

AI-02016 Home Assistant Non UEFI

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How to run Home Assistant to a non-UEFI laptop such as Latitude E4300

To run Home Assistant on a non-UEFI laptop like a Dell Latitude E4300, you need to use an installation method that supports legacy BIOS booting. While the official Home Assistant Operating System (HAOS) is designed for UEFI, you can work around this limitation by using a different bootloader or by installing Home Assistant in a container on top of another operating system.

The "Bridge Partition" Method

The most common solution to this problem involves creating a small "bridge" partition that allows the legacy BIOS to load a modern bootloader, which in turn can boot HAOS.¹ This method preserves the full HAOS installation with its built-in supervisor and add-on support.² The general steps are:

- 1. Prepare a bootable Linux USB drive:** Create a live USB for a Linux distribution like Ubuntu or Debian.³ You will use this to boot your laptop and perform the installation.
- 2. Flash the HAOS image:** Use a tool like Balena Etcher to write the official HAOS x86-64 image to the internal hard drive or SSD of the laptop.⁴ This will create a GPT partition table.
- 3. Create a small "bios_grub" partition:** Boot the laptop from your Linux live USB. Use a partitioning tool like `gparted` to create a small, unformatted partition (around 8-10MB) on the drive. This partition will serve as a location for the legacy GRUB bootloader. You must set its flag to `bios_grub`.

4. **Install GRUB:** Install the GRUB bootloader into the `bios_grub` partition you just created. This bootloader will be configured to "chainload" the GRUB2 bootloader that is already included in the HAOS installation.⁵ This is the crucial step that bridges the gap between the legacy BIOS and the UEFI-based HAOS.⁶
5. **Configure GRUB:** Create a simple `grub.cfg` file in the new partition that points to the HAOS EFI boot partition.⁷

This process essentially tricks the legacy BIOS into booting HAOS.⁸ Because it maintains the full HAOS installation, it allows for seamless updates and access to the Supervisor, which is not available in other installation methods like Home Assistant Container.⁹

Alternative Methods

If you find the above method too complex, there are other ways to run Home Assistant on older hardware:

- **Home Assistant Container:** You can install a lightweight Linux distribution (such as Debian) on the laptop and then run Home Assistant in a Docker container. This is a very flexible method, but you lose the integrated management features of the HAOS Supervisor and add-ons.
- **Virtual Machine:** Install a hypervisor like Proxmox on the laptop. Proxmox can emulate a UEFI BIOS, allowing you to install the standard HAOS image as a virtual machine. This is a great option if you want to run other services on the laptop as well.

The video below explains how to install Home Assistant on an old laptop with a generic x86 image.

Updated: How to Install Home Assistant on a Laptop with Generic x86 Image

Create a step by step on Create a small "bios_grub" partition

That's an excellent question! This is a more advanced but very effective method for getting Home Assistant to run on older hardware. I'll walk you through the steps using a Linux Live USB.

The core idea is to create a small, specific partition on your hard drive that the old BIOS can read. This partition will then contain a piece of software (GRUB) that can

read the modern Home Assistant OS partition table and boot the system.

Here's the step-by-step process:

Step 1: Boot from a Linux Live USB

First, you need to boot your non-UEFI laptop into a temporary operating system.

- Download a Linux distribution ISO, such as Ubuntu or Debian.
 - Use a tool like **Balena Etcher** or **Rufus** to "flash" the ISO onto a USB drive.
 - Insert the USB drive into your laptop, and boot from it. You may need to press a key like `F12`, `F2`, or `Del` during startup to access the boot menu and select the USB drive.
 - When prompted, choose to "Try" or "Live" the operating system without installing it.
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Step 2: Open a Partitioning Tool

Once you're in the live Linux environment, you'll need to open a disk partitioning utility.

- Open the terminal (usually by pressing `Ctrl + Alt + T`).
 - Launch `gparted`, which is a powerful graphical partition editor. You might need to install it first with `sudo apt-get install gparted`.
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Step 3: Identify Your Drive and Free Up Space

Before you make any changes, you need to be sure you're working on the correct drive.

- In `gparted`, look at the drop-down menu in the top-right corner. This shows all connected disks (e.g., `/dev/sda`, `/dev/sdb`).
- Select the drive where you've already flashed the Home Assistant OS image. It should have a **GPT partition table** and multiple partitions, including `hassos-boot`, `hassos-kernel`, and `hassos-data`.
- There may be some unallocated space after the last partition. If not, you'll need to **resize the last partition** to create about **10 MB of free, unallocated**

space at the beginning of the disk.

