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[Sumit D - VM](#)

Article Author

Created on September 23, 2021

## Convert an existing Windows 10 Installation from Legacy BIOS to UEFI

One of the critical [system requirements for Windows 11](#) is a GPT Installation, which must be based on **UEFI**. This article explains how to convert existing Windows 10 Installation from Legacy MBR partition scheme to UEFI, using Microsoft's MBR2GPT.exe tool without losing any data.

### Convert MBR to GPT without data loss

Windows has an in-built tool, called MBR2GPT which can help to convert a Legacy Windows 10 Installation(also called MBR), to modern UEFI, based on a GPT partition scheme. There are multiple steps involved in the process and some pre-requisites, discussed below:

Pre-requisites:

1. The MBR disk must have at **most 3-partitions**.
2. The OS must be **64-bit**.
3. **Bitlocker** or encryption must be turned **off**.
4. There should be an **Operating system on the disk**.
5. One of the partitions must be **active**(confirm that from disk Management).
6. **No dual boot**.
7. Windows 10 version must be **at least version 1703**.

### How MBR2GPT works.

MBR2GPT tool works by first validating the disk. An EFI system partition is created if the disk is validated and UEFI boot files are installed. After that, layout and Boot configuration data are updated, matching with the new values.

### Step 1: Boot to the Recovery environment

To boot to WinRE, from where Windows can trigger the MBR2GPT tool, please see the steps below:

1. On the Lock screen, **press and hold the Shift key** while choosing **Restart** from the Power menu. Continue pressing the shift key until you see the Windows Recovery environment, asking you to select an option.

