

# Hitachi Align Tool

## User's Guide

# Table of contents

- 1 Introduction .....3**
  - 1.1 What is Hitachi Align Tool? .....3
  - 1.2 System requirements and supported media .....3
  - 1.3 Technical support .....4
- 2 Hitachi Align Tool installation and startup .....5**
  - 2.1 Installing Hitachi Align Tool .....5
  - 2.2 Recovering from a Hitachi Align Tool error .....5
  - 2.3 Removing Hitachi Align Tool .....6
- 3 Aligning with Hitachi Align Tool .....7**
  - 3.1 Running Hitachi Align Tool .....7
  - 3.2 Selecting disks to align .....7
    - 3.2.1 TCG Opal SSC ..... 8
    - 3.2.2 ATA Security Mode feature set ..... 9
- 4 Creating bootable media .....10**
- 5 Startup Parameters .....13**
  - 5.1 Description .....13

# 1 Introduction

## 1.1 What is Hitachi Align Tool?

Hitachi Align Tool is an application, which allows a proper realigning of the partitions on Hitachi Hard Disk Drives (HDD) with 4K Sector Partitions.

### Main features

- Hitachi Align Tool performs the alignment operations for unaligned partitions by moving the partition boundaries and file locations as it is necessary while maintaining all preexisting data.
- The user interface displays the system's drives, their partitions and each partition's alignment status. A special mark shows if it needs to be aligned.
- The user interface provides a backup warning prior to starting the alignment operation. Hitachi Align Tool user interface provides a power-loss warning prior to starting the alignment operation - the aligning operation will not start in case of using a battery.
- Hitachi Align Tool supports external drives attached via USB.
- Hitachi Align Tool provides an estimate of the execution time for the alignment operation. The accuracy of this estimate depends on the health of the drive and other factors.
- The user interface provides ongoing status and progress indicator while the alignment operation is running.

## 1.2 System requirements and supported media

### Minimum system requirements

The hardware requirements of Hitachi Align Tool correspond to the minimum requirements for the operating system installed on the computer to be used for running Hitachi Align Tool. In addition Hitachi Align Tool requires the following hardware:

- CD-RW/DVD-RW drive for bootable media creation
- Mouse or other pointing device (recommended)

Acronis rescue media has the following hardware requirements:

- 256 MB RAM
- Processor Pentium 1 GHz or faster

The recommended minimum screen resolution is 1152 x 864.

### Supported operating systems

- Windows XP (x32/x64)
- Windows Vista (x32/x64)
- Windows 7 (x32/x64)
- Windows 2003 (x32/x64)
- Windows 2003 r2 (x32/x64)
- Windows 2008 (x32/x64)
- Windows 2008 r2 (x32/x64)

## 1.3 Technical support

In the event that you require technical or warranty support for your Hitachi GST product please contact support at <http://www.hitachigst.com/support/contact-support/>.

## 2 Hitachi Align Tool installation and startup

### 2.1 Installing Hitachi Align Tool

To install Hitachi Align Tool:

- Run the setup file.
- In the **Install Menu**, click on the **Install Hitachi Align Tool** to launch the installation procedure.



- Read and accept the terms of the license agreement in the **License Agreement** window.
- In the **Setup type** window, choose the setup type:
  - **Typical** - installs most common program features (recommended for most users);
  - **Custom** - allows users to choose program components to install (Rescue Media Builder) and select the setup location (recommended for advanced users);  
With Rescue Media Builder you can create bootable rescue disks. Installing the Rescue Media Builder will allow you to create bootable media or its ISO image at any time from the main program window or running Rescue Media Builder on its own.
  - **Complete** - all program features will be installed (requires the most disk space).
- In the **Select Administrators Options** window, choose the program availability: **Install for all users that share this computer** or **Install for the current user only**.
- Click **Proceed** to begin installation. To make changes in the setup, use the **Back** and **Next** buttons.

Hitachi Align Tool can be installed on a machine with other Acronis products.

### 2.2 Recovering from a Hitachi Align Tool error

If Hitachi Align Tool ceased running or produces errors, its files might be corrupted. To repair this problem, you first have to recover the program. To do this, run Hitachi Align Tool installer again. It

will detect Hitachi Align Tool on your computer and will ask you if you want to modify, repair or remove it.

## 2.3 Removing Hitachi Align Tool

Select **Start -> Settings -> Control panel -> Add or remove programs -> Hitachi Align Tool -> Remove**. Then follow the instructions on the screen.

