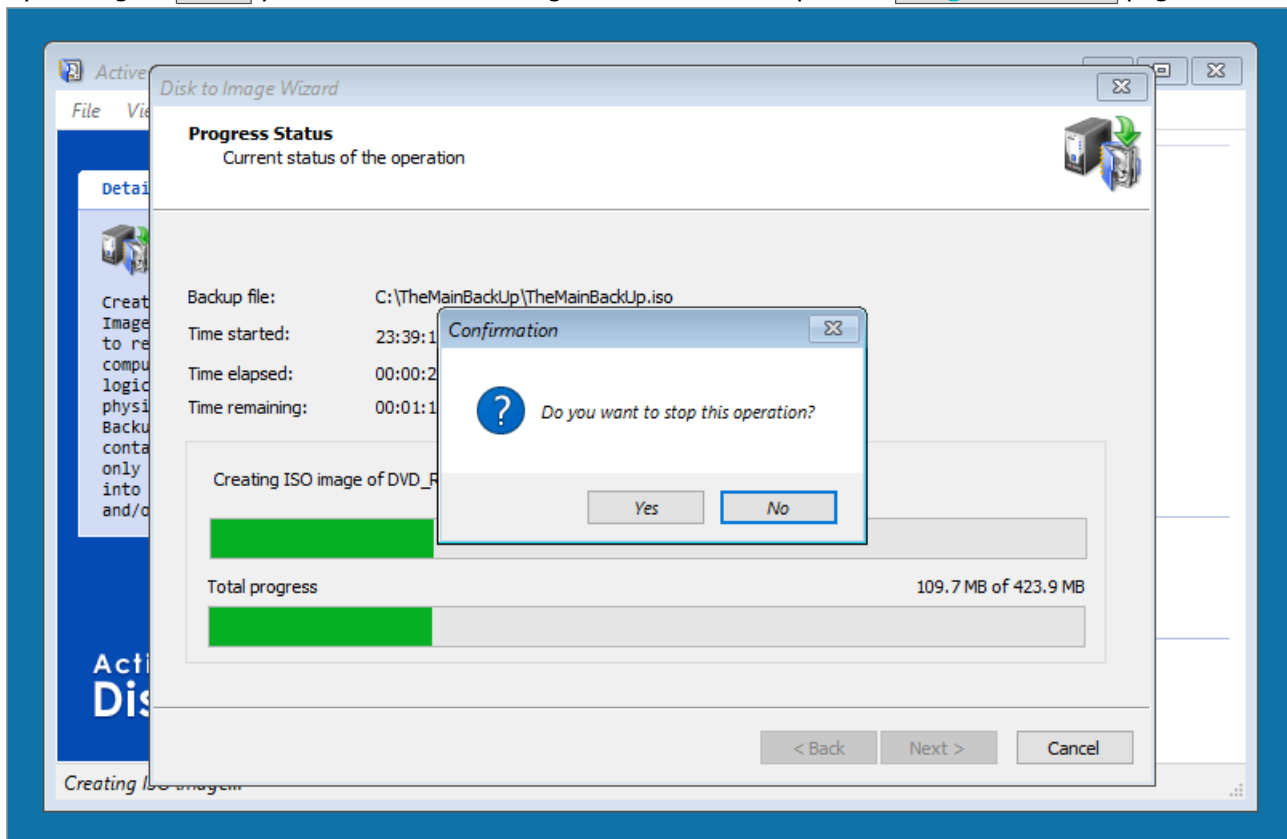


To stop the operation at any time, click Cancel .

> 📝 **Note:** The compression ratio and the compression speed depend on multiple factors. For example, .doc files under the Normal Compression can be reduced to up to 80% and up to 90% with High Compression. On the other hand image (JPEGs etc.) files are not compressible, while *.exe* files can be reduced by 40%-50% in Normal Compression and 50%-60% in High Compression. Compression speed can vary a lot depending on how fast your CPU is, how fast is the drive whose image you are making and how fast is the disk where you will be storing that particular image. We recommend that you stick with Normal compression since it has the best performance ratio. It is not as slow as the High Compression (it's around x1.5-x2 faster) and it has a slightly lesser compression result (around 10% less).

> 📝 **Note:** For more detailed instructions and support see the **Active@ Disk Image** User Guide at Start > Documentation .

## Active@ Data CD/DVD/Blu-ray Burner

To use **Active@ Data CD/DVD/Blu-ray Burner**:

**1.** From the Active@ Boot Disk shell click Start > Programs > Active@ Data CD/DVD/Blu-ray Burner . This will open **Active@ Data CD/DVD/Blu-ray Burner** dialog box.

**2.** Place a writable CD/DVD in the drive.

**3.** To add a file or a folder just right drag & drop the file into the Base field. Or you can right click on the base field and choose the Add file or Add folder data type and continue browsing from there.
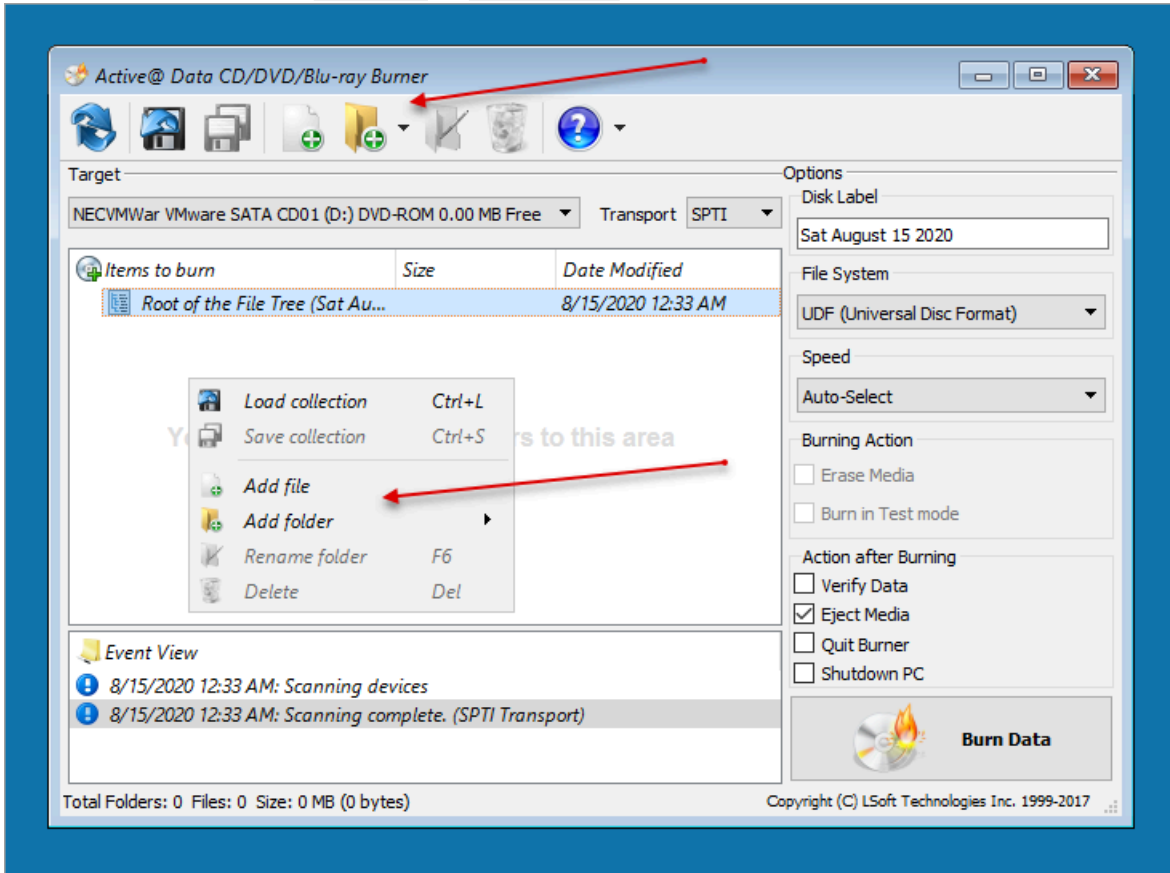


**4.** When you find the file or folder you are looking for, select it and click Open . The name of the selected file or folder will appear in the base area. When browsing you can select multiple files from the same folder and add them to the root list.

**5.** To remove an item from the root list right click on it and choose Delete :
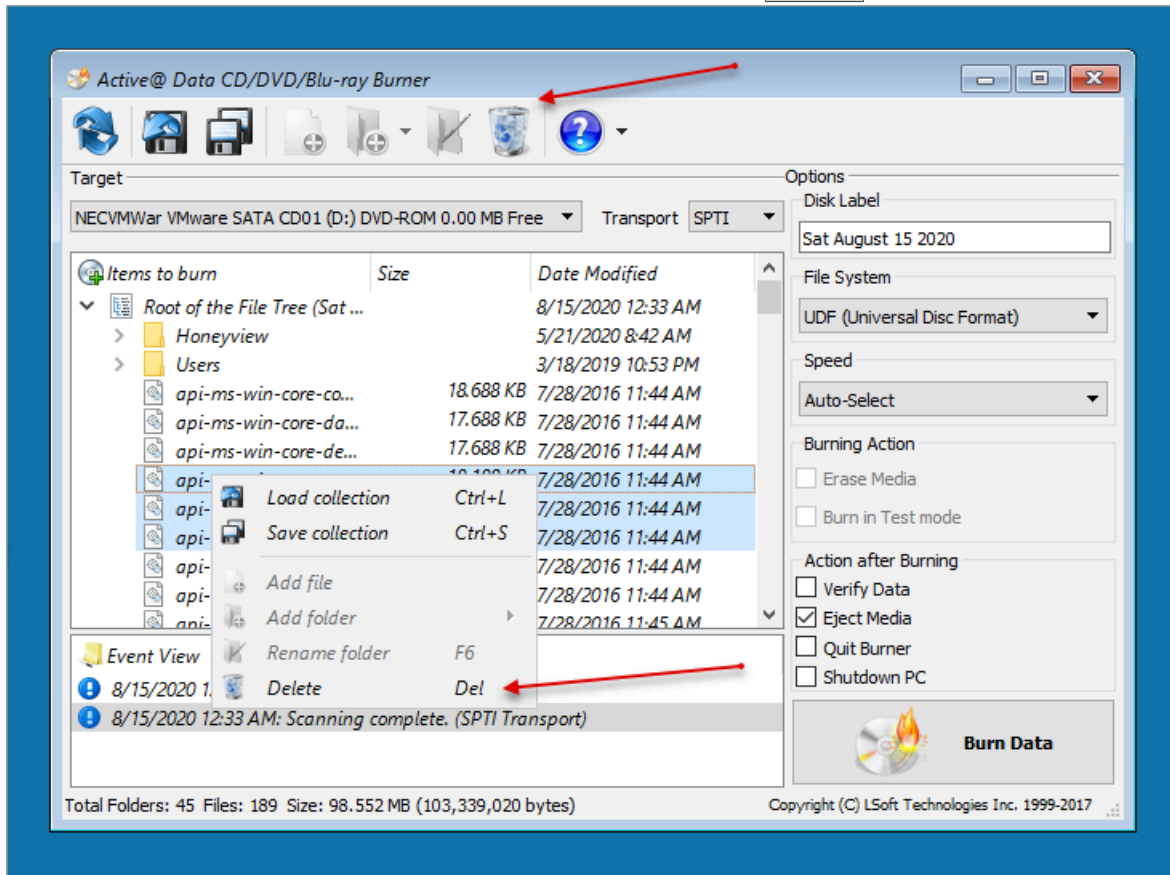


**6.** To label the CD/DVD type a descriptive label in Disc Label .

**7.** Select a drive and a write speed from the Burner drop-down list.

**8.** Click BURN DATA

Files are written to the CD/DVD/Blu-ray disk!

> **Note:** For more detailed instructions and support see the **Active@ Data CD/DVD/Blu-ray Burner** User Guide at Start > Documentation .

## Active@ Disk Editor

**Active@ Disk Editor** is a utility made to help you edit a disk's raw sector data. The editor displays information in binary and text modes at the same time. You can use this view to analyze the contents of data storage structure elements such as hard disks and partitions.

The Open Disk dialog box displays a list of available storage devices and a list of logical drives.

The Data Inspector displays whatever is currently under the cursor. It does so in ten different formats. This may help you interpret data as displayed in Hexadecimal View. If you choose to view the Data Inspector , the window will always appear docked to the left panel while **Active@ Disk Editor**.

This section contains help with the following:

- Starting **Active@ Disk Editor**
- Changing the *Workspace* View
- Navigating to Key Sectors
- Editing Tools

**Starting Active@ Disk Editor**

To start Active@ Disk Editor:

- From the Active@ Boot Disk shell click Start > Programs > Active@ Disk Editor. The Disk Editor will launch showing you first its Getting Started screen. Depending on what you are looking for, you can choose to open a Disk, File, Disk Image or browse through your computer manually.
- Click Open and the Active@ Disk Editor workspace will appear:
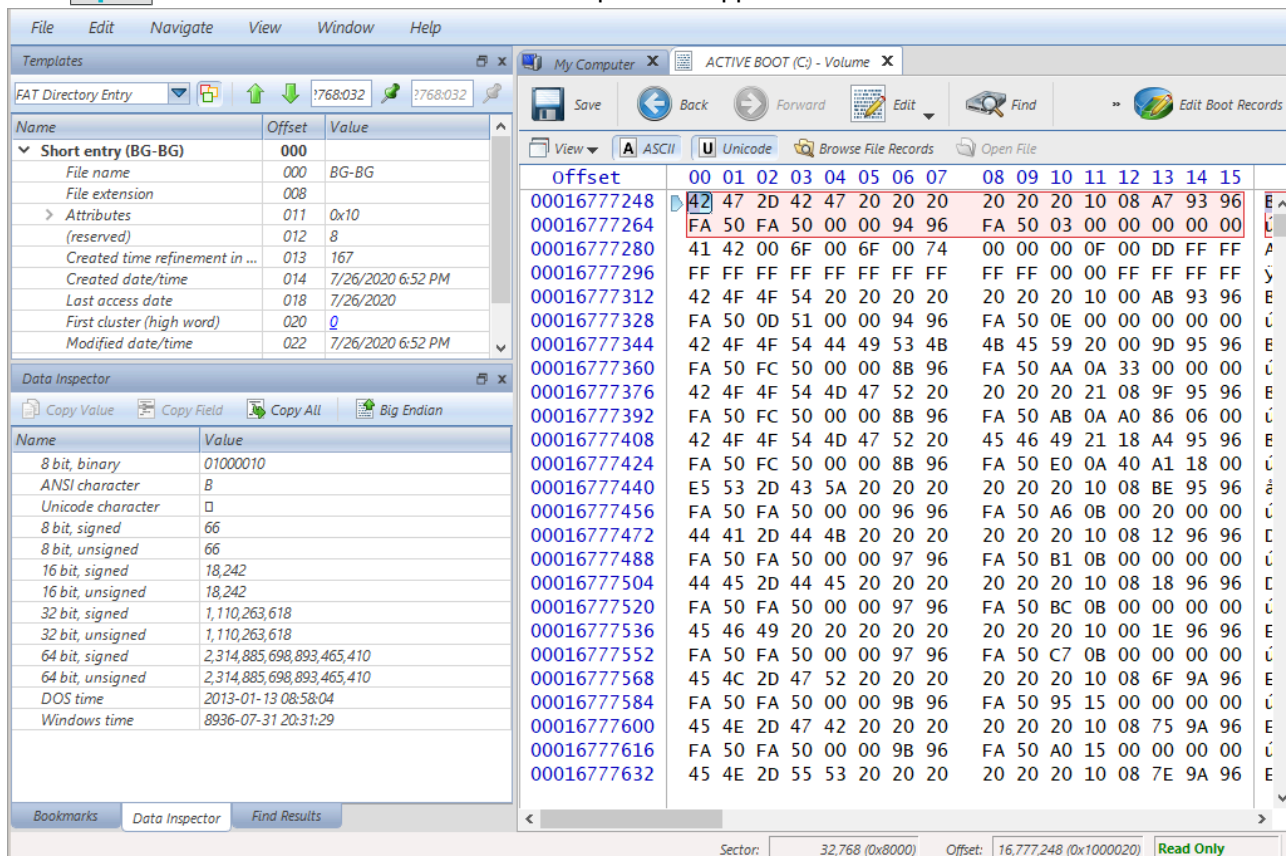


To browse through the content of the opened item:

- Click either the hexadecimal area or the text area to focus on it
- Use the scroll bar, keyboard arrows or the mouse wheel

To toggle the focus between hexadecimal and text panes, press TAB.

**Changing the Workspace View**

When you start Active@ Disk Editor the default view shows the Info pane on the right and the editing pane on the left, with a Status pane across the bottom. You may change the default configuration of the workspace so that it opens with your custom settings each time.

To change Active@ Disk Editor default options:

**1.** In Active@ Disk Editor click View toolbar button. The drop-down list of available views appears.

**2.** You can show or hide the `Templates` view, `Properties` view, `Data Inspector` view, `Bookmarks` view and `Find Results` view at the left of the workspace, for example for the `Templates` view:

- To hide the `Templates` pane clear the `Templates` check box
- To show the `Templates` pane select the `Templates` check box or you can simply click on `View` > `Windows` and click on templates:
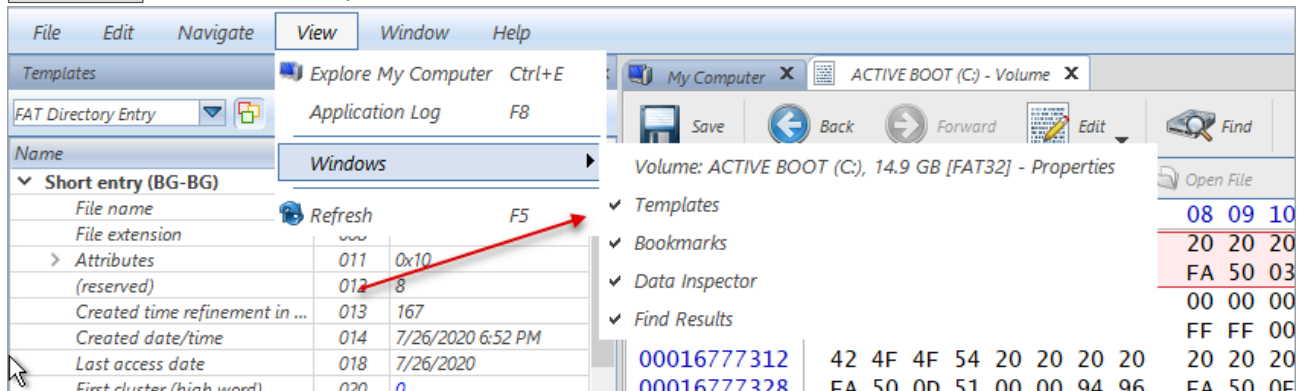


**1.** To change the default size of the font in the editing pane select a size from the `Text size` drop-down list.

**2.** To toggle the display of the current address offset between hexadecimal and decimal (from the `View` menu) choose `Hexadecimal Offset`.


**Navigating to Key Sectors**

To navigate to key sectors on the open item:

- To open a different device or logical drive:
- Click `Open Disk` from `File` menu, or press `Ctrl` > `O`. The `Open Disk` dialog box appears.
- Click a device or a logical drive to select it. Click `Open`
- The **Active@ Disk Editor** workspace appears
- To jump to a named sector or offset:
- From the `Navigate` menu, choose `Go to Offset` or `Go to Sector`. The `Go to Offset/Sector` dialog box appears
- To jump to a named offset type the offset value as Decimal. Use a prefix *0x* to use hexadecimal values
- To jump to a named sector in the `Sector` field type the sector number. To jump to a named cluster, in the `Cluster` field type the cluster number.
- Click `Ok`. The sector/offset appears in the editing panel.
- To jump to the volume boot sector from the `Navigate` menu choose *Boot Sector (0)*. The boot sector will open
- To jump to the partition table, from the `Navigate` menu choose **Partition Table**. The partition table sector appears in the editing panel
- To edit the partition table:
- From the `Navigate` menu choose `Partition Table`. Navigation will be positioned to the sector 0, and *Master Boot Record* template is applied. The Signature (55 AA) at the end of zero sector marks the end of the Partition Table
- Review the settings for partition table entries 1, 2, 3 and 4 in a `Template` view at the left side
- Turn on edit mode (`Ctrl` > `Alt` > `E`) and modify partition table parameters
- To save changes click `Save`
- From the `Navigate` menu you can jump to many named sectors. These sectors are listed with the sector name and a number that is unique to your hard drive:
- To jump to the unallocated boot sector, from the `Navigate` menu choose **Unallocated (<your partition size>GB)**> **Boot Sector (<your sector number>)**.

- To jump to various primary NTFS locations, from the **Navigate** menu choose **Primary NTFS (<your partition size> GB)** and do one of the following:
- To jump to the boot sector click **Boot Sector (<your sector number>)**. The primary boot sector appears in the editing panel
- To jump to the boot sector copy click **Boot Sector Copy (<your sector number>)**. The primary boot sector copy appears in the editing panel
- To jump to the MFT (Master File Table) sector click **$MFT (<your sector number>)**. The *MFT* sector appears in the editing panel
- To jump to the *MFT* mirror click **$MFT Mirror (<your sector number>)**. The MFT mirror sector appears in the editing panel

**Editing tools**

You can paste code or text from the *Windows Clipboard*. Use these tools to copy and paste selected code.

To use editing tools:

- To toggle whether or not to allow editing in the editing pane, from the `Edit` menu choose `Allow Edit content`:
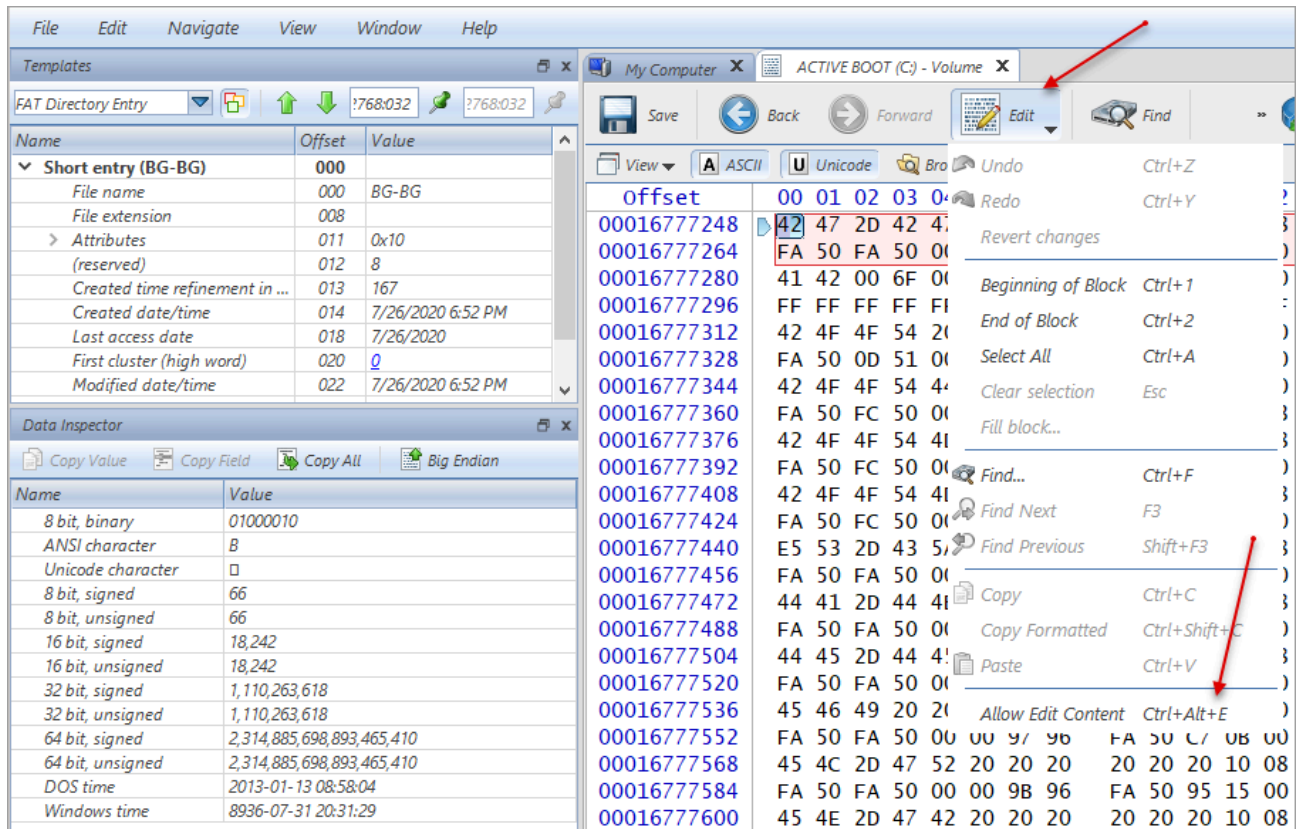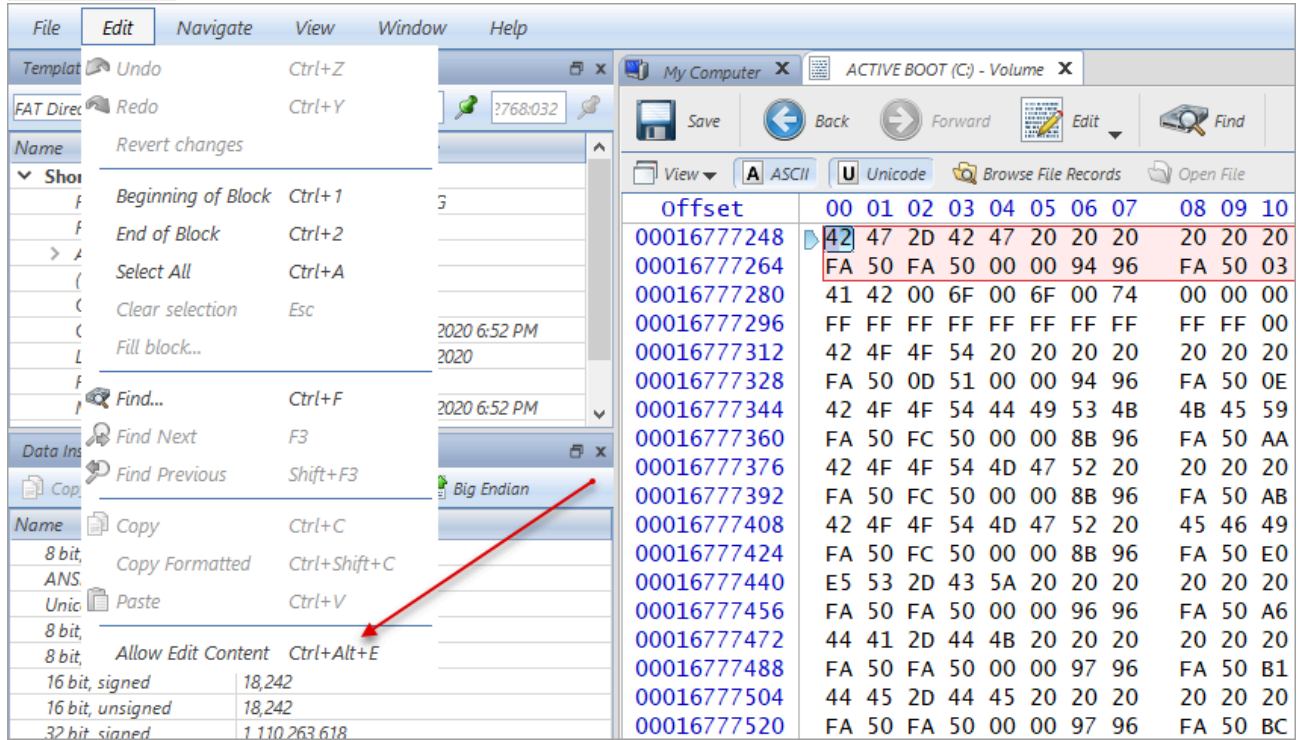




- To select a whole area:
- Click anywhere in a navigation view
- From the `Edit` menu choose `Select All`. The whole area is selected.

- To select part of a sector click and drag the cursor over some code. You can select code this way in either the HEX area or in the text area
- To copy HEX data if you have already selected code in the HEX area, from the `Edit` menu choose `Copy Formatted` Selected HEX data is copied to the Clipboard
- To copy text data if you selected code in the text area, from the **Edit** menu, choose **Copy**. Selected text data is copied to the Clipboard.
- To paste data from the Clipboard:
- Click the cursor in the area where you want to paste data.
- From the `Edit` menu choose `Paste`. The data appears
- To discard all unsaved changes (if any were made) and roll back settings to the way they were at the last save, from the `Edit` menu click `Revert Changes`
- To save changes click `Save`

> **Note:** By default, you cannot edit content in **Active@ Disk Editor**. You must choose `Allow Edit Content` in the *Edit* menu in order to change the code.

> **Note:** For more detailed instructions and support see the **Active@ Disk Editor** User Guide at `Start` > `Documentation`.

## Active@ Disk Monitor

Monitor the reliability status of your local hard drives to help prevent data loss due to hard drive failure. Use this utility to perform maintenance tasks on hard drives in the system.

> **Note:** This is a free version of this utility and some functions are disabled. Some functions that are enabled apply only when using the standalone version of **Active @ Hard Disk Monitor**

To use **Active@ Hard Disk Monitor**:

**1.** From the **Active@ Boot Disk** shell click `Start` > `Programs` > `Active@ Hard Disk Monitor`. The **Active@ Hard Disk Monitor** workspace appears:
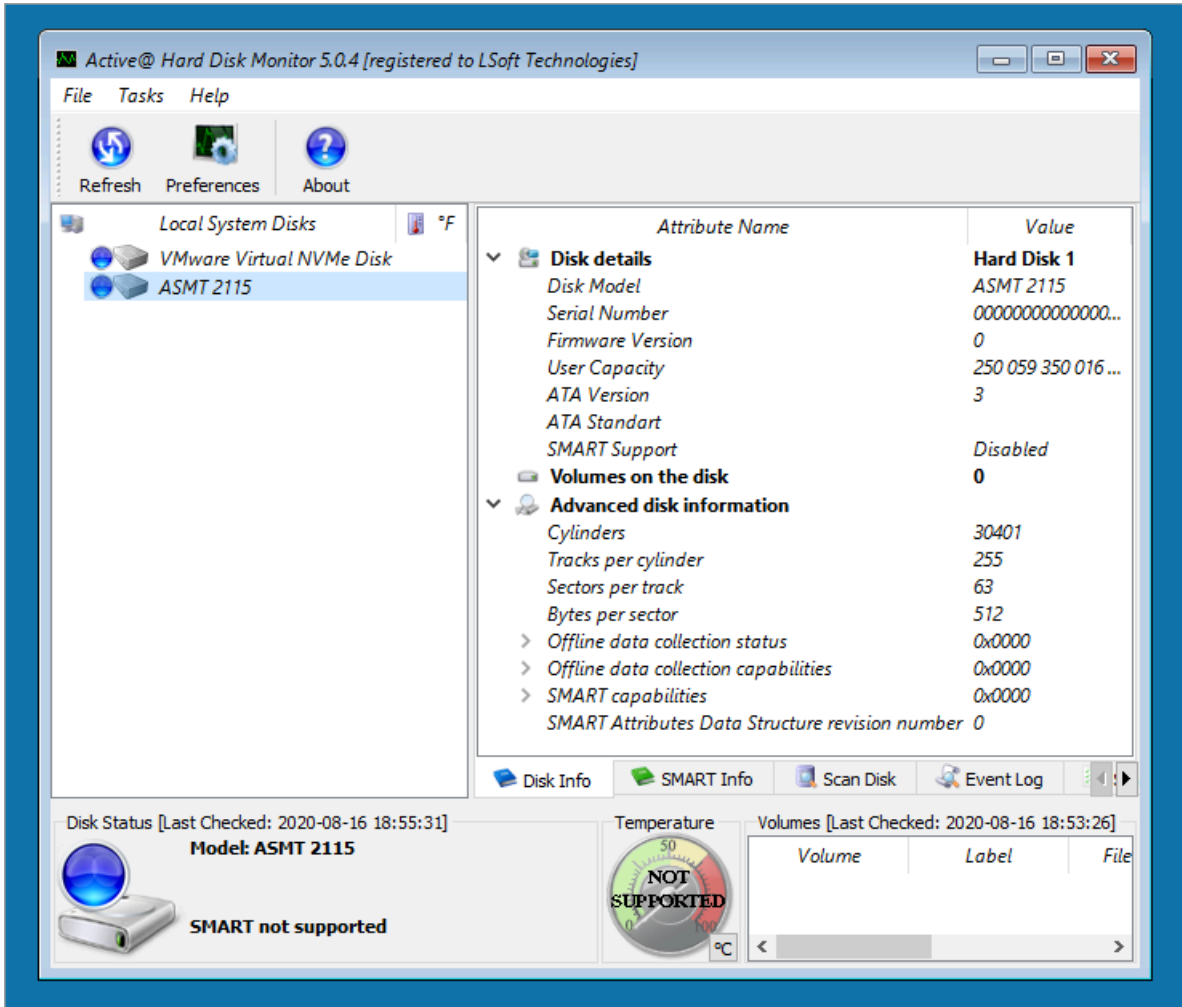


**2.** To change the settings of the utility click `Preferences`.

**3.** When the `Preferences` dialog box appears, do the following:
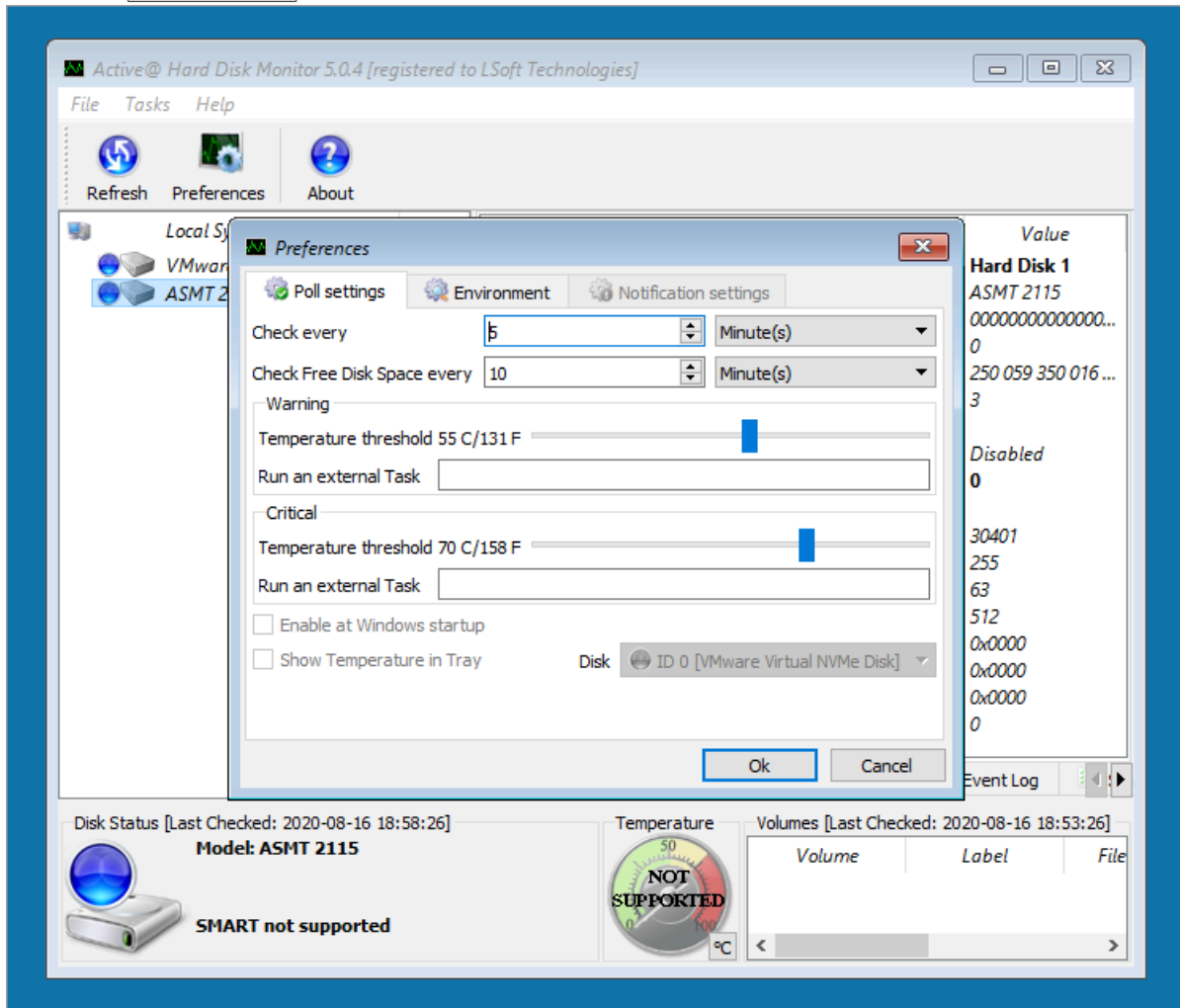


**4.** In the `Poll settings` tab:

**a.** To change the frequency for checking status of the device, make changes in the `Check every` fields.

**b.** To change the frequency for checking the amount of free disk space, make changes in the `Check Free Disk Space every` fields.

**c.** To show which disk to monitor choose it from the `Disk` drop-down list.

**5.**
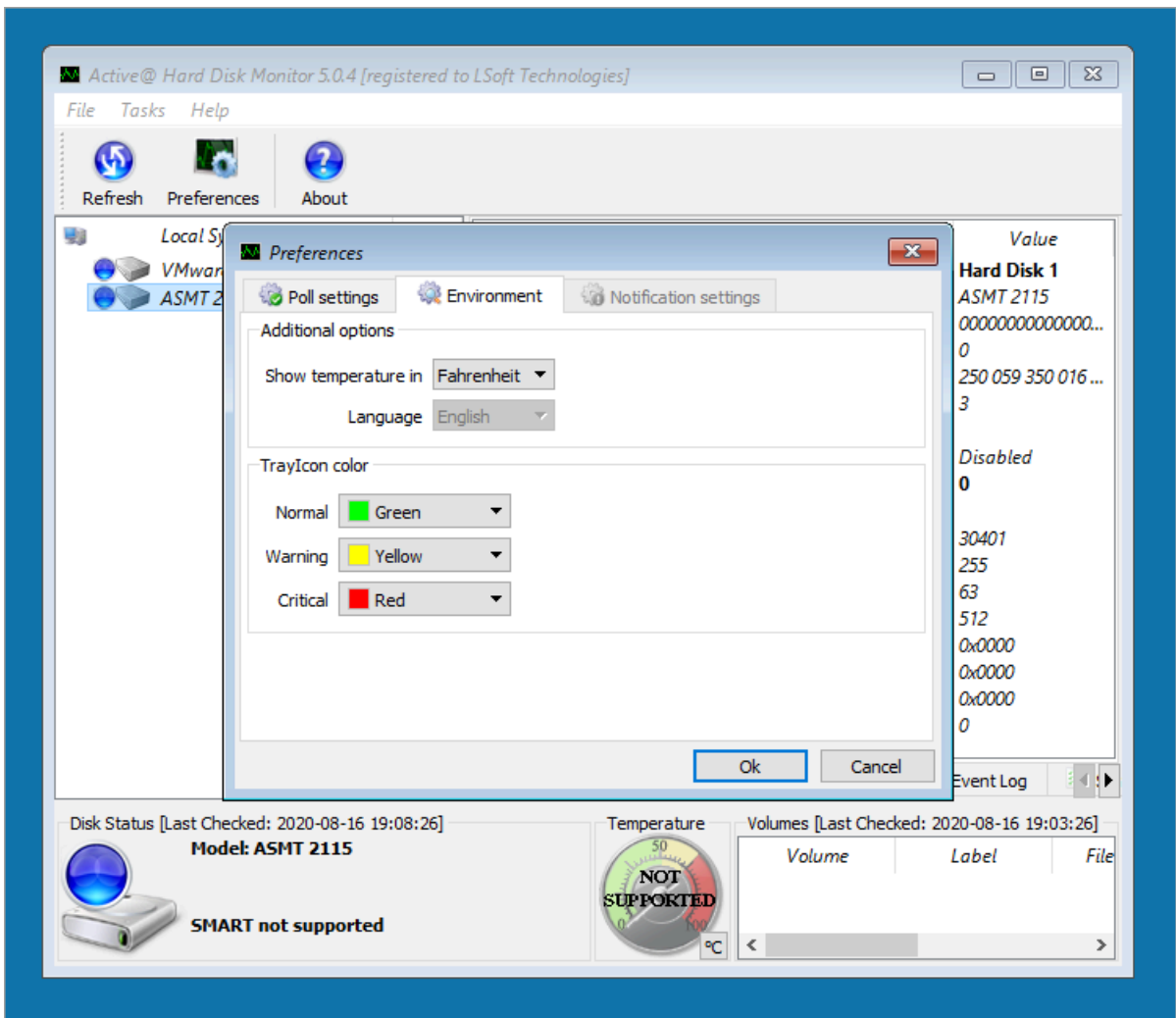


In the `Environment` tab:

**a.** To change how drive temperature is displayed, choose a different setting in the `Show temperature in` drop-down list.

**b.** To change the appearance of the workspace choose a different setting in the `Style` drop-down list.

**6.** From the `Local System Disks` list click a device to select it. Information about the selected device will be shown in the right panel.

**7.** To display attributes about the device click the `Basic Info` tab. Attributes appear in the panel.

**8.** To display SMART attributes click the `SMART Info` tab. Performance and health attributes appear in the panel.

**9.** To scan the selected device for bad blocks click the `Scan Disk` tab and do the following:

  **a.** To change the block size: in the `Check Block Size` area choose one of the three options.

  **b.** To specify a start sector and a stop sector for the scan, type the sector numbers in the `From sector` and `To sector` fields.