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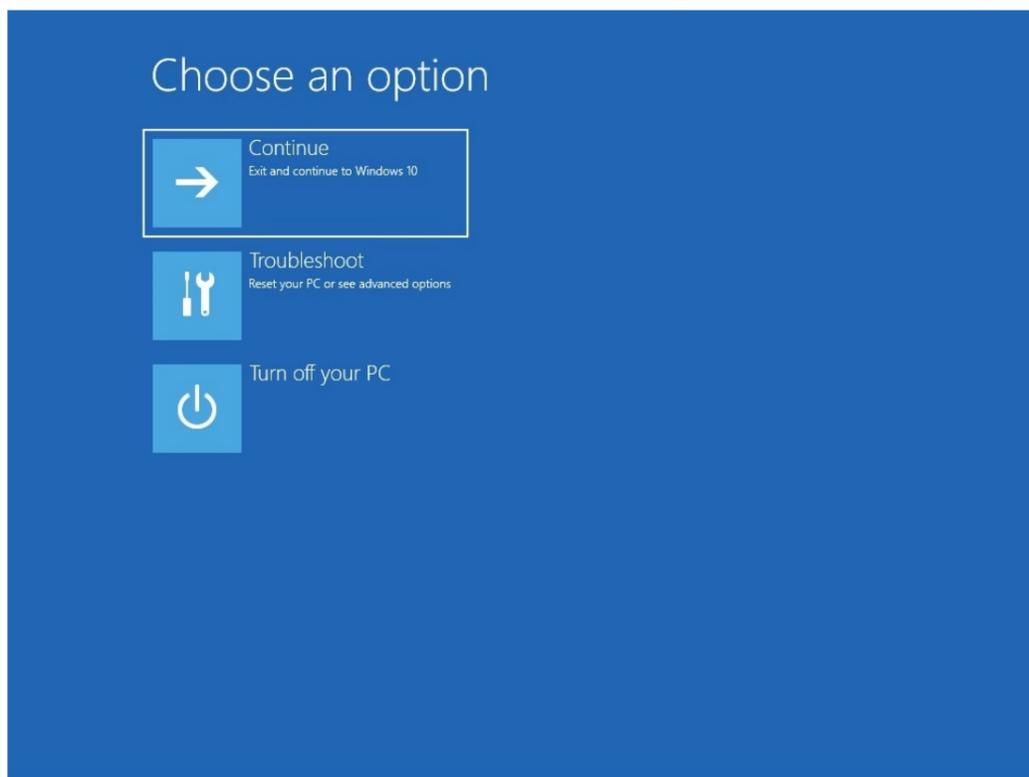
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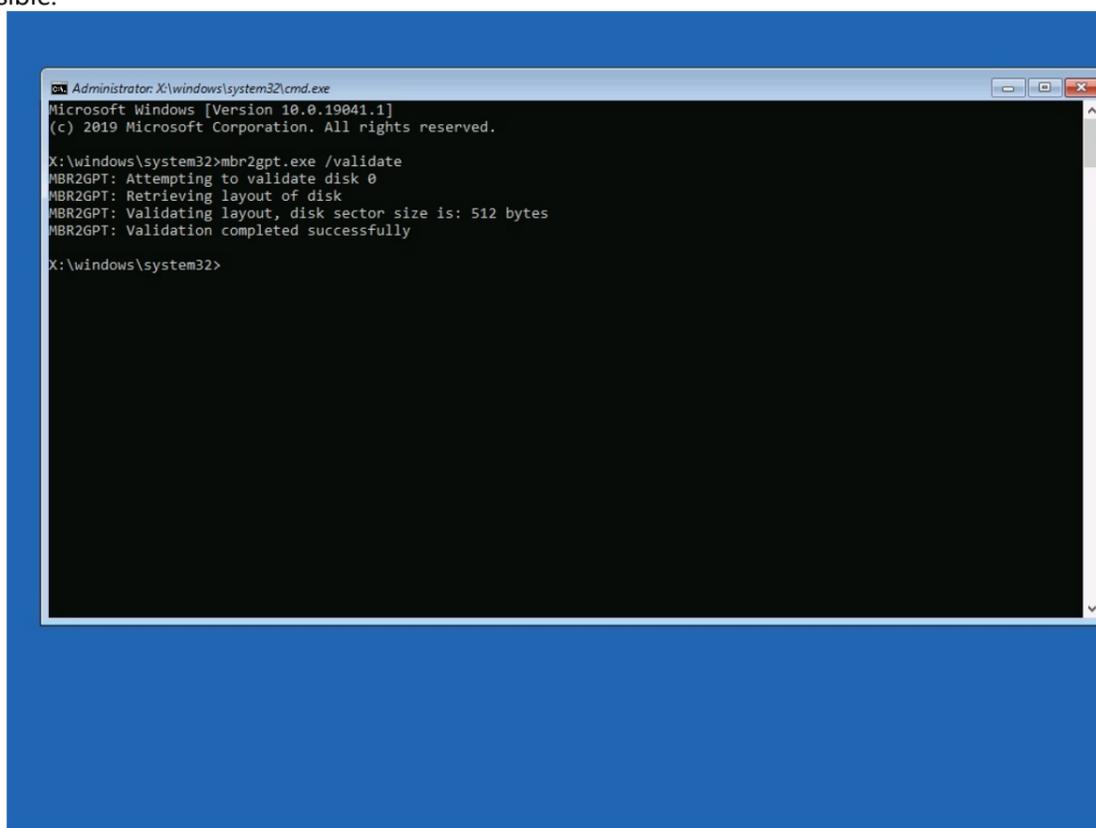
2. Click **Troubleshoot**>**Advanced options**>**Command Prompt**.
3. The computer would **restart**.
4. Login to your **account**.

### Step 2: Validate if the MBR2GPT tool can convert your disk

On the **Command Prompt Window**, our next step would be to check if the tool can convert the disk to GPT. To do this, execute the following command:

```
mbr2gpt.exe /validate
```

The output should tell you if the validation is successful. If the disk is validated, conversion is possible.



### Step 3: Convert the disk.

The next step is to convert the disk. For that, use the /convert switch.

```
mbr2gpt.exe /convert
```