If you use Windows Vista, select **Start -> Control panel -> Programs and Features -> Hitachi Align Tool -> Remove**. Then follow the instructions on the screen. You may have to reboot your computer afterwards to complete the task.

## 3 Aligning with Hitachi Align Tool

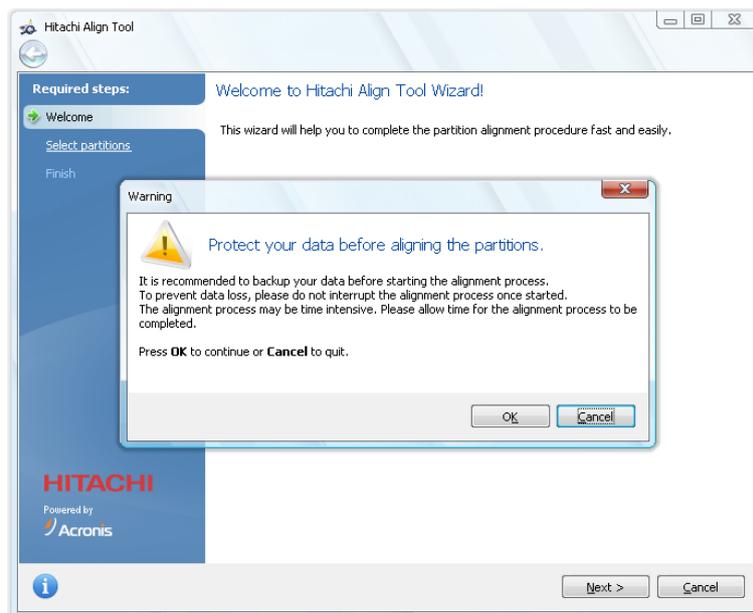
This chapter describes Hitachi Align Tool's capabilities.

### 3.1 Running Hitachi Align Tool

You can run Hitachi Align Tool in Windows by selecting **Start** → **Programs** → **Acronis** → **Hitachi Align Tool** → **Hitachi Align Tool** or by clicking on the appropriate shortcut on the desktop.

### 3.2 Selecting disks to align

When the Hitachi Align Tool wizard screen appears, select what hard disk drives you want to align.



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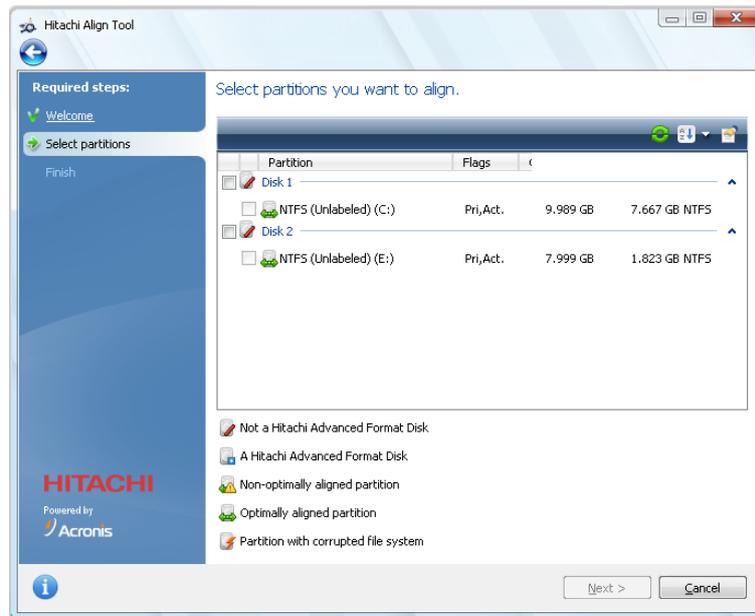
*It is strongly recommended to back up data, located on the disks you want to align, before starting the aligning operation.*

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All hard disk drives in your system, displayed in the table, are marked as described below:

-  - a Hitachi Advanced Format Disk;
-  - not a Hitachi Advanced Format Disk;
-  - optimally aligned partition (cannot be selected);
-  - non-optimally aligned partition;
-  - a partition with corrupted file system;
-  - a TCG Opal encrypted hard drive, see TCG Opal SSC (p. 8) (not supported in this edition);

-  - an access-restricted hard drive (via ATA Security Mode feature set), see ATA Security Mode feature set (p. 9).




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**Important!** The aligning procedure may take considerable amount of time. Please allow the alignment process to be completed.

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### 3.2.1 TCG Opal SSC

The Trusted Computing Group (TCG) provides the Opal Security Subsystem Class Specification (Opal SSC), which offers hard disk drive encryption, authentication, configuration, policy management mechanisms and protocols.