  **c.** Click `Start Scan`. The process will start indicating the progress in the bar.

  **d.** To stop the scan at any time click `Stop Scan`.
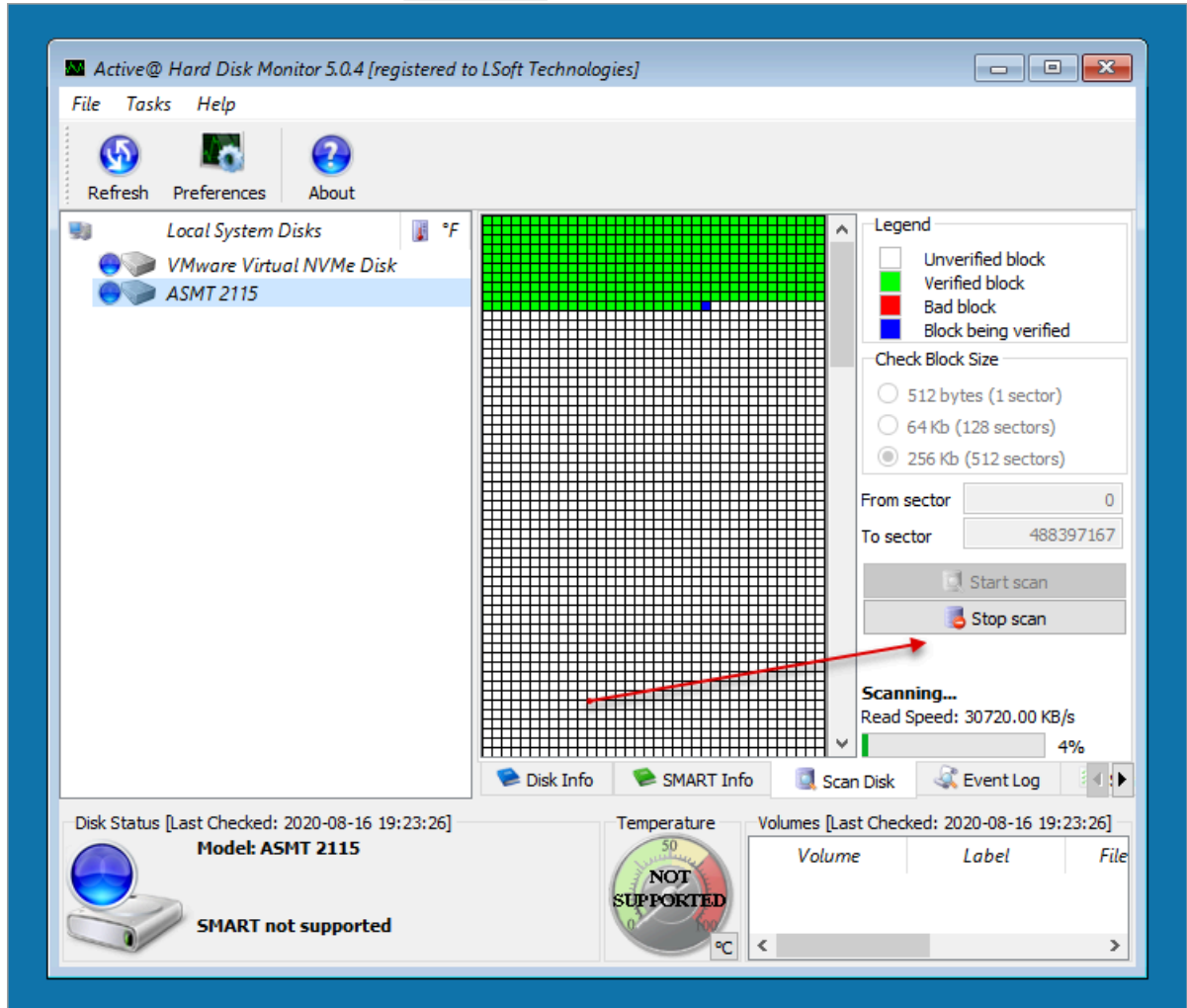


  **e.** After the scan is complete, the `Scan Disk Complete` message box will appear with the scan details.
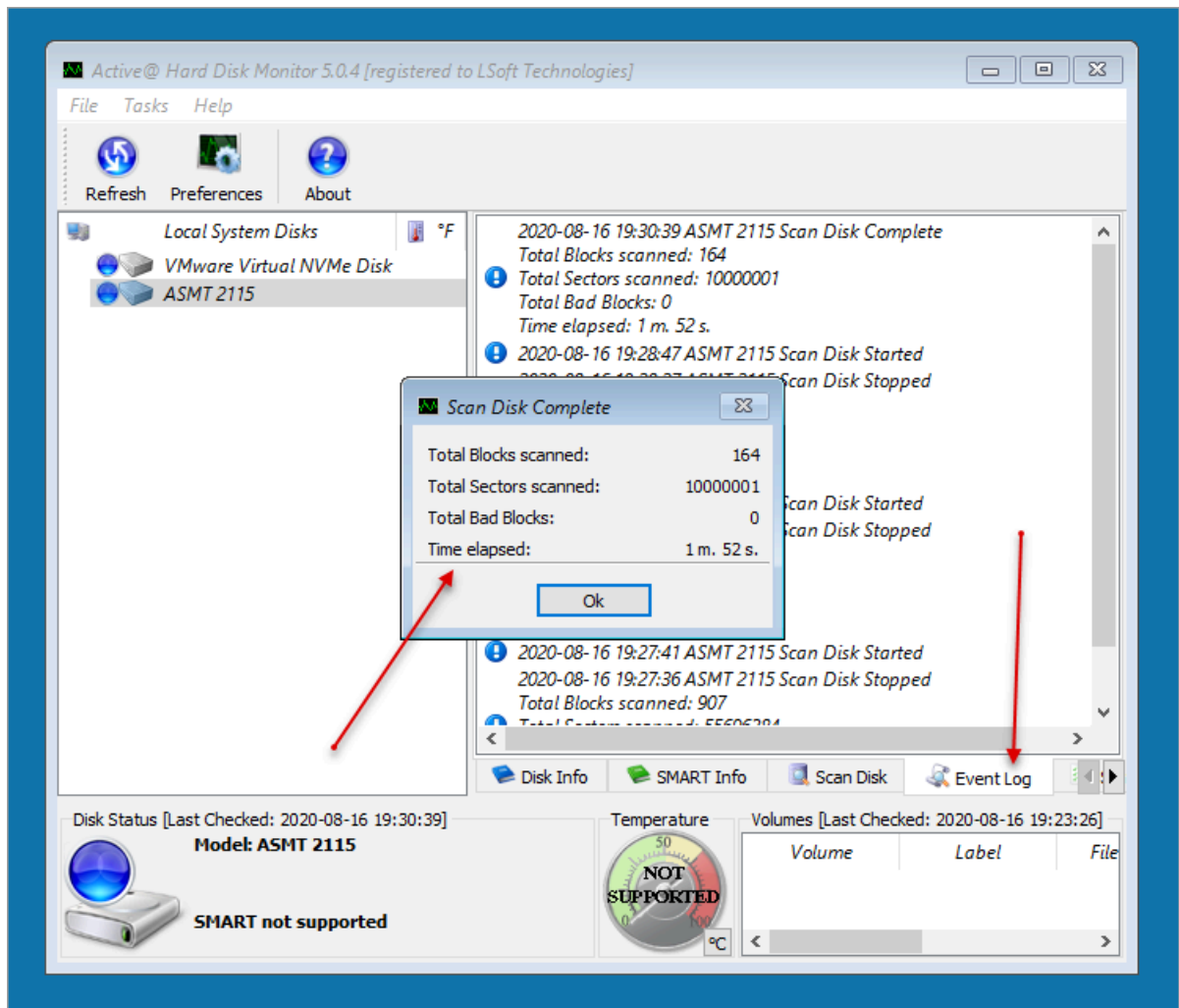
**f.** To view a list of events run in the session click Event Log . A list of events appears in the panel.

> **Note:** For more detailed instructions and support see the **Active@ Disk Monitor** User Guide at Start > Documentation .

# Active@ File Recovery

**Active@ File Recovery** is a data recovery utility that you can use to restore accidentally deleted files and folders located on the existing drives, and even on deleted or damaged partitions.

It is best to save recovered data on another physical, logical, removable or network drive. Make sure that you have access to another physical or logical drive before attempting to recover a file.

To run **Active@ File Recovery**:

**1.** From the **Active@ Boot Disk** shell, click  Start  >  Programs  >  Active@ File Recovery .
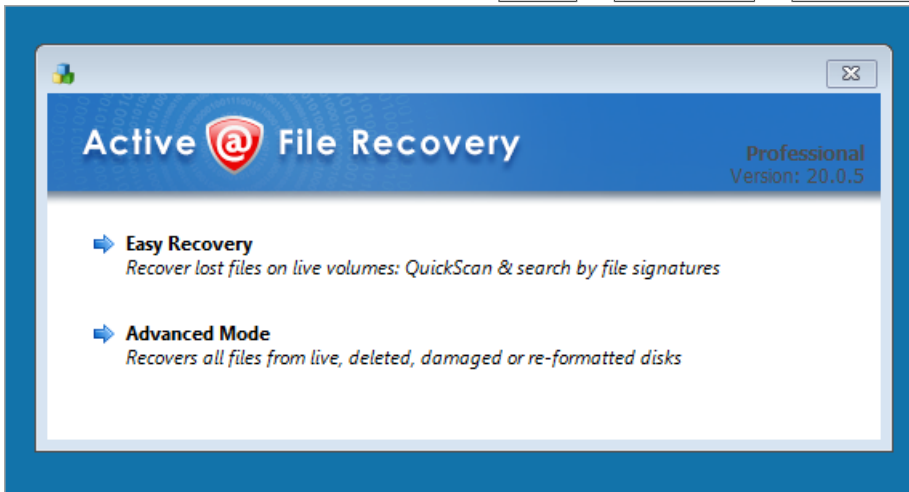


After choosing an  Advanced Mode  the **Active@ File Recovery** workspace will show up with all available devices listed in a tree view under  Local System Devices .
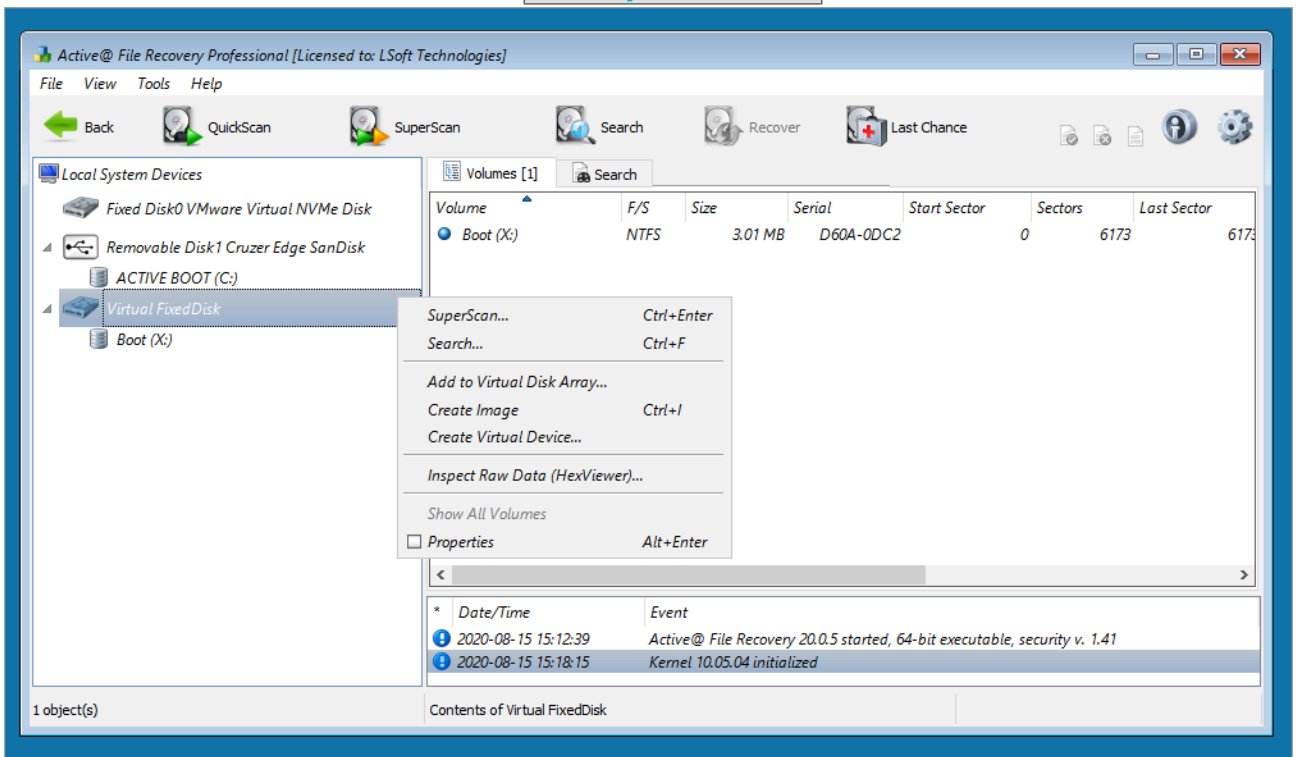


**2.** To scan a logical drive, select it. A message in the right pane reads *Disk not scanned yet...*
**3.** To scan the drive in basic mode, do the following:
**4.** Click  Quick Scan . The status bar will be displaying the progress of the scan.
**5.** After the scan is completed, files and folders will be listed in the right pane.

**6.** Recovering via *SuperScan* - if you cannot locate or find your deleted files and folders, to process the whole surface of a disk, right click on it and click SuperScan .
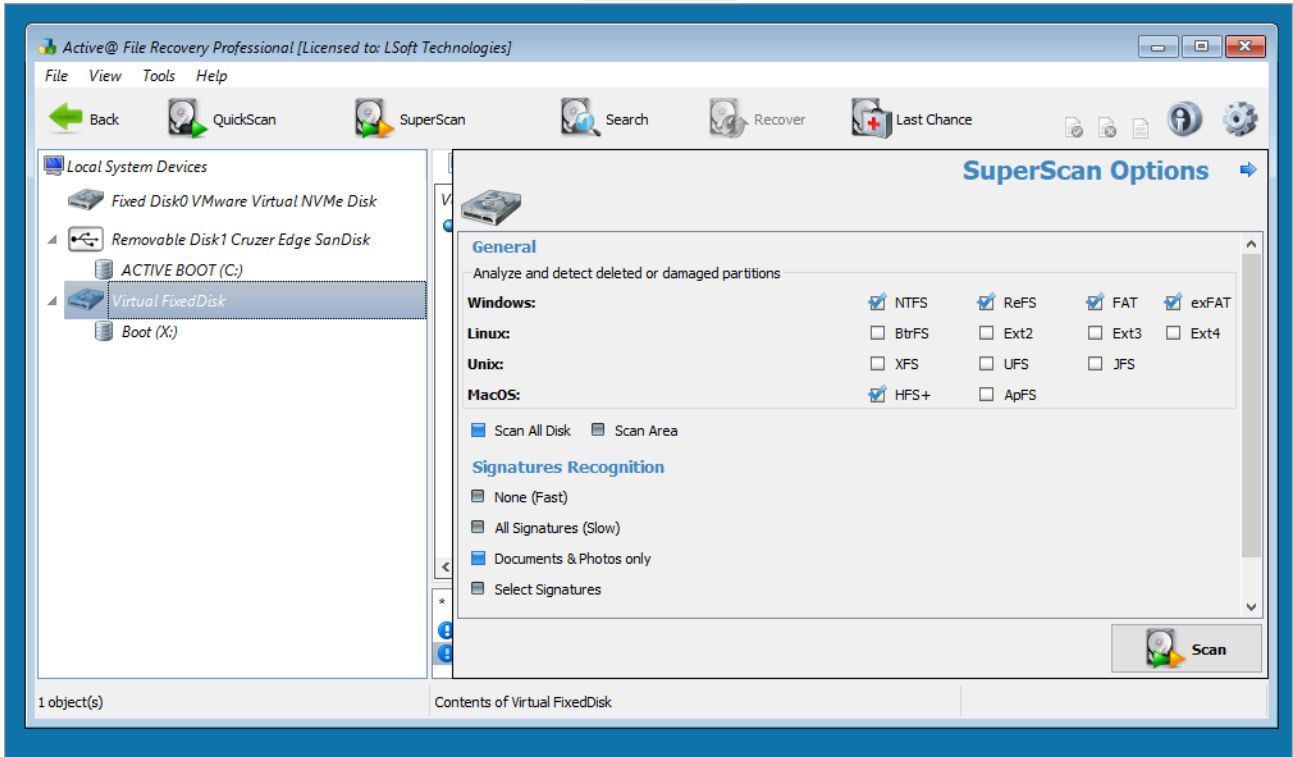


**7.** When the SuperScan Options dialog box shows up, do the following:

**8.** In General tab you can restrict the scan to a small number of sectors indicate the From sector and the number of sectors to scan. Limiting the scan on a small area can greatly reduce the time required for scan to finish. Again if you are not sure about this option just leave it as is.

**9.** You can further limit the search by focusing it on the file systems that exist on your deleted or damaged partitions

**10.** In Signatures Recognition tab you can further specify which file types would you want **Active@ File Recovery** to search for. Thanks to in-built tools File Recovery can rebuild file types (DOC, JPG, DOC, ZIP, etc) from partial data that you really need, ignoring the irrelevant data and saving processing time.

**11.** Click  Scan . The status bar displays the progress of the scan:
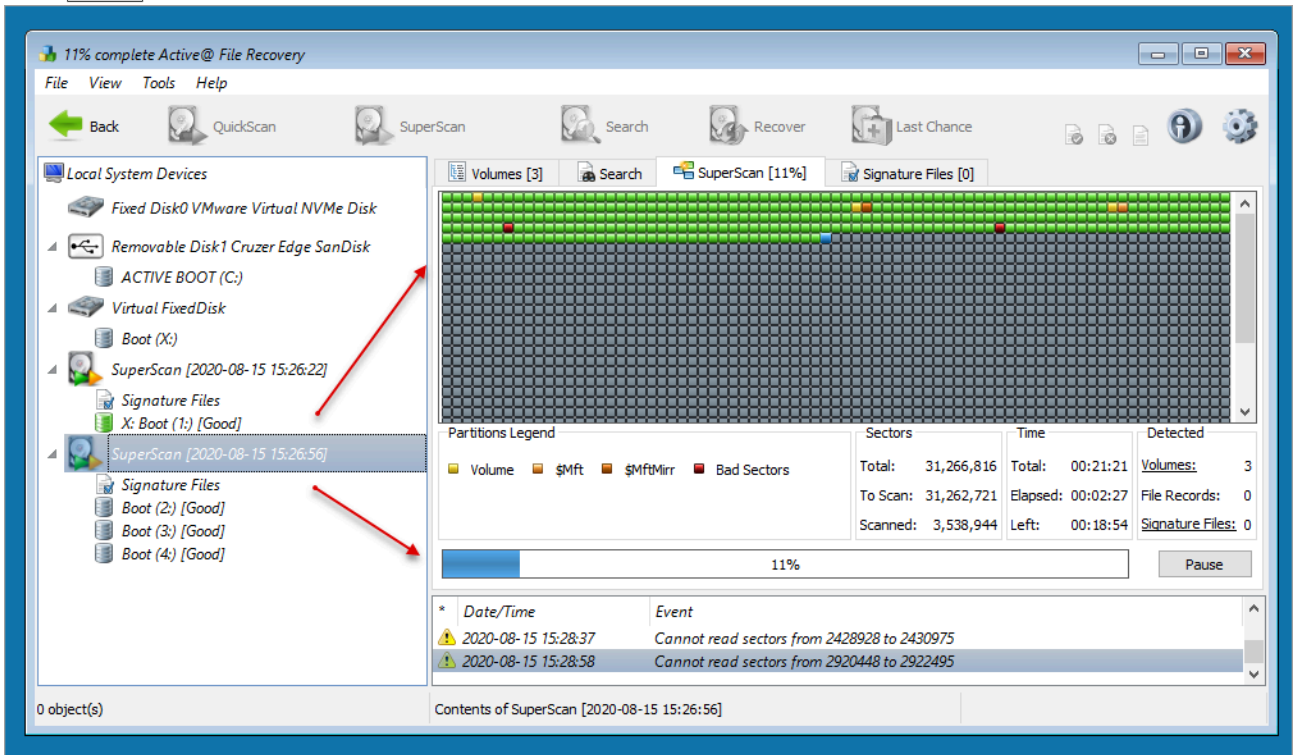


**12.** After the scan is complete, a list of detected partitions appears in the right pane. You may search through these partitions.

**13.** If you chose to re-build image files, a folder named Files Recognized by Signatures will be created. After the recovery you can search through the contents of this folder.

**14**After you have scanned a drive all you need to do now is to search for deleted or damaged folders or files:

- To search manually, click on the *SuperScan* result. This will show the scanned files in the right pane:
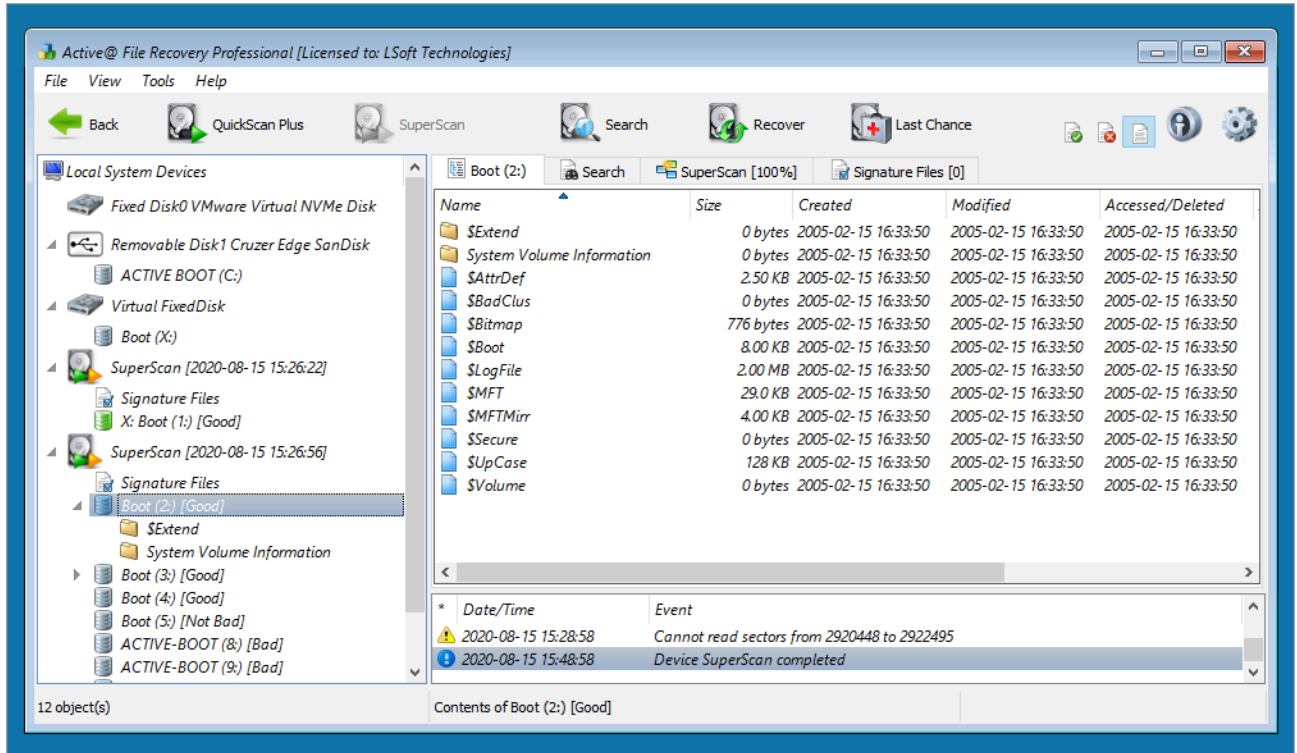


- Click on the file type you are interested in and you can organize them by size and various other attributes such as camera model, date created, width, height, etc.

**15.** You can also preview the scanned files by right clicking on one of them and choosing the Preview option:
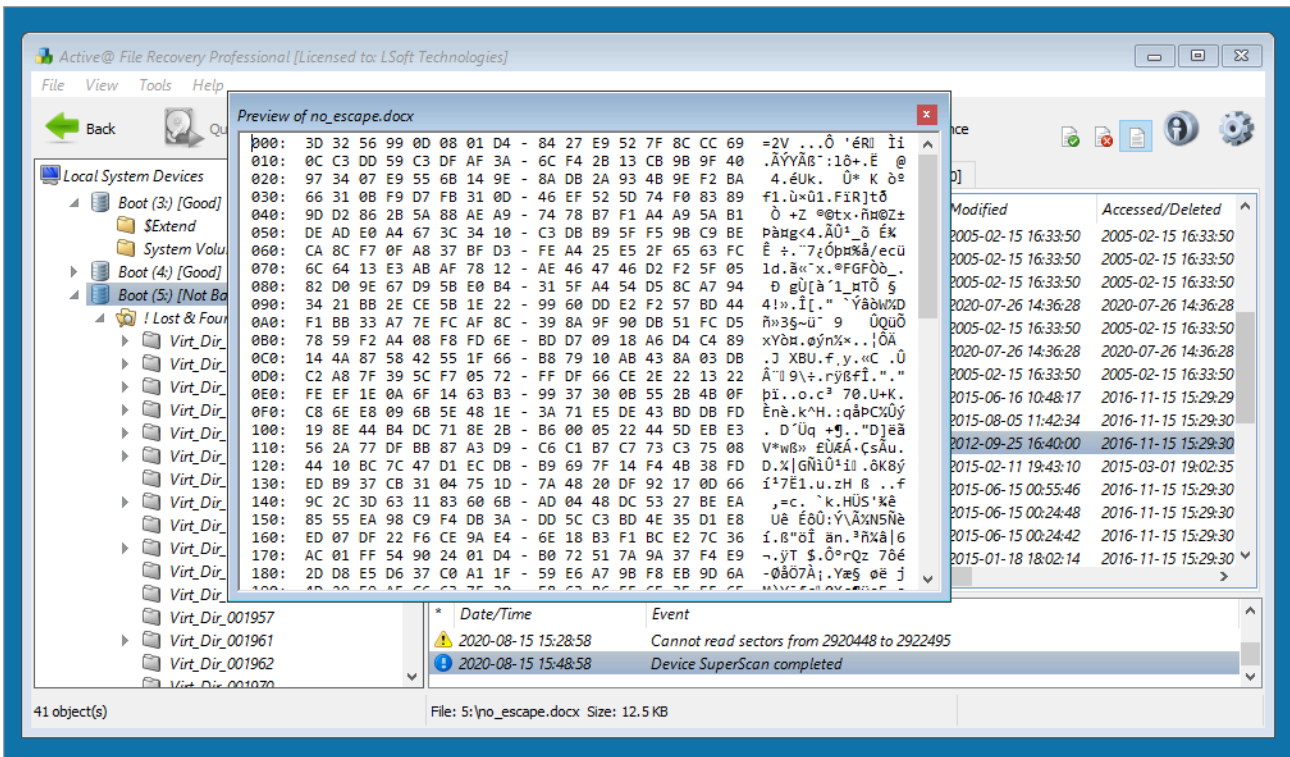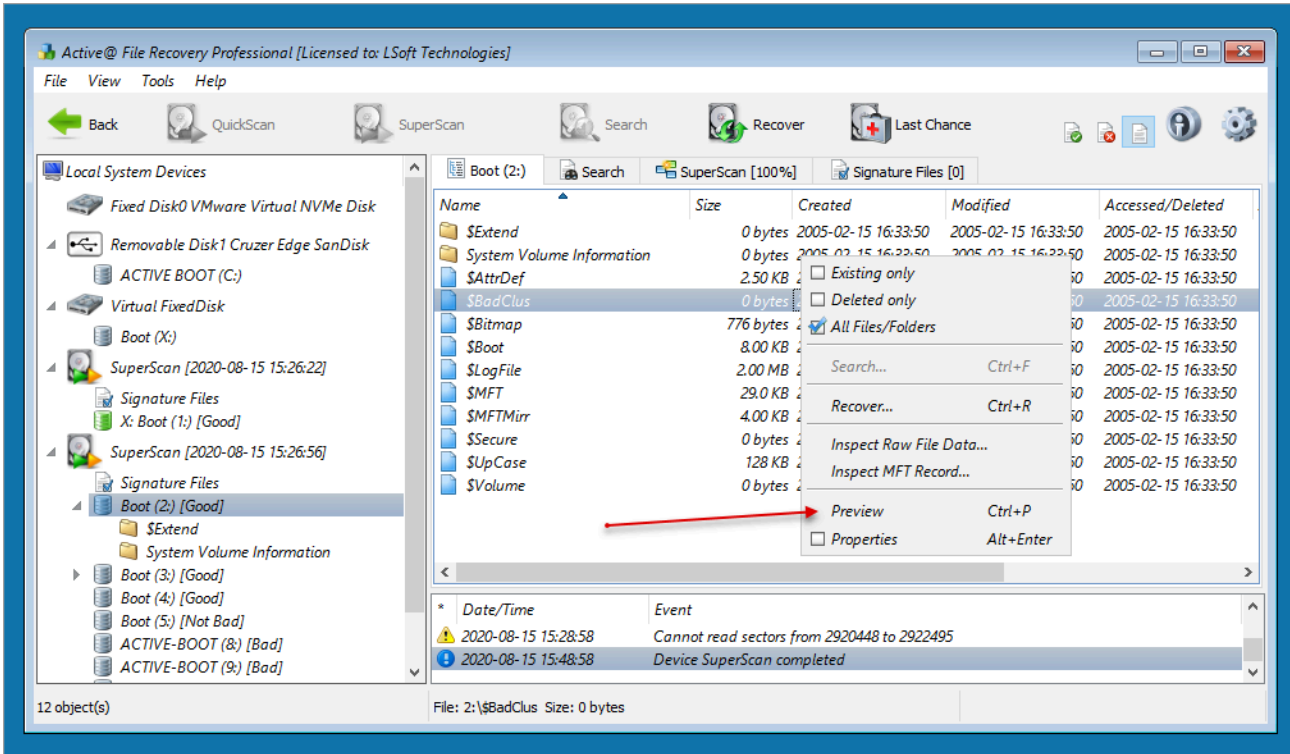


**16.** **Active@ File Recovery** also supports *Windows* shortcuts. Meaning that you can select and recover multiple individual files by clicking on them and holding Shift or Ctrl.

**17.** Once you have found and selected the files you want to recover right click for the context menu and choose `Recover`
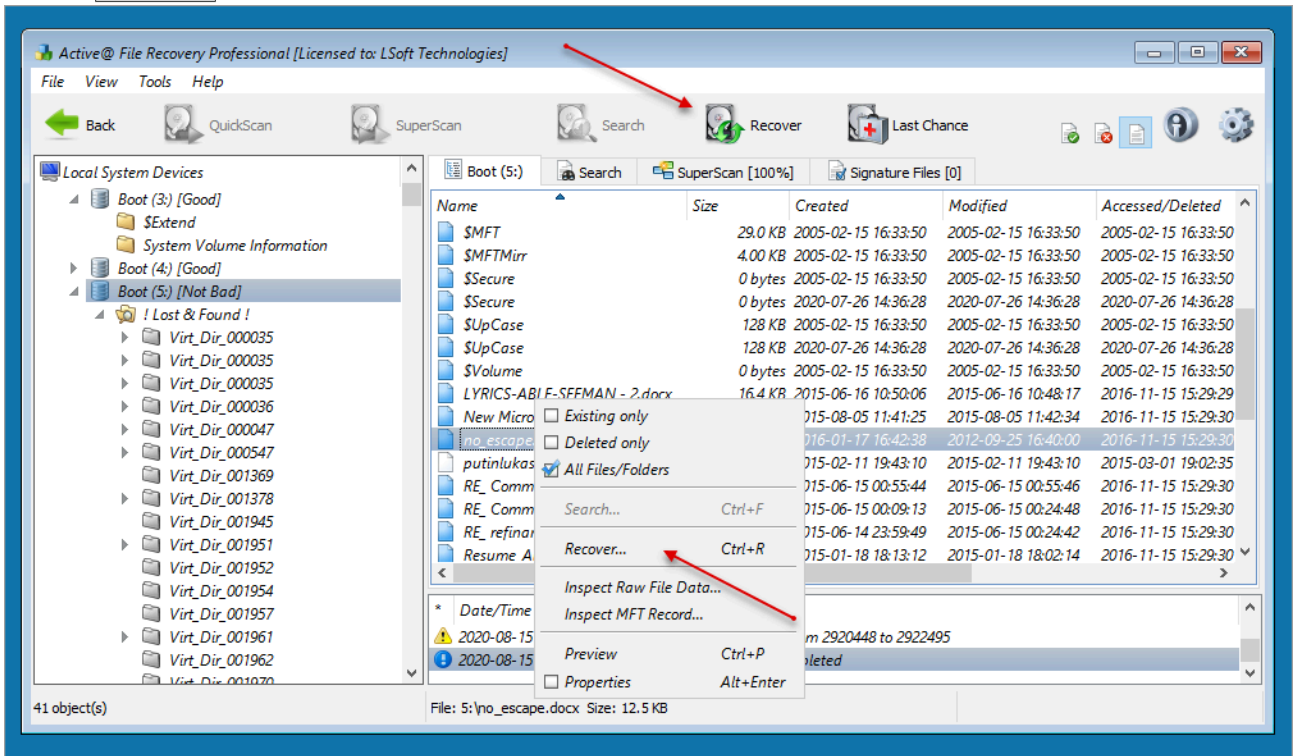


**18.** `Recovery Options` window will pop up asking you to choose and confirm the *Recovery* location for your files:
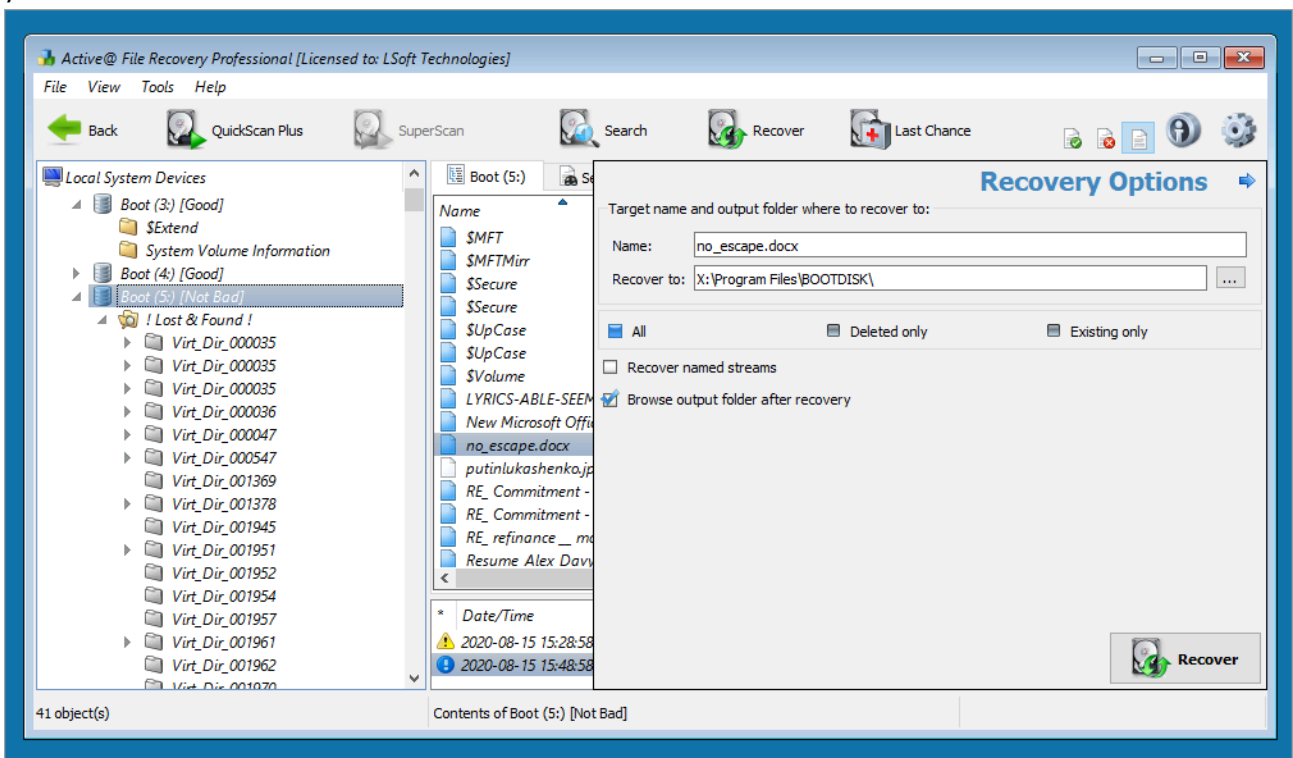


**19.** You can also limit the recovery on only those files that have been deleted.

**20.** If you are recovering files that have been damaged make sure to check `Existing only` check box

**21.** Of course, if you are trying to recover some of the files that have been deleted as well as some of them that have been damaged make sure to mark `All` check box

**22.** Do not recover your deleted files on the same hard drive where you have previously deleted them

**23.** For further customization click on Settings in the upper left corner:
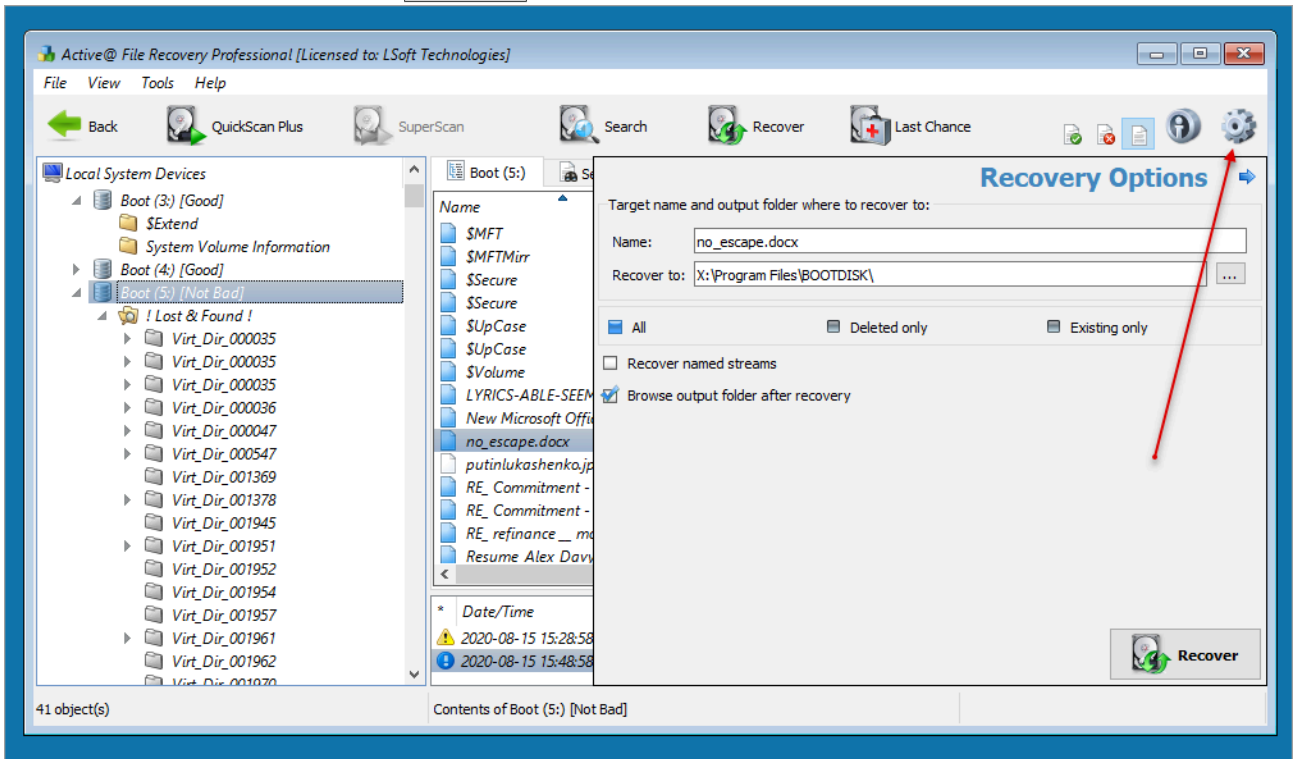


This will open the Settings window:
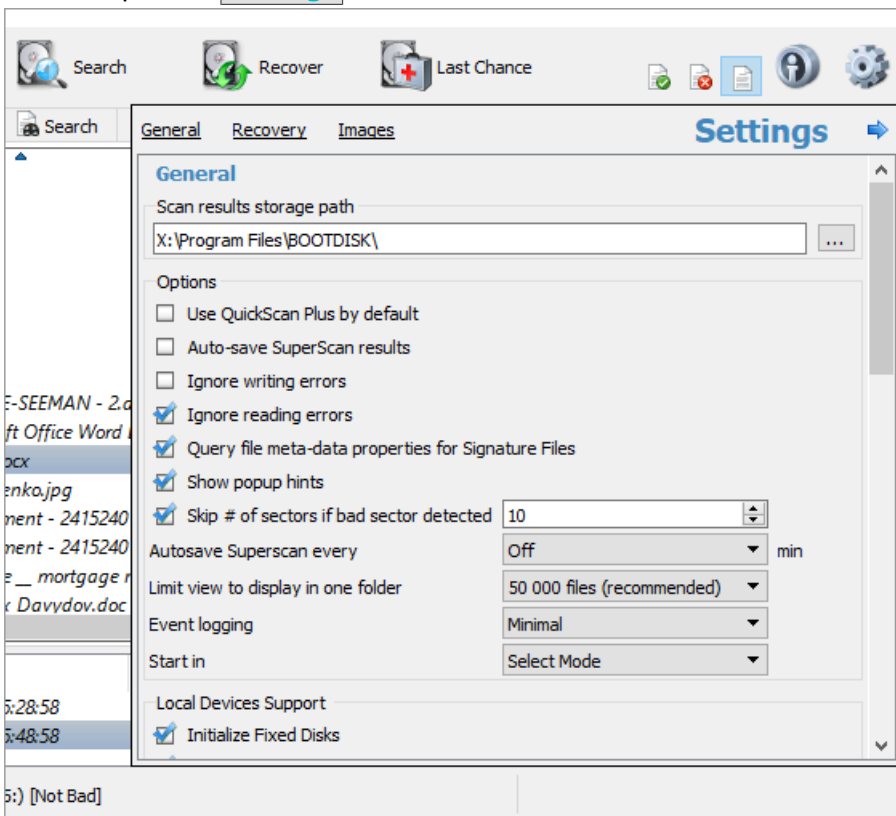


**24.** In the General window you can choose the storage location for your Scan results, as well as some other options concerning scanning and your local devices

**25.** Recovery tab basically has the features from the initial Recovery Options window.
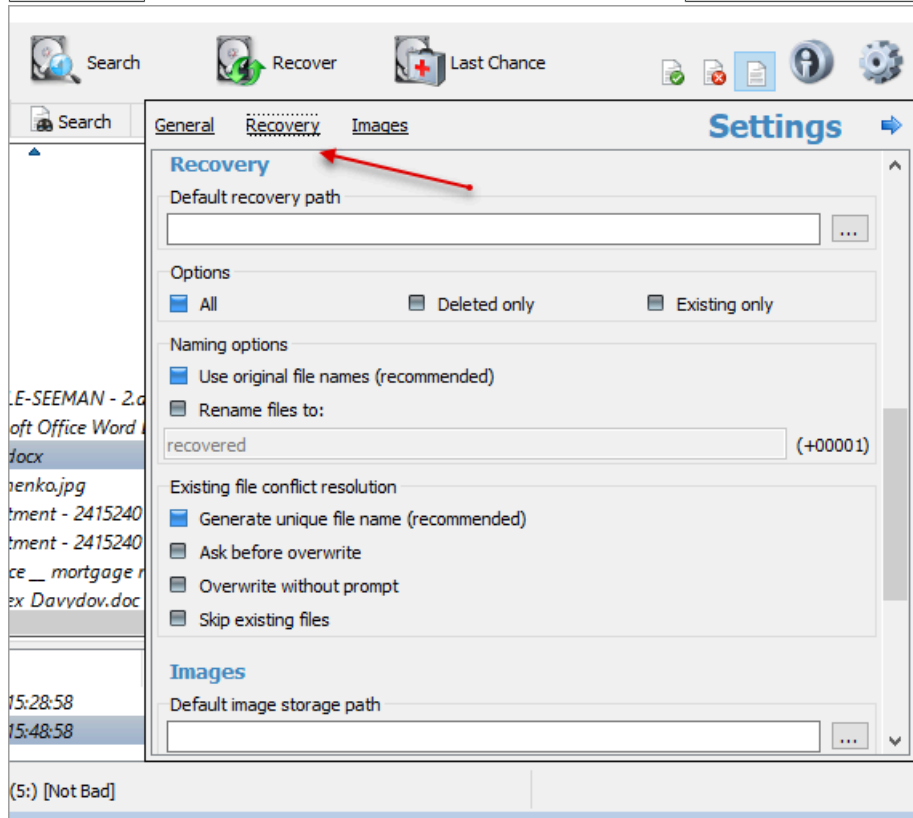


Additionally you can automatically rename your recovered files be giving them a basic name and adding a number for each one later on. The default name is "recovered".

**26.** **Images** tab is reserved for image creation and storing.
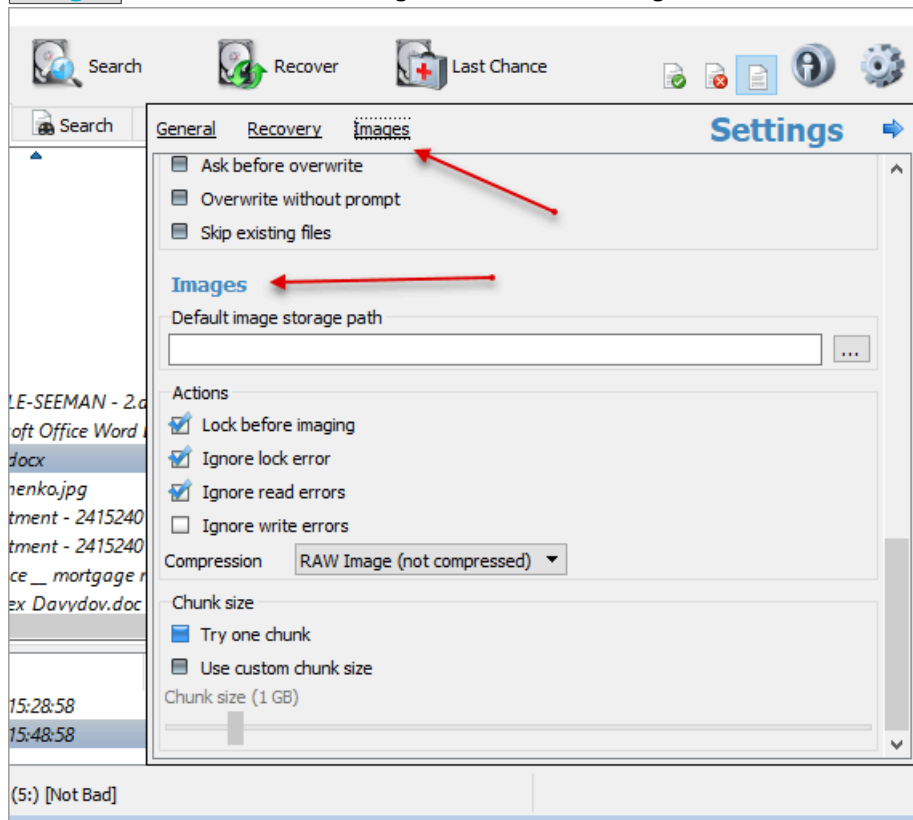


Here you can designate image storage path, compression, chunk size etc.

**27.** When you are finished with changes in this window click **Apply** before exiting and you will be back to the initial **Recovery Options** Window

**28.** In the **Recovery Options** window click on **Recovery button** which will initiate the recover the deleted files at the location that requested.