The process would take some minutes and tell you the output.

```

Administrator: X:\windows\system32\cmd.exe
(c) 2019 Microsoft Corporation. All rights reserved.

X:\windows\system32>mbr2gpt.exe /validate
MBR2GPT: Attempting to validate disk 0
MBR2GPT: Retrieving layout of disk
MBR2GPT: Validating layout, disk sector size is: 512 bytes
MBR2GPT: Validation completed successfully

X:\windows\system32>mbr2gpt.exe /convert

MBR2GPT will now attempt to convert the default boot disk.
If conversion is successful the disk can only be booted in GPT mode.
These changes cannot be undone!

MBR2GPT: Attempting to convert disk 0
MBR2GPT: Retrieving layout of disk
MBR2GPT: Validating layout, disk sector size is: 512 bytes
MBR2GPT: Trying to shrink the OS partition
MBR2GPT: Creating the EFI system partition
MBR2GPT: Installing the new boot files
MBR2GPT: Performing the layout conversion
MBR2GPT: Migrating default boot entry
MBR2GPT: Adding recovery boot entry
MBR2GPT: Fixing drive letter mapping
MBR2GPT: Conversion completed successfully
Call WinRE to repair WinRE
MBR2GPT: Failed to update ReAgent.xml, please try to manually disable and enable WinRE.
MBR2GPT: Before the new system can boot properly you need to switch the firmware to boot to UEFI mode!

X:\windows\system32>

```

#### Step 4: Change the boot order in firmware Settings

Now to boot from GPT, the settings in the firmware need to be changed. Boot to the PC's firmware settings, and do the following:

1. **Boot method: UEFI from Legacy.**
2. **UEFI-CSM: Disabled.**
3. **Secure Boot: ON.**

The boot order would usually show Windows Boot Manager at the top. Save the changes in the BIOS menu.

The device should now have a UEFI boot method with a GPT disk layout.

#### Troubleshooting

If the MBR2GPT tool is failing to convert your installation, here are some steps you can try.

1. **Make sure the existing MBR disk has only three partitions or less:** If the qualifying hard disk has more than three partitions, this tool would not work. To confirm the number of partitions, you can invoke the disk management tool from the Start menu. The three-count includes System partitions as well. If that is the case, **decrease partitions** using the Disk Management tool by merging and try again.
2. **Run a disk check:** If there is corruption on the disk, the tool may fail. To fix this, run a full disk check, preferably from the Recovery environment. See the steps [here](#).
3. **Try running from a USB Installation media:** Another option to invoke the MBR2GPT tool from a [USB Installation media](#). After the computer has booted from the Installation media, click Repair your computer>Troubleshoot>Command Prompt.
4. **Return codes:** If the conversion failed, the tool would return a code, which would tell you what went wrong. Appendix A table explains the return codes.
5. **Investigate Log files:** If nothing has helped, it may be wise to look at the logs to see what went wrong. By default, the MBR2GPT tool creates **Setupact.log** and **Setuperr.log** in the C:/Windows directory, which records the process. **Setuperr.log** contains all the errors encountered during the conversion, which may give a hint. In addition, /logs switch can also redirect logging to a custom path if you need, like for an external drive which helps investigate later. The command for logging to a custom path would be like this(replace D:\Work with your desired path).
  1. **mbr2gpt.exe /convert /logs:D:\Work**
6. **If nothing has helped, perform a clean installation of Windows 10 using the GPT partition scheme.** You must back up the data before, as a clean install would remove everything. As the Media Creation tool makes the media according to the existing method, which is likely MBR, use Rufus to create Installation media and choose GPT partition scheme for UEFI. My colleague Shawn [has a good tutorial](#) on this on Tenforums.

#### Appendix 1:

Return Code	Details
0	Conversion completed successfully.
1	User canceled.
2	Internal error occurred.
3	Disk initialization error.
4	Command-Line parameters were incorrect.
5	MBR2GPT could not read the disk layout.
6	One of the volumes was encrypted on the disk.

7	The disk does not meet the requirements.
8	EFI Partition could not be created.
9	Error installing boot files.
10	Error while applying GPT layout.

## Resources:

[MBR2GPT - Windows Deployment | Microsoft Docs](#)

## Also check:

- [Check Windows 11 compatibility using these tools - Your Windows Guide](#)
- [Create a Windows 11 USB Flash drive - Your Windows Guide](#)
- [Clean Install Windows 11 - Your Windows Guide](#)
- [How to: Troubleshoot Windows 11 upgrade and Installation errors - Microsoft Community](#)

 [Sumit \(@\\_sumitdhiman\) / Twitter](#)

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[Leprechaun J](#)

Replied on September 24, 2021

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Hi Sumit,

Thank-You for the very well written and informative article. I'm sure it will help a lot of folks experiencing this problem when they try to install Windows 11.

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10 people found this comment helpful · Was this comment helpful?