Step 4: Create the "bios_grub" Partition

Now you'll create the special partition for the bootloader.

- Right-click the unallocated space.
 - Select **New**.
 - For the size, enter `10 MB`.
 - Make sure the **File system** is set to `unformatted`.
 - Click **Add**.
 - Right-click the new 10 MB partition and select **Manage Flags**.
 - Check the box for `bios_grub` and click Close. This tells the system that this small partition is for the legacy GRUB bootloader.
 - Click the **"Apply All Operations"** button (usually a checkmark or similar icon) to write the changes to the disk.
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Step 5: Install GRUB to the New Partition

This is the final, and most technical, step. You'll use the command line to install the GRUB bootloader.

- Open a terminal if it's not already open.
- First, identify your main drive and the new `bios_grub` partition. It's usually `/dev/sda` for the main drive and something like `/dev/sda1` or `/dev/sda2` for the new partition. You can use the `lsblk` command to see all your disks and partitions.
- Next, run the following commands, replacing `/dev/sdX` with your drive name and `/dev/sdXN` with your `bios_grub` partition number.

Bash

```
# This command installs the legacy GRUB bootloader to your drive's MBR
sudo grub-install --target=i386-pc /dev/sdX
```

```
# Now you need to create a simple grub config file
# This is a critical step
```

```
sudo mkdir -p /mnt/boot/grub
echo 'set root=(hd0,gpt1)' | sudo tee /mnt/boot/grub/grub.cfg
echo 'configfile /efi/boot/grub.cfg' | sudo tee -a /mnt/boot/grub/grub.cfg
```

- The first line of the config file (`set root=(hd0,gpt1)`) tells GRUB to look at the first partition on the first hard disk, which is the HAOS boot partition. The second line (`configfile /efi/boot/grub.cfg`) then tells it to load the main configuration file that Home Assistant already created for UEFI. This successfully "bridges" the boot process.

Step 6: Reboot

- Unmount any partitions you might have mounted with the `umount` command.
- Shut down the laptop.
- Remove the Linux Live USB drive.
- Power the laptop back on. It should now boot directly into the Home Assistant OS.

Create a step by step on Create a small "bios_grub" partition but using a Windows Recovery USB bootable USB

Creating a `bios_grub` partition using a Windows Recovery USB is not a straightforward process because Windows' built-in disk management tools, including `Diskpart`, do not have a native command to set the specific `bios_grub` flag required by the GRUB bootloader. The `bios_grub` partition is a Linux-specific convention for legacy booting on a GPT-partitioned disk.

Therefore, you cannot create this partition with a standard Windows Recovery USB. The most reliable method remains using a bootable Linux USB with a partitioning tool like **GParted**, as described in the previous response.

Why Windows Tools Don't Work

- `Diskpart`: This command-line utility in Windows is powerful but operates with Windows-centric disk attributes. It can create, delete, and format partitions, but it lacks the functionality to assign a Linux-specific flag like `bios_grub`.

- **Disk Management:** This graphical tool is even more limited than `Diskpart`. It's designed for basic partition tasks within a Windows environment and does not support the advanced, non-standard partitioning schemes required for dual-booting or booting a Linux OS in a legacy BIOS/GPT configuration.

Alternative Method Using a Live USB

If you want to use a bootable USB, your best bet is to use a Linux-based one that includes the necessary tools.

1. **Create a bootable GParted Live USB.** GParted is a lightweight Linux distribution specifically designed for disk partitioning. You can download its ISO and use a tool like Rufus or Balena Etcher to create the bootable USB.
2. **Boot from the GParted Live USB.**
3. **Use GParted to create the `bios_grub` partition.** This is the same process as described previously:
 - Right-click on unallocated space.
 - Create a new partition of about **10 MB**.
 - Set the file system to **unformatted**.
 - Right-click the new partition and select **Manage Flags**.
 - Check the `bios_grub` flag.
 - Apply the changes.

While you might find third-party partition managers for Windows that claim to have more advanced features, they often still operate within the constraints of the Windows ecosystem. For this specific task, a Linux-based tool is the correct and most reliable approach.

The video provides a guide on how to install and use GParted Live from a bootable USB, which is the correct method for creating a `bios_grub` partition.

How to Use GParted Live to Resize Partitions

ChatGPT Version

Can the BIOS Grub be created and configured after the new drive being flashed?