**29.** Alternatively you can also use `Advanced Search` tool by right clicking on the drive that contains your deleted files, or just by selecting it and choosing `Search` in the top on context menus
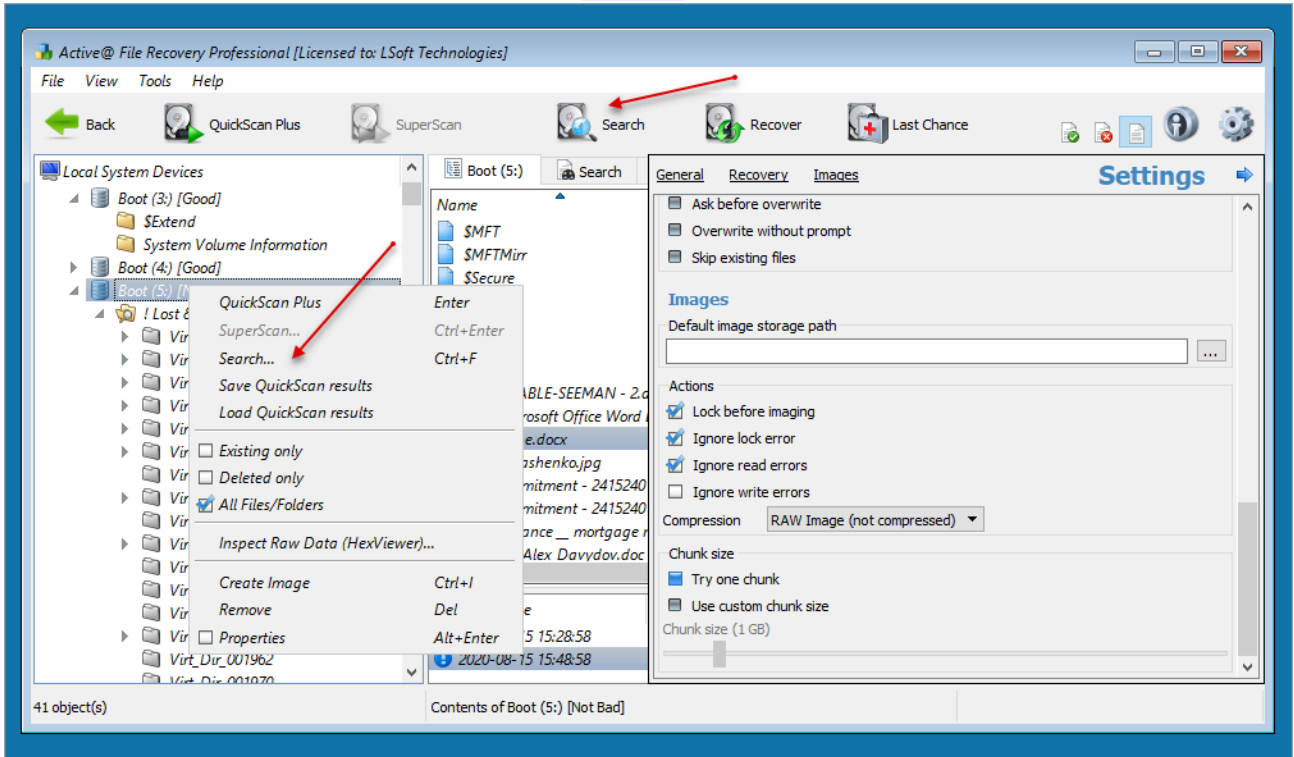


**30.** New `Search` window will appear offering you various customization settings:
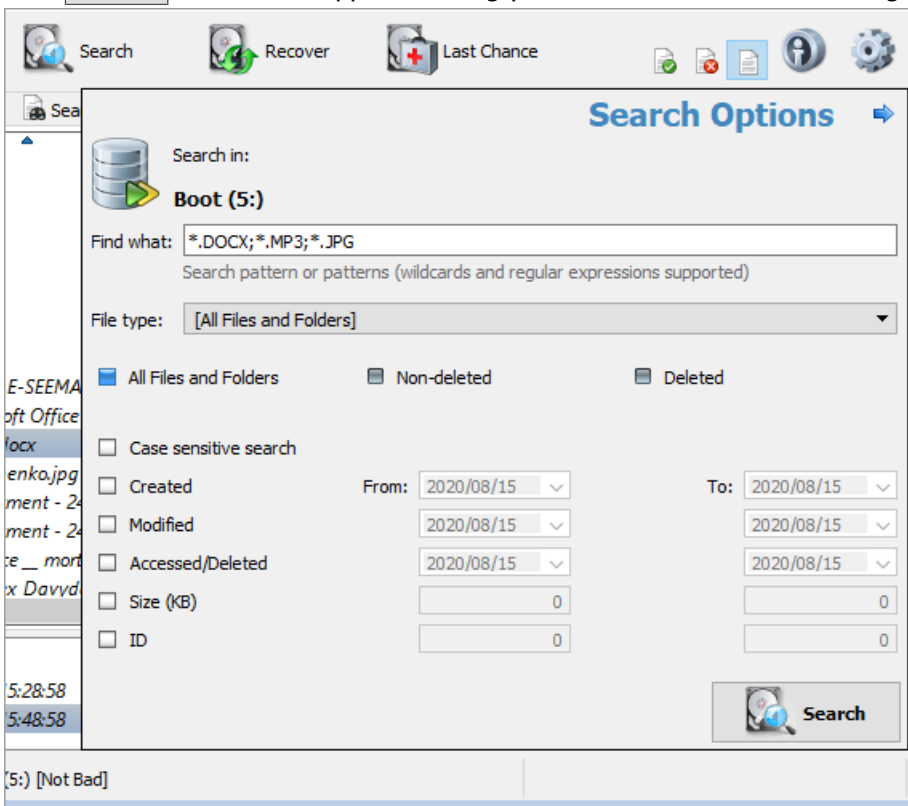


**31.** In the `Find What` field enter all or part of a file or folder name. You can use wildcard characters to locate all files or folders that include that part in a name.

**32.** In the `File Type` drop-down list select the type of file or folder to search for.

33. In the next three check boxes you can choose to include:

34. **Deleted** - select this check box to search through files and folders marked as deleted. If you know that the file or folder you are searching for has not been deleted, that is - if the file or folder is damaged and still exists in the file table - clear this check box.

35. **Non-deleted** files and folders - select this check box to search through existing files and folders. If you know that you are searching for a deleted file or folder, clear this check box.

36. **All files and folders** - combines two previous search methods, enabling you to look for files and folders in different states.

37. Case insensitive search - **File Recovery** will search for the **Find What** file or folder name disregarding upper or lower case letters by default. In order to search for a file or folder by using the combination of upper and lower case letters in **Find What** field, select this check box.

38. To search for files or folders based on a specified date range select any combination of check boxes for **Created, Modified or Accessed (Deleted)** and indicate the date range.

39. To search for files or folders based on the size of the file, select the **Size check box** and indicate the size range.

40. To start the search, click **Find**. The status bar will display the search in progress.

41. After the search has been completed, a new tab named **Search** will appear in the right pane.

42. Select a file or folder that you want to restore:
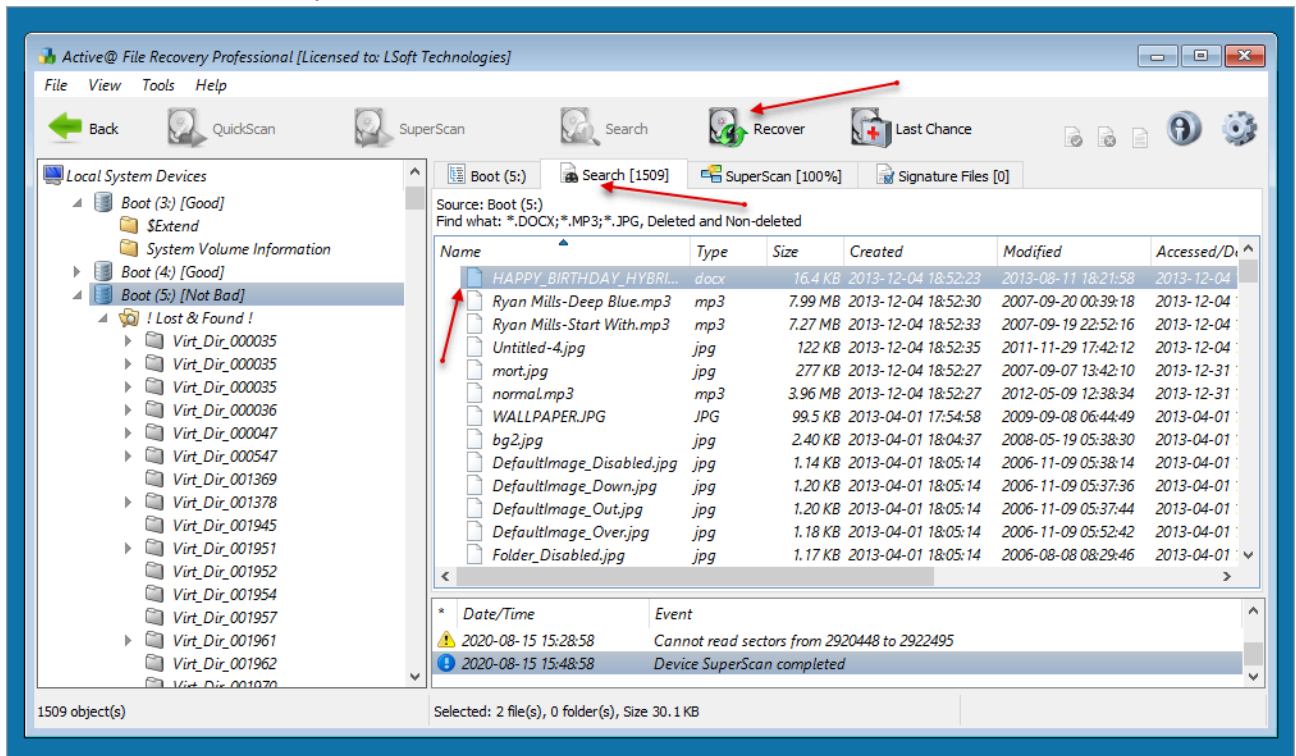


43. Click **Recover**. The **Recovery Options** dialog box will open.

44. Do the following:

- In the **Name** field revise the file name.
- In the **Recover To** field enter a path to a drive other than the drive where you found this file or folder. You can also browse to another drive.
- Click **Recover**.

The file or folder is recovered to the new location.

> 📝 **Note:** A device scan or a search may take a long time. To stop a device scan or a search click **Stop** at any time.

> **Note:** For more detailed instructions and support, see the **Active@ File Recovery** User Guide at Start > Documentation .

# Active@ KillDisk

**Active@ KillDisk** is a powerful utility that will:

- Wipe confidential data from an unused space on your hard drive
- Erase data from partitions or from an entire hard disk
- Destroy data permanently

Wiping the logical drive's deleted data does not delete existing files and folders. It processes all unoccupied drive space so that recovery of the previously deleted files becomes impossible. Installed applications and existing data are not touched by this process. **Active@ KillDisk** wipes unused data residue from file slack space, unused sectors, and unused space in MFT records or system records.

When you erase data with **Active@ KillDisk**, you destroy data permanently, conforming to more then 20 International Standards or your own custom settings.

Wiping drive space or erasing data can take a long time, so perform these operations when you are prepared to wait. For example, these operations may be run overnight.

## Using Active@ KillDisk

To run **Active@ KillDisk**:

- From the **Active@ Boot Disk** shell click Start > Programs > Active@ KillDisk . After initializing, the **Active@ KillDisk** workspace appears with all available devices listed:



- Click a physical drive or a logical drive to select it. Properties of the selected device will appear in the Properties tab docked to the right side.

- To inspect the logical drive, select it and click File Browser toolbar button. The Progress tab will appear, showing the status of the scan while *Time Left* counts down the remaining time.
- When the scan completes, sub-folders will appear in the System Local Disks list and the folders and files in the selected drive appear in the Folders and Files tab.
- Available files and folders will appear with a colored icon, while deleted files and folders will appear with a gray icon.
- After the scan has been completed, you can:

- Inspect existing and deleted folders and files in the Folders and Files tab.
- View sectors of data in a device or logical drive select a device or drive and click Disk Viewer toolbar button. The Disk Viewer appears. Scroll through the available data:
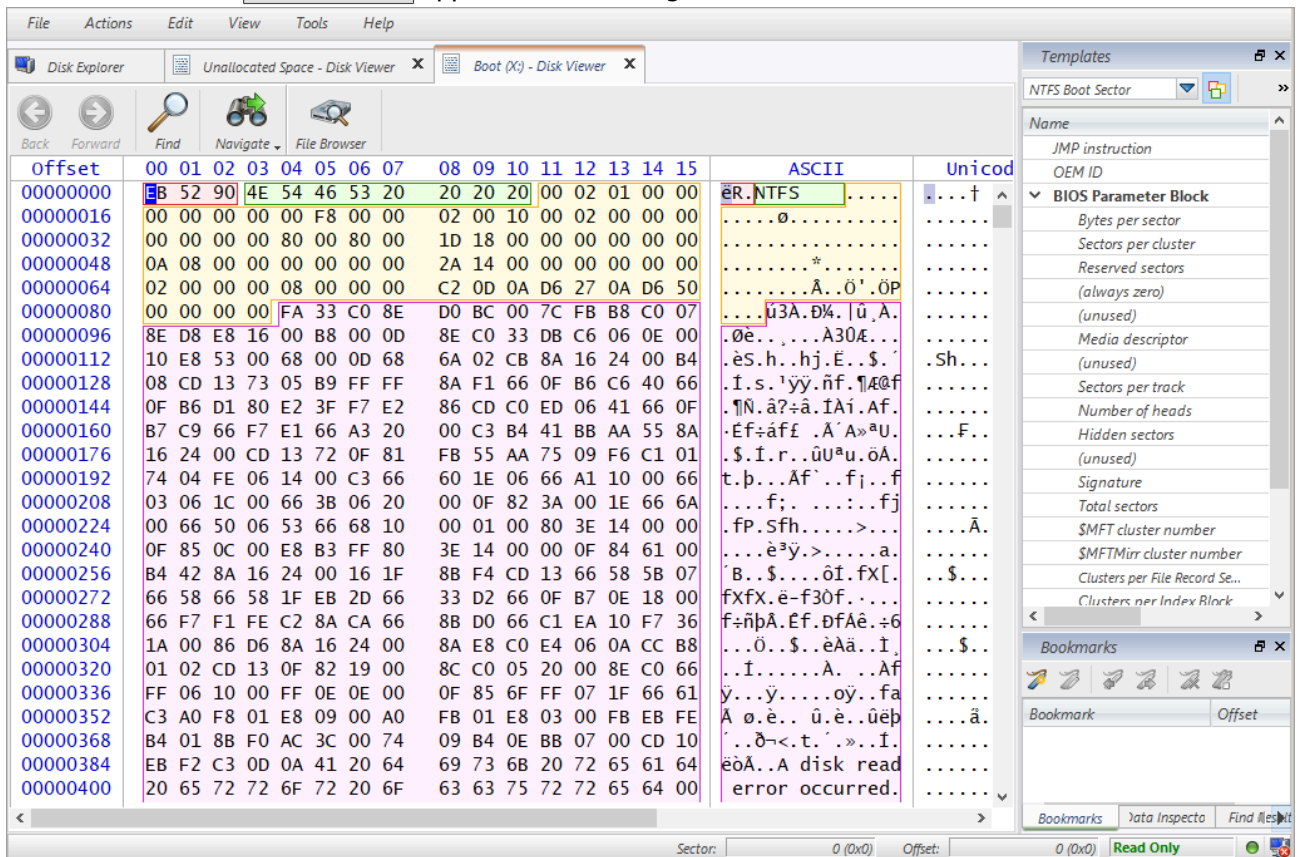


- View sectors of data in a file:

  **1.** Select a logical drive. Files and folders appear in the right panel.
  **2.** In the right panel select a file.
  **3.** Click Hex Preview. The Data Viewer appears. Scroll through the available data.

**Wiping Data**

- To clear data residue from unused sectors:

    **1.** Select the check box next to a device or logical drive or multiple devices or logical drives.

    **2.** Click Wipe Disk toolbar button. The Wipe Disk dialog box appears:
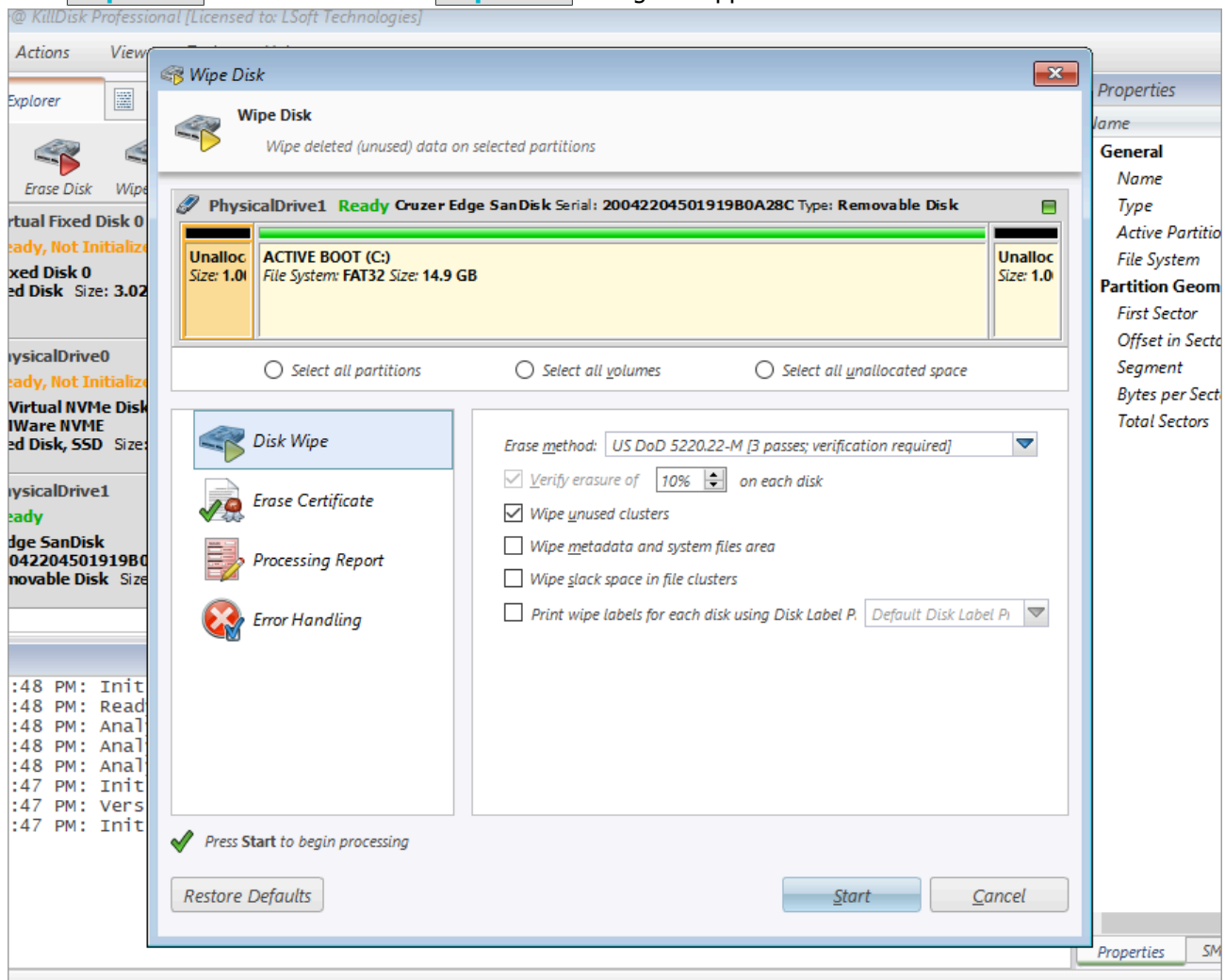


> 📝 **Note:** Read here for more about Wiping Methods

**1.** Choose one of the methods from the Erase method list.

**2.** To change other parameters, like *Certificate* options click other tabs at the left side.

**3.** Click Start

**4.** The `Confirm Action` dialog box appears. Click `Yes`
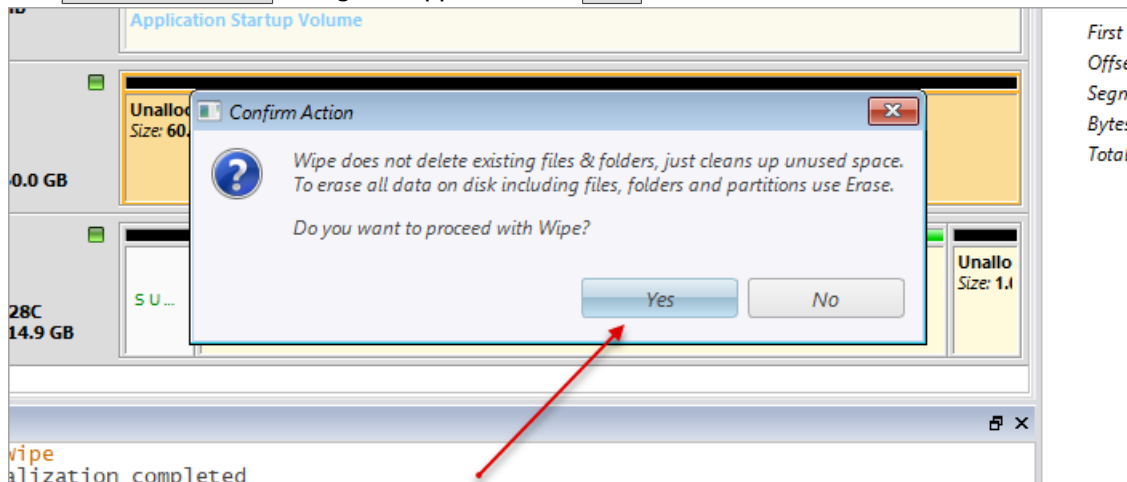


**5.** The process will be initialized with the progress bar:
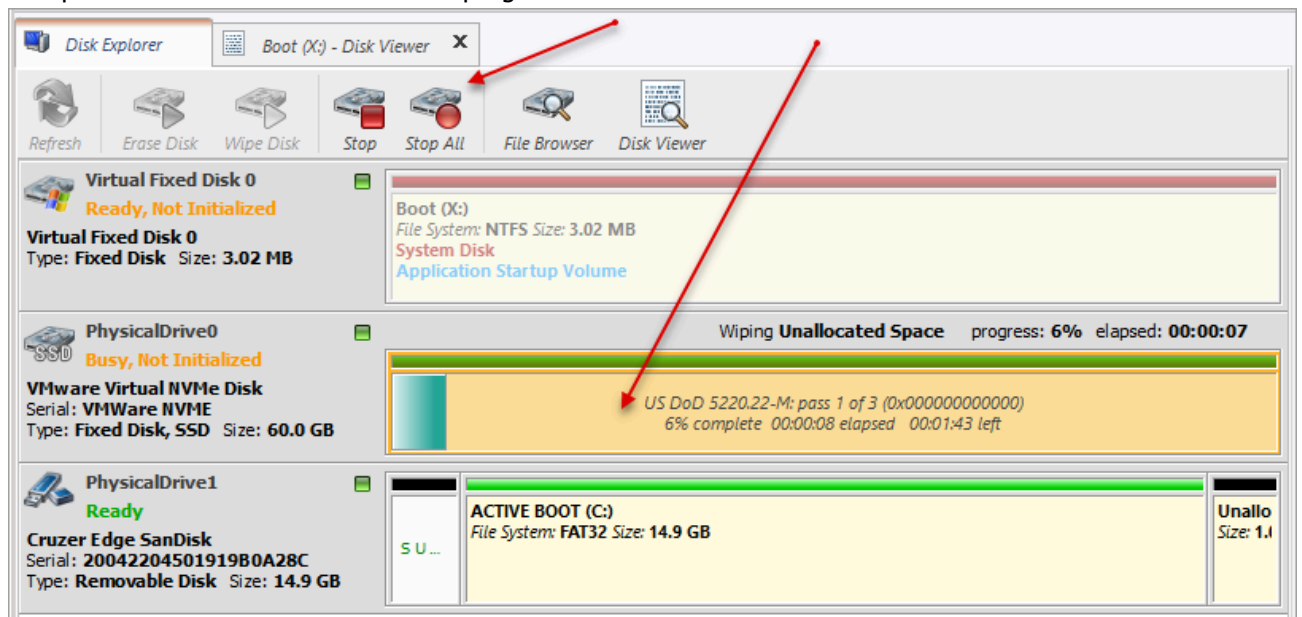


**6.** To stop the process at any time, press `ESC` or click at the `Stop All` button near the progress bar. You can also stop the drive wipe by pressing the little red square near the progress bar at *Local System Devices*.

**7.** After successful process of wiping the dialog screen looks like the following:
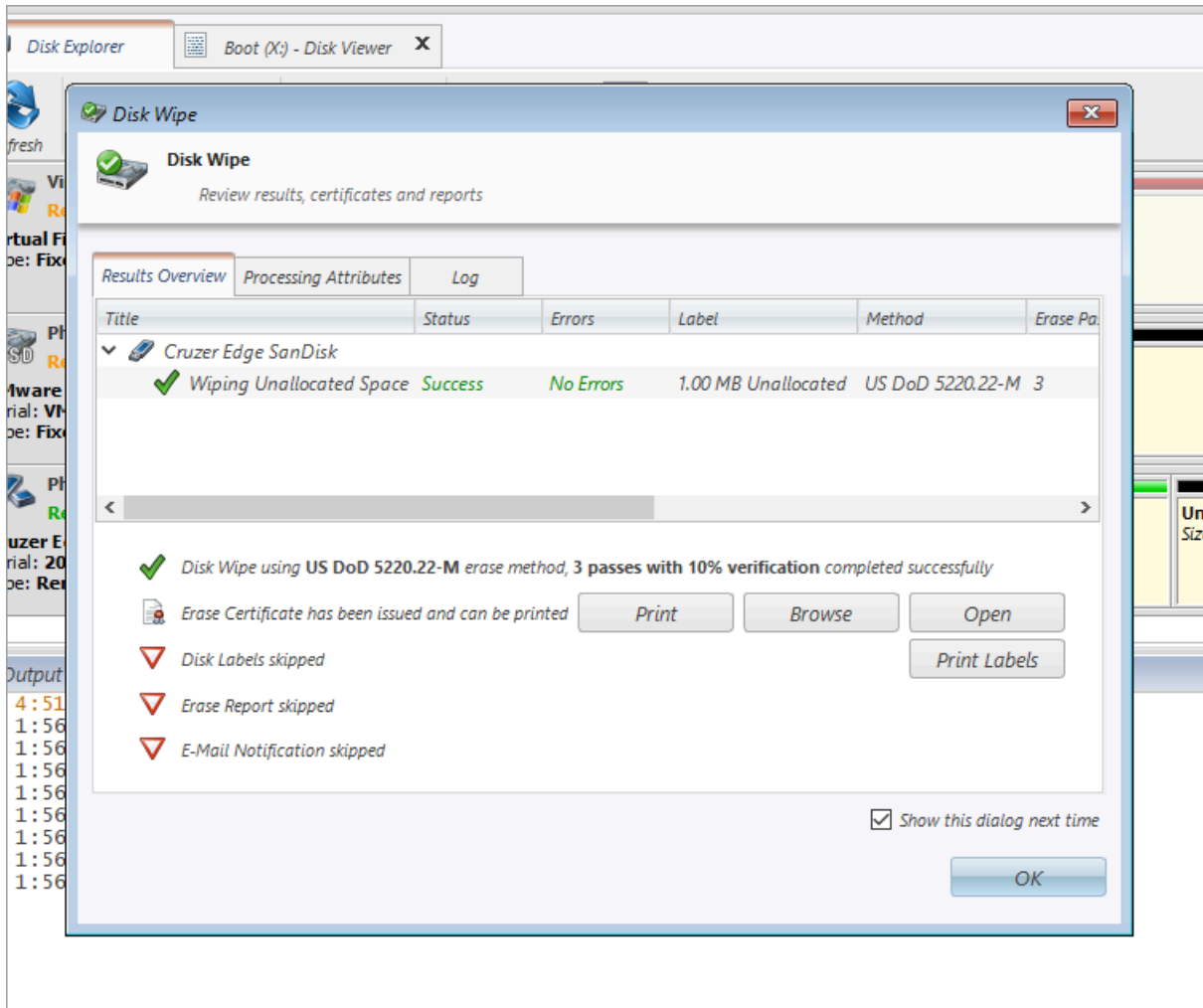


**Erasing Data**

To erase data completely:

**1.** Select the check box next to a device or logical drive or multiple devices or multiple logical drives.

**2.** Click `Erase Disk`. The `Erase Disk` dialog box appears:
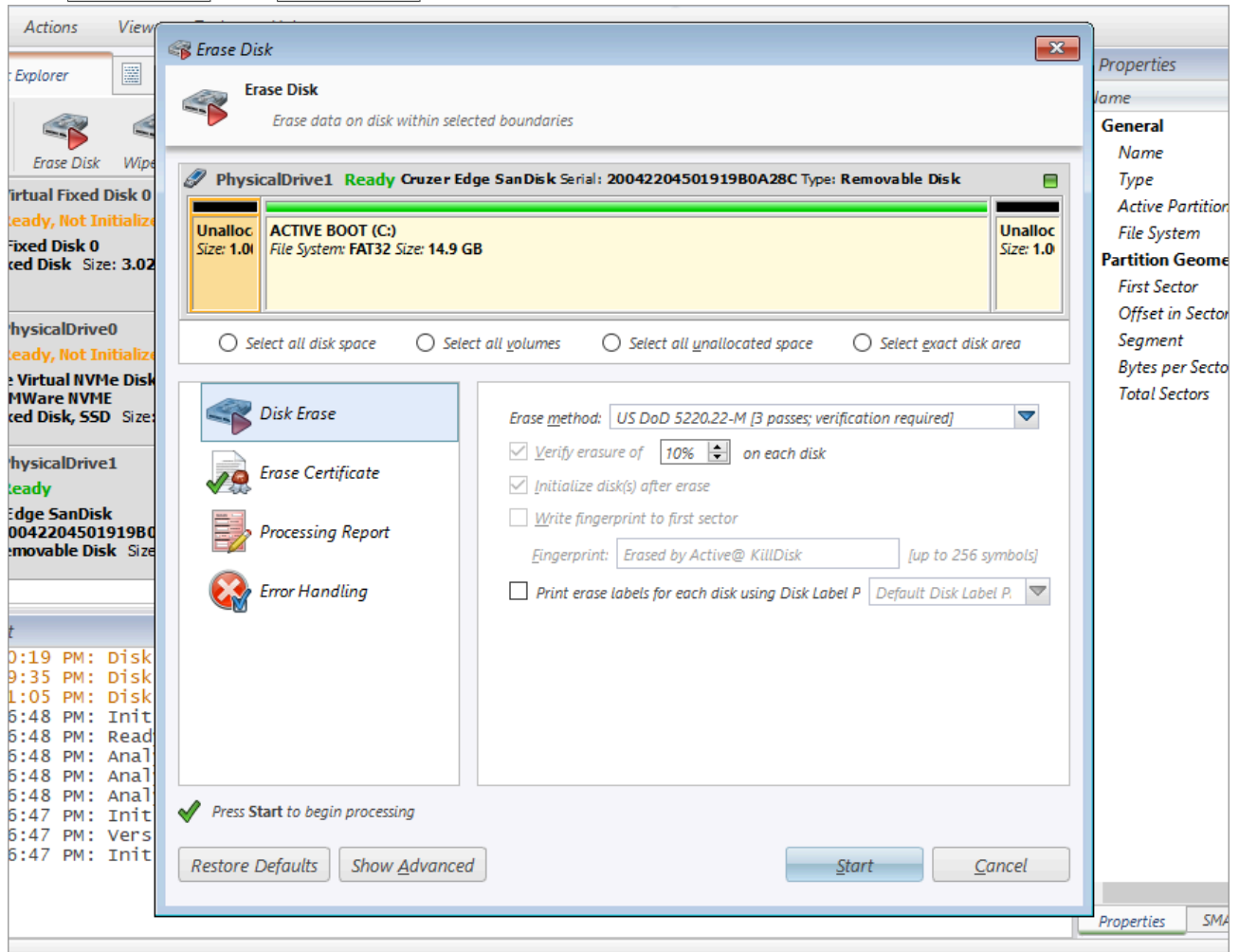


> 📝 **Note:** Read more here about Erasing Methods

**3.** Choose a method from the `Erase method` list.

**4.** If needed, set other erasing parameters by clicking on `more options...` in the bottom left corner**.**

**5.** Click `Start`

**6.** If the Skip Confirmation check box is clear, the Confirm Action dialog box will appear:
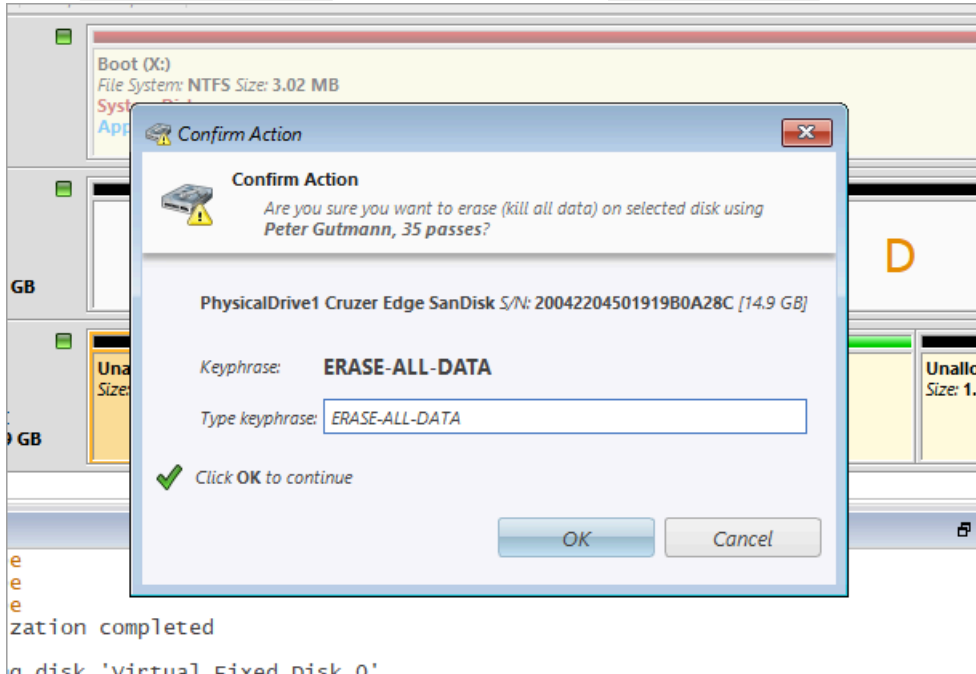


**7.** This is the final step before removing data from the selected drive forever. Type ERASE-ALL-DATA in the text box and press ENTER or click OK.

**8.** The process will start and the progress bar will appear:
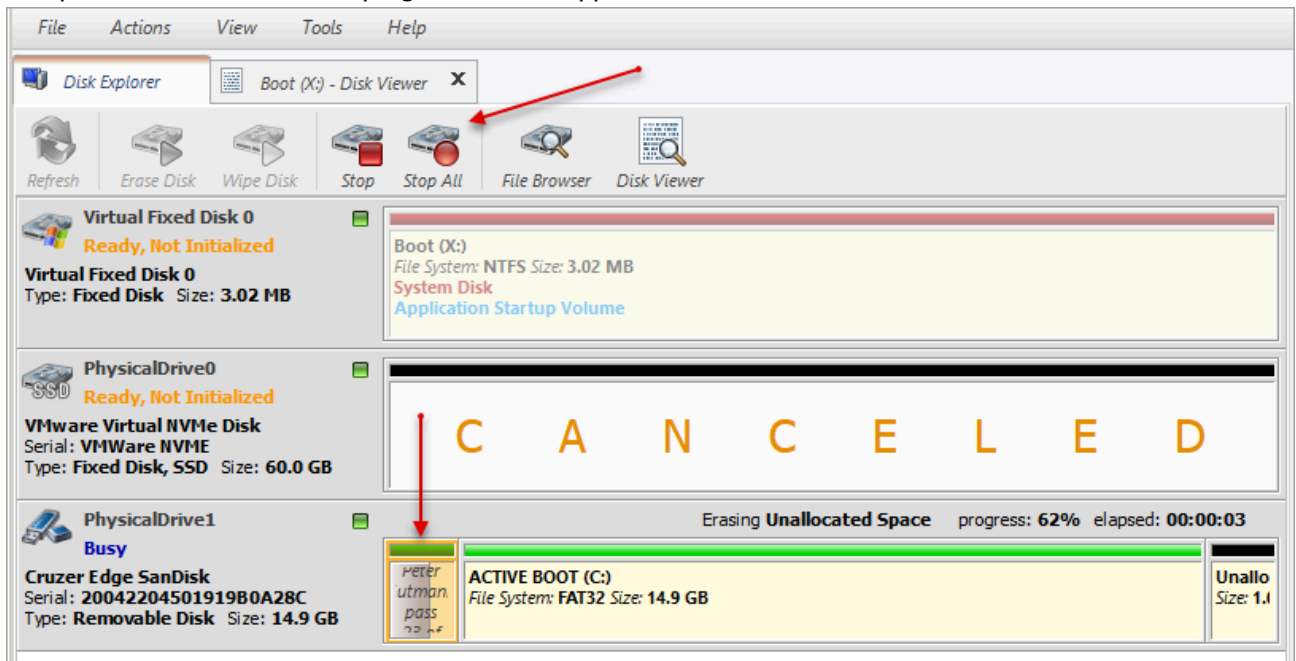


**9.** To stop the process at any time press ESC. You can also end the process by clicking on Stop All button or by clicking on the red square at the Load System devices panel near the progress bar of the drive that was being erased.

After the *Wipe* or *Kill* operation is completed, information about the wipe/erase session is displayed in the *Session Log:*
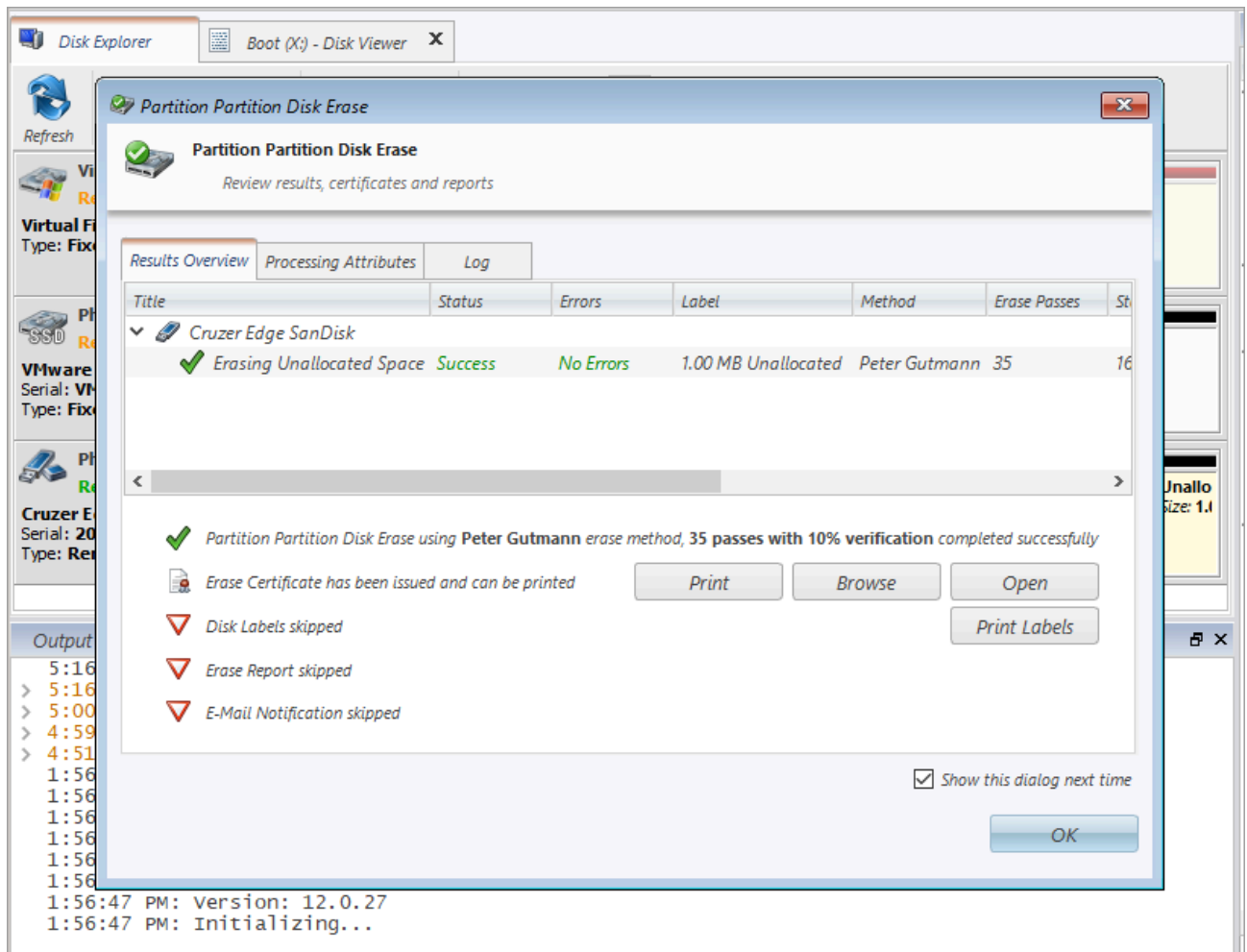
## Erase/Wipe Options

### Verification

In order to verify the wipe method, you will need to select the Verification check box and set the amount of area that the utility will read in order to verify the wipe method. Because verification is a long process, you can specify a percentage of the surface to be verified. To wipe or erase without verification, clear this check box.

### Wipe out Deleted/Unused data

This parameter appears only when you are wiping data from unused space on the hard drive. The wiping process clears data residue from unoccupied space on the hard drive and does not affect installed applications or existing data. This process contains three options:

- Wipe unused clusters
- Wipe Metadata/System file area
- Wipe slack space in file clusters

You can choose to run only one or two of these options in order to make the process faster. If you want a thorough wiping of unused space, then include all of the options.

## General Options

General parameters allow you to turn features on or off or change default settings before you erase or wipe data from an unoccupied space. You can also change the look and feel of the application and its logging options. To view and change settings, press the `F2` key, or click the `Preferences...` from `Tools` menu.

**Initialize Disk(s) after Kill/Erase:**
Because of the BIOS restrictions of some manufacturers, a hard disk device that is larger than 300 MB must have an MBR (Master Boot Record) in sector zero. If you erase sector zero and fill it with zeros or random characters, you might find that you cannot use the hard drive after erasing the data. For this reason KillDisk is programmed to create an empty partition table and write a typical MBR in sector zero. This process is otherwise known as disk initialization

**Write Fingerprint to the first sector**
If fingerprint has been written to the disk's first sector, next time you boot from this disk, you will see a disk erase status. If by any chance the errors have occurred or the erasing has been stopped, status will be FAILED and displayed in red color.

**Save Log and Shutdown PC after completion**
Erasing can take many hours. You can leave the `KillDisk` working and set it to turn the computer off when erasing is completed. A log file will be saved and can be reviewed later

**Skip Disk Erase Confirmation**
The confirmation screen is the final step before erasing data. In this screen, you type *ERASE-ALL-DATA* to confirm what is about to happen. If `Skip Confirmation` is turned on, this final safety request will not appear. This option is typically used with caution by advanced users in order to speed up the process. It is safer to run **KillDisk** when `Skip Disk Erase Confirmation` is selected by default. You may want to use this as a safety measure to ensure that data from the correct drive location is going to be erased completely with no possibility of future data recovery

**Ignore Disk Write Errors (bad sectors)**
If this option is turned on, error messages will not be displayed while data erasing or verification is in progress. All information about errors will be written to the *KILLDISK.LOG* file. These messages will be displayed in the final *Erasing report* after the process has been completed

**Stop Process after Writing Errors**
If by any chance writing errors appear during the wipe or deletion, you can adjust after how many errors would you like the `KillDisk` to terminate the process

**Retry Attempts**
To specify the number of retries to do when an error is encountered, enter the number in `Retry Attempts`

**Clear Log File before Start**
To truncate the session log before erasing or wiping starts, select the `Clear Log File before Start` check box. To append this session's information to the existing session log, clear the `Clear Log File before Start` check box

> **Note:** For more detailed instructions and support, see the **Active@ KillDisk** User Guide at `Start` > `Documentation`.

## Active@ Partition Manager

Use this utility to perform maintenance tasks on hard drive partitions.

To use **Active@ Partition Manager**:

From the **Active@ Boot Disk** shell click `Start` > `Programs` > `Active@ Partition Manager`. You will be greeted with **Active@ Partition Manager** initial dialog:

**Getting Started**

Welcoming screen offering you most commonly used actions for this application.

**Create Partition**

Directly manage the unallocated space on your hard drive.

