Installing Microsoft® Windows®

on HP Workstations with Advanced Format Hard Drives

Technical white paper

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Introduction

The hard disk drive (HDD) industry is migrating from the traditional 512-byte sectors to 4096-byte sectors. Drives with the larger sector size are known as Advanced Format (AF) drives. Some versions of the Microsoft Windows operating system may experience significant performance degradation if they are installed on AF drives without proper alignment of the disk partitions on the drive. This paper gives some general assistance in avoiding these performance issues when installing a Windows operating system (OS) on HP Personal Workstations.

Identifying an Advanced Format drive

You can identify an AF drive by using the HP Advanced Format Hard Drive Information Tool, or by checking the label on the drive for the Advanced Format logo (Figure 1).

Figure 1: HDD label showing the Advanced Format logo
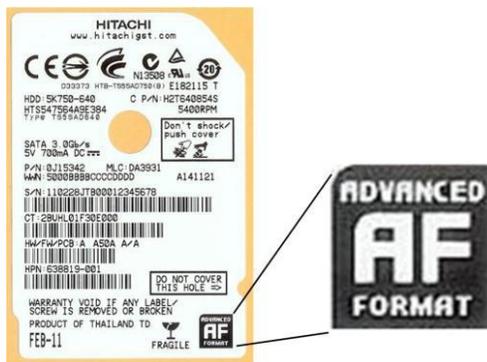
Installing Windows on Advanced Format drives

While it is possible to realign disk partitions after the OS has been installed, HP does not recommend it, due to the possibility of data loss. The HP recommended procedure is to create the HDD partitions, use an alignment tool to ensure the partitions are properly aligned with the sector boundaries, and then install the OS. HP recommends the Paragon Partition Alignment Tool to align the partitions. Windows 7 with Service Pack 1 (SP1) or later and Windows Vista™ with SP1 or later are Advanced Format-aware, so installations using Microsoft media should not require realignment, although you should review Microsoft Knowledge Base article 982018 for updates to Windows 7 to improve performance with AF drives.

Installing Windows using HP Recovery media

Windows 7: If you use HP Personal Workstation recovery media for Windows 7 with SP1 or later, no further action is needed. The partitions will be correctly aligned, and the KB 982018 updates will be in the final OS image.

Windows Vista: HP Workstation recovery media cannot be used to install Windows Vista on AF drives because the partitioning and installation steps cannot be easily separated. You can install Windows Vista from Microsoft media or other sources using the guidelines above.

Windows XP: HP recovery media can be used to install Windows XP on HP Personal Workstations, but manual intervention is required to ensure proper partition alignment. Follow these steps:

1. Download and extract the **Paragon Partition Alignment Tool (SP 55511),** then burn the .ISO image to a CD.
2. Boot the system from the HP Restore Plus CD.
3. Follow the instructions up to the drive partitioning step (Figure 2).

Figure 2: Drive partitioning screen
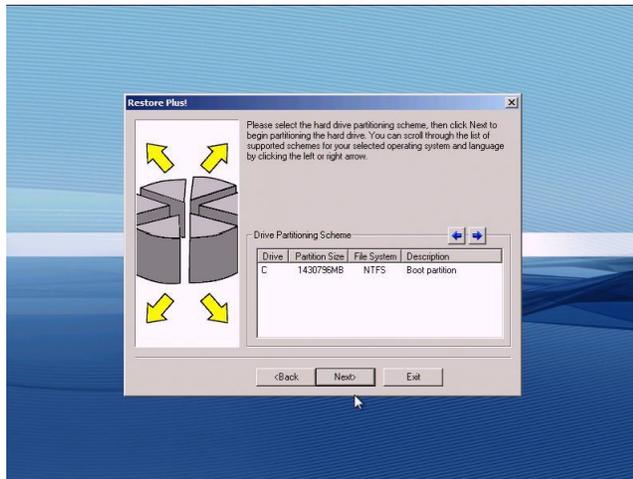
4. Prepare to change the media in the optical drive. Click **Next**.

   As soon as the drive partitioning task reaches 100% (Figure 3), replace the Restore Plus CD with the Paragon CD.