The hard disk drives, which support Opal SSC, allow users easy and flexible computer managing - any manufacturer's Opal-based security management software can be used with any Opal-based hard disk drive.

Basically, Opal SSC is a standard set of Storage Workgroup specifications that provides the following features:

- policy control for storage devices using a comprehensive architecture;
- storage devices' capability to conform with a trusted platform's policy;
- users' data protection from an unauthorized access;
- interoperability between different storage devices vendors;
- Opal is operating system independent.

The following Opal SSC functionalities are available:

- Security Provider Support;
- Interface Communication Protocol;
- Cryptographic Features;
- Authentication;
- Table Management;
- Access Control and Personalization;

- Issuance;
- SSC Discovery.

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*TCG Opal encrypted hard drives are not supported by Hitachi Align Tool.*

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### 3.2.2 ATA Security Mode feature set

Hitachi Align Tool supports working with ATA hard drives.

The ATA disks support the ATA Security Mode feature set, which includes the following special features:

- protection from an illegal access;
- preventing an unauthorized set of a new password.

To be able to align such a disk, you need to disable ATA security in BIOS and restart Hitachi Align Tool.

## 4 Creating bootable media

You can run Hitachi Align Tool from an emergency boot disk on a bare-metal system or a crashed computer that cannot boot. To do so, you will need bootable media that has a copy of Hitachi Align Tool installed on it.

You can create bootable media using the Rescue Media Builder. For this, you will need a blank CD-R/RW, a blank DVD+R/RW or any other media from which your computer can boot, such as a Zip drive.

Hitachi Align Tool also provides the ability to create an ISO image of a bootable disc on the hard disk.

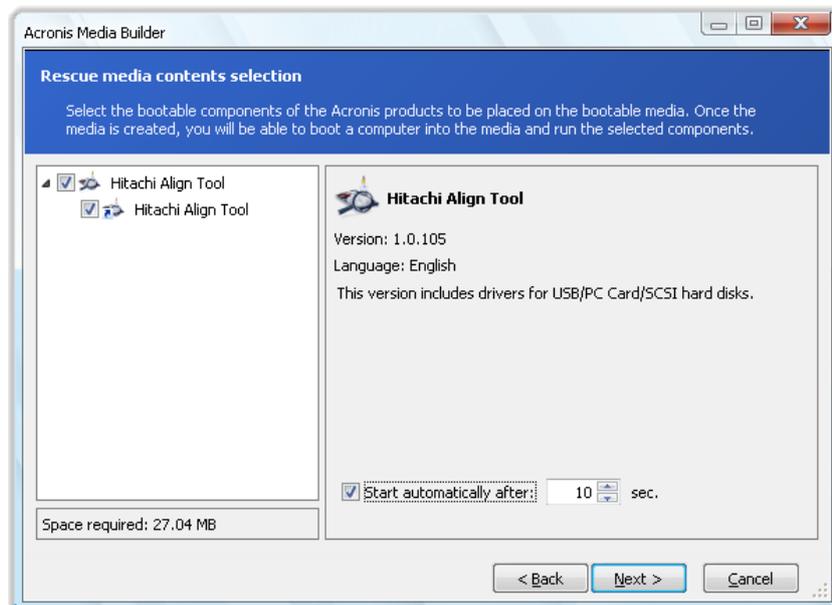
If you have other Hitachi products, you can include standalone versions of these programs on the same bootable disk as well.

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*If you have chosen not to install the Rescue Media Builder during Hitachi Align Tool installation, you will not be able to use this feature.*