**Partition Manager**

Manage and edit your existing partitions

- To enter the `Partition Manager` view click on `Partition Manager`
- To view the properties of the selected device, right click on it and choose `Properties`. The device properties report box appear in the right panel:
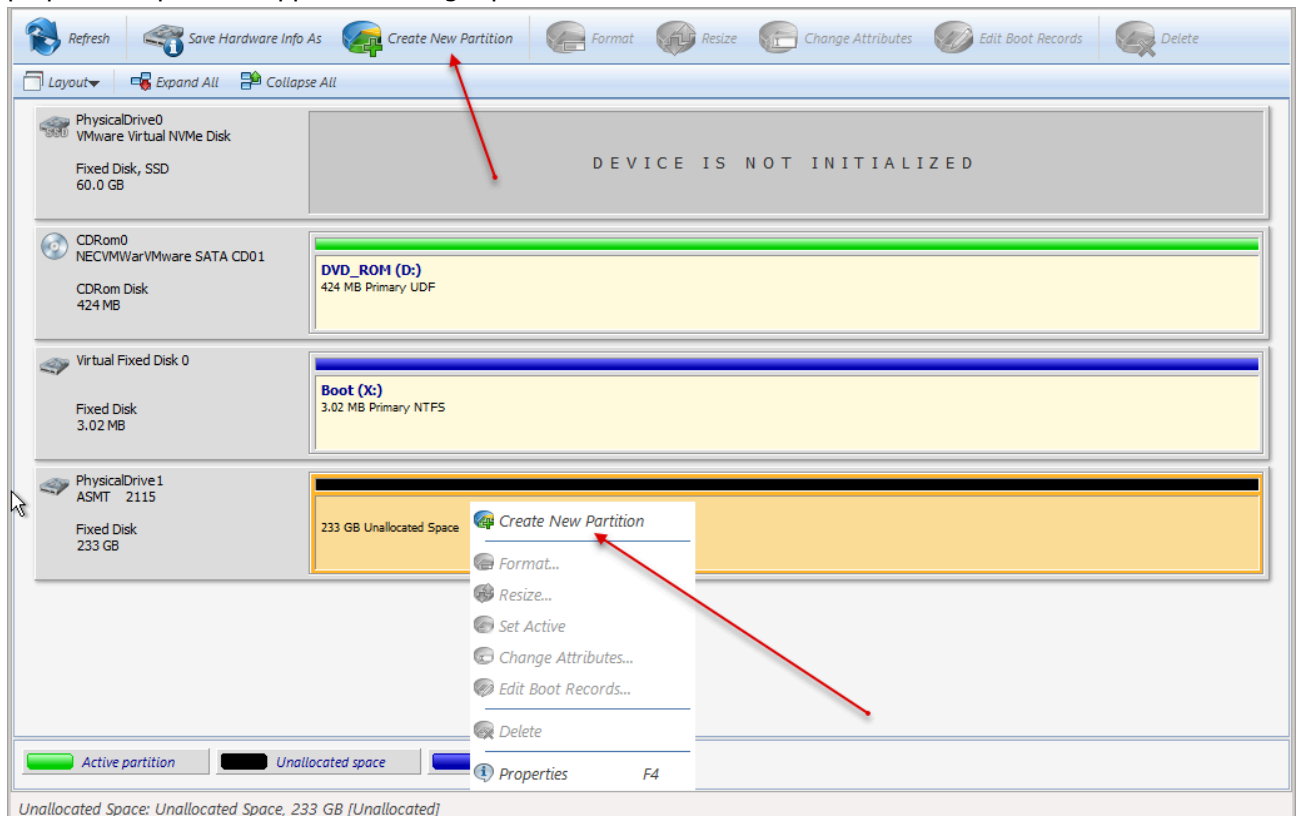
- To create a partition:

   **1.** On a hard disk device click an `Unallocated` area in the list to select it.
   **2.** Click `Create New Partition` which will initialize `Create New Partition` dialog box:
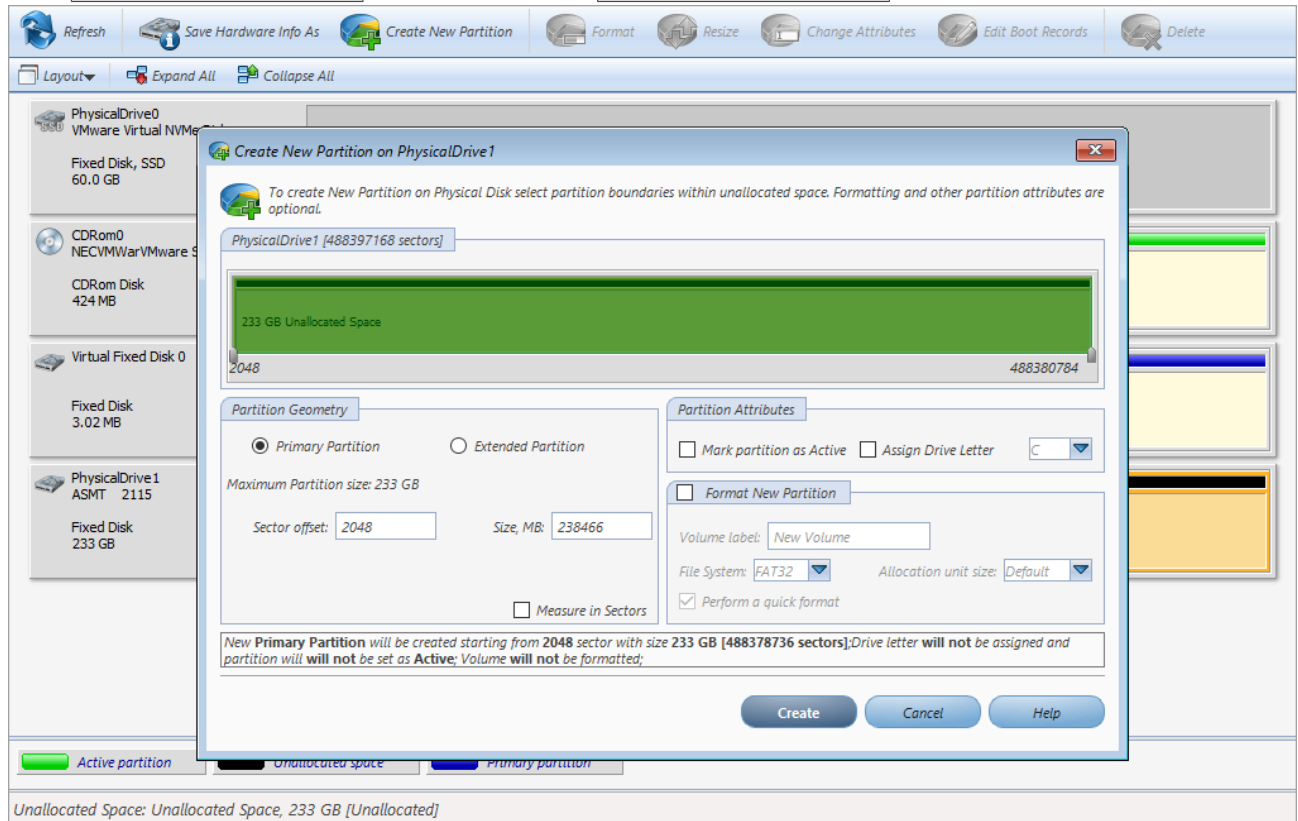


   **3.** In Partition geometry type the partition offset (in sectors) and the partition size (in megabytes).
   **4.** The maximum available size for the partition is set by default.
   **5.** In `Partition Attributes` select a drive letter from the drop-down list.
   **6.** To format this partition select the `Format New Partition` check box and set parameters for the format action.
   **7.** Click `Create`. The partition is created.

- To delete a partition:

   **1.** Right click on a partition that you want to delete.
   **2.** Click `Delete`. A message will appear asking for your confirmation.
   **3.** Click `Yes`. The partition is deleted.

- To format a partition:

  **1.** Right click on a partition in the list to select it and open the Partition Manager Menu.
  **2.** By choosing `Format`, you will launch the `Format Partition` window box:
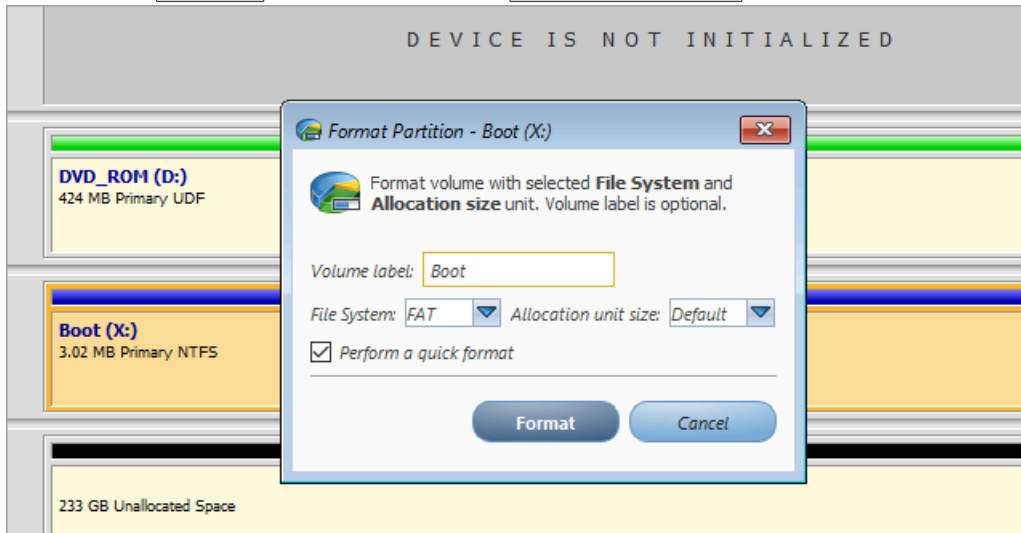
  

  **3.** Give the partition a volume label in `Volume Label`.
  **4.** Select a file system type in the `File System` drop-down list.
  **5.** Select an allocation unit size in the `Allocation unit size` drop-down list.
  **6.** To perform a quick format select the `Perform a quick format` check box.
  **7.** To perform a full format clear the `Perform a quick format` check box.
  **8.** Click `OK` the process will be initialized and the progress bar will appear.

- To change the letter for a device or volume:

  **1.** Select a device or a volume and right click on it.
  **2.** Click `Change Attributes`. The `Partition Attributes` dialog box appears with the first available letter selected:
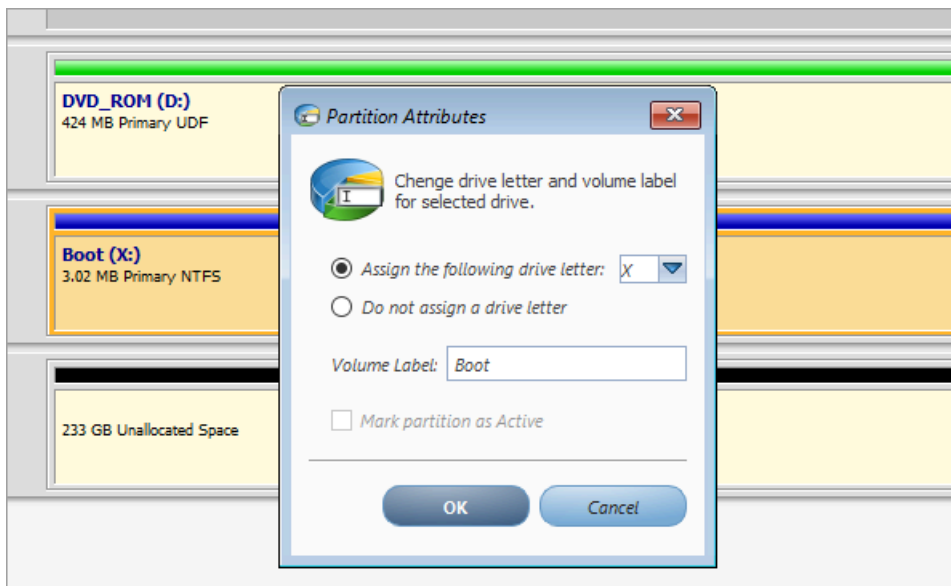
  

**1.** To change the drive letter, select a letter from the `Assign the following drive letter` drop-down list.
**2.** Click `OK`. The letter is assigned.

> 📝 **Note:** For more detailed instructions and support see the **Active@ Partition Manager** User Guide at `Start` > `Documentation`.

# Active@ Partition Recovery

**Active@ Partition Recovery** is a data recovery utility that you can use to:

- Find and recover deleted partitions and logical drives
- *LastChance* - if all recovery methods fail, you can still try to save individual files on your deleted partition.
- Create a *Drive Image* for backup purposes
- Fix or create a typical MBR (Master Boot Record)

This means that you can recover deleted or damaged partitions located on data volumes (D:, E: and so on), attached hard drives, as well as on the external USB drives and Memory Cards (SunDisk, MemoryStick, CompactFlash, etc.). On a system partition, *boot.ini* is corrected automatically (if needed) to repair an un-bootable system. As well, damaged *Volume Boot Sectors* are corrected to maintain integrity of the partition. This utility also enables you to fix a damaged MBR and to delete invalid partitions.

For any computer to boot properly, the following conditions must apply:

- The MBR (Master Boot Record) exists and it is not damaged in any way
- The Partition Table exists and contains at least one active partition

If these conditions exist, the executable code in the MBR selects an active partition and passes control to it so that it can start loading the system files (COMMAND.COM, NTLDR, BOOTMGR,... ).

If these files are missing or are corrupted then the operating system will not boot.

**Data Recovery Tips**

> ⚠ **CAUTION:** DO NOT WRITE ANYTHING ON THE DRIVE THAT CONTAINS YOUR IMPORTANT DELETED DATA!

When you install software, you write data on the disk. This can destroy your deleted data. If you have only one logical drive, physically remove the hard drive from the computer and install it as a second logical drive on another computer where data recovery may be possible.

> ⚠ **CAUTION:** DO NOT SAVE RECOVERED DATA ON THE SAME DRIVE THAT CONTAINS THE LOST OR DAMAGED DATA!

When saving recovered data, you are writing records to the file table. If you write these records to the same drive that contains the damaged data, you are destroying the file table records that you are trying to recover. At the same time, you may be destroying the file table records for other deleted entries. It is best to save recovered data onto another logical, removable or network drive.

> ⚠ **Important:** CREATE A RAW DISK IMAGE IF YOU HAVE AN EXTRA HARD DRIVE, OR OTHER LOGICAL DRIVES THAT ARE BIG ENOUGH!

A *Raw Disk Image* is a single file that stores all the data from your logical drive or physical device as a mirror image. Having a *Raw Disk Image* can be useful when you want to back up the contents of the whole drive, and restore it or work with it later. Before you start recovering deleted files, it may be a good idea to create a *Raw Disk Image* for the one drive, if you have enough space on another drive. If you do something wrong while recovering the files (for example, recovering them onto the same drive and destroying the data), you will be able to recover these deleted files and folders from the *Raw Disk Image* that you have wisely created in advance.

**Find and recover deleted partitions and logical drives**

To find and recover deleted partitions and logical drives:

1. To open **Active@ Partition Recovery** in the **Active@ Boot Disk** shell click **Start** > **Programs** > **Active@ Partition Recovery**. After choosing a **Partition Recovery** submenu the **Active@**

**Partition Recovery** workspace appears with all available devices listed in a tree view under Local System Devices:
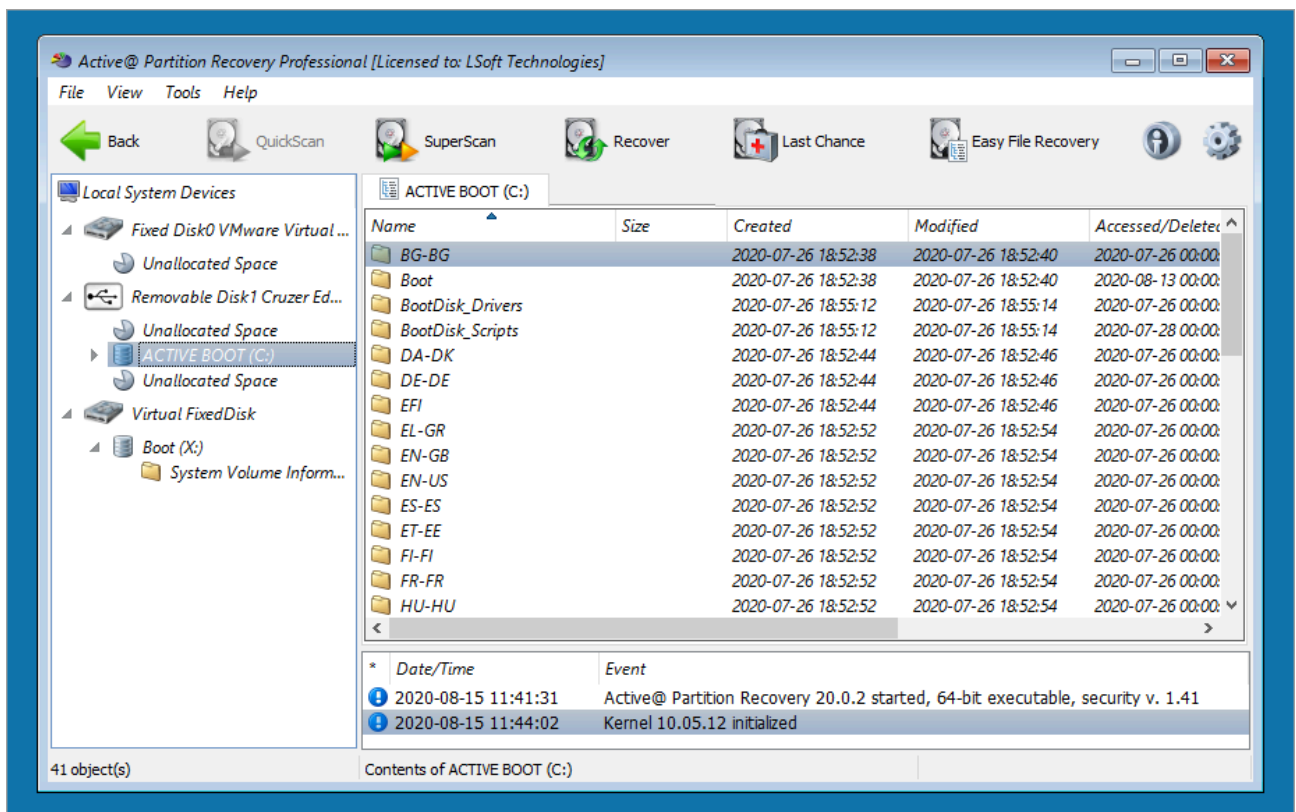




- To scan an unallocated space, select it. Known details of the selected item are displayed in the right pane.
- To scan the unallocated space in basic mode, click QuickScan , the process will start and the status bar will display the scan progress. After the scan is complete, a list of all allocated and unallocated partitions will appear in the **Local System Devices** list.
- If you cannot see a logical drive, you will need to process the whole surface of a disk, select it and right click on it and click SuperScan :
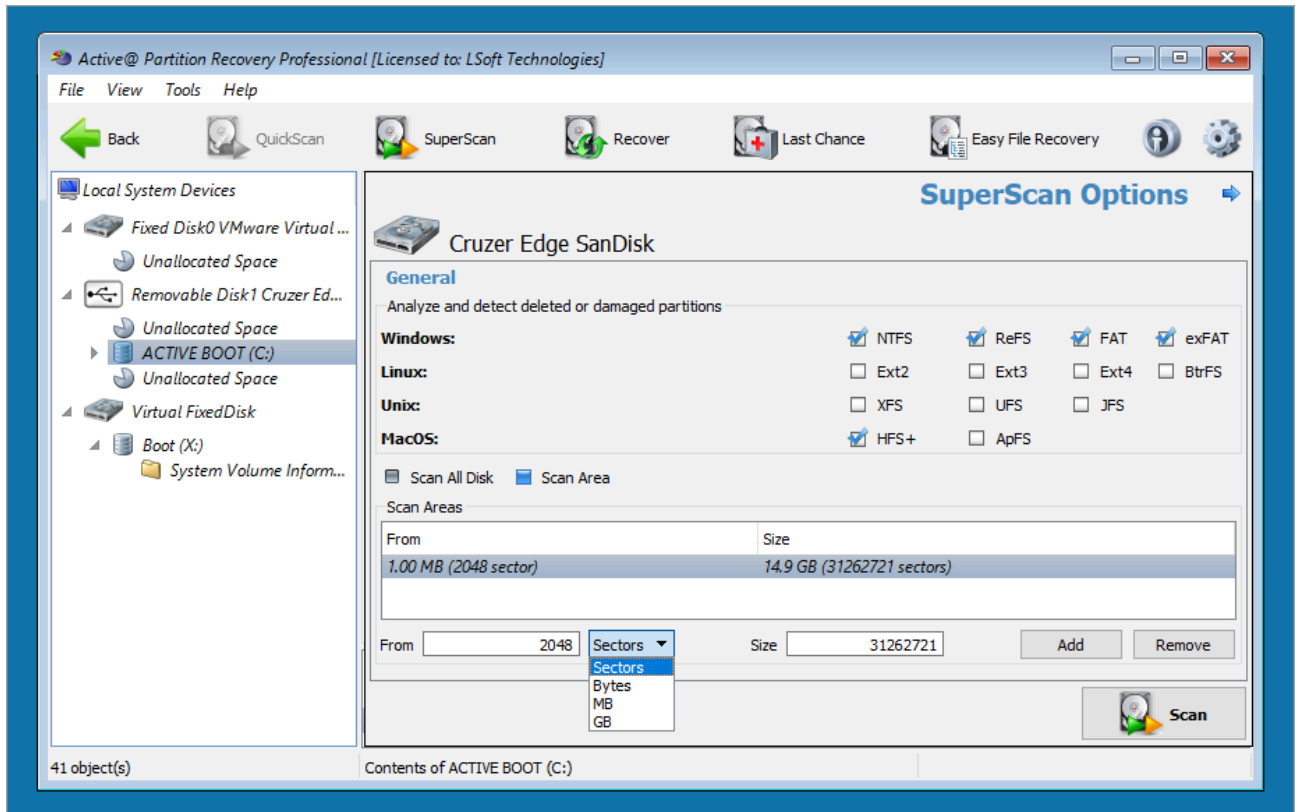
- When the SuperScan Options dialog box appears do the following:

- To restrict the scan to a small number of sectors, indicate the **From sector** and the number of sectors to scan. If you are unsure about any of this, just ignore this step and click on Scan.

- You can follow the scanning progress via status bar:
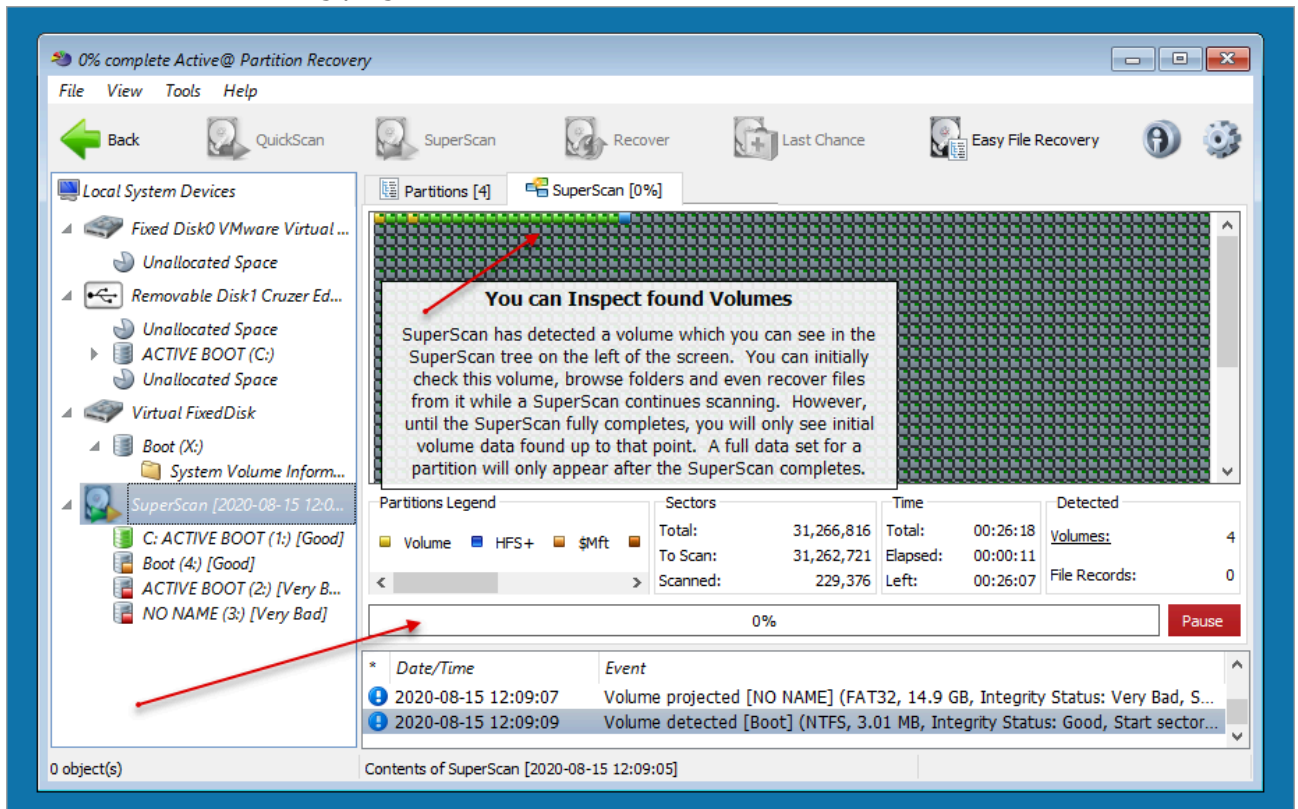
- After the scan is complete, a new folder named *SuperScan* will be created in the **Local System Devices** list.
- To display a smaller set of **SuperScan** results, do the following:
- Right-click the **SuperScan** device node folder.
- From the context menu choose **Filter...** This will open the **Filter Found Partitions** dialog box.
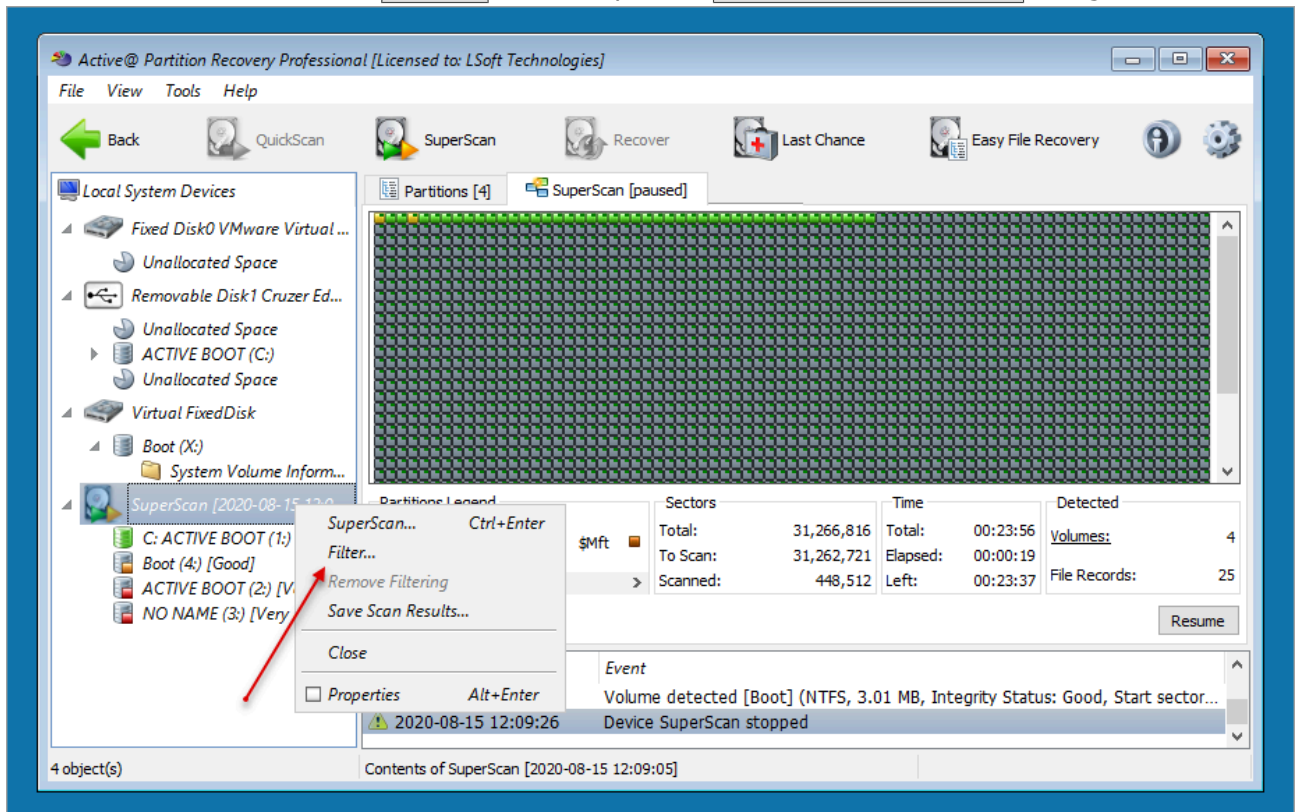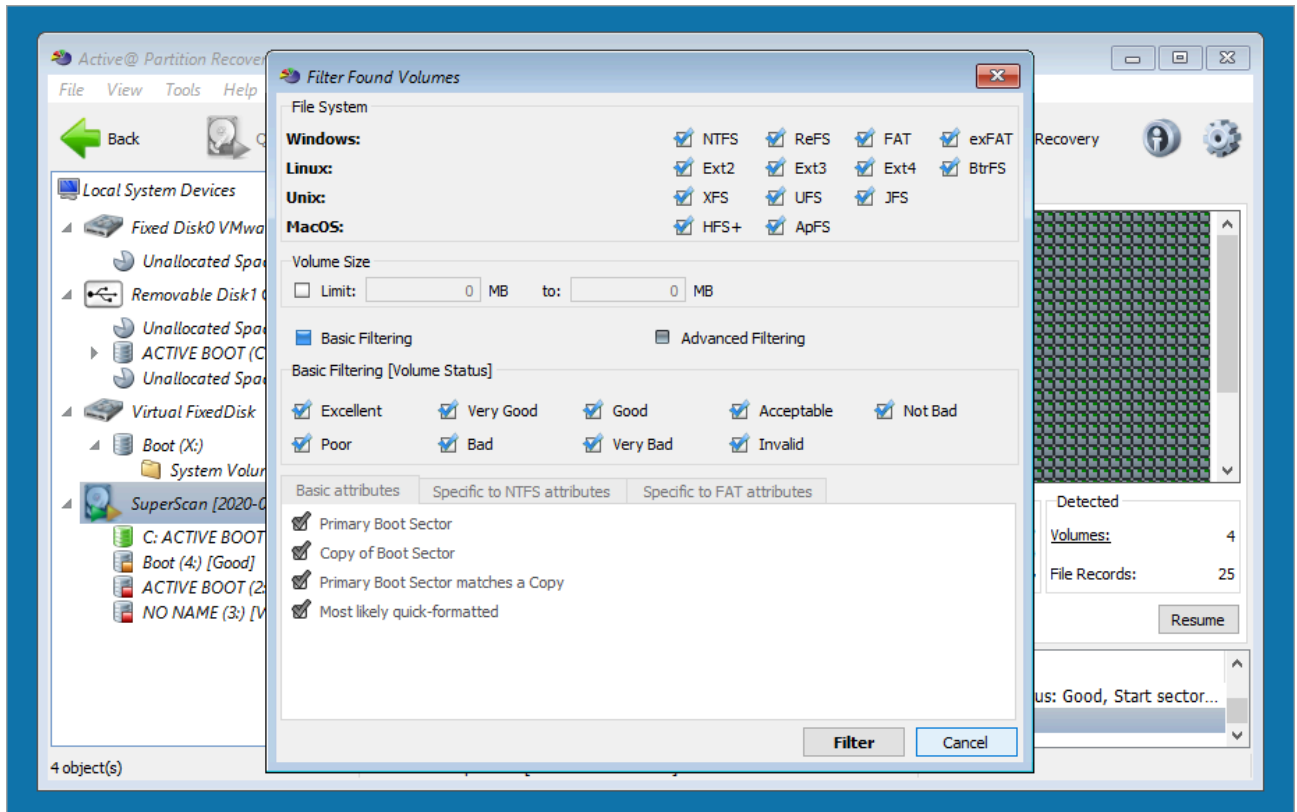
- Scanning for all supported file types is on by default. If there are particular file types that you do not want to be displayed clear the check boxes besides them.
- To display only those partitions within a specified size limit, in the `Partition Size` area, indicate the minimum and maximum size of partitions in Megabytes.
- To use basic filtering parameters, in the **Filter Type** area, click `Basic Filtering`.
- To select displayed partitions based on partition status, in the `Basic Filtering [Partition Status]` area, clear the check box next to each partition status number that you do not want to display.
- To use advanced filtering parameters, in the `Filter Type` area, click Use `Advanced Filtering`.
- To restrict displayed results for NTFS-specific parameters (in the `Specific to NTFS attributes` area) select the check box beside all the types of data that you want to display
- To restrict displayed results for FAT-specific parameters (in the `Specific to FAT attributes` area) select the check box beside all the types of data that you want to display.
- Click `Filter`. The right panel will display the filtered results.

**2.** In order to recover your partition you will need to click on the *SuperScan* folder in `Local System Devices`. This will show the *SuperScan* results in the right pane

- If you didn't do anything with the unallocated space after you deleted the partition, chances are pretty good of recovering it
- To ensure that the *Windows* operating system assigns the correct letter to the disk, select a disk letter from the `Assign Disk Letter` drop-down list
- To set the recovered partition as active and allow the system to boot from it, select the `Set Partition Active` check box.
- The recovery process checks the boot sector and fixes it if it is damaged. Select `Automatic` or `Manual`, depending on how you want to do this.
- If the disk has an extended partition, select the **Create Extended Partition First** check box and/or `use ALL Unallocated area` check box. If these areas are not available, these check boxes will be disabled.
- To save a copy of the partitioning information before recovering, select the `Backup Current Partitioning Info` check box and indicate the file name to store the backup
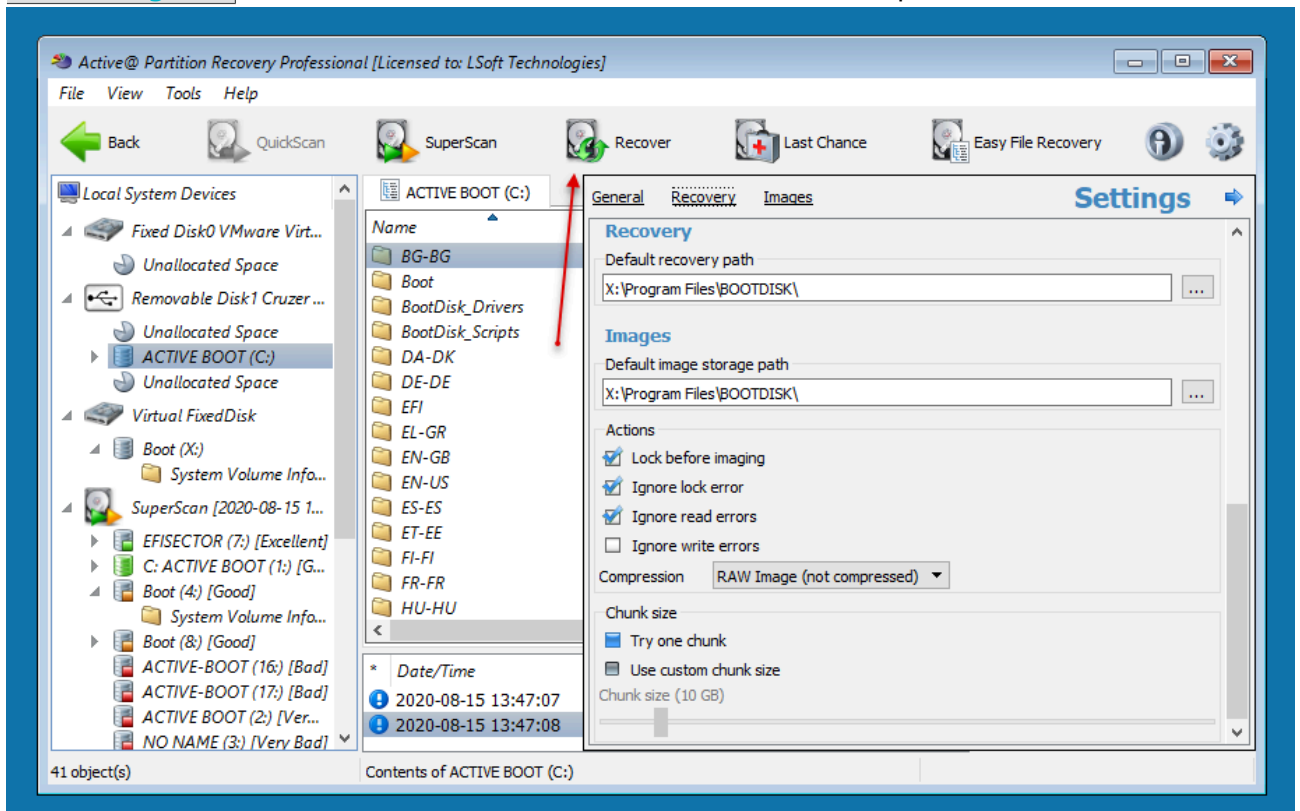


- Click `Recover`

  The partition is recovered.
**3.** You can manage other aspects of *SuperScan* results:
**4.** To save scan results, right-click on the *SuperScan* folder and choose `Save Scan Results`. You can also open the saved scan results at any time.
**5.** To delete a *SuperScan* folder right-click on the folder and choose Delete.

**6.** To display detailed properties of a *SuperScan* folder right-click on the folder and choose Properties.
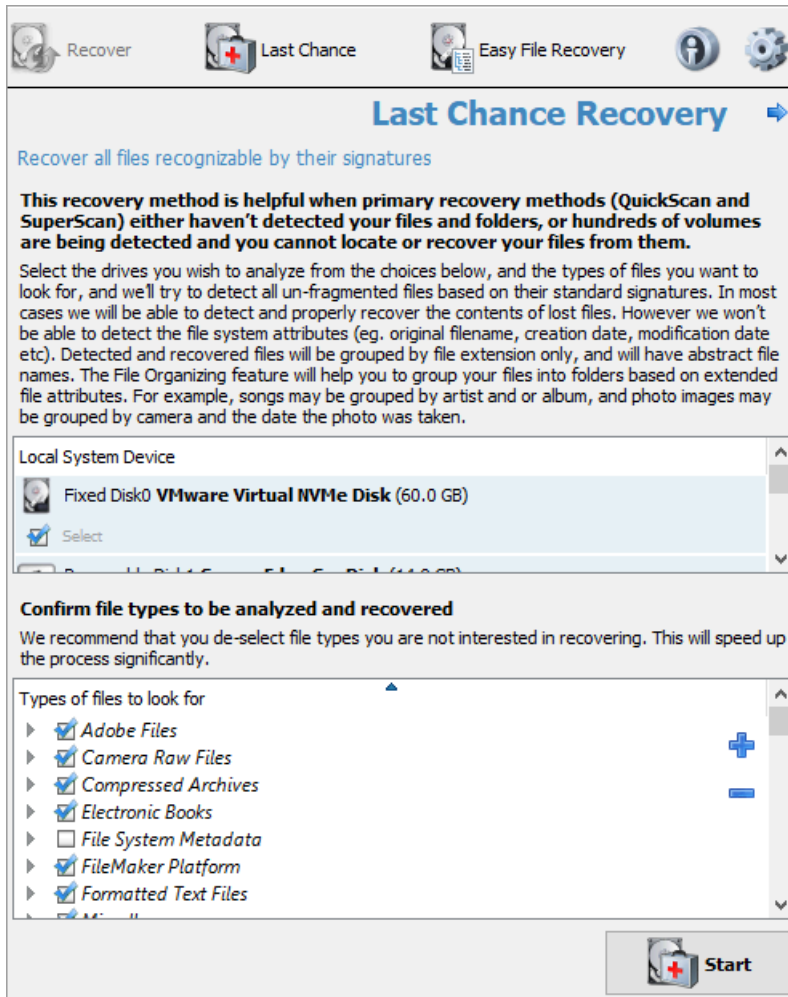


**7.** *LastChance* - if you were unlucky and you still didn't manage to recover your partition there is still a chance to recover at least part of it. This is where *LastChance* comes into play. By simply scanning the area of the deleted partition you can find and recover lost files, that were presumed to be lost. In order to run *LastChance* do the following:

**8.** Click on the *LastChance* button in the top menu, this will open the *LastChance* wizard box

**9.** Choose the device where your previously deleted partition was being stored

> **Note:** The purpose of *LastChance* Recovery is to enable you to scan and recover files based on their signatures or by their default application. All of the supported files are checked by default, if you don't require some particular file types uncheck them since this will greatly speed-up the process.

Once you click on the Start the scanning will commence and can take to around a few hours. Depending on your drive size and the number of file types you inputted, your mileage might vary. Once the scanning starts you can pause it but you can't stop it.

**Creating a Raw Disk Image**

A Raw Disk Image is a mirror copy of your entire logical drive or physical device stored as set of files. It may be a good idea to create a *Raw Disk Image* for a drive containing deleted files that you want to recover, if you have enough space on another drive. If you do something wrong while attempting to recover a partition, you will be able to recover these deleted files and folders from the *Raw Disk Image* of that partition.

Depending on the disk image creation settings, a *Raw Disk Image* consists of a configuration file (with an extension .DIM) and a single file chunk, or set of files having extensions .000, .001, .002 ... (each file chunk has a size of 2 GB in this case).

> ⚠ **Important:**  Do not save a Raw Disk Image back onto the disk that you are backing up. The target location to save the Raw Disk Image must always be another drive.

To create a *Raw Disk Image*:

**1.** In the **Active@ Partition Recovery** workspace, select a logical drive or a physical device. Right click on it and choose  Create Disk Image :
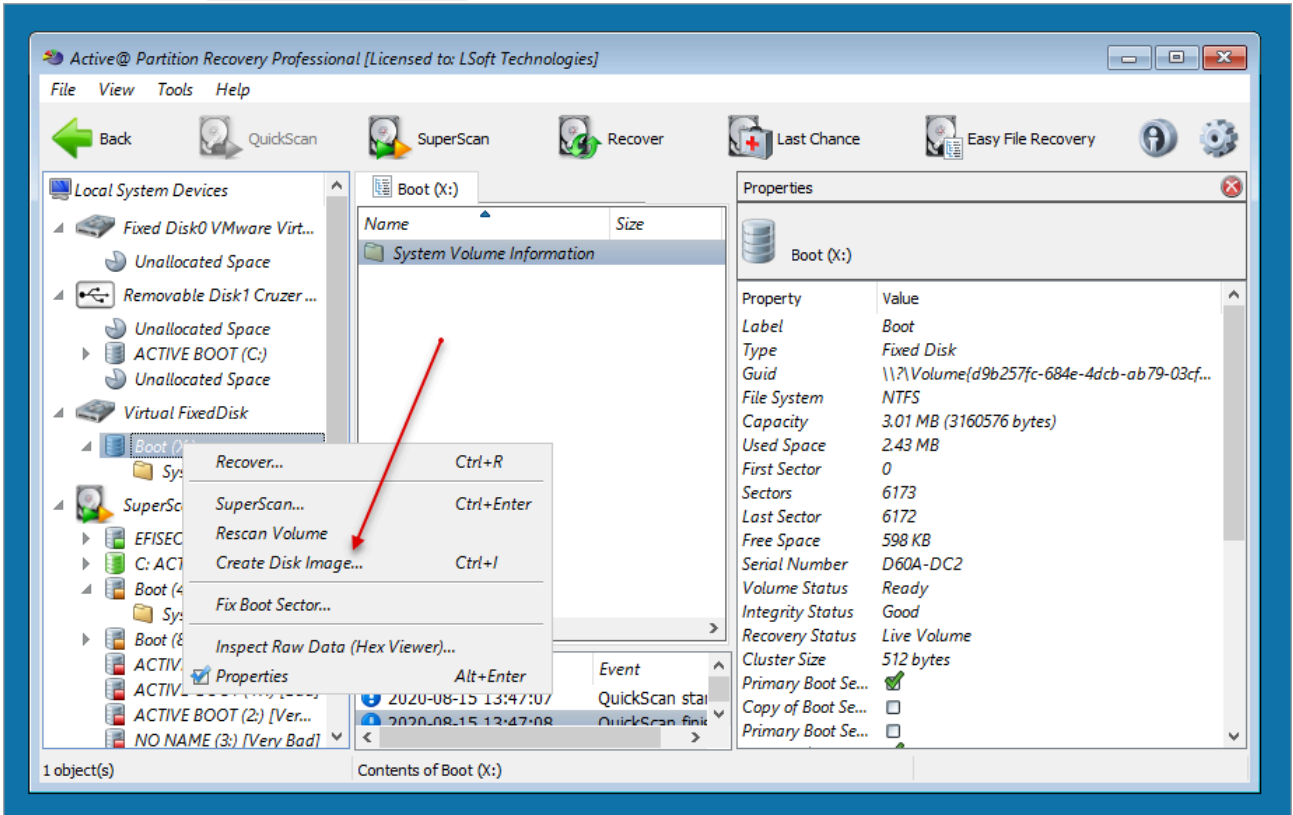


Which will launch the dialog box.
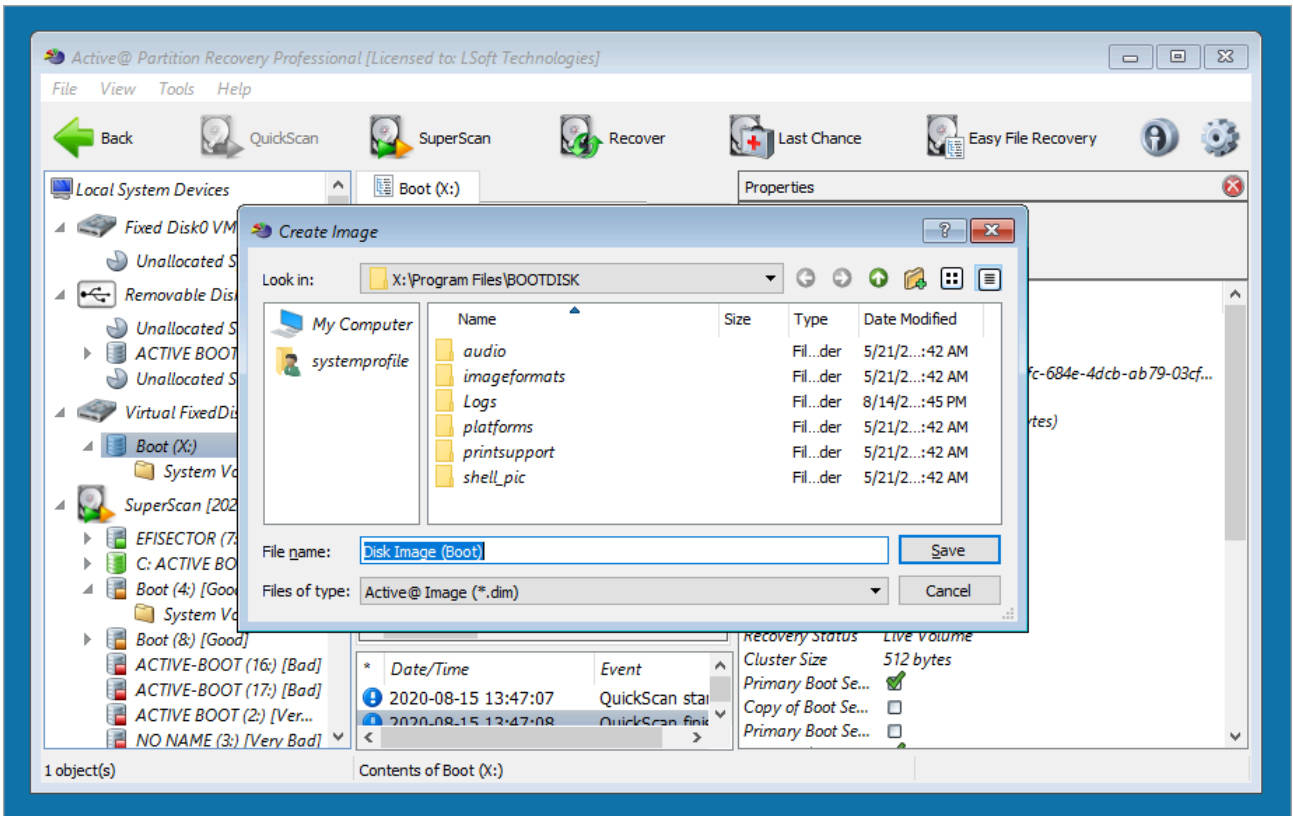


**2.** Select another physical device or another logical drive.

**3.** Browse to the folder where you want to save the *Disk Image*.

**4.** In File Name field give the *Disk Image* file a descriptive name.

**5.** Click Save to start the process. The progress bar will appear.

Watch the progress and wait while drive's contents are copied to the new location. You can cancel the process of image creation anytime by clicking Stop .