Figure 3: Drive partitioning complete
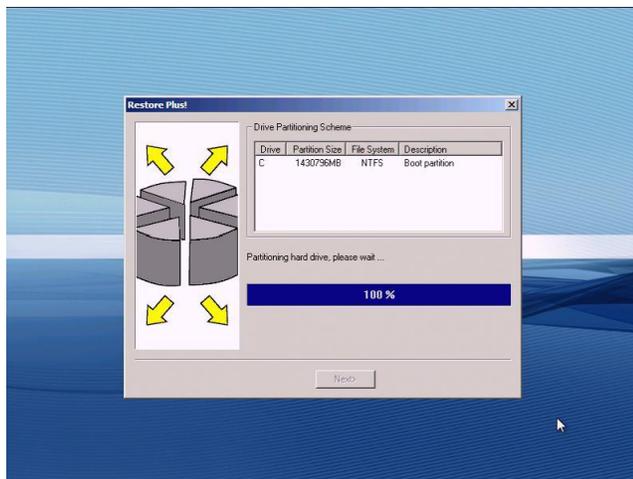
5. Allow the system to reboot.

   It will start the Paragon application.

6. Start the Paragon Alignment Tool (Figure 4). Follow the instructions, and make the appropriate selections.

Note that we are performing partition alignment at this stage because there is no data on the drive, and therefore no possible data loss.

Figure 4: Paragon Alignment Tool start screen
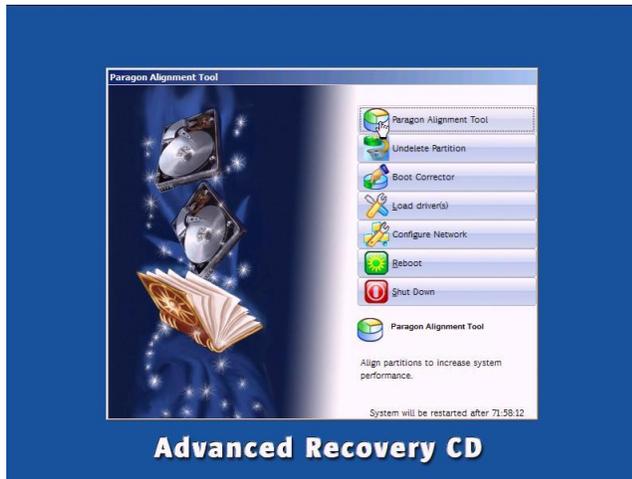
7. Select all partitions for alignment (Figure 5).

Figure 5: Paragon partition selection screen
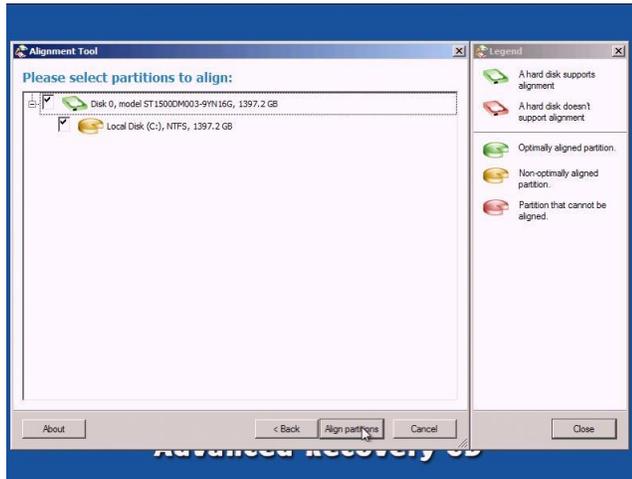
After the alignment operation is completed, the screen should look like Figure 6.

Figure 6: Partition alignment complete
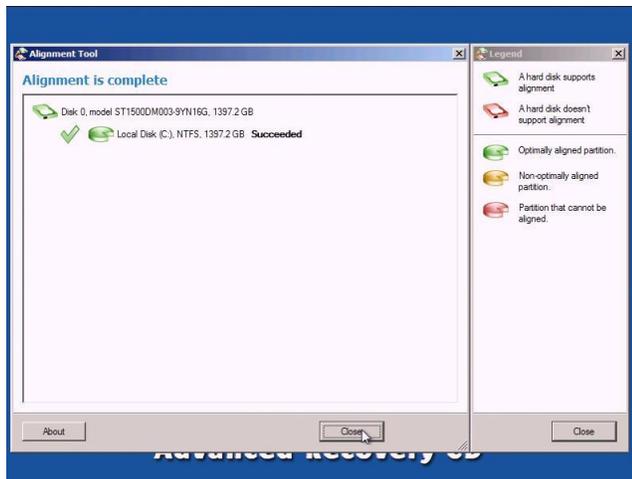
8. Remove the Paragon CD and replace the Restore Plus CD.

9. Click **Reboot** (Figure 7), and follow the instructions to complete the restore.

Figure 7: Paragon reboot screen