[Yes](#) [No](#)



[Thorsson](#)

Replied on October 8, 2021

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This is all very clear, but when I get to step 4, it doesn't recognise my password. I suspect that somehow it's trying to login to an old local account rather than the one that's linked to my email, with a password I no longer remember, as I have been using a PIN since I upgraded to Windows 10, but maybe it's another issue.

Haven't managed to find anything that describes ths exact issue.

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[Sumit D - VM](#)

Article Author

Replied on October 11, 2021

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↳ [In reply to Thorsson's post on October 8, 2021](#)

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Haven't managed to find anything that describes ths exact issue.

Hi Thor,

Apologies for the delay. Can you create a new local admin account in Windows, and log in using the same?

Mark Yes below the post if it helped or resolved your problem

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2 people found this comment helpful · Was this comment helpful? Yes No

TH

[Thorsson](#)

Replied on October 12, 2021

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No. I tried that and Windows suggested that I would lose all my data. In the end I went through and tried every password I could recall using back when I first installed Windows (which was many years ago, as I used software to transfer the disk image last time I upgraded my SSD) and eventually (after about 90 minutes) I hit on the right one.

It does seem strange that although I have changed my password in Windows 10 two or three times that change is only valid while connected to the internet (and the PIN number too). It reminds me of the days when Windows sat on top of DOS and having to go into DOS to fix stuff.

[Comment](#)

Was this comment helpful? Yes No

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[Sumit D - VM](#)

Article Author

Replied on October 13, 2021

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I meant this:

[Add Local Account or Microsoft Account in Windows 10 | Tutorials \(tenforums.com\)](#)

If you add a separate account, your data on the current account is not touched. When asked for account in WinRE, use the new local account credentials.

Mark Yes below the post if it helped or resolved your problem

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2 people found this comment helpful · Was this comment helpful? Yes No

TH

[the steve randolph](#)

Replied on January 5, 2022

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I was sent to this article since I am having problems getting my hardware ready for Windows 11. I have not tried your steps, but, I have a suggestion. Some critical processes like this require rebooting the computer - with some requiring BIOS changes. Obviously we cannot keep this article/browser open during the entire process. I will print this article to use, but, why not create a printable and/or PDF copy of this article? I understand that it could be several pages long - especially with the screen captures. But, having a nicely formatted printout would greatly help with critical processes like this one.

[Comment](#)

7 people found this comment helpful · Was this comment helpful? Yes No

TH

[the steve randolph](#)

Replied on January 7, 2022

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I am unable to get this process started. In you "pre-requisites". it says "Windows 10 version must be at least version 1703".

I am running:

- Windows 10 Pro
- version: 21H2
- OS build: 19044.1415

In Step 1, I am able to complete "1." and have the same screen as your screencap. But, when I click on "Troubleshoot", the next screen is titled "Startup Settings". It lists about 8 reasons why one would want to do this and then I click on the only clickable option on the screen which is titled "Restart". After my computer reboots, I get a screen titled "Startup Settings" and it lists 9 different options for ways to boot into Windows. None of the options is "Advanced options" or "Command prompt". I press <F10> for more options and that displays another screen where the only option is to "Launch Recovery Environment". When I select that option, I get an error screen.

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[Sumit D - VM](#)

Article Author

Replied on January 7, 2022

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Hey Steve, the symptoms indicate the Windows Recovery environment is missing. Create a USB Installation Media using Media Creation Tool, and select Repair your computer at the first screen.

[Create Bootable USB Flash Drive to Install Windows 10 | Tutorials \(tenforums.com\)](#)

Choose Command Prompt and execute the commands from there.

Mark Yes below the post if it helped or resolved your problem

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[the steve randolph](#)

Replied on January 8, 2022

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Create a USB Installation Media using Media Creation Tool, and select Repair your computer at the first screen.

[Create Bootable USB Flash Drive to Install Windows 10 | Tutorials \(tenforums.com\)](#)

Choose Command Prompt and execute the commands from there.

The sequence of doing that seems confusing. Please clarify.

[Comment](#)

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TH

[the steve randolph](#)

Replied on January 8, 2022

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Hey Steve, the symptoms indicate the Windows Recovery environment is missing.

How could my Windows reach that state of being? How can I get it back?

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