**Fixing or creating the MBR**

The MBR (Master Boot Record) is created when you generate the first partition on a hard disk. It is probably the most important data structure on the disk. The *MBR* contains the partition table for the disk and a small amount of executable code. On x86-based computers, the executable code examines the *Partition Table*, and identifies the system partition. The *MBR* then finds the system partition's starting location on the disk, and loads the copy of its *Partition Boot Sector* into the RAM. The *MBR* then transfers execution to executable code in the *Partition Boot Sector*.

To fix or create a typical *MBR*:

**1.** In the **Active@ Partition Recovery** workspace (in the Local System Devices list) select a disk.

**2.** From the Tools menu choose Fix Boot Sector

**3.** Partition Boot Sector Recovery Options window is the next step in fixing your Boot Sector. Primary Boot Sector column (PBS) on the left must have same values as the Copy of Boot Sector (CBS) on the right
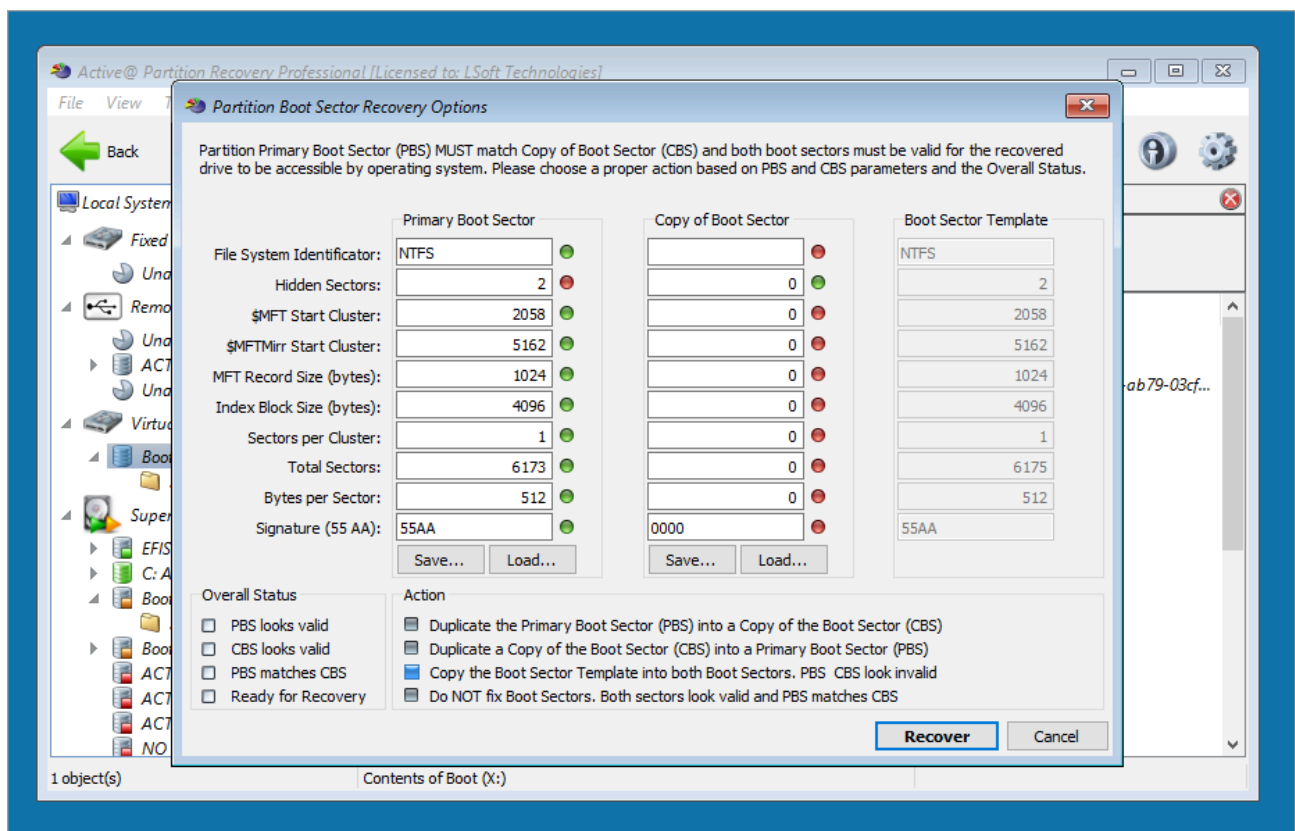


The *MBR* is fixed.

> 📝 **Note:** For more detailed instructions and support, see the **Active@ Partition Recovery** User Guide at Start > Documentation .

# Active@ Password Changer

You can use **Active@ Password Changer** to recover your passwords and user account attributes for *Windows* environment.

**Active@ Password Changer** is designed for resetting the local administrator password for *Windows* systems in case the administrator's password is forgotten or lost. If such turn of events occurs, you do not need to re-install and re-configure the operating system.

This utility supports multiple hard disk drives, detects several SAM databases (if multiple operating systems were installed on one volume) and provides the opportunity to pick the right *SAM* before starting the password recovery process. It also displays a list of all local users.

Other *Windows* login security restrictions can be reset, for example:

- Account is disabled
- Password never expires
- Account is locked out
- User Must Change Password at Next Logon
- Logon Hours

With **Active@ Password Changer** you can log in as a user with a blank password.

**Using Active@ Password Changer**

To use **Active@ Password Changer**:

1. From the **Active@ Boot Disk** shell click Start > Programs > Active@ Password Changer. The **Active@ Password Changer** dialog box will appear:
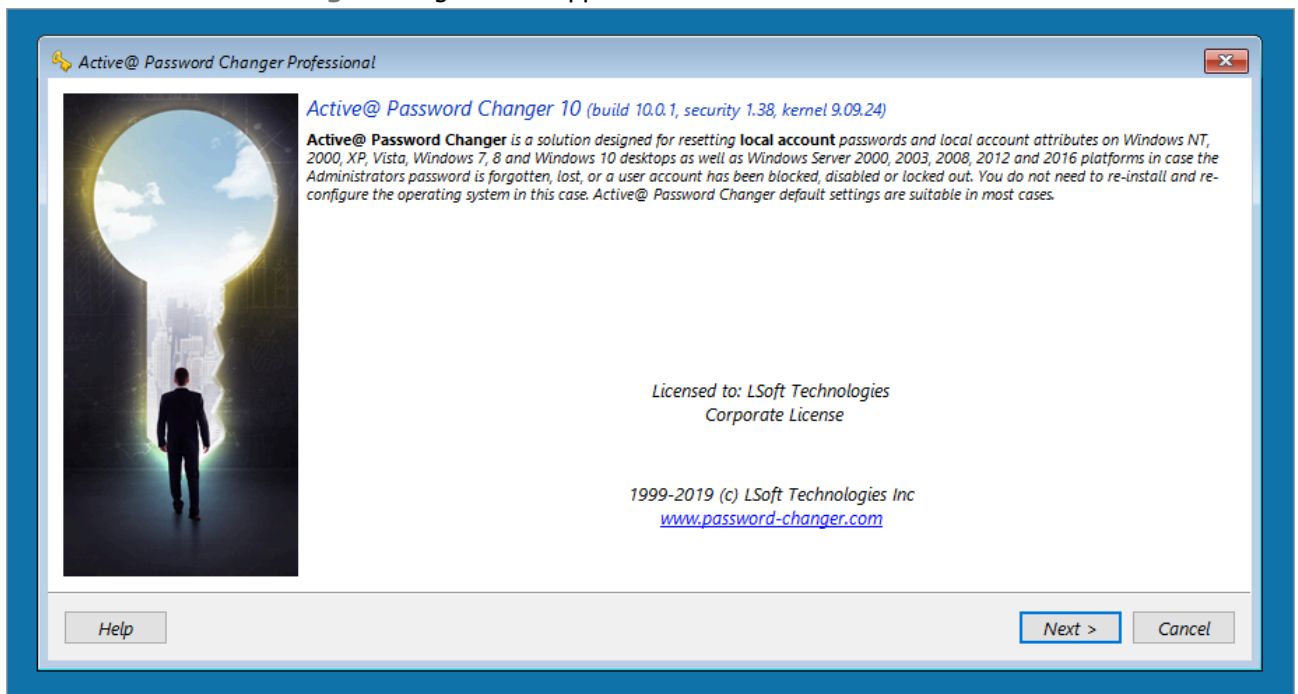
**2.** Click [Next] which will open the [Options] window offering you to choose how do you want the search to be conducted.



**Search all volumes for *Microsoft Security Account Manager Database***
Let Password Changer search all of your drives in order to find *Microsoft's* Security Data Base
**Select volume with Windows operating system manually**
if needed you can also search for the drive containing *Windows* system by yourself
**Find a folder with Windows registry files manually**
If for some reason accessing SAM database is not possible you can find it here:

```
C:/Windows/System32/Config
```

**Note:** Manually copying *SAM* data base is possible only when the operation is being conducted from another operating system

**3.** Select it and click **Open**

- To scan the disk and detect multiple operating systems do the following:
- Click **Search** for Search all volumes for Microsoft Security Account Manager
- Click **Next**. The progress bar indicates the status of scanning. A list of *SAM* hives appears.
- Select a database from the list.
- Click **Next**. The list of users appears:

**4.** Select a user from the list and click Next . The parameters for the selected user appear:



**5.** Select parameter check boxes to create the situation that you want.

**6.** Click Apply . A confirmation dialog box appears.

**7.** Click Yes . An information message indicates that the changes have been made.

**8.** Click OK .



**9.** Click Finish .

**10.** For each user that you want to change repeat steps 4 through 9.

> 📝 **Note:** For more detailed instructions and support see the **Active@ Password Changer** User Guide at Start > Documentation .

## Active@ ZDelete

**ZDelete** is a data cleanup and erase utility that can delete selected folders and groups of files without any possibility of data recovery afterward. Access to the drive's data is made on the physical level via **BIOS** (*Basic Input-Output Subsystem*) bypassing the operating system's logical drive structure organization.

In **Active@ Boot Disk** an actual **Active@ ZDelete** is implemented as a part of **Boot Disk Explorer** functionality

> **Note:** For full (standalone) version of **Active@ ZDelete** please visit https://www.zdelete.com
>
> **ZDelete** is a powerful software that delivers the following main features:
>
> - Destroy data permanently with a choice of **20+** international disk sanitizing standards including US DoD 5220.22-M
> - Sanitize external disks (USB drives, external HDD/SSD) connected to both USB 2.0 and 3.1 ports
> - Wipe out unused clusters and metadata on live volumes, leaving existing data intact, cleaning up free and slack space according to the concepts
> - Windows *Drag-and-Drop* functionality
> - Graphical User Interface integrated with Windows Explorer
> - Functions reside in context command menus
> - **ZDelete Bin** - familiar, comfortable and reliable erasure mechanism

In order to securely erase files/folders:

**1.** Select files/folders using **Boot Disk Explorer**
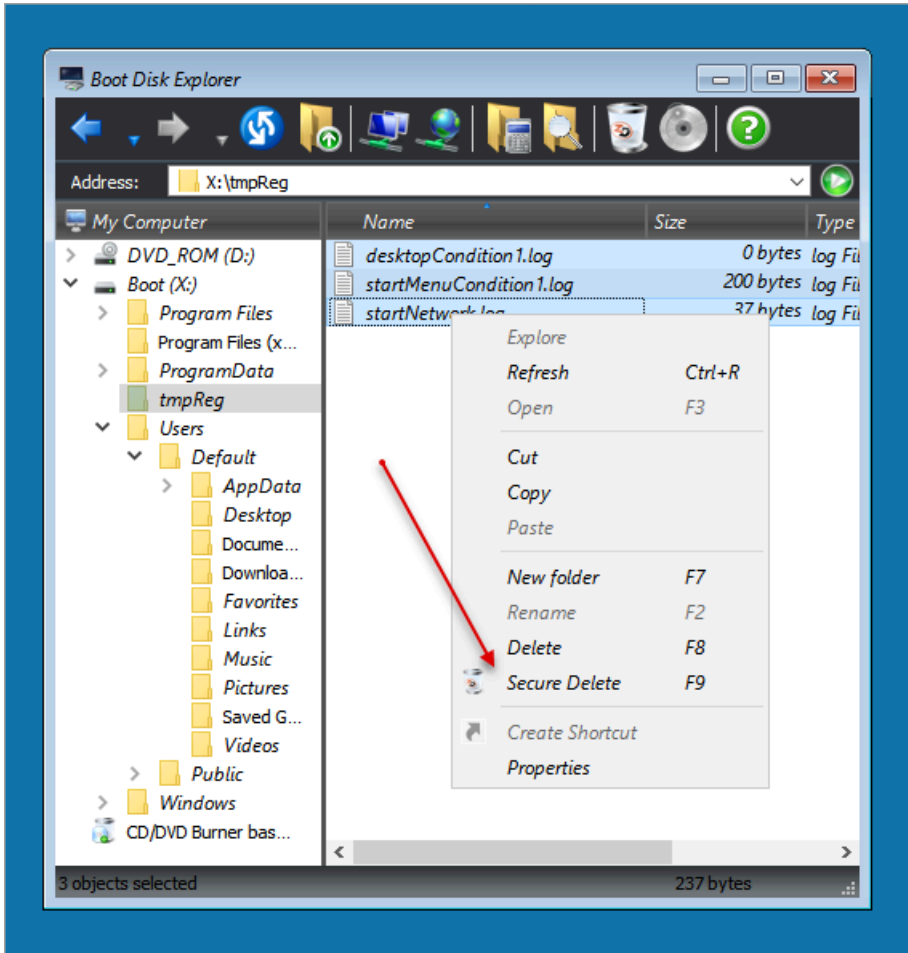
**2.** Press F9 or right click on files/folders and select Secure Erase in **Boot Disk Explorer** context
menu. The following dialog appears:
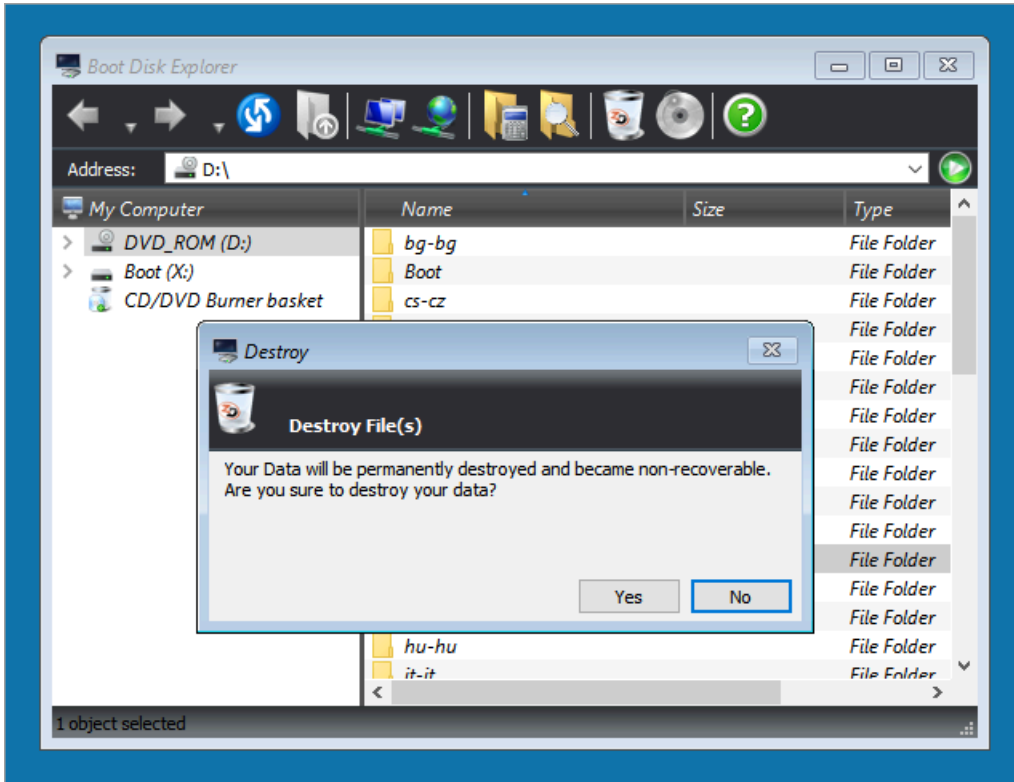
**3.** Click  Yes  and observe the progress of secure (advanced) erase:
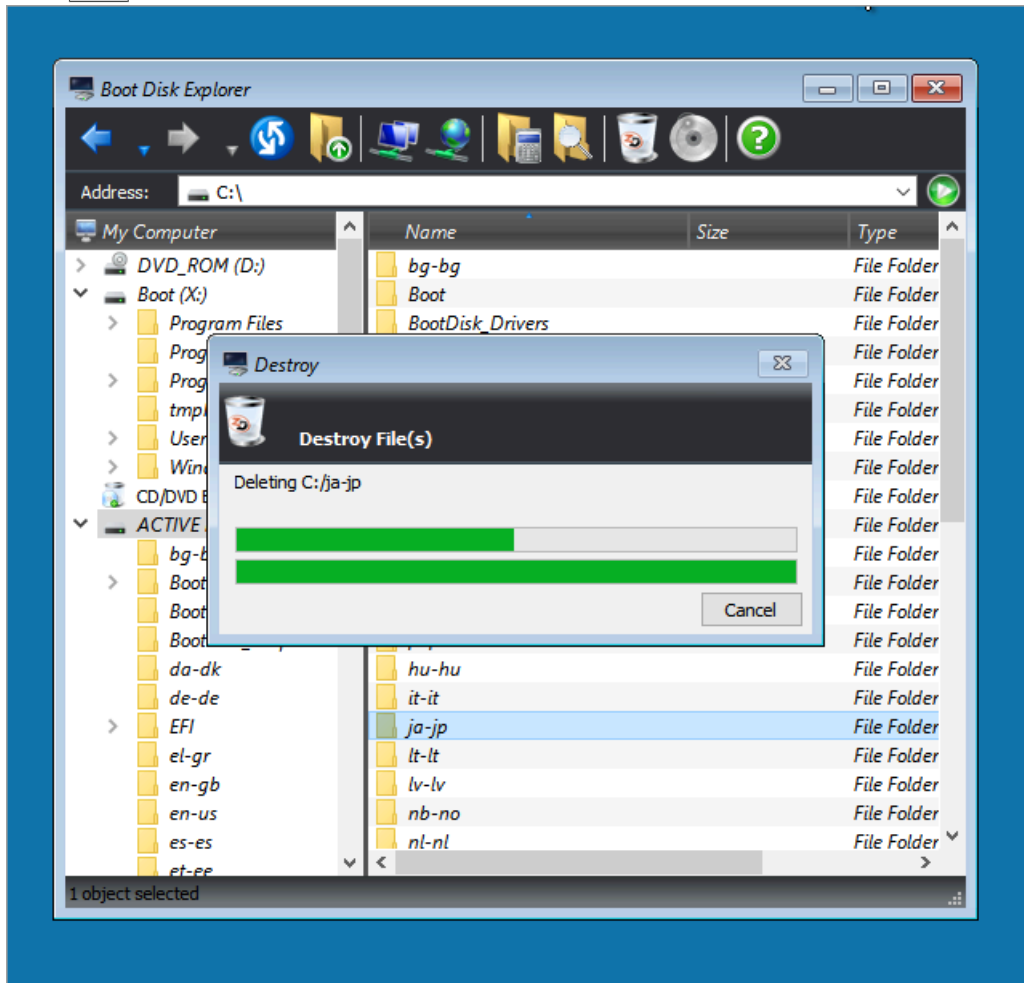


> 📝 **Note:** In **Active@ Boot Disk** environment the One Pass Zero erase algorithm is used by default. For the rest of 20+ erase/wipe algorithms just use Active@ KillDisk

## Console-based (TinyCore Linux) Versions

This section contains the *Console* TinyCore Linux-based versions of LSoft premium software.

> 📝 **Note:** For *Windows*-based versions' descriptions please proceed to this section.

Applications are listed in this chapter in the order that they appear in the **Active@ Boot Disk** start menu.

**Active@ Password Changer**

Recovers user accounts with forgotten or damaged user passwords (SAM)

**Active@ HEX-Editor**

To edit disk's raw data, analyze and repair the MBR (Master Boot Record) and other important files. Advanced search capabilities and templates for viewing MBR, Boot Sectors, LDM, MFT records are available

**Active@ File Recovery**

Recovers files that have been damaged, destroyed by a virus or if the file directory has been destroyed

**Active@ Partition Recovery**

Recovers deleted or damaged partitions located on data volumes, attached hard drives, as well as on external USB drives and Memory Cards (SunDisk, MemoryStick, CompactFlash, etc.)

**Active@ Disk Image**

Creates an exact image of the data stored in selected partitions of a hard disk or an image of the entire hard disk

**Active@ KillDisk**

Destroys data permanently from any computer. Also, wipe deleted data, securely removing all data in unoccupied sectors

## Active@ Password Changer

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This utility supports multiple hard disk drives, detects several SAM databases (if multiple operating systems were installed on one volume) and provides the opportunity to pick the right *SAM* before starting the password recovery process. It also displays a list of all local users.

Other *Windows* login security restrictions can be reset, for example:

- Account is disabled
- Password never expires
- Account is locked out
- User Must Change Password at Next Logon
- Logon Hours

With **Active@ Password Changer** you can log in as a user with a blank password.

### Using Active@ Password Changer

To use **Active@ Password Changer**:

**1.** From the **Active@ Boot Disk** shell click `Password Changer` > `Start App..`. The **Active@ Password Changer** dialog box will appear:

```
┌─────────────────────────────────────────────────────────────────[X]─┐
│                    Active@ Password Changer                          │
├──────────────────────────────────────────────────────────────────────┤
│                                                                      │
│                                                                      │
│                                                                      │
│                                                                      │
│        Active@ Password Changer is a solution designed for resetting local account │
│     passwords  and local account attributes  on Windows NT, 2000, XP, Vista, Windows │
│     7, 8 and Windows 10  desktops  as well  as Windows Server 2000, 2003, 2008, 2012 │
│     and 2016 platforms  in case the Administrators password is forgotten, lost, or a │
│     user  account  has  been blocked,  disabled  or  locked out.  You do not need to │
│     re-install and re-configure the operating system in this case.   │
│                                                                      │
│        Active@ Password Changer default settings are suitable in most cases. │
│                                                                      │
│                                                                      │
│                                                                      │
│                                                                      │
│                                                                      │
│                                          ┌──────────┐   ┌──────────┐ │
│                                          │ Next >>  │   │   Quit   │ │
│                                          └──────────┘   └──────────┘ │
└──────────────────────────────────────────────────────────────────────┘
```

**2.** Click `Next` which will open the `Options` window offering you to choose how do you want the search to be conducted.

```
┌─────────────────────────────────────────────────────────────[X]─┐
│                    Active@ Password Changer                      │
│                                                                  │
│                                                                  │
│                                                                  │
│     Select one of the options below and press the "Next" button to continue: │
│                                                                  │
│                                                                  │
│     [ ]   Search all volumes for Microsoft Security Accounts Manager Database (SAM) │
│                                                                  │
│     [ ]   Select volume with Windows Operating system manually   │
│                                                                  │
│     [X]   Find a folder with Windows registry files manually     │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│                                                                  │
│              ┌──────────┐  ┌──────────┐       ┌──────────┐       │
│              │ << Back  │  │ Next >>  │       │   Quit   │       │
│              └──────────┘  └──────────┘       └──────────┘       │
└──────────────────────────────────────────────────────────────────┘
```

**Search all volumes for *Microsoft Security Account Manager Database***
Let Password Changer search all of your drives in order to find *Microsoft's* Security Data Base
**Select volume with Windows operating system manually**
if needed you can also search for the drive containing *Windows* system by yourself
**Find a folder with Windows registry files manually**
If for some reason accessing SAM database is not possible you can find it here:

`C:/Windows/System32/Config`

> **Note:** Manually copying *SAM* data base is possible only when the operation is being conducted from another operating system

Active@ Password Changer

Find SAM file

Current path: /mnt/sdb1/TheMainBackUp

Volumes:                    Folders:
ACTIVE BOOT (FAT32...       [..]
                           [Journal]
                           [RegBack]
                           [systemprofile]
                           [TxR]
                            SAM

Press

Press

                                                        Open
Files of type: Registry Hive (Sam)              ▼   Cancel

<< Back          Next >>                    Quit

Active@ Password Changer

[X]

Press "Browse..." button to select Windows registry folder manually

/mnt/sdb1/TheMainBackUp/SAM

Browse ...

Press the "Next" button to continue.

<< Back    Next >>    Quit

**3.** Select it and click **Open**

- To scan the disk and detect multiple operating systems do the following:
- Click **Search** for Search all volumes for *Microsoft Security Account Manager*
- Click **Next**. The progress bar indicates the status of scanning. A list of *SAM* hives appears.
- Select a database from the list.
- Click **Next**. The list of users appears:

```
                                                                        [X]
                         Active@ Password Changer


        Users in Registry SAM file: /mnt/sdb1/TheMainBackUp/SAM


        RID         User Name       Description

        000001f4   Administrator   Built-in account for administering the computer/d...
        000003e8   lehins
        000001f5   Guest           Built-in account for guest access to the computer...
        000003ea   HomeGroupUser$  Built-in account for homegroup access to the comp...
        000003ef   fater





        Select User's Account and press the "Next" button.




                                      << Back      Next >>         Quit
```

**4.** Select a user from the list and click Next . The parameters for the selected user appear:

```
┌─────────────────────────────────────────────────────────────────[X]─┐
│                     Active@ Password Changer                         │
│                                                                      │
│                                                                      │
│                                                                      │
│                                                                      │
│     Registry SAM file:   /mnt/sdb1/TheMainBackUp/SAM                 │
│                                                                      │
│     Backup path:                                         Browse ...  │
│                                                                      │
│     User Name:           fater                                       │
│                                                                      │
│     Full Name:           fater                                       │
│                                                                      │
│     Description:                                                     │
│                                                                      │
│                                                                      │
│                          Current State:   Change to:                 │
│                                                        ┌───────────┐ │
│     User must change password                          │Logon Hours│ │
│     at next logon:           [X]            [ ]        └───────────┘ │
│                                                                      │
│     Password never expires:  [ ]            [X]        [ ] Disable Force │
│                                                           Smart Card Login │
│     Account is disabled:     [ ]            [X]                      │
│                                                        [X] Clear this │
│     Account is locked out:   [ ]            [ ]           User's Password │
│                                                                      │
│                                                                      │
│                                                                      │
│                              ┌──────────┐ ┌──────────┐ ┌──────────┐ │
│                              │ << Back  │ │  Apply   │ │   Quit   │ │
│                              └──────────┘ └──────────┘ └──────────┘ │
└──────────────────────────────────────────────────────────────────────┘
```

**5.** Select parameter check boxes to create the situation that you want.

**6.** Click Apply . A confirmation dialog box appears:

```
┌──────────────────────────────────────────────────────────────[X]─┐
│                  Active@ Password Changer                         │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│   Registry SAM file:   /mnt/sdb1/TheMainBackUp/SAM                │
│   Backup path:         ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓   Browse ...      │
│   User Name:           fater                                      │
│   Full Name:           fater                                      │
│   Description:    ┌──────────────────────────────────────────┐   │
│                   │  Are you sure to change this account     │   │
│                   │            parameters?                   │   │
│                   │                                          │   │
│                   │          Yes     No                      │   │
│   User must cha   └──────────────────────────────gon Hours───┘   │
│   at next logon:                 [X]            [ ]               │
│   Password never expires:        [ ]            [X]    [ ] Disable Force │
│                                                           Smart Card Login │
│   Account is disabled:           [ ]            [X]    [X] Clear this │
│   Account is locked out:         [ ]            [ ]       User's Password │
│                                                                   │
│                                                                   │
│                                                                   │
│                           << Back      Apply        Quit          │
└───────────────────────────────────────────────────────────────────┘
```

**7.** Click Yes . An information message indicates that the changes have been made.

**8.** Click OK.

```
┌─────────────────────────────────────────────────────────[X]─┐
│              Active@ Password Changer                        │
│┌───────────────────────────────────────────────────────────┐│
││                                                             ││
││                                                             ││
││                                                             ││
││        User's attributes has been successfully changed.     ││
││                                                             ││
││                                                             ││
││                                                             ││
││                                                             ││
││                                                             ││
││                                                             ││
││                                                             ││
││                                                             ││
││        Thank you for choosing Active@ Password Changer!     ││
││                                                             ││
││                                                             ││
││                                                             ││
│└───────────────────────────────────────────────────────────┘│
│                                              ┌──────────────┐ │
│                                              │    Quit      │ │
│                                              └──────────────┘ │
└─────────────────────────────────────────────────────────────┘
```

**9.** Click Quit.

**10.** For each user that you want to change repeat steps 4 through 9.

## Active@ Hex Editor

**Active@ Hex Editor** is a utility made to help you edit a disk's raw sector data. The editor displays information in binary and text modes at the same time. You can use this view to analyze the contents of data storage structure elements such as hard disks and partitions.

**Starting Active@ Hex Editor**

To start Active@ Hex Editor:

- Select a required drive in the Local System Devices list on the main View

- From the **Active@ Boot Disk** shell click `Hex Editor` > `Start App..`. After initializing, the **Active@ Hex Editor** workspace appears:
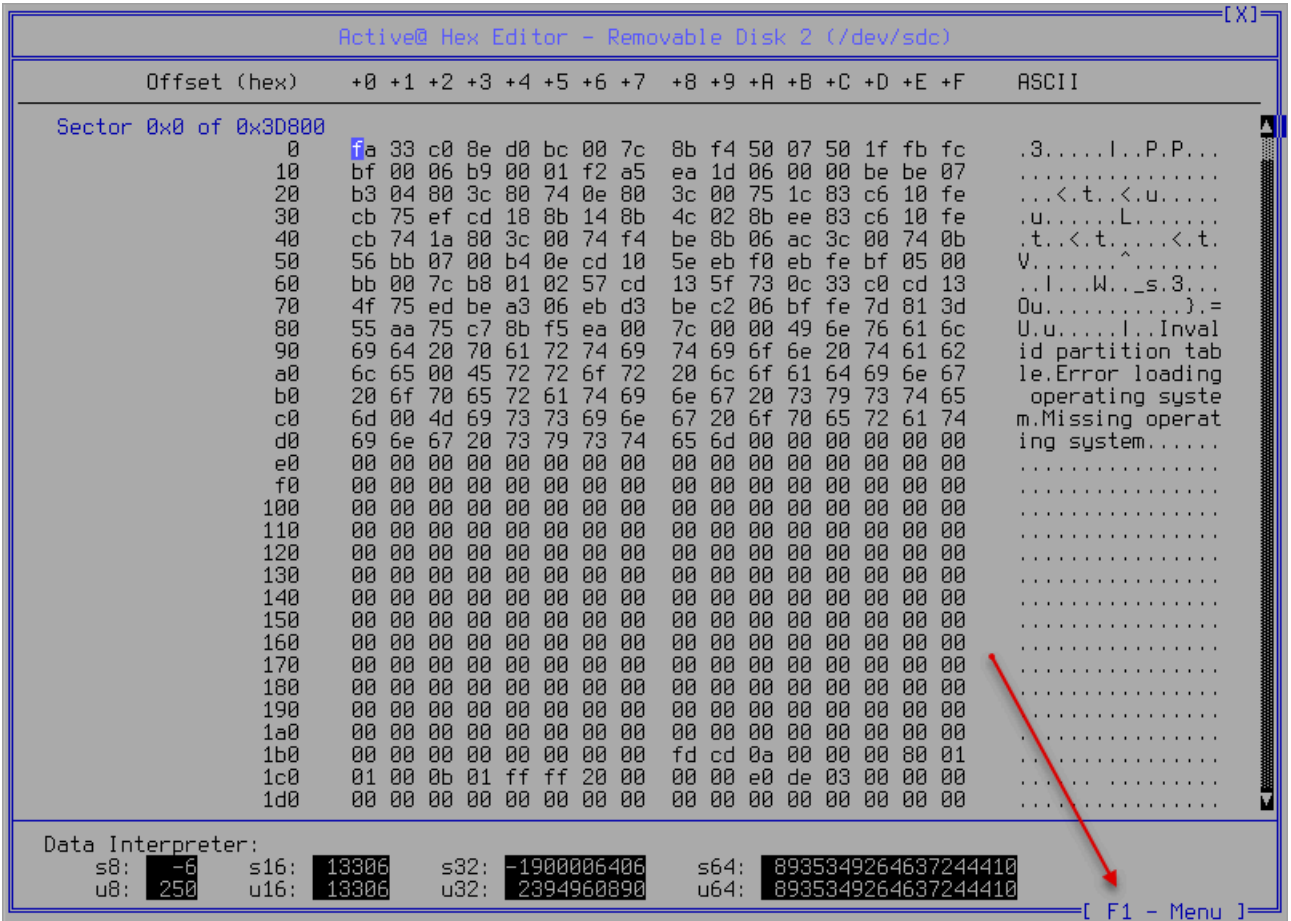


To open the main menu click `F1`

**Hex Editor Main Menu**

For `Edit` submenu:
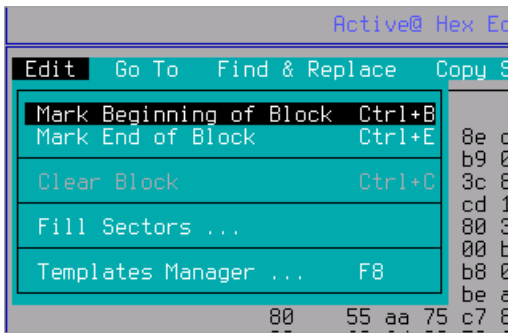


**Mark Beginning of Block** `Ctrl` > `B`
  Sets the beginning of selected block

### Mark End of Block `Ctrl` > `E`

Sets the end of selected block and completes an actual selection:

```
Active@ Hex Editor - Removable Disk 2 (/dev/sdc)                    [X]

        Offset (hex)    +0 +1 +2 +3 +4 +5 +6 +7  +8 +9 +A +B +C +D +E +F    ASCII

  Sector 0x0 of 0x3D800
                     0   fa 33 c0 8e d0 bc 00 7c  8b f4 50 07 50 1f fb fc   .3.....|..P.P...
                    10   bf 00 06 b9 00 01 f2 a5  ea 1d 06 00 00 be be 07   ................
                    20   b3 04 80 3c 80 74 0e 80  3c 00 75 1c 83 c6 10 fe   ...<.t..<.u.....
                    30   cb 75 ef cd 18 8b 14 8b  4c 02 8b ee 83 c6 10 fe   .u......L.......
                    40   cb 74 1a 80 3c 00 74 f4  be 8b 06 ac 3c 00 74 0b   .t..<.t.....<.t.
                    50   56 bb 07 00 b4 0e cd 10  5e eb f0 eb fe bf 05 00   V.......^.......
                    60   bb 00 7c b8 01 02 57 cd  13 5f 73 0c 33 c0 cd 13   ..|...W.._s.3...
                    70   4f 75 ed be a3 06 eb d3  be c2 06 bf fe 7d 81 3d   Ou...........}.=
                    80   55 aa 75 c7 8b f5 ea 00  7c 00 00 49 6e 76 61 6c   U.u.....|..Inval
                    90   69 64 20 70 61 72 74 69  74 69 6f 6e 20 74 61 62   id partition tab
                    a0   6c 65 00 45 72 72 6f 72  20 6c 6f 61 64 69 6e 67   le.Error loading
                    b0   20 6f 70 65 72 61 74 69  6e 67 20 73 79 73 74 65    operating syste
                    c0   6d 00 4d 69 73 73 69 6e  67 20 6f 70 65 72 61 74   m.Missing operat
                    d0   69 6e 67 20 73 79 73 74  65 6d 00 00 00 00 00 00   ing system......
                    e0   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                    f0   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   100   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   110   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   120   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   130   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   140   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   150   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   160   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   170   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   180   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   190   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   1a0   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................
                   1b0   00 00 00 00 00 00 00 00  fd cd 0a 00 00 00 80 01   ................
                   1c0   01 00 0b 01 ff ff 20 00  00 00 e0 de 03 00 00 00   ................
                   1d0   00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ................

  Data Interpreter:
     s8:     73    s16:  28233    s32:  1635151433    s64:  2334106421097295433
     u8:     73    u16:  28233    u32:  1635151433    u64:  2334106421097295433
                                                                   [ F1 - Menu ]
```

### Clear Block `Ctrl` > `C`

Use this to remove the selection

### Fill Sectors

Fast filler of ALL storage sectors with predefined value

## Templates Manager F8

Convenient tool to navigate by standard predefined offsets with possibility of editing "*in-place*":



Changes are marked in *red*:
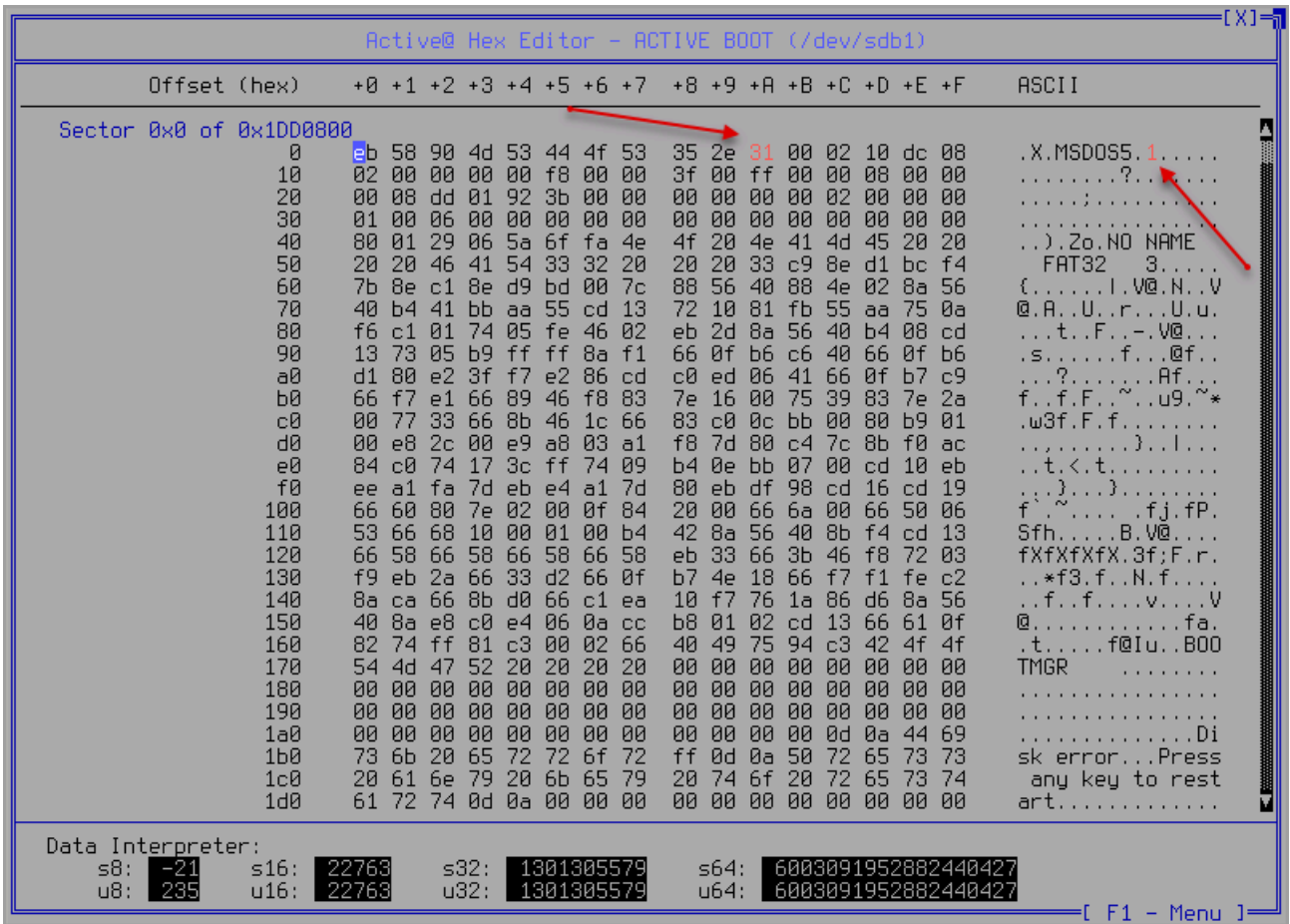
For **Go To** submenu:
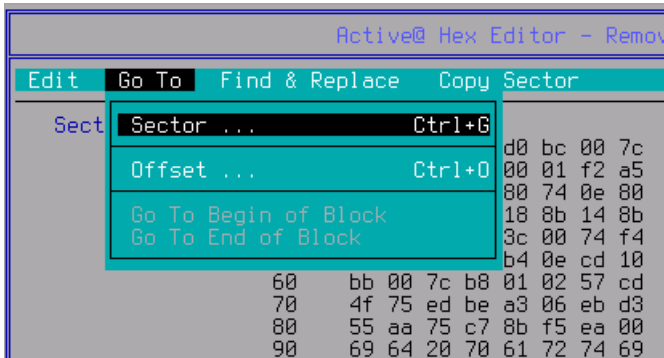


**Sector** **Ctrl** > **G**
   Navigates to the sector specified
**Offset** **Ctrl** > **E**
   Navigates to the absolute offset specified
**Go to Begin of Block**
   Navigates to the beginning of the current (selected with **Ctrl** > **B** & **Ctrl** > **E**) block
**Go to End of Block**
   Navigates to the end of the current (selected with **Ctrl** > **B** & **Ctrl** > **E**) block