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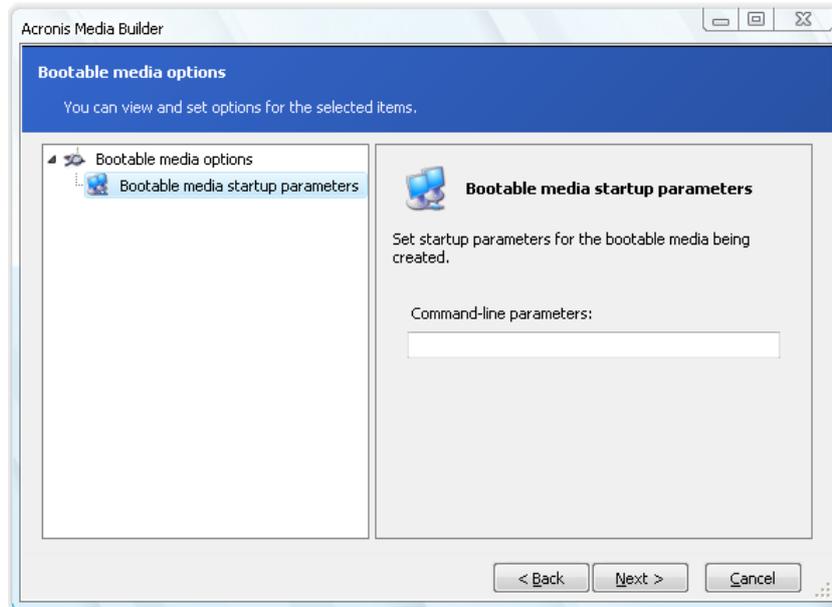
1. Choose **Programs** → **Acronis** → **Hitachi Align Tool** → **Acronis Media Builder** from the **Start** menu.
2. Select which components of the Hitachi programs you want to place on the bootable media.



The **Start automatically after** parameter specifies the timeout interval for the boot menu. If this parameter is not specified, the program will display the boot menu and wait for you to select whether to boot the OS or the Acronis component.

To find out more about components of other Acronis products, see their respective user guides.

In the next window you can set Bootable media startup parameters in order to configure rescue media boot options for better compatibility with different hardware. Several options are available (noub, nomouse, noapic, etc.). For all the available startup parameters see Startup Parameters (p. 13). These parameters are provided for advanced users. If you encounter any hardware compatibility problems while testing boot from the rescue media, it may be best to contact Hitachi Technical Support.

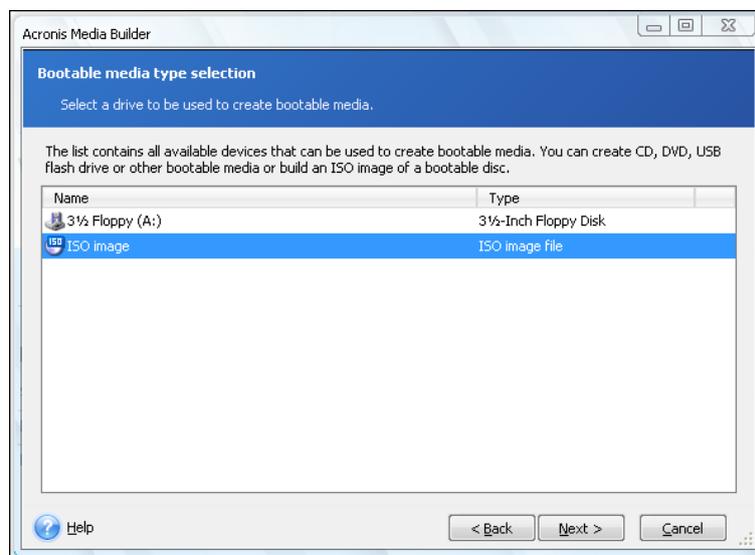


3. Select the type of bootable media (CD-R/RW, DVD+R/RW or 3.5" diskettes) to create. If your BIOS has this feature, you can create other bootable media such as removable USB flash drives. You can also choose to create a bootable disk ISO image.

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*When using 3.5" diskettes, you will only be able to write one component at a time on a set of diskettes. To write another component, start Rescue Media Builder again.*

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4. If you are creating a CD, DVD or any removable media, insert a blank disc so the program can determine its capacity. If you choose to create a bootable disc ISO image, specify the ISO file name and the folder in which to place it.

5. Next, the program will estimate how many blank diskettes are required (in case you have not chosen ISO or CD/DVD) and give you time to prepare them. When you are finished, click **Proceed**.

After you create a bootable media, mark it and keep it in a safe place.

## 5 Startup Parameters

Additional parameters that can be applied prior to booting Linux kernel.

### 5.1 Description

Additional parameters that can be applied prior to booting Linux kernel

#### Description

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

- **acpi=off**

Disables ACPI and may help with a particular hardware configuration.

- **noapic**

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

- **nousb**

Disables loading of USB modules.

- **nousb2**

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

- **quiet**

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

- **nodma**

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

- **nofw**

Disables FireWire (IEEE1394) support.

- **nopcmcia**

Disables PCMCIA hardware detection.

- **nomouse**

Disables mouse support.

- **[module name]=off**

Disables the module (e.g. **sata\_sis=off**).

- **pci=bios**

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

- **pci=nobios**

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

- **pci=biosirq**

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

- **vga=ask**

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