For **Find & Replace** submenu:
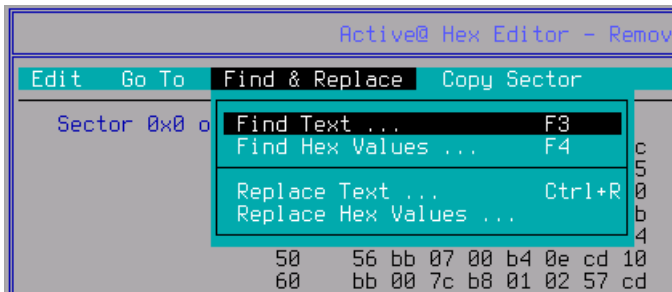
**Find Text** `F3`

Used for searching texts (supports *Unicode* and *case match*)

**Find Hex Values** `F4`

Used for searching hexadecimal values (supports *Unicode* and *case match*)

**Replace text** `Ctrl` `>` `R`

Used for replacing texts (supports Unicode and case match)

**Replace Hex Values**

Used for searching hexadecimal values (supports *Unicode* and *case match*)

For `Copy Sector` submenu:
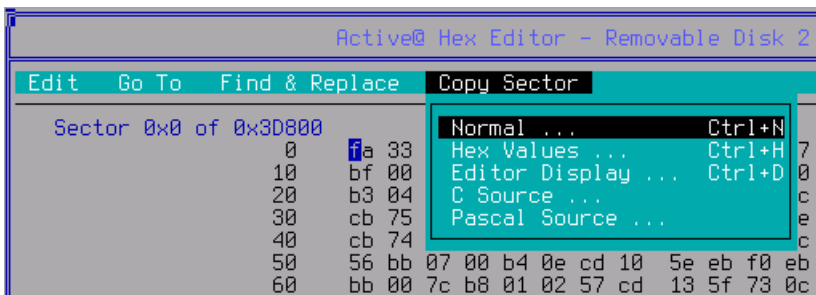
**Normal** `Ctrl` > `N`
Opens a dialog for copying selected block to a file specified:

```
                                                                        =[X]=
              Active@ Hex Editor - ACTIVE BOOT (/dev/sdb1)

       Offset (hex)    +0 +1 +2 +3 +4 +5 +6 +7  +8 +9 +A +B +C +D +E +F    ASCII

            a80      00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00   ...............
                                                              =[X]=     .............
                         Copying Block to File                          ..........
                                                                        .............
      Current path:  /mnt/sdb1/TheMainBackUp                            .............
                                                                        .............
      Volumes:                  Folders:                                .............
      ACTIVE BOOT (FAT32...     [..]                              ▲      .............
                                [Journal]                                .............
                                [RegBack]                                .............
                                [systemprofile]                          .............
                                [TxR]                                     .............
                                afw_db.conf                              .............
                                afw_hm.conf                              .............
                                BCD-Template                             .............
                                BCD-Template.LOG                         .............
                                components                              .............
                                COMPONENTS.LOG                           .............
                                COMPONENTS.LOG1                          .............
                                COMPONENTS.LOG2                          .............
                                COMPONENTS{016888b9-6c6f-11de-8d1d-001...  ...........
                                COMPONENTS{016888b9-6c6f-11de-8d1d-001...  ...........
                                COMPONENTS{016888b9-6c6f-11de-8d1d-001...  ...........
                                components{108c55ec-3654-11e3-9bc3-1c4...  ...........
      Sector 0x6                components{108c55ec-3654-11e3-9bc3-1c4...▼ ...........
                                                                        OS5.0.....
      File name:   █                                         ┌──────┐   ..?.......
                                                             │ Save │   ...........
                                                             └──────┘   ...........
                                                             ┌────────┐ .NO NAME
                                                             │ Cancel │ 2   3.....
                                                             └────────┘

   Data Interpreter:
      s8:   70     s16:  16710     s32:   861159750     s64:  2314885608450048326
      u8:   70     u16:  16710     u32:   861159750     u64:  2314885608450048326
                                                                     =[ F1 - Menu ]=
```

**Hex Values** `Ctrl` > `H`
Opens a dialog for copying selected block (hexadecimal files) to a file specified
**Editor Display** `Ctrl` > `D`
Opens a dialog for copying WYSIWYG (Editor's View) block to a file specified
**C Source**
Opens a dialog for saving a block (as *unsigned char data*) to a *C* source file specified to use it for your software applications
**Pascal Source**
Opens a dialog for saving a block (as *unsigned char data*) to a *Pascal* source file specified to use it for your software applications

After making all necessary changes you will be asked to confirm the actual record. When pressing `Yes` your changes will be recorded to the media
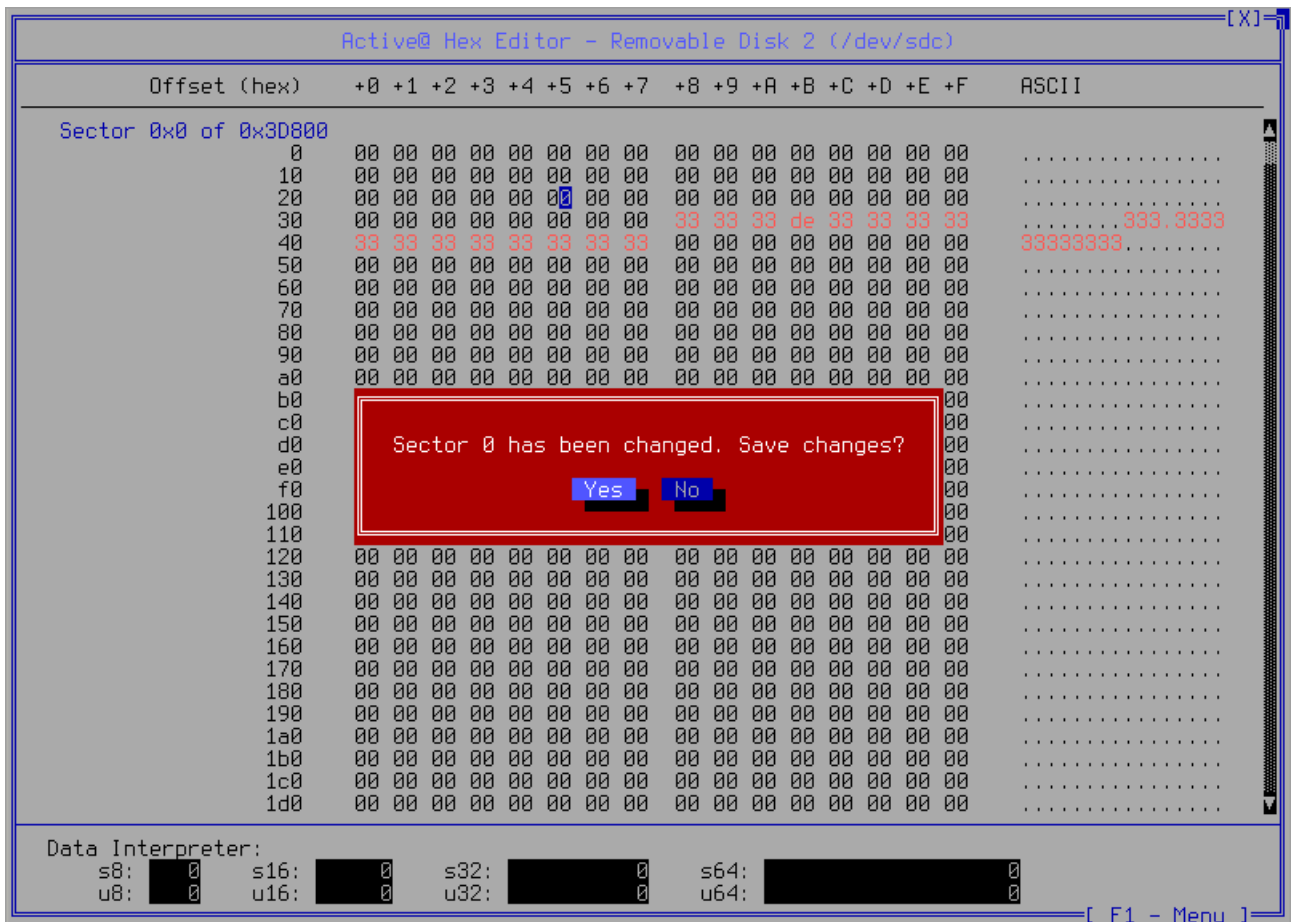
## Active@ File Recovery

**Active@ File Recovery** is a data recovery utility that you can use to restore accidentally deleted files and folders located on the existing drives, and even on deleted or damaged partitions.

It is best to save recovered data on another physical, logical, removable or network drive. Make sure that you have access to another physical or logical drive before attempting to recover a file.

To run **Active@ File Recovery**:

**1.** Select a required drive in the **Local System Devices** list on the main View

**2.** From the **Active@ Boot Disk** shell click Hex Editor > File Recovery . After initializing, the **Active@ File Recovery** workspace appears:

```
┌──────────────────────────────────────────────────────────────────■───────[X]─┐
│                         Active@ File Recovery                                  │
│                                                                                │
│  Device: Fixed Disk 0 (/dev/sda)                                               │
│                                                                                │
│                           From sector: 0            To sector: 41943039        │
│                                                                                │
│ ┌────────────────────────────────────────────────────────────────────────────┐│
│  [ ] Super Scan        File Systems:                                           │
│                        [X] FAT                                                 │
│  [X] Quick Scan        [X] FAT32                                               │
│                        [X] exFAT                                               │
│                        [X] NTFS                                                │
│                        [X] HFS+                                                │
│                        [X] Ext2                                                │
│                        [X] Ext3                                                │
│                        [X] Ext4                                                │
│                        [X] UFS                                                 │
│                        [X] ReFS                                                │
│                        [X] ZFS                                                 │
│                        [X] BtrFS                                               │
│                        [X] XFS                                                 │
│                        [X] JFS                                                 │
│                        [X] ApFS                                                │
│                                                                                │
│                                                                                │
│  [ ] Skip found volumes                             [ ] Ignore read errors     │
│                                                                                │
│                                                                                │
│  [X] Skip volumes with BAD integrity status   Load Scan Result       Start     │
└────────────────────────────────────────────────────────────────────────────────┘
```
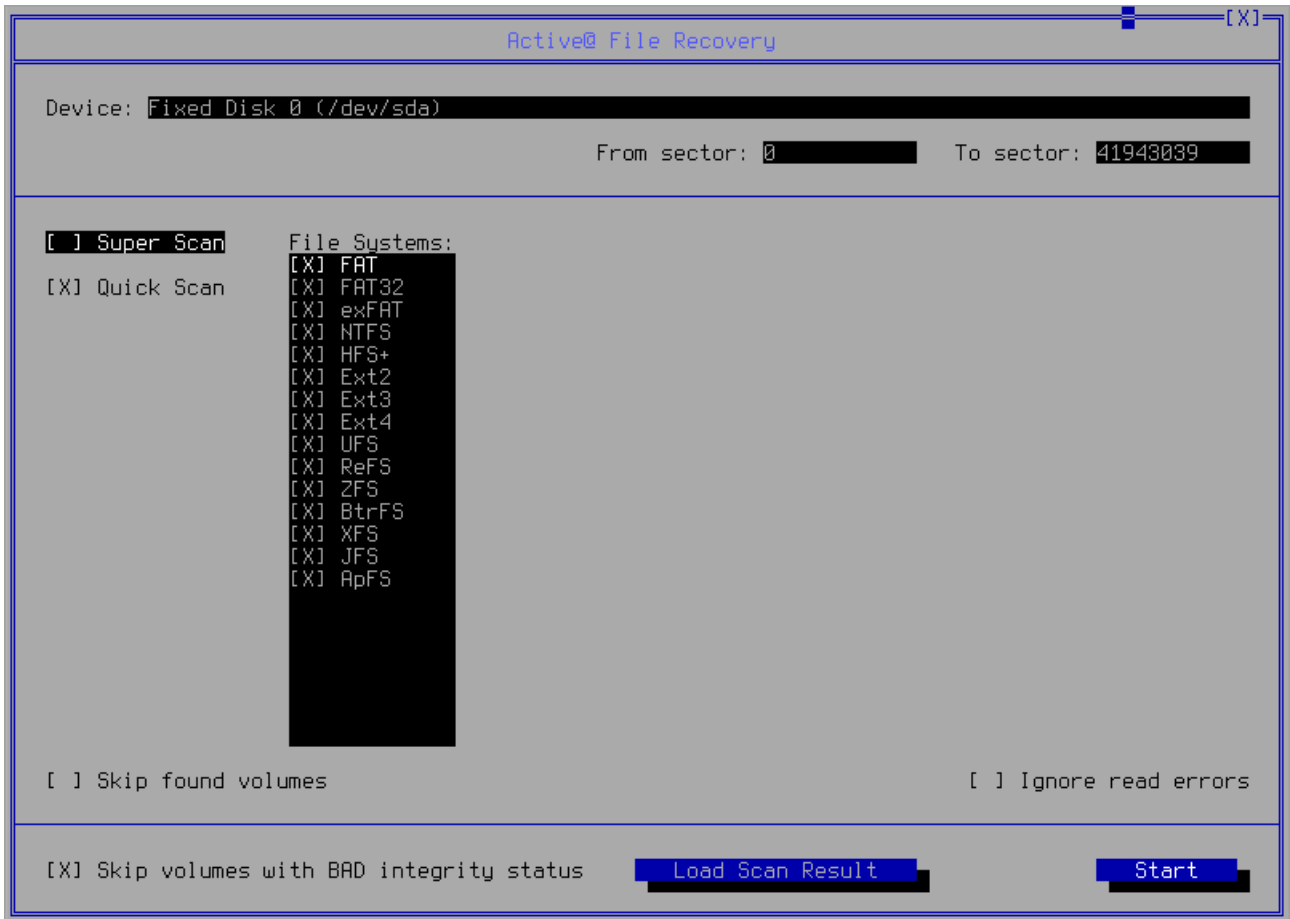
**3.** To scan the drive in basic mode, do the following:

**4.** Select `Quick Scan` and press `Start`. The status bar will be displaying the progress of the scan:
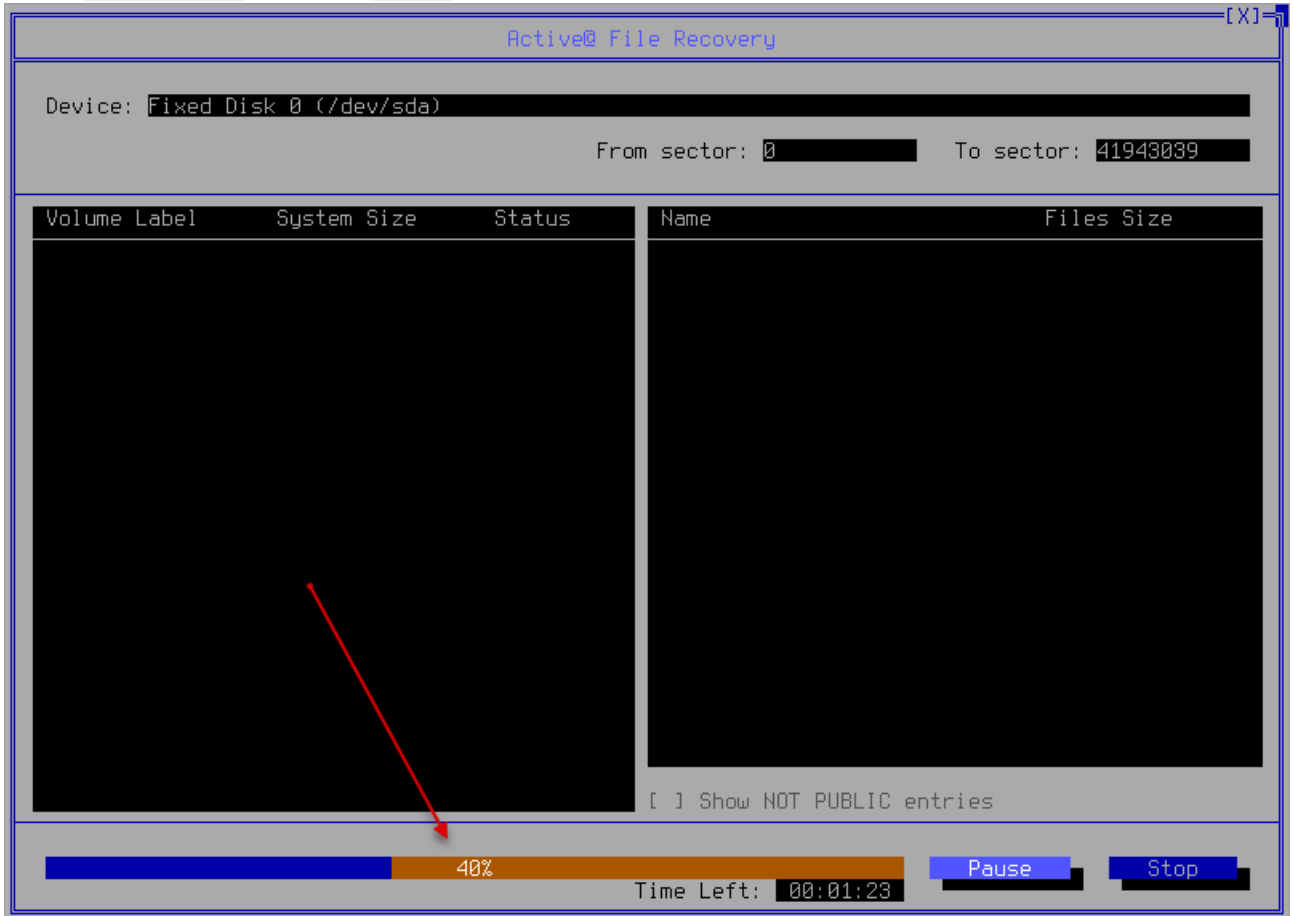
**5.** After the scan is completed, files and folders will be listed in the right pane.

```
┌────────────────────────────────────────────────────────────────────[X]─┐
│                        Active@ File Recovery                            │
├─────────────────────────────────────────────────────────────────────────┤
│                                                                         │
│  Volume: ▐ACTIVE BOOT (/dev/sdb1)                        ▌               │
│                                                                         │
│  Device: ▐Removable Disk 1 (/dev/sdb)    ▌  From sector: ▐2048     ▌   To sector: ▐31264767  ▌  │
│                                                                         │
│ ┌──────────────────────────────────────┐ ┌──────────────────────────┐ │
│ │ Volume Label    System Size    Status│ │ Name              Files Size│ │
│ │                                      │ │ [BG-BG]              1   75.5 KB ▲│ │
│ │ ACTIVE BOOT (/d... FAT32  14.9 GB  Good│ │ [Boot]             78   20.9 MB ▓│ │
│ │                                      │ │ [_S-CZ]             0    0 bytes │ │
│ │                                      │ │ [DA-DK]             1   74.0 KB │ │
│ │                                      │ │ [DE-DE]             1   77.5 KB │ │
│ │                                      │ │ [EFI]              72   19.3 MB │ │
│ │                                      │ │ [EL-GR]             1   78.0 KB │ │
│ │                                      │ │ [EN-GB]             1   72.5 KB │ │
│ │                                      │ │ [EN-US]             1   72.5 KB │ │
│ │                                      │ │ [ES-ES]             1   75.5 KB │ │
│ │                                      │ │ [ET-EE]             1   73.5 KB │ │
│ │                                      │ │ [FI-FI]             1   75.0 KB │ │
│ │                                      │ │ [FR-FR]             1   77.5 KB │ │
│ │                                      │ │ [_R-HR]             0    0 bytes │ │
│ │                                      │ │ [HU-HU]             1   77.0 KB │ │
│ │                                      │ │ [IT-IT]             1   75.0 KB │ │
│ │                                      │ │ [_A-JP]             0    0 bytes │ │
│ │                                      │ │ [_O-KR]             0    0 bytes │ │
│ │                                      │ │ [LT-LT]             1   74.0 KB │ │
│ │                                      │ │ [LV-LV]             1   73.5 KB │ │
│ │                                      │ │ [NB-NO]             1   74.0 KB │ │
│ │                                      │ │ [NL-NL]             1   76.0 KB │ │
│ │                                      │ │ [PL-PL]             1   76.0 KB ▼│ │
│ └──────────────────────────────────────┘ └──────────────────────────┘ │
│                                           [ ] Show NOT PUBLIC entries    │
└─────────────────────────────────────────────────────────────────────────┘
```
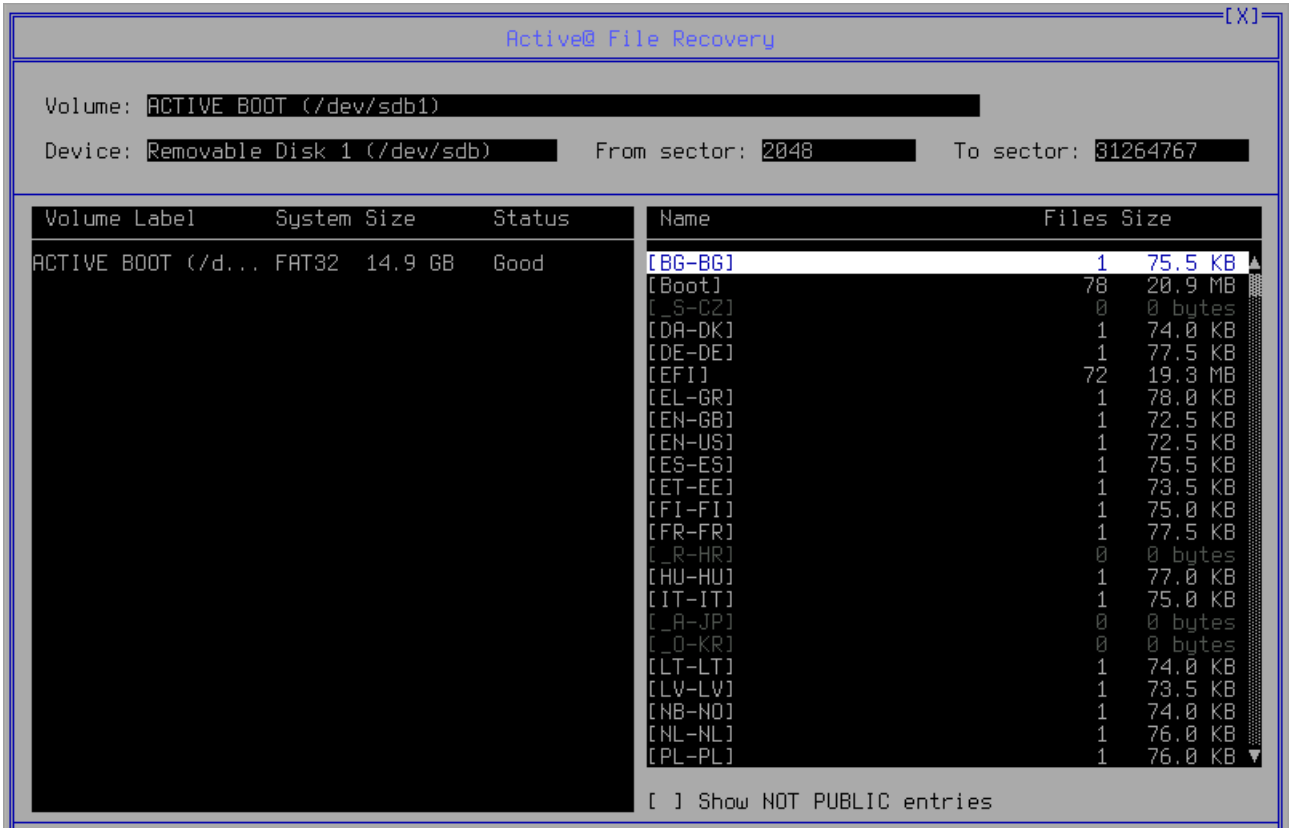
**6.** Recovering via *SuperScan* - if you cannot locate or find your deleted files and folders, to process the whole surface of a disk, right click on it and select `SuperScan`.

```
════════════════════════════════════════════════════════════════════════[X]═╖
                        Active@ File Recovery

  Partition: Unallocated Space

  Device: Removable Disk 2 (/dev/sdc)      From sector: 0         To sector: 251903


  [X] Super Scan       File Systems:     FileTypes (selected 134 from 176):
                       [X] FAT           -[x] All Signatures                        ▲
  [ ] Quick Scan       [X] FAT32         ├──►-[X] Photos & Images
                       [X] exFAT         │   ├──► [X] Bitmap Image File (*.bmp)
                       [X] NTFS          │   ├──► [X] Paintbrush Bitmap Image File (*.pcx)
                       [X] HFS+          │   ├──► [X] JPEG Image File (*.jpg)
                       [X] Ext2          │   ├──► [X] Icon File (*.ico)
                       [X] Ext3          │   ├──► [X] Windows Animated Cursor (*.ani)
                       [X] Ext4          │   ├──► [X] Graphical Interchange Format File (*.gif)
                       [X] UFS           │   ├──► [X] Portable Network Graphics (*.png)
                       [X] ReFS          │   ├──► [X] Multiple-image Network Graphics (*.mng)
                       [X] ZFS           │   ├──► [X] CorelDRAW Image File (*.cdr)
                       [X] BtrFS         │   ├──► [X] Tagged Image File (*.tif)
                       [X] XFS           │   ├──► [X] JPEG 2000 Core Image File (*.jp2)
                       [X] JFS           │   ├──► [X] Maxon Cinema 4D (*.c4d)
                       [X] ApFS          │   ├──► [X] JPEG 2000 Image File (*.j2c)
                                         │   ├──► [X] Corel Metafile Exchange Image (*.cmx)
                                         │   └──► [X] Scalable Vector Graphics File (*.svg)
                                         ├──►-[ ] Camera Raw Files
                                         │   ├──► [ ] Canon Raw Image File (*.cr2)
                                         │   └──► [ ] Canon Raw CIFF Image File (*.crw)  ▼

                       Exclude $Meta Files          User Templates (empty)

                                                           [ ] Ignore read errors

  [X] Skip volumes with BAD integrity status    Load Scan Result           Start
```

**7.** When the `SuperScan Options` show up, do the following:

**8.** You can restrict the scan to a small number of sectors indicate the `From sector` and the number of sectors to scan. Limiting the scan on a small area can greatly reduce the time required for scan to finish. Again if you are not sure about this option just leave it as is.

**9.** You can further limit the search by focusing it on the file systems that exist on your deleted or damaged partitions

**10.** In `FileTypes` tab you can further specify which file types would you want **Active@ File Recovery** to search for. Thanks to in-built tools **File Recovery** can rebuild file types (DOC, JPG, DOC, ZIP, etc) from partial data that you really need, ignoring the irrelevant data and saving processing time.

**11.** Click `Start`. The status bar displays the progress of the scan.

**12.** After the scan is completed, a list of detected partitions appears in the right pane. You may search through these partitions.

**13.** If you chose to re-build image files, a folder named *Files Recognized by Signatures* will be created. After the recovery you can search through the contents of this folder.

**14.** After you have scanned a drive all you need to do now is to search for deleted or damaged folders or files (will show the scanned files in the right pane):
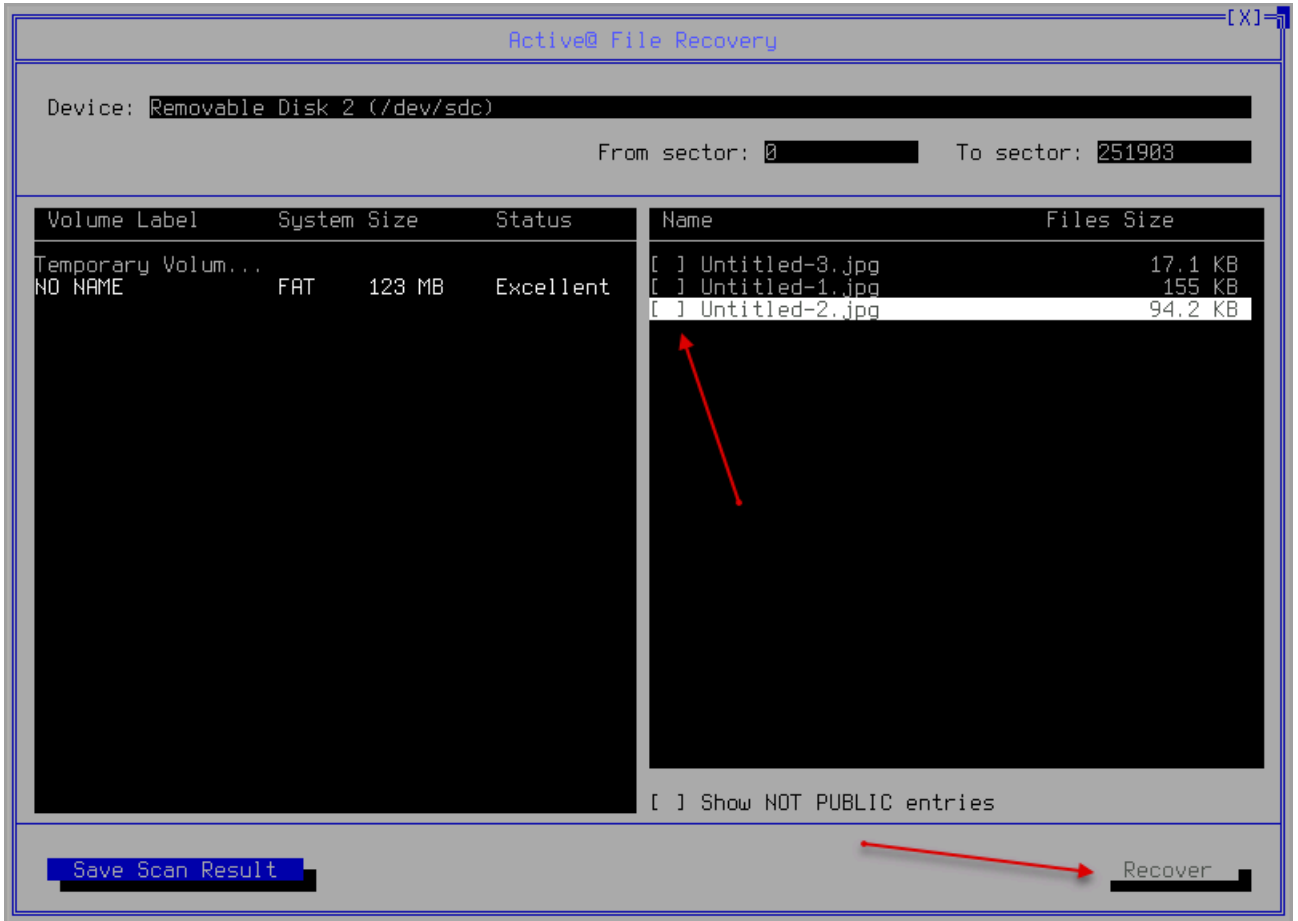


**15.** Click **Save Scan Result** for saving the results.

**16.** Once you have found and selected the files you want to recover, click the **Recover** button.

**17.** Destination window will pop up asking you to choose and confirm the *Recovery* location for your files:

```
═══════════════════════════════════════════════════════════════[X]═╗
                        Active@ File Recovery

   Device: Removable Disk 2 (/dev/sdc)
                                                    ═[X]═ 251903
   ╔═══════════════════════ Destination ═══════════════════════╗
   Volume Label  Current path: /home/tc                          s Size
                                                              
   Temporary Vol  Volumes:            Folders:                  17.1 KB
   NO NAME        ACTIVE BOOT (FAT32...  [..]                    155 KB
                                                                94.2 KB

                                                    Select
                                                    Cancel

   Save Scan Result                                        Recover
```
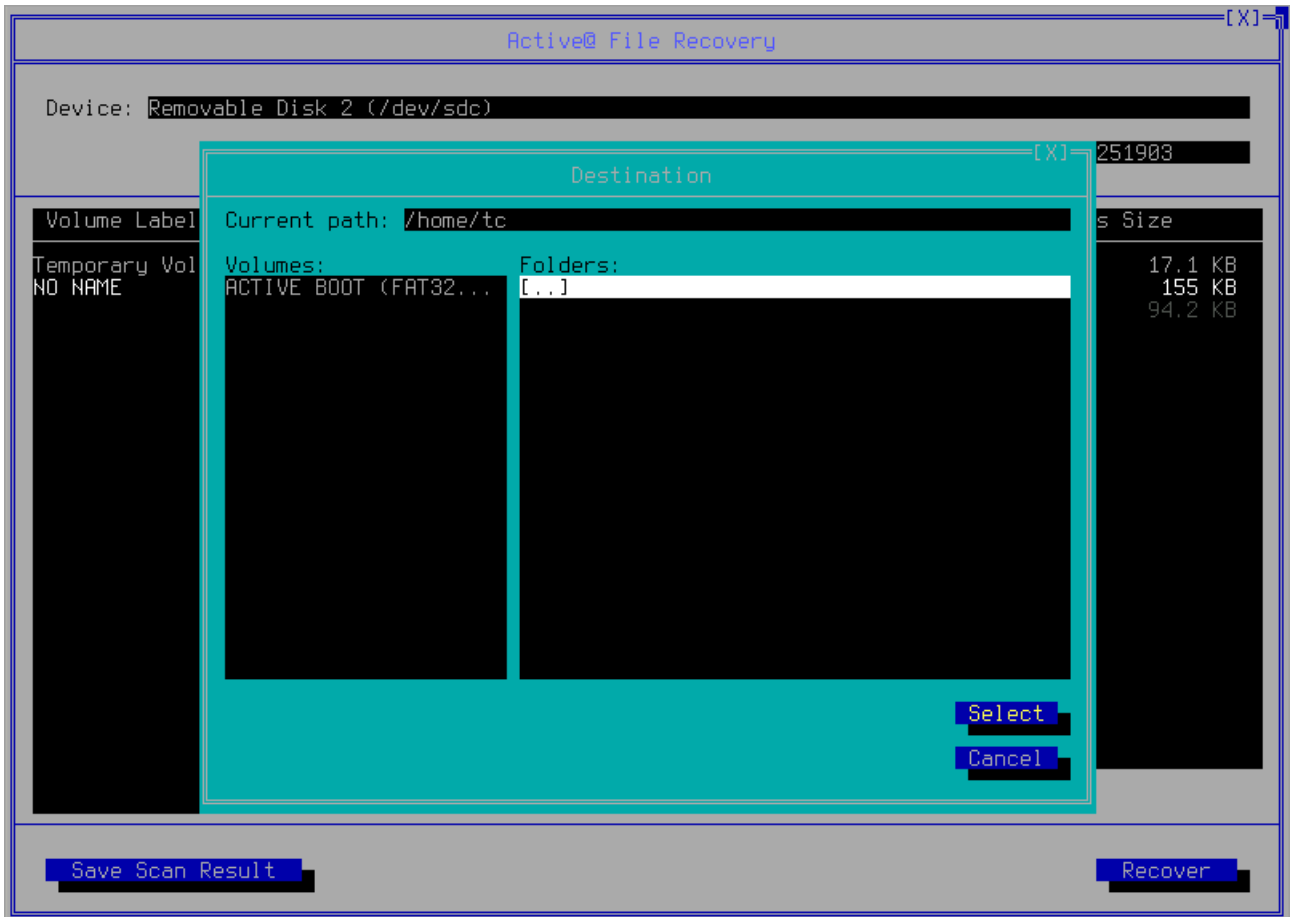
**18.** You can also limit the recovery (by selection) on only those files that have been deleted.

⚠ **Important:** Do not recover your deleted files on the same hard drive where you have previously deleted them

The file or folder is recovered to the new location.

📝 **Note:** A device scan or a search may take a long time. To stop a device scan or a search click Stop at any time.

## Active@ Partition Recovery

**Active@ Partition Recovery** is a data recovery utility that you can use to:

- Find and recover deleted partitions and logical drives
- Fix or create a typical MBR (Master Boot Record)

This means that you can recover deleted or damaged partitions located on data volumes (D:, E: and so on), attached hard drives, as well as on the external USB drives and Memory Cards (SunDisk, MemoryStick, CompactFlash, etc.). On a system partition, *boot.ini* is corrected automatically (if needed) to repair an un-bootable system. As well, damaged *Volume Boot Sectors* are corrected to maintain integrity of the partition. This utility also enables you to fix a damaged MBR and to delete invalid partitions.

For any computer to boot properly, the following conditions must apply:

- The MBR (Master Boot Record) exists and it is not damaged in any way
- The Partition Table exists and contains at least one active partition

If these conditions exist, the executable code in the MBR selects an active partition and passes control to it so that it can start loading the system files (COMMAND.COM, NTLDR, BOOTMGR,... ).

If these files are missing or are corrupted then the operating system will not boot.

**Data Recovery Tips**

⬦ | **CAUTION:** DO NOT WRITE ANYTHING ON THE DRIVE THAT CONTAINS YOUR IMPORTANT DELETED DATA!

When you install software, you write data on the disk. This can destroy your deleted data. If you have only one logical drive, physically remove the hard drive from the computer and install it as a second logical drive on another computer where data recovery may be possible.

⬦ | **CAUTION:** DO NOT SAVE RECOVERED DATA ON THE SAME DRIVE THAT CONTAINS THE LOST OR DAMAGED DATA!

When saving recovered data, you are writing records to the file table. If you write these records to the same drive that contains the damaged data, you are destroying the file table records that you are trying to recover. At the same time, you may be destroying the file table records for other deleted entries. It is best to save recovered data onto another logical, removable or network drive.

⊙ | **Important:** CREATE A RAW DISK IMAGE IF YOU HAVE AN EXTRA HARD DRIVE, OR OTHER LOGICAL DRIVES THAT ARE BIG ENOUGH!

A *Raw Disk Image* is a single file that stores all the data from your logical drive or physical device as a mirror image. Having a *Raw Disk Image* can be useful when you want to back up the contents of the whole drive, and restore it or work with it later. Before you start recovering deleted files, it may be a good idea to create a *Raw Disk Image* for the one drive, if you have enough space on another drive. If you do something wrong while recovering the files (for example, recovering them onto the same drive and destroying the data), you will be able to recover these deleted files and folders from the *Raw Disk Image* that you have wisely created in advance.

**Find and recover deleted partitions and logical drives**

To find and recover deleted partitions and logical drives:

**1.** Select a required drive in the ▏**Local System Devices**▕ list on the main View

**2.** From the **Active@ Boot Disk** shell click <span style="background-color:#99ccff">**Hex Editor**</span> > <span style="background-color:#99ccff">**Partition Recovery**</span>. After initializing, the
**Active@ Partition Recovery** workspace appears:

```
╔═══════════════════════════════════════════════════════════════════[X]═╗
║         Active@ Partition Recovery - Removable Disk 2 (/dev/sdc)       ║
╟───────────────────────────────────────────────────────────────────────╢
║  Current Device Configuration:                   From Sector:         ║
║  -Device                                            0              ↕   ║
║  └─▶ NO NAME (FAT)                                                     ║
║                                                  To Sector:           ║
║                                                     251903         ↕   ║
║                                                                       ║
║                                                  File Systems:        ║
║                                                  [X] FAT              ║
║                                                  [X] FAT32            ║
║                                                  [X] exFAT            ║
║                                                  [X] NTFS             ║
║                                                  [X] HFS+             ║
║                                                  [X] Ext2             ║
║                                                  [X] Ext3             ║
║                                                  [X] Ext4             ║
║                                                  [X] UFS              ║
║                                                  [X] ReFS             ║
║                                                  [X] ZFS              ║
║                                                  [X] BtrFS            ║
║                                                  [X] XFS              ║
║                                                  [X] JFS              ║
║                                                  [X] ApFS             ║
║                                                                       ║
║                                                  [ ] Skip found volumes ║
║                                                                       ║
║                                                  [ ] Ignore read errors ║
║                                                                       ║
║     Load Scan Result                                    Start         ║
╚═══════════════════════════════════════════════════════════════════════╝
```
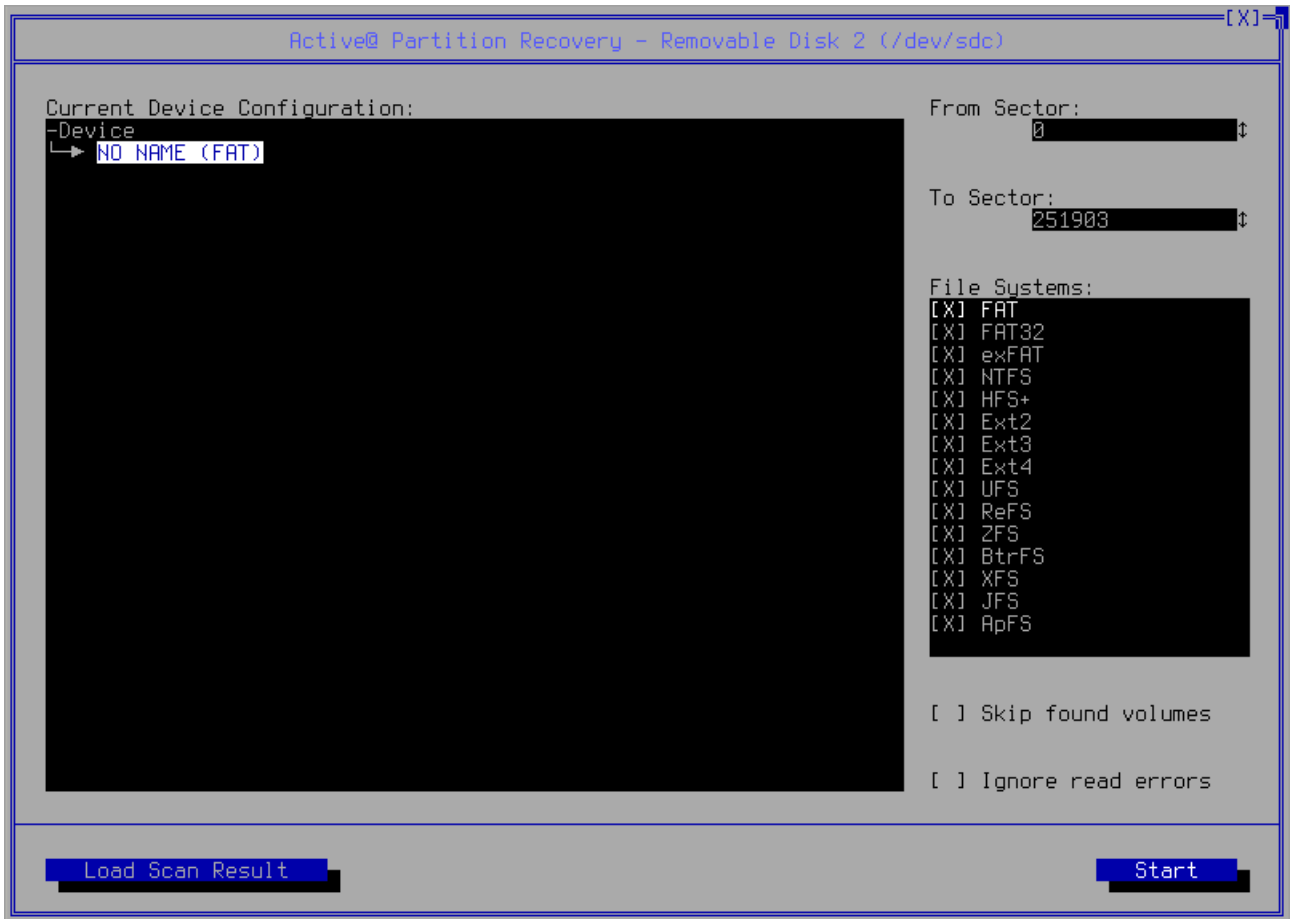
**3.** To scan click `Start` :

```
┌[X]──────────────────────────────────────────────────────────────────────┐
│              Active@ Partition Recovery - Removable Disk 1 (/dev/sdb)     │
│                                                                          │
│  Live and Found Partitions:                          'ACTIVE BOOT' properties:│
│  Live Volume              System  Size     Status                        │
│                                                      First Sector:     2048│
│       ACTIVE BOOT         FAT32   14.9 GB  Very Bad  Total Sectors: 31262720│
│  Yes  ACTIVE BOOT         FAT32   14.9 GB  Good      Sector Size:       512│
│       NO NAME             FAT32   14.9 GB  Very Bad  Cluster Size:      8192│
│       EFISECTOR           FAT     1.41 MB  Excellent                      │
│       NO NAME             FAT     2.81 MB  Very Bad  Integrity problems:   │
│       NO NAME             FAT     10.1 MB  Very Bad  - Primary Boot Sector ...│
│       NO NAME             FAT     10.1 MB  Very Bad                        │
│       NO NAME             FAT     109 MB   Very Bad  ROOT entries:         │
│       NO NAME             FAT     10.1 MB  Very Bad  [BG-BG]             ▲ │
│       NO NAME             FAT     109 MB   Very Bad  [Boot]                │
│                           FAT     85.8 MB  Very Bad  [_S-CZ]               │
│                                                      [DA-DK]               │
│                                                      [DE-DE]               │
│                                                      [EFI]                 │
│                                                      [EL-GR]               │
│                                                      [EN-GB]               │
│                                                      [EN-US]               │
│                                                      [ES-ES]               │
│                                                      [ET-EE]               │
│                                                      [FI-FI]               │
│                                                      [FR-FR]               │
│                                                      [_R-HR]               │
│                                                      [HU-HU]               │
│                                                      [IT-IT]               │
│                                                      [_A-JP]               │
│  [ ] Skip volumes with                               [_O-KR]               │
│      BAD integrity status                            [LT-LT]               │
│                                                      [LV-LV]            ▼ │
│                                                                          │
│  ████████████████████████████ 84% ██████████        ┌ Pause ┐ ┌ Stop ┐   │
│                          Time Left:  00:02:51                             │
└──────────────────────────────────────────────────────────────────────────┘
```

**4.** Known details of `Found Partitions` the selected item are displayed in the right pane. as well as *Integrity problems*:

```
╔═══════════════════════════════════════════════════════════════[X]═╗
║         Active@ Partition Recovery - Removable Disk 1 (/dev/sdb)    ║
║                                                                     ║
║  Live and Found Partitions:              'ACTIVE BOOT' properties:  ║
║  Live Volume              System Size    Status                     ║
║  ───────────────────────────────────────────────  First Sector:  2042 ║
║       ACTIVE BOOT         FAT32  14.9 GB  Very Bad  Total Sectors: 31262720 ║
║  Yes  ACTIVE BOOT         FAT32  14.9 GB  Good      Sector Size:    512 ║
║       NO NAME             FAT32  14.9 GB  Very Bad  Cluster Size:  8192 ║
║       EFISECTOR           FAT    1.41 MB  Excellent                 ║
║       NO NAME             FAT    2.81 MB  Very Bad   Integrity problems: ║
║       NO NAME             FAT    10.1 MB  Very Bad   - Primary Boot Sector ║
║       NO NAME             FAT    10.1 MB  Very Bad   - Primary Boot Sector ... ║
║       NO NAME             FAT    109 MB   Very Bad   - Primary FAT Table  ║
║       NO NAME             FAT    10.1 MB  Very Bad   - Copy of FAT Table  ║
║       NO NAME             FAT    109 MB   Very Bad   - Root Folder        ║
║                           FAT    85.8 MB  Very Bad   - Primary Boot Sector ... ║
║       BOOT                FAT    1.00 MB  Excellent                  ║
║                                                    ROOT entries:       ║
║                                                                        ║
║                                                                        ║
║  [ ] Skip volumes with          Delete        Restore                  ║
║      BAD integrity status                                              ║
║                                                                        ║
║   Save Scan Result                                                     ║
╚════════════════════════════════════════════════════════════════════╝
```

**5.** Scanning for all supported file types is on by default.

**6.** Click `Recover`

**7.** The partition is recovered

## Active@ Disk Image

**Active@ Disk Image** is an ultimate solution that allows you to create an exact image of the data stored in selected partitions of a hard disk or an image of the entire hard disk. You can protect your valuable data by regularly making a disk image and keeping it in a safe place. If you have trouble with data corruption, or if you want to refer to an archived version of a file, you can easily restore the data.

The application provides many tools when it comes to backing up data on your hard disk:

**Disk to Image**
Choosing this option will open the `Disk to Image` View. It will help you in creating a regular type of the disk image archive of an entire disk or of selected partitions in the system

**Check Image**
Verify `Image` View is there to checking the integrity of the disk image archive file

**Image to Disk**
This option features `Image to Disk` View which will enable you to restore data from a disk image archive that you have previously created

**Clone Storage**
Enables you in transfering a sector-by-sector copy from one disk (partition) to another

**Starting** Active@ Disk Image

To start Active@ Disk Image :

- Select a required drive in the Local System Devices list on the main View
- From the **Active@ Boot Disk** shell click Disk Image > Start App.. . After initializing, the **Active@ Disk Image** workspace appears (with a Disk to Image View):

```
┌──────────────────────────────────────────────────────────────[X]─┐
│                        Active@ Disk Image                         │
│ ┌───────────────────────────────────────────────────────────────┐ │
│ │                                                                 │ │
│ │  [X] DISK to IMAGE                                              │ │
│ │   ┌──────────────────────────────────────────────────────┐    │ │
│ │   │    Source:      Removable Disk 2 (/dev/sdc)           │    │ │
│ │   │    first sector: 0        last sector: 251903   size: 123 MB│ │
│ │   │                                                      │    │ │
│ │   │    Destination:                                  ... │    │ │
│ │   │                                                      │    │ │
│ │   │    Description:                                      │    │ │
│ │   │                                                      │    │ │
│ │   │    Compression:   [ ] No Compression  [ ] Max speed  [X] Normal  [ ] Min size │
│ │   │    Chunk Size:    [ ] 1 Gb   [ ] 2 Gb   [ ] 4 Gb   [X] Attemp Create Single File │
│ │   │    Ignore Erros:  [ ] Lock   [ ] Read         [ ] Replace Existing Files │
│ │   └──────────────────────────────────────────────────────┘    │ │
│ │                                                                 │ │
│ │   [ ] CHECK IMAGE                                              │ │
│ │   [ ] IMAGE to DISK                                            │ │
│ │   [ ] CLONE STORAGE                                            │ │
│ └───────────────────────────────────────────────────────────────┘ │
│                                                         Start      │
└───────────────────────────────────────────────────────────────────┘
```
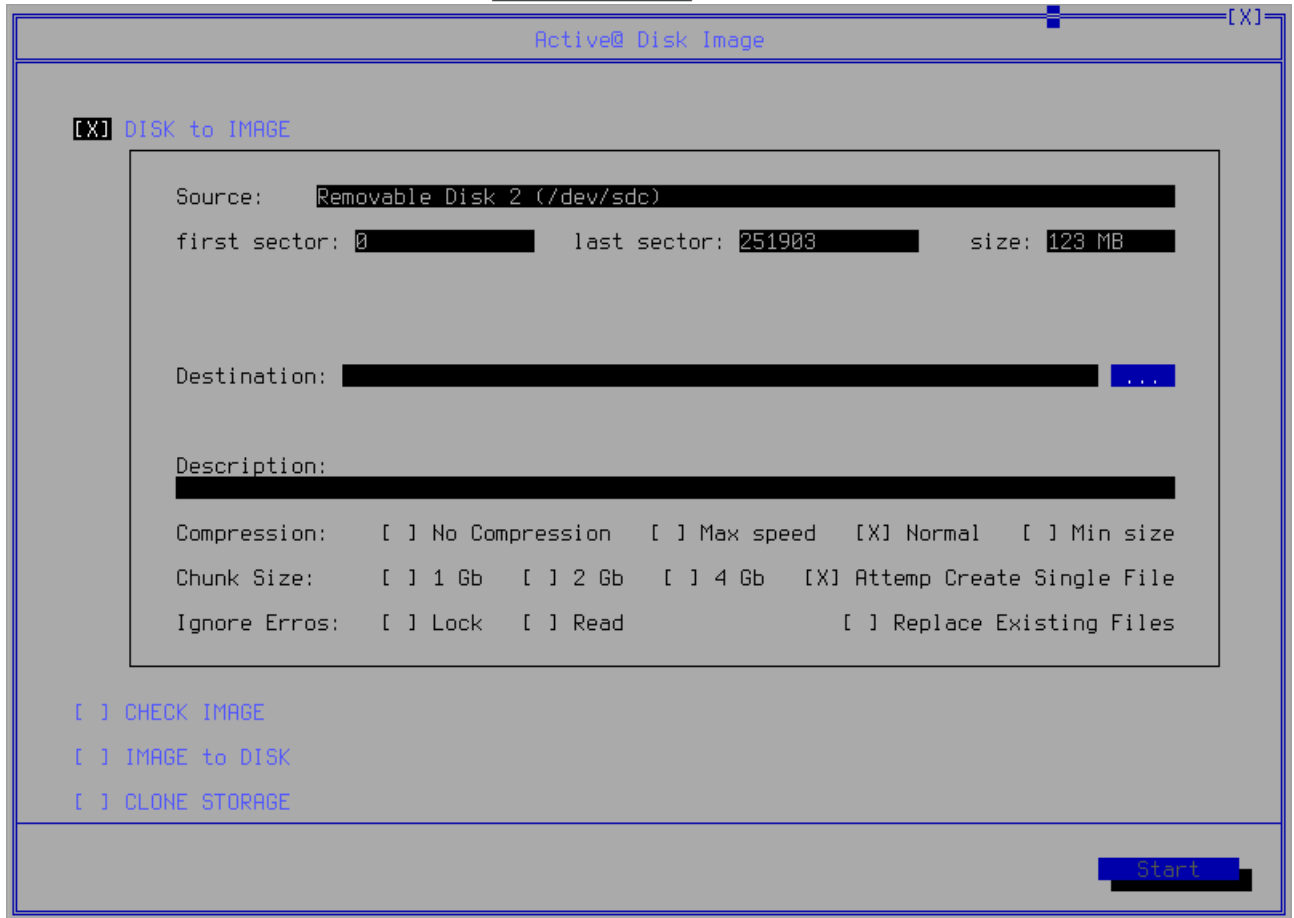
**Disk to Image**

The Disk to Image View makes the process of creating a disk image for a whole disk clear and straight forward.

To create a disk or partition image:

**1.** Select  Disk to Image  View and specify  Destination :

```
┌─────────────────────────────────────────────────────────────[X]─┐
│                      Active@ Disk Image                          │
│                                                                  │
│   [X] DISK to IMAGE                                              │
│   ┌──────────────────────────────────────────────────────────┐  │
│   │   Source:     Removable Disk 2 (/dev/sdc)                │  │
│   │   first sector: 0          last sector: 251903    size: 123 MB│
│   │                                                    ■      │  │
│   │   Destination: /home/tc/img1                      ...   │  │
│   │                                                          │  │
│   │   Description:                                           │  │
│   │   take 1                                                 │  │
│   │   Compression:   [ ] No Compression  [ ] Max speed  [ ] Normal  [X] Min size│
│   │   Chunk Size:   [ ] 1 Gb  [ ] 2 Gb  [ ] 4 Gb  [X] Attemp Create Single File│
│   │   Ignore Erros:  [ ] Lock  [ ] Read        [ ] Replace Existing Files│
│   └──────────────────────────────────────────────────────────┘  │
│                                                                  │
│   [ ] CHECK IMAGE                                               │
│   [ ] IMAGE to DISK                                             │
│   [ ] CLONE STORAGE                                             │
│                                                                  │
│                                                   Start          │
└──────────────────────────────────────────────────────────────────┘
```
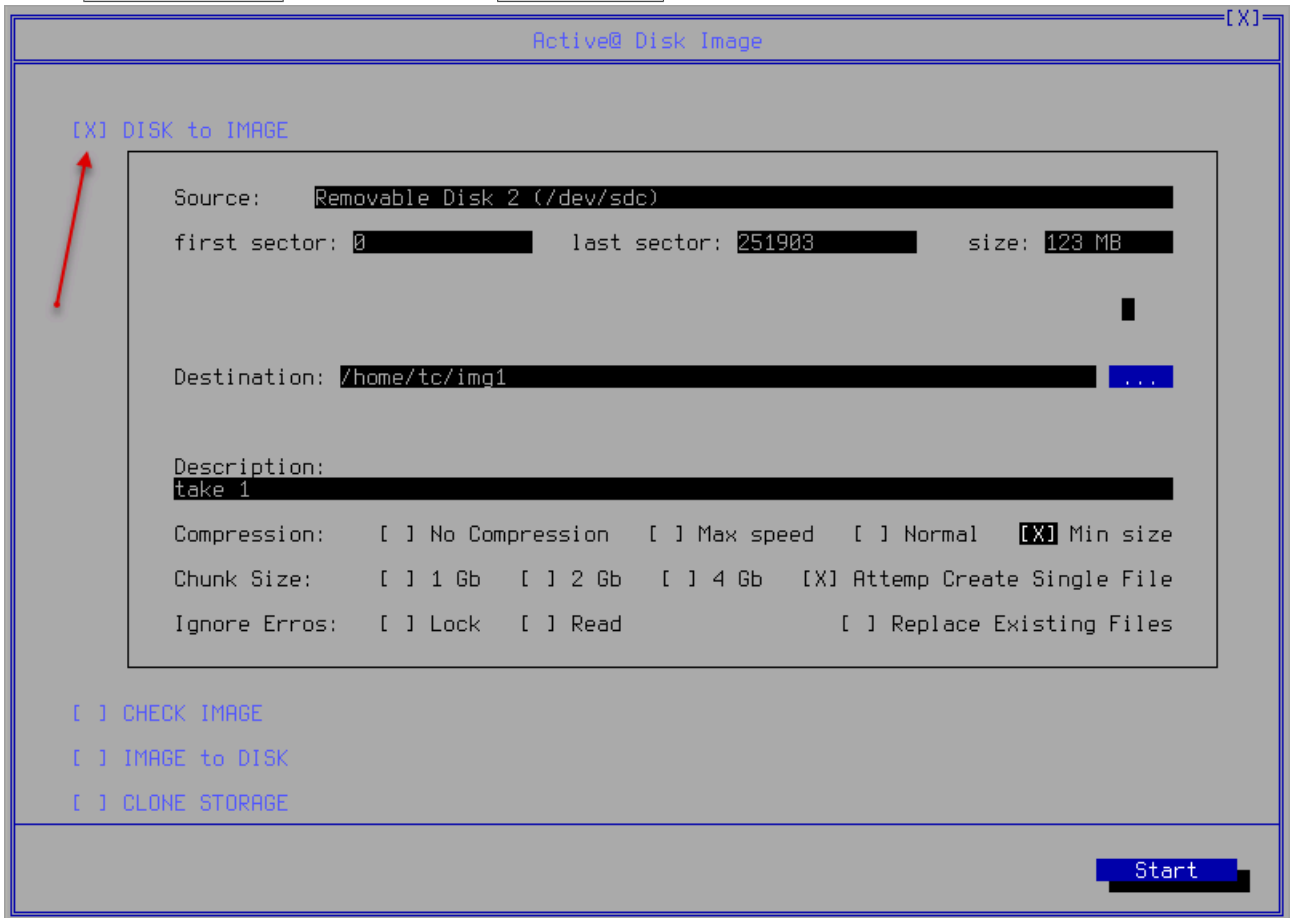
**2.** In  Description  field you can put comments

**3.** Specify the following settings:

### Compression

 No compression  creates an actual image file with no compression at all.
 Max speed  provides a compression level with maximal performance.
 Normal  and  Min size  are for creating a *zip*-style images.  Min size  provides the smallest file size and takes the longest time to complete.

> **Note:** The compression ratio and the compression speed depend on multiple factors. For example, .doc files under the Normal Compression can be reduced to up to 80% and up to 90% with High Compression. On the other hand image (JPEGs etc.) files are not compressible, while *.exe* files can be reduced by 40%-50% in Normal Compression and 50%-60% in High Compression. Compression speed can vary a lot depending on how fast your CPU is, how fast is the drive whose image you are making and how fast is the disk where you will be storing that particular image. We recommend that you stick with Normal compression since it has the best performance ratio. It is not as slow as the High Compression (it's around x1.5-x2 faster) and it has a slightly lesser compression result (around 10% less).

### Chunk size

The options are: *1, 2, 4 GB* or creating a single file. Chunks are useful in cases of large storages (possible to manage chunks separately).
To try saving the disk image to a single file, select the  Attempt Create Single File  option. If the system runs out of free disk space on the disk where you are saving the backup - or if you are storing an

image file on disk with a FAT file system - **Active@ Disk Image** automatically will split the archive into multiple files and prompt you to add another path in order to continue writing the rest of the file.

**Ignore errors**

Ignore errors If this option is turned on, error messages will not be displayed while data erasing or verification is in progress. These messages will be displayed in the final report after the process has been completed.

**Replace Existing Files**

Replace Existing Files allows to overwrite an existing images

**4.** Click Start when ready. The process of creating will start. Use Stop if needed.

```
┌─────────────────────────────────────────────────────────────[X]─┐
│                      Active@ Disk Image                          │
│                                                                  │
│                                                                  │
│    [X] DISK to IMAGE                                             │
│        ┌───────────────────────────────────────────────────┐    │
│        │ Started Disk Image creation for 'Removable Disk 2 (/dev/sdc)'│
│        │ Image writing to '/home/tc/img1.001.001'          │    │
│        │                                                   │    │
│        │                                                   │    │
│        │                                                   │    │
│        │                                                   │    │
│        │                                                   │    │
│        │                                                   │    │
│        │                                                   │    │
│        └───────────────────────────────────────────────────┘    │
│                                                                  │
│    [ ] CHECK IMAGE                                               │
│                                                                  │
│    [ ] IMAGE to DISK                                            │
│                                                                  │
│    [ ] CLONE STORAGE                                            │
│ Compression: 0%                                                  │
│ ████████████████████████      41%                  ┌──────┐ ┌──────┐│
│                        Time Left: 00:00:05         │Pause │ │ Stop ││
│                                                    └──────┘ └──────┘│
└──────────────────────────────────────────────────────────────────┘
```

**5.** When the process is done the resume screen appears:

```
                             Active@ Disk Image                         [X]

    [X] DISK to IMAGE

        Started Disk Image creation for 'Removable Disk 2 (/dev/sdc)'
        Image writing to '/home/tc/img1.001'
        Disk Image creation result: Success
        Create Image of 'Removable Disk 2 (/dev/sdc)' completed



                                                    [X]
                         Disk Image creation result:

                                  Success




    [ ] CHECK IMAGE

    [ ] IMAGE to DISK

    [ ] CLONE STORAGE
```

**Check Image**

For checking an existing image

**1.** Navigate to  Check Image  View
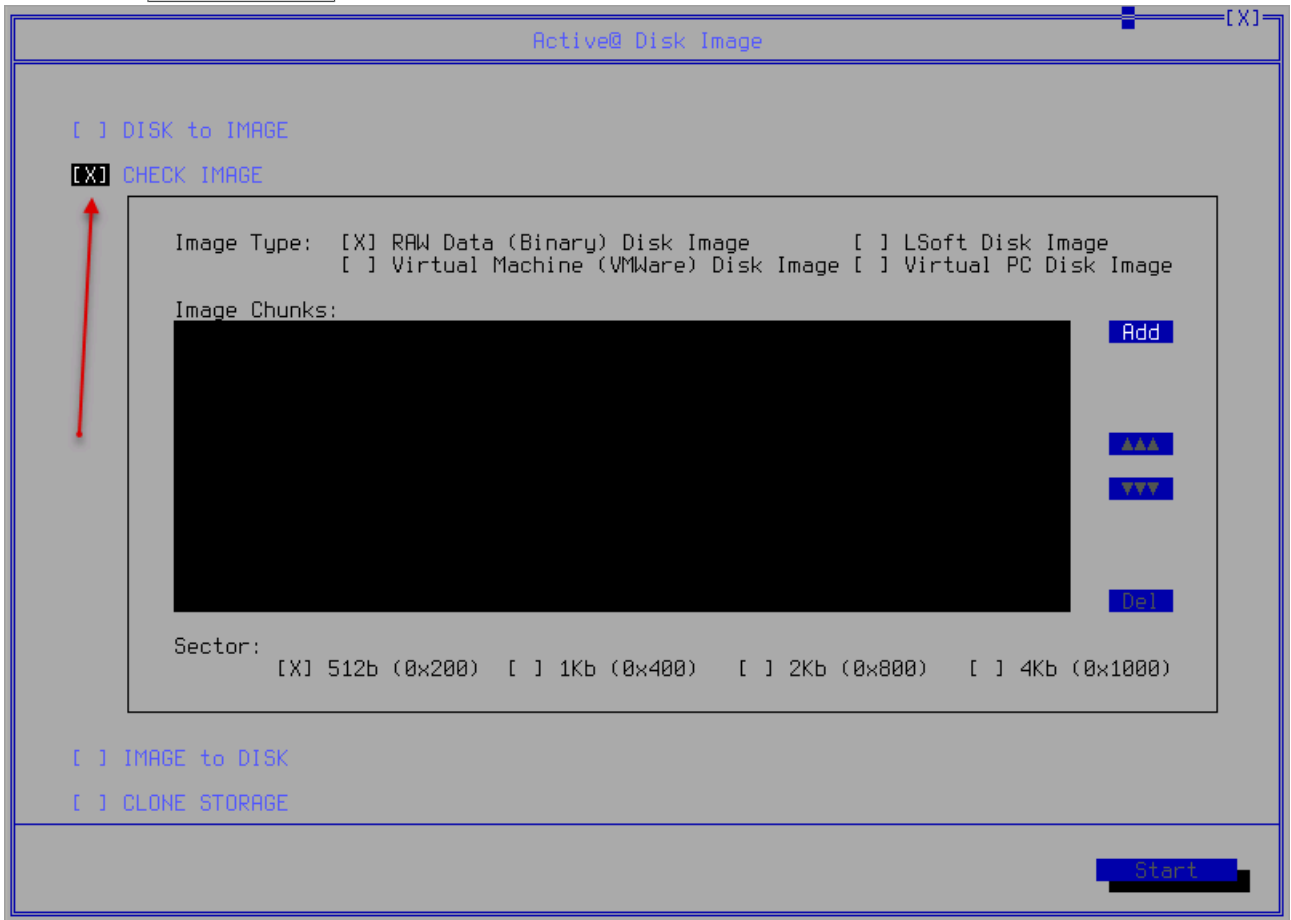
**2.** Pick up an image to check using the Add button and setting the **Image Type** settings. Click **Start** when ready.

```
┌─────────────────────────────────────────────────────────────────[X]─┐
│                        Active@ Disk Image                            │
│                                                                      │
│                                                                      │
│    [ ] DISK to IMAGE                                                 │
│                                                                      │
│    [X] CHECK IMAGE                                                   │
│   ┌──────────────────────────────────────────────────────────────┐  │
│   │                                                               │  │
│   │     Image Type:   [ ] RAW Data (Binary) Disk Image    [X] LSoft Disk Image  │
│   │                   [ ] Virtual Machine (VMWare) Disk Image [ ] Virtual PC Disk Image  │
│   │                                                               │  │
│   │     Image Chunks:                                     ┌─────┐ │  │
│   │     /home/tc/img1.001.001                             │ Add │ │  │
│   │                                                       └─────┘ │  │
│   │                                                               │  │
│   │                                                       ┌─────┐ │  │
│   │                                                       │ ▲▲▲ │ │  │
│   │                                                       └─────┘ │  │
│   │                                                       ┌─────┐ │  │
│   │                                                       │ ▼▼▼ │ │  │
│   │                                                       └─────┘ │  │
│   │                                                               │  │
│   │                                                       ┌─────┐ │  │
│   │                                                       │ Del │ │  │
│   │     Sector:                                           └─────┘ │  │
│   │           [X] 512b (0x200)  [ ] 1Kb (0x400)   [ ] 2Kb (0x800)   [ ] 4Kb (0x1000) │
│   │                                                               │  │
│   └──────────────────────────────────────────────────────────────┘  │
│                                                                      │
│    [ ] IMAGE to DISK                                                 │
│                                                                      │
│    [ ] CLONE STORAGE                                                 │
│                                                                      │
│                                                        ┌───────────┐ │
│                                                        │   Start   │ │
│                                                        └───────────┘ │
└──────────────────────────────────────────────────────────────────────┘
```

**3.** When the process is done the resume screen appears:

```
┌───────────────────────────────────────────────────────────────[X]─┐
│                         Active@ Disk Image                         │
├────────────────────────────────────────────────────────────────────┤
│                                                                    │
│    [ ] DISK to IMAGE                                               │
│                                                                    │
│    [X] CHECK IMAGE                                                 │
│         ┌────────────────────────────────────────────────────┐    │
│         │ Started Image checking for '/home/tc/img1.001'      │    │
│         │ Disk Image checking result: Success                 │    │
│         │ Check Image completed for '/home/tc/img1.001'       │    │
│         │                                                      │    │
│         │                         ┌──────────────────[X]─┐     │    │
│         │                         │ Disk Image checking result:│   │
│         │                         │                      │     │    │
│         │                         │        Success       │     │    │
│         │                         │                      │     │    │
│         │                         └──────────────────────┘     │    │
│         │                                                      │    │
│         └────────────────────────────────────────────────────┘    │
│                                                                    │
│    [ ] IMAGE to DISK                                               │
│                                                                    │
│    [ ] CLONE STORAGE                                              │
│                                                                    │
└────────────────────────────────────────────────────────────────────┘
```

**Image to Disk**

Navigate to **Image to Disk** View and follow the instructions:

Active@ Disk Image

[ ] DISK to IMAGE

[ ] CHECK IMAGE

[X] IMAGE to DISK

To restore information from Image it is necessary to:

- return to the main menu;
- add disk image to devices list;
- select it (or a partition on it);
- launch Disk Image application

Open Image and Select Source

[ ] CLONE STORAGE

Start

**Clone Storage**

**1.** Navigate to `Clone Storage` View:
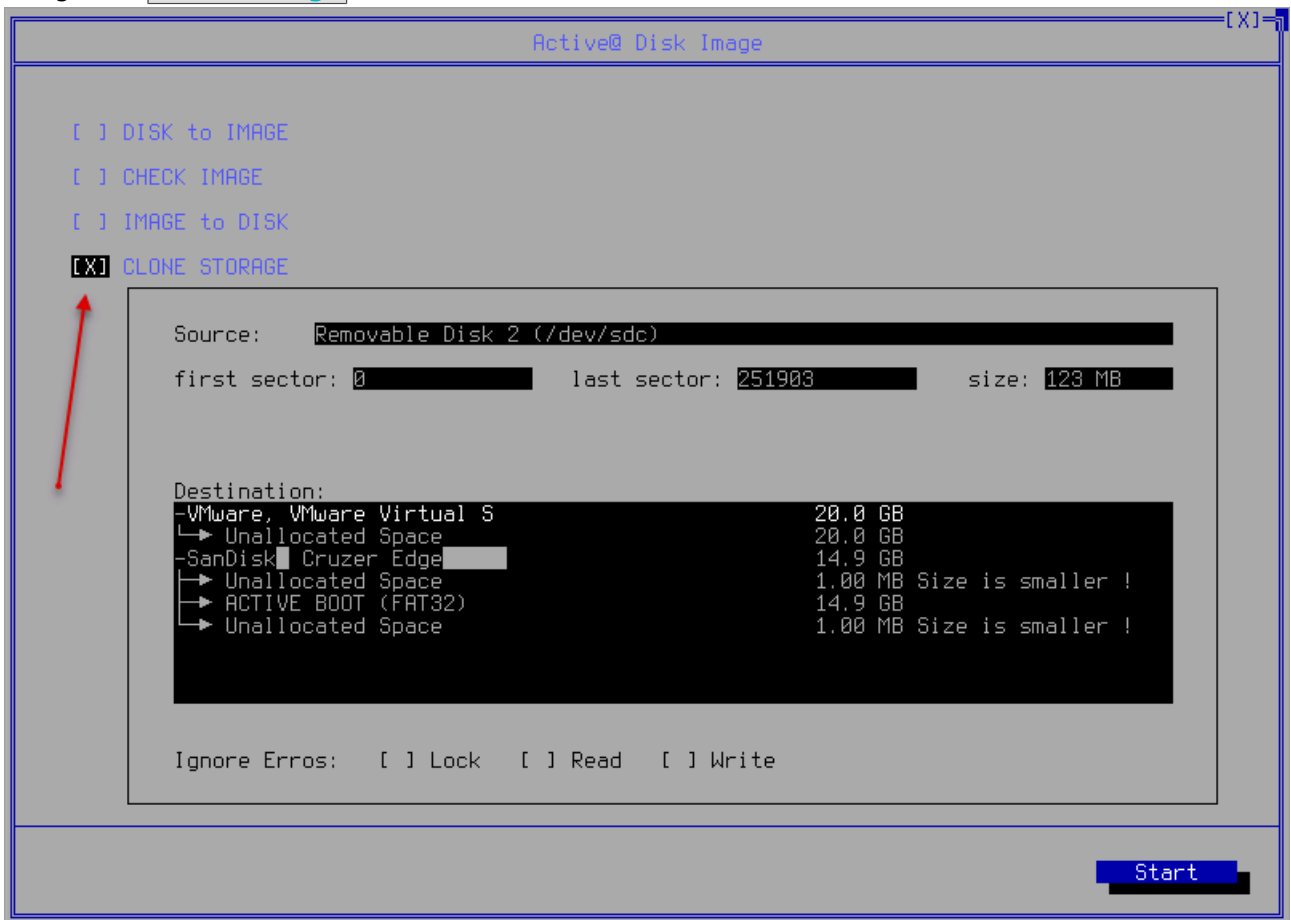


**2.** Select a proper destination drive. The target drive must have enough space to hold all the data from the source. Click `Start` when ready. If `Ignore errors` option is specified, error messages will not be displayed while data erasing or verification is in progress. These messages will be displayed in the final report after the process has been completed.

> 📝 **Note:** The clone operation must have exclusive access to the target disk while writing to it. Before you confirm the details of the clone operation, disk image software **Active@ Disk Image** attempts to lock the target disk for exclusive access. If another application or the operating system is using the target disk, you must close all applications or system processes that may be using the target disk.

> 📝 **Note:** An actual clone is an exact copy of the source. So you cannot specify the size of the destination drive. If you choose a destination storage that is larger than the source, a free (unallocated) space will appear after the cloned dump (data).

## Active@ KillDisk

**Active@ KillDisk** is a powerful utility that will:

- Wipe confidential data from an unused space on your hard drive
- Erase data from partitions or from an entire hard disk
- Destroy data permanently

Wiping the logical drive's deleted data does not delete existing files and folders. It processes all unoccupied drive space so that recovery of the previously deleted files becomes impossible. Installed

applications and existing data are not touched by this process. **Active@ KillDisk** wipes unused data residue from file slack space, unused sectors, and unused space in MFT records or system records.

When you erase data with **Active@ KillDisk**, you destroy data permanently, conforming to more then 20 International Standards or your own custom settings.

Wiping drive space or erasing data can take a long time, so perform these operations when you are prepared to wait. For example, these operations may be run overnight.

**Using Active@ KillDisk**

To run **Active@ KillDisk**:

- Select a required drive for erasing in the `Local System Devices` list on the main View
- From the **Active@ Boot Disk** shell click `KillDisk` > `Start App..`. After initializing, the **Active@ KillDisk** workspace appears with all the options for advanced wipe and erase:

```
┌──────────────────────────────────────────────────────────────────[X]┐
│                          Active@ KillDisk                            │
│                                                                      │
│                                                                      │
│    Source:      ACTIVE BOOT (/dev/sdb1)                              │
│                                                                      │
│    on device:  SanDisk  Cruzer Edge       (/dev/sdb)                 │
│                                                                      │
│           first sector: 2048           last sector: 31264767   size: 14.9 GB │
│                                                                      │
│                                                                      │
│    [X] Wipe Volume           Standard Erase Methods:                 │
│                              One Pass Zeros                      ▲    │
│       [X] Unused space       One Pass Random                         │
│       [ ] Metadata/System area  US DoD 5220.22-M                     │
│       [ ] Slack space in files  US DoD 5220.22-M (ECE)               │
│                              US DoE M205.1-2                          │
│                              Canadian CSEC ITSG-06                    │
│    [ ] Kill Storage          Canadian OPS-II                         │
│                              British HMG IS5 Baseline                 │
│       [ ] Only Unallocated Area(s)  British HMG IS5 Enhanced          │
│       Verification Percent:  10 ⇕   Russian GOST p50739-95            │
│                              US Army AR380-19                         │
│                              US Air Force 5020                   ▼    │
│    [ ] Secure Erase                                                  │
│                              [ ] Define Erase Method manually  Passes: 3 ⇕ │
│       Timeout (min): 1440 ⇕         Edit all patterns          ...    │
│                                                                      │
│    [ ] Prepare MBR       [ ] Write fingerprint to first sector       │
│    Last Sector Signature:                                            │
│                                                                      │
│    [X] Lock Volumes          Ignore Erros:   [ ] Lock  [ ] Read  [ ] Write │
│       Certificate Options    Session Comments:                       │
│                                                                      │
│                                                              Start    │
│                                                                      │
└─[ ] Skip confirmation────────────────────────────────────────────────┘
```

**Wiping Data**

- To clear data residue from unused sectors:

  **1.** Click  Wipe Volume  toolbar button and specify the settings:

```
┌────────────────────────────────────────────────────────────────────────[X]─┐
│                         Active@ KillDisk                                     │
│                                                                             │
│   Source:      ACTIVE BOOT (/dev/sdb1)                                       │
│                                                                             │
│   on device: SanDisk  Cruzer Edge       (/dev/sdb)                          │
│                                                                             │
│         first sector: 2048          last sector: 31264767     size: 14.9 GB │
│                                                                             │
│   [X] Wipe Volume   ←──────────────────────→ Standard Erase Methods:        │
│                                              One Pass Zeros               ▲  │
│       [X] Unused space                       One Pass Random                │
│       [ ] Metadata/System area               US DoD 5220.22-M               │
│       [ ] Slack space in files               US DoD 5220.22-M (ECE)         │
│                                              US DoE M205.1-2                │
│   [ ] Kill Storage                           Canadian CSEC ITSG-06          │
│                                              Canadian OPS-II                │
│       [ ] Only Unallocated Area(s)           British HMG IS5 Baseline       │
│       Verification Percent:  10  ⇕          British HMG IS5 Enhanced        │
│                                              Russian GOST p50739-95          │
│                                              US Army AR380-19                │
│   [ ] Secure Erase                           US Air Force 5020           ▼  │
│                                                                             │
│       Timeout (min): 1440  ⇕                [ ] Define Erase Method manually  Passes: 3 ⇕│
│                                                     Edit all patterns     ...│
│                                                                             │
│   [ ] Prepare MBR     [ ] Write fingerprint to first sector                 │
│   Last Sector Signature:                                                    │
│                                                                             │
│   [X] Lock Volumes             Ignore Erros:   [ ] Lock   [ ] Read   [ ] Write│
│      Certificate Options     Session Comments:                              │
│                                                                             │
│                                                              Start           │
└──[ ] Skip confirmation──────────────────────────────────────────────────────┘
```
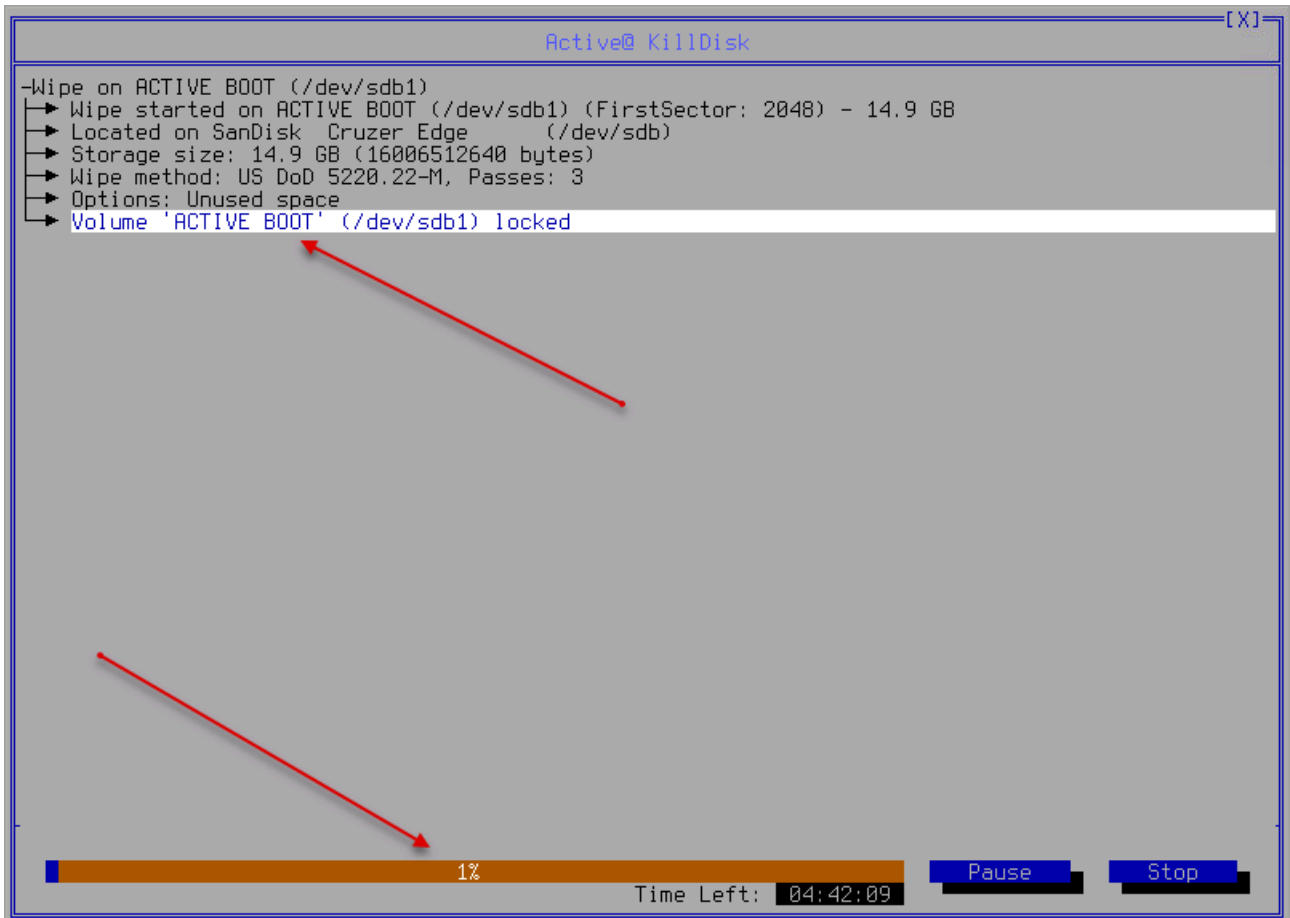
📝 **Note:** Read here more about Wiping Methods

**1.** Choose one of the methods from the  Erase method  list
**2.** Click  Start 
**3.** The  Confirm Action  dialog box appears. Click  Yes 

```
[X] Wipe Volume                    Standard Erase Methods:
                                   One Pass Zeros              ▲
    [X] Unused space               One Pass Random
    [ ] Metadata/System area       US DoD 5220.22-M
    [ ] Slack space in files       US DoD 5220.22-M (ECE)
                               ┌──────────────────────────────────┐
[ ] Kill Storage              │  Are you sure you want to wipe the drive(s) ? │
                               │            Yes   No              │
    [ ] Only Unalloc           └──────────────────────────────────┘
    Verification Per                       US Air Force 5020       ▼

[ ] Secure Erase                   [ ] Define Erase Method manually   Passes: 3 ⇕
    Timeout (min): 1440  ⇕                Edit all patterns        ...
```

**4.** The process will be initialized with the progress bar:

```
┌─────────────────────────────────────────────────────────────────────[X]─┐
│                         Active@ KillDisk                                   │
│                                                                            │
│ ─Wipe on ACTIVE BOOT (/dev/sdb1)                                           │
│   ┣━► Wipe started on ACTIVE BOOT (/dev/sdb1) (FirstSector: 2048) - 14.9 GB │
│   ┣━► Located on SanDisk  Cruzer Edge       (/dev/sdb)                     │
│   ┣━► Storage size: 14.9 GB (16006512640 bytes)                            │
│   ┣━► Wipe method: US DoD 5220.22-M, Passes: 3                             │
│   ┣━► Options: Unused space                                                │
│   ┗━► Volume 'ACTIVE BOOT' (/dev/sdb1) locked                              │
│                                                                            │
│                                                                            │
│                                                                            │
│                                                                            │
│  ▐████████████████████████1%████████████████████████   Pause      Stop    │
│                        Time Left:  04:42:09                                │
└────────────────────────────────────────────────────────────────────────┘
```

**5.** To stop the process at any time click <span style="color:teal">**Stop**</span> button near the progress bar. <span style="color:teal">**Pause**</span> works for pause.

**6.** After successful process of wiping the dialog screen with certificate appears:
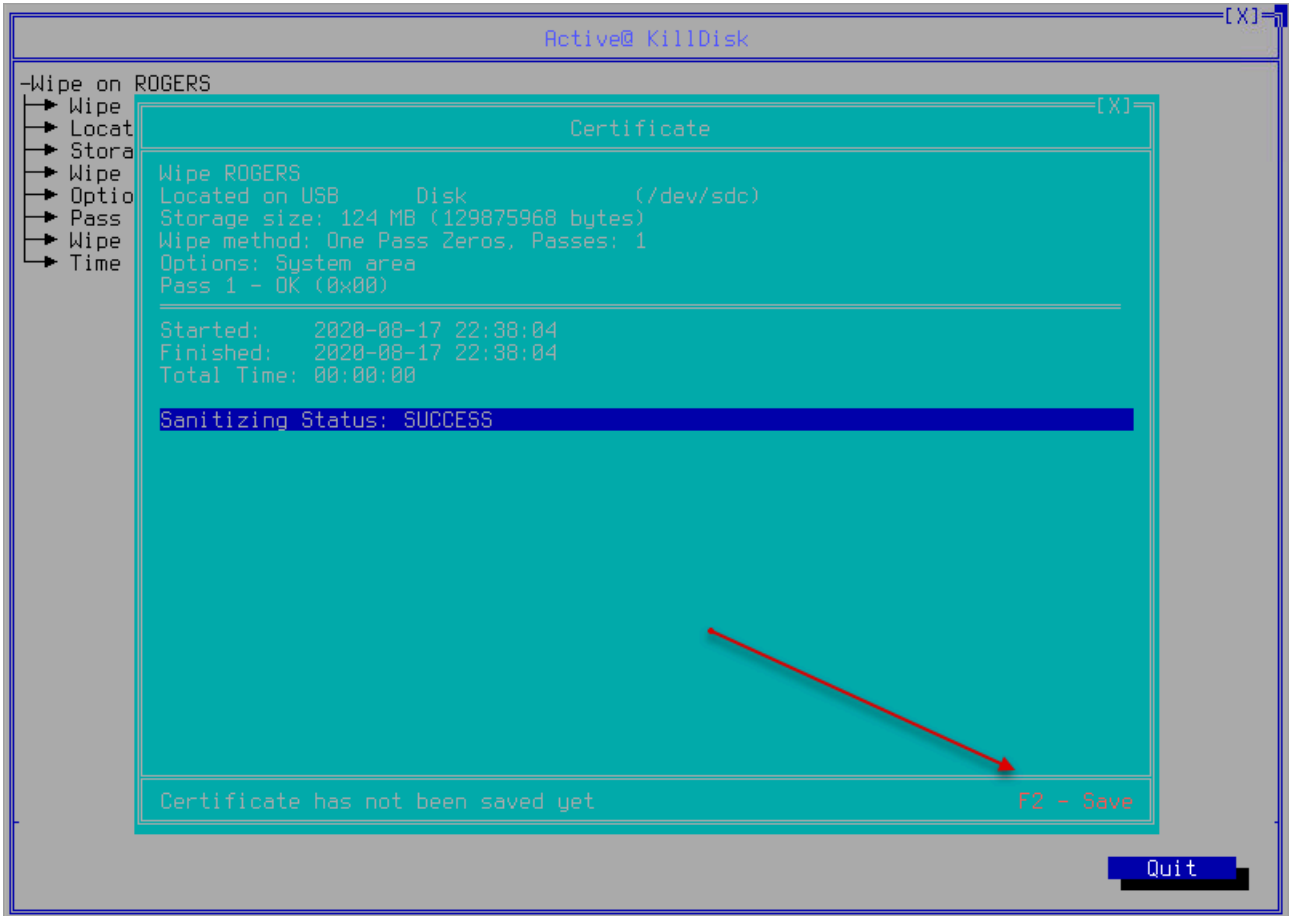


**7.** Press F2 for saving the certificate

**Erasing Data**

**1.** Select <span style="color:cyan">**Kill Storage**</span> and choose a method from the <span style="color:cyan">**Erase method**</span> list and other erasing parameters
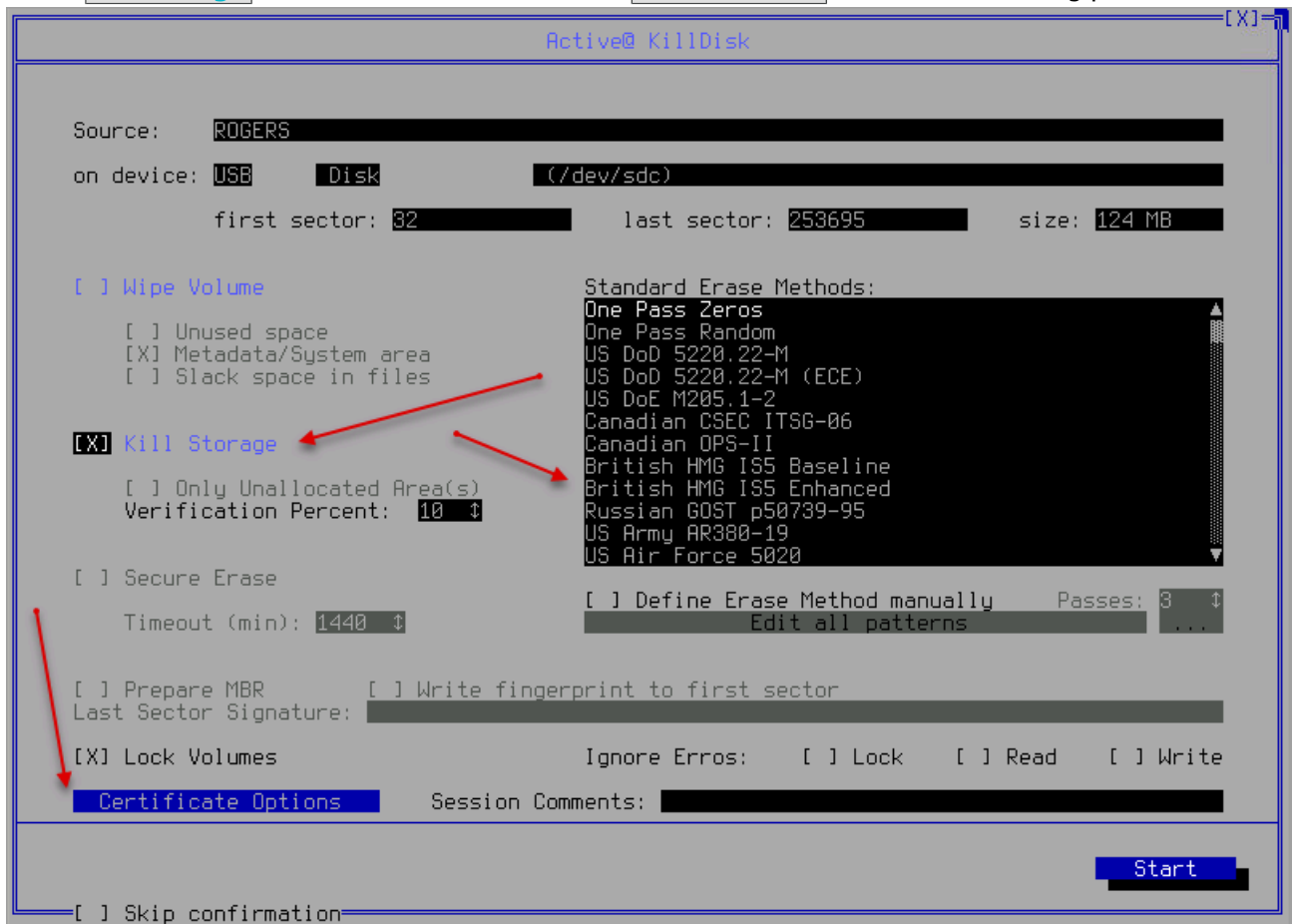


**Note:** Read here more about Wiping Methods

**2.** For  Certificate Options  button opens the options' dialog:
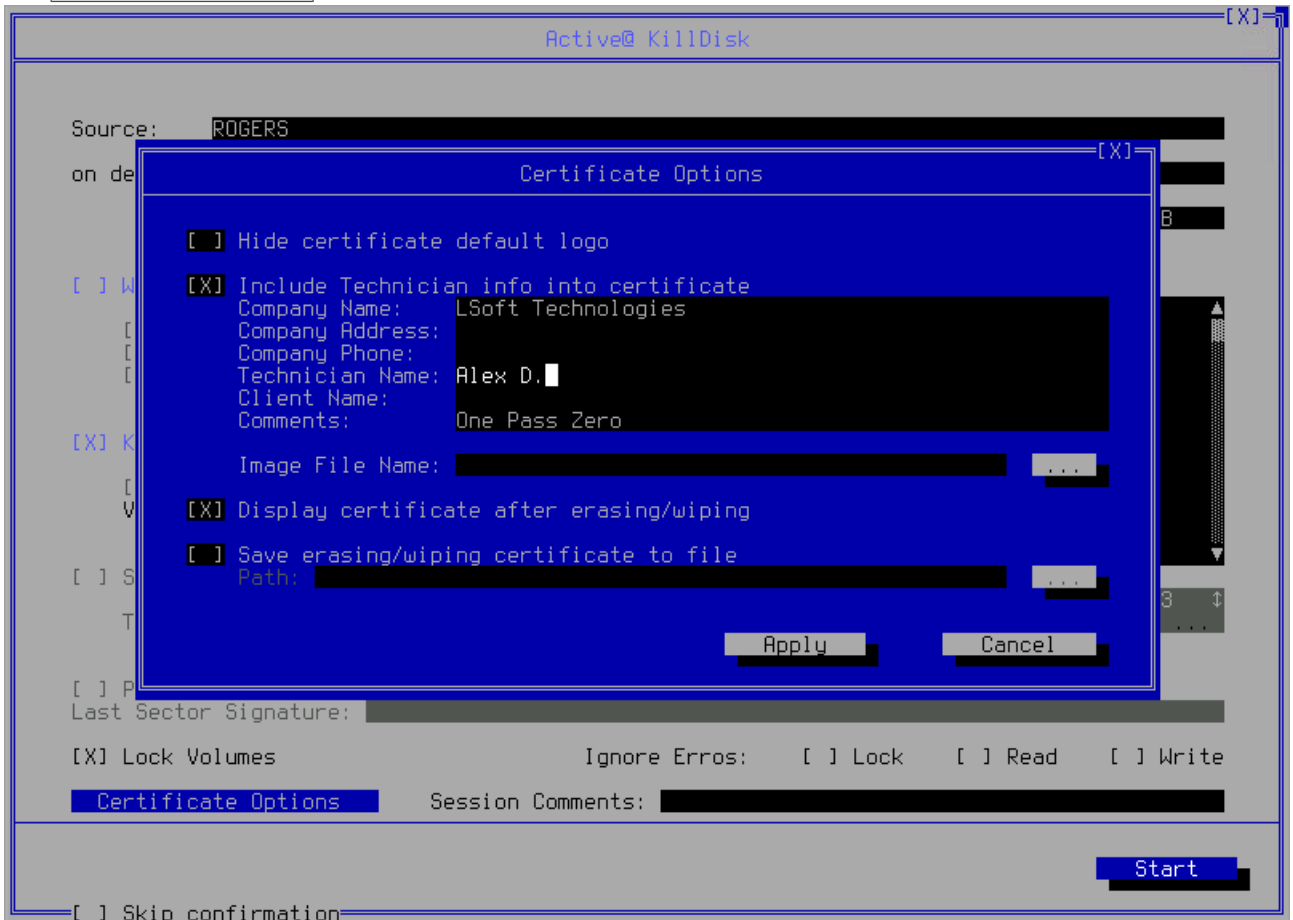


Specify the certificate options and click  Apply 

**3.** Click  Start 

**4.** The  Confirm Action  dialog box will appear:
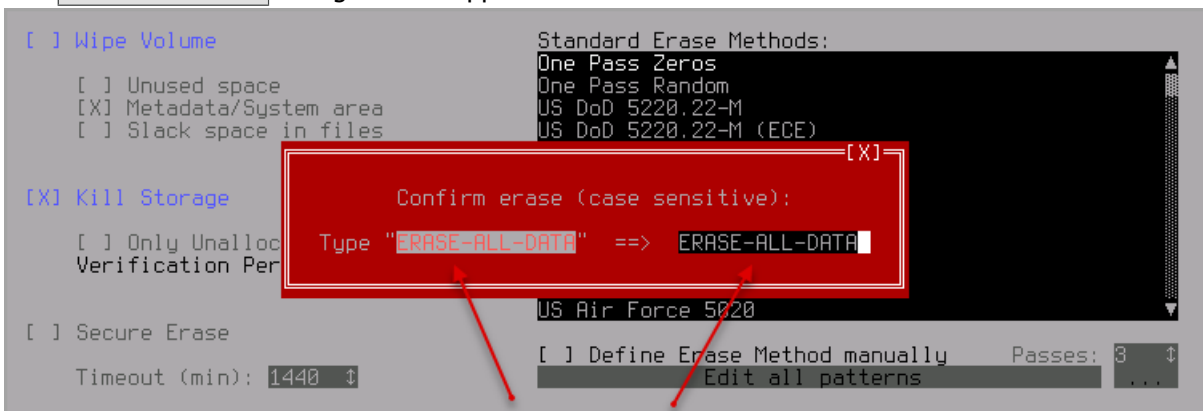


**5.** This is the final step before removing data from the selected drive forever. Type  ERASE-ALL-DATA  in the text box and press  ENTER .

**6.** The process will start and the progress bar will appear:
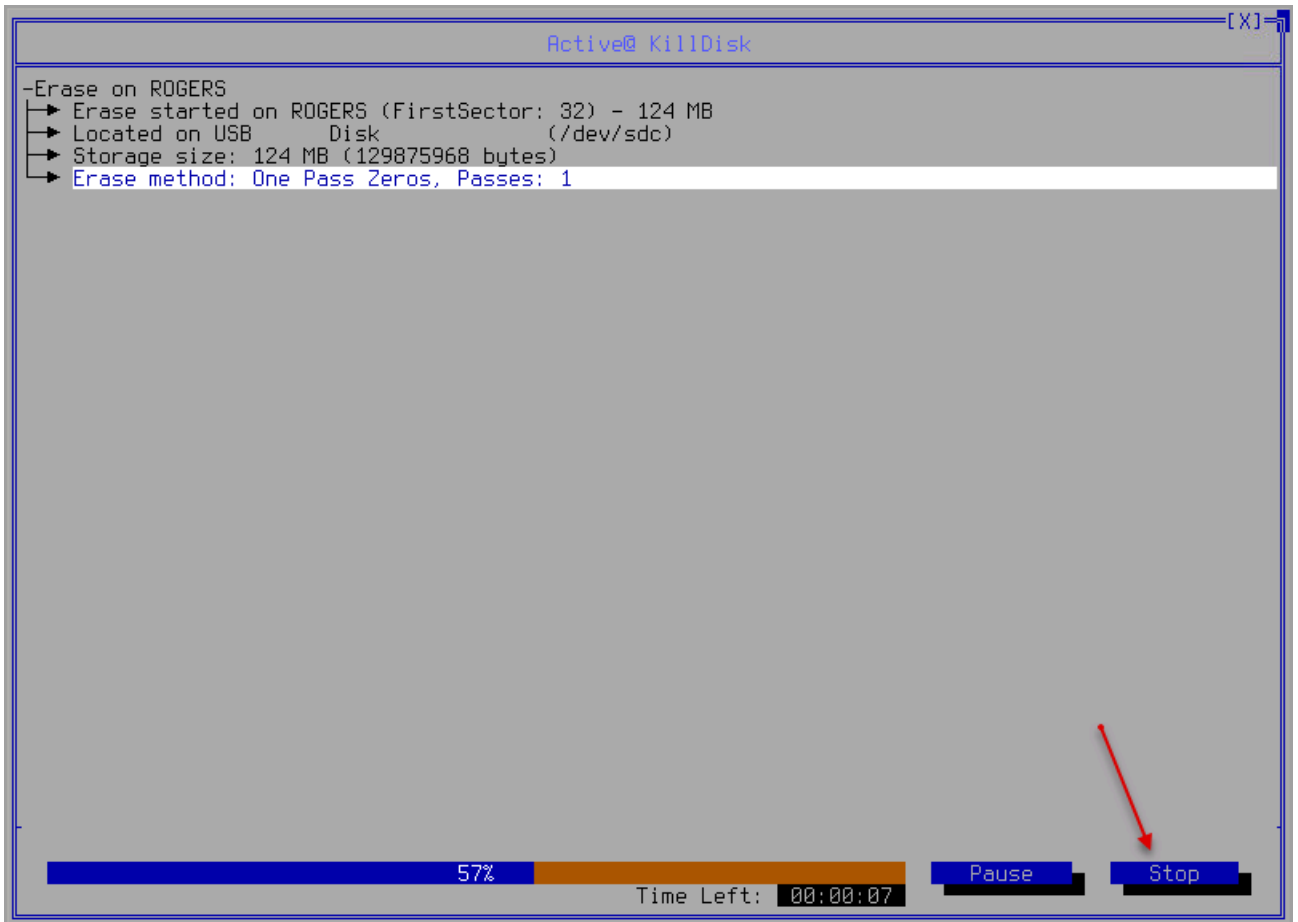


**7.** To stop the process at any time press `ESC`. You can also end the process by clicking on `Stop` button.

After the *Wipe* or *Kill* operation is completed, information about the wipe/erase session is displayed in the dialog window as a certificate*:*
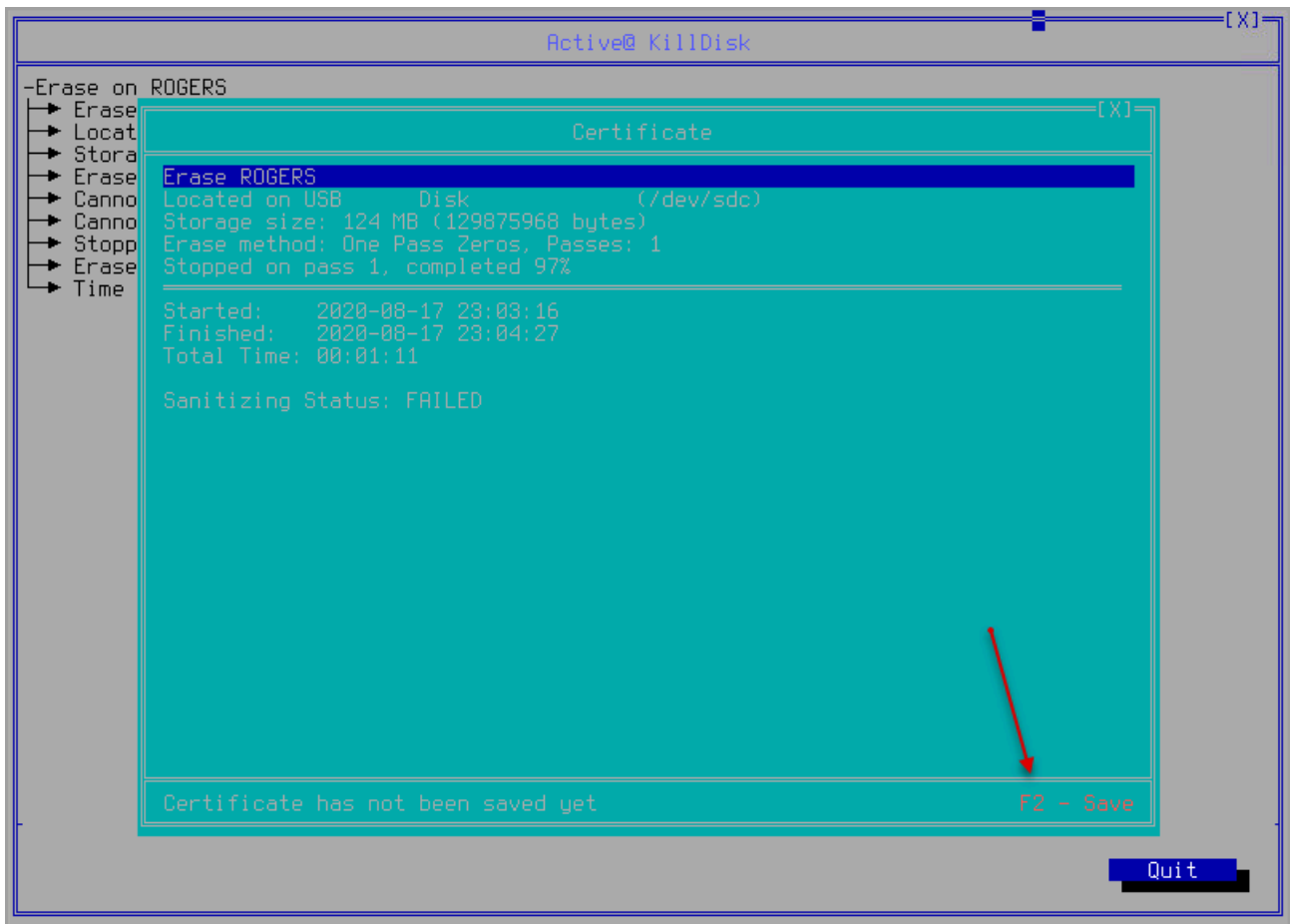
## Erase/Wipe Options

### Verification

In order to verify the erase method, you will need to select the Verification check box and set the amount of area that the utility will read in order to verify the erase method. Because verification is a long process, you can specify a percentage of the surface to be verified. To or erase without verification, clear this check box.

### Wipe Volume (settings)

This parameter appears only when you are wiping data from unused space on the hard drive. The wiping process clears data residue from unoccupied space on the hard drive and does not affect installed applications or existing data. This process contains three options:

- Unused space
- Wipe Metadata/System area
- Slack space in file clusters

You can choose to run only one or two of these options in order to make the process faster. If you want a thorough wiping of unused space, then include all of the options.

## General Options

General parameters allow you to turn features on or off or change default settings before you erase or wipe data from an unoccupied space. You can also change the look and feel of the application and its logging options. To view and change settings, press the F2 key, or click the Preferences... from Tools menu.

**Prepare MBR:**
Because of the BIOS restrictions of some manufacturers, a hard disk device that is larger than 300 MB must have an MBR (Master Boot Record) in sector zero. If you erase sector zero and fill it with zeros or random characters, you might find that you cannot use the hard drive after erasing the data. For this reason KillDisk is programmed to create an empty partition table and write a typical MBR in sector zero. This process is otherwise known as disk initialization

**Write Fingerprint to the first sector**
If fingerprint has been written to the disk's first sector, next time you boot from this disk, you will see a disk erase status. If by any chance the errors have occurred or the erasing has been stopped, status will be FAILED and displayed in red color.

**Ignore Errors (Lock, Read, Write)**
If this option is turned on, error messages will not be displayed while data erasing or verification is in progress. All information about errors will be written to the *KILLDISK.LOG* file. These messages will be displayed in the final *Erasing report* after the process has been completed

# Appendix

## BIOS Boot

BIOS settings allow you to run a boot sequence from a removable disk, a hard drive, a CD-ROM drive or an external device. You may configure the order your computer searches these physical devices for the boot sequence. The first device in the order list has the first boot priority. For example, to boot from a CD-ROM drive instead of a hard drive, place the CD-ROM drive ahead of the hard drive in priority.
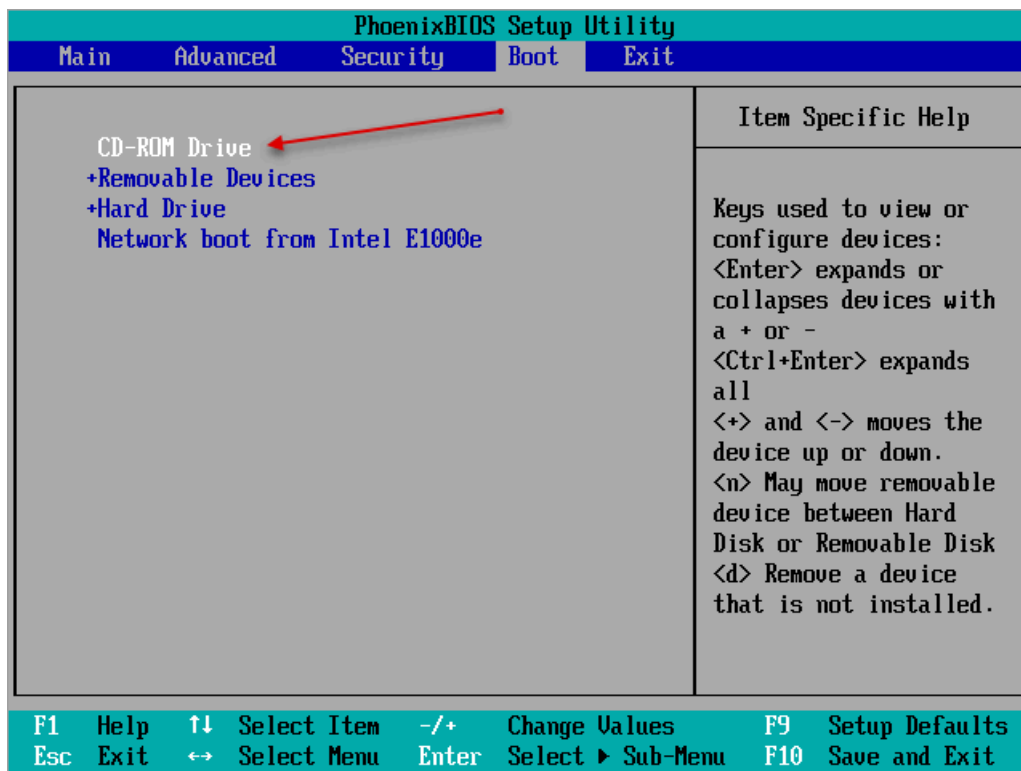


Hence, to set boot priority for a USB device:

**1.** Plug the device into a USB port

**2.** Start the computer and press `Delete` / `Esc` / `F1` / `F2` / `F8` or `F10` keys during the initial start-up screen. Depending on the BIOS manufacturer, a menu may appear. Here is a short list of keys and their combos:

| Brand / Manufacturer | Key |
|---|---|
| Acer (Aspire, Altos, Extensa, Ferrari, Power, Veriton, TravelMate) | `F2` / `Delete` |
| Acer (older models) | `F1` / `Ctrl` + `Alt` + `Esc` |
| ASRock | `F2` / `Delete` |
| Asus | `Delete` |
| Biostar | `Delete` |
| Chaintech | `Delete` |
| Compaq (Deskpro, Portable, Presario, Prolinea, Systempro) | `F10` |
| Compaq (older models) | `F1` / `F2` / `F10` / `Delete` |
| Dell (Dimension, Inspiron, Latitude, OptiPlex, Precision, Vostro, XPS) | `F2` |
| Dell (older or other models) | `Ctrl` + `Alt` + `Enter` / `Fn` + `Esc` / `Fn` + `F1` / `Delete` / `Reset` twice |
| eMachines (eMonster, eTower, eOne, S-Series, T-Series) | `Tab` / `Delete` |
| eMachines (older models) | `F2` |
| Foxconn | `Delete` |
| Fujitsu | `F2` |
| Gigabyte | `Delete` |
| HP (Alternative, Tablet PC) | `Esc` / `F2` / `F10` / `F12` |
| HP (OmniBook, Pavilion, Tablet, TouchSmart, Vectra) | `F1` |
| Intel | `F2` |
| Lenovo (3000 Series, IdeaPad, ThinkCentre, ThinkPad, ThinkStation) | `F1` / `F2` |
| Lenovo (older models) | `Ctrl` + `Alt` + `F3` / `Ctrl` + `Alt` + `Ins` / `Fn` + `F1` |
| MSI | `Delete` |
| Pegatron | `F2` / `F10` / `Delete` |
| Samsung | `F2` |
| Sony | `F1` / `F2` / `F3` |
| Toshiba | `F1` / `Esc` |

**3.** Depending on the BIOS manufacturer, a menu may appear. Choose to enter BIOS setup. The BIOS setup utility page appears

**4.** Use the arrow keys to select the *BOOT* tab. System devices appear in order of priority

**5.** To give a *CD* or *DVD* drive a boot sequence priority over the hard drive, move it to the first position in the list

**6.** To give a USB device a boot sequence priority over the hard drive, do the following:

- Move the hard drive device to the top of the boot sequence list
- Expand the hard drive device to display all hard drives
- Move the USB device to the top of the list of hard drives

**7.** Save and exit the BIOS setup utility

The computer will restart with the changed settings.

Some computer manufacturers allow you to select the device that contains the boot sequence from a special device selection menu. The example below uses a *Dell* system board.

To set boot priority using a device selection menu:

**1.** When the computer starts to boot up, after the manufacturer's ID screen, press `F12` several times. The device selection menu appears
**2.** Use the up and down arrows to select CD-ROM or an USB Flash Drive
**3.** To boot from the selected device, press ENTER

⚠️ **Attention:** Using an incorrect BIOS setting can cause a system malfunction. Please follow the BIOS guide provided with your computer motherboard. If you read these instructions and you are not sure how to change a setting, it is better to leave it as the default setting.

**Active@ Boot Disk** is able to boot both legacy *BIOS* or *UEFI* secure boot systems. However, if for some reason, *BIOS* mode does not boot the machine (computer hangs up, crashes etc.), try UEFI Secure Boot mode.

## UEFI Secure Boot

Some modern computers use new advanced *UEFI Secure Boot* approach instead of the standard BIOS boot. In case if your machine does not boot after you set up boot priority as it is described above, you should check whether *BIOS* boot is enabled (Legacy mode), or *UEFI* mode.

Here is how you can check your *BIOS* settings:

**1.** At the moment of turning on your computer, you will see an option to enter SETUP. Depending on the manufacturer of your system, you can press the `Delete` key, the `F2` key or another key/combo that is listed here to access the system BIOS. If you are not sure, consult the User Guide that came with your computer or call the manufacturer's technical support for assistance
**2.** Once in your system *BIOS*, look under the Boot menu to find an option that reads "UEFI/BIOS Boot Mode" or "*UEFI* Boot". In the case of "UEFI/BIOS Boot Mode" switch the mode from "*UEFI*" to "*Legacy*" mode, or backward

**Active@ Boot Disk** is able to boot both legacy *BIOS* or *UEFI* Secure Boot systems. However, if for some reason, *UEFI* mode does not boot the machine (computer hangs up, crashes etc.), try legacy BIOS boot mode.

## BIOS vs. UEFI

Each computer, whether it's a *DELL*, *HP*, *Acer* or even a custom built system, is an island unto itself before *Windows 10* (or some other operating system) starts. Since the 1980s, hardware vendors have worked together to standardize around common access routines and commands for managing your BIOS Boot Options. The *BIOS* is a critical bit of low-level code stored in nonvolatile memory that your computer uses to manage your hardware and load *Windows 10* or another operating system.

A new standard called UEFI or *Universal Extensible Firmware Interface* came online a decade ago and became the standard for new PCs and devices preinstalled with *Windows 8* or later. *UEFI* offers more advanced options than *BIOS*, with support for features such as a graphical user interface and mouse

support, making it easier to configure boot and hardware settings. *UEFI* also supports recent security standards required by *Windows 10* and previous releases such as *Secure Boot*, which maintains the integrity of a computer's state and prevents malicious code from compromising your system at boot time. After decades of systems using *BIOS*, malware has become more sophisticated, where it is even possible for malicious code to easily infect key operating system code such as the Master Boot Record.

## Erase/Wipe Methods (Sanitation Standards)

### One Pass Zeros or One Pass Random

When using *One Pass Zeros* or *One Pass Random* standard, the number of passes is fixed and cannot be changed. When the write head passes through a sector, it writes only zeros or a series of random characters.

### US DoD 5220.22-M

The write head passes over each sector three times. The first time with zeros *0x00*, second time with *0xFF* and the third time with random characters. There is one final pass to verify random characters by reading.

### Canadian CSEC ITSG-06

The write head passes over each sector, writing a random character. On the next pass, writes the compliment of previously written character. Final pass is random, proceeded by a verify.

### Canadian OPS-II

The write head passes over each sector seven times (*0x00, 0xFF, 0x00, 0xFF, 0x00, 0xFF*, random). There is one final pass to verify random characters by reading.

### British HMG IS5 Baseline

Baseline method overwrites disk's surface with just zeros *0x00*. There is one final pass to verify random characters by reading.

### British HMG IS5 Enhanced

Enhanced method - the write head passes over each sector three times. The first time with zeros *0x00*, second time with *0xFF* and the third time with random characters. There is one final pass to verify random characters by reading.

### Russian GOST p50739-95

The write head passes over each sector two times. (*0x00*, Random). There is one final pass to verify random characters by reading.

### US Army AR380-19

The write head passes over each sector three times. The first time with *0xFF*, second time with zeros *0x00* and the third time with random characters. There is one final pass to verify random characters by reading.

### US Air Force 5020

The write head passes over each sector three times. The first time with random characters, second time with zeros *0x00* and the third time with *0xFF*. There is one final pass to verify random characters by reading.

## NAVSO P-5329-26 RL

*RL method* - the write head passes over each sector three times (*0x01, 0x27FFFFFF, Random*).

There is one final pass to verify random characters by reading.

## NCSC-TG-025

The write head passes over each sector three times (*0x00, 0xFF, Random*). There is one final pass to verify random characters by reading.

## NSA 130-2

The write head passes over each sector two times (*Random, Random*). There is one final pass to verify random characters by reading.

## NIST 800-88

Supported three NIST 800-88 media sanitation standards:

1. The write head passes over each sector one time (*0x00*).

2. The write head passes over each sector one time (*Random*).

3. The write head passes over each sector three times (*0x00, 0xFF, Random*).

For details about this,the most secure data clearing standard, you can read the original article at the link below:

http://csrc.nist.gov/publications/nistpubs/800-88/NISTSP800-88_with-errata.pdf

## German VSITR

The write head passes over each sector seven times.

## Bruce Schneier

The write head passes over each sector seven times (*0xFF, 0x00, Random, Random, Random, Random, Random*). There is one final pass to verify random characters by reading.

## Peter Gutmann

The write head passes over each sector 35 times. For details about this, the most secure data clearing standard, you can read the original article at the link below:

http://www.cs.auckland.ac.nz/%7Epgut001/pubs/se%0Acure_del.html

## Australian ISM-6.2.93

The write head passes over each sector once with random characters. There is one final pass to verify random characters by reading.

## Secure Erase (ANSI ATA, SE)

According to *National Institute of Standards and Technology* (NIST) Special Publication 800-88: Guidelines for Media Sanitation, *Secure Erase* is "*An overwrite technology using firmware based process to overwrite a hard drive. Is a drive command defined in the ANSI ATA and SCSI disk drive interface specifications, which runs inside drive hardware. It completes in about 1/8 the time of 5220 block erasure.*" The guidelines also state that "*degaussing and executing the firmware Secure Erase command (for ATA drives only) are acceptable methods for purging.*"

*ATA Secure Erase (SE)* is designed for SSD controllers. The SSD controller resets all memory cells making them empty. In fact, this method restores the SSD to the factory state, not only deleting data but

also returning the original performance. When implemented correctly, this standard processes all memory, including service areas and protected sectors.

### User Defined

User indicates the number of times the write head passes over each sector. Each overwriting pass is performed with a buffer containing random characters. Enables user to define any disk erase algorithm.

## Glossary

### BIOS Settings

**B**asic **I**nput **O**utput **S**ubsystem is the program a personal computer's microprocessor uses to get the computer system started after you turn it on. It also manages data flow between the computer's operating system and attached devices such as the hard disk, video adapter, keyboard, mouse and printer. A typical method to access the BIOS settings screen is to press `Delete` / `F1` / `F2` / `F8` / `F10` or `Esc` during the boot sequence.

### BCD

**B**oot **C**onfiguration **D**ata. Firmware-independent database for boot-time configuration data. It is used by *Microsoft's* new *Windows Boot Manager* and replaces the *boot.ini* that was used by NTLDR.

### Boot Priority

BIOS settings allow you to run a boot sequence from a floppy drive, a hard drive, a CD/DVD-ROM drive or a USB device. You may configure the order that your computer searches these physical devices for the boot sequence. The first device in the order list has the first boot priority. For example, to boot from a CD/DVD-ROM drive instead of a hard drive, place the CD/DVDROM drive ahead of the hard drive in priority.

### Boot Record

See MBR

### CSV-file

A *comma-separated values* (**CSV**) file is a delimited text file that uses a comma to separate values. Each line of the file is a data record. Each record consists of one or more fields, separated by commas. The use of the comma as a field separator is the source of the name for this file format. A *CSV-file* typically stores tabular data (numbers and text) in plain text, in which case each line will have the same number of fields.

### Data Cluster

A cluster or *allocation unit* is a unit of disk space allocation for files and directories. To reduce the overhead of managing on-disk data structures, the file system does not allocate individual disk sectors by default, but contiguous groups of sectors, called clusters. A cluster is the smallest logical amount of disk space that can be allocated to hold a file. Storing small files on a file system with large clusters will therefore waste disk space; such wasted disk space is called slack space. For cluster sizes which are small versus the average file size, the wasted space per file will be statistically about half of the cluster size; for large cluster sizes, the wasted space will become greater. However, a larger cluster size reduces bookkeeping overhead and fragmentation, which may improve reading and writing speed overall. Typical cluster sizes range from 1 sector (512 B) to 128 sectors (64 Kb). The operating system keeps track of clusters in the hard disk's root records or MFT records (See Lost Cluster).

### Exclusive Access

Lock that is applied to a partition for exclusive writing access. For example, while recovering deleted or damaged files or folders. The recovery operation must have exclusive access to the target partition while

recovering files. If another application or the operating system are using the target partition, user/process must close all applications or system processes that may be using the target partition before locking it.

## FAT

**F**ile **A**llocation **T**able. File (dump) that contains the records of every other file and directory in a *FAT*-formatted hard disk drive. The operating system needs this information to access the files. There are *FAT32, FAT16* and *FAT* versions.

*FAT* file systems are still commonly found on floppy disks, flash and other solid-state memory cards and modules (including USB flash drives), as well as many portable and embedded devices. *FAT* is the standard file system for digital cameras per the *DCF* specification.

## FTP

**F**ile **T**ransfer **P**rotocol.

This is a standard network protocol used for the transfer of computer files between a *Client* and *Server* on a computer network. *FTP* is built on a client-server model architecture using separate control and data connections between the client and the server. *FTP* users may authenticate themselves with a clear-text sign-in protocol, normally in the form of a username and password, but can connect anonymously if the server is configured to allow it.

For secure transmission that protects the username and password, and encrypts the content, *FTP* is often secured with *SSL/TLS (FTPS)* or replaced with *SSH File Transfer Protocol (SFTP)*.

The first *FTP* client applications were command-line programs developed before operating systems had graphical user interfaces, and are still shipped with most *Windows*, *Unix*, and *Linux* operating systems. Many *FTP* clients and automation utilities have since been developed for desktops, servers, mobile devices, and hardware, and *FTP* has been incorporated into productivity applications, such as *HTML* editors.

## FreeDOS

A free operating system for IBM PC compatible computers. It intends to provide a complete *DOS*-compatible environment for running legacy software and supporting embedded systems. *FreeDOS* can be booted from a floppy disk or USB flash drive. It is designed to run well under virtualization or *x86* emulation. Unlike most versions of *MS-DOS*, *FreeDOS* is composed of free and open-source software, licensed under the terms of the *GNU General Public License*.

## Deleted Boot Records

All disks start with a boot sector. In a damaged disk (if the location of the boot records is known) the partition table can be reconstructed. The boot record contains a file system identifier.

## iSCSI

**I**nternet **S**mall **C**omputer **S**ystems **I**nterface. *iSCSI* is a transport layer protocol that works on top of the *Transport Control Protocol (TCP)*. It enables block-level *SCSI* data transport between the *iSCSI* initiator and the storage target over *TCP/IP* networks.

## ISO

An International Organization for Standardization ISO-9660 file system is a standard CD-ROM file system that allows you to read the same CD-ROM whether you're on a PC, Mac, or other major computer platform. Disk images of ISO-9660 file systems (ISO images) are a common way to electronically transfer the contents of CD-ROMs. They often have the file name extension .ISO (though not necessarily), and are commonly referred to as "ISOs".

## Lost Cluster

A cluster that has an assigned number in the file allocation table, even though it is not assigned to any file. You can free up disk space by reassigning lost clusters. In DOS and Windows you can find lost clusters with the ScanDisk utility.

## MBR

**M**aster **B**oot **R**ecord. All disks start with a boot sector. When you start the computer, the code in the MBR executes before the operating system is started. The location of the MBR is always track (cylinder) 0, side (head) 0, and sector 1. The MBR contains a file system identifier.

## MFT records

**M**aster **F**ile **T**able. A file that contains the records of every other file and directory in an NTFS-formatted hard disk drive. The operating system needs this information to access the files.

## NTFS

NT file system, **N**ew **T**echnology **F**ile **S**ystem (developed by Microsoft) is the file system that the *Windows NT* operating system uses for storing and retrieving files on a hard disk. *NTFS* is the *Windows NT* equivalent of the *Windows 95* file allocation table (FAT) and the OS/2 High Performance File System (HPFS)

## NTLDR

Aka *NT loader* is the boot loader for all releases of *Windows NT* operating system up to and including *Windows XP* and *Windows Server 2003*. *NTLDR* is typically run from the primary hard disk drive, but it can also run from portable storage devices such as a CD-ROM, USB flash drive, or floppy disk.

## openSUSE

A *Linux* distribution. It is widely used throughout the world. The focus of its development is creating usable open-source tools for software developers and system administrators, while providing a user-friendly desktop and feature-rich server environment.

## RAID

*RAID* ("**R**edundant **A**rray of **I**nexpensive **D**isks" or "**R**edundant **A**rray of **I**ndependent **D**isks") is a data storage virtualization technology that combines multiple physical disk drive components into one or more logical units for the purposes of data redundancy, performance improvement, or both. Data is distributed across the drives in one of several ways, referred to as *RAID* levels, depending on the required level of redundancy and performance. The different schemes, or data distribution layouts, are named by the word "*RAID*" followed by a number, for example *RAID **0*** or *RAID **1***. Each scheme, or *RAID* level, provides a different balance among the key goals: reliability, availability, performance, and capacity.

*RAID* levels greater than *RAID 0* provide protection against unrecoverable sector read errors, as well as against failures of whole physical drives.

### RAID 0

*RAID 0* consists of striping, but no mirroring or parity. Compared to a spanned volume, the capacity of a *RAID 0* volume is the same; it is the sum of the capacities of the drives in the set. But because striping distributes the contents of each file among all drives in the set, the failure of any drive causes the entire *RAID 0* volume and all files to be lost. In comparison, a spanned volume preserves the files on the unfailing drives. The benefit of *RAID 0* is that the throughput of read and write operations to any file is multiplied by the number of drives because, unlike spanned volumes, reads and writes are done concurrently. The cost is increased vulnerability to drive failures—since any drive in a *RAID 0* setup failing causes the entire volume to be lost, the average failure rate of the volume rises with the number of attached drives.

### RAID 1

*RAID 1* consists of data mirroring, without parity or striping. Data is written identically to two or more drives, thereby producing a "mirrored set" of drives. Thus, any read request can be serviced by any drive in the set. If a request is broadcast to every drive in the set, it can be serviced by the drive that accesses the data first (depending on its seek time and rotational latency), improving performance. Sustained read throughput, if the controller or software is optimized for it, approaches the sum of throughputs of every drive in the set, just as for *RAID 0*. Actual read throughput of most *RAID 1* implementations is slower than the fastest drive. Write throughput is always slower because every drive must be updated, and the slowest drive limits the write performance. The array continues to operate as long as at least one drive is functioning.

## RAID 2

*RAID 2* consists of bit-level striping with dedicated Hamming-code parity. All disk spindle rotation is synchronized and data is striped such that each sequential bit is on a different drive. Hamming-code parity is calculated across corresponding bits and stored on at least one parity drive. This level is of historical significance only; although it was used on some early machines (for example, the Thinking Machines *CM-2*), as of 2014 it is not used by any commercially available system.

## RAID 3

*RAID 3* consists of byte-level striping with dedicated parity. All disk spindle rotation is synchronized and data is striped such that each sequential byte is on a different drive. Parity is calculated across corresponding bytes and stored on a dedicated parity drive. Although implementations exist, *RAID 3* is not commonly used in practice.

## RAID 4

*RAID 4* consists of block-level striping with dedicated parity. This level was previously used by NetApp, but has now been largely replaced by a proprietary implementation of *RAID 4* with two parity disks, called RAID-DP. The main advantage of *RAID 4* over *RAID 2* and *3* is I/O parallelism: in *RAID 2* and *3*, a single read I/O operation requires reading the whole group of data drives, while in *RAID 4* one I/O read operation does not have to spread across all data drives. As a result, more I/O operations can be executed in parallel, improving the performance of small transfers.

## RAID 5

*RAID 5* consists of block-level striping with distributed parity. Unlike *RAID 4*, parity information is distributed among the drives, requiring all drives but one to be present to operate. Upon failure of a single drive, subsequent reads can be calculated from the distributed parity such that no data is lost. *RAID 5* requires at least three disks. Like all single-parity concepts, large *RAID 5* implementations are susceptible to system failures because of trends regarding array rebuild time and the chance of drive failure during rebuild. Rebuilding an array requires reading all data from all disks, opening a chance for a second drive failure and the loss of the entire array.

## RAID 6

*RAID 6* consists of block-level striping with double distributed parity. Double parity provides fault tolerance up to two failed drives. This makes larger *RAID* groups more practical, especially for high-availability systems, as large-capacity drives take longer to restore. *RAID 6* requires a minimum of four disks. As with *RAID 5*, a single drive failure results in reduced performance of the entire array until the failed drive has been replaced. With a *RAID 6* array, using drives from multiple sources and manufacturers, it is possible to mitigate most of the problems associated with *RAID 5*. The larger the drive capacities and the larger the array size, the more important it becomes to choose *RAID 6* instead of *RAID 5*. *RAID 10* (see Nested RAID levels) also minimizes these problems.

## RAS

**R**emote **A**ccess **S**ervice. Is any combination of hardware and software to enable the remote access tools or information that typically reside on a network of IT devices.

A remote access service connects a client to a host computer, known as a remote access server. The most common approach to this service is remote control of a computer by using another device which needs internet or any other network connection.

Here are the connection steps:

1. User dials into a PC at the office.
2. Then the office PC logs into a file server where the needed information is stored.
3. The remote PC takes control of the office PC's monitor and keyboard, allowing the remote user to view and manipulate information, execute commands, and exchange files.

Many computer manufacturers and large businesses' help desks use this service widely for technical troubleshooting of their customers' problems. Therefore you can find various professional first-party, third-party, open source, and freeware **remote desktop applications.** Which some of those are cross-platform across various versions of *Windows*, *MacOS*, *UNIX*, and *Linux*. Remote desktop programs may include *LogMeIn* or *TeamViewer*.

To use *RAS* from a remote node, a *RAS* client program is needed, or any PPP client software. Most remote control programs work with *RAS*. *PPP* is a set of industry standard framing and authentication protocols that enable remote access.

*Microsoft Remote Access Server* (*RAS*) is the predecessor to *Microsoft Routing* and *Remote Access Server (RRAS)*. *RRAS* is a *Microsoft Windows Server* feature that allows *Microsoft Windows* clients to remotely access a *Microsoft Windows* network.

## Registry Hive

Highest level of organization in the *Windows* registry. It is a logical group of keys, subkeys, and values in the registry that has a set of supporting files loaded into memory when *Windows* is started or an user logs in.

## Root Records

*File Allocation Table*. A file that contains the records of every other file and directory in a FAT-formatted hard disk drive. The operating system needs this information to access the files. There are FAT32, FAT16 and FAT versions.

## SAM

**S**ecurity **A**ccount **M**anager. Database file that stores users' passwords in a hashed format. Since a hash function is one-way, this provides some measure of security for the storage of the passwords.

It can be used to authenticate local and remote users. Beginning with Windows 2000 SP4, Active Directory authenticates remote users.

## Sector

The smallest unit that can be accessed on a disk.

## SCSI

**S**mall **C**omputer **S**ystem **I**nterface. A set of standards for physically connecting and transferring data between computers and peripheral devices. The *SCSI* standards define commands, protocols, electrical, optical and logical interfaces. *SCSI* is most commonly used for hard disk drives and tape drives, but it can connect a wide range of other devices, including scanners and CD drives, although not all controllers can handle all devices. The *SCSI* standard defines command sets for specific peripheral device types; the presence of "unknown" as one of these types means that in theory it can be used as an interface to almost any device, but the standard is highly pragmatic and addressed toward commercial requirements.

### S.M.A.R.T.

**S.M.A.R.T.** (*Self-Monitoring, Analysis and Reporting Technology*; often written as *SMART*) is a monitoring system included in computer hard disk drives (*HDDs*), solid-state drives (*SSDs*) and *embedded MultiMediaCards (eMMC)* drives. Its primary function is to detect and report various indicators of drive reliability with the intent of anticipating imminent hardware failures. When **S.M.A.R.T.** data indicates a possible imminent drive failure, software running on the host system may notify the user so preventative action can be taken to prevent data loss, and the failing drive can be replaced and data integrity maintained.

### Tiny Core Linux

A minimal *Linux* kernel based operating system focusing on providing a base system functionality. The distribution is notable for its small size (11 to 16 MB) and minimalism; additional functions are provided by extensions. *Tiny Core Linux* is free and open source software and is licensed under the *GNU General Public License version 2*.

### Track

Tracks are concentric circles around the disk and the sectors are segments within each circle.

### Unallocated Space

Space on a hard disk where no partition exists. A partition may have been deleted or damaged or a partition may not have been created.

### UEFI

**U**nified **E**xtensible **F**irmware **I**nterface is a specification for a software program that connects a computer's firmware to its operating system (OS). *UEFI* is expected to eventually replace *BIOS*. Like *BIOS*, *UEFI* is installed at the time of manufacturing and is the first program that runs when a computer is turned on.

### Volume Shadow Copy

*Shadow Copy* (also known as *Volume Snapshot Service*, *Volume Shadow Copy Service* or **VSS**) is a technology included in *Microsoft Windows* that can create backup copies or snapshots of computer files or volumes, even when they are in use. It is implemented as a *Windows* service called the *Volume Shadow Copy* service.

### Windows System Caching

*Windows* reserves a specified amount of volatile memory for file system operations. This is done in RAM because it is the quickest way to do these repetitive tasks.

### Windows System Records

The *Windows* registry keeps track of almost everything that happens in *Windows* OS. This enhances performance of the computer when doing repetitive tasks. Over time, these records can take up a lot of space.

### Windows PE

*Windows PE* (**WinPE**) for *Windows* 10 is a small operating system used to install, deploy, and repair *Windows* 10 for desktop editions (Home, Pro, Enterprise, and Education), *Windows Server*, and other *Windows* operating systems. From *Windows PE*, user can:

- Set up a hard drive before installing *Windows*.
- Install *Windows* by using apps or scripts from a network or a local drive.
- Capture and apply *Windows* images.
- Modify the *Windows* operating system while it's not running.
- Set up automatic recovery tools.

- Recover data from unbootable devices.
- Add a custom shell or GUI to automate these kinds of